EXECUTIVE SUMMARY

Biological Evaluation for Terrestrial and Aquatic Fish and Wildlife Species – Soil, Watershed and Fisheries Conservation Treatments on the Rio Grande National Forest and San Luis Valley Resource Area, BLM - Alamosa, Conejos, Costilla, Mineral, Rio Grande, Saguache, Hinsdale, Custer, San Juan and Archuleta Counties, Colorado

June 2003

Proposed Action Location:

The proposed actions are located across the Rio Grande National Forest, which includes approximately 1,852,000 acres of National Forest System lands. These NFS lands are located in Township 25 South through Township 29 South; Range 72 West and 73 West of the Sixth Principle Meridian; Alamosa, Costilla and Saguache, Colorado; and Township 48 North through Township 32 North; Range 12 East through Range 6 West, New Mexico Principal Meridians; Alamosa, Conejos, Costilla, Mineral, Rio Grande, Saguache, Hinsdale, Custer, San Juan and Archuleta Counties, Colorado. The proposed actions are also located across the San Luis Resource Area, which includes approximately 530,000 acres of Bureau of Land Management lands.

Purpose and Need:

This evaluation assesses the relative effects of soil, water and fisheries conservation treatments. Although soil, water and fisheries conservation treatments are included in existing programs guided by the recently revised Rio Grande National Forest - Land and Resource Management Plan [“Forest Plan”] and associated Biological Evaluation developed at that time (USDA-FS 1996a, USDI-FWS 1996b), this proposal would facilitate a more timely response to immediate watershed conservation needs. Similarly, this evaluation assesses the same soil, water and fisheries conservation treatments in association with the Bureau of Land Management - Resource Management Plan for the San Luis Resource Area [“SLRA’] and Record of Decision 1991 [“BLM RMP”] and Colorado Public Land Health Standards (USDI-BLM 1997). In the past, individual watershed projects have been approved after appropriate environmental analysis, which could be lengthy. This also resulted in duplicating efforts by analyzing similar watershed treatments at various site-specific locations. The proposed action will serve as a programmatic analysis, upon which site-specific projects will be tiered and analyzed.

Federal actions require evaluation of potential changed conditions since the 1996 RGNF Forest Plan revision and 1991 BLM RMP /1997 Health Standards regarding certain resources, especially species under the authority of Forest Service policy in Forest Service Manual 2670, and BLM policy H-1601-1(G) (Handbook H-6840). This programmatic evaluation approach is intended to ensure that soil, water and fisheries conservation treatments are consistent with current species status.

The following table summarizes the potentially affected species, major effects and, determination of effect of the proposed action on USDA Forest Service and USDI Bureau of Land Management Sensitive species potentially affected by the proposed actions (USDA-FS 1996a; USDI-FWS 2002; USDI-BLM 2003).

NI – No Impact; MI – May Impact Individuals, but is not likely to cause a trend towards Federal listing or loss of viability; BI - Beneficial Impact; LI – Likely to result in a trend towards federal listing or a loss of viability.		
Sensitive Species	**Determination**	**Mitigation Necessary Y/N**
Barrow's Goldeneye (BLM sensitive only)	MI	Contact local District/Field Biologist.
Big Free-tailed bat (BLM sensitive only)	MI	Contact local District/Field Biologist.
Black Tern (BLM sensitive only)	MI	Contact local District/Field Biologist.
Black Swift (FS sensitive only)	NI	None
Boreal Owl (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Boreal Toad (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas, Water purity, and Wildlife; and FSH 2509.25 (See Checklist), contact local District/Field Biologist.
Burrowing Owl (FS sensitive only)	MI	Contact local District/Field Biologist.
Ferruginous Hawk (FS and BLM sensitive)	MI	Contact local District/Field Biologist.
Flammulated Owl (FS sensitive only)	MI	Contact local District/Field Biologist.
Fox Sparrow (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Golden-Crowned Kinglet (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Gunnison sage grouse (FS and BLM sensitive)	MI	Contact local District/Field Biologist.
Lewis' Woodpecker (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Loggerhead Shrike (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Marten (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.

Mike snake (BLM sensitive only)	NI	None. Not documented in the San Luis Valley.
Mountain Plover (FS and BLM sensitive)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife; and BLM Health Standards (See Checklist), contact local District/Field Biologist.
Northern Goshawk (FS and BLM sensitive)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife; and BLM Health Standards (See Checklist), contact local District/Field Biologist.
Northern Leopard Frog (FS and BLM sensitive)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas, Water purity, and Wildlife; and FSH 2509.25 and BLM Health Standards, contact local District/Field Biologist.
Olive-Sided Flycatcher (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Osprey (FS sensitive only)	MI	None, in addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Peregrine Falcon (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Pygmy Nuthatch (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Rio Grande chub (BLM sensitive only)	MI	Contact local District/Field Biologist.
Rio Grande Cutthroat trout (FS and BLM sensitive)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas, Water purity, and Wildlife; and FSH 2509.25 and BLM Health Standards, contact local District/Field Biologist.
Texas horned lizard (BLM sensitive only)	NI	None. Not documented in San Luis Valley.
Three-toed Woodpecker (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Tiger Salamander (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas, Water purity, and Wildlife; and FSH 2509. (See Checklist), contact local District/Field Biologist.
Townsend's Big-eared bat (FS and BLM sensitive)	MI	Contact local District/Field Biologist.

White-faced ibis (FS and BLM sensitive)	MI	Contact local District/Field Biologist.
White Pelican (BLM)	MI	Contact local District/Field Biologist.
Wolverine (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Yellow-billed Cuckoo (BLM sensitive only)	MI	Contact local District/Field Biologist
Yuma myotis (BLM)	MI	Contact local District/Field Biologist.

Population Viability Risk Assessment

Population Viability concepts are discussed (as information is available) with each species ecology narrative at various geographical levels of consideration. Overall viability of any Forest Service or SLRA Sensitive species potentially affected by the proposed action(s) is not at risk due to:

1. The direct purpose and need of the soil, water and fisheries conservation treatments is to restore currently unsuitable, degraded sites, which results in anticipated beneficial changes of habitat values in the long-term;

2. The actions being reasonably controllable situations and proactive in nature;

3. A comprehensive Habitat / Species Checklist is developed to avoid potential suitable habitats that might be occupied by individuals during key species' life history periods (e.g. nesting);

4. The actions not being major construction activities - a construction project (or other undertaking having similar physical effects) which is a major Federal action significantly affecting the quality of the human environment as referred to in the National Environmental Policy Act (NEPA, 42 U.S.C. 4332(2)(C)) [50 CFR §402.02];

5. The effect of the action(s) would be potential short-term disturbances to any animal that might randomly be at the project site at the moment of visitation by people. Any animal would react in an indifferent or flee behavioral-mode depending upon the individual's tolerance to humans;

6. The soil, water and fisheries conservation treatments have appropriate RGNF Land and Resource Management Plan direction, standards, and guidelines ('mitigation') incorporated. Land and Resource Management Plan direction, standards, and guidelines have been developed as a result of assessments of ecological processes, habitat distribution, and species ecology. Similarly, treatment projects have appropriate1991 BLM RMP /1997 Health Standards regarding certain resources, especially species under the authority of BLM policy H-1601-1(G) (Handbook H-6840). Evaluations are specifically tiered to ESA Species Recovery Plans, Species Conservation Strategies, which provide for overall RGNF biodiversity and incorporates species viability factors.

Introduction

The Forest Service has developed a policy regarding the designation of plant and animal species (Forest Service Manual 2670; supplement 2600-94-2). The Regional Forester's Sensitive Species (FSS) list contains taxa only when they meet 1 or more of the following 3 criteria: 1) the species is declining in numbers or occurrences and evidence indicates it could be proposed for federal listing as threatened or endangered if action is not taken to reverse or stop the downward trend; 2) the species' habitat is declining and continued loss could result in population declines that lead to federal listing as threatened or endangered; 3) the species' population is stable but limited. Similarly, the BLM has policy for Sensitive Species under the authority of BLM policy H-1601-1(G) (Handbook H-6840). Federally listed Threatened, Endangered or Proposed species are addressed in the project's Biological Assessment, a separate document.

The proposed action provides a programmatic analysis to all of the soil, watershed and fisheries conservation treatments routinely practiced on the RGNF and SLRA, thereby providing a consistent approach to analysis of effects. When projects are proposed, specialists would then conduct site-specific analysis using a checklist to assure that implementation is consistent with Plan goals and objectives, and that effects are consistent with those described in this assessment.

The following treatments are routine soils, watershed and fisheries conservation treatments that are typically implemented on the RGNF and SLRA. Please refer to Appendix C of the EA, which contains definitions and descriptions of proposed treatments.

Conservation Treatments and Description of Action:

Erosion and Sediment Control Practices

1. Use of erosion fabrics, mulches, hydromulches, tackifiers, fiber applications, sodding, fiber-filled wattles, plugging with native plants, weedfree straw and applications to stabilize soils from erosion.
2. Use of erosion control structures such as slash check dams, silt fence, mulch ridges, rock check dams, wire-bound rock check dams, single and double fence rock check dams are structures designed to keep soils in place.
3. Use of sediment traps such as pit catchments or sediment collection basins.
4. Drainage structures, repairing, pulling, relocating or cleaning culverts, improving drainage spacing, waterbarring, drainage dips, creating filter strips.
5. Construct physical earth barriers to restrict uses in areas needing restoration.
6. Fencing areas in need of reclamation
7. Head-cut control structures.
8. Structures to divert stream or ditch flow in order to prevent channel erosion or redirect flow while restoration work is occurring.
9. Minor stream restoration measures including vanes, jetties and grade control structures.
10. Planting of willows and other vegetation for restoration of riparian areas, stream banks or disturbed areas.

Reclamation or Restoration Practices

1. Adding soil amendments such as lime, fertilizer, organic matter, compost, manure, and topsoil to soils for enhanced productivity
2. Bioremediation, which is the use of concentrated livestock to reclaim areas impoverished of topsoil.
3. Seeding native plant materials if available when technically feasible. Use certified weed-free seed materials. Use local genotypes when available.
4. Planting trees or shrubs to stabilize soils and watersheds.
5. Using mechanical aerator on compacted soils (shown in photo). This is a farm implement that is drawn by tractor. Its knife-like teeth penetrate compacted soils, aerate the soil, without destroying the sod surface.

6. Rip or subsoil densely compacted layers to restore soil porosity, infiltration and productivity.

Streambank Stabilization and Aquatic Habitat Practices

1. Use of rock rip rap or other structures to stabilize streambanks only where necessary. Use natural reclamation and stabilization in other instances.
2. Use suction dredging to remove sediments from streams.
3. Construction of “soft “structures, using bio-engineering approaches. This technique includes the use of soft erosion control materials like straw wattles in combination with willow plantings.
4. Construct headgates, drop structures or other structures that create or enhance wetlands so long as they are compatible with fisheries goals.

Fisheries Improvements

1. Use rock or structural placements into stream systems to improve fish habitat
2. Use logs, stumps and other structures to naturally restore fish habitat.
3. Use fencing to enhance fisheries habitat
4. Remove unnecessary structures where they cause damages to streams or soils
5. Construct or re-construct fish migration barriers for use in restoring native fish populations.
6. Remove fish migration barriers when they are not desired.
7. Develop spawning habitat through spawning channel development and placement of gravels.
8. Enhance pool habitat through reconstruction of stream channel (restore meander pattern) or pool excavation.

Soil, watershed and fisheries conservation treatments are generally applied to small areas, locations, and specific streams. Project size may be a small as a few acres up to several hundred acres in size. They usually do not disturb extensive areas. In many cases, the treatments are applied to areas that are already disturbed to some extent, so the treatments help restore damaged areas. Construction of these treatments may last from a few days to a few months, depending on the combination of treatments needed, weather, and other factors. Actions may occur in combination as well. Treatments are generally focused in watersheds of need.

Treatment Design Features

The conservation treatments described are, in effect traditional specific mitigation measures for other projects on the RGNF. The conservation treatments are consistent with the RGNF Forest Plan forest-wide and management area prescription standards and guidelines and Watershed Conservation Practices Handbook (FSH 2509.25) direction to restore and protect watersheds and fisheries. The conservation treatments described are traditional measures of the BLM through direction of the Standards for Public Land Health (1997) RMP amendments.

All standards and guidelines of each appropriate Agency's Land Management Plans would be followed.

A key design feature for this programmatic approach is to use Project-level Checklist's (on-the-ground) specifically developed to avoid or reduce potential impacts to Forest Service and BLM Sensitive species consistent with this biological evaluation. Some treatments are not appropriate in designated wilderness such as fencing, culverts, and mechanical aeration.

Location/Map:

The proposed actions are located across the Rio Grande National Forest, which includes approximately 1,852,000 acres of National Forest System lands. These NFS lands are located in Township 25 South through Township 29 South; Range 72 West and 73 West of the Sixth Principle Meridian; Alamosa, Costilla and Saguache, Colorado; and Township 48 North through Township 32 North; Range 12 East through Range 6 West, New Mexico Principal Meridians; Alamosa, Conejos, Costilla, Mineral, Rio Grande, Saguache, Hinsdale, Custer, San Juan and Archuleta Counties, Colorado. The proposed actions are also located across the San Luis Resource Area, which includes approximately 530,000 acres of Bureau of Land Management lands.

Assumptions and Methodology

The following biological accounts and determinations are based on the best available information (NEPA 40 CFR 1500). For the species considered here, habitat quantity and quality for the whole population(s) cannot be known with exact precision, but rather can only be approximated. This assumption is especially true where BLM land parcels have some degree of dispersed juxtaposition amongst other land-ownerships. Some parcels are adjacent or within other Federal land jurisdiction and some smaller parcels are adjacent or surrounded by State, municipal or private lands, thus, having very limited potential suitability by themselves. As a consequence, conservative definitions of habitat and conservative modeling procedures are used to provide the most appropriate means for describing potential or likely impacts. The preponderance of this evaluation depends upon representative habitat relationships and modeling concepts. Species-to-habitat relationships have been developed over the years within the Forest Service - Rocky Mountain Region (USDA-FS 1994; USDA-FS 1981; Hoover and Wills 1984), State of Colorado (CDOW 1994; CDOW 1978), Colorado Natural Heritage Program (CNHP 2002, 2001, 2003), by regional authors such as Leukering et. al. (2001, 2000), Andrews and Righter (1992) and Fitzgerald et al. (1994), and by other authors as specifically cited. These sources of wildlife and plant relationship knowledge have incorporated much national-oriented knowledge of species, subspecies, or varieties of wildlife or plants (USDA-FS 1979). As a consequence, this is an evaluation of the existing condition, predicted impacts, and predicted future condition of the wildlife and rare plant habitats (36 CFR 219.19). Because species cannot exist without their supporting habitats, habitats are evaluated and can be somewhat predicted. This approach provides a conservative evaluation of impacts on individuals and, thus to a degree, the larger population for certain species as appropriate.

The National Forest Management Act (NFMA) requires Forests to "provide for diversity of plant and animal communities and tree species consistent with the overall multiple use objectives of the planning area". The "planning area" is not specifically defined, however, implies the Forest-level scale. The Act also requires forests to "maintain viable populations of all native and desired non-native wildlife vertebrate species in the planning area". The Act defines a viable population as one having "the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area".

The Endangered Species Act also requires Federal managers to "manage habitat for all existing native and desired non-native plants, fish, and wildlife species in order to maintain at least viable populations of such species", conduct activities and programs "to assist in the identification and recovery of threatened and endangered plant and animal species" and to avoid actions "which may cause a species to become threatened or endangered". This evaluation includes an analysis of effects for three candidate species, the boreal toad (*Bufo boreas boreas*), Gunnison sage-grouse (*Centrocercus minimus*) and the Yellow-billed cuckoo (Coccyzus americanus).

Most species potentially occurring on the Rio Grande National Forest and adjacent SLRA- Bureau of Land Management also occur at larger scales. The Rio Grande National Forest – Land and Resource Management Plan describes the "Hierarchy of Ecological Units" including Subsections - Sections (1,000's to 10's of square miles), and the Province – Division – Domain (1 millions to 10 thousand square miles) ecological units (USDA-FS 1996a), as well as, the role that the RGNF plays in comparison to these units. These ecological units include the SLRA-BLM lands, although not articulated as such. Many species have ranges so large that what activity occurs at the acre is so small as to not have a measurable effect on overall population viability. Historically, viability at the Forest-level scale had not been an issue. The concern is that many small actions over time could cumulatively add-up to adversely affect population viability, if the concern was not addressed at smaller scales. Thus, recent analyses of project or program effects to species of concern and their habitats are analyzed for potential effects at multiple scales – disturbance scale, project scale, and landscape scale as appropriate to species ecology. Revised RGNF Land and Resource Management Plan direction, standards, and guidelines have been developed in consideration (as information is available) of many species' viability concept factors through Regional Biodiversity Assessment efforts (USDA-FS 1992).

Marcot and Murphy (1996) suggest a 9-step process for Viability Risk Management (decision- making), as well as, a method for prioritizing species for viability concern. Prioritization of species is beyond the scope of this document, in that; species of concern to potentially evaluate have already been established (Forest Service Sensitive species 1994). The complete Viability Risk management process is beyond the authority of this evaluation. Thus, this evaluation will discuss portions of the process including:

1. Describe the species;
2. Describe pertinent regulations and laws;
3. Describe species conditions and ecology;
4. Analyze how the project or alternatives affect population size, distribution, and persistence, resource trade-offs, and social concerns."

    - Demographic factors such as:
        - Life history, population, distribution, and dispersal potentials within the landscape;
    - Habitat factors such as
        - Amount, quality and distribution of habitat; and
    - Environment factors:
        - Disturbance regimes likely within the landscape, successional pathways, and vulnerability to catastrophic events.

Demographics, habitat and environmental factors rarely function independently. Loss of habitat or increases in disturbance (natural or man made) results in changes in population levels and distribution affect demographics. However, at any given point in time, one of the factors may be dominant in determining the likelihood of species persistence within the analysis area.

This assessment tiers to historical environmental analyses including the Rio Grande National Forest (RGNF) Revised Land and Resource Management Plan (Revised Forest Plan) and Final Environmental Impact Statement (FEIS) (USDA-FS 1996), which includes biological assessments and evaluations; and the recent Biological Evaluation for the MIS Rio Grande Forest Plan Amendment (USDA-FS 2003).

Habitat Overview

Soil, watershed and fisheries conservation treatments are on National Forest System lands generally above 7,800 feet and below 14,000 feet in elevation. BLM lands generally occur between 7,700 and 9,400 feet in elevation. National Forest areas are generally dominated by forested ecosystems. BLM areas are dominated by woodlands and non-forested habitats. Terrestrial habitats likely affected include aspen forest, ponderosa pine forest, Douglas-fir forest, lodgepole pine forest, spruce-fir forest, pinyon-juniper woodlands, sagebrush, oakbrush and alpine tundra. Aquatic-oriented habitats potentially affected include rivers, streams, lakes, and riparian / wetlands. National Forest non-forested habitats are generally dominant above 11,800 feet in elevation; otherwise the habitats are inclusions (patches) within the forested landscapes.

Timing/Duration

Soil, watershed and fisheries conservation treatments occur during spring (mid-May) through fall (October), emphasizing snow-free conditions. Typical day-activities range between 7:00a through 6:00p.

The Revised Forest Plan Appendix-A discusses the Historic and Natural Ranges of Variability of the ecosystems and wildlife of the Forest. In simplistic summary, the RGNF has gone under various major changes for differing reasons including fire occurrence, fire suppression, heavy livestock grazing, wood product removal (green and dead), as well as, climatic events. Providing perspective on the ecology of past disturbances assists impact evaluation by relating the relative tolerance of habitat or wildlife species to certain disturbances over time or at varying magnitudes, all important to determining the significance of change to any species. Some species such as large carnivores, big game, and small mammals suffered from direct human harvest or planned eradication to reduce threats to humans. Some species have survived and some are extirpated (extinct). Many forest-oriented species that occurred prior to much of the Forest burning (before and between 1820 and 1900) or Forest timber cutting (between 1850 and 1949), have survived that era, thus, demonstrating that species have some innate degree (although unknown) of resilience to major disturbance. All species associated with Colorado's natural resources have evolved as a part of the constantly changing environment. Limiting factors have been identified for some species, which has resulted in profound 'recovery' for these species, including Colorado's elk, bighorn sheep, bald eagle and peregrine falcon.

Species Considered and Species Evaluated

Forest Service and BLM Sensitive species potentials and rationale for selection / non-selection are summarized in Table-1. This evaluation considers fish and wildlife species, only, due to plants being evaluated in separate documents. Thirty four species were considered including 5 amphibian/reptiles, 2 fish, 23 birds, and 4 mammals.

The habitat of several species is very limited on the Forest or is adjacent to the Forest, including black swift, burrowing owl, ferruginous hawk, white-faced ibis, Gunnison sage-grouse, and Townsend's big-eared bat. These species could occur on BLM lands and are considered in this analysis.

Two BLM Sensitive species do NOT have suitable habitat potentially affected by soil, watershed and fisheries conservation treatments in any season on the SLRA or analysis areas as a while. There are no documented occurrences of milk snake and Texas horned lizard. The soil, watershed and fisheries conservation treatments as described are not anticipated to potentially affect these two species, thus, these species are discussed no further in this document.

Table I: Species List and Habitat Description

All species are summarized in Table II Determination Summary and Mitigation.

Sensitive Species	Suitable Habitat w/in Project Area	Species Documented w/in or near Project Area	Basic Habitat Description
Barrow's Goldeneye *Bucephala islandica*	Yes, BLM only	Yes – BLM, Blanca wetlands	Closely associated with lakes and large rivers.
Big Free-tailed Bat *Nyctinomops macrotis*	Yes, FS and BLM	Yes for both	Forages in semi-desert shrublands, pinyon-juniper woodlands and open montane forests. Roosts in caves, mines and mature forests.
Black tern *Chlidonias niger*	Yes, BLM only	Yes – BLM, Blanca wetlands	Marshes, swamps, ponds and rivers. Forages on aquatic species.
Black Swift *Cypseloides niger*	Yes, FS and BLM	Yes – FS, on state lands managed by BLM	Nests behind or next to waterfalls and wet cliffs. Forages over forests and open areas.
Boreal Owl *Aegolius funereus*	Yes, FS and BLM	Yes – FS, Potential limited for BLM	Spruce/fir and mixed conifer forested areas
Boreal Toad *Bufo boreas boreas*	Yes, FS and BLM	Yes – FS, Potential limited for BLM	Spruce/fir near water and alpine meadows
Burrowing Owl *Athene cunicularia*	Yes, FS and BLM	Limited potential on FS, BLM - Yes	Open grasslands associated with prairie dogs. Nests and roosts in burrows dug by mammals or other animals.
Dwarf Shrew *Sorex nanus*	Yes, FS and BLM	No - both FS and BLM, assume occupancy in suitable habitat in absence of surveys.	Forested, rock and open areas. Forest generalist.
Ferruginous Hawk *Buteo regalis*	Limited nesting potential –FS and BLM	No nests document but a documented migrant on both FS and BLM.	Open grasslands and shrub steppe communities. Nests in tall trees or shrubs along streams or on steep slopes
Flammulated Owl *Otus flammeolus*	Yes, FS and BLM	Yes for both FS and BLM	Open ponderosa pine or mixed conifer forests-secondary cavity obligate.
Fox Sparrow Passerella iliaca	Yes, FS and BLM	Yes for both FS and BLM	Nests in dense shrubbery undergrowth
Golden-Crowned Kinglet *Regulus satrapa*	Yes, FS and BLM	Yes – FS, Potential limited for BLM	Mature, dense spruce/fir is preferred nesting habitat. Winters in other forested areas.

Gunnison Sage-grouse (FC) *Centrocercus minimus*	Yes, FS and BLM	Limited potential on FS, Yes - BLM	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 and meadows within upland vegetation communities.
Lewis' Woodpecker *Melanerpes lewis*	Yes, FS and BLM	Yes for both FS and BLM	Large ponderosa pine and riparian cottonwoods
Loggerhead shrike *Lanius ludovicianus*	Yes, FS and BLM	Yes for both FS and BLM	Grassy pastures that are well grazed. Nests in shrubs or small trees, preferably thorny such as hawthorn.
Marten *Martes americana*	Yes, FS and BLM	Yes – FS, Potential limited for BLM	Spruce/fir and mixed conifer forests with complex physical structure.
Mountain Plover *Charadrius montanus*	Yes, FS and BLM	Yes- BLM, Potential limited on FS	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.
Northern Goshawk Accipter gentilis	Yes, FS and BLM	Yes for both Fs and BLM	Mature forest generalist.
Northern Leopard Frog *Rana pipiens*	Yes, FS and BLM	FS -No, assume occupancy in suitable habitat. Documented at Blanca wetlands.	Riparian and wetland areas.
Olive-Sided Flycatcher *Contopus cooperii (*formerly *borealis)*	Yes, FS and BLM	Yes – FS, Potential limited for BLM	Mature spruce/fir or Douglas-fir forests
Osprey *Pandion haliaetus*	Yes, FS and BLM	Yes – FS, Potential limited for BLM	Closely associated with lakes and large rivers with large populations of fish.
Peregrine Falcon *Falco peregrinus anataum*	Yes, FS and BLM	Yes for both FS and BLM	Cliff habitat over 200 feet high with suitable ledges for nest construction.
Pygmy Nuthatch *Sitta pygmaea*	Yes, FS and BLM	Yes for both FS and BLM	Open mature ponderosa pine stands.
Rio Grande chub Gila pandora	Yes, FS and BLM	Yes – FS, Potential limited for BLM	Down stream Rio Grande river system affected by dewatering issues.
Rio Grande Cutthroat Trout *Oncorhynchus clarkii virginalis*	Yes, FS and BLM	Yes – FS, Potential limited for BLM	Streams, rivers and lakes. More frequently found in headwaters.
Three-toed Woodpecker *Picoides tridactylus*	Yes, FS and BLM	Yes – FS, Potential limited for BLM	Spruce/fir forests primarily, dependant upon bark beetle populations.
Tiger Salamander *Ambystoma tigrinum*	Yes, FS and BLM	Yes – FS and BLM	Non-flowing or slow flowing water bodies.
Townsend's Big-eared Bat Corynorhinus t. pallescens	Yes, FS and BLM	Yes – FS, Potential on BLM	Forages in semi-desert shrublands, pinyon-juniper woodlands and open montane forests. Roosts in caves, mines and mature forests.
White-faced Ibis *Plegadis chihi*	Yes, BLM only	Yes –Blanca wetlands and McIntyre/Simpson	Marshes, swamps, ponds and rivers. Forages on aquatic species.

White pelican Pelecanus erythrorynchos	Yes, BLM only	Yes – BLM, Blanca wetlands	Closely associated with lakes and large rivers with large populations of fish.
Wolverine *Gulo gulo luscus*	Yes, FS and BLM	Yes, historic for both FS and BLM	Remote subalpine and spruce/fir forested areas.
Yellow-billed Cuckoo (Coccyzus americanus occidentalis)	Yes, BLM only	Documented at McIntire Springs on BLM	Riparian habitat with mature cottonwood forests and dense undergrowth.
Yuma myotis (Myotis yumanensis)	Yes, FS and BLM	Yes for both FS and BLM	Forages in semi-desert shrublands, pinyon-juniper woodlands and open montane forests. Roosts in caves, mines and mature forests.

Survey/Occurrence Information

Initial survey/occurrence searches occurred utilizing local and regional sources including the Rio Grande National Forest files (USDA-FS 1998, 2002b); the SLRA files (USDI-BLM 2003); the Colorado Natural Heritage Program (CNHP 2002, 2001); Rocky Mountain Bird Observatory (Leukering et.al.1999, 2001, 2002), Rawinski 2001; Schultz 2002; Schultz and Zahratka. 1998; and the Colorado Division of Wildlife (CDOW 2001a). Many occurrences are documented as portions of the Breeding Bird Survey and Atlas work. No other surveys have been completed for soil, watershed and fisheries conservation treatments primarily due to this evaluation being a programmatic approach and due to the treatments affecting degraded sites, which results in anticipated stabilization or beneficial changes of habitat values in the long-term.

The Rio Grande National Forest has had no large-scale structured surveys for many Forest Service Sensitive species. Similarly, the SLRA has had no large structured survey for their species of concern. Typically, surveys have been limited to pre-project surveys for species such as northern goshawk nests, boreal owls, and amphibians. Any avian population trend estimates utilize existing data based from Breeding Bird Surveys (Kingery [ed.] (1998), *Monitoring Colorado Birds* data (Leukering et.al.1999, 2001, 2002), and the Colorado Division of Wildlife database (2001a). Additional avian sensitive species data is anticipated through continued *Monitoring Colorado Birds* efforts.

Species Evaluated

Barrows Goldeneye
(*Bucephala islandica*)

Distribution and Status

"Rare winter resident and spring and fall migrant in western valleys, mountain parks, and on eastern plains near foothills" (Andrews et al, 1992).

From Nature Serve: *"BREEDS: southeastern Alaska, northern Mackenzie, northwestern British Columbia south to eastern Washington, southwestern Oregon, eastern California; Colorado Rockies; Quebec, Labrador, Greenland, Iceland. WINTERS: southern Alaska south along coast to central California (mainly from Washington northward); locally from southern British Columbia and northern Montana to northern Nevada, Utah, Colorado; from Gulf of St. Lawrence south to New York, rarely to South Carolina".* Nationally secure and state imperiled (Nature Serve).

Life History

Summer, inhabits wooded lakes and beaver ponds. In winter, coastal waters and inland rivers.

SLRA - BLM Status
Documented amongst hundreds of Common goldeneyes at San Luis Lakes in February-March 1990 by John Rawinski.

Trend
Unknown.

Big Free-tailed Bat
(Tadarida macrotis)

Distribution and Status
From NatureServe Explorer (2002): *"South America (southern Bolivia, Uruguay, and northeastern Argentina) and the Caribbean (Cuba, Jamaica [not common], Hispaniola) north through Central America and Mexico into the western United States (southern and western Texas to southern California (Constantine 1998) and southeastern Nevada, north to central Colorado and western Utah; extralimital records for British Columbia, Iowa, Oklahoma, and Kansas (Schmidly 1991, Mark Lomolino, pers. comm., 1998). There are large areas of Central and South America for which no records exist (Schmidly 1991). Nursery colonies have been found in Texas, Arizona, and New Mexico (Schmidly 1991, Arizona Game and Fish Department 1997, New Mexico Department of Game and Fish 1997). Winter records exist for California, Arizona, and Texas (only one record; see Schmidly 1991). The known elevational range is from near sea level to about 2,600 meters (Western Bat Working Group 1998). Wanders north in late summer and fall (Schmidly 1991)".*

The Colorado Heritage Status Ranking is S2 (?), which means imperlied in association with breeding and non-breeding (NatureServe 2002).

Life History
From NatureServe Explorer (2002): *"Habitat Comments: Rocky areas in rugged country, at least in southwestern U.S. and Mexico. In Texas, most have been netted in lowlands of river floodplain-arroyo association; also in shrub desert and woodland habitats. Has been captured in evergreen forest at 2440 m in New Mexico, and mainly below 1800 m in southwestern U.S. In Mexico, taken over streams in areas of mixed tropical deciduous forest and thorn forest. Netted over a pool in thorn forest in Bolivia. Roosts in rock crevices (vertical or horizontal) in cliffs; also in buildings caves, and occasionally tree holes (Milner et al. 1990). Winter habits unknown. Maternity colonies occupy rock crevices. Evidently colonies may occupy the same crevice in successive years. Feeds primarily on large moths, occasionally eats crickets, longhorned grasshoppers, flying ants, stinkbugs, froghoppers, leafhoppers, and other insects (Schmidly 1977, Milner et al. 1990)".*

This species and its habitat association with cave and abandoned mine habitats are potentially threatened by adverse disturbance

Trend
NatureServe Explorer (2002) provides comment as to trend: "Information on population trends is not available. However, may be stable in Arizona (Arizona Game and Fish Department 1997). Threats have not been identified. However, some general threats to bats could apply. These could include impacts to foraging areas from grazing, riparian management, the use of pesticides, and in some places disturbance to roost sites (e.g., blasting of cliffs or water impoundments) (Western Bat Working Group 1998). Possibly limited by the availability of large, obstacle free drinking sites (Tuttle 1996). Such sites are known to have decreased in number since historic times (New Mexico Department of Game and Fish 1997). Special precautions should be taken when mine and cave surveys are conducted during breeding

periods and winter hibernation. Disturbance of breeding colonies can cause young to lose their grasp and fall to their death. Disturbance during hibernation can cause bats to use up stored fat reserves and starve to death. Considered very threatened in northern Mexico (Andres Villareal Lizarraga, pers. comm., 1998). Other Considerations: Occurrence criteria may vary among natural heritage programs. Some programs may consider roost sites as occurrences whereas others may use all collection records".

Rio Grande National Forest and SLRA-BLM Status
Surveys have not been conducted and status is unknown. A large population is known adjacent to BLM lands in the Poncha Pass area.

The precise unknown status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation due to potential Big Free-tailed bat habitat [emphasizing hibernacula] being easily identifiable (caves, abandoned mines). Additionally, risk is reduced by protective measures being applied consistent with current management actions, BLM standards and guidelines, and the species having adapted to an array of natural disturbance.

There are no known population viability tools, processes, or protocol for Big Free-tailed bat. The only criteria available to evaluate for Big Free-tailed bat is habitat criteria.

There are no PVA models, processes, or protocols for Big Free-tailed bat. There is abundant potential habitat available for the species across the Rocky Mountain Region. There's occasional occurrence information (Fitzgerald et. al 1994) to suggest these acres are occupied within ranges of historic ecological variation, more information than there is to say not.

Black Tern
(*Chlidonias niger*)

Distribution and Status
"Rare to uncommon migrant in western valleys and mountain parks" (Andrews et al, 1992). Likely breeder in the San Luis Valley and have been seen at Home Lake and San Luis Lake (Rawinski, 2002). Seen at Head Lake, Adams Lake, Medano Ranch, Rock Creek bridge, Russell Lakes, Alamosa National Wildlife Refuge and Monte Vista National Wildlife Refuge (San Luis Valley data base, 2003). Apparently secure nationally and imperiled at the state level.

Life History
Inhabits fresh marshes, lakes in migration, also coastal waters.

SLRA - BLM Status
Four adults were observed feeding at the Blanca wetlands on the 20th May 2002 (Clark).

Trend
Unknown.

Black Swift
(Cypseloides niger)

Distribution and Status
Kingery [ed.] (1998) reports black swift occurring *"in scattered colonies in western North America, from southeast Alaska to central Mexico, migrating to the Neotropics in winter".* Andrews and Righter (1992) cite black swift *"as a locally uncommon to fairly common summer resident in the San Juan mountains, and rare to uncommon, very locally in most other mountain ranges in the State, north to the Park Range and the Front Range".*

Kingery et al. (1998) also documents that 26 of 27 nesting colonies identified in the 1950's had black swift recorded during atlas efforts. The Colorado Heritage Status Ranks the black swift as S3B, which translates to "vulnerable to extirpation or extinction associated with breeding".

Life History
From Schultz and Levad 2003: ***"****Black swifts nest on precipitous cliffs near or behind high waterfalls in the mountains. Foraging birds range at high elevations over most montane and adjacent lowland habitats. Black swifts are most common from 7,500 to 10,500 feet in elevation. They migrate north in May and leave the forest in September. Nests are constructed from mud, mosses, or algae, and are located on ledges under overhanging rocks, often behind a waterfall, or in a cave. They lay a single egg and are suspected of raising only one brood per season (Ehrlich et al. 1988). Eggs are typically laid from June to July. Due to the specific nesting requirements for black swifts they may have never been very abundant in Colorado. Although in areas they find suitable they can congregate into colonies comprising as many as 10 pairs at some sites. Only two sites have been documented in the state with this number of pairs, Ouray area and a site near Little Bear Peak in the Sangre de Cristo Mountains. Statewide, the population is not expected to be more than a few hundred pairs, although estimates from the atlas suggest a population of black swift from 700 to 800 pairs".*

This species and its habitat association with waterfalls are potentially threatened by adverse disturbance. However, their unique affinity to waterfalls in rugged terrain, somewhat protect them. *"Colorado Bird Observatory (CBO) (1995) identified that a 26 percent to 50 percent loss of breeding and wintering habitat has occurred over the past 50 years. Factors attributing to the decline are increased recreational pressures around these unique sites. Recreational activities of rock climbing and spelunking have the potential of destroying delicate habitats associated with black swift nests. This species has been identified as a species requiring more baseline information to determine viability".*

Rio Grande National Forest and SLRA-BLM Status:
From USDA-FS 2003*:* ***"****Presently, there are approximately 20 waterfalls in the project area listed as having the potential to support black swift colonies. Two additional waterfalls occur adjacent to or near the analysis area boundary. Eleven of the Forest waterfalls occur on the Conejos Peak District, five on the Divide District, and three on the Saguache District. One site, (Zapata Falls), occurs on state land that is managed by the BLM for recreational purposes. Only two of the 22 total sites are known as being historically occupied based on existing records. These same two sites currently support black swift nesting colonies. Five of the eleven waterfalls on the Conejos Peak District are currently occupied by black swifts and therefore rated as a top priority for management and monitoring purposes (Shultz, pers. comm. 2003). These sites include Divide Falls, East Chama Falls, East Fork Chama Falls, Laguna Venada Falls, and Rio De Los Pinos Falls. Currently, it is estimated that these falls only contain two to four black swift nests per site (Shultz, pers. comm. 2003). One additional falls rated as a high potential for black swifts (Lake Ann Falls) also occurs on the Conejos Peak District, and has not yet been adequately surveyed for occupancy by black swifts. Medium-rated waterfalls on the Conejos Peak District include Lower Canon Escondido Falls, Upper Canon Escondido Falls, Chama Basin Maverick Falls, Middle Conejos River Falls, and Canon Verde Falls. Two additional medium-rated sites (Chama*

Lake Falls and West Chama Falls) also occur adjacent to or near the District boundary. The Zapata Falls site that occurs on adjacent state land is rated as a top priority and is currently occupied by black swifts. This site is estimated as supporting about four breeding pairs based on observations by BLM biologists (D. Clark, pers. comm. 2003). On the Divide District, one of the five waterfalls is rated as a top priority (North Clear Creek Falls), three are rated as having a high nesting potential (Lower North Clear Creek Falls, South Clear Creek Falls, East Willow Creek Falls), and one is rated as medium (Lower South Clear Creek Falls). Although the number of breeding pairs at the North Clear Creek site is not specifically known, up to five individual swifts were seen at this site in July of 2000. On the Saguache District, one of the three sites is rated as a top priority (Willow Creek Falls), one as a high priority (Saguache Falls), one is rated as low (Antora Creek Falls). At least one, and possibly two, black swift nests were noted at Willow Creek Falls in August 2001. It should be noted that all but one of the remaining identified waterfalls on the Forest are currently rated as unknown, indicating that surveys have not yet been conducted at these sites to determine occupancy. Surveys for black swifts are currently being conducted as part of the focused-species group effort included in the Monitoring Colorado's Birds program (Leukering et al. 2000). At the end of the 2002 season, 275 of the 350 known potential waterfalls in the state had been surveyed under this program (Levad 2003). Thus, more breeding sites for the black swift may be located as these sites are surveyed using the protocol developed by Schultz and Levad (2001)".

This species and its habitat association with waterfalls are potentially threatened by adverse disturbance. However, their unique affinity to waterfalls in rugged terrain, somewhat protect them. Risk is reduced by protective measures being applied consistent with current management actions, and Forest standards and guidelines.

Black swift habitat (waterfalls) does not lend to traditional modeling nor current Land Type Association, thus, their potential is difficult to predict. Although there are no PVA models, processes, or protocols for black swift, there is dispersed potential habitat available for the species across the Rocky Mountain Region as suggested by many authors. There's occasional occurrence information (Andrews and Righter, 1992; Leukering et.al.1999, 2001, 2002; Kingery [ed.] (1998); Knorr (1961, 1993); Schultz (2002). Schultz (2002) and Knorr (1961,1993) have mapped 374 waterfalls in Colorado of which 69% are on National Forest Systems lands with 92 confirmed occupancy of black swift, which suggests that many acres are likely occupied within ranges of historic ecological variation, more information than there is to say not. Andrews and Righter (1992) states that the species appears to be locally uncommon to fairly common in the San Juan Mountains, and less common elsewhere.

Boreal Owl
(Aegolius funereus)

Distribution and Status
From USDA-FS 1998: **"***The boreal owl's distribution is circumboreal, extending across the northern regions of North America, Europe and Asia (Hayward and Hayward 1989). Prior to 1981, the owl's North American range was believed limited to Canada and Alaska. Since then, however, breeding populations have been documented throughout the northern Rocky Mountains in eastern Washington, Idaho, Montana, Wyoming and Colorado. Other sightings are documented in Washington cascades and northern New Mexico".*

"The first confirmed breeding records for Colorado were in 1981 and 1982 (Andrews and Righter 1992). The boreal is widely distributed in the proper habitat and elevations, with records from most of the higher ranges of the state. The recent increase in records is due to more intensive and knowledgeable searching rather than changes in range or population density.

"The Colorado Natural Heritage Program (1997) classified this owl at the global level (S2) as secure, but imperiled in the state because of rarity. There is no population trend available because BBS does not survey this species".

Recently in Colorado, boreal owl breeding pairs have been estimated at 238 pairs, which ranks them 221st in abundance amongst 264 confirmed breeders (Kingery [ed.] 1998).

Life History

From USDA-FS 1998: **"***Boreal owl habitat throughout its range is spruce/fir zone forests (Clark et al. 1989). As year-round residents they use similar habitats during all seasons. Mature forests are necessary for nesting because they require large nesting cavities with a 3-inch diameter opening and a 15-inch diameter tree at the cavity. The owls frequently use pole stands for hunting. They will also use openings where perches are available at the forest edge. This is especially true in spring when snow cover is still present under the forest canopy but openings have melted. They tolerate human and machine noise and have nested within 100 feet of a major highway in Colorado. There is no evidence that disturbance is an important factor in nest loss or owl movements (Hayward and Hayward 1994)".*

"Males defend a small area around the nest, but otherwise home ranges may overlap extensively (Clark et al. 1989). In Colorado, home ranges of two males encompassed 3400 acres and 3900 acres and overlapped one another by >90% (Palmer 1986). They are very mobile predators and frequently traverse much of their home range in the course of 2-3 days or weeks (Hayward et al. 1993). In Colorado, roosts used on consecutive days averaged 215 feet apart (Palmer 1986). Forest structure in the Colorado study had 44% canopy cover with 6 trees/acre >15 inches dbh and 2.5 snags/acre. Generally roosting occurs next to the bole of a tree. They move little during the day but will frequently change to nearby roost trees. Winter roosts show little pattern, but summer roosts usually occur in cool microsites and there may be movement to higher elevations (Clark et al. 1989)".

"The Boreal owl is a secondary cavity nester and is dependant upon woodpecker cavities and to a lesser extent on natural cavities in large trees for nesting. spruce/fir is the preferred species but cavities have been found in Douglas-fir, lodgepole, aspen and high elevation ponderosa pine (Hayward et al. 1994). Cavities are not used for roosting".

"Marten are the most important predator of owlets and adult females at the nest site (Hayward and Hayward 1994). Cooper's hawk, northern goshawk and great horned owls are also important predators of young and adults (Reynolds et al. 1990)".

This species and its habitat association with relatively large diameter and moderately dense forest stands are obviously, potentially threatened by adverse disturbance.

Trend

NatureServe Explorer (2002) validates previous narrative in that global trend is *"unknown". "Reliable populations number unavailable and nomadism caused by fluctuating prey density complicates this further (Hayward and Hayward 1993). Population "stable" in Canada (COSEWIC 1995 unpubl. report). Although recently discovered breeding far to the south of previously known locations, this is probably due the season and location of breeding (high elevation in February-April) rather than range expansion (Stahlecker and Duncan 1996). Major threat may be indirect effects of forest harvesting practices. These may reduce primary prey populaitons, remove forest structure used for foraging, and eliminates nesting cavities (Hayward and Hayward 1993)".*

Rio Grande National Forest and SLRA-BLM Status

From USDA-FS 2003: *"The first formal surveys for boreal owls on the Rio Grande National Surveys were conducted in 1984-85 (Ryder et al. 1987). Probable detections of boreal owls occurred in the upper Pinos Creek area during the first year of this survey; however, it was not until March 17, 1985 that the first documented detections occurred in the Wolf Creek Pass area (Rawinski 2001). The first evidence of local breeding occurred in September of 1992 when a juvenile owl was detected near Spar City; to date, however, there have still been no nest sites located on the Forest (Rawinski et al. 1993, Rawinski 2001). Currently, there are 23 records of boreal owl occurring on the Rio Grande National Forest* (CDOW 2001a in this document)*. The majority of these detections occur around the Trout Mountain/Shaw Lake area on the Divide Ranger District, although a fair number of detections also occur in the Cumbres Pass area of the Conejos Peak District. To date, there have been no detections of boreal owls on the Saguache District although surveys have been conducted in suitable habitat in the Moon Pass area (Schultz and Holland 1994). The last detection of boreal owl on the Rio Grande National Forest occurred in 1998 in the Hunters Lake area of the Divide Ranger District (Schultz and Holland 1994)". There is limited potential habitat for Boreal Owls on BLM lands.*

The precise status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation. Boreal owl is documented in the project area and elsewhere, thus it is likely that it is well distributed and abundant. Agencies haven't targeted the wilderness areas for surveys so there's not a lot of documentation specific to wilderness, but considering other survey results on the Forests, one can anticipate well distributed and abundant population in the region. Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

The Revised RGNF Forest Plan articulates potential suitable habitat for boreal owl to amount to 580,190 acres with the preponderance of the type as mature or advanced-mature condition. The SJNF Plan (1992 at IIa -12) articulates 455,500 acres of 'mature and old-growth' timber stands of spruce-fir, Douglas-fir, aspen and ponderosa pine cover types that could have some potential for this species. Regional data (USDA Forest Service, 1992) reflects 4.2 million acres of spruce/fir of which an estimated 77% (3.2 million acres) is between the average stand ages of 88 and 220 years old. This reflects the relative advanced-maturity of the region's spruce-fir forests. Although there are no PVA models, processes, or protocols for boreal owl, there is abundant potential habitat available for the species across the Rocky Mountain Region as is described in Hayward and Verner (1994). There's occasional occurrence information (Andrews and Righter, 1992; Leukering et.al.1999, 2001, 2002; Kingery [ed.] (1998); Schultz and Holland 1996; Schultz and Zahratka 1998) to suggest that many acres are likely occupied within ranges of historic ecological variation, more information than there is to say not.

Boreal toad

(Bufo boreas boreas)

Distribution and Status: The boreal toad ranges throughout much of western North America except the arid Southwest. It occurs throughout the mountainous portion of Colorado, with the exception of the Sangre de Cristo Range, Wet Mountains, and Pikes Peak region. These toads are most common between 8,500-11,000 feet, and have only rarely been found as low as 7,000 ft (Hammerson 1986).

In 1995 the U.S. Fish and Wildlife Service determined that the toad was "warranted" for listing but precluded by species of higher priority. The U.S. Fish and Wildlife Service designated the boreal toad as a candidate species under the Endangered Species Act (Fed. Reg. Vol. 60 No. 56 pp. 15282-15283). The Colorado Natural Heritage Program (1997) ranking is G4T1/S1 which means

that while the species is apparently secure globally, the subspecies is critically imperiled both globally and within the state.

Life History: According to Goettl (1997), the habitat requirements for the toad can be described as: *"Distribution is restricted to areas with suitable breeding habitat in spruce/fir and alpine meadows. Breeding habitat includes lakes, marshes, ponds, and bogs with sunny exposure and quiet, swallow water. Rarely are toads known to lay eggs in streams. Breeding occurs soon after ice melt in the breeding area. Young toads are restricted in distribution and movements by available moist habitat, while adults may move up to several miles to reside in marshes, meadows or forested areas. Hibernation takes place in hibernacula which may be chamber burrows deep enough to prevent freezing and having soil moisture high enough to prevent desiccation. Most toads are in hibernation by early October, but association with the hibernacula may begin in late August. Toads will feed both day and night on a wide variety of invertebrates such as ants, snails, carabid beetles, spiders, and mosquitoes. Natural predators of the toad include, but are not restricted to, the common raven, gray jay, western garter snake, tiger salamander, badger, and spotted sandpiper. In addition, soil compaction adjacent to breeding sites could impact rodent burrows, where toads tend to overwinter. This might cause direct mortality. Harvest activities and associated road building that would affect riparian habitats would be a concern. Any affect to the natural hydrological flow could negatively impact potential habitat for boreal toads. Road maintenance activities that breech beaver complexes would definitely be a cause for concern. However, implementation of the new Watershed Practices Handbook should minimize impacts to riparian habitat".*

Trend

There are no estimates of trend currently available (NatureServe 2002). However, boreal toad, like other amphibians, is likely declining in population size, area of occupancy, and condition of occurrences (see Northern Leopard Frog).

Rio Grande National Forest and SLRA BLM Status:

From USDA-FS 2003: *"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 B.E. 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, 2003), 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 are 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)". There is limited potential for Boreal Toad habitat on BLM lands.*

There are no known population viability tools, processes, or protocol for boreal toad. As with most other species, the only viability criteria available to evaluate for boreal toad is habitat criteria. The Revised Forest Plan articulates potential suitable habitat for boreal toad to amount to 129,400 acres (in the classification of "riparian area"). There are 1,050 stream miles suitable for trout and 8,281 lake surface acres on the Rio Grande National Forest (pers. comm. B. Wiley, RGNF-05/15/2002). None of the above figures suffice for estimates of potential boreal toad breeding habitat across the RGNF.

The precise unknown status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation due to potential boreal toad habitat being easily identifiable (riparian and ponds). Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

Management direction associated with the viability of the toad is provided through the *Boreal Toad Conservation Plan and Agreement* (Loeffler 1998). Additionally, the Forest Service Watershed Conservation Practices Handbook (2509.25) provides protective management for habitat and water resources associated with the species, through its specific incorporation into Forest Plan standards and guidelines.

Burrowing Owl
(Athene cunicularia)

Distribution and Status
Kingery [ed.] (1998) documents burrowing owl breeding from south-central British Columbia eastward to southern Saskatchewan and south throughout most of the western United States, Mexico, Central America, and South America to Chile.

Recently in Colorado, burrowing owl breeding pairs have been estimated to range between 5,727 pairs to 36,646 pairs with a mid-estimate of 20,885 pairs, which ranks them 121st in abundance amongst 264 confirmed breeders (Kingery [ed.] 1998). The preponderance of the estimates occurred in atlas blocks on the Front Range and eastern plains. The Colorado Heritage Status Ranking is S4B, which translates to apparently secure in association with breeding (NatureServe 2002).

Life History
From: USDA-FS 1998: *"The burrowing owl inhabits open grassland, prairies, and farmlands. It is a ground-dwelling bird that is often attracted to prairie dog villages, where they find and use abandoned burrow nests. They are primarily nocturnal but are often seen in daylight perched near burrows on the ground, low fence posts, or on small bushes. Their main prey are small mammals, but they are opportunistic and will feed on insects and small birds as well. Although owls are good for catching 'pests' in farm fields, accidental poisoning has occurred by humans trying to rid their land of prairie dogs and other ground-dwelling mammals. The main threat to these owls is a loss of grassland habitat where primitive conditions still exist".*

Kingery [ed.] (1998) documents burrowing owl arriving to Colorado in late March or early April. The male feeds the female as she nests for a period of 27-30 days. Two to five young owls appear [above ground] about 14 days after hatching. Young fledge by mid-August. Individuals that nest more than 35 degrees north or south of the equator migrate to warmer regions in fall and winter.

NatureServe Explorer (2002) provides comment as to trend: Global Trend Comments: Christmas Bird Count data indicate a stable North American population, 1954-1986, but with a declining trend from the mid-1970s to the mid-1980s, a significant decline in California, and an increase in Florida (James and Ethier 1989). Population decline continued in central California in the early 1990s (see J. Raptor Research 27, or Ehrlich et al. 1992), where about two-thirds of historic breeding locations are no longer in use and many remaining areas are threatened by development (Salmansohn 1993). Declined in Canada from the mid-1970s through at least the early 1990s (Kirk et al. 1995); declined 50% or more in some areas (Dundas and Jensen 1995). Loss of habitat was substantial between 1976 and 1986, has slowed considerably since then, but declines have continued; if present trends continue, extirpation from Manitoba will occur within a few years and extirpation from all of Canada may occur within a few decades (Wellicome and Haug, 1995 COSEWIC report). Threats: Primary threat is habitat loss (e.g., due to intensive agriculture), habitat degradation (e.g., via control of burrowing mammals), and habitat fragmentation (Dundas and Jensen 1995). In the West, eradication of prairie dogs has reduced owl populations (Evans 1982), as has conversion of rangeland to irrigated agricultural land and, in some areas, loss of habitat to suburbanization. Other threats include excessive mortality due to predation, contaminants, and unknown factors (Haug and Didiuk 1991; see also 1979 COSEWIC report by Wedgwood and 1995 COSEWIC report by Wellicome and Haug). Usually tolerant of human activity but vulnerable to predation by dogs and cats. Vulnerable to activities that destroy burrows. On Santa Barbara Island, California, heavy predation by barn owls during a time of small mammal scarcity resulted in extirpation of the fall-winter resident population of burrowing owls (Drost and McCluskey, Oecologia 92:301).

Rio Grande National Forest and SLRA-BLM Status

From USDA-FS 2003: *"Information by Rawinski (2001) indicates that at least one to two pairs of burrowing owls have nested annually in the San Luis Valley. One nesting pair was last noted in May 2002 in the southwest portion of the valley area on private land. To date, however, there have been no known observations of burrowing owls occurring on the Rio Grande National Forest".*

There are four documented nesting locations occurring on the BLM of the San Luis Valley – most are documented in the 1970's.

While there are no documented occurrences on the Forest, the Revised Forest Plan articulates 24,790 acres of the cover type as "western wheat grasslands". These cover types are located at lower elevations north and south of Del Norte, CO., where Forest lands interface with the bulk of San Luis Valley grasslands and agricultural areas. These grassland cover types could conceptually serve as suitable habitat for burrowing owl.

Although there are no PVA models, processes, or protocols for burrowing owl, there is abundant potential habitat available for the species across the Rocky Mountain Region. Occasional occurrence information (Andrews and Righter, 1992; (Leukering et.al.1999, 2001, 2002); Rawinski 2001; Kingery [ed.] (1998); USDA-FS 2003) to suggest that many acres are likely occupied within ranges of historic ecological variation, more information than there is to say not. Andrews and Righter (1992) states that the species is widely distributed in the proper habitats and elevation.

Ferruginous Hawk
(Buteo regalis)

Distribution and Status
The ferruginous hawk is found in undisturbed western grasslands, arid shrublands, and badlands. Kingery [ed.] (1998) reports this species predominately scattered across the plains of eastern Colorado. Atlas data also reflects ferruginous hawk on the Colorado Plateau of northwestern Colorado and in the San Luis Valley.

Recently in Colorado, ferruginous hawk breeding pairs have been estimated at 992 pairs, which ranks them 200th in abundance amongst 264 confirmed breeders (Kingery [ed.] 1998). The preponderance of the estimates occurred in atlas blocks on the Front Range, eastern plains, and northwestern corner of the state. The Colorado Heritage Status Ranking is S3B, which translates to vulnerable in association with breeding; and S4N, which means apparently secure in association with non-breeding (NatureServe 2002).

Life History
Ferruginous hawks breed in early March and lay eggs in mid-March to early April (Kingery [ed.] 1998). Ferruginous hawks nest on trees and bushes associated with bottomlands, and on ledges, large rocks, riverbanks, and hillsides. Nest sites are often much larger than other *Buteos* (sometimes over three meters in height) and may be reused for several years. Nests are constructed of sagebrush, willow, or other shrub branches, and lined with shrub bark and cow dung. Nest sites are very vulnerable to human disturbance and may be abandoned during the pre-egg-laying period and incubation, even if disturbed only once. Ferruginous hawk young fledge about 38-50 days after hatching (Kingery [ed.] 1998). The young can take live prey as soon as 52 days. Ferruginous hawks hunt primarily in open country. Their nest sites often provide a vista of appropriate hunting areas. Their diet consists of small rodents, such as prairie dogs and ground squirrels, and sometimes locusts, birds, and crickets. Agriculture and severe overgrazing, which alter suitable nesting and foraging areas, provide the greatest threat to the hawk. In addition, Ferruginous hawks naturally occur in very low densities throughout their breeding range (Kingery [ed.] 1998).

This species and its habitat association with grasslands are obviously, potentially threatened by adverse disturbance, especially where potential nesting trees are destroyed.

Trend
NatureServe Explorer (2002) provides comment as to trend: *"Global Trend Comments: Local declines have been noted (e.g., Woffinden and Murphy 1989), but a widespread decline was not evident as of the early-1990s (USFWS 1992, Olendorff 1993). North American Breeding Bird Survey (BBS) data for the U.S. and Canada indicate a 13.5 percent increase from 1988 to 1989 and an average annual 0.5 percent increase for 1966-1989 (Droege and Sauer 1990). Wintering data from Christmas Bird Counts also indicate an increase in numbers from 1952-1984 (USFWS 1992). Schmutz (1995) reported that the range in Canada has been reduced by half, and that habitat within the range has been severely depleted and total numbers reduced by about 95 percent. Kirk et al. (1995) indicated that populations in Canada apparently are stable in available habitat. Jensen (1995) reported a recent range re-expansion in south-central Canada. Historically, very abundant in eastern Montana but numbers were lowered by the early 1900's (Allen 1874, Cameron 1914). Threats: HABITAT LOSS: Some habitat has been lost due to agricultural development. Schmutz and Schmutz (1980) reported that habitat in the breeding range in Canada has been severely depleted by agriculture, disturbance, and forest invasion (see also Jensen 1995), though recent trends suggest relative stability (Schmutz 1995). Loss of grassland is not regarded as an immediate threat (USFWS 1992), but is likely a long-term threat (Olendorff 1993). Ability of native grasslands and shrublands to support viable populations may be compromised by the invasion of exotic annuals, especially cheatgrass (BROMUS TECTORUM) and Russian thistle (SALSOLA IBERICA).*

However, conversion of large areas of dense shrublands to grasslands may locally benefit Ferruginous Hawks. HUMAN DISTURBANCE: Easily disturbed during the breeding season (Olendorff 1973, Gilmer and Stewart 1983, Schmutz 1984, White and Thurow 1985, Bechard et al. 1990). Abandonment of nests occurs particularly in the early stages of nesting (Davy 1930, Weston 1968, Fitzner et al. 1977, Gilmer and Stewart 1983, White and Thurow 1985). In eastern Colorado, nests in remote locations had greater productivity compared to more accessible nests (Olendorff 1973). In South Dakota, the probability of fledging young was 11.4 percent greater in more remote nests than in nests within 2.47 kilometers of occupied buildings (Blair 1978). In North Dakota, avoided cropland and nesting within 0.7 kilometers of occupied buildings (Gaines 1985). In Alberta, rarely nested within 0.5 kilometers of farmyards (Schmutz 1984). In other instances, more tolerant of human disturbance. Nesting has occurred near active railroads and gravel roads (Rolfe 1896, Gilmer and Stewart 1983, MacLaren et al. 1988). Sensitivity to disturbance may be heightened in years of low prey abundance (White and Thurow 1985). Shooting may also be a threat, especially on the wintering grounds (Harmata 1981, Gilmer et al. 1985). Poisoning of prey species may be a threat both directly to hawks eating poisoned animals and indirectly through reduction of prey base, especially at prey concentration areas such as prairie dog colonies. Noted as an accidental but unsuitable host of the Brown-headed Cowbird (MOLOTHRUS ATER), an obligate brood parasite (Friedmann 1963)".

Rio Grande National Forest and SLRA-BLM Status

From USDA-FS 2003: *"The Colorado Breeding Bird Atlas notes that the ferruginous hawk as a possible breeder along the eastern valley and foothill regions of Saguache and Alamosa counties (Preston 1998). Rawinski (2001) also refers to the species as a possible but undocumented nester on the analysis area. Two historic nests have occurred in the San Luis Valley, with the most recent nest near Mosca. Currently, there are two sighting records of ferruginous hawks on the Forest. However, these sightings occurred in the far northwest portion of the valley in atypical habitat during September and October of 1992 and most likely represent birds seen during migration. One additional sighting occurred near Old Woman Creek during May 1989.*

The precise unknown status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation due to risk reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

The Revised Forest Plan articulates potential suitable habitat for ferruginous hawk to amount to 24,790 acres with the preponderance of the type as western wheat grasslands. Although there are no PVA models, processes, or protocols for ferruginous hawk, there is abundant potential habitat available for the species across the Rocky Mountain Region. Occasional occurrence information (Andrews and Righter, 1992; (Leukering et.al.1999, 2001, 2002); Rawinski 2001; Kingery [ed.] (1998); USDA-FS 2003) suggests that many acres are likely occupied within ranges of historic ecological variation, more information than there is to say not. Andrews and Righter (1992) states that the species is widely distributed in the proper habitats and elevation.

Flammulated Owl
(Otus flammeolus)

Distribution and Status
From USDA-FS 1998: ***"****The Flammulated Owl is perhaps the most common raptor of the montane pine forests of the western United States (McCallum 1994). This species is a Neotropical migrant that winters in Mexico casually north to southern California (DeGraaf et al. 1991). It is a western mountain species that breeds locally from southern British Columbia, southern Idaho, and northern Colorado south to southern California, southern Arizona, southern New Mexico, western Texas and from Mexico south to Guatemala (Hayward and Verner 1994, DeGraaf et al. 1991)".*

"In Colorado the flammulated owl is an uncommon to common summer resident in foothills and lower mountains that appears to be more common than most observers have realized (Andrews and Righter 1992). This species appears to be most common in western and southern Colorado. Their migratory routes range-wide remain essentially unknown (McCallum et al. 1994). There have been no structured forest wide inventories for this species. However, during the Mexican spotted owl surveys from 1990 to 1994 they were found on all Districts with ponderosa pine. It is listed as an uncommon nester in southwestern Colorado (Durango Bird Club 1992)".

Recently in Colorado, flammulated owl breeding pairs have been estimated to range between 1,807 pairs to 5,009 pairs with a mid-estimate of 3,763 pairs, which ranks them 165th in abundance amongst 264 confirmed breeders (Kingery [ed.] 1998). The Colorado Heritage Status Ranking is S4, which means apparently secure in association with breeding as well as non-breeding (NatureServe 2002).

Life History
From USDA-FS 1998: ***"****The flammulated owl is a tiny obligate secondary cavity nester that is entirely insectivorous (McCallum et al. 1994). It is associated with mature/old growth ponderosa pine, from the lower elevations where the pine is mixed with oak or pinyon pine to the higher elevations where the pine is mixed with Douglas-fir, aspen or firs (Reynolds and Linkhart 1992). Their association with old ponderosa pine/Douglas-fir forests likely involves both habitat composition, structure, and food. Older pine forests potentially have larger snags with cavities and typically form open stands with well developed grass or shrub understories. With few exceptions all reported nests have been in stands containing at least some ponderosa pine which may have been mixed with other species and they were in or adjacent to mature or old growth stands. Recently they have been found in pinyon-juniper stands containing no ponderosa pine on the Colorado plateau (McCallum et al. 1994). Vocal responses from flammulated owls during Mexican spotted owl surveys on the San Juan side of the Forest occurred in ponderosa pine stands with previous timber harvest where large residual trees at various densities remained".*

"Flammulated owls appear to be opportunistic insectivores (McCallum et al. 1994). During cold spring and early summer nights, the owls feed almost entirely on the only insects available--nocturnal adult lepidoptera such as noctuids (Reynolds and Linkhart 1992). Noctuids are large cold-hardy moths that are abundant in spring and fall (McCallum et al. 1994). Noctuids have been observed flying above the forest canopy when temperatures were below freezing (Reynolds and Linkart 1992b). As summer progresses and other arthropods become available lepidopteran larvae, grasshoppers, spiders, crickets, and beetles are added to their diet".

"In contrast to foraging habitat which includes numerous interior edges, preferred roosting habitat appears to be dense vegetation (McCallum et al. 1994). Multilayered stands were favored roosting sites in Oregon while thickets of regeneration are used in British Columbia (McCallum et al. 1994, Howie and Ritcey 1987). In the Front Range of Colorado, owls roosted in large Douglas-firs or

ponderosa pines with sprawling form. Mistletoe may augment the usefulness of such trees for roosting (R.T. Reynolds, pers. comm. in McCallum et al. 1994). Roosting owls typically perch at the base of a horizontal limb next to the bole. Males are not known to use cavities for roosting".

"Natural predators include great horned owls and accipiters (McCallum et al. 1994). Small birds from the size of blue birds and larger are natural competitors for cavities. These owls are very tolerant of humans, nesting close to occupied areas and tolerating observation by flashlight while feeding young. Nest abandonment is rare. Whether a nesting pair would tolerate selective harvesting during the breeding season is not known. Mechanical disturbance, e.g., thinning or controlled burns, that flushes roosting birds may be more serious threat to adult survival in October than in June because of migrating Accipiters (D.B. McDonald pers. comm. in McCallum et al. 1994)".

Trend

NatureServe Explorer (2002) provides comment as to trend: *"Global Trend Comments: Is currently found throughout its known historic range in "good numbers" and is not in danger of extinction (McCallum 1994a; 1994c). Data are not sufficient to track trends or model population dynamics (McCallum 1994b). Once believed rare, call-response surveys revealed them to be locally common in quality habitat and among the most abundant birds of prey in some places (McCallum 1994b). Rarely encountered on North American Breeding Bird Survey. For the northern Rockies, the few available data indicate a significant decline (Dobkin 1992). In Canada, current population trend is unknown (Fraser et al. 1999, Howie 1988); reported as "stable" by Kirk et al. (1995). Threats: Habitat specialization and an unvarying reproductive rate, even in years of high food abundance, suggests the species is adapted to a stable environment. Populations are apparently most sensitive to variation in adult survival (McCallum 1994c). This life history strategy makes populations vulnerable to environmental perturbations (such as habitat loss or fragmentation, pesticides) and slow to recover from population declines (McCallum 1994a, 1994c). TIMBER HARVEST: Restricted primarily to forest types of commercially valuable tree species, so forest management may affect viability (McCallum 1994b). Old-growth ponderosa pine, the preferred habitat, is the most endangered forest type in the Rocky Mountain West (Illg and Illg 1994). Vulnerable to clearcutting and cutting of mature trees (Spahr et al. 1991). Loss of snags and trees for nest cavities is a serious concern and cutting of snags for firewood or during timber harvest operations presents a serious threat. Most susceptible to disturbance during peak of breeding season in June and July, and disturbance from logging activity can have a detrimental effect (USDA Forest Service 1994). Preferred habitat has declined in North America with twentieth century from timber harvesting, firewood cutting, and fire suppression. Harvest of preferred pine forests continues in Mexico. The impact of this habitat loss on populations is unknown (McCallum 1994c). PESTICIDES: Insecticides used to control forest pests may affect abundance of insect prey. Reynolds and Linkhart (1998) noted that carbaryl (specific for Lepidoptera) is used to control spruce budworm and may inadvertently reduce non-target insect species, such as the noctuid moths on which the owl heavily depends. ECOLOGICAL INTERRELATIONSHIPS: Depends on Northern Flicker (COLAPTES AURATUS), Pileated Woodpecker (DRYOCOPUS PILEATUS), sapsuckers (SPHYRAPICUS spp.), and other large primary cavity nesters to excavate nest cavities; loss of these species from a forest community would be disastrous. Flicker cavities are often co-opted by European Starlings (STURNUS VULGARIS), reducing the availability of nest cavities for both flickers and owls. McCallum (1994a) suggested that the disappearance of the Imperial Woodpecker (CAMPEPHILUS IMPERIALIS), a Mexican endemic, may have had a negative effect".*

Rio Grande National Forest and SLRA-BLM Status

From USDA-FS 2003: *"The Colorado Breeding Bird Atlas lists the flammulated owl as a probable nester in Saguache and Hinsdale counties and as a possible nester in Rio Grande and Conejos counties (Winn 1998). Rawinski (2001) describes the flammulated owl as a likely breeder on the Forest that is present from April to September. The first local spring record is listed at the Zapata Ranch on April 12, 1996 with the latest record occurring near Magote on September 22, 1999 (Rawinski 2001). There are currently 40 records of flammulated owl occurrence on the Rio Grande National Forest, indicating that the species is*

fairly common in its preferred habitat type. Documented records occur on all districts of the Forest and BLM, with the earliest detections noted as 26 April and the latest as 23 August. The majority of these records occurred on the Conejos Peak RD during surveys for the Mexican spotted owl".

The precise status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation. Flammulated owl is documented in the project area and elsewhere, thus it is likely that it is well distributed and abundant within suitable habitat. Agencies haven't targeted the wilderness areas for surveys so there's not a lot of documentation specific to wilderness, but considering other survey results on the Forests, one can anticipate well distributed and abundant population in the region. Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

The Revised Forest Plan articulates potential suitable habitat for flammulated owl to amount to 81,760 acres of ponderosa pine and Douglas-fir Land Type Associations with the preponderance of the Douglas-fir type as mature or advanced-mature condition and half of the ponderosa type as mature. Regional data (USDA Forest Service, 1992) reflects 2.1 million acres of ponderosa pine of which an estimated 70% is between the average stand ages of 60 and 140 years old, and 10% is older. Regional data (USDA Forest Service, 1992) reflects 1.3 million acres of Douglas-fir of which an estimated 75% is between the average stand ages of 80 and 180 years old, and a small percent older. This reflects the relative advanced-maturity of the region's Douglas-fir forests.

Although there are no PVA models, processes, or protocols for flammulated owl, there is abundant potential habitat available for the species across the Rocky Mountain Region. There's occasional occurrence information (Andrews and Righter, 1992; (Leukering et.al.1999, 2001, 2002); Rawinski 2001; Kingery [ed.] (1998); USDA-FS 2003) to suggest that many acres are likely occupied within ranges of historic ecological variation, more information than there is to say not. Andrews and Righter (1992) states that the species appears to be more common than previously thought.

Fox Sparrow
(Passerella iliaca schistacea)

Distribution and Status
From USDA-FS 1998: ***"****The fox sparrow is widely distributed throughout Alaska, Canada, and as far south as southern California. In Colorado, two field identifiable forms are recognized (Andrews and Righter 1992). The Rocky Mountain form, subspecies schistacea occurs on our Forest. This subspecies from is "uncommon to fairly common summer resident in the mountains." It breeds in riparian willow shrublands and wet, willow-grown meadows. In migration and during winter, it will occur in wooded riparian areas (Andrews and Righter 1992)".*

Recently in Colorado, fox sparrow breeding pairs have been estimated to range between 4,885 pairs to 34,915 pairs with a mid-estimate of 19,835 pairs, which ranks them 122nd in abundance amongst 264 confirmed breeders (Kingery [ed.] 1998). The Colorado Heritage Status Ranking is S4B, which means apparently secure in association with breeding and SZN, which means migratory transient with non-breeding (NatureServe 2002).

Life History
From USDA-FS 1998: ***"****This sparrow has nonspecific nesting requirements, needing only dense shrubbery undergrowth (DeGraaf et al. 1991). Nests are usually in shrubs near the ground (less than 6 feet high), but may be on the ground or as much as 20 feet up in the canopy.*

Feeding occurs on the ground and consists primarily of seeds, but insects also are consumed (DeGraaf et al. 1991, Terres 1991). No reference to territory size was found, but it is assumed to be a few acres in size, similar to other sparrows".

Fox sparrows return to summer breeding grounds in early May (Kingery [ed.] 1998). They then establish bonds, territories and build nests. By June, eggs incubate, and fledging occurs into August, with sometimes two broods being accomplished dependent upon how early they get started. Kingery [ed.] (1998) also reported that fox sparrows are susceptible to cow bird parasitism where fox sparrows nest near major waterways at certain [lower] elevations.

Trend

NatureServe Explorer (2002) provides no comment as to trend.

Rio Grande National Forest and SLRA-BLM Status

From USDA-FS 2003: *"Survey efforts conducted during the Colorado Breeding Atlas found the fox sparrow in ten Atlas Blocks that correspond with U.S. Geological Survey quadrants (Kingery 1998). Based on extrapolations from these detections, populations were estimated at one breeding pair for one quadrant (Baldy Conco), two to ten breeding pairs for six quadrants (Howardsville, Workman Creek, Summitville, Pole Creek, Summit Peak, Bowers Peak), and 11 to 100 pair for two quadrants (Spectacle Lake and Mount Hope). No information was provided for one quadrant. Of these, breeding was confirmed at one quadrant (Summitville), probable at one quadrant (Pole Creek), and considered possible at the remainder (Kingery 1998). One of these quads occur on the Conejos Peak District (Spectacle Lake), one on the Saguache District (Bowers Creek) and the remainder occur on the Divide District, primarily in high elevation riparian systems at the far west portion of the Forest. Rawinski (2001) also notes that the fox sparrow is a confirmed breeder in the valley, and estimated that at least ten individuals were present in the Chama Basin during the breeding season in June 2001".*

This species and its habitat association with relatively large willow carrs are potentially threatened by reservoir projects or de-watering projects, neither potentially occurring as a result of the actions.

The precise status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation. Fox sparrow owl is known to occur in the project area and elsewhere, thus it is likely that it is well distributed and abundant within suitable habitat. Agencies are not surveying for fox sparrow due to it's relative abundance. Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

There are no known population viability tools, processes, or protocol for fox sparrow.
Similarly as with boreal owl, the only criteria available to evaluate for fox sparrow is habitat criteria.

The Revised Forest Plan articulates potential suitable habitat for fox sparrow to amount to 129,400 acres (in the classification of "riparian area"). Although there are no PVA models, processes, or protocols for fox sparrow, there is abundant potential habitat available for the species across the Rocky Mountain Region. One cannot reasonably assume that these thousands of acres of willow are not occupied by fox sparrow to some unmeasured degree. There's occasional occurrence information (Andrews and Righter, 1992; (Leukering et.al.1999, 2001, 2002); Rawinski 2001; Kingery [ed.] (1998); USDA-FS 2003) to suggest these acres are likely occupied within ranges of historic ecological variation, more information than there is to say not.

Golden-Crowned Kinglet
(Regulus satrapa)

Distribution and Status
From USDA-FS 1998: ***"****Golden-crowned kinglets have a fairly large range of occurrence. They breed from southern Alaska to northern Alberta, southern Quebec, and Newfoundland south in the coastal and interior mountains to southern and eastern California, southern Utah, south-central New Mexico, Mexico, Guatemala, and east of the Rockies to southern Manitoba, north-central Michigan, New York, eastern Tennessee, western North Carolina, northern New Jersey, and southern Maine. The kinglet winters from south-coastal Alaska and southern Canada south to northern Baja California, through the breeding range to Guatemala, the Gulf Coast, and central Florida (DeGraaf et al.1991)".*

"Within Colorado, golden-crowns are considered residents in higher mountains; uncommon to fairly common in summer and rare in the winter (Andrews and Righter 1992). It seems to be more common west of the Divide than to the east. Golden-crowns have been seen throughout the Forest within the spruce/fir zone".

Recently in Colorado, golden-crowned kinglet breeding pairs have been estimated to range between 25,559 pairs to 191,276 pairs with a mid-estimate of 104,566 pairs, which ranks them 72nd in abundance amongst 264 confirmed breeders (Kingery [ed.] 1998). The Colorado Heritage Status Ranking is S4, which means apparently secure in association with breeding and non-breeding (NatureServe 2002).

Life History
From USDA-FS 1998: ***"****The species breeds primarily in mature, dense spruce/fir forest, and rarely in limber pine and Douglas-fir. In winter, occurs in coniferous forests (especially Douglas-fir and ponderosa pine) but also in other types such as pinyon-juniper woodlands, foothill and lowland riparian forests, and in planted conifers in parks, cemeteries, and residential areas in the lowlands. In migration, occurs in most wooded habitats (Andrews and Righter 1992)".*

"Carter (1995) studied the relationship between spruce/fir birds and landscape patterns on the Forest. One of the findings from the study confirmed that golden-crowns were strongly correlated with late-successional spruce/fir forests. They were found in areas that had a range of canopy cover from 30-93% with a mean of 55-60% (Carter and Gillihan, Colorado Bird Observatory biologists, pers. comm.)".

"The species forages over leaves, branches, and trunks, feeding almost exclusively on insects and their eggs (bark beetles, scale insects) and especially plant lice. In summer, they feed mainly on flying insects (DeGraaf et al. 1991)".

This species and its habitat association with relatively large diameter and moderately dense forest stands are potentially threatened by adverse disturbance.

Trend
NatureServe Explorer (2002) provides comment as to trend: *"Global Trend Comments: Regional variation. North American Breeding Bird Survey documented 2.7 percent annual decline in western part of range for 1966 - 1994. Significant increase (6.1 percent per year) in eastern part of range for the same period. For 1966 - 1994, four states and three Canadian provinces showed population increases (only New York was significant); three states and two provinces showed decrease (only California, Oregon, and Washington were significant; Ingold and Galati 1997). Raphael et al. (1988, cited in Ingold and Galati 1997) estimated that the population in the mid-1980s was 45 percent below historical level.*

Threats: Northern part of range may be limited by severe winters. Up to 100 percent mortality estimated locally during severe storms (Ingold and Galati 1997). HABITAT: Habitat changes such as forest thinning, lumber activities, and spruce die-off may reduce local populations. Breeding densities also known to decline in burned and logged areas, habitats with open canopies, hardwood forests, and pure stands of eastern hemlock (TSUGA MERTENSIANA) and lodgepole pine (PINUS CONTORTA). Probably has benefited from spruce reforestation in the eastern United States. No information available about the effects of tropical deforestation (Ingold and Galati 1997). PARASITISM: Uncommon host to brown-headed cowbird (MOLOTHRUS ATER). Have been known to feed young cowbirds; male may chase cowbird from territory (Ingold and Galati 1997)".

Rio Grande National Forest and SLRA-BLM Status

From USDA-FS 2003: *"Presently, there are only two records of golden-crowned kinglet occurrence in the Forest database. These sightings occurred on the Divide District in the Monument Peak area (1991) and the Groundhog Park area (2002). Obviously, this lack of records reflects a failure to report this species rather that any particular rarity on the Forest. For example, information from the Colorado Breeding Bird Atlas indicates that the golden-crowned kinglet is a confirmed nester on all districts of the Forest (Kingery 1998). Rawinski (2001) also refers to this species as being fairly common on the Forest in spruce-fir and Douglas-fir forests". There is limited potential for Golden-crowned kinglet habitat on BLM lands.*

Leukering et.al.(1999, 2001, 2002) monitoring data shows high densities of kinglet in spruce-fir forest types, and this is the largest habitat type within the RGNF, so the species is well distributed and abundant. Agencies are not surveying for golden-crowned kinglet due to it's relative abundance. Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

There are no known population viability tools, processes, or protocol for golden-crowned kinglet. Similarly as with boreal owl, the only criteria available to evaluate for golden-crowned kinglet is habitat criteria.

The Revised Forest Plan articulates potential suitable habitat for golden-crowned kinglet to amount to 580,190 acres with the preponderance of the type as mature or advanced-mature condition. Regional data (USDA Forest Service, 1992) reflects 4.2 million acres of spruce/fir of which an estimated 77% (3.2 million acres) is between the average stand ages of 88 and 220 years old, which reflects the relative advanced-maturity of the region's spruce-fir forests. Although there are no PVA models, processes, or protocols for golden-crowned kinglet, there is abundant potential habitat available for the species across the Rocky Mountain Region. One cannot reasonably assume that these millions of acres of spruce-fir are not occupied by golden-crowned kinglet to some unmeasured degree. There are other habitats (e.g. lodgepole pine) of lower quality, in addition to spruce-fir, that have not been included in the above acreages, thus, the above description is conservative. There's occasional occurrence information (Andrews and Righter, 1992; (Leukering et.al.1999, 2001, 2002); Kingery [ed.] (1998); USDA-FS 2003) to suggest these acres are likely occupied within ranges of historic ecological variation, more information than there is to say not.

Gunnison Sage-grouse
(*Centrocercus minimus*)

Distribution and Status
From Young 2002: "Historically, Gunnison Sage-Grouse were found throughout the southwestern portion of Colorado and the southeastern Utah. Gunnison Sage-Grouse currently exist in 6, possibly 7, counties in southwestern Colorado and 1 county in southeastern Utah (Young et al. 2000). The known historic distribution of this species in Colorado was in sagebrush (Artemisia spp.) communities below 3000 m south of the Eagle and Colorado rivers from near Leadville (Lake County) south and in sagebrush dominated shrub-steppe habitat into the San Luis Valley to the boundary with New Mexico and west to the Utah state line. It was known to occur in Grand and San Juan counties, Utah, south and east of the Colorado River. The distribution of the species was discontinuous within this area (Rogers 1964, Braun 1995) separated by river valleys and high forested mountains. The historic abundance prior to 1950 is unknown but, based on historical documents and interviews, was likely several orders of magnitude larger than present. The species currently occurs in 8 isolated populations with a total estimated spring breeding population of less than 4,000 individuals with the largest population (~2,500) in the Gunnison Basin (Gunnison and Saguache counties), Colorado. Some of the remaining populations are small, <150 breeding birds, and several former populations have disappeared since 1980 (Braun 1995). Young et al. (2000) have hypothesize that Sage-Grouse formerly native to New Mexico, northeastern Arizona, southwestern Kansas, and Oklahoma were also Gunnison Sage-Grouse".

From Young 2002: "Since the late 1970's researchers became aware that the Sage-Grouse in the Gunnison Basin, Colorado were unique from Sage-Grouse found elsewhere in most of the United States. In 1995, Drs. Clait Braun and Jessica Young proposed that the Gunnison Sage-Grouse were a distinct species and along with 3 other authors, they published their findings in the scientific journal, the Wilson Bulletin (Young et al. 2000). The American Ornithological Union has published (AOU 2000) their new checklist and have recognized the Gunnison Sage-Grouse as a newly named species and the United States Fish and Wildlife Service has designated the Gunnison Sage-Grouse as a candidate species under the Endangered Species Act (Fed. Reg. December 28, 2000)".

Life History
From Young 2002: *"Gunnison Sage-Grouse are about 2/3 the size of Sage-Grouse elsewhere (Hupp and Braun 1991), have different feathers, and produce different sounds with the yellow air sacs and their vocal apparatus. For example, note the whiter and more distinct tail feathers in the Gunnison male and the filoplume feathers being tossed over his head in comparison to the duller colors and simpler filoplumes of the Northern male. Males differ in their mating display to females as well. Both Gunnison and Northern males have elaborate plumage and physical traits females lack. They use these traits in a highly elaborate strut display that begins with a male taking a few steps forward as the wings are raised and lowered and brushed twice against the stiff, feathers of his white pouch, producing loud swishing noises. In addition to the mechanical noises produced by the wing movements, males utter a distinctive series of sounds by vocalizing and popping two air sacs within their pouches. The entire display for both types of Sage-Grouse lasts approximately 3 seconds! Sage-Grouse in Gunnison differ in their display by perform less displays per minute; however, they pop their yellow air sacs 9 times instead of 2 and create different sounds (Young et al. 1994). In addition, they have different visual aspects such as throwing their filoplumes over their head as shown above and often wagging their tail at the end of their display. Recent evidence has shown that the Sage-Grouse in Gunnison are genetically distinct as well (Kahn et al. 1999, Oyler-McCance et al. 1999)".*

"Perhaps the largest threat to Sage-Grouse populations in a general sense is increasing human population. Most of the impacts listed above are due to our increased presence in the sagebrush ecosystem. Population increases in the west continue to threaten native species such as the Sage-Grouse. Increasingly, habitat fragmentation produces small, isolated populations of Sage-Grouse which

may show reduced genetic variation from small effective population sizes and the resultant inbreeding. In addition, genetic diversity in natural populations may also be highly influenced by mating systems such as the Sage-Grouse's lek mating system. Sage-Grouse have a lek mating system in which males defend display territories and provide no resources such as nesting or foraging sites for females. Females choose males and often show a similarity in their choice. Typically only 10-15% of the males on a mating grounds mate and usually one or two of the males receive 80-90% of the copulations. As a result, only a small percentage of males mate and contribute genetically to subsequent generations (Vehrencamp et al. 1989, Young 1994). Such extreme skews in male mating success can severely reduce the amount of genetic variation in a population by reducing the effective population size. Reduction of genetic variation in populations may impair adaptation to environmental changes such as urbanization, disease, and the reduction of sagebrush habitat. Recent studies (Young 1994, Kahn et al. 1999, Oyler-McCance 1999) have shown that Sage-Grouse in the Gunnison Basin have low genetic variation".

This species and its habitat association with mosaics of sagebrush, grasslands, and riparian habitats are potentially threatened by adverse disturbance.

Trend

NatureServe Explorer (2002) provides no comment as to trend.

Rio Grande National Forest and SLRA-BLM Status

The San Luis Valley wildlife database lists 4 occurrences in the northern most portion of Saguache County in the vicinity of Alder State Wildlife area and Decker Creek on Bureau of Land Management lands (CDOW 2001a). The SLV occurrences were in1993 and 1994. The occurrences are listed as 'sage grouse' and do not make the distinction of the Gunnison species.

Recent assessment by the Bureau of Land Management (USDI-BLM 2002), describes "*the area used and potentially used by Gunnison Sage Grouse in the San Luis Valley is located on south Poncha Pass. This area is located in Saguache County directly south of the Chaffee County boundary. It is bounded on the east and west by the Rio Grande National Forest boundary and encompasses about 17,280 acres. About 11,520 are managed by the BLM, 640 acres by the Colorado State Land Board and 5,120 are privately owned. Less than 10,000 acres are presently used by sage grouse and the area that is used is on the east side of highway 285 from Swidinski Creek south to the /LD Ranch headquarters. Most of the area is managed for private livestock grazing, wildlife, recreation and watershed values."….."In April 1999, the CDOW and the BLM began a joint project to study the Gunnison Sage Grouse at Poncha Pass. This study was undertaken to estimate the number of Gunnison Sage Grouse inhabiting the area, provide insight into the habitats grouse use, and identify factors that may be limiting their population. Currently the sage grouse project is active and future transplants for 2003 are planned. The 2002 transplants were not a fruitful supplementation to the existing population because birds were not captured and released on Poncha Pass. The current estimation of Gunnison Sage Grouse is around 25 birds. Pepper Canterbury of the CDOW/BLM Sage Grouse Project, has been monitoring the existing population from the Gunnison area using radio telemetry and <u>has reported that none of the birds apparently use the Rio Grande National Forest</u>".*

Common Vegetation Unit modeling data on the RGNF results in a total of 893 acres of sagebrush (assuming big mountain sagebrush) on or near the Forest. These acres are dispersed over 37 patches ranging between 1 and 175 acres. Sagebrush that does not occur on the RGNF occurs on adjacent BLM lands. The preponderance of the modeled sagebrush occurs on the western slope of the Sangre de Cristo range in the vicinity of Alder State Wildlife Area; and between Crestone and Liberty, what is now the Great Sand Dune Preserve. These sagebrush areas are very isolated from the current Gunnison sage-grouse-occupied areas in the Gunnison Basin.

The precise unknown status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation due to potential sage grouse habitat being easily identifiable (mosaics of sagebrush, grasslands, and riparian). Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

Lewis' Woodpecker
(Melanerpes lewis)

Distribution and Status
Kingery [ed.] (1998) reports that Lewis's woodpecker is a species of western North America, breeding from the Colorado rocky Mountains west to the Pacific coast, British Columbia to Mexico. In Colorado, Lewis's woodpecker was primarily western slope until habitat changes after the turn of the century facilitated their colonization eastward via the Arkansas River.

Recently in Colorado, Lewis' Woodpecker breeding pairs have been estimated between 3,954 to 24,310 pairs with a mid-range of 14,055 pairs, which ranks them 132nd in abundance amongst 264 confirmed breeders (Kingery [ed.] 1998). The most BBS occurrences were along the Front Range, eastern plains, western slope and Four Corners areas. The Colorado Heritage Status Ranking is S4, which means apparently secure in association with breeding and non-breeding (NatureServe 2002).

Life History
From USDA-FS 1998: *"Lewis's woodpecker are primarily associated with cottonwood riparian and ponderosa pine ecosystems in Colorado, this species prefers open park-like stands of trees with brushy understories. The Lewis' Woodpecker is a primary cavity nester, but also uses natural cavities. Both living and dead trees are used for nesting, but snags 15' DBH or greater are preferred. A snag density of one per 10 acres in cottonwoods or ponderosa pine is required. Burned-over areas attract this species, but it is also found in fringes of pine and juniper tree stands in deciduous forests, especially riparian forests. Lewis' Woodpeckers feed on flying insects during the spring and summer months and fruits and berries in late summer. It gathers food, including acorns if available, and stores the food in crooks of trees for winter. No specific cover requirements are known for this species".*

Kingery [ed.] (1998) also reports that due to their habitat, behavior and diet, Lewis's woodpeckers are vulnerable to losses of snags or diseased trees in deciduous or ponderosa pine forests. Lewis's woodpeckers require open areas in forest to forage, so fire suppression make affect this habitat attribute. Lewis's woodpecker diet of insects may be threatened by insecticides especially in agricultural areas.

Trend
NatureServe Explorer (2002) provides comment as to trend: *"Global Trend Comments: On the basis of Breeding Bird Survey and Christmas Bird Count data, overall population may have declined by approximately 60 per cent (Tobalske 1997). Populations tend to be scattered and irregular and are considered rare, uncommon, or irregularly common throughout range; local abundance may be cyclical or irregular (Tobalske 1997). In the past century, populations have apparently declined in British Columbia by more than 50 percent and decreased in Oregon, California, and Utah (DeSante and George 1994). BBS data indicate a significant decline in the United States for the period 1966-1999 (-3.6 per cent average annual or 67 per cent overall decline; P = 0.00; N = 64 survey routes) and nonsignificant declining trend between 1980 and 1996 (-1.7 per cent; P = 0.22; N = 53; Sauer et al. 2000). Similar significant, negative trends are present survey-wide, and for the Western BBS Region and for US Fish and Wildlife Service Region 1. Washington State posted a significant decline averaging -8.4 per cent annually for the same period (P = 0.01, N = 10). Overall, however, BBS sample sizes are relatively low*

for robust trend analysis (Sauer et al. 2000). Significant declines have occurred in coastal areas of Washington and the species is extirpated from coastal British Columbia (S. Cannings, D. Paulson pers. comm.). Christmas Bird Count (CBC) data show nonsignificant declining trends survey-wide and in California, Colorado, and Oregon, and a nonsignificant increase in Arizona, for the period from 1959 to 1988 (Sauer et al. 1996). Ehrlich et al. (1992) suggest that populations appear to have stabilized recently, but those in riparian habitats in arid regions continue to be vulnerable to drought, overgrazing, and other habitat degradations. Threats: Vulnerable to processes that result in a permanent loss of large snags (nesting sites) or degradation of foraging habitat. Such habitat alteration evidently is the reason for the declines that have occurred in coastal areas of British Columbia and Washington. Drought and overgrazing pose continued threats to riparian habitats in arid regions (Ehrlich et al. 1992). Fire suppression encourages the replacement of ponderosa pine (PINUS PONDEROSA) forests by Douglas-fir (PSEUDOTSUGA MENZIESII), and leads to denser, closed-canopy forest stands. Will decline with fire suppression in ponderosa pine/Douglas fir stands compared to regular fire intervals of 10-30 years (Saab and Dudley 1998). May be most sensitive to destruction of specialized winter habitat (Sousa 1983). Sousa (1983) also suggested that European Starlings (STURNUS VULGARIS) may usurp nesting habitat".

Rio Grande National Forest and SLRA-BLM Status

From: USDA-FS 2003: *"Presently, there are no records of Lewis's woodpecker in the Forest database. Based on other available information, however, the Lewis's woodpecker appears to be a rare to locally uncommon species that primarily inhabits low-gradient stream systems (Type C Channels) in the San Luis Valley (Kuenning 1998, Rawinski 2001).The first confirmed breeding of Lewis's woodpecker on the Forest occurred on the Conejos Peak District in the Chama River Basin in 1989. Nesting in this location was later reconfirmed during survey efforts for the Colorado Breeding Bird Atlas Project (Rawinski 2001). Lewis's woodpeckers have also been observed during the breeding season on the Del Norte District up San Francisco Creek (ca. 1982) and again in 2001 (Rawinski 2001). Other sightings in the San Luis Valley include a 1999 observation at the Alamosa River Bridge near Capulin (Rawinski 2001), several individuals along the lower Alamosa River near the Forest boundary and 1 adult feeding 2 miles NE of Trickle Mountain on August 4, 2003.*

The precise status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation due to risk reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

The Revised Forest Plan articulates potential suitable habitat for Lewis's Woodpecker to amount to 43,060 acres of ponderosa pine Land Type Associations with half of the ponderosa type as mature. Regional data (USDA Forest Service, 1992) reflects 2.1 million acres of ponderosa pine of which an estimated 70% is between the average stand ages of 60 and 140 years old, and 10% is older. Although there are no PVA models, processes, or protocols for Lewis's Woodpecker, there is abundant potential habitat available for the species across the Rocky Mountain Region. There's occasional occurrence information (Andrews and Righter, 1992; (Leukering et.al.1999, 2001, 2002); Rawinski 2001; Kingery [ed.] (1998); USDA-FS 2003) to suggest that many acres are likely occupied within ranges of historic ecological variation, more information than there is to say not.

Loggerhead Shrike
(Lanius ludovicianus)

Distribution and Status
Kingery [ed.] (1998) reports that the loggerhead shrike occurs across the United States and Canadian prairies with highest densities in the central plains and southern states. Loggerhead shrike winter from Nevada and Virginia, south into Mexico.

Recently in Colorado, loggerhead shrike breeding pairs have been estimated between 7,318 pairs and 26,718 pairs with a mid-estimate at 16,700 pairs, which ranks them 127th in abundance amongst 264 confirmed breeders (Kingery [ed.] 1998). The preponderance of the estimates occurred in atlas blocks on the Front Range, eastern plains, southwestern corner, large valleys (including the San Luis Valley) and northwestern corner of the state. The Colorado Heritage Status Ranking is S3S4B, which means apparently secure in some locales and vulnerable in other locations association with breeding and SZN, which means migratory transient with non-breeding (NatureServe 2002).

Life History
From: USDA-FS 1998: *"The loggerhead shrike inhabits open country with scattered shrubs or small trees, such as shelterbelts, cemeteries, farmsteads, or hedgerows in the Plains country and Midwest. This species eats insects, mostly grasshoppers and crickets, small mammals, birds, and reptiles. Nests are a bulky mass of twigs and grass, lined with plant down and feathers, in a thorny shrub or tree".*

Kingery [ed.] (1998) reports arriving in early April depending upon area and establishing territories by May. Shrikes lay 4-7 eggs in a bulky twig and bark nest mid-May through June. The eggs incubate 16-17 days and the young fledge after 17-21 additional days.

This species and its habitat association with grasslands are obviously, potentially threatened by adverse disturbance.

Trend
NatureServe Explorer (2002) provides comment as to trend: *"Global Trend Comments: Has declined significantly nearly rangewide (Robbins et al. 1986). A slow decline began in the 1930s and continued until the late 1960s and 1970s when the decline accelerated. This pattern is well-documented in the literature for all but the Southern Great Plains and the West (Fruth 1988). North American Breeding Bird Survey (BBS) data for the period 1966-1989 indicate a 55% population decline nationally, 47% in the central states, and 59% in the western states. Since declines began before 1966, these are conservative figures for overall declines during the past century. Christmas Bird Count data for 1961-1978 documented a 22% decline in winter sightings nationwide (Morrison 1981). Declined in recent decades in western Canada (Telfer et al. 1989, Telfer 1992) and in eastern Canada (Cadman 1986, 1991). Robbins et al. (1986) summarized BBS data from 1965 to 1979 and gave a more detailed look at the geographic pattern of decline. Significant decreases occurred in all three regions (Eastern, Central, Western). Significant declines were recorded in four out of seven subregions (Southwestern States, Northern Plains States, Canada, and the Southeastern States). Eleven strata widely distributed across the country had significant decreases, and none had increases. Of the states, only South Dakota showed a significant increase, while the following states and provinces had large enough samples to show significant declines: Nevada, Texas, Oklahoma, Kansas, North Dakota, Saskatchewan, Ontario, Iowa, Missouri, Arkansas, Mississippi, Tennessee, Kentucky, Georgia, North Carolina, and Virginia. As of 1979, the largest populations were in the Florida Peninsula, New Mexico, and Oklahoma (Robbins et al. 1986), but the outlook for survival in southwestern Oklahoma is not good (Tyler 1992). From these data it is clear that the species suffered a widespread decline in the southern portion of its range in the 1960s and 1970s. There is no evidence to suggest that the species has recovered to any great extent since 1980,*

but it is still common enough in most of the southern portion of its range that most states in the region do not provide special protection or monitor populations. The small population in the northeastern states is not simply due to inadequate inventory; all northeastern states have been surveyed as part of statewide breeding bird atlas projects. The small population in northern New York disappeared almost twenty years ago (R. W. MacDonald, pers. comm.). Threats: Since shrikes are high on the food chain, pesticides have been implicated as a potential cause of the decline (Fraser and Luukkonen 1986). Threats in western Canada (Telfer et al. 1989) include habitat loss such as the conversion of unimproved pasture to cropland (Telfer 1992). Although the decline has been less severe in the southern U.S., climate is not an apparent cause. Shrikes continue to breed in northern New York, Alberta, Manitoba, Ontario, and Saskatchewan (Robbins et al. 1986). In West Virginia, immature shrikes have been observed several times in areas above 900 m in elevation. Shrikes are not particularly alarmed by proximity to human activity. Brooks (1988) noted that nests near buildings had a success rate similar to those farther away from buildings. In eastern Canada, declines probably have been due to loss of breeding habitat to changing agricultural practices, industrial development, residential development, and vegetation succession (Cadman 1986, 1991). Conclusive evidence that factor sduring the nonbreeding season are limiting is not available (Yosef 1994). A study documented cowbird nest parasitism in shrikes in Iowa, but the frequency was very low, only 3 out of 261 nests (DeGeus 1991). The same study found a high incidence of nest predation among shrikes nesting along roadsides (86% of all losses), and only 35% nesting success overall. Predation is apparently more intense in roadside and other linear habitats (DeGeus 1990). If shrikes are utilizing roadside habitat extensively throughout their range, high nest predation may be one explanation for their decline. Locally, mortality from vehicle collisions may be significant. A high incidence of automobile-caused mortality was noted by Miller (1931). Shrikes typically fly low to the ground, sometimes across roadways, and often feed on roads. Inexperienced juveniles have been observed following adults across highways and learning from adults to feed on highways (Hershberger 1989, Novak 1989). In many areas, hedgerows, barbed-wire fences, and other habitat features utilized by shrikes are concentrated along roadways. Fledglings and other juveniles are frequently killed by automobiles".

Rio Grande National Forest and SLRA-BLM Status

From USDA-FS 2003: *"Rawinski (2001) refers to the loggerhead shrike as a fairly common confirmed breeder in the San Luis Valley. Presently, however, there are only two records of loggerhead shrike in the Forest database. One sighting occurred on a ranch near Creede (1996) and the other at Saguache Park on the Saguache District (2002). Based on maps included in the Colorado Breeding Bird Atlas, the loggerhead shrike is also a confirmed breeder on the Divide District (Carter 1998). Rawinski (2201) also confirmed breeding in the Old Woman Creek area (Divide RD) in 1982. No records are recorded for the Conejos Peak District". This species is known to occur on BLM lands but records are not well documented in local databases.*

The precise status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation due to risk reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

The Revised Forest Plan articulates potential suitable habitat for loggerhead shrike to amount to 24,790 acres with the preponderance of the type as western wheat grasslands. Although there are no PVA models, processes, or protocols for loggerhead shrike, there is abundant potential habitat available for the species across the Rocky Mountain Region. Occasional occurrence information (Andrews and Righter, 1992; (Leukering et.al.1999, 2001, 2002); Rawinski 2001; Kingery [ed.] (1998); USDA-FS 2003) to suggest that many acres are likely occupied within ranges of historic ecological variation, more information than there is to say not. Andrews and Righter (1992) states that the species is widely distributed in the proper habitats and elevation.

Marten
(*Martes americana)*

Distribution and Status
From USDA-FS 1998: ***"****The marten is broadly distributed. It extends from the spruce/fir forests of northern New Mexico to the northern limit of trees in arctic Alaska and Canada, and from the southern Sierra Nevada of California to Newfoundland Island. In Canada and Alaska, its distribution is vast and continuous, but in the western contiguous United States, its distribution is limited to mountain ranges that provide preferred habitat (Buskirk and Ruggiero 1994)".*

The Colorado Heritage Status Ranking is S4, which means apparently secure in association with breeding and non-breeding (NatureServe 2002).

Life History
From USDA-FS 1998: ***"****In most studies of habitat use, martens were found to prefer late-successional stands of mesic coniferous forests, especially those with complex physical structure near the ground. Xeric forest types and those that lack structure near the ground are used little or not at all (Buskirk and Ruggiero 1994). On the Forest, the mesic conditions can be found in the spruce/fir, and mixed conifer forest types".*

"Complex physical structure, especially near the ground, appears to address three important life needs of martens. It provides protection from predators, it provides access to subnivean space where most prey are captured in the winter, and it provides protective thermal microenvironments, especially in winter (Buskirk and Ruggiero 1994). Structure near the ground may be contributed in various ways, including coarse woody debris recruited by gradual tree death and fall, coarse woody debris recruited en masse by fire, the lower branches of living trees, rock fields in forests, talus fields above timberline, shrubs, herbaceous plants, squirrel middens, and combinations of these (Buskirk and Ruggiero 1994)".

"The most important prey of martens in the West in winter are forest species (red-backed voles [Clethrionomys spp.] and pine squirrels [Tamiascurus spp.]) and herbaceous or riparian species (Microtus spp.). In the western United States in winter, the distribution and abundance of these species provide some measure of the value of habitats for foraging. Deer mice and shrews are generally eaten less than expected based on their numerical abundance (Buskirk and Ruggiero 1994)".

This species and its habitat association with mosaics of subalpine and montane forest habitats are potentially threatened by adverse disturbance.

Trend
NatureServe Explorer (2002) provides comment as to trend: *"Global Trend Comments: Adequate population data are unavailable for much of the range. Natural reestablishment and reintroduction programs have contributed to a moderate comeback in some areas of the northern U.S. (northern New England, Great Lakes region) (e.g., see Nowak 1991, Evers 1992).*
Threats: Past extensive logging and trapping for pelts led to extirpation in some areas. Susceptible to overharvest when food supplies are low (Thompson and Colgan 1987). Loss/degradation of habitat due to timber harvest remains a threat in some areas".

Rio Grande National Forest and SLRA-BLM Status
From USDA-FS 2003: *"Local survey efforts conducted specifically for American marten have not been conducted on the Rio Grande National Forest or BLM. During the period from 1992 through 1995,*

however, a considerable amount of information was collected on martens by the Colorado Division of Wildlife during survey efforts for wolverine (Kenvin 1992, 1993, 1994-95). Additional marten information was collected during 1990-91 survey efforts by a consulting firm in the Wolf Creek Pass area (Thompson et al. 1992). These efforts were focused in the alpine and spruce-fir landtypes and included infra-red camera stations, snow tracking routes, hair snag stations, and aerial surveys. The 1992 effort involved 60 camera stations within an area of about 164 square miles of habitat dominated by spruce-fir cover types. Marten were detected at nine of these locations, particularly in the Weminuche Wilderness area near Trout Mountain. The 1993 effort involved 60 camera stations in the South San Juan Wilderness over an area of about 120 square miles. Marten were detected at only one site during this survey but efforts may have hindered by equipment failures (Kenvin 1993). The 1994-95 effort used winter sampling (December – February) on about 600 square miles of the Rio Grande and Gunnison National Forests from LaJara Reservoir to Slumgullion Pass. This effort sampled aspen and Douglas-fir habitats as well as spruce-fir and alpine. Marten were detected at 47 of the 50 bait stations and/or noted while snow tracking into the areas. Thus, a total of 57 site detections of marten are currently known on or near the Forest. Forty-three (75%) of these locations occur on the Divide Ranger District, 13 (23%) on the Conejos Peak District, and 1 (2%) on the Saguache District. The Saguache District is considered under-sampled since none of the wolverine surveys occurred there". There is limited potential for Marten habitat on BLM lands.

The precise status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation. Marten is known to occur in the project area and elsewhere, thus it is likely that it is well distributed and abundant within suitable habitat.

There are no known population viability tools, processes, or protocol for marten. Assuming the most historical critical limiting factor for marten of human trapping (furbearer) has been removed through Amendment 16 (no more trapping), then the only criteria available at to evaluate for marten is habitat criteria.

The Revised Forest Plan articulates potential suitable habitat for marten to amount to 651,570 acres as spruce-fir, Douglas-fir and aspen. Regional data (USDA Forest Service, 1992) reflects 12.5 million acres of montane and subalpine forests. An estimated 70% (8.75 million acres) of those forest types are relatively mature, which would likely offer abundant cover and forage opportunities for marten. Much of the Colorado's montane and subalpine conifer habitats are managed through protective management emphases of semi-primitive, nonmotorized recreation in roaded or nonroaded areas [MA 1.2; 1.31; 1.32;1.41] or are designated wilderness [MA1.11; 1.12 1.13] (USDA-FS 1984; USDA-FS 1998; USDA-FS 1996a). There are no PVA models, processes, or protocols for marten. There is abundant potential habitat available for the species across the Rocky Mountain Region. There's occasional occurrence information (Fitzgerald et. al. 1994) to suggest these acres are occupied within ranges of historic ecological variation, more information than there is to say not.

Mountain plover
(Charadrius montanus)

Distribution and Status
From: USDA-NRCS (2001) – **"***Breeding occurs in Colorado, Montana, Wyoming, Oklahoma, Utah, New Mexico, Nebraska, and Texas (in order of breeding abundance). Current information also shows a very small number of breeding birds in Mexico. Most breeding plovers occur in Colorado, Montana, and Wyoming with many fewer in other states. One-half the entire population may breed in Colorado. Distribution in Colorado is primarily on the Eastern Plains and Park County, however a few breeding birds have been observed in Costilla, Conejos, Moffat, and Rio Blanco counties. Historically, the Pawnee National Grassland was considered the breeding stronghold in Colorado and perhaps for the entire*

population. New breeding sites found since 1995 suggest that the plover may be more widely distributed in Colorado than previously known with additional birds noted in South Park. Plovers occupy breeding range from about April 1 through August 1. Winter: Current known wintering concentration is California, primarily in the Imperial Valley and Central Valley. Many fewer (less than hundreds rather than thousands as in California) mountain plovers have been reported from Arizona, Texas, and Mexico. Plovers occupy winter sites in California from mid-October to mid-March".

From: USDA-NRCS (2001) – *"This bird has been designated as a Federal Proposed species by the U. S. Fish and Wildlife Service (FWS) under authority of the Endangered Species Act (ESA). The current population is probably less than 10,000 birds worldwide. Evidence that the mountain plover is continuing to decline is provided by long term research conducted at breeding sites in Montana and Colorado, Breeding Bird Survey data, Christmas Bird Count data from California, and National Wildlife Refuge records from California. While there is no reliable estimate of the rate of decline, the number of nesting mountain plovers on breeding transects in Montana and Colorado has declined during the past 10 years, and fewer mountain plovers are reported from key wintering areas in California. The mountain plover is threatened by spring tillage, sodbusting, certain types of range management activities, some oil and gas activities, and prairie dog control".*

Life History

From: USDA-NRCS (2001) – "*The mountain plover belongs to the order Charadriiformes, the shorebirds, and the family Charadriidae, along with the killdeer and several other plovers. Mountain plover is the endemic plover of the short-grass prairie. About the size of a killdeer, the mountain plover averages 7-1/2 inches in length, with yellow to flesh-colored legs, and a short, fairly thick bill. During the breeding season, the mountain plover has a distinct black cap and a thin black line between the eye and the bill. Mountain plovers lack the black breast bands common to other plovers. The diet of this neotropical migrant is 95% insects. A key feature that distinguishes the mountain plover from the killdeer is the lack of black bands on the chests of plovers".*

From: USDA-NRCS (2001) – "*Breeding: Nest sites typically occur in areas with vegetation less than 10 cm (4 inches) in height; having at least 30 percent bare ground; and less than 5 percent slope. Nest sites are usually heavily grazed by domestic livestock or prairie dogs. Vegetation in eastern Colorado usually consists of blue grama, buffalo grass, and prickly pear. Mountain plovers avoid wet sites. Taller vegetation or other structure (e.g. fence posts) may be used by chicks for shade. General Habitat Modification Techniques:Mountain plovers appear to have an affinity for sites that are disturbed by grazing, burning, or mechanical modification. Consequently, mountain plovers are found on sites that are heavily grazed (e.g. domestic livestock or prairie dogs), have been burned to control vegetative composition and structure, or that have been cultivated. Some dryland croplands mimic natural habitat associations. Mountain plovers attempt to nest on some of these sites and then may be exposed to routine spring tillage practices. There is inferential evidence to suggest that nest destruction caused by spring tillage may contribute to their decline. Critical physical components of ideal plover habitat are: flat slopes-5 percent or less large acreages-80 to 250 acres thought to be ideal. Additional characteristics of good plover habitat are keeping vegetation height at or below 4 inches during nesting season and maintaining at least 30 percent bare ground. Plovers are frequently found in prairie dog colonies, so most efforts that maintain prairie dogs will also benefit mountain plovers".*

Trend

Unknown

Rio Grande National Forest and SLRA-BLM Status

Survey/occurrence searches occurred utilizing local and regional sources including the Rio Grande National Forest files (USDA-FS 1996b, 2002); the Colorado Natural Heritage Program (CNHP 2002, 2001); and the Colorado Division of Wildlife (CDOW 2001). Population and habitat surveys have not

been initiated on the Rio Grande NF, but prairie dog towns have been recently (2002) mapped in the vicinity of Saguache Park in western Saguache County (personal comm. - L. K. Wiley 2002). No specific survey has been accomplished associated with this assessment primarily due to the relative, overall lack of suitable habitat and the nature of soil, watershed and fisheries conservation treatments are actions that result in stabilizing and /or improving habitats.

No specific survey has been accomplished associated with this assessment primarily due to the relative, overall lack of suitable habitat and the nature of soil, watershed and fisheries conservation treatments are actions that result in stabilizing and /or improving habitats.

Mountain Plover have been recently (1998) found to be nesting in the San Luis Valley through breeding bird atlas work (Kingery et. al. 1998). These occurrences are in proximity to the Rio Grande National Forest boundary, and nesting is known to occur on SLRA-BLM lands. There are no records of mountain plover on the Rio Grande National Forest USDA-FS 1996b, 2002; CNHP 2002, 2001; CDOW 2001).

Rawinski (2001) reported: *"Unusual breeder in isolated parts of the Valley. Known breeder south of Monte Vistas gunbarrel road and north of Capulin where Rawinski reported at least 3 displaying territorial flight in May 1983. They are seen in this area regularly each year, with few exceptions. One individual also seen near Blanca by Rawinski in 1986. Dean Swift reports them as fairly regular near Jaroso, Colorado in the subdivisions. On May 1, 1991 Rawinski saw 3 adults in territorial flight display up Findley Gulch, 2 miles south of Forest boundary on BLM lands. In summer 2000, BLM employees found a new population south of Capulin. In April 2001, JR collected video of two birds on territory, BLM, Little Mogote Allotment, west of La Jara. In May 2001, birders from Gunnison counted 8 birds in the area south of Capulin in the horse pasture and state land, section 36 near Trujillo Canyon. Lisa Clements, working for BLM in summer 2000 found some near a BLM water development and took a GPS point. She gave directions to John Stump, local birder, who went out there west of La Jara and saw an adult with young. First return date one bird south of Capulin, April 6, 2000 JR on BLM lands."*

In 2002, 23 individual birds were located southwest of Capulin on SLRA-BLM and State lands by J. Nehring and L. Rawinski. Breeding birds have been documented on these areas as well (pers. com. Clark 2003).

There has been no proposal of designated critical habitat for Mountain Plover by the U. S. Fish and Wildlife Service.

The habitat status and potential occupation of suitable habitat by Mountain Plover on State, tribal, local or private lands within the National Forest boundary and within the San Luis Resource Area boundary is somewhat unknown. Mountain Plover breeding is briefly documented in the San Luis Valley mentioned in Rawinski (2001).

Northern Goshawk
(Accipiter gentilis atricapillus)

Distribution and Status
From USDA-FS 1998: **"***The goshawk is Holarctic in distribution. In North America, it occurs from central California, Arizona, northern New Mexico, north and northeast through New Mexico, Colorado, and South Dakota east across the southern Lake States and south into the Appalachian Mountains to North Carolina Braun et al. 1996). This subspecies occurs from the north-eastern U.S. across the boreal forests of Canada to Alaska, and southward through the upland forests of western U.S. (Reynolds et al. 1992)".*

"In Colorado, it is considered a rare to uncommon resident in foothills and mountains (Andrews and Righter 1992). It has been seen throughout the Forest in a variety of forest cover types".

Recently in Colorado, northern goshawk breeding pairs have been estimated at 1,249 pairs, which ranks them 192nd in abundance amongst 264 confirmed breeders (Kingery [ed.] 1998).

Life History

From USDA-FS 1998: ***"****Reynolds et al. (1992) called the species a forest generalist because it occurs in all major forest types (coniferous, deciduous, and mixed). They also noted that because of its relatively large body size and wing span, the goshawk seldom uses young dense forests. The reasoning was there would be few large trees in which the goshawk could place its nests, and there would be insufficient space in and below the canopy to facilitate flight and capture prey".*

"Goshawks are predators of forest birds and mammals (e.g., robins, flickers, squirrels, cottontails). While there are variances between regions on type of prey, there is a common trait: the majority of the important prey species reside mainly on the ground and in the lower portions of the tree canopy (Reynolds et al. 1992). The implications of this are that in areas that have tall and very dense understories, goshawk populations may effectively be diminished since there would be more cover for the potential prey species to hide and escape (Reynolds et al. 1992)".

This species and its habitat association with relatively large diameter and moderately dense forest stands are potentially threatened by adverse disturbance.

Trend

NatureServe Explorer (2002) provides comment as to trend: *"Global Trend Comments: Trends are difficult to determine due to the paucity of historic quantitative data and because of biases inherent in the various methodologies used to track bird populations. Nesting range in the eastern U.S. is currently expanding as second-growth forests mature (Squires and Reynolds 1997). In the west, clearcut logging of old-growth forests, fire suppression, and catastrophic fire are postulated to be reducing habitat and thus populations, especially that of the subspecies LAINGI (USFWS 1994). However, conclusive data supporting the purported decline in the western U.S. are lacking (USFWS 1997, Kennedy 1997). Christmas Bird Count (CBC) data (1959-1988; Sauer et al. 1996), North American Breeding Bird Survey (BBS) data (1966-1996; Sauer et al. 1997), and counts of migrants in the eastern U.S. (1972-1987; Titus and Fuller 1990) do not indicate any significant changes in populations. Data derived from CBC and BBS are difficult to interpret due to low sample sizes and the possibility that birds counted may not be a random sample of the breeding population. Counts from migration monitoring stations are complicated by population fluctuations resulting from periodic invasions of large numbers of birds (Bednarz et al. 1990, Titus and Fuller 1990, USFWS 1998).*
Threats: HABITAT: Timber harvest is the principal threat to breeding populations (Squires and Reynolds 1997). In addition to the relatively long-term impacts of removing nest trees and degrading habitat by reducing stand density and canopy cover, logging activities conducted near nests during the incubation and nestling periods can have an immediate impact: nest failure due to abandonment (Boal and Mannan 1994, Squires and Reynolds 1997). Following canopy reduction by logging, goshawks are often replaced by other raptors including Red-tailed Hawk (BUTEO JAMAICENSIS), Great Horned Owl (BUBO VIRGINIANUS), and Long-eared Owl (ASIO OTUS; Crocker-Bedford 1990, Erdman et al. 1998). Fire suppression, grazing, and insect and tree disease outbreaks can result in the deterioration or loss of nesting habitat (Graham et al. 1999). PREDATION: The incursion of Great Horned Owls is especially significant as they prey on both adult and nestling goshawks (Boal and Mannan 1994, Erdman et al. 1998, Rohner and Doyle 1992). Other known or suspected predators include martens (MARTES AMERICANA), fishers (MARTES PENNANTI), and wolverines (GULO GULO; Doyle 1995, Erdman et al. 1998, Graham et al. 1999, Paragi and Wholecheese 1994). PESTICIDES: Presently, pesticides do not appear to be a major threat, presumably since agricultural landscapes are seldom used. In the early

1970s, pesticide levels in tested birds were low, and egg thinning due to DDT contamination had not occurred in most populations (Snyder et al. 1973). In addition, population trends derived from counts of migrants at Hawk Mountain, Pennsylvania, were generally upward during DDT period, 1946-1972 (Squires and Reynolds 1997). HUMAN DISTURBANCE: Although often persecuted in the past (Bent 1937), intentional shooting or trapping is no longer considered a significant source of mortality. The impact of falconry is generally unknown; however, in northern Wisconsin falconers removed an estimated 5 percent of young annually from monitored nests during a 21-year period (Erdman et al. 1998). DISEASE: Bacterial and fungal diseases have been observed, as have infestations of both external and internal parasites (summarized in Squires and Reynolds 1997). Infections of the fungus ASPERGILLUS were found to be more prevalent in migrants captured in Minnesota during invasion years than non-invasion years, possibly due to stress (Redig et al. 1980)".

Rio Grande National Forest and SLRA-BLM Status

From USDA-FS 2003: *"The Colorado Breeding Bird Atlas lists the goshawk as a possible, probable, and/or confirmed breeder in all counties that occur within the Forest (Kingery 1998). Rawinski (2001) noted that the goshawk is a breeder on the Forest as well as an unusual year-round resident. Currently, there are 34 goshawk observations documented in the Forest database. These sightings occur on all districts of the Forest and are associated with the mixed-conifer landtype (LTA 3) through the upper elevations of the spruce-fir landtypes (LTA 1 and 13). The dates of these sightings vary annually from 1 May to 28 September, with most occurring during June, July and August. There are currently eight known goshawk territories on the Forest that contain a total of 13 nest sites in various stages of use (Ferland 2002). Six additional historic sites are noted in the Forest database, four of which could not be relocated during 2002 and two of which were not investigated. Of the 8 known territories, three were active in 2002 and had an average productivity of 1.60 young per pair (Ferland 2002). As noted previously, 62 percent of these nests occur in intermediate to mature quaking aspen stands, indicating that this forest type may be important for local nesting activities. Information by Rawinski (2001) suggests that the goshawk may occasionally remain as a local winter resident or short-distance migrant. Complete movement and nesting chronology information for the Forest, however, is lacking". No nesting is known to occur on BLM, however, nesting is likely to occur particularly in areas adjacent to the Forest.*

The precise unknown status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation due to risk reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

The Revised Forest Plan articulates potential suitable habitat for northern goshawk to amount to 677,290 acres as spruce-fir, ponderosa pine, Douglas-fir and aspen. Regional data (USDA Forest Service, 1992) reflects 9.7 million acres of these forest species with most types being relatively mature. Although there are no PVA models, processes, or protocols for northern goshawk, there is abundant potential habitat available for the species across the Rocky Mountain Region. One cannot reasonably assume that these millions of acres of spruce-fir, ponderosa pine, Douglas-fir and aspen are not occupied by northern goshawk to some unmeasured degree. There are other habitats (e.g. lodgepole pine) of lower quality, in addition to spruce-fir, that has not been included in the above acreages, thus, the above description is conservative. There's occasional occurrence information (Andrews and Righter, 1992; (Leukering et.al.1999, 2001, 2002); Rawinski 2001; Kingery [ed.] (1998); USDA-FS 2003) to suggest these acres are likely occupied within ranges of historic ecological variation, more information than there is to say not.

Northern Leopard Frog
(Rana pipiens)

Distribution and Status
From USDA-FS 1998: **"***The leopard frog is found throughout northern North America except on the West Coast (Behler and King 1979). According to Hammerson (1986) the northern leopard frog prefers the banks and shallows of marshes, ponds, lakes, reservoirs, beaver ponds, streams and other permanent bodies of water, especially those with rooted vegetation". "The Colorado Natural Heritage Program (1997) ranking is G5/S2. This means that even though it is considered globally secure, it is imperiled in the state".*

Life History
From USDA-FS 1998: **"***Since the 1960s populations have declined dramatically, or become locally extinct (Gilbert et al. 1994, Beaurengard and Leclair, Jr. 1988). Two major factors have been implicated, overexploitation and habitat deterioration (Gilbert et al. 1994). The first is due to the use of animals for research, e.g. taking for fish bait (Merrell 1977). The second is related to the decline in riparian/wetland habitats throughout its range. Reductions in wetland abundance has had a direct effect. Introductions of fish, such as trout, may also be a factor in declines because tadpoles are vulnerable to predation (Merrell 1977)".*

"Once breeding is complete, leopard frogs inhabit grassy meadows within a jump or two of escape into water (Gilbert et al. 1994, Merrell 1977). Adults are highly mobile, moving at night or when vegetation is wet. Roads can be readily crossed, but road kills can be substantial during mass migration. Although herbaceous cover is critical, there is a negative relation with litter thickness. A thick litter lay may preclude frogs from contact with moist soils and increase the likelihood of desiccation. Vegetative structure rather than composition regulates habitat quality. Grasses 6 to 12 inches in height are preferred possibly because insect prey are abundant, visible, and accessible (Merrell 1977)".

"Pond habitats associated with beaver complexes appear to be the preferred habitat for leopard frogs on the Forest, based on casual observation. Beaver complexes afford the slow moving backwaters. Leopard frogs overwinter submerged in lakes, ponds, wetlands and streams (Cunjak 1986, Merrell 1977). Winter sites must not freeze completely, therefore shallow ponds or streams may be unsuitable (Merrell 1977)".

Trend
NatureServe Explorer (2002) provides global trend as: *"Probably declining in population size, area of occupancy, and condition of occurrences". "Threats and degree of threat vary greatly across the range. Threats include habitat loss, commercial overexploitation, and, in some areas, probably competition/predation by bullfrogs or other introduced species. Decline in Rocky Mountains (Corn et al. 1989) is not due to acidification of breeding habitats (Corn and Vertucci 1992). Laboratory results suggests that there may be an interaction between crowding, temperature, and mortality from bacterial infection (e.g., red-leg disease); there was higher mortality when frogs were subjected to crowding and high temperatures (Brodkin et al. 1992). In Ontario, Canada, leopard frog population density was negatively affected by vehicular traffic within a radius of 1.5 km (Carr and Fahrig 2001)".*

Rio Grande National Forest and SLRA – BLM Status:
From USDA-FS 2003: *"Records of northern leopard frogs at elevations comparable to the Rio Grande National Forest appear to be sketchy. Hammerson (1999) does report nearly metamorphosed young at 8,400 feet during mid-August in Hinsdale County, however, no site record is displayed for this location. Hammerson (1999) also reports that metamorphosing northern leopard frogs were found in early August*

at 10,500 feet in southern Colorado. This record is associated with a biogeographical analysis of herptofauna in the San Luis Valley in 1968 and was unavailable at the time of this evaluation. However, one site location in Hammerson (1999) does correspond with the upper reaches of the Conejos River around the location where it turns westward towards Platoro. At this time, it is unknown if this is the same record associated with the 1968 analysis. Surveys for boreal toads during 1994, 1997, and 1998 did not locate any northern leopard frogs on the Forest (Fetcavich 1994, Hunsung and Alves 1997, 1998). Northern leopard frogs are reported from several locations in the San Luis Valley. These include the San Luis Lakes area (1991), the McIntyre Springs area (1991, 1994), the Cross Arrow Ranch (1991), Oxbow Lake (1991), the Weizbert Fish Pond (1991), the Blanca Wetlands area (1991, 1995, 2002), and in unknown wetlands south of Adams Lake (1991)". Northern Leopard Frogs are known to occur and reproduce in the Blanca Wetlands. They are seen on a daily basis.

As previously discussed with boreal toad, the only criteria available to evaluate for northern leopard frog is habitat criteria. The Revised Forest Plan articulates potential suitable habitat for boreal toad to amount to 129,400 acres (in the classification of "riparian area"). There are 1,050 stream miles suitable for trout and 8,281 lake surface acres on the Rio Grande National Forest (pers. comm. B. Wiley, RGNF-05/15/2002). None of the above figures suffice for estimates of potential leopard frog breeding habitat across the RGNF.

The precise unknown status of this species' potential occurrence in the project area (with the exception of the Blanca Wetlands and McIntyre/Simpson) does not adversely affect this analysis or biological evaluation due to potential northern leopard frog habitat being easily identifiable (riparian and ponds). Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

There are no known population viability tools, processes, or protocol for northern leopard frog. Management direction associated with the viability of the boreal toad (provided through the *Boreal Toad Conservation Plan and Agreement* [Loeffler 1998]) and through Forest Service Watershed Conservation Practices Handbook (2509) provide protective management for habitat and water resources associated with the species.

Olive-Sided Flycatcher

(Contopus cooperii; formerly *borealis)*

Distribution and Status

From USDA-FS 1998: *"Primary wintering range of the olive-sided flycatcher, a long range Neotropical migrant, is Panama and the Andes Mountains of north and western South America (Fitzpatrick 1980). This flycatcher breeds only in North America. The western North America breeding range extends south from south-central Alaska eastward through Canada to north-central Manitoba. It extends south in the Rocky Mountains to the higher elevations of northeastern Arizona, northern New Mexico, and western Texas, and the Sierra Nevada Mountains south to northern Baja California (Altman 1997)".*

"In Colorado, the olive-sided flycatcher is a montane summer resident at elevations of 7,000 to 11,000 ft. (Andrews and Righter 1992). It occurs on all Districts of the San Juan-Rio Grande National Forest and is classified as a common nester by the Durango Bird Club (1992). There have been no structured Forest-wide inventories conducted specifically for this species".

"The olive-sided flycatcher was previously listed as a Federal Candidate (Category 2) species prior to discontinuance of the Category 2 list. It is currently listed as Species of Management Concern in each of the seven regions of the U.S. Fish and Wildlife Service. The Partners in Flight Conservation Priority

Score for this flycatcher is 24 (very high priority). BBS data show significant declines for all continental, national and regional analyses and for most state and physiographic region analyses (Altman 1997). Continental declines have been significant (4%), with extremely low variance (Colorado Bird Observatory 1997)".

Recently in Colorado, olive-sided flycatcher breeding pairs have been estimated to range between 19,362 pairs to 119,404 pairs with a mid-estimate of 71,348 pairs, which ranks them 88th in abundance amongst 264 confirmed breeders (Kingery [ed.] 1998). The Colorado Heritage Status Ranking is S3S4B, which means apparently secure in some locales and vulnerable in other locations association with breeding and SZN, which means migratory transient with non-breeding (NatureServe 2002).

Life History

From USDA-FS 1998: ***"****Olive-sided flycatcher breeding habitat in the west is primarily mature spruce/fir, Douglas-fir and less often in other coniferous forests, montane and foothill riparian, and aspen forests in the 7,000 to 11,000 feet elevational range (Andrews and Righter 1992). Within these habitats it occurs primarily 1) within forest burns where snags and/or tall, residual live trees remain; 2) near water along the wooded shores of streams, lakes, rivers, beaver ponds, bogs and muskegs, often where standing dead trees are present; 3) at forest edges near natural or man-made openings in the forest; and 4) in open or semi-open forest stands with a low percentage of canopy cover, rather than in the forest interior or beneath the forest canopy (Altman, 1997). Additional important habitat in western mountains includes scree or talus slopes with forest patches or clumps of tall trees and steep canyon walls with tall perches providing wide-ranging vistas above the surrounding forest canopy (C. Schultz, pers. comm.) Tall trees, spiked tops, snags or high conspicuous dead branches, which serve as foraging and singing perches and adequate live trees for nesting sites, is a common feature of all nesting habitat. This affinity for unusually large trees for perching may be a limiting factor in its abundance and distribution (Finch 1992). During migration it occurs in all types of wooded habitats. In Northern New Mexico they return in mid-April and are usually gone by early September (Ligon 1961)".*

"Nests have been reported at forest edge but none have been described as occurring with the forest interior (Hutto 1995 and Altman 1997). Nests are well hidden in a cluster of needles and twigs on a horizontal branch of a live conifer, well away from the trunk and usually high off the ground (Ehrlich et al. 1988). Nest heights in western North America is usually 4 to 67 feet (Altman 1997). It is a rare cowbird host (Ehrlich et al. 1988). Limited data indicates a strong site fidelity at the wintering and breeding grounds (Altman 1997)".

"The olive-sided flycatcher is an aerial insectivore that forages from a high prominent perch mostly at the top of a snag or the dead tip or uppermost branch of the tallest trees where it flies out (sallying or hawking) to capture a flying insect, and then returns to the same or another prominent perch. Unlike other flycatchers it is entirely restricted to sallying or hawking for prey (Eckhardt 1979). Its foraging behavior requires exposed perches and unobstructed air space, thus tall trees and open canopy provide a better environment than closed canopy forest. Bees, wasps and flying ants make up a high percentage of their diet".

Trend

NatureServe Explorer (2002) provides comment as to trend: *"Global Trend Comments: North American Breeding Bird Survey (BBS) data indicate declines since 1966 across much of North America; significant overall decline of 70% (3.6%/year) from 1966 to 1999, 53% (3.7%/year) from 1980 to 1999 (Sauer et al. 2000). Declines are relatively similar across range; the only state or province with a significant positive trend estimate for 1966-1999 is Alberta (3.1%); however, its trend estimate for 1980-1999 is negative, but not significant. Until 1986, when 20-year analyses of BBS data became available, there appeared to be no detectable decline of this bird in North America. The lack of concern expressed by experienced*

field observers may have resulted from the difficulty of detecting population trends for a species that is locally or patchily distributed even within the center of its range, and absent from vast expanses of apparently ideal habitat. In Ontario, for example, Cheskey (1987) found little evidence to suggest that the distribution or abundance had changed significantly within the past century. Abundance estimates suggest that this bird is thinly distributed throughout its range in the province, although it can reach densities of 100 pairs per sq km in some areas (Cheskey 1987). Trends in states in the Northeastern U.S. are discussed by Peterson and Fichtel (1992). Threats: Causes of decline are not well known. WINTERING HABITAT AVAILABILITY: As a neotropical migrant that may spend only three to four months of the year on its North American breeding grounds, the flycatcher is at risk from deforestation on its wintering grounds in Central and South America. Forest land in Middle America is being cleared at a high rate (Terborgh 1980). In California, Marshall (1988) found that some forest bird birds breeding on Redwood Mountain in Tulare County in the 1930s were no longer present in the 1980s. Although portions of virgin sequoia (SEQUOIADENDRON GIGANTEUM) forest within Kings Canyon National Park remained, the flycatcher had disappeared. Marshall (1988) speculated that the disappearance from suitable, unchanged habitat was caused by the destruction of corresponding forests in Central America, where these birds maintain their winter territories. NESTING HABITAT AVAILABILITY/QUALITY: Prefers openings with dead standing trees; these areas are naturally found near water (mountain tarns, backwaters of lakes and rivers, beaver flows), burns (both natural and those set by aboriginal peoples), and blowdowns. Many studies in western North America conclude that this species is more abundant in some types of logged forest (especially those with suitable structural features retained) than it is in unlogged stands (Altman and Sallabanks 2000). Frechtel (1985) felt that continued logging in Vermont probably created habitat by creating openings in the forest. Hall (1983) observed that recently lumbered and burned areas supported flycatchers in West Virginia. However, the continuing increase in availability of logged forest openings is at odds with the documented overall decline in numbers of this species. Perhaps logged forest, although attractive to flycatchers, is an 'ecological trap' (Altman and Sallabanks 2000) and is actually a low quality breeding habitat. This hypothesis is supported by preliminary study in western Oregon, where nest success was substantially higher in postfire habitat than it was in several types of harvested forests (Altman and Sallabanks 2000). Fire suppression throughout the breeding range undoubtedly limits the acreage of available habitat; large areas of dense, second growth forests growing up following cutting or fires are being maintained as closed canopy forests through intensive fire control. A likely threat to habitat in the southern Appalachians is acid precipitation and insect damage. A forest dominated by dead trees would not support these flycatchers (Peterson and Fichtel 1992). OTHER FACTORS: Pesticide applications to control blackflies, mosquitoes, or injurious forest insects could have a severe local impact upon the prey base of this flycatcher, both in North America and on its wintering grounds, but this hypothesis lacks documentation. A rare host to the brown-headed cowbird (MOLOTHRUS ATER), with just three records of cowbird parasitism (Friedmann 1963, Terres 1980).

Rio Grande National Forest and SLRA-BLM Status

From USFDA-FS 2003: *"Presently, the Forest database provides only two records of olive-sided flycatchers occurring on the Rio Grande National Forest and BLM. Both of these occur on the Divide District in spruce-fir habitats. However, these records most likely indicate a failure to report sightings rather than any apparent rareness. For example, information from the Colorado Breeding Bird Atlas detected olive-sided flycatchers in several Atlas Blocks on all districts of the Forest (Kingery 1998). This effort led to the determination that the flycatcher is a confirmed breeder on the Saguache District, and a possible breeder on the Divide and Conejos Peak Districts. Rawinski (2001) also notes that it is an unusual but regularly occurring species and likely breeder in the spruce-fir zone".*

The precise status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation. Olive-sided flycatcher is known to occur in the project area and elsewhere, thus it is likely that it is well distributed and abundant within suitable habitat in Piedras Area, and Weminuche or South San Juan wildernesses. Agencies are not surveying for olive-sided flycatcher

due to it's relative abundance. Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

There are no known population viability tools, processes, or protocol for olive-sided flycatcher. Similarly as with boreal owl, the only criteria available to evaluate for olive-sided flycatcher is habitat criteria. Habitat criteria are limited to spring, summer, and fall habitats and do not account for winter habitat or other effects to population viability south (e.g. Mexico) of Colorado.

The Revised Forest Plan articulates potential suitable habitat for olive-sided flycatcher to amount to 753,610 acres as spruce-fir, Douglas-fir and aspen. Regional data (USDA Forest Service, 1992) reflects 7.6 million acres of these forest species with most types being relatively mature. Although there are no PVA models, processes, or protocols for olive-sided flycatcher, there is abundant potential habitat available for the species across the Rocky Mountain Region. One cannot reasonably assume that these millions of acres of spruce-fir are not occupied by olive-sided flycatcher to some unmeasured degree. There's occasional occurrence information (Andrews and Righter, 1992; (Leukering et.al.1999, 2001, 2002); Rawinski 2001; Kingery [ed.] (1998); USDA-FS 2003) to suggest these acres are likely occupied within ranges of historic ecological variation, more information than there is to say not.

Osprey
(Pandion haliaetus)

Distribution and Status
From USDA-FS 1998: ***"****Ospreys are Neotropical migrants that winter in the southern U.S., Mexico and south to Chile and northern Argentina (DeGraaf et al. 1991). They breed from northwestern Alaska and northern Yukon to central Labrador and Newfoundland, south locally to Baja California, central Arizona, southern Texas, the Gulf Coast and southern Florida".*

"As of 1992 there were at least 15 confirmed or probable breeding records in Colorado at an elevation range of 8,000 to 10,000 feet (Andrews and Righter 1992). These sites are in the mountains nearly statewide, but concentrated in the northern half of the state. The largest concentrations are at reservoirs in eastern Grand County. There are at least 4 nesting sites within the San Juan National Forest boundary including one near Williams Creek Reservoir. There are no confirmed nesting sites on the Rio Grande side of the forest".

Recently in Colorado, osprey breeding pairs have been estimated at 110 pairs, which ranks them 232nd in abundance amongst 264 confirmed breeders (Kingery [ed.] 1998). The Colorado Heritage Status Ranking is S3B, which means vulnerable in association with breeding and SZN, which means migratory transient with non-breeding (NatureServe 2002).

Life History
From USDA-FS 1998: ***"****Osprey are closely associated with rivers and lakes where there is adequate supplies of fish. Osprey do not maintain large exclusive breeding territories and defend only the immediate area around the nest site thus enabling high nest densities in some cases (Dobkin 1992). Osprey nest primarily in large trees, either live or dead but usually with broken tops. It prefers tall trees for nesting which may be 60 feet or more above ground that provide good visibility and security. It also nests on human-built structures, and occasionally on cliff ledges. The nest site on the Pagosa District is approximately one mile from a lake. Nests are often reused for decades with new material added annually, resulting in very large structures (Terres 1991)".*

"Feeds nearly exclusively on fish, captured by hovering over water and then diving or by snatching prey directly from water following low flight. Only rarely takes rodents, birds or other small vertebrates and crustaceans. A brood of 3 requires 6 pounds of fish daily (Ehrlich 1988)".

This species and its habitat association with open water lakes and trees/snags are potentially threatened by adverse disturbance.

Trend

NatureServe Explorer (2002) provides comment as to trend: "*Global Trend Comments: Population increases and range expansions have been documented for many areas in the United States (Henny and Anthony 1989). These increases are believed to be due, at least in part, to reduced use of pesticides that apparently caused population declines in the 1960s and 1970s. Osprey populations now appear to be reoccupying their historical habitat and, in some areas, have expanded their range to include habitats around new reservoirs. Some other areas have experienced local declines where nesting habitat has been lost or fish populations have declined (Henny and Anthony 1989). A significant increase was recorded in migration counts in northeastern North America, 1972-1987 (Titus and Fuller 1990). See Henny (1986) for regional status in North America; Vahle et al. (1988) for status in the southwestern U.S. Increased in Canada in the 1980s and early 1990s (Kirk et al. 1995, Ewins 1995). Increasing in Utah (Monson 1996, Great Basin Naturalist 56:150-156).Threats: Now recovering in many areas following severe declines resulting from organochlorine biocide use. A primary threat is the continued use of organochlorines in Central and South America (Henny and Anthony 1989, Evans 1982). Also, organochlorines and other contaminants still are contributing to eggshell thinning and low hatching success in populations nesting around Delaware Bay (Steidl et al. 1991). Other human-related causes of death in the eastern United States include included gunshots, steel traps, impact with or electrocution by high-tension wires, and being caught or drowned in nets (Wiemeyer et al. 1980, cited in Henny and Anthony 1989)".*

Rio Grande National Forest and SLRA-BLM Status

From USDA-FS 2003: *"Rawinski (2001) refers to the osprey as an unusual to rare migrant on the Forest that may prove to be a breeder near one the Forest reservoirs. Presently, there are six records of osprey occurrence in the Forest database. All of these sightings occur on the Divide District and/or on adjacent private lands. Excluding the sightings on private land near South Fork and Del Norte, ospreys have been observed fishing at or flying from the Road Canyon Reservoir (2001), Big Meadows Reservoir (2001), and in areas along the upper Rio Grande River near Marshall Park Campground (1994). This latter sighting involved an osprey that was flying to the southeast towards the Seven Parks area. The osprey at Big Meadows Reservoir was observed flying into the trees with a fish towards the southwest end of the reservoir, while the individual at Road Canyon flew down the drainage to the north. Currently, however, there have been no nests located on the Forest" or BLM.*

The precise unknown status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation due to potential osprey habitat being easily identifiable (water lakes and large nests in trees/snags). Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

There are no known population viability tools, processes, or protocol for osprey. Management direction associated with the viability of the osprey (provided through the Forest Service Watershed Conservation Practices Handbook (2509) provide protective management for habitat and water resources associated with the species.

The Revised Forest Plan articulates potential suitable habitat for osprey to amount to 1,220 acres as willow/sedge type (as acres of lake). Although there are no PVA models, processes, or protocols for osprey, there are a few potential habitat sites (large lakes) available for the species across the Rocky Mountain Region. There's occasional occurrence information (Andrews and Righter, 1992; (Leukering et.al.1999, 2001, 2002); Rawinski 2001; Kingery [ed.] (1998); USDA-FS 2003) to suggest these acres are likely occupied within ranges of historic ecological variation, more information than there is to say not.

American Peregrine Falcon
(*Falco peregrinus anatum*)

Distribution and Status
From USDA-FS 1998: ***"****The peregrine falcon historically bred in nearly every state in the Union. It thrived for many decades in North America and in the Old World despite extensive persecution by man and human trespass against its habitat. But in the early 1950's the breeding populations throughout much of the Northern Hemisphere began an unprecedented and precipitous decline. Three subspecies of peregrine have been described for North America. The American peregrine falcon, which occurs from Mexico north to the arctic tundra has shown the most drastic decline (USDI 1984). Peregrine falcons use all forested ecosystems in Colorado during spring, summer and fall, but must be considered extremely rare in their occurrence (Towry 1984)".*

The U.S. Fish and Wildlife Service (FWS) listed the American peregrine falcon as endangered in October of 1970. The success of the Peregrine Falcon Recovery Plan has resulted in the U.S. Fish and Wildlife Service (FWS) delisting the species in 1999 (USDI-FWS 1999). Recently in Colorado, peregrine falcon breeding pairs have been estimated at 236 pairs, which ranks them 222nd in abundance amongst 264 confirmed breeders (Kingery [ed.] 1998). The Colorado Heritage Status Ranking is S2B, which means imperiled in association with breeding and SZN, which means migratory transient with non-breeding (NatureServe 2002).

Life History
From USDA-FS 1998: ***"****Peregrine habitat may be divided into (1) nesting sites--the cliff or substrate upon which the eggs are laid and the young are reared; (2) hunting sites--the area where the food is obtained: and (3) migration and wintering areas. Peregrines in the Rocky Mountain and Southwest region now persist mainly on dominant cliffs which generally exceed 200 feet in height. Nests are situated on open ledges or potholes and a preference for a southern exposure increases with latitude (USDI 1984). On the SJRG, peregrines nest from about 8000 feet up to about 11,500 feet in elevation".*

"The peregrine falcon preys on a wide range of avian species. It hunts over any forest type and uses large hunting territories, extending to a radius of 12 to 15 miles from the nest sites. The falcon does not require forest-type cover, but uses cliffs, rock outcroppings, or other steep rocky areas for resting cover. A peregrine's hunting range is often skewed to favor watercourses (Towry 1984). Preferred hunting habitats such as cropland, meadows, river bottoms, marshes, and lakes attract abundant bird life (USDI 1984). Pairs are usually present on the nesting cliff by mid-March. The young remain in the area several weeks after fledging in mid-June to mid-July, during which time they are fed and defended by both adults (USDI 1984). Because peregrines are extremely sensitive to disturbance during the egg-laying, incubation, and brood-rearing periods, protection from disturbances is essential to reproductive success (Towry 1984)".

Trend

NatureServe Explorer (2002) provides comment as to trend: "*Global Trend Comments: Markedly reduced in numbers by pesticide and PCB poisoning during the 1950s through the mid-1970s. Extirpated from large areas of its former range, particularly along the eastern coast of the United States. Currently recovering throughout much of its range (USFWS 1999). Recovery slow in the central prairie states. Reintroduction efforts have been successful in the eastern portion of its range, but natural recolonization of this area by wild stock has not occurred. Threats: Primarily environmental toxins, habitat loss, human disturbance, and illegal take".*

Rio Grande National Forest and SLRA-BLM Status

From USDA-FS 1998*: "There are 13 known active nest sites currently on public lands within the San Luis Valley. The Colorado Division of Wildlife has conducted yearly monitoring activities of all known aeries in the valley since the implementation of the falcon Recovery Plan. Associated with monitoring have been surveys for additional peregrine falcons. The Forest Service has conducted surveys, but on a less continuous basis then the Colorado Division of Wildlife (DOW) (USDA 1998)".*

The RGNF has 5 peregrine falcon nests that are currently being monitored through the state-wide CDOW monitoring program. Twelve historic nests are documented on the BLM, the status of which, is unknown.

The precise unknown status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation due to potential peregrine habitat being easily identifiable (cliffs) and typically remote. Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

There are no suitable habitat models available for the RGNF. However, there's enough occurrence information (Andrews and Righter, 1992; (Leukering et.al.1999, 2001, 2002); Rawinski 2001; Kingery [ed.] (1998); USDA-FS, 1998) to suggest that the RGNF is likely occupied within ranges of historic ecological variation, more information than there is to say not.

Pygmy Nuthatch

(Sitta pygmaea)

Distribution and Status

From USDA-FS 1998: ***"****Ranges from southern British Columbia, northern Idaho, western Montana, central Wyoming, and southwestern South Dakota, south to Baja California, Mexico, southern Nevada, central and southeastern Arizona, central New Mexico, western Texas and western Oklahoma (DeGraaf et al. 1991). The geographical distribution mostly coincides with ponderosa pine throughout the west and south through most of Mexico".*

"In Colorado, it is a fairly common to common resident where ponderosa pine occurs (Andrews and Righter 1992). There have been no structured forest wide inventories but it has been seen on all Districts on the Forest. It is classified as a common year round resident of southwestern Colorado by the Durango Bird Club (1992)".

Recently in Colorado, pygmy nuthatch breeding pairs have been estimated to range between 51,461 pairs to 339,142 pairs with a mid-estimate of 184,531 pairs, which ranks them 56th in abundance amongst 264 confirmed breeders (Kingery [ed.] 1998). The Colorado Heritage Status Ranking is S4, which means apparently in association with breeding and non-breeding (NatureServe 2002).

Life History

From USDA-FS 1998: ***"****This gregarious cavity nester inhabits mature ponderosa pine communities (Scott 1979, Scott 1977), preferring open park-like stands with 40 to 70% crown cover (Rosenstock 1996, Clark et al. 1989). Scott (1979) found that populations declined in thinned stands when snags were eliminated but that there was no population decline in adjacent thinned stands where snags were retained or in a non-harvested control. They will also use aspen for nesting and will wander less often to spruce/fir, mixed conifer (Douglas-fir), pinyon-juniper woodlands and lowland riparian forests. (Andrews and Righter 1992, Towry 1987). They will shift from snags for nest sites to live pines or oaks in low snag density areas (Cunningham et al. 1980). Except in the nesting season when in pairs, they travel in small family flocks which increase to large numbers by fall and winter (Terres 1991). Each breeding pair occupies a territory of about 5 acres (Clark et al. 1989)".*

"This nuthatch is primarily insectivorous, gleaning prey from bark surfaces, but will eat conifer seeds (Degraaf et al. 1991, Scott et al. 1977, Balda 1975). They feed on branches, outermost twigs, trunks, and pine cones (Terres 1991). Bark and leaf beetles are important dietary components (Clark et al. 1989)".

This species and its habitat association with ponderosa pine and other conifers are potentially threatened by adverse disturbance, especially loss of cavity trees for breeding and nesting.

Trend

NatureServe Explorer (2002) provides no comment as to trend.

Rio Grande National Forest and SLRA-BLM Status

From USDA-FS 2003: *"The Colorado Breeding Bird Atlas lists the pygmy nuthatch as a confirmed nester in all counties included within the boundaries of the Rio Grande National Forest. Rawinski (2001) also describes the pygmy nuthatch as an unusual, year-round resident and likely Forest breeder. Since the pygmy nuthatch is a species that is easily over-looked, however, there are no individual sighting records available in the Forest database. Thus, all available information regarding the pygmy nuthatch is a result of the Atlas project. This effort detected the pygmy nuthatch in 14 local Atlas Blocks. Five quadrants (Twin Peaks, Archuleta Creek, South Fork West, Osier, Graveyard Gulch) were estimated to contain 2 to 10 pairs, eight quadrants (Spectacle Lake, Greenie Mountain, Jasper, Del Norte Peak, Pine Cone Knob, Lookout Peak, North Pass, Whale Hill) contain 11 to 100 pairs, and one quadrant (Terrace Reservoir) contains 101 to 1000 pairs. Although these estimates are fairly qualitative, they do provide additional information concerning the relative abundance of the pygmy nuthatch in particular landtypes on the Forest".*

Pygmy nuthatch is documented in the project area and elsewhere, thus it is likely that it is well distributed and abundant within suitable habitat. Agencies haven't targeted the wilderness areas for surveys so there's not a lot of documentation specific to wilderness, but considering other survey results on the Forests, one can anticipate well distributed and abundant population in the region. Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

Leukering et.al.(1999, 2001, 2002) monitoring data shows high densities of pygmy nuthatch in ponderosa pine forest types, so the species is well distributed and abundant in ponderosa pine habitat.

The Revised Forest Plan articulates potential suitable habitat for pygmy nuthatch to amount to 43,060 acres of ponderosa pine Land Type Associations with half of the ponderosa type as mature. Regional data (USDA Forest Service, 1992) reflects 2.1 million acres of ponderosa pine of which an

estimated 70% is between the average stand ages of 60 and 140 years old, and 10% is older. Although there are no PVA models, processes, or protocols for pygmy nuthatch, there is abundant potential habitat available for the species across the Rocky Mountain Region. There's occasional occurrence information (Andrews and Righter, 1992; (Leukering et.al.1999, 2001, 2002); Rawinski 2001; Kingery [ed.] (1998); USDA-FS 2003) to suggest that many acres are likely occupied within ranges of historic ecological variation, more information than there is to say not.

Rio Grande Chub
(*Gila pandora*)

Distribution and Status
From USDA-Forest Service R2 Sensitive Species Evaluation Form. Rio Grande chub was historically very abundant throughout its range. It was described as common in Colorado (Cope and Yarrow 1875), and Jordan (1891) described the species as "abundant everywhere" in the Rio Grande in Colorado. The species also appeared to be an abundant food source for pre-Columbian residents of prehistoric Blanca Lake settlements, based on numerous chub bones found in archaeological digs in the San Luis Valley, Colorado (Jones 1977). Rio Grande chub has declined rapidly, now occupying only a fraction of its historic range (fewer than 7 historic populations remain).

Life History
Rio Grande chubs are typically found in pools and impoundments of small to moderate streams and are frequently associated with aquatic vegetation. Spawning occurs in spring and early summer. Chubs are oviparous (egg laying) and deposit eggs in riffle areas with clean gravel substrate (Sublette et al. 1990). This species is a midwater carnivore feeding on zooplankton, aquatic insects, and juvenile fish. It also consumes a limited amount of detritus (Bison-M 2002).

Trend
Listed as a "Species of Special Concern" in Colorado in 1996. Colorado Natural Heritage Program Rank of "critically imperiled" (S1).

Rio Grande National Forest and BLM Status
Rio Grande Chubs are endemic to the Rio Grande basin in Colorado. The Rio Grande NF is the only Forest in Colorado known to contain the chub. Fewer than 10 populations are known, several of these from transplants that have occurred in recent years. Successful reproduction is documented at several sites. Long-term success of transplants is unknown at this time.

Rio Grande Cutthroat Trout
(*Oncorhynchus clarki virginalis*)

Distribution and Status
From USDA-FS 1998: **"***Two forms of the subspecies exist- one in the Rio Grande proper in Colorado and New Mexico, and the other in the Pecos River in New Mexico. This subspecies currently occupies high mountain streams, and is often restricted to headwater reaches. Habitat above 10,000 feet is usually marginal. Gradients can range up to 10%, but lower gradients (3-4%)*

are preferred. The Colorado Natural Heritage Program (1997) ranking is G4T3 S3 meaning that while at a global level cutthroats are apparently secure, the subspecies is considered vulnerable or found locally in a restricted range, and at the state level it is considered vulnerable. In 2/98 the USFWS received a petition to list the cutthroat as endangered".

On Nov. 8, 2001, a settlement agreement executed by the USFWS and the Center for Biological Diversity was filed with the District Court of the District of Columbia. The settlement stipulates that the Service initiate a Candidate (for Federal listing) status review and make a determination concerning their results by June 4, 2002. The U.S. Fish and Wildlife Service found on June 3, 2002, that "the listing of the Rio Grande cutthroat trout is not warranted at this time" (Federal Register: June 11, 2002 (Volume 67, Number 112), Proposed Rules, Page 39936-39947).

Life History

From USDA-FS 1998: **"***This subspecies is rare throughout its original range in Colorado and New Mexico. It is susceptible to angling pressure, so areas with restricted access tend to provide more protection. This species evolved in the absence of other salmonids, so it does not compete well with other trout species. In addition, it readily hybridizes with rainbow trout (O. mykiss). Therefore, the presence of a barrier to restrict invasion by non-natives is necessary. All trout are opportunistic feeders that feed on many organisms, but invertebrates, both adult and larval forms, are a primary food resource. Terrestrial invertebrates can also contribute to their diet, and are a result of healthy riparian areas".*

Rio Grande National Forest Status:

The status of Rio Grande cutthroat trout has been determined by the Colorado Division of Wildlife in *"Rio Grande Cutthroat Trout Status Review For Colorado"* (CDOW 2002). Determinations are defined as:

1. **Core Populations** – ≥ 99% pure, reproducing & recruiting;
2. **Conservation Populations** - ≥ 90% pure, reproducing & recruiting; and
3. **Recreation Populations** – portion of recreation fishing program, stocked into suitable waters but nonnative fish typically present.

The Rio Grande National Forest currently contains the following magnitudes of Rio Grande cutthroat trout populations:

1. Core Populations: 30 stream populations (~130 stream miles) & 3 lakes (~21 lake surface acres);
2. Conservation Populations: 8 stream populations (~64 stream miles);
3. Recreation Populations: 20 stream populations (~155 stream miles) & 57 lakes (995 surface acres).

SLRA-BLM Status:

The San Luis Field Office (BLM) currently has the following magnitudes of Rio Grande cutthroat trout populations:

1. Core Populations: 4 stream populations (~4 stream miles);
2. Conservation Populations: 1 stream populations (~1 stream miles);
3. Recreation Populations: 5 stream populations (~5 stream miles).

These waters are all mapped and managed in cooperation with the CDOW.

Rio Grande Cutthroat trout populations are affected by both land management actions and fishing pressure. The Forest Service and Bureau of Land Management are responsible for ensuring species viability through sound land management practices, but fishing regulations are under CDOW authorities.

The potential occurrence of trout in the project area does not adversely affect this analysis or biological evaluation due to habitat being easily identifiable (riparian and ponds) where protective mitigation can be applied. The Watershed Conservation Practices Handbook (2509.25) provides protective management for habitat and water resources associated with the species, through its specific incorporation into Forest Plan standards and guidelines.

Three-toed Woodpecker
(Picoides tridactylus)

Distribution and Status
From USDA-FS 1998: **"***The three-toed woodpecker, relatively uncommon throughout its range, is circumboreally distributed (Clark et al. 1989). It occurs from Scandinavia to Siberia in Eurasia, south locally to southern Europe and western China, and in North America from northwestern Alaska to Newfoundland, south locally to southeastern Oregon, northern New England, and in the Rocky Mountains to south-central New Mexico and central Arizona (Clark et al. 1989, DeGraaf et al. 1991)".*

"The three-toed woodpecker is a rare or very locally uncommon year round resident of Colorado coniferous forests (Andrews and Righter 1992). Its summer elevation range is 8,000 to 11,500 feet and during the winter it can be found at 6,000 to 11,500 feet. It is an uncommon year-round resident of southwestern Colorado (Durango Bird Club 1992). There have been no structured Forest-wide inventories but sightings have occurred on all Districts. They appeared within several months after a 400 acre ponderosa pine wildfire on the neighboring San Juan National Forest - Pagosa District in 1996".

Recently in Colorado, three-toed woodpecker breeding pairs have been estimated to range between 3,741 pairs to 24,891 pairs with a mid-estimate of 14,368 pairs, which ranks them 130th in abundance amongst 264 confirmed breeders (Kingery [ed.] 1998). The Colorado Heritage Status Ranking is S4, which means apparently in association with breeding and non-breeding (NatureServe 2002).

Life History: From USDA-FS 1998: **"***The three-toed is one of the most elusive and poorly understood woodpeckers. It is known to be opportunistic and abundant during and after bark beetle outbreaks, usually they are uncommon and relatively inconspicuous (Bock and Bock 1974). Bent (1939) reported it to be not common anywhere, nor evenly distributed throughout its range and confined to certain rather limited and favorable localities. The numerical response of three-toeds to beetle infestations exceeds those of all other sympatric woodpeckers (Koplin 1972). This woodpecker had been considered to be indigenous to the spruce/fir but recently this species has been observed in the montane zone as well (Schmid and Frye 1977). Primarily found in spruce/fir forests but where insect populations are high it may occur in ponderosa pine, Douglas-fir and lodgepole pine forests (Andrews and Righter 1992). In Utah, they have also been found nesting in aspen (Smith 1992). According to Bock and Bock (1974), this woodpecker while opportunistic, reservoir populations are dependent upon spruce and capable of surviving where spruce is the only*

conifer found. At all seasons and elevations, this species is only common in years and areas where high populations of bark beetles are present".

"Approximately 75% of the summer diet consists of insects, especially beetles and wood-boring larvae while the winter diet is 99% insects, primarily spruce beetle larvae (Towry 1984). Other food taken includes ants, insect larvae, fruits, mast and cambium. They may require at least 1,200-2,200 larvae per day in winter to satisfy its caloric needs when air temperatures are at freezing (Koplin 1969). They primarily feed by scaling bark rather than pecking which account for their preference for conifers with bark scales (Clark 1989, Villard 1994)".

This species and its habitat association with relatively large diameter and moderately dense forest stands are obviously, potentially threatened by adverse disturbance, especially loss of cavity trees for breeding and nesting.

Trend

NatureServe Explorer (2002) provides comment as to trend: "*Global Trend Comments: There is not enough information to draw clear conclusions. Limited North American Breeding Bird Survey (BBS) data indicate a relatively stable population (Price et al. 1995). In New York, was once abundant (1883), but more recently (1974), it is rare, though probably under-recorded (Peterson 1988). Was probably more numerous in Vermont than at present (Oatman 1985). Beginning in the 1960s the number of sightings in Michigan increased. Observations in the 1970s and 1980s continued to increase in Michigan (Brewer et al. 1991); within the last six years, sightings have been much less common (Adams, pers. comm.).Threats: Threats include incompatible forestry practices, deforestation. May be detrimentally affected by fire suppression (Spahr et al. 1991). In Oregon, the liquidation of old growth lodgepole pine due to its infestation with the mountain pine beetle may reduce or eliminate habitat for this species. In Vermont, clear-cutting threatens the black spruce-balsam fir forest habitat. Possible predators in British Columbia include goshawks (ACCIPITER GENTILIS) (Cannings, pers. comm.).Other Considerations: Periodically, populations of this species make mass movements, presumably due to a failure of their food supply".*

Rio Grande National Forest and SLRA-BLM Status

From USDA-FS 2003: *"Rawinski (2001) refers to the three-toed woodpecker as an unusual year-round resident of the spruce-fir land types. Presently, there are ten occurrence records in the Forest database. These sightings are located on all districts of the Forest except Saguache. Most observations occur on the Divide District, particularly in the Shaw Lake/Hunter Lake area. The only recorded active nest was noted for two successive years (1997/98) at the Hunter Lake trailhead. These records suggest that many sightings have gone unrecorded. It is likely that the three-toed woodpecker occurs regularly across the Forest in suitable habitat but remains in low densities until a disturbance event attracts them. For instance, three-toed woodpeckers were not noted on the Forest during short investigations of harvested spruce-fir stands (Gillihan 1996a), mixed-conifer stands (Gillihan 1996b), or aspen stands (Gillihan 2001). They were also not noted on any of the Forest spruce-fir transects conducted under the Monitoring Colorado's Bird Program (Gillihan 2003). However, it is not unusual to locate three-toed woodpeckers in the Trout Mountain area of the Divide District, and it has been suggested that they are as common on the Rio Grande National Forest as in any other suitable habitat area in Colorado (Schultz 2002)". Limited habitat potential exists for the three-toed on BLM lands.*

Three-toed woodpecker is documented in the project area and elsewhere, thus it is likely that it is well distributed and abundant within suitable habitat and probably more abundant in the Weminuche or South San Juan wildernesses verses Piedras Area due to more spruce-fir forests. Agencies haven't targeted the wilderness areas for surveys so there's not a lot of documentation specific to

wilderness, but considering other survey results on the Forests, one can anticipate well distributed and abundant population in the region. Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

There are no known population viability tools, processes, or protocol for three-toed woodpecker. Similarly as with boreal owl, the only criteria available to evaluate for three-toed woodpecker is habitat criteria.

The Revised Forest Plan articulates potential suitable habitat for three-toed woodpecker to amount to 753,610 acres as spruce-fir, Douglas-fir and aspen. Regional data (USDA Forest Service, 1992) reflects 7.6 million acres of these species with most types being relatively mature. Although there are no PVA models, processes, or protocols for three-toed woodpecker, there is abundant potential habitat available for the species across the Rocky Mountain Region. One cannot reasonably assume that these millions of acres of spruce-fir are not occupied by three-toed woodpecker to some unmeasured degree. There's occasional occurrence information (Andrews and Righter, 1992; (Leukering et.al.1999, 2001, 2002); Rawinski 2001; Kingery [ed.] (1998); USDA-FS 2003) to suggest these acres are likely occupied within ranges of historic ecological variation, more information than there is to say not.

Tiger Salamander
(Ambystoma tigrinum)

Distribution and Status
From USDA-FS 1998: **"***The tiger salamander ranges throughout much of North America. It occurs throughout Colorado at elevations up to 12,000 ft. in all but tundra and alpine habitats (Hammerson 1986). There is no Colorado Natural Heritage Program ranking for this species".*

Life History
From USDA-FS 1998: **"***Tiger salamanders occur in virtually any habitat, provided there is a body of non-flowing water nearby for breeding. The inhabit ponds, lakes, natural and man-made reservoirs. ranging in size from 10 ft across to several acres. They will survive in not only clear, glacial water bodies, but also in turbid stock ponds badly polluted with cow manure (Hammerson 1986). Sunny mud-bottomed ponds at least 18-24 inches deep with a shallow beach-like shore seem to be preferred. Vegetation may or may not be present. However, tiger salamanders are typically absent from waters inhabited by predatory fish, bullfrogs, turtles and crayfish".*

"Metamorphosed salamanders usually spend their winter underground in rodent burrows. They will occasionally dig their own burrows in loose soil but are less likely to overwinter in these shallower burrows".

"In water, metamorphosed salamanders eat snails, bugs, beetles, larval mayflies, dragonflies, caddis-flies, and midges. In their adult terrestrial form they are adapted to terrestrial predation feeding on earthworms, insects, small mammals, and amphibians (Whiteman et al. 1994)".

From NatureServe Explorer 2002*: "Decline in mid-1980s in a Colorado population was attributed possibly to acidic deposition (Harte and Hoffman 1989); however, this population exhibited good recruitment in subsequent years (Ruth Willey, Rocky Mtn. Biolog. Lab.), suggesting that the decline may have been a temporary natural fluctuation. In the same population, Wissinger and Whiteman (1992) found no evidence that survival of either embryos or larvae was affected by pH; pond drying was the largest source of mortality. This species is not likely to be at risk from present acidification*

inputs in the Rocky Mountains (Corn and Vertucci 1992).

Extirpated from many ponds and lakes in the mountainous west as a result of fish introductions. In the mountains of Colorado, fish presence is the most important factor regulating the presence of salamanders (Geraghty and Willey 1992; G. Hammerson, unpublished data).

Rio Grande National Forest and SLRA-BLM Status

From USDA-FS 2003: *"Presently, there are 35 records of tiger salamander occurrence in the Forest Database. Twenty-three of these occur on the Divide District, ten on the Conejos Peak District, one on the Saguache District, and one on a private land holding near La Manga Pass. However, a considerable number of other observations were also noticed in other records while researching information for this evaluation. Thus, the current information indicates that the tiger salamander is fairly common and widespread in suitable water bodies on the Forest, especially on the Divide and Conejos Peak Districts".* Twenty-nine known occurrences (ca. 1991-1994) are in various small lakes and ponds across most counties (CDOW 2001). Salamanders are known to occur within the SLRA-BLM but are not well documented in existing databases.

As previously discussed with boreal toad, the only criteria available to evaluate for tiger salamander is habitat criteria. The Revised Forest Plan articulates potential suitable habitat for boreal toad to amount to 129,400 acres (in the classification of "riparian area"). There are 1,050 stream miles suitable for trout and 8,281 lake surface acres on the Rio Grande National Forest (pers.comm. B. Wiley, RGNF,05/15/2002). None of the above figures suffice for estimates of potential salamander breeding habitat across the RGNF.

The precise unknown status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation due to potential tiger salamander habitat being easily identifiable (riparian and ponds). Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

There are no known population viability tools, processes, or protocol for tiger salamander. Management direction associated with the viability of the boreal toad (provided through the *Boreal Toad Conservation Plan and Agreement* [Loeffler 1998]) and through Forest Service Watershed Conservation Practices Handbook (2509.25) provide protective management for habitat and water resources associated with the species.

Townsend's Big-eared Bat

(Corynorhinus townsendii pallescens)

Distribution and Status

From USDA-FS 1998: ***"****Townsend's big-eared bat occurs throughout the west, and is distributed from the southern portion of British Columbia south along the Pacific coast to central Mexico and east into the Great Plains, with isolated populations occurring in the south and southeastern United States".*

"One of the largest C. townsendii winter roost sites in the State was found at a patented mine on the Mancos-Dolores District in the early 1990's by zoologist David Armstrong. The site is currently being monitored by DOW biologists. The DOW has had volunteers conduct exit counts and has trapped for bats at various abandoned mines in La Plata Canyon during the early 1990's. No Townsend's big-eared bats were recorded in these surveys, nor have there been any other confirmed reports of this species elsewhere on the Forest".

The Colorado Heritage Status Ranking is S2, which means imperlied in association with breeding and non-breeding (NatureServe 2002).

Life History

From USDA-FS 1998: **"***C. townsendii is a western species occupying semi-desert shrublands, pinyon-juniper woodlands, and open montane forests. Roosting habitat consists most frequently in caves and abandoned mines but also includes buildings, bridges, rock crevices and hollow trees".*

"This bat breeds in late fall and winters in mixed-sex colonies ranging in size from a single individual to colonies of several hundred. Females exhibit "delayed fertilization" in which conception is delayed for several months after breeding has occurred. Gestation lasts 50 to 60 days and a single young is born in May or June. Females assemble into nursery colonies of a few to several hundred individuals, forming dense clusters to take advantage of shared metabolic heat. Warm nursery sites are essential for reproductive success (Humphrey and Kunz 1976). The young develop rapidly, achieving volancy at about three to four weeks. At summer roosts individuals do not hide in cracks or crevices, but rather hang exposed from the roof or walls of the chamber, taking flight if disturbed".

"These bats are late flyers, generally emerging from the roost well after dark. Caddisflies appear to be a staple of the diet (Freeman 1984), which also includes moths, flies, and other insects. This species gleans insects from leaves, with much of its foraging occurring over water along the margins of vegetation, and over sagebrush (Fitzgerald et al. 1994). It is a moth specialist with over 90% of its diet composed of moths (WBWG 1998)".

This species and its habitat association with cave and abandoned mine habitats are potentially threatened by adverse disturbance

Trend

NatureServe Explorer (2002) provides comment as to trend: *"Global Trend Comments: Pearson et al. (1952) suggested that the availability of human-made structures may have led to an increase in numbers of P. TOWNSENDII in parts of the western U.S. in the recent past. Threats: Threats include loss of habitat (e.g., reclamation of abandoned mines), vandalism, and disturbance of maternity roosts and hibernacula. Disturbance of such occurrences is likely to cause the bats to abandon the site and move to an alternate roost (Pearson 1952, Handley 1959)".*

Rio Grande National Forest and SLRA-BLM Status

From USDA-FS 2003: *"Surveys for bat species in the San Luis Valley have primarily been conducted by the Colorado Division of Wildlife (CDOW). Six species of bats, including Townsend's, have been documented as occurring on or near the project area boundary. All occurrence information for Townsend's has involved single non-breeding individuals from one abandoned mine location along the Alamosa River (Conejos Peak R.D.). Based on the timing of these occurrences, this location most likely involves a summer day roost. Information is unavailable as to whether this site is also used as a night roost. The last documented occurrence of Townsend's at this location occurred in 1999 and involved a single adult male in non-breeding condition (Navo 2003)".*

The precise unknown status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation due to potential Townsend's big-eared bat habitat [emphasizing hibernacula] being easily identifiable (caves, abandoned mines). Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

There are no known population viability tools, processes, or protocol for Townsend's big-eared bat. The only criteria available to evaluate for Townsend's big-eared bat is habitat criteria.

Potential suitable habitat for Townsend's big-eared bat amounts to 677,290 acres on the RGNF as spruce-fir, ponderosa pine, Douglas-fir and aspen. Regional data (USDA Forest Service, 1992) reflects 12.5 million acres of montane and subalpine forests. An estimated 70% (8.75 million acres) of those forest types are relatively mature, which would likely offer abundant cover and forage opportunities for Townsend's big-eared bat. Much of the Colorado's montane and subalpine conifer habitats are managed through protective management emphases of semi-primitive, nonmotorized recreation in roaded or nonroaded areas [MA 1.2; 1.31; 1.32;1.41] or are designated wilderness [MA1.11; 1.12 1.13] (USDA-FS 1983; USDA-FS 1984; USDA-FS 1999). There are no PVA models, processes, or protocols for Townsend's big-eared bat. There is abundant potential habitat available for the species across the Rocky Mountain Region. There's occasional occurrence information (Fitzgerald et. al 1994) to suggest these acres are occupied within ranges of historic ecological variation, more information than there is to say not.

White-faced Ibis
(Plegadis chihi)

Distribution and Status
Kingery [ed.] (1998) reports white-faced ibis as a migrant species that nests from central Mexico to Louisiana and Texas, and throughout the Great Basin with disjunct occurrences in valleys of western and central states. White-faced ibises also nest in South America (Argentina) with no apparent mixing with northern individuals.

Recently in Colorado, white-faced ibis breeding pairs have been estimated between 1,283 pairs and 4,896 pairs with a mid-estimate at 3,482 pairs, which ranks them 167th in abundance amongst 264 confirmed breeders (Kingery [ed.] 1998). The preponderance of the estimates occurred in atlas blocks in the nearby San Luis Valley. Other occurrences were in Gunnison Basin, Cortez, North Park, Browns Park and Brighton. The Colorado Heritage Status Ranking is S2B, which means imperiled in association with breeding and SZN, which means migratory transient with non-breeding (NatureServe 2002).

Life History
From: USDA-FS 1998: ***"****The white-faced ibis nests in large freshwater marshes. Nesting colonies are located in shrubs and low trees or in dense, standing reeds and tules (bulrushes), near or in marshes. The ibis feeds in shallow ponds, marshes, irrigated lands, and wet meadows".*

Kingery [ed.] (1998) reports white-faced ibises arriving in Colorado by mid-April to early May. Nests consist of bulrush and cattail stems about 3 feet above the water. Nesting colonies are usually intermixed with other species of shorebirds. Incubation, hatching and rearing of young occurs through June and July with fledging being in August.

This species and its habitat association with wetlands and flooded agricultural croplands are obviously, potentially threatened by adverse disturbance.

Trend
NatureServe Explorer (2002) provides comment as to trend: *"Global Trend Comments: Populations in the south-central U.S. may be benefiting from crayfish aquaculture; bird population increases may be related to favorable foraging opportunities afforded by expanding crayfish aquaculture (Fleury and Sherry*

1995). Threats: Limited number of breeding locations; vulnerable to fluctuating water levels. Susceptible to breeding failure in areas of pesticide contamination. Breeders in Nevada are still being contaminated with DDE-DDT in Mexican wintering areas (Henny and Herron 1989)".

SLRA-BLM Status

From USDA-FS 2003: *"White-faced ibises have been known to nest in the San Luis Valley since at least 1872. Populations are now tracked in the Monitoring Colorado's Birds program as part of the colonial-nesting waterbirds focused species survey effort (Leukering et al. 2000). Surveys during the 2001 season found four breeding locations in the state, all in the San Luis Valley. Observers counted 4,189 individuals that represented an estimated 3,470 active nests (Leukering et al. 2002). Nesting locations in the San Luis Valley are known to occur at Russell Lakes, Adams Lake, between Head and San Luis Lakes, and on the Monte Vista and Alamosa National Wildlife Refuges (Ryder 1998). The white-faced ibis is not known to occur on the Forest. However, more than 20 individuals were observed on private ponds west of Creede in early May of 1989 (Rawinski 2001)".*

The Blanca Wetlands are known to occur and nest at the Blanca Wetlands. Approximately two hundred individuals are seen daily feeding and roosting during the summer months at the Blanca wetlands.

The precise unknown status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation due to potential ibis habitat being easily identifiable (wetlands and flooded agricultural croplands). Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

The Revised Forest Plan articulates potential suitable habitat for white-faced ibis to amount to 129,400 acres (in the classification of "riparian area"). This figure does not include estimates of potential breeding habitats. Although there are no PVA models, processes, or protocols for white-faced ibis, there is abundant potential habitat available for the species across the Rocky Mountain Region. Occasional occurrence information (Andrews and Righter, 1992; (Leukering et.al.1999, 2001, 2002); Rawinski 2001; Kingery [ed.] (1998); USDA-FS 2003) to suggest that many acres are likely occupied within ranges of historic ecological variation, more information than there is to say not. Andrews and Righter (1992) states that the species is widely distributed in the proper habitats and elevation. Known occurrences of the white-faced ibis in the San Luis Valley are not on the Forest.

White Pelican
(*Pelecanus erythrorhynchos*)

Distribution and Status

Vulnerable nationally. Critically imperiled in the state of Colorado.

Life History

Lakes, marshes, salt bays and beaches.

Trend

From Nature Serve: BBS routes indicate an average increase of 7.0% per year in North America from 1980 to 1994 (S. Droege, pers. comm.). Christmas Bird Count data (1959-1988) indicate an average increase of 2.4% per year (S. Droege, pers. comm.). However, rapid fluctuations may be normal in this species.

SLRA - BLM Status
Twenty to sixty individuals are often seen every year at the Blanca wetlands during all summer. More than 350 summered at Monte Vista National Wildlife Refuge (Rawinski, 2002).

North American Wolverine
(Gulo gulo luscus)

Distribution and Status
From USDA-FS 1998: ***"****The distribution of wolverine is circumpolar; it occupies the tundra, taiga, and forest zones of North America and Eurasia (Banci 1994). The presettlement geographic range of wolverines extended southward from Canada through the montane ecoregions to Arizona and New Mexico (Banci 1994). The status of the wolverine in Colorado is undetermined. According to Seidel et al. (1998), there are 22 records representing 25 animals documented in the literature that were collected between 1871 and 1919. Since that time, 3 more specimens have been reported in or near Colorado, the latest being an adult male trapped near Cheyenne, Wyoming in April 1996. The biological record is confounded by the escape from the Cheyenne Mountain Zoo (near Colorado Springs, CO) of 6 wolverines from 1964 to 1986".*

"Since 1979, 12 investigations have been conducted in the state with the goal of trying to document the presence of lynx or wolverine (Seidel et al. 1998). After intensive efforts using snowtracking (5,833.5 miles), hair snags (62 locations), remote cameras (110 locations), and snares (686 trap nights) only 10 sets of tracks that appeared to have a high probability of being wolverine were found (Seidel et al. 1998). One of those investigations occurred on the Forest. The project covered about 500 mi^2, over a three-year period (1992-1995), and used bait stations and remote cameras. No evidence of wolverine was found".

The Colorado Heritage Status Ranking is S1, which means critically imperiled in association with breeding and non-breeding (NatureServe 2002).

Life History
From USDA-FS 1998: ***"****Broadly, wolverines are restricted to boreal forests, tundra, and western mountains (Banci 1994). Researchers have generally agreed that wolverine "habitat is probably best defined n terms of adequate year-around food supplies in large, sparsely inhabited wilderness areas, rather than in terms of particular types of topography or plant associations" (Kelsall 1981). In Idaho, montane coniferous forests suitable for winter foraging and summer kit rearing may only be useful if associated with subalpine cirque habitats required for natal denning, security areas, and summer foraging (Seidel et al. 1998). Female wolverines in Idaho preferred secluded subalpine talus sites for natal and kit rearing dens (Copeland and Harris 1994). Post-weaning rendezvous sites for kits and adult females included large boulder talus and mature spruce/fir riparian sites with dense understory and forest floor debris (Copeland and Hudak 1995)".*

"Wolverines are generally described as opportunistic omnivores in summer and primarily scavengers in winter. All diet studies have shown the paramount importance of large mammal carrion, and the availability of large mammals underlies the distribution, survival, and reproductive success of wolverines (Banci 1994). Over most of their range, ungulates provide this carrion".

"With respect to timber harvesting, the greatest effects probably center around road building and increased access into the area. Copeland and Hudak (1995) felt that road building near subalpine boulder talus sites may eliminate historical or potential wolverine foraging or denning habitat. They also felt that recreational activities such as back-country skiing and snowmobiling may displace

wolverines from potential denning habitat or cause den abandonment. Hornocker and Hash (1981) suggested that human access on snowmobiles or all-terrain vehicles in winter and early spring could cause behavioral disturbances".

This species and its habitat association with mosaics of subalpine and montane habitats are potentially threatened by adverse disturbance.

Trend

NatureServe Explorer (2002) provides comment as to trend: *"Global Trend Comments: Status is little known, especially in the mountains of the U.S. south of Canada; difficult to study. Numbers apparently declined steadily in the U.S. beginning in the latter half of the 1800s. Apparently has made a comeback in recent years in several western states. Subspecies KATSCHEMAKENSIS of Alaska's Kenai Peninsula totaled about 50 individuals in the 1980s; apparently was declining due to an excessively long hunting season (see Nowak 1991). See Dauphine (1989 COSEWIC report) for information on status in Canada. Threats: Decline may have been due primarily to fur trapping. Habitat has been degraded through timber harvesting, ski area construction, road construction, and general human disturbance (Biosystems Analysis 1989). There are conflicts with backcountry trappers. See Dauphine (1989 COSEWIC report) for information on threats in Canada".*

Rio Grande National Forest and SLRA-BLM Status

From USDA-FS 2003: *"Local survey efforts conducted specifically for wolverine were conducted in the project area from 1992 through 1995 by the Colorado Division of Wildlife (Kenvin 1992, 1993, 1995). These efforts focused on the alpine and spruce-fir habitat types and included infra-red camera stations, snow tracking routes, hair snag stations, and aerial surveys. Additional wolverine surveys were conducted in 1990-91 by a consulting firm in the Wolf Creek Pass area (Thompson et al. 1992). The 1992 CDOW effort was conducted from July through September and involved 60 camera stations within an area of about 164 square miles dominated by spruce-fir cover types. According to the 1992 report, efforts were targeted in areas where wolverine sightings were most prevalent using whole chickens as bait (Kenvin 1992). No wolverines were documented during that effort. The 1993 effort was conducted from June through September and involved 60 camera stations in the South San Juan Wilderness over an area of about 120 square miles. This effort targeted shale rock and boulder fields at or near timberline and used commercial lures on scented rags rather than live bait (Kenvin 1993). Again, no wolverines were documented during that survey. The 1994-95 effort used winter sampling (December-February) methods on about 600 square miles of the Rio Grande and Gunnison National Forests from LaJara Reservoir to Slumgullion Pass. This effort involved 62 field days and sampled aspen and Douglas-fir habitats as well as spruce-fir and alpine using roadkill deer, elk, antelope, and commercial wolverine scents (Kenvin 1995). Approximately 792 miles of trails were also surveyed for tracks. Also again, no wolverines were documented during that effort. The Saguache District was not sampled with any of these survey efforts. Despite the results of the 1992-95 camera station efforts, a portion of the Rio Grande National Forest was considered a high potential for wolverines and included in the 1997 aerial surveys. Based on a crude map included in the 1997 report, this area is described as the Rio Grande headwaters and is generally defined on the east by the Rio Grande Campground near Creede, to the north by Bristol Head, to the west by the Continental Divide, and to the south and east again by Piedra Mountain and the Spar City area (Byrne and Copeland 1997, Figure 3). This area was surveyed via a Cessna 185 aircraft with one pilot and three observers for 6.5 hours on March 6, 1997 due to a grouping of "A" rated (positive) sightings in the CDOW database. One set of tracks recorded as a "possible wolverine" was noted at the head of the Rio Grande River basin during that survey (Byrne and Copeland 1997, Table 3). These tracks were not reinspected via helicopter due to a lack of flight time. Excluding the 1997 tracks mentioned above, five wolverine sightings on the Forest are included in the Forest database. Two of these sightings occur on the Divide District (Workman Creek 1911, Jasper 1992), two on the Saguache District (Crestone Lake 1973, Little Sand Creek 1978), and one on the Conejos Peak District (La Manga Pass 1997). Two additional sightings on the San Juan Forest are also listed in the*

database since they occur adjacent to the Forest boundary (west side of Wolf Crk. Pass 1979, E. Fork Navaho River 1997). These sightings, if reliable, indicate that a small but persistent number of individual wolverines may remain on the Forest or within the South San Juan Mountains. However, this has not been verified. A lengthy write-up and good description of the 1997 individual observed by four San Juan Forest employees near La Manga Pass is available in the files at the Rio Grande National Forest Headquarters in Monte Vista. This documentation represents the last possible wolverine observation to occur on the Forest".

The precise unknown status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation due to relative large array of potential habitats available. Additionally, risk is reduced by protective measures being applied consistent with current management actions, Forest standards and guidelines, and the species having adapted to an array of natural disturbance.

There are no known population viability tools, processes, or protocol for wolverine.
Assuming the most historical critical limiting factor for wolverine of human trapping (furbearer) and shooting (animal damage) resulted in possible extirpation of the species for Colorado (CDOW 1998), then the only criteria available at this time to evaluate for wolverine is habitat criteria.

The Revised Forest Plan articulates potential suitable habitat for wolverine to amount to 1,076,430 acres as "undeveloped areas". Regional data (USDA Forest Service, 1992) reflects 12.5 million acres of montane and subalpine forests. An estimated 70% (8.75 million acres) of those forest types are relatively mature, which would likely offer abundant cover and forage opportunities for wolverine. The Region's ungulate herds (emphasizing elk) are stable if not increasing in areas. The Region's alpine habitats (denning) are not quantified, however, many alpine habitats are managed through protective management emphases of semi-primitive, nonmotorized recreation in roaded or nonroaded areas [MA 1.2; 1.31; 1.32;1.41] or are designated wilderness [MA1.11; 1.12 1.13] (USDA-FS 1984; USDA-FS 1998; USDA-FS 1996a), especially to the east of the project location. There are no PVA models, processes, or protocols for wolverine, There is abundant potential habitat available for the species across the Rocky Mountain Region, however, this secretive and wide-ranging species abundance is consider to be very few or none (CDOW 1998). There's occasional occurrence information (CDOW 1998) to suggest these acres were once occupied within ranges of historic ecological variation, more information than there is to say not**.** Population viability criteria of 1) presence of individuals and 2) successful breeding, does not appear to be occurring in Colorado. Thus, many believe that wolverine is extirpated from the State.

Yellow Billed Cuckoo
(*Coccyzus americanus*)

Distribution and Status
Southern Canada to Mexico, West Indies. Winters to Argentina; declining.

Life History
Riverine woodlands, thickets and farms.

Trend
Unknown

SLRA- BLM Status
Documented at McIntyre Springs on the SLRA-BLM in 2003.

Yuma Myotis
(Myotis yumanensis)

Distribution and Status
From NatureServe Explorer (2002): *"Western North America from British Columbia south through the western United States to Hidalgo, Morelos, Michoacan, and Baja California, Mexico; east to Montana and western Texas. The range is difficult to plot due to frequent mistaken identifications of specimens (Barbour and Davis 1969). Rangewide abundance information is limited to general comments and scattered, variable counts of maternity and roost colonies. According to Fitzgerald et al.(1994), not uncommon in suitable canyonland habitat in Colorado. Barbour and Davis (1969) stated, although locally abundant, the species is absent from many apparently suitable feeding areas. Considered locally abundant during the summer in British Columbia (Nagorsen and Brigham 1993). In Arizona, maternity colonies usually consist of approximately 35 individuals (Arizona Game and Fish Department 1993), and roost colonies vary between 1,500-2,700 individuals (New Mexico Department of Game and Fish 1997). According to Tuttle and Taylor (1994), mine colonies usually range in the hundreds to thousands and mines can be used year-round. Betts (1997) found maternity colony numbers in three Oregon mines ranging from 50-60 adults to 500-750 adults. One of the largest known maternity colonies in British Columbia consists of 1,500-2,000 adult females (Nagorsen and Brigham 1993)".*

From NatureServe Explorer (2002): *"The Colorado Heritage Program estimates 21-100 occurrences (Mike Wunder, pers. comm., 1998)".* The Colorado Heritage Status Ranking is S3, which means vulnerable in association with breeding and non-breeding (NatureServe 2002).

Life History
From NatureServe Explorer (2002): "*Habitat Comments: More closely associated with water than most other North American bats. Found in a wide variety of upland and lowland habitats, including riparian, desert scrub, moist woodlands and forests, but usually found near open water. Flys low. Nursery colonies usually are in buildings, caves and mines, and under bridges. Food Comments: Insectivorous. Small moths are believed to be the primary food source in some areas; dipterans and ground beetles are other common prey items. Often feeds over ponds and streams, flying just above the water surface. In British Columbia, fed opportunistically on the flying stages of aquatic insects; foraged in open, uncluttered habitats over land and low over water (Brigham et al. 1992). Females form maternity colonies in April. Single young born late May-July (peak apparently mid-June in western Oklahoma, Caire et al. 1989). In California young born apparently from late May to mid-June; in Arizona about mid-June. Colonies disperse by the end of September. Females first breed in their second summer. In British Columbia, may delay or forego reproduction in wet years (Grindal et al. (1992).Ecology Comments: May be locally abundant. Availability of dayroosts may be a limiting factor in some areas. Males solitary during birthing season".*

This species and its habitat association with cave and abandoned mine habitats are potentially threatened by adverse disturbance.

Trend
From NatureServe Explorer (2002): "Rangewide population trend information is not available. However, the population trend in Arizona appears stable at this time (Arizona Game and Fish Department 1993). Threatened by human disturbance of maternity colonies in caves and buildings (Schmidly 1991). Also may be affected by the closure of abandoned mines without adequate surveys. Frequently occurs in human structures and is vulnerable to destructive pest control activities. Some riparian management practices may be detrimental and result in loss of potential roost sites (Western Bat Working Group 1998, Arizona Game and Fish Department 1993). The Colorado and Sonora heritage programs consider the degree of threat to be moderate whereas not very threatened in Arizona (Mike Wunder, Andres Villarreal

Lizarraga, and Sabra Schwartz, pers. comm., 1998). Other Considerations: Difficult to distinguish from M. LUCIFUGUS (Western Bat Working Group 1998). What constitutes an occurrence may vary among natural heritage programs. Some programs may consider roost sites as occurrences whereas other programs may use all collection records. Standardized EO Specifications need to be developed".

SLRA- BLM Status

Surveys have not been conducted on the BLM in the San Luis Valley, status unknown.

The precise unknown status of this species' potential occurrence in the project area does not adversely affect this analysis or biological evaluation due to potential Yuma myotis habitat [emphasizing hibernacula] being easily identifiable (caves, abandoned mines). Additionally, risk is reduced by protective measures being applied consistent with current management actions, BLM standards and guidelines, and the species having adapted to an array of natural disturbance.

There are no known population viability tools, processes, or protocol for Yuma myotis. The only criteria available to evaluate for Yuma myotis is habitat criteria.

There are no PVA models, processes, or protocols for Yuma myotis. There is abundant potential habitat available for the species across the Rocky Mountain Region. There's occasional occurrence information (Fitzgerald et. al 1994) to suggest these acres are occupied within ranges of historic ecological variation, more information than there is to say not.

Effects Analysis (direct, indirect and cumulative)

All soil, watershed and fisheries conservation treatments are aimed at improving water quality and/or improving habitat for fish, which is predicted to be beneficial to all the species evaluated. There is little likelihood that implementation of any soil, watershed and fisheries conservation treatments will effect the movements or behavior of any of the terrestrial Forest Service and BLM Sensitive species. Some treatments could affect amphibians and fish. The purpose and need for soil conservation treatment in or near terrestrial habitat would imply a relative non-suitable terrestrial habitat condition or a point sediment source adversely affecting aquatic habitat. However, a soil and water conservation treatment (unsuitable condition) could conceptually occur within a larger potentially occupied habitat.

Conceptually, an effect of any soil, watershed and fisheries conservation treatment would be short-term disturbances to any animal that might randomly be at the treatment site at the moment of visitation by people. Any animal would likely react in either an indifferent behavior or a flee behavioral-mode depending upon the individual's tolerance to humans. Most effects to potential sensitive species habitat in the vicinity, if any, would occur primarily during the day and during spring, summer or fall. No soil, watershed and fisheries conservation treatments occur at night, nor during winter.

Existing literature indicates that wildlife responses to humans vary depending upon the species (type of animal), an individual's learned tolerance or non-tolerance to humans (animal's age and sex), relative animal's group size (i.e. elk herd), type of human activity, human behavior, activity predictability, activity frequency and magnitude, activity timing, and activity location (Knight and Gutzwiller, 1995:71-79). There are three relative responses that wildlife may exhibit when encountering human-created structures or human activity (Knight and Temple in Knight and Gutzwiller, 1995:81-91) including avoidance, habituation or attraction. Cannon (1929 in Knight and Gutzwiller, 1995:95) first coined the term "fight or flight response" to describe that disturbance produced dramatic physiological changes that helped animals survive during an emergency.

Thus, all soil, watershed and fisheries conservation treatments are subject to a Project-level Checklist, which calls for a biologist to perform a pre-project survey to determine if fish, amphibian or terrestrial habitat is occupied at or near the treatment site. The pre-project review would be followed-up by either

planning to avoid key occupied habitats or delay treatment until after the occupant species has completed its seasonal reproductive (denning, nesting, rearing) period (est. August 15 for most species).

For soil, watershed and fisheries conservation treatments that occur in aquatic or riparian habitats, Rio Grande cutthroat trout habitat cannot be readily avoided. However, the purpose and need of the treatment implies a degraded, undesirable habitat condition. The soil, watershed and fisheries conservation treatments are best management practices and there will likely be some low level discharge of sediment into aquatic or riparian habitat. The nature and design of the soil, watershed and fisheries conservation treatment will maintain minimal, acceptable impacts to aquatic and riparian habitat.

Cumulative Effects:
Beneficial cumulative effects are anticipated for all Forest Service and BLM Sensitive species evaluated resulting from soil, watershed and fisheries conservation treatments due to the actions improving habitat conditions in the long-term. In summary, there are no anticipated cumulative effects between the proposed treatments and the objectives of federal, regional, state, and local land use plans, policies and controls in place for the proposed projects or action area.

Mitigation Measures: Biologist complete the Project-level Checklist.

Recommendations: None

Determinations

Soil, watershed and fisheries conservation treatments in the analysis area (RGNF *and SLRA-BLM)* are determined to have NO IMPACT to the following species: Milk Snake (Lampropeltis triangulum), Texas horned lizard (Phrynosoma cornutum).

Rationale for determination:

- No suitable habitat affected by proposed actions or no recent documented resident occurrences on Forest;

Soil, watershed and fisheries conservation treatments on the RGNF or SLRA-BLM MAY IMPACT Individuals but are not likely to cause a trend to federal listing or loss of viability in the planning area for the following species: Barrow's Goldeneye (*Bucephala islandica*), Big Free-tailed Bat (*Nyctinimops macrotis*), Black Tern (*Chlidonias niger*), Black Swift (*Cypseloides niger*), Boreal Owl (*Aegolius funereus),* boreal toad *(Bufo boreas boreas),* Burrowing Owl (*Athene cunicularia*), Ferruginous Hawk *(Buteo regalis),* Flammulated Owl *(Otus flammeolus), Fox* Sparrow *(Passerella iliaca),* Golden-crowned Kinglet *(Regulus satrapa*), Gunnison Sage-Grouse *(Centrocercus minimus),* Lewis' Woodpecker *(Melanerpes lewisi),* Loggerhead Shrike *(Lanius ludovicianus),* marten (*Martes americana*), Mountain Plover (Charadrius montanus), Northern Goshawk *(Accipiter gentiles),* Northern leopard frog *(Rana pipiens),* Olive-sided Flycatcher *(Contopus cooperii),* Osprey (*Pandion haliaetus*), American Peregrine Falcon *(Falco peregrinus anatum*), Pygmy Nuthatch *(Sitta pygmaea),* Rio Grande chub *(Gila Pandora),* Rio Grande Cutthroat trout *(Oncorhynchus clarki virginalis),* Three-toed Woodpecker (*Picoides tridactylus*), tiger salamander *(Amboystoma tigrinum*fox*),*Townsend's Big-eared Bat *(Corynorhinus townsendii pallescens),* White Pelican *(Pelecanus erythrorynchos),* wolverine (*Gulo gulo luscus*), Yellow-billed Cuckoo (Coccyzus americanus occidentalis), Yuma myotis (Myotis yumanensis).

Rationale for determination:

1. As with any project, there is always the chance than an individual species may be harmed or disturbed by project activities, however, this likelihood is low.

2. The soil, watershed and fisheries conservation treatments are actions that result in stabilizing and /or improving habitats consistent with the Watershed Conservation Practices Handbook (FSH 2509.25).

3. The soil, watershed and fisheries conservation treatments are actions subject to a Project-level Checklist to avoid key occupied habitats.

4. The soil, watershed and fisheries conservation treatments are consistent with RGNF Land and Resource Plan direction, standards, and guidelines.

5. The soil, watershed and fisheries conservation treatments are disclosed with assumed design features, which are consistent with species recovery plans (see Biological Assessment), species conservation principles, and common sense.

6. The soil, watershed and fisheries conservation treatments are consistent with 1991 BLM RMP /1997 Health Standards direction, standards, and guidelines.

Determination Summary: Table II: Determination Summary and Mitigation

NI – No Impact; MI – May Impact Individuals, but is not likely to cause a trend towards Federal listing or loss of viability; BI - Beneficial Impact; LI – Likely to result in a trend towards federal listing or a loss of viability.		
Sensitive Species	**Determination**	**Mitigation Necessary Y/N**
Barrow's Goldeneye (BLM sensitive only)	MI	Contact local District/Field Biologist.
Big Free-tailed bat (BLM sensitive only)	MI	Contact local District/Field Biologist.
Black Tern (BLM sensitive only)	MI	Contact local District/Field Biologist.
Black Swift (FS sensitive only)	NI	None
Boreal Owl (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Boreal Toad (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas, Water purity, and Wildlife; and FSH 2509.25 (See Checklist), contact local District/Field Biologist.
Burrowing Owl (FS sensitive only)	MI	Contact local District/Field Biologist.
Ferruginous Hawk (FS and BLM sensitive)	MI	Contact local District/Field Biologist.
Flammulated Owl (FS sensitive only)	MI	Contact local District/Field Biologist.

Fox Sparrow (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Golden-Crowned Kinglet (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Gunnison sage grouse (FS and BLM sensitive)	MI	Contact local District/Field Biologist.
Lewis's Woodpecker (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Loggerhead Shrike (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Marten (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Mike snake (BLM sensitive only)	NI	None. Not documented in the San Luis Valley.
Mountain Plover (FS and BLM sensitive)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife; and BLM Health Standards (See Checklist), contact local District/Field Biologist.
Northern Goshawk (FS and BLM sensitive)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife; and BLM Health Standards (See Checklist), contact local District/Field Biologist.
Northern Leopard Frog (FS and BLM sensitive)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas, Water purity, and Wildlife; and FSH 2509.25 and BLM Health Standards, contact local District/Field Biologist.
Olive-Sided Flycatcher (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Osprey (FS sensitive only)	MI	None, in addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Peregrine Falcon (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Pygmy Nuthatch (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local Biologist.
Rio Grande chub (BLM sensitive only)	MI	Contact local District/Field Biologist.

Rio Grande Cutthroat trout (FS and BLM sensitive)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas, Water purity, and Wildlife; and FSH 2509.25 and BLM Health Standards, contact local District/Field Biologist.
Texas horned lizard (BLM sensitive only)	NI	None. Not documented in San Luis Valley.
Three-toed Woodpecker (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Tiger Salamander (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas, Water purity, and Wildlife; and FSH 2509. (See Checklist), contact local District/Field Biologist.
Townsend's Big-eared bat (FS and BLM sensitive)	MI	Contact local District/Field Biologist.
White-faced ibis (FS and BLM sensitive)	MI	Contact local District/Field Biologist.
White Pelican (BLM)	MI	Contact local District/Field Biologist.
Wolverine (FS sensitive only)	MI	In addition to Forest Plan standards and guidelines for Riparian Areas and Wildlife (See Checklist), contact local District/Field Biologist.
Yellow-billed Cuckoo (BLM sensitive only)	MI	Contact local District/Field Biologist
Yuma myotis (BLM)	MI	Contact local District/Field Biologist.

Contacts

Contact	Person	Date	Subject
Colorado Natural Heritage Program	http://ndis.nrel.colostate.edu/escop/cnhp/SUSCOHPq4228.html	12/03/2002	Species of Concern
Colorado Division of Wildlife	http://www.dnr.co.state.us/wildlife/T&E/list.asp	1/07/2003	Colorado T&E Species List
USDA-Forest Service Rio Grande National Forest 1803 W. Hwy. 160 Monte Vista, CO 81144	Laurel Kagan Wiley, Forest Wildlife Biologist lkwiley@fs.fed.us	12/13/2001 through January 2003	Species lists, occurrence data, GIS, document review –project oversight.
USDA-Forest Service Rio Grande National Forest 1803 W. Hwy. 160 Monte Vista, CO 81144	Barry G. Wiley, Forest Fisheries Biologist bgwiley@fs.fed.us	12/13/2001 through January 2003	Species lists, occurrence data, document review –project oversight.

USDA-Forest Service Rio Grande National Forest 1803 W. Hwy. 160 Monte Vista, CO 81144	John Rawinski, Soil Scientist jrawinski@fs.fed.us	12/13/2002 through January 2003	Watershed Project Leader and wildlife occurrence data; document review.
USDA-Saguache Ranger District USDI-BLM-San Luis Resource Area 46525 Hwy. 114; P.O. Box 67 Saguache, CO 81149	Doug Clark, Wildlife Biologist	April through Sept 2003	Wildlife occurrence data; document review.
USDA-Forest Service Rio Grande National Forest 1803 W. Hwy. 160 Monte Vista, CO 81144	Randy Ghormley, National Fire Plan - Wildlife Biologist rghormley@fs.fed.us	12/13/2001 through December 2002	Species occurrence databases.

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