Crossons-Longview Forest Restoration Project Environmental Assessment

Biological Assessment V3

South Platte Ranger District
Pike National Forest
September 2015

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Acronyms/Abbreviations

BA Biological Assessment

CFR Code of Federal Regulations

dbh diameter at breast height

EA environmental assessment

EMU Ecological Management Unit

ERT Environmental Research and Technology

ESA Endangered Species Act

FSM Forest Service Manual

GIS Geographic Information Systems

MIS Management Indicator Species

MSO Mexican spotted owl

NEPA National Environmental Policy Act

PAC protected activity centers

PCE primary constituent elements

PMJM Preble's meadow jumping mouse

Skipper Pawnee montane skipper

SRM Southern Rocky Mountains

TES threatened or endangered species

USFS U.S. Forest Service South Platte Ranger District of the Pike and San Isabel National Forests Comanche and Cimarron National Grasslands

USFWS U.S. Fish and Wildlife Service

1. INTRODUCTION

The U.S. Forest Service South Platte Ranger District of the Pike and San Isabel National Forests Comanche and Cimarron National Grasslands (USFS) has prepared this biological assessment (BA) for the Crossons-Longview Forest Restoration Project. An environmental assessment (EA) is being written for this project, addressing its implementation. Section 7 of the Endangered Species Act (ESA) of 1973, as amended, requires federal agencies to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of threatened, endangered, or proposed species, or cause the destruction or adverse modification of their critical habitats. In addition, the USFS has established direction in Forest Service Manual (FSM) 2670 to guide habitat management for threatened, endangered, proposed, and sensitive species. This document is prepared in accordance with legal requirements set forth under section 7 of the ESA and follows standards established in FSM direction (2672.42) and the Code of Federal Regulations (50 CFR 402).

A Biological Assessment must be prepared for federal actions that are "major construction activities" (a project significantly affecting the quality of the human environment) to evaluate the potential effects of the proposal on listed or proposed species. The Forest Service has established direction in Forest Service Manual 2672.4 and Region 2 Supplement Number 2600-94-2 to guide habitat management for proposed, endangered, and threatened species. Preparation of a Biological Evaluation as part of the National Environmental Policy Act (NEPA) process ensures that these species receive full consideration in the decision-making process. Analysis of Forest Service Region 2 sensitive status species and Management Indicator Species (MIS) is discussed in a separate Wildlife Report/Biological Evaluation (BE).

This report is intended to evaluate whether implementation of the selected action may affect any plant, wildlife or fish species listed under the ESA, their proposed or designated critical habitats, or any species proposed for listing. To achieve this objective, this report reviews the ongoing action in sufficient detail to identify the level of effect that will occur to each species, based on the best available scientific literature, a thorough analysis of the potential effects of the project, and the professional judgment of the biologists and ecologists who completed the evaluation.

For listed species and designated critical habitat, one of three possible determinations (U.S. Fish and Wildlife Service [USFWS] and National Marine Fisheries Service 1998) is chosen:

- "No effect" – where no effect is expected;
- "May affect, not likely to adversely affect" – where effects are expected to be beneficial, insignificant (immeasurable), or discountable (extremely unlikely); and
- "May affect, likely to adversely affect" – where effects are expected to be adverse or detrimental.

2. Federally Threatened, Endangered and Candidate Species

Of the species that currently may be affected by projects in Jefferson or Park counties (Table 1), the least tern, pallid sturgeon, piping plover, western prairie fringed orchid, and whooping crane are not addressed further because the project area lacks suitable habitat for these species and no water depletions would result from the activities; therefore, there would be no effect to these species. Suitable habitat is also lacking for the black-footed ferret, Colorado butterfly plant, greenback cutthroat trout, North American wolverine, Penland alpine fen mustard, and Uncompahgre fritillary butterfly; therefore, there would be no effects to these species and they likewise will not be addressed further. Potentially suitable habitat for the Mexican spotted owl (MSO), Pawnee montane skipper (skipper), Preble's meadow jumping mouse (PMJM), and Ute ladies'-tresses orchid does exist in and near the project area. No evidence exists that any other listed or proposed species may occur on the project area.

3. Designated Critical Habitat

Areas designated as critical habitat are areas that may require special management considerations and are essential for the conservation of the species. The project area does not contain any current designed critical habitat. Revisions to critical habitat would be monitored and management adjusted as appropriate should new designation occur.

4. Consultation History

Federal actions that affect listed species must undergo consultation or conference with the USFWS. Definitions related to consultation and conference is given in the Endangered Species Act Consultation Handbook, Procedures for Conducting Section 7 Consultation and Conferences (USFWS 1998a).

Consultation is underway with the USFWS regarding threatened, endangered and candidate species for federal listing with the potential to occur in the Crossons-Longview Project Area.

Table 1. Federally threatened, endangered, proposed, and candidate species that may be affected by activities in Jefferson or Park counties, Colorado[1]

Common Name	Scientific Name	Status	Notes
Canada lynx	*Lynx canadensis*	Threatened	The project area is lacking in suitable habitat does not contain a Lynx analysis Unit.
Colorado butterfly plant	*Gaura neomexicana spp. coloradensis*	Threatened	The Forest lies outside the known range of the species. Forest activities will not affect Colorado butterfly plant.
Greenback cutthroat trout	*Oncorhynchus clarki stomias*	Threatened	Restricted to only a few small drainages on the Pike and San Isabel National Forests per recent genetic studies; the species in not present in the planning area.
Gunnison's prairie dog	*Cynomys gunnisoni*	Candidate	Primary habitat, consisting of high mountain valleys and plateaus at elevations from 6,000 to 12,000 ft; open or slightly brushy country, scattered junipers, and pines (Wrigley at al 2012). Planning area does not contain suitable habitat.
Least tern (interior population)▲	*Sternula antillarum*	Endangered	No water depletions in the South Platte River would occur as a result of this project, therefore there would be no impact on downstream reaches.
Mexican spotted owl	***Strix occidentalis lucida***	**Threatened**	**Potential habitat in the planning area, included in analysis**
North American wolverine	*Gulo gulo*	Proposed Threatened	Habitat preference for high-elevation sites that maintain deep snow depths into late winter/early spring. Project area elevation not likely to include wolverine habitat.
Pallid sturgeon▲	*Scaphirhynchus albus*	Endangered	No water depletions in the South Platte River would occur as a result of this project, therefore there would be no impact on downstream reaches.
Pawnee montane skipper	***Hesperia leonardus montana***	**Threatened**	**Potential habitat in the planning area, included in analysis**
Piping plover▲	*Charadrius melodus*	Threatened	No water depletions in the South Platte River would occur as a result of this project, therefore there would be no impact on downstream reaches.
Preble's meadow jumping mouse	***Zapus hudsonius preblei***	**Threatened**	**Potential habitat in the planning area, included in analysis**
Uncompahgre fritillary butterfly	*Boloria acrocnema*	Endangered	Known to only occur above timberline on Mt. Uncompahgre. No occurrence in project area counties.
Ute ladies'-tresses orchid	***Spiranthes diluvialis***	**Threatened**	**Potential occurrence in the project area, included in analysis**
Western prairie fringed orchid▲	*Platanthera praeclara*	Threatened	No water depletions in the South Platte River would occur as a result of this project, therefore there would be no impact on downstream reaches.
Whooping crane▲	*Grus americana*	Endangered	No water depletions in the South Platte River would occur as a result of this project, therefore there would be no impact on downstream reaches.

[1] Source: USFWS November 12, 2013
▲- Water depletions in the South Platte River system may affect this species.
Species in bold font have analysis carried forward.

5. Description of Proposed Action

The South Platte Ranger District of the Pike and San Isabel National Forest proposes to treat approximately 11,700 acres within the 22,729 acre Crossons-Longview Project Area to move the montane forest ecosystem towards historic conditions. The Proposed Action would reduce the potential for catastrophic wildfires and improve the resiliency of the ponderosa pine and Douglas-fir dominated forests of the Front Range montane ecosystem. The Proposed Action would also protect water supplies and enhance wildlife habitat. To accomplish these goals, the US Forest Service proposes vegetation treatments to alter forest stand and understory conditions within the 22,729 acre Crossons-Longview Project Area.

The target vegetation types are identified on Table 2 below. Areas within 0.5 miles of existing and temporary roads would be the focus of the proposed treatments. These areas were estimated by identifying target vegetation types within one mile of existing roads and on slopes less than 60 percent.

Table 2. Crossons-Longview Vegetation Types Targeted for Treatments

Vegetation Type	Area (acres)	Percentage
Xeric Ponderosa pine	4,581	49%
Mesic Ponderosa pine	3,684	38%
Mixed Conifer	603	6%
Lodgepole pine	557	6%
Aspen	121	1%
Shrubs	28	<1%
Total	9,574	100%

The treatments would be accomplished by a combination of mechanical harvesting equipment and hand treatment. Specific actions would be dependent on site-specific conditions and the vegetation type; however, actions would include thinning, created openings, and prescribed burning. Professional judgment will be used, given the guidelines identified in the Environmental Assessment and taking into consideration the terrain and vegetative type, to determine which one or combination of treatments are most appropriate for individual treatment sites. Approximately 55 percent of the treatment areas are located within 0.5 miles of existing roads, with 33 percent of those areas treated by hand due to slopes between 35-60 percent. Approximately 61 percent of the treatment areas lie on slopes of 0-35 percent and would be considered appropriate for treatment with traditional harvesting equipment and commercial product removal. The treatments on slopes between 35-60 percent would likely be hand treatments.

Where possible, vegetation treatments would take into consideration previously treated areas and/or past burned areas in order to increase the overall landscape benefit. The proposed action does not include the establishment of any new system roads, however, some temporary roads would be needed to accomplish the project's goals. It is expected that project activities will take approximately 10 years to treat the entire targeted area.

Alternative C was developed in response to a concern that increasing access through the use of temporary roads would cause some negative effects. There are a variety of advantages and concerns about using temporary roads to complete the goals of the purpose and need. Even if gated or closed to motorized use, roads increase access into areas being treated. This can be an advantage for recreational uses but can create concerns to private property owners who are concerned about vandalism or unauthorized use of private property. The increased access can help with fire fighting efforts but also increase the possibility of dispersed camping and unattended campfires. Alternative C proposes that no temporary roads will be built to accomplish the project's purpose and need. Although relying solely on the existing road network will lessen the ability to remove fuels and will reduce the area that can be treated, there are still many roads in the project area and a large area of forest that is available for treatment off these existing roads. This alternative seeks to balance forest restoration with concerns about expanding the existing road network. Like the Proposed Action, Alternative C would reduce the potential for catastrophic wildfires and improve the resilience of the ponderosa pine and Douglas-fir dominated forests of the Front Range Montane ecosystem. Alternative C would also protect water supplies and enhance wildlife habitat. Areas considered available for treatment are a subset of Alternative B. Because no temporary roads will be constructed, all treatment must occur off of existing roads, limiting the area that can be treated. It is assumed that all treatment will occur within 0.5 miles of existing roads, reducing the available treatment area to 6,326 acres. Table 3 presents the total treatment area by vegetation type for Alternative C.

Table 3. Crossons-Longview Alternative C Vegetation Types Targeted for Treatments

Vegetation Type	Area (acres)	Percentage
Xeric Ponderosa pine	2,919	45%
Mesic Ponderosa pine	2,500	40%
Mixed Conifer	422	7%
Lodgepole pine	354	6%
Aspen	115	2%
Shrubs	16	< 1%
Total	6,326	100%

6. Analysis Methods and Assumptions

Information on species occurrence in the Crossons-Longview Project Area and suitable habitat features was collected from Pike and San Isabel National Forests, USFWS, Colorado Natural Heritage Program, and other sources to aid in the analysis of this project.

The indicators listed below are used to measure impacts of the project on wildlife and fish habitat:

- Pine structural stage diversity (estimated resulting structural stage distributions);
- Snag retention (estimated number of snags per acre); and
- Aspen communities (estimated acres enhanced).

Specific assumptions for project activities include the following:

- Slopes of 0-35 percent would be considered appropriate for treatment with traditional harvesting. Slopes of 35-60 percent would be appropriate for hand-treatment only, while those over 60 percent would not be suitable for treatment.
- Understory cover is anticipated to recover within 3 years of mechanical treatment or less than 2 years after hand thinning and prescribed burning

6.1 Conservation Measures

To be applied to all project activities as follows:

- Leave-tree spacing will be variable and retain the natural clumpy characteristics in the treated stand.
- Larger trees will generally be retained; trees identified as older than 150 years are to be retained.
- Existing snags will be retained where they are not a hazard.
- Resources will be monitored to ensure management objectives are achieved.
- All unclassified access routes and paths used to remove logs will be obliterated and rehabilitated within two years of treatment.
- Best management practices will be followed to limit the spread of noxious weeds in the treatment areas.
- Best management practices will be followed to limit soil erosion and maintain water quality.
- USFS will coordinate annually with USFWS to discuss and track treatment progress in habitat for the Mexican spotted owl, Pawnee montane skipper, and Preble's meadow jumping mouse.

Conservation Measures have also been developed to be applied in relevant habitat for specific species. These measures are included under Conservation Measures, below.

7. Existing Condition

This section describes the regulatory framework and environmental baseline for each species assessed in the BA. For each species, the potential for the selected action to cause direct, indirect, or cumulative effects is analyzed and a determination is made. For detailed species descriptions and documentation see "Threatened, endangered, and Forest Service Sensitive Species of the Pike and San Isabel National Forests" (updated June 2012), on file at the South Platte district office (Wrigley et al. 2012). All acre estimates are based on Geographic Information Systems (GIS) models of species' habitats; these areas are presumed suitable unless field verification indicates otherwise. Alternatively, if suitable but unmapped habitat is discovered during field visits those sites must be considered occupied and the appropriate conservation measures applied.

This environmental analysis is tiered to the 1984 Forest Plan, as amended (USDA Forest Service 1984).

Other regulation and policy measures relevant to actions in the Project Area include the following:

- The ESA of 1973 as amended (16 USC 1531, et seq.) directs federal agencies to ensure that their actions do not jeopardize threatened and endangered species, and that through their authority they help to bring about the recovery of such species.
- The Region 2 Watershed Conservation Practices Handbook (Forest Service Handbook R2 Supplement 2509.25), which contains proven watershed conservation practices to protect soil, aquatic, and riparian systems. If used properly, the watershed conservation practices meet applicable federal and state laws and regulations, including state best management practices. Forest Supervisors and District Rangers are responsible for implementing the applicable management measures and design criteria from this handbook, or acceptable alternatives that meet applicable legal and regulatory requirements, in all projects.

7.1 Mexican Spotted Owl

Regulatory Framework

The Mexican spotted owl is a threatened species, listed on March 16, 1993 (58 FR 14248). A final rule designating critical habitat for the owl was published on June 6, 1995; this designation was successfully challenged in court (60 FR 29914). On August 31, 2004, the USFWS published a new final rule designating critical habitat for the owl. Over 8.6 million acres of critical habitat is designated in Arizona, Colorado, New Mexico, and Utah (69 FR 53182).

A final recovery plan was published in September 2012 (USFWS 2012) and replaces the previous plan dated October 16, 1995. The 1995 recovery plan subdivided the owl's range into 11 recovery units, six in the United States and five in Mexico. These were renamed in the September 2012 Final Recovery Plan as ecological management units, in accordance with current USFWS guidelines. The project area is within the Southern

Rocky Mountains Ecological Management Unit (SRM EMU; formerly called the SRM-Colorado and SRM-New Mexico Recovery Units).

The Mexican spotted owl occurs in forested mountains and rocky canyonlands in the southwest United States and south into several states of Mexico (Gutierrez et al. 1995; Ward et al. 1995). The species' core range occurs in central Arizona and New Mexico. In Colorado, it occurs in lower-elevation forests, usually in deeply incised, rocky canyons in southern Colorado and along the Front Range. When the species was listed as threatened in 1993, there were twenty historic records for Colorado, with occurrences ranging from the San Juan Mountains in southwestern Colorado and from the Front Range as far north as the vicinity of Denver (USFWS 1993). The primary constituent elements (PCEs) of critical habitat are described in Table 4, Primary Constituent Elements of Mexican Spotted Owl Critical Habitat. The planning area contains no critical habitat. Critical habitat is found adjacent to eastern boundary of the planning area as well as approximately X miles to the south in Jefferson County.

Table 4. Primary Constituent Elements of Mexican Spotted Owl Habitat Critical Habitat.[2]

Features	Description
Forest structure	• A range of tree species, including mixed conifer, pine-oak, and riparian forest types, composed of different tree sizes reflecting different ages of trees, 30 to 45 percent of which are large trees with a trunk diameter of 12 inches (0.3 meters) or more when measured at 4.5 feet (1.4 meters) from the ground • A shade canopy created by the tree branches covering 40 percent or more of the ground • Large dead trees (snags) with a trunk diameter of at least 12 inches (0.3 meters) when measured at 4.5 feet (1.4 meters) from the ground
Maintenance of adequate prey species	• High volumes of fallen trees and other woody debris • A wide range of tree and plant species, including hardwoods • Adequate levels of residual plant cover to maintain fruits and seeds and to allow plant regeneration
Canyon habitats	• Presence of water (often providing cooler temperature and higher humidity than the surrounding areas) • Clumps or stringers of mixed conifer, pine-oak, pinyon-juniper, or riparian vegetation • Canyon wall containing crevices, ledges, or caves • High percent of ground litter and woody debris

[2] Source: USFWS 2004

On the Pike and San Isabel National Forests, protected activity centers (PACs) were established at current and historic sites where owls were known or suspected to nest or roost. Using Rocky Mountain Region spatial vegetation and topography data, the two forests also created a conservative model of forested stands that meet the general description of recovery habitat, which has been updated in accordance with the 2012 MSO Recovery Plan habitat definitions. Because the model was designed to be conservative, some identified stands may not actually be capable of providing habitat for owls (e.g., inadequate tree size and/or density). Therefore, stands must be field-verified to determine if they do not have the capacity to provide suitable owl habitat.

Within mixed-conifer forested recovery habitat in the SRM EMU 25 percent of a planning area (e.g., Pike and San Isabel National Forests) must be managed for recovery nesting/roosting habitat (see USFWS 2012, Table C-3). The remainder is to be managed to provide foraging, dispersal, wintering, or other habitat needs. Recommended management for these foraging and non-breeding areas includes retaining PCEs and minimizing tree removal, however no specific numbers are provided.

Environmental Baseline

The proposed Project Area is generally lacking cool, moist canyons with large diameter trees that meet the species Primary Constituent Elements (PCEs). On the Pike and San Isabel National Forests, protected activity centers (PACs) were established at current and historic sites where owls were known or suspected to nest or roost. The closest PACs are located more than 10 miles south of the Project Area. Between 1993 and 2005 the USFS conducted extensive surveys for owls across the district. No MSO were detected within the Project Area. Furthermore, no reproduction was documented in the nearby PACs, so given the survey results on the district the likelihood of owls occurring in the Project Area is considered low. Habitat in the planning area may be utilized for foraging and can be considered dispersal habitat. Habitat modeling indicates that the Project Area contains an estimated 3,960 total acres of potentially suitable recovery owl habitat. Approximately 2,600 acres of the potentially suitable recovery owl habitat is located within proposed treatment areas.

In addition to stand replacing wildland fire, the MSO is threatened by the following:

- Noise and habitat disturbance from commercial, recreational, scientific, or educational activities
- Incompatible silviculture treatments
- Over-grazing
- Climate change
- Land and road development

Conservation Measures

The project area does not contain critical habitat core areas or PACs. Therefore conservation measures presented here are limited to recovery habitat as defined in the 2012 MSO recovery Plan (USFWS 2012).

For this analysis, all potentially suitable habitat as identified in the MSO habitat model (i.e., forested foraging/ non-breeding habitat, forested nest/roost habitat, riparian recovery habitat and rocky canyon habitat) is considered occupied. All potential habitat will require field verification to determine if appropriate habitat type is actually present prior to implementation. Conservation Measures are presented below for each habitat type.

There is a maximum of 2,600 acres of MSO recovery habitat in the proposed treatment areas. During consultation with US Fish and Wildlife Service an annual maximum treatment area within the 2,600 acres of recovery habitat will be determined.

<u>Forested Nest/Roosting Habitat (including Rocky Canyon Habitat)</u>

1. Treatments are permitted long as stand conditions remain at or above the values given in Table C.3 of the 2012 MSO Recovery Plan. No stand that meets Table C.3 conditions should be treated in such a way as to lower that stand below those conditions until ecosystem assessments can document that a surplus of these stands exist at larger landscape levels (e.g., no less than the size of a FS District). The following criteria will also be followed:
    - Retain trees ≥46- cm (18 inches) diameter at breast height dbh unless there are compelling safety reasons to do so or if it can be demonstrated that removal of those trees will not be detrimental to owl habitat.
    - Manage for nest/roost replacement habitat and emphasize attainment of nest/roost conditions as quickly as reasonably possible.
    - Mimic natural disturbance patterns, provide a mosaic of treated and untreated areas, and strive for species diversity.
    - Retain key owl habitat elements including most hardwoods, large snags (>46 cm [18 in] dbh), large downed logs (>46 cm [18 in] diameter at any point), trees (>46 cm [18 in] dbh.

<u>Forested Foraging/Non-Breeding Habitat</u>

- Retain key owl habitat including most hardwoods, large snags (>46 cm [18 in] dbh), large downed logs (>46 cm [18 in] diameter at any point), trees (>46 cm [18 in] dbh), unless this conflicts with forest restoration and/or owl habitat enhancement goals.
- Minimize tree removal.

<u>Riparian Recovery Habitat</u>

- Manage for Proper Functioning Condition, manage for species diversity, manage for grazing effects, and minimize construction activities.
- Maintain key habitat components (e.g., large trees, large snags, large logs, hardwoods, etc.).
- Minimize tree removal.

7.2 Pawnee Montane Skipper

Regulatory Framework

The skipper is listed as threatened (USFWS 1987) and a recovery plan exists (USFWS 1998b), but no critical habitat has been designated. Skippers occur only on the Pike Peak Granite Formation in the South Platte drainage system in Colorado, involving portions of Jefferson, Douglas, Park, and Teller counties. The species typically occurs at an elevation range of 6,000 to 7,500 feet, though there are records as high as 8,000 feet (Wrigley et al 2012). Potentially suitable skipper habitat was first mapped in the 1980's (ERT 1988). There are three populations of the skipper distinguished in the butterfly's Recovery Plan that occupy approximately 25,044 acres of ponderosa pine forests between 6,000 and 8,000 feet in the South Platte River Valley (ENSR 2003).

Environmental Baseline

Based on field studies by Environmental Research and Technology (ERT) (1988) the general characteristics of skipper habitat include tree canopy cover of 30 percent; ponderosa pine crown cover of 25 percent, Douglas-fir crown cover of 5 percent; tree density of less than 120 trees per acre in the smallest size class; overall tree density of less than 200 trees per acre; shrub and grass cover generally less than 10 percent; prairie gayfeather (*Liatris punctata*) flower stem density ranging from 50 to 500 per acre; and blue grama (*Bouteloua gracilis*) cover 5 percent or less, but present nearly everywhere. Skippers are dependent upon prairie gayfeather and blue grama for nectar and reproduction, respectively. Adult females deposit their eggs singly on leaves of blue grama in late summer. After hatching, larvae feed on blue grama until they pupate. From late July to October adult skippers emerge and forage for nectar on prairie gayfeather flowers, as well as a variety of other plants including hairy golden-aster (Wrigley et al 2012).

Between 1996 and 2002, four separate fires burned approximately 48 percent (12,026 acres) of the habitat in the Project Area. There is evidence that high-severity burns may decrease habitat suitability. On-going monitoring of skippers in the 2002 Hayman Fire area has documented that areas of moderate-to-high burn severity still represent marginal habitat for the skipper even in 2012, 11 years after the Hayman fire. Burn areas also appear to be dependent upon a source population of butterflies from unburned habitats (Sovell, 2013).

Based on the current map of suitable habitat, approximately 540 acres of potentially suitable habitat is present in the planning area. Habitat mapping is general, and non-mapped area may be suitable while some portions of mapped habitat may be considered suboptimal because forest canopy cover has become too dense or ground cover is sparse.

Threats to the species in addition to high severity wildland fire include the following:

- Invasive weeds which may outcompete host plants
- Climate change and drought
- Habitat loss from natural and human causes (ie. conifer encroachment)
- Inadequacy of existing regulatory mechanisms
- Recreational use of habitat
- Land and road development

Conservation Measures

For this analysis, all suitable skipper habitat is considered occupied. All potential habitat will require field verification to determine if appropriate habitat type is actually present prior to implementation.

1. There is a maximum of 415 acres of skipper habitat in the proposed treatment area. During consultation with US Fish and Wildlife Service an annual maximum treatment area within the 415 acres of skipper habitat will be determined.
2. The disturbance from mechanized thinning operations in skipper habitat will be minimized by the use of pre-treatment surveys to determine the best skid trails and forwarder routes. Routes will be designated to avoid blue grama and Liatris areas, and trees will be felled so as to avoid areas of blue grama and prairie gayfeather, where possible.
3. Thinning and burning activities will take place outside of the skipper flight season (August 1 to October 1).
4. The size and shape of created forest openings within skipper habitat will be based on the concept of a maximum distance to forest edge requirement in skipper habitat. The maximum distance would be 265 feet, based on the radius of a 5-acre circle, such that any point within the opening will be within 265 feet of a forest edge. A forest edge would be defined as the outer margin of a forested area with 11 percent or greater canopy coverage of overstory trees, and which extends for at least 100 feet on the axis perpendicular to the edge. A minimum of 100 feet of forest will remain between created openings. A few live ponderosa pine trees shall remain scattered throughout the opening.
5. Small forest openings (1/10-ac to 1/2-ac) with blue grama and prairie gayfeather are important components of skipper habitat, therefore, slash treatments will minimize or avoid piling or scattering slash in these forest openings. Slash deposition will not exceed an average depth of 12 inches in skipper habitat.
6. Blading of existing roads or access routes that are vegetated and within skipper habitat will be limited to a project maximum total of 4 acres (approximately 3 miles of road). Bladed areas will be reclaimed immediately after treatments are completed.
7. Prescribed burning in skipper habitat will be limited to 1,000 acres per year with no more than 500 acres of contiguous habitat burned in any given year. Burns in adjacent areas shall be staggered by a minimum of 2 years to allow for recover of skipper populations.
8. In as much as possible, thinning activities in suitable habitat shall be staggered over space and time (i.e., years) to avoid treating large contiguous blocks of suitable habitat all at once.

7.3 Preble's Meadow Jumping Mouse

Regulatory Framework

PMJM was listed as threatened in 1998 (63 FR 26517), primarily due to human development of its limited habitat along the Front Range of the Rocky Mountains (USFWS 1998c). A draft recovery plan has been written but not finalized (USFWS 2003). Critical habitat was initially designated in 2003 (USFWS 2003) and revised in Colorado in 2010 (USFWS 2010). Sections of the South Platte River (unit 10) and Arkansas River drainages in Colorado are within designated critical habitat (USFWS 2010). No critical habitat is found within the project area.

Environmental Baseline

In general, typical habitat for PMJM is comprised of well-developed riparian vegetation with adjacent, upland habitat found at elevations between 4,650 feet and 7,600 feet, although elevations may vary across the range of the subspecies (USFWS 2003). Suitable riparian vegetation includes a dense combination of grass, forb, and low shrub cover, and taller shrubs and trees may be present. Adjacent uplands used by PMJM are variable and can include range from open grasslands to ponderosa pine woodlands. The montane woodlands where PMJM has been found are dominated by ponderosa pine, Douglas-fir, spruce, and occasionally aspen, with understories of shrubs and forbs. The active period for PMJM is estimated to be May 1 through October 31; they hibernate in underground burrows during the remaining time (USFWS 2003).

All riparian habitat in the project area and adjacent upland habitat (within 300 feet of 100 year flood plain) below 7,600 feet elevation is considered potentially suitable occupied habitat. The project area contains approximately 3,700 acres of potential habitat based on these criteria. Habitat mapping on the Pike and San Isabel National Forests appears to over-estimate the extent of potentially suitable PMJM habitat. During ground-truthing, some drainages initially mapped as potential habitat have been found to lack any riparian vegetation or surface water and should not be considered as potential habitat. In many areas, the mapped potential habitat is of marginal quality, with poorly developed or intermittent riparian vegetation. Upland vegetation is sparse in many mature mixed-conifer stands and grasses or shrubs that may provide forage or cover are absent. In these areas individual PMJM may occur; however, the likelihood of occurrence or persistent populations is considered to be much lower than in high-quality habitats. Other areas contain well-developed riparian and upland habitat that hold a high potential for supporting persistent populations of PMJM. It is likely that mapped potential habitat is more comprehensive than actual suitable or occupied habitat. Field verification surveys prior to implementation of project activities could confirm the suitability of habitat.

Threats to the species include the following:

- Invasive weeds
- Recreation
- Climate change and drought
- Inadequacy of existing regulatory mechanisms
- Modification of riparian areas vegetation or systems (i.e. through stream stabilization)
- Hydrology impairments
- Loss and fragmentation of riparian habitat from urbanization

Conservation Measures

For this analysis, all Preble's critical habitat, as well as all suitable riparian and adjacent (within 300 feet) upland habitat below 7,600 feet elevation is considered occupied. Vegetation treatment restrictions apply the same to critical habitat and potential habitat if it is suitable. All potential habitats will require field verification to determine if appropriate habitat type is actually present prior to implementation. Mapped habitat is considered suitable until field verification is completed.

For upland habitat within the floodplain and designated buffer:

1. There is a maximum of 2,100 acres of PMJM habitat in the proposed treatment areas. During consultation with US Fish and Wildlife Service an annual maximum treatment area within the 2,100 acres of PMJM habitat will be determined.
2. Product removal, mastication, slash treatments with heavy equipment, and prescribed burning within Preble's upland habitat will occur during the hibernation period (November 1 through April 30), but hand thinning treatments (including hand slash treatments) in upland habitat may occur at any time of the year.
3. Vehicles will not enter riparian areas, regardless of time of year, with the exception of identified drainage crossings, as described below.
4. Felling of trees in the water influence zone (WIZ; vegetation within 100 feet of perennial and intermittent streams) will occur in a way that protects vegetation in the WIZ from damage. Log landings and skid trails will be kept out of the WIZ, including swales. Removal of logs from the WIZ will include at least one-end log suspension.
5. Impacts to shrubs in upland areas by vehicles and associated logging equipment will be minimized. No shrubs or trees will be uprooted.
6. In as much as possible, treatments in suitable upland habitat shall be staggered over space and time (i.e., years) to avoid treating large contiguous blocks of suitable habitat all at once.

Riparian Habitat

1. No riparian vegetation will be removed.
2. Select conifer trees in riparian areas may be removed by hand equipment or by mechanical equipment if the vehicle can stop outside the riparian area and remove conifers inside the riparian area without damaging riparian vegetation. Such conifers may be targeted for removal only after discussion between the USFS and USFWS
3. Prescribed burns will not be ignited in Preble's riparian habitat, although backing fires and light understory burns may enter riparian area vegetation and will be limited to X acres over the life of the project. [Need to determine appropriate limit for prescribed burns for this project based on a maximum of X aces of habitat in the proposed treatment area- may need to check with USFWS]
4. Heavy equipment will be kept out of riparian areas around streams, swales, and lakes, except to cross at designated points, or if protected by at least 1 foot of packed snow or 2 inches of frozen soil. Heavy equipment will be kept out of streams during fish spawning, incubation, and emergence periods.
5. Drainage crossings by vehicles and heavy equipment are allowed for the purposes of providing access across small drainages to treatment areas that would otherwise be inaccessible.
6. Drainage crossings will involve only overland travel by vehicles and drainage crossings will not be bladed.
7. Drainage crossings will avoid riparian shrub habitat if possible. If it is not possible to avoid riparian shrub habitat, efforts will be made to minimize disturbances of these areas.
8. Disturbances from drainage crossings in suitable Preble's riparian habitat shall not exceed 1 acre for the life of the project. No more than 0.5 acres of riparian grass and shrub habitats shall be impacted at any given time.
9. During the annual meeting, or prior to impact, the USFS and USFWS will review any proposed drainage crossing that would cause a disturbance or removal of suitable riparian habitat.
10. Once the drainage crossing is no longer needed to complete forest treatments, the crossing will be allowed to reclaim itself. If reestablishment of the riparian vegetation on the drainage crossing is not achieved within 3 years, further work may be needed and will be mutually coordinated at the annual meeting

7.4 Ute ladies'-tresses

Ute ladies'-tresses (*Spiranthes diluvialis*) is a perennial herb in the orchid family (*Orchidaceae*). It flowers from July through August. It occurs at elevations of 4,200 to 6,000 feet in early- to mid-seral, moist to wet conditions, where competition for light, space, water, and other resources is normally kept low by periodic or recent disturbance events, such as alluvial banks, river floodplain habitats, shores of lakes and reservoirs, in mesic meadow-type vegetation maintained by lake level fluctuations or seasonal flooding of gravel bars, and human-developed dams, reservoirs, and irrigation ditches (NatureServe, 2014). It is found in Colorado in Boulder, El Paso, Jefferson, Larimer, Moffat and Weld counties (Colorado National Heritage Program, 2014). Habitat may be threatened by grazing or haying after flower production and invasion of sites by non-native plants.

8. Analysis of Effects

8.1 Direct and Indirect Effects- No action alternative

Mexican Spotted Owl

Under Alternative A, vegetation on the forest would follow natural succession, disturbance, and recovery processes. Long term, the tree cover and density would continue to increase and late successional pine forest would likely increase; some additional portions of the planning area may therefore become suitable for MSO. However, the risk of high severity wild-fire, with the potential to burn MSO recovery habitat would increase. The 2012 Recovery Plan identifies stand-replacing wildfire as the primary threat to MSO persistence. Dense late-successional stands would lead to an increased risk of insect infestation and wildfire.

Pawnee Montane Skipper

Under Alternative A, vegetation on the forest would follow natural succession, disturbance and recovery processes. A small potential for disturbance of Skipper from ongoing forest uses would remain. Long-term, the tree cover and density would continue to increase. Areas that currently represent xeric ponderosa pine with suitable patchy openings supporting prairie gayfeather and blue grama may become unsuitable for Skipper habitat as forest succession continues. In addition, the risk of high severity wild-fire, with the potential to burn upland and adjacent riparian habitat would remain and increase with forest succession. As indicated with studies in the Hayman burn area, high-severity fire may alter habitat conditions such that recovery of the species into the habitat is delayed 10 years or more.

Preble's Meadow Jumping Mouse

Under Alternative A, vegetation on the forest would follow natural succession, disturbance, and recovery processes. A small potential for disturbance of PMJM from ongoing recreational activities in riparian areas or other current forest uses would remain. Long-term, the tree cover and density would continue to increase in upland habitat, resulting in decreased grass and forb cover and reduction of suitable habitat for the species. In addition, the risk of high severity wild-fire with the potential to burn upland and adjacent riparian habitat would remain. Should high-severity wildfire occur, impacted areas could become unsuitable for PMJM for many years due to changes to structure and composition of vegetation components and changes to soil including increased risk of erosion. Telemetry data indicated that PMJMs did not enter burned habitats for at least 3 years after the Hayman Fire (Hansen, 2006). If left untreated, nonnative, invasive plants may alter the post-fire dynamics of riparian areas 50 to 100 years after a wildfire (Graham, 2003).

Ute Ladies Tresses

Alternative A (No Action) would have no direct effects on the sensitive plants in the Crossons-Longview Project Area because no vegetation treatments would be implemented. However, Alternative A (No Action) could have indirect effects on sensitive plants and habitats over time. Without treatment, conifers would continue to encroach into the open areas where these sensitive plants could occur. This could eventually lead to a decline in habitat quality and loss of individuals as shading changes growing conditions on the site.

Loss of tree canopy cover would continue in some areas due to the effects of insects and disease. This could improve conditions for sensitive plants. Habitat conditions for sensitive plants could decline with increased competition from other plants which also favor open canopied conditions, including several species of noxious weeds. The lack of fire would have a negligible effect on sensitive plants. They could benefit from the nutrient release from fire.

8.2 Direct and Indirect Effects- Proposed Action

Mexican Spotted Owl

MSO are not known to occur in the Project Area, although non-breeding individuals may occur but are likely to be limited. Should any owls be present in roost stands adjacent to treatment stands, they may be slightly temporarily disturbed by machinery and human noise. This level of disturbance is not expected to impact the fitness level of affected owls, since the species is relatively tolerant of humans and machinery (Delaney et al., 1999; Johnson and Reynolds, 2002; Swarthout and Steidl, 2003). Additionally, much of the MSO recovery habitat in the planning area is excluded from mechanical thinning and harvest treatments that use heavy equipment or machinery because of slope constraints of prohibiting harvesting equipment on slopes greater than 35 percent.

Approximately 2,600 acres potentially suitable foraging habitat (i.e. recovery habitat) could be temporarily disturbed in the Project Area (Figure 1). Of this area, based on slope constraints, approximately 1,216 acres would be treated with mechanical treatment and 1,390 with hand treatment only. Understory vegetation and existing coarse woody debris would be crushed by heavy machinery or consumed by prescribed fire, which could have a slight temporary negative effect on owl prey. However, both of these habitat components would recover and likely increase shortly after treatments are complete.

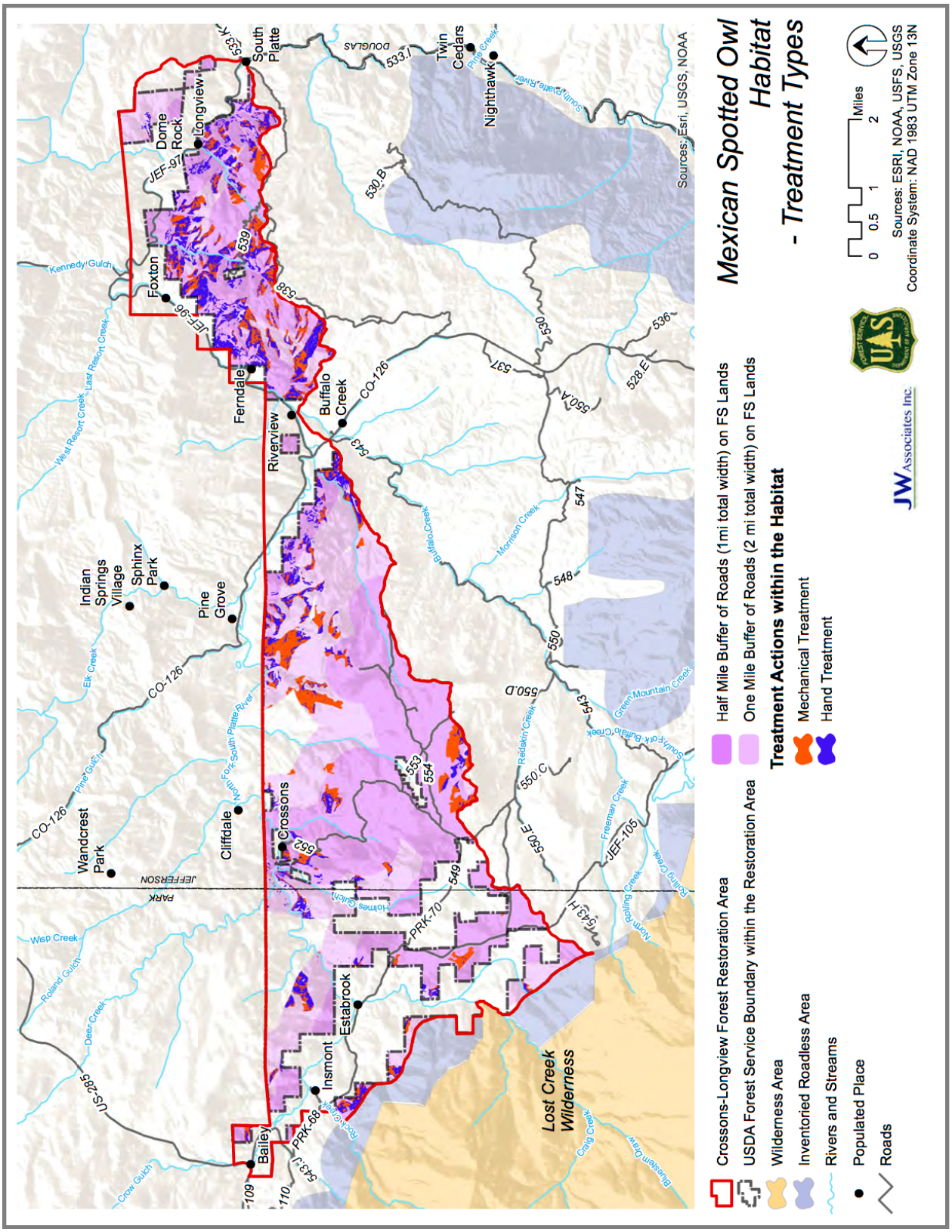

Figure 1. Crossons-Longview Treatment Types in Mexican Spotted Owl Habitat

Long-term, Alternative B (Proposed Action) would address the primary threat to the MSO: high-intensity wildfire. Fuel reduction and prescribed burn treatments in recovery habitat would reduce the hazardous fuel loads and the likelihood of high-intensity wildfire in these areas. Thinning treatments and prescribed burns would create small openings and thinned stands that increase horizontal diversity and create snags, canopy gaps, and large logs, as well as perpetuate understory shrubs, grasses, and forbs, which are important habitat components to the owl, its prey, and other wildlife (USFWS, 1995). The treatments proposed are consistent with the 2012 Recovery Plan guidelines for fuels and forest management practices in MSO habitat; the overall result would aim to mimic natural processes and would introduce additional diversity into the forest structure. In addition, owl habitat would benefit from the reduced risk of stand-replacing fire. Stands that are potentially capable of producing suitable breeding and non-breeding owl habitat would therefore be encouraged to develop, and would be more protected from loss due to fire.

Pawnee Montane Skipper

Alternative B would treat approximately 415 acres of potentially suitable Skipper habitat, including 240 acres of hand treatment and 175 acres of mechanical treatment (Figure 2). Within this habitat, thinning and burning activities may directly affect skipper eggs, larvae, or pupae through dislodging or crushing from vehicles and equipment and foot traffic or burned during prescribed fire activities. No direct effects to adult skippers are expected because under project conservation measures, all activities will avoid skipper habitat during the active flight season. Habitat in treatment areas, particularly in mechanical treatment areas, would be affected by crushing of vegetation and disturbance of soil from heavy machinery. In all treatment areas, coarse woody debris may be altered as much content may be added, removed, or changed in size. Understory cover is anticipated to recover within 3 years of mechanical treatment or less than 2 years after hand thinning and prescribed burning. Conservation measures would stagger treatments throughout the Project Area in space and time. As a result, skippers will have local refuges of undisturbed habitat adjacent to sites undergoing treatment, and can then repopulate treatment units when the understory vegetation has recovered (Sovell, 2013).

Project activities will be implemented so that disturbance to skippers will be minimized, however some individuals may be harmed, harassed, or killed. Given the conservation measures and naturally patchy distribution of the species these risks are expected to be acceptably low and of short duration in any one location. The long-term effect is expected to be positive for skippers because the amount and distribution of host plants is expected to increase with an appropriate reduction in tree cover, improving habitat conditions over a large area. Alternative B includes specific language to allow for thinning activities to improve skipper habitat by reducing density.

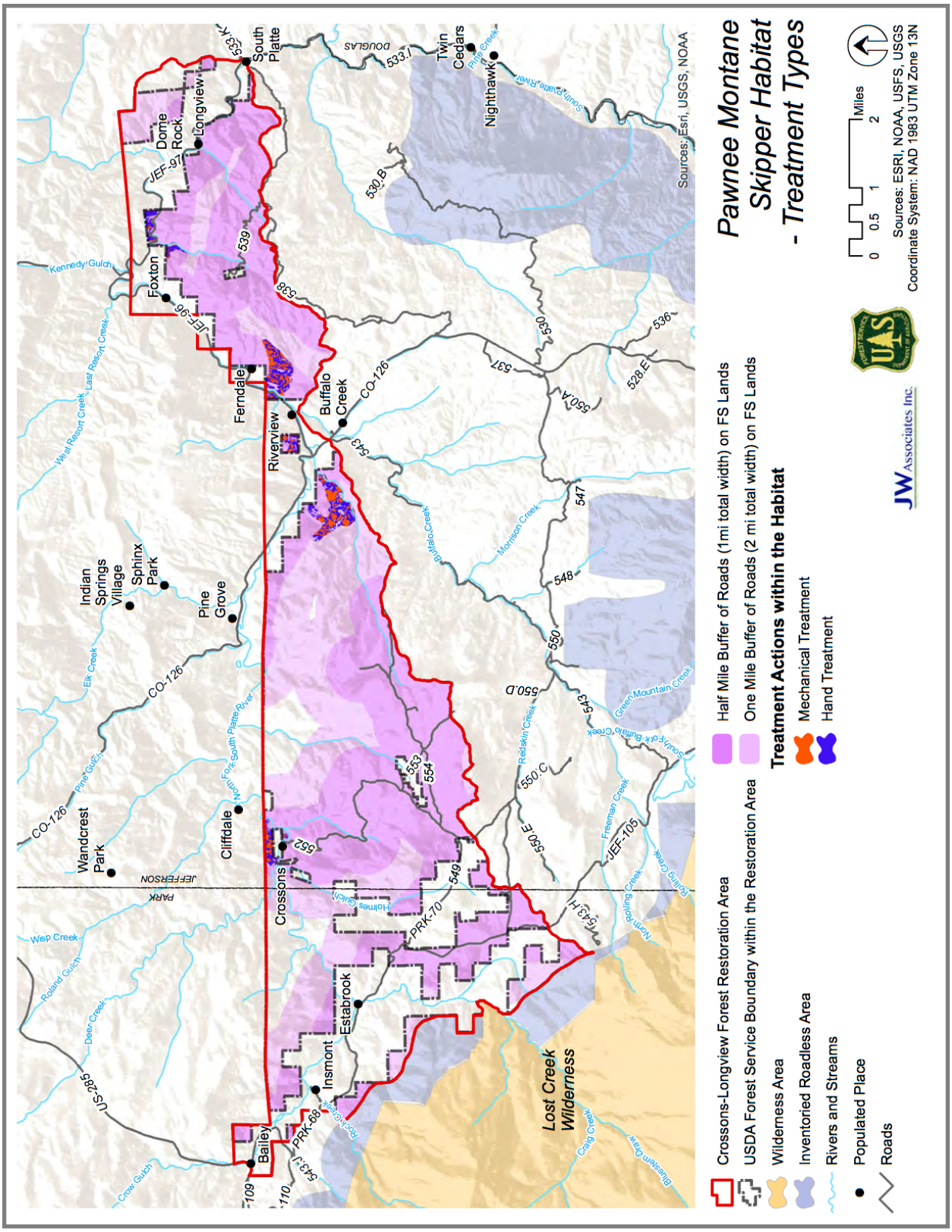

Figure 2. Crossons-Longview Treatment Types in Pawnee Montane Skipper Habitat

Preble's Meadow Jumping Mouse

Approximately 2,100 acres of potential PMJM habitat falls within the potential treatment area, 1,000 acres with potential mechanical treatment, and 1,100 acre with potential hand treatment (Figure 3). This represents approximately 57 percent of the total potential PMJM habitat within the Project Area. Individual PMJM may be disturbed, injured, or killed by project activities in upland habitat adjacent to riparian areas. Currently, suitable upland habitat would be affected by heavy machinery in areas proposed for mechanical treatment; existing herbaceous vegetation and small shrubs would be crushed, the soil surface would be disturbed, and coarse woody debris would be altered. During project operations upland habitat would be temporarily unsuitable or of reduced quality. Disturbed areas are expected to recover in 3 years of mechanical treatment, and 2 years or less after hand thinning and prescribed burning. No mechanical treatments are proposed for riparian areas.

The effects of management activities on upland habitat would be mitigated through the use of project specific conservation measures. However, the chance that individuals may be harmed, harassed, or killed is still present. But given the rare occurrence of the species these risks are expected to be acceptably low and of short duration in any one location. The long-term effect is expected to be positive for PMJM because the amount of grass, forb, and shrub cover would increase with the reduced tree cover, subsequently improving habitat conditions over a large area. The risk of losing suitable habitat and subpopulations of PMJM to widespread stand-replacing fire would also be moderated in comparison to pre-treatment conditions.

Ute Ladies Tresses

The Crossons-LongView Project Area includes approximately 1,100 acres below 6,500 feet in elevation. The proposed treatment area for Alternative B (Proposed Action) includes approximately 150 acres of treatment in xeric ponderosa pine. Surveys for Ute Ladies Tresses within the 150 acres of potential vegetation treatment would be required before any ground disturbing activities. Any identified plants would be documented and avoided by creating a no treatment buffer of 50 feet. These activities would result in no direct or indirect effects on Ute Ladies Tresses from Alternative B (Proposed Action).

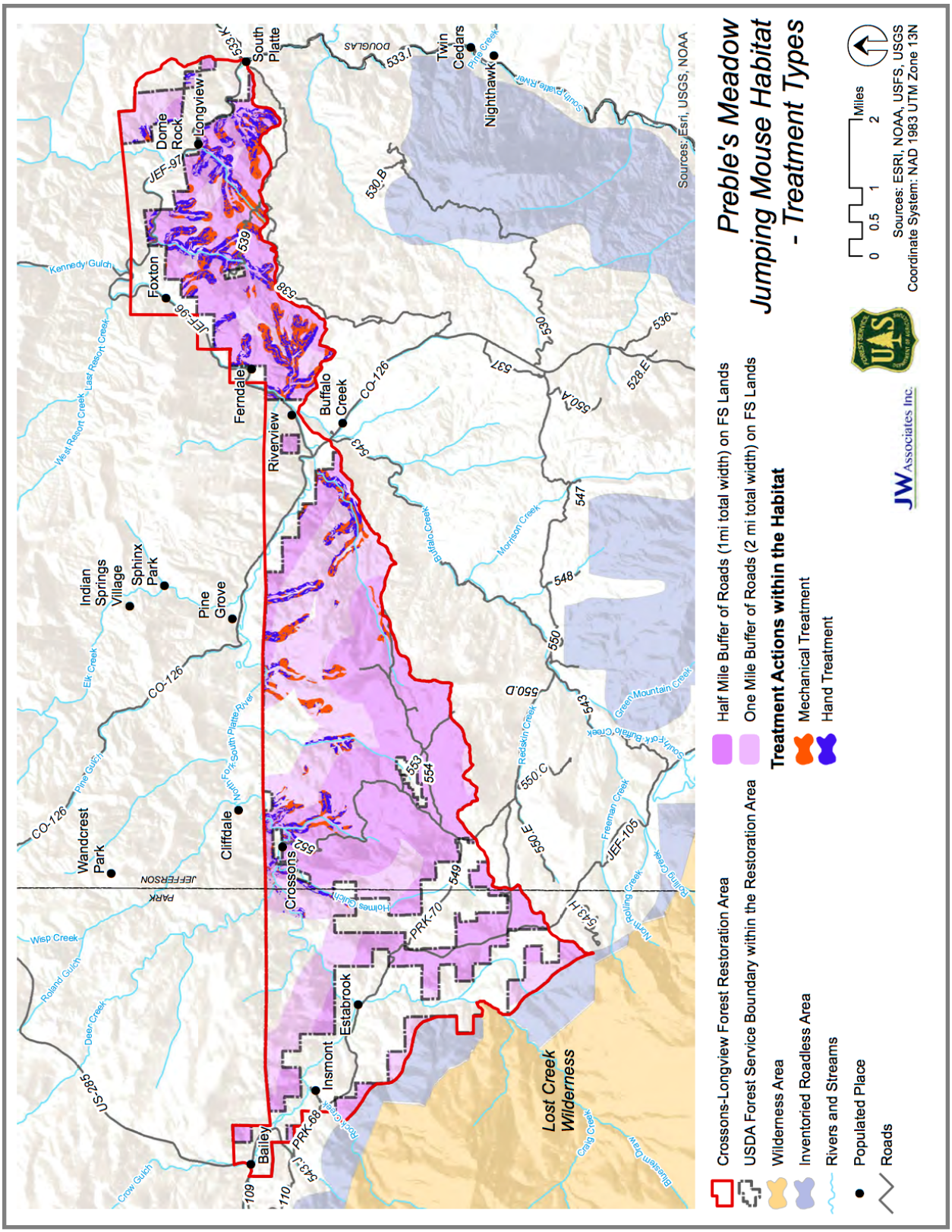

Figure 3. Crossons-Longview Treatment Types in Preble's Meadow Jumping Mouse Habitat

8.3 Direct and Indirect Effects- Alternative C

Mexican Spotted Owl

Impacts under Alternative C would be similar in nature to the proposed action. However because no temporary roads will be constructed, all treatment would occur using existing roads. Total area MSO recovery habitat within the proposed treatment area is 1,630 acres. Area of potential treatment under Alternative C is comprised of 917 acres with potential mechanical treatment and 716 acres with potential hand treatment. Due to the reduction in potential treatment area, short term impacts on MSO recovery habitat including disturbance from treatment activities and loss of downed woody debris that supports owl prey would be reduced. Due to the less treatment area, risk of high-severity wildfire and associated loss of MSO habitat would remain higher.

Pawnee Montane Skipper

Under Alternative C, impacts would be similar to those described under Alternative B. However because no temporary roads will be constructed, all treatment would occur using existing roads. As a result, acres of habitat that may be treated would be decreased to approximately 300 acres, including 177 acres with hand treatment and 123 acres with mechanical treatment proposed. Area of potential treatment under Alternative C is comprised of 600 acres with potential mechanical treatment and 700 acres with potential hand treatment. Due to the reduction in potential treatment area, short term impacts including crushing of eggs, larvae, or pupae and disturbance of host plants would be decreased. However, long-term improvement of habitat conditions due to the reduction of tree cover and increase in small patchy openings would also be reduced. Risk of high-severity wildfire and associated loss of skipper habitat would remain for the portions of the planning area outside of the treatment area.

Preble's Meadow Jumping Mouse

Impacts under Alternative C would be similar to those described under Alternative B. However because no temporary roads will be constructed, all treatment would use existing roads. As a result, acres of PMJM habitat that may be treated would decrease by 62 percent, from 2,100 to 1,300 acres. Area of potential treatment under Alternative C is comprised of 600 acres with potential mechanical treatment and 700 acres with potential hand treatment. Due to the reduction in potential treatment area, short-term impacts on PMJM, including temporary unsuitability of habitat from treatment activities, would be reduced. However, long-term improvement of habitat conditions due to the reduction of tree cover would also be reduced. Due to the reduction in potential treatment area, risk of high-severity wildfire and associated loss of PMJM habitat would remain for the portions of the planning area outside of the treatment area.

Ute Ladies Tresses

The direct and indirect effects of Alternative C would be the same as Alternative B (Proposed Action). Alternative C includes approximately 148 acres of potentially suitable Ute ladies tresses habitat. Protection measures would be the same as this described in Alternative B (Proposed Action). Therefore, there wold be no direct or indirect effects to Ute Ladies Tresses from Alternative C.

8.4 Cumulative Effects- No action alternative

This section presents the potential cumulative effects of the past, present, and reasonably foreseeable future actions in and adjacent to the Project Area. The cumulative effects analysis is bound by a period of 20 years and the South Platte Ranger District. Past and present activities in the Project Area are incorporated into the affected environment discussion. Cumulative impacts under NEPA are distinct from the cumulative effects required by Section 7 of the ESA, which are limited to non-federal activities reasonably likely to occur.

The existing non-federal activities in the planning area consist of the general public accessing the forest for recreational activities, and the regular actions of private landowners. These actions are expected to remain consistent with historic use. No other non-federal activities are expected to occur.

No other federal projects have occurred recently in the project area or are expected to occur. Other federal projects that are proposed for the district include communications maintenance and recreation planning. These projects would occur outside of the planning area and are not likely to impact threatened or endangered species (TES) populations.

In the absence of treatment, no directly cumulative effects to TES species would occur, however, forest succession would continue with increases in forest density, leading to an increased likelihood of wildfire, potentially resulting in loss of threatened or endangered species or habitat. Vegetation treatments may occur on private lands within the Project Area which could help to reduce stand densities and create a more diverse landscape, however, without treatment on Forest Service lands dense stands of ponderosa pine and mixed conifer would continue to develop. As a result, MSO habitat would not move towards target conditions, and conifer encroachment would continue to pose a risk for meadow and riparian habitat, impacting Skipper and PMJM respectively. The cumulative effect of the past, present, and reasonably foreseeable future actions on the condition of the forest vegetation under Alternative A (No Action) would be an area dominated by forest stands that are generally healthy but relatively homogenous in age and structure and increasingly at risk to insects, disease, and wildfire.

8.5 Cumulative Effects- Proposed Action

No other hazardous fuels reduction treatments have been recently completed or area planned on other public lands in the Project Area.

The existing non-federal activities in the planning area consist of the general public accessing the forest for recreational activities and the regular actions of private landowners. These actions are expected to remain consistent with historic use. No other non-federal activities are expected to occur.

No other federal projects have occurred recently in the project area or are expected to occur. Other federal projects that are proposed for the district include communications maintenance and recreation planning. These projects would occur outside of the planning area and are not likely to impact TES species populations.

The overall cumulative effect of the Proposed Action would be to reduce the extent and intensity of catastrophic fire and its impact on threatened and endangered species and their habitat in the Project Area. These treatments would have a long-term positive cumulative effect on the habitat for the threatened, endangered, and proposed species likely to occur in the Project Area by: 1) reducing the extent and intensity of a wildfire or beetle infestation developing in adjacent areas; and 2) reducing stand density in the area to return to historical conditions. Potential benefits would vary from minor to moderate for the MSO, skipper, and PMJM depending on the specific occurrences of the species in or near the exact treatment areas during implementation.

8.6 Cumulative Effects- Alternative C

The existing non-federal activities in the planning area consist of the general public accessing the forest for recreational activities and the regular actions of private landowners. These actions are expected to remain consistent with historic use. No other non-federal activities are expected to occur.

No other federal projects have occurred recently in the project area or are expected to occur. Other federal projects that are proposed for the district include communications maintenance and recreation planning. These projects would occur outside of the planning area and are not likely to impact TES species populations.

The overall cumulative effect of Alternative C would be reduce the extent and intensity of catastrophic fire, however, due to the smaller area of treatment, threats to species outside of these areas would remain and the overall benefits could be limited. Potential benefits would vary from minor to moderate for the MSO, skipper, and PMJM depending on the specific occurrences of the species in or near the exact treatment areas during implementation.

8.7 Effects Determinations

Mexican Spotted Owl

Determination

Based on the effects analysis and the management actions, stipulations, and conservation measures described above, implementation of the proposed Crossons-Longview project may affect, is not likely to adversely affect the threatened Mexican spotted owl. The proposed project would have no effect on critical habitat because none has been designated in the project area.

Rationale

No individuals are known to occur in the planning area.

The EA contains conservation measures to reduce the risk of impacting MSO habitat.

Pawnee Montane Skipper

Determination

Based on the effects analysis and the management actions, stipulations, and conservation measures described above, implementation of the proposed Crossons-Longview project may affect, is not likely to adversely affect the Pawnee Montane Skipper.

Rationale

Potentially suitable habitat impacted by proposed project activities is likely to be minimal (less than 450 acres total).

The EA contains conservation measures to reduce the risk of impacting skipper and skipper habitat.

Preble's Meadow Jumping Mouse

Determination

Based on the effects analysis and the management actions, stipulations, and conservation measures described above, implementation of the proposed Crossons-Longview project may affect, is not likely to adversely affect the Preble's Meadow Jumping Mouse. The proposed project would have no effect on critical habitat because none has been designated in the project area.

Rationale

Treatments are not proposed for riparian areas.

The EA contains conservation measures to reduce the risk of impacting PMJM habitat in adjacent uplands.

Ute Ladies Tresses

Determination

Based on the effects analysis and the management actions, stipulations, and protection measures described above, implementation of the proposed Crossons-Longview project may affect, is not likely to adversely affect the Ute ladies tresses orchid.

Rationale

Suitable habitat would be surveyed prior to site actives; any identified plants would be avoided.

9. Short-term Uses and Long-Term productivity

The NEPA requires consideration of "the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity" (40 CFR 1502.16). As declared by Congress, this includes using all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare to create and maintain conditions under which man and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations of Americans (NEPA Section 101).

As provided for by the amended Forest Plan (USFS 1984), specific standards, objectives, and guidelines would be applied during implementation of the Proposed Action through the use of conservation measures. Adherence to these requirements would ensure that long-term productivity of the land is not impaired by short-term uses. There would be short-term impacts to vegetation, habitat, and wildlife species during vegetation treatments. However, the project goals are to increase ecological productivity in the long-term. Monitoring conducted at the Forest level would be applied to allow for adaptive management of the resources to protect long-term productivity.

10. Unavoidable Adverse Effects

Under Alternative A (No Action), there would be no action; therefore, there would be no direct effects under this alternative.

Under the Proposed Action wildlife habitat for certain species would be adversely affected to varying levels. During implementation of the treatments, noise, soil compaction, fire, and vegetation removal would reduce the amount of available habitat. Likewise, there may be a direct take in some species. Over the long-term, the diversity and functionality of the habitat would increase.

11. Irreversible and Irretrievable Commitments of Resources

Irreversible commitments of resources are those that cannot be regained, such as the extinction of a species or the removal of mined ore. Irretrievable commitments are those that are lost for a period of time, such as the temporary loss of timber productivity in forested areas that are kept clear for use as a power line right-of-way or road.

There would be no irreversible or irretrievable commitments of resources related to fish and wildlife species or their habitats. Loss of old growth could represent an irretrievable loss of habitat, although no known old growth stands would be lost.

12. Other Required Disclosures

The NEPA (40 CFR 1502.25[a]) directs "to the fullest extent possible, agencies shall prepare draft environmental impact statements concurrently with and integrated with other environmental review laws and executive orders."

No waters would be impounded or diverted as part of the Proposed Action, so coordination with USFWS under the Fish and Wildlife Coordination Act is not required. Prior to ground-disturbing activities, all appropriate consultation and any site-specific surveys deemed necessary would occur in compliance with the National Historic Preservation Act. Coordination with USFWS, as required under the ESA, has been initiated as detailed in Consultation History, above.

13. Consistency with Forest Plan

The Pike and San Isabel National Forests, Cimarron and Comanche National Grasslands Forest Plan (USDA Forest Service 1984) identified many goals for fish and wildlife (III-3 to III-6), including:

- Increase diversity for wildlife and habitat improvement;
- Improve fish habitat on suitable streams and low elevation ponds and lakes; and
- Protect riparian areas and wetlands from degradation.

The Forest Plan provides general direction, standards, and guidelines regarding vegetation diversity, snags, logs, and riparian areas in all vegetation types (e.g., III-12 to III-14, III-50 to III-52, and III-203 to III-215). Other Forest Plan details are associated with Management Areas 2B and 7A, and specifically for Management Area 5B, which is to be managed primarily for big game winter range. The Forest Plan provides specific guidelines in this management area to maintain thermal cover and forage.

The Forest Plan also established general management direction for fish and wildlife (III-28 to III-34), including:

1. Manage and provide habitat for recovery of endangered and threatened species;
2. Maintain habitat for viable populations of all existing vertebrate wildlife species; and
3. Use both commercial and non-commercial silvicultural practices to accomplish wildlife habitat objectives

Specific Standards and Guidelines in the Forest Plan for protection of Management Indicator Species include the following (III-29 and Amendment 30):

Provide for the habitat needs of Management Indicator Species on the National Forest

a. Elk - Protect calving concentration areas from habitat modification and disturbance from May 15 - June 30.
b. Abert's Squirrel- Protect or provide for one Abert's squirrel nest tree clump (0.1 acres of 9 to 22" DBH ponderosa pine with a basal area of 180 to 220 and an interlocking canopy) per six acres on ponderosa pine sale areas.

Alternative B (Proposed Action) and Alternative C would make progress towards the above-stated goals and are consistent with objectives, standards, and guidelines provided in the Forest Plan and subsequent amendments. All Alternatives are consistent with the Forest Plan.

Conservation Measures and monitoring requirements are incorporated into the action alternatives, to ensure compliance with the Forest Plan to avoid, minimize, rectify, reduce, eliminate, and/or compensate for adverse impacts of the proposed activity. This includes specific monitoring requirements for the avoidance of unexpected resource effects and the completion of project design and implementation as planned.

14. References

Delaney, D.K., T. G. Grubb, P. Beier, L. L. Pater, and M. H. Reiser. 1999. Effects of helicopter noise on Mexican spotted owls. Journal of Wildlife Management, 63(1):60-76.

Environmental Research and Technology [ERT]. 1988. Pawnee montane skipper field studies 1986-1988. Prepared for the Denver Water Department, Colorado.

ENSR International 2003. Pawnee montane skipper monitoring post-fire habitat assessment survey – September 2003. Final Report to U.S. Forest Service South Platte Ranger District, U.S. Fish and Wildlife Service, and Denver Water. ENSR Corporation, Fort Collins, Colorado. Document Number 09090-045-200.

Graham, R.T.2003. Hayman Fire Case Study. Technical Editor. USDA Forest Service Gen. Tech. Rep. RMRS-GTR-114.ESNR 2003

Gutierrez, R. J., A. B. Franklin, and W. S. LaHaye. 1995. "Spotted owl (Strix occidentalis)." The Birds of North America, number 179. The Academy of Natural Sciences Philadelphia and the American Ornithologists Union, Washington, DC.

Hansen, C.M. 2006. Monitoring and movements of the Preble's meadow jumping mouse (Zapus hudsonius preblei) in montane drainages of Pike National Forest, Colorado. M.S. Thesis, University of Colorado, Colorado Springs. 181 pp.

Johnson, C. L. and R. T. Reynolds. 2002. Responses of Mexican spotted owls to low-flying military jet aircraft. USDA Forest Service Research Note RMRS-RN-12. Rocky Mountain Research Station, Fort Collins, CO.

Sovell, J. 2011. Pawnee montane skipper post-fire habitat assessment survey – August/September 2009. Colorado Natural Heritage Program, Colorado State University. Unpublished report prepared for the US Forest Service, US Fish and Wildlife Service, and Denver Water. On file at the South Platte Ranger District, Morrison, Colorado.

Sovell, J. 2013. Pawnee Montane Skipper Post-fire Habitat Assessment August/September 2012. Prepared for: U. S. Forest Service, Pike San Isabel National Forest, South Platte Ranger District, Morrison, Colorado. February 2013.

Swarthout, E. C. H. and R. J. Steidl. 2003. Experimental effects of hiking on breeding Mexican spotted owls. Conservation Biology, 17(1):307-315.

USDA Forest Service (United States Department of Agriculture, Forest Service). 1984. Pike and San Isabel National Forests, Land and Resource Management Plan, Rocky Mountain Region, USDA Forest Service. USDA Forest Service, Pike and San Isabel National Forests, Pueblo, CO.

USFWS (US Department of Interior, Fish and Wildlife Service). 1987. Skipper.

.1993. Endangered and Threatened Wildlife and Plants; Final Rule to List the Mexican Spotted Owl as a Threatened Species. Federal Register Vol. 59, No. 54. Pp. 14248-14271.

_____. 1995. Recovery Plan for the Mexican Spotted Owl (Strix occidentalus lucida). Southwest Region. December 1995.

_____. 1998a. Planning doc

_____. 1998b. Conservation plan for the Pawnee montane skipper (Hesperia leonardus Montana).

_____. 1998b. Final rule to list the Preble's meadow jumping mouse as a threatened species. Federal Register 63(92): 26517-26530.

_____.2003. Prebles Meadow Jumping Mouse Draft Recovery Plan, Colorado. Region 6, Lakewood, Colorado

_____. 2004. Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for the Mexican Spotted Owl. Federal Register Vol. 69, No. 168. Pp. 53182-53230.

_____. 2010. Revised critical habitat for Preble's meadow jumping mouse in Colorado. Federal Register 75(240):78430-78483.

. 2012. Final Recovery Plan for Mexican Spotted Owl (Strix occidentalis lucida), First Revision. Region 2. September 2012.

Ward, J. P., A. B. Franklin, S. E. Rinkevich, and F. Clemente. 1995. "Distribution and abundance of Mexican spotted owls." Pp. 1-14. In: Recovery plan for the Mexican spotted owl (Strix occidentalis lucida), volume II. US Fish and Wildlife Service, Albuquerque, New Mexico.

Wrigley, M.J., M. White, B. Elliott, M. Comer, R.E. Torretta, P. Gaines, S. Olson, K. Meyer, M. Painter, J. Windorski, F. Quesada, and M. Welker. 2012. Threatened, endangered, and Forest Service sensitive species on the Pike and San Isabel National Forests (updated June 2012). Unpublished report. U.S. Department of Agriculture, Forest Service. Pike and San Isabel National Forests and Comanche and Cimarron National Grasslands. Salida, Colorado.

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