# United States Department of the Interior

FISH AND WILDLIFE SERVICE

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August 17, 2021

Cons: # 02ENNM00-2019-F-0621

James Duran, Forest Supervisor
U.S. Forest Service, Carson National Forest
208 Cruz Alta Road
Taos, NM 87571

Dear Mr. Duran:

Thank you for your February 12, 2021, letter requesting formal consultation with the U.S. Fish and Wildlife Service (Service) pursuant to Section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (ESA), for the U.S. Forest Service's Carson National Forest (Forest) Land Management Plan Revision (LMP or proposed action). Your letter included a biological assessment (BA), dated December 2020. An updated BA was sent by the Forest on March 2, 2021. This BA was later revised following discussions between the Carson National Forest (Forest) and the Service about formatting. The final BA, which was submitted on June 7, 2021, and is hereby incorporated by reference, analyzed the effects of the proposed action on several species. These include the endangered Jemez Mountains salamander (*Plethodon neomexicanus*), threatened piping plover *(Charadrius melodus)*, endangered least tern *(Stern antillarum)*, threatened Mexican spotted owl *(Strix occidentalis lucida)* (owl) and its designated critical habitat, endangered southwestern willow flycatcher *(Empidonax traillii extimus)* and its designated critical habitat, threatened western yellow-billed cuckoo *(Coccyzus americanus occidentalis)*, endangered black-footed ferret *(Mustela nigripes)*, threatened Canada lynx *(Lynx canadensis)*, and endangered New Mexico meadow jumping mouse *(Zapus hudsonius luteus)*.

The Forest LMP determined that the proposed action "may affect, is likely to adversely affect" the owl. The Forest LMP also determined that the proposed action "may affect, is not likely to adversely affect" the southwestern willow flycatcher and its designated critical habitat, owl designated critical habitat, and the Canada lynx.

The attached biological opinion is based on the review of the proposed action and its effects on the owl and its designated critical habitat in accordance with Section 7 of the ESA. The biological opinion is based on information provided in the BAs, correspondence with your staff,

data in our files, a literature review, and other sources of information, including the final rules to list the owl as threatened and designate critical habitat. Literature cited in the attached biological opinion is not a complete bibliography of all literature available on the species of concern, the project and its effects, or on other subjects considered in this opinion. Rationale for concurrences on "may affect, not likely to adversely affect" determinations are provided in Appendix A of the biological opinion. A complete administrative record of this consultation is on file at the New Mexico Ecological Services Field Office.

The Forest also made "no effect" determinations for the black-footed ferret, New Mexico meadow jumping mouse, western yellow-billed cuckoo, Jemez Mountains salamander, least tern, and piping plover. Although the ESA does not require Federal agencies to consult with the Service if the action agency determines their action will have "no effect" on threatened or endangered species or designated critical habitat (50 CFR 402.12), we appreciate your consideration for the conservation of these species and notification of your "no effect" determinations.

We appreciate your efforts to identify and minimize effects to listed species from proposed actions described in the U.S. Forest Service's Carson National Forest Land Management Plan Revision. For further information, please contact Mark Brennan of my staff at 505-761-4713 or mark_brennan@fws.gov. Please refer to consultation number 02ENNM00-2019-F-0621 in future correspondence concerning this project.

Sincerely,

SHAWN SARTORIUS Digitally signed by SHAWN SARTORIUS Date: 2021.08.17 10:43:54 -06'00'

Shawn Sartorius
Field Supervisor

cc (electronic):

Wildlife, Fisheries, and Rare Plants Program Manager, Carson National Forest, Taos, New Mexico
Natural Resources and Planning Staff Officer, Carson National Forest, Taos, New Mexico
Regional Species Lead Biologist (Mexican spotted owl), U.S. Fish and Wildlife Service, Arizona Ecological Services Field Office, Flagstaff, Arizona
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Director, New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division, Santa Fe, New Mexico

# Biological Opinion for the Carson National Forest Land Management Plan Revision New Mexico

## 02ENNM00-2019-F-0621

## August 2021

SHAWN SARTORIUS

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Date: 2021.08.17 10:44:29 -06'00'

Shawn Sartorius — Date
Field Supervisor
New Mexico Ecological Services Field Office

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## INTRODUCTION

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion concerning the effects of the U.S. Forest Service's Carson National Forest Land Management Plan Revision, in accordance with section 7 of the Endangered Species Act of 1973 (16 USC 1531-1544), as amended (ESA).

A biological opinion (opinion) is a document that states the opinion of the Service as to whether a federal action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of designated critical habitat. "Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02). "Destruction or adverse modification" is defined as a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species (50 CFR § 402.02; 84 FR 44976-45018). Please note that primary constituent elements (PCEs) of critical habitat are now referred to as physical and biological features (PBFs) based on the final rule implementing changes to regulations for designating critical habitat (81 FR 7414-7440). To maintain consistency with the final rule designating critical habitat for the threatened Mexican spotted owl (*Strix occidentalis lucida*; "owl") this opinion will use the term PCEs (Appendix A).

The Service received your February 12, 2021, request for formal consultation with your December 2020 Biological Assessment (BA) for the U.S. Forest Service's (USFS) Carson National Forest (Forest) Land Management Plan (LMP or plan) Revision (proposed action) on February 19, 2021. An updated BA was sent to the Service on March 2, 2021. In both BAs, the Forest determined that the proposed action "may affect, is likely to adversely affect" the owl. On May 24, 2021, the Service submitted comments on this draft BA to the Forest addressing possible format modifications that better aligned with the format used in a recent consultation with the Cibola National Forest (Cons. #02ENNM00-2017-F-0475). Following a conference call on June 7, 2021, to discuss these revisions, the Forest submitted a newly revised BA later that same date.

This opinion is based on the review by the Service of the proposed action and its effects on the owl and its designated critical habitat in accordance with Section 7 of the ESA. The opinion is based on information provided in the submitted BAs, correspondence with your office, data in our files, a literature review, and other sources of information including the final rules to list the owl as threatened (Service 1993) and designate critical habitat (Service 2004). Literature cited in the opinion is not a complete bibliography of all literature on the species of concern, the project and its effects, or on other subjects considered in this opinion. Additionally, rationale for concurrences on "may affect, not likely to adversely affect" determinations are provided in Appendix A of this biological opinion. A complete administrative record of this consultation is on file at the New Mexico Ecological Services Field Office (NMESFO).

## CONSULTATION HISTORY

A detailed consultation history for the proposed action is provided in Table 1.

Table 1. Summary of the consultation history for the Carson National Forest Land Management Plan Revision

| Date | Event |
|---|---|
| Feb. 13, 1985 | Each of the 11 National Forests (NF) in the Southwestern Region developed and approved land management plans (LMPs) pursuant to the NF Management Act (NFMA). The Service issued a non-jeopardy/no adverse critical habitat modification biological and conference opinion (opinion) on each of the USFS land management plans for all federally listed species. |
| Sept. 6, 1995 | USFS requested informal consultation on the 11 NF LMPs for effects on the Mexican spotted owl (owl); the associated biological assessment was submitted on September 22, 1995. |
| May 15, 1996 | USFS requested formal consultation on the effects to all federally listed species, except the owl, on NFs as a result of the continued implementation of the 11 NF LMPs. The Service's BO was litigated in US District Court because it did not quantify incidental take for the owl. A Court Order was issued on September 17, 1996, for the BO. |
| Nov. 25, 1996 | The Service issued a final jeopardy BO (000032R0) for the 11 NF LMPs that included incidental take for the owl based on the Court Order from September 17, 1996. On this date, the Service also issued a non-jeopardy BO (000031R0) on the USFS's June 1996 regional amendment to the LMPs for the owl and critical habitat. The 1996 regional amendment directs the implementation of the recovery plan for the owl, as well as guidelines for the northern goshawk and old-growth management. |
| Dec. 19, 1997 | The Service issued an opinion (000087RO) on the USFS's 1996 regional amendment to the LMPs for all federally listed species other than the owl. This opinion concluded non-jeopardy for all federally listed or proposed species, and no adverse modification for designated or proposed critical habitats. The opinion contained conservation measures for seven listed species including the southwestern willow flycatcher, cactus ferruginous pygmy-owl, Sonora chub, Little Colorado spinedace, loach minnow, spikedace, and Pima pineapple cactus. The conservation measures were a product of a collaborative effort by the Service and USFS and became known as the "seven species direction." |
| Dec. 24, 2002 | Forest Guardians (et al.) sent the USFS a 60-day notice of intent to sue for failing to reinitiate formal consultation on the 11 NF LMPs for all federally listed species. |
| Jan. 17, 2003 | The Service finalized a BO (000031R0) on the proposed rate of implementation of the grazing standards and guidelines in the 1996 regional amendment and its effect on the owl. This BO concluded no jeopardy for the owl. |
| Feb. 2003 | USFS and the Service began discussions on the relevance of the 1996 and 1997 LMPs and 1996 regional amendment consultations. |
| Apr. 2003 | USFS and the Service agreed that the USFS would reinitiate consultation with the USFWS on the USFS's 11 LMPs and the 1996 regional amendment. |

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| June 2, 2003 | USFS and the Service signed a consultation agreement that outlined timelines, responsibilities, and dispute resolution for the 11 NF LMPs consultation. |
| Nov. 2003 | USFS provided the Service with a draft BA for the consultation. |
| Apr. 5, 2004 | USFS requested re-initiation of formal consultation under section 7 of the ESA on the 1996 owl BO and the 1997 opinion for all other federally listed species on the 11 NFs. The USFS provided the Service with the final BA for the Continued Implementation of the LMPs for the Eleven NFs and National Grasslands (NG) of the Southwestern Region. |
| May 26, 2004 | The Service responded to the USFS, acknowledging formal consultation had been initiated. |
| Sept. 14, 2004 | The Service requested a 90-day extension. |
| Nov. 10, 2004 | USFS responded on this date and extended the timeline further for a draft to be available for USFS review on January 15, 2005. |
| Feb. 2, 2005 | USFS provided The Service with supplemental information to their April 5, 2004, BA. |
| Apr. 22, 2005 | The Service provided USFS with a draft programmatic LMP opinion for review. |
| June 10, 2005 | The Service provided USFS with a final programmatic LMP opinion (Cons. # 2-22-03-F-366). |
| Apr. 17, 2009 | USFS requested re-initiation of the 2005 LMP opinion because the threshold set for incidental take for the owl and several other species could soon be approached and/or exceeded. |
| May 18, 2010 | USFS requested re-initiation for all species addressed in the 2005 LMP opinion, including the ocelot. |
| June 22, 2010 | The Service acknowledged USFS request for re-initiation on the owl. |
| Aug. 9, 2010 | The Service followed up with a clarification letter acknowledging the USFS request to reinitiate the consultation for all other species, including the ocelot. |
| Apr. 9, 2011 | The Forest requested re-initiation of consultation on the USFS continued implementation of the LMPs for the 11 southwestern NFs and National Grasslands. |
| Mar. 30, 2012 | The Service issued a BO (Cons. #2012-F-0003) titled “The Continued Implementation of the Land and Resource Management Plan for The Carson National Forest of the Southwestern Region U.S.D.A. Forest Service”. |
| Dec. 11, 2018 | The Forest Supervisor (James Duran) and the USFWS NMESFO Field Supervisor (Susan Millsap) cooperatively developed and signed a revised consultation agreement for the revision of the Forest LMP (Cons. #02ENNM00-2019-SLI-0621). |
| Apr. 9, 2019 | The Service Information for Planning and Consultation (IPaC) website was used to formally request and receive a new official species list for the Carson National administrative forest boundary area (Cons. #02ENNM00- 2019-SLI-0621). |
| Aug. 22, 2019 | USFS and the Service held a Revised Forest Plan Consultation Workshop for the Cibola, Carson, and Santa Fe NFs at NMESFO to discuss plans for consistency among NF consultations. |
| Sept. 12, 2019 | In response to litigation (i.e., court order 4:13-cv-00151-RCC), the USFS and the Service began to re-analyze the effects of the existing (1985) Forest LMP on owl recovery. |

| | |
|---|---|
| Oct. 20, 2019 | USFS requested reinitiation of formal consultation on the effects to owl recovery as a result of the continued implementation of the existing (1985) Forest LMP (Cons. #02ENNM00-2012-F-0003). |
| Nov. 19, 2019 | The Service sent a draft biological opinion on the 1986 Carson land management plan to the Forest Service for review (Cons. #02ENNM00-2012-F-0003-R001). |
| Nov. 20, 2019 | The Service received USFS comments on the draft biological opinion on the 1986 Carson land management plan and incorporated comments into second draft of the biological opinion. |
| Dec. 11, 2019 | The Service sent a biological opinion to the Carson NF (Cons. #02ENNM00-2012-F-0051-R001/02E00000-2012-F-0002-R001). |
| June 16, 2020 | USFS sent the Service the Forest LMP draft BA for review. |
| Sept. 2, 2020 | The Service submitted comments back to the Forest on the LMP draft BA. |
| Oct. 1, 2020 | USFS and the Service held a virtual meeting to discuss the Carson NF LMP draft BA |
| Feb. 12, 2021 | USFS sent a request to the Service to initiate formal consultation on the revised Forest LMP with a draft BA dated December 2020. |
| Mar. 2, 2021 | USFS provided the Service an updated final BA for the Forest LMP Revision (Cons. #02ENNM00-2019-F-0621). |
| May 24, 2021 | The Service sent the Carson NF more comments for the Forest LMP Revision BA (Cons. #02ENNM00-2019-F-0621) based on elements of the Cibola NF biological opinion issued (Cons. #02ENNM00-2017-F-0475). |
| June 7, 2021 | USFS met with the Service to discuss their response to comments on revised BA sent May 24 by the Service. USFS incorporated these changes and provided the NMESFO an updated final BA for the Forest LMP Revision (Cons. #02ENNM00-2019-F-0621) later that day. |
| June 30, 2021 | USFS provided the Service with a final BA for the Forest LMP Revision dated December 2020 (Cons. #02ENNM00-2019-F-0621) that incorporated recent modifications agreed upon during June 7, 2021 meeting. |
| Aug. 4, 2021 | The Service sent a draft BO to the USFS for review (Cons. #02ENNM00-2019-F-0621). |

# BIOLOGICAL OPINION

## DESCRIPTION OF PROPOSED ACTION

### Description of Proposed Action

The proposed action being analyzed in this opinion involves the implementation of the management direction provided in a revised LMP for the Forest's six Ranger Districts (Camino Real, Canjilon, El Rito, Jicarilla, Tres Piedras, and Questa). The proposed LMP provides forest-level direction to meet the mission of the USFS for program management activities. The purpose of the revised LMP is to guide management toward the attainment of long-term desired conditions. The Forest is seeking consultation on the resource program administration of the LMP (effects of recreation, range management, fire management, etc.), as well as plan

components (desired conditions, objectives, guidelines, standards, and designated areas). Most of the actions the Forest is seeking consultation on are from program management activities and objectives, while standards and guidelines tend to minimize or eliminate effects of the actions (hence, they result in reduced effects) and function much like conservation measures. Many aspects of program management are similar to when the Forest consulted on the previous LMP, so that documentation (consultation #02ENNM00-2012-F-0051; #02ENNM00-2012-F-0051-R001/02E00000-2012-F-0002-R001) serves as a partial basis for an effects determination, although the current LMP contains a greater emphasis on vegetation and watershed restoration.

Once finalized, the revised LMP will replace the 1986 Forest LMP and its amendments, and this opinion will replace the BO issued on December 11, 2019 (#02ENNM00-2012-F-0051-R001/02E00000-2012-F-0002-R001), which addressed effects from continued implementation of the 1986 Forest LMP. The planning period for the proposed revised LMP is 15 years immediately following LMP approval, unless the LMP is revised within the 15-year time frame.

The proposed action described below is a "framework programmatic action" as defined in 50 CFR 402.02, where the framework programmatic action only establishes a framework for the development of specific future action(s) but does not authorize any future action(s). The effects to listed species and designated critical habitat of future actions that are subsequently authorized, funded, or carried out under this program will be addressed in subsequent section 7 consultations, as appropriate.

The proposed LMP as identified in the BA (USFS 2020) includes desired conditions, objectives, guidelines, standards, and designated areas. Desired conditions represent long-term social, economic, and ecological goals, while objectives represent specific, measurable, and time-bound benchmarks that move the Forest toward desired conditions in a forest plan area. Standards, guidelines, and designated areas are supporting concepts that provide side boards or constraints on where or how management actions will be implemented. More information from the BA (USFS 2020) is included below.

Plan Components

As explained in the LMP, the elements of the LMP include "plan decisions" and "other content". The LMP components guide future project and activity decision making and include desired conditions, objectives, standards, guidelines, suitability of lands, and goals. The components should (1) provide a strategic and practical framework for managing the Forest, (2) be applicable to the resources and issues of the Forest, and (3) reflect the Forest's distinctive roles and contributions. Any substantive changes to LMP components will require an amendment. Changes to other content may be made through an administrative correction process. The LMP components are described more fully in the following paragraphs. More information on LMP direction is included in Chapters 2 and 3 of the LMP (USFS 2020).

**Desired conditions** (DC) set forth the desired social, economic, and ecological vision for the Forest. They attempt to paint a picture of what the public and the USFS desire the Forest to look like or the goods and services they desire it to provide. These are generally expressed in broad, general terms; however, more specificity may be added to clarify the intent. Desired conditions

are timeless in that there is no specific date by which they are to be completed. They are aspirations and not commitments or final decisions which approve projects or activities, and they may only be achievable over a long timeframe (e.g., several hundred years). In some cases, a desired condition matches the current condition, so the goal is to maintain the current condition. Desired conditions are the focus of the LMP. Management of the Forest's resources will be directed toward achieving the desired conditions. They are the basis for the other LMP components and describe the framework for future projects and activities.

**Objectives** (O) are concise, time specific statements of measurable, anticipated results that help achieve or move towards desired conditions over the life of the LMP. Activities specified in objectives are intended to help make progress toward achieving desired conditions and represent just some of the outcomes or actions expected to accomplish movement toward desired conditions. Not every action or objective the Forest may do is identified in the LMP, just the primary ones. Objectives may be exceeded or not fully achieved, based on changes in environmental conditions, budgets, and other factors.

**Standards** (S) are technical constraints upon project and activity design. A standard is mandatory constraint (36 CFR 219.7(e)(1)(iii)) that needs to be met in the design of projects and activities. A project or activity is consistent with a standard when its design is in accord with the explicit provisions of the standard; variance from a standard is not allowed except by plan amendment.

**Guidelines** (G) are sideboards that guide management activities and provide specifications that a project or activity would adopt unless there is a compelling or defensible reason to vary from the exact terms of the guideline. Unlike a standard, deviation from the explicit provisions of the guideline is permitted without a plan amendment, as long as the intent of a guideline is met. Deviation from the explicit provisions of a guideline, if it is meeting the intent of the guideline, must be specified in the site-specific National Environmental Policy Act decision document and documented in the project record. Projects that deviate from a guideline's intent must be accompanied by a plan amendment that would allow for the deviation.

**Area-Specific Direction** is for spatially delineated areas with a common set of plan components that differ from the general Forest. The plan divides area-specific direction into two categories: management areas and designated areas.

> *Management areas* are defined by the desired settings and types of uses that would occur within them under the LMP.
>
> *Designated areas* are designated by Congress or as an administrative action at a national, regional, or local level. These areas are identified because of their unique or special characteristics. Examples include wilderness, research natural areas, national trails, and national and state scenic roads.

**Suitability of Lands** describes the appropriateness of applying certain resource management practices to a particular area of land. Suitability is determined based on compatibility with desired conditions and objectives in the plan area. A unit of land may be suitable for a variety of

individual or combined management practices. Identification of an area as suitable for a particular use does not mean the use will occur over the entire area. Likewise, identifying a particular use that is not suitable in a management area does not mean the use will not occur in other specific areas.

Other Content

In addition to requiring that a plan have plan components, the 2012 Planning Rule (36 CFR §219) (USFS 2012a) requires that the plan include the identification of priority watersheds, a description of the distinctive roles and contributions of the plan area, a plan monitoring program, and proposed and possible actions.

**Monitoring** under the 2012 Planning Rule consists of two elements: the LMP monitoring program and broader-scale monitoring strategies. Together, these should enable the responsible official to determine if a change in LMP components or other LMP content that guide management of resources on the LMP area may be needed. The monitoring program is designed to test assumptions used in developing LMP components and to evaluate relevant changes and management effectiveness of the LMP components. Monitoring determines the degree to which on-the-ground management is maintaining or making progress toward desired conditions. The monitoring program includes questions and performance measures designed to inform implementation and effectiveness of LMP decisions. It helps ensure that the LMP remains adaptive, in that new knowledge and information can be analyzed and the LMP changed accordingly. Typically, monitoring questions seek additional information to increase knowledge and understanding of changing conditions, uncertainties, and risks identified in the best available scientific information as part of an adaptive management framework. The best available scientific information can identify indicators that address associated monitoring questions. The best available scientific information is also important in the further development of the monitoring program as it may help identify protocols and specific methods for the collection and evaluation of monitoring information. This information is analyzed and communicated to the responsible official and the public through the Biennial Monitoring and Evaluation Report. Monitoring and evaluation are continuous learning tools that form the backbone of adaptive management and the evaluation report produced every two years will enable that process.

**Optional plan content** in the revised plan includes background information, existing conditions, management approaches, and contextual information.

**Management approaches** are not plan decisions, but they help clarify how LMP direction may be applied. Management approaches include information for projects and activity decision making to help achieve desired conditions and objectives. Management approaches describe priorities, considerations, and strategies for achieving desired conditions and articulate the strategies needed to effectively make progress toward desired conditions within the context of the operating environment of the LMP.

**Description of Proposed Action by Plan Section**

The USFS 2012 Planning Rule (36 CFR §219.9) addresses the approach to maintaining the diversity of plant and animal communities in the LMP area. It requires developing a set of ecosystem-focused LMP components designed to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the LMP area, including maintaining or restoring structure, function, and connectivity. The LMP area is then evaluated with respect to each federally listed, proposed, or candidate species known to occur within the LMP area to determine if ecosystem LMP components should be modified, additional ecosystem LMP components should be added, or species-specific LMP components are needed to contribute to the recovery of federally listed species or to conserve proposed and candidate species. This approach was applied in the development of the Forest's LMP components.

The Forest's final BA (USFS 2020) included program actions and activities that may be expected to occur over the life of the LMP and that may affect analyzed species. The LMP provides the framework for future management but does not authorize projects or require specific activities to occur, so the types of actions and activities were presented generally in the BA to provide context to evaluate the avoidance, minimization, and mitigation measures developed for the proposed action. The following sections (listed below) describe dominant ecological processes, disturbance regimes, and stressors that have the potential to affect ecosystem integrity across all vegetation types. The LMP components provide direction to protect, limit, or mitigate these effects. More detailed information on the sections can be found in the LMP (USFS 2021). The sections below are presented as they appear in the LMP and not in order of priority or significance. Additionally, key themes or "needs for change" are presented with more details following the sections.

- Vegetation Management – continue management of natural resources while maintaining or improving vegetation management across the Forest.
    - Wildland-Urban Interface – address impacts within the wildland-urban interface while continuing management of natural resources across the Forest.
    - Climate Change – address impacts from climate change while continuing management of natural resources across the Forest.
    - Insects and Disease – address impacts from insects and disease while continuing management of natural resources across the Forest.
    - Plant Community Species Composition – maintain or improve plant community species composition while continuing management of natural resources across the Forest.
    - All Vegetation Types including Forest Vegetation Types, Woodland Vegetation Types, Shrubland Vegetation Types, and Grassland Vegetation Types – maintain or improve specific vegetation types while continuing management of natural resources across the Forest.
- Soil – maintain or improve soil conditions across the Forest.
- Watersheds Resources (includes Watersheds and Water Resource Features/Riparian) – maintain or improve watershed conditions and resources across the Forest.

- Minerals and Mining (Locatable, Leasable, and Salable Minerals; Geology, Abandoned Mines, Caves, Renewable Energy) – continue management of natural resources on the Forest while still allowing mineral and geology activities.
- Wildlife, Fish and Plants (aquatic, terrestrial, nonnative invasive, at-risk) – support activities that maintain or improve wildlife, fish, and rare plant habitats across the Forest.
- Air – maintain or improve air quality across the Forest.
- Wildland Fire Management – maintain or improve the Forest's natural fire regime.
- Sustainable Rangelands and Livestock Grazing – maintain or improve management on rangeland and livestock areas for wildlife, fish, plant, and livestock.
- Sustainable Forestry and Forest Products – maintain or improve ecological conditions through restoration and maintenance on private and commercial timber harvest areas on the Forest.
- Traditional Communities and Uses – continue management of natural resources on the Forest while still allowing access for traditional communities and use.
- Cultural and Historic Resources – continue management of natural resources on the Forest while still protecting cultural and historic resources.
- Land Ownership Adjustment and Boundary Management – maintain or improve connectivity and minimize habitat fragmentation on the Forest.
- Recreation (General, Developed, Dispersed) – continue management of natural resources on the Forest while still maintaining or improving recreation opportunities.
- Scenic Resources – continue management of natural resources on the Forest while still maintaining or improving scenic resources.
- Special Uses – continue management of natural resources on the Forest while still allowing special use.
- Transportation and Forest Access– continue management of natural resources on the Forest while maintaining or improving roads and trails.
- Management Areas (Recommended Wilderness, Eligible Wild and Scenic Rivers, Valle Vidal MA, San Antonio MA) – continue management of natural resources on the Forest while maintaining or improving management areas.
- Designated Areas (Wilderness and Inventoried Roadless Areas, Vallecitos Federal Sustained Yield Unit Designated Area, Wild Horse Territories Designated Areas) – continue management of natural resources on the Forest while maintaining or improving designated areas.

Summary of Key Issues and LMP Objectives

The proposed action outlined in the draft LMP focuses on healthy ecological function and supports multiple uses through an accelerated restoration focus. It is designed to address needs for restored forested and non-forested vegetation, incorporating natural wildfires, terrestrial and aquatic wildlife habitat, improved riparian management zones, watershed health, improved rangeland forage and infrastructure, sustainable recreation, and desires for recommended wilderness. The following sections describe key themes or "needs for change" identified during the plan revision process that have the most likely potential to impact wildlife, fish, or plants.

**Support Cultural and Traditional Landscapes and Uses**

There could be a slight effect from traditional cultural uses per the proposed action. This is due to the updated LMP direction allowing for the continuation of fuelwood collection as a significant traditional use identified during scoping.

**Restore Resilient Ecosystems**

The proposed action emphasizes accelerated restoration using mechanical treatments and wildfire to move toward vegetative desired conditions in addition to proposed restoration management areas where these treatment projects would be focused. This addresses the desire to move highly departed ecosystems towards a healthier ecological function and to improve habitat abundance and distribution for wildlife species. Higher amounts of prescribed fire would be used than managed wildfire for resource benefits from natural ignitions. Much of this work would occur in the wildland-urban interface and restoration management areas, concentrated in the Forest's three most prevalent fire-adapted vegetation types — Ponderosa Pine (*Pinus ponderosa*) Forest and Dry Mixed Conifer Forest. Objectives are for mechanical thinning and prescribed burning over a 10 year period, including:

- Mechanically treating 5,500 to 10,000 acres of highly departed mixed conifer (MCD), and 22,000 to 50,000 acres of ponderosa pine forest (PPF).
- Burning 20,000 to 40,000 acres of highly departed mixed conifer (MCD), and 80,000 to 125,000 acres of ponderosa pine forest (PPF) through a mixture of prescribed fire and naturally ignited wildfire to reduce severe wildfire risk and restore conditions.
- Continue maintaining sustainable forest products under the proposed action to accommodate traditional uses while maintaining forest health.

**Provide for Watershed Health**

There are plan objectives for a 10-year period to restore 200 to 300 acres of riparian areas, aligned with priority watersheds. There are also plan objectives to restore or enhance 100 to 150 miles of stream habitat, improve or maintain function of 10 to 20 individual springs, and improve or maintain watershed function on a total of 5,000 to 10,000 acres for a 10-year period.

**Address Conflicts between Recreation and Multiple Uses**

Objectives for alleviating conflicts between Unneeded roads and trails will be decommissioned to reduce impacts to ecological resources such as watersheds, wildlife, and soil erosion and improve habitat connectivity. The Forest will maintain at least 100-300 miles of trail under this plan. This increased emphasis on the trail system should increase user satisfaction with the recreation opportunities focused on the user conflicts that exist across the Forest by evaluating the use and relevance of the trail. There is also an increased emphasis on partnerships as a means to increase capacity to provide quality recreation opportunities as well as increased opportunities to provide interpretive services to increase public awareness of natural resources and human impacts.

**Consider New Wilderness and Management Areas**

The proposed action includes a wilderness recommendation for 9,295 acres within the Forest. These include Ash Mountain (5,314 acres), Rito Claro (now Esther Garcia) (1,165 acres), Rudy (1,675 acres), Toltec (1,038 acres), Lobo (82 acres), and Huckaby (21 acres). Activities that are anticipated in recommended wilderness areas include managed fire, trail building and maintenance, and dispersed recreation.

Additionally, there are 50 river segments in the Forest totaling approximately 170 miles determined as being eligible to be included in the National Wild and Scenic Rivers System. There are 78.8 miles classified as wild, 28.6 miles classified as scenic, and 62.1 miles classified as recreational. These rivers will be managed to retain their current eligibility status until a suitability determination is made about whether to recommend them for inclusion in the National Wild and Scenic Rivers System

The proposed action also proposes adding the San Antonio and Valle Vidal Management Areas, which have the purpose of protecting and enhancing values such as uninterrupted wildlife habitat, solitude, and scenic integrity and provide socioeconomic opportunities that emphasize backcountry and primitive recreation. These areas contain a standard prohibiting the construction of new roads or motorized trails within the area to emphasize primitive recreation opportunities.

The proposed action uses mechanical thinning, wildfire, and fuelwood collection to decrease risk from stand-replacing wildfire and to improve ecosystem function. The proposed action addresses species needs at the fine, mid, and broad scales. Vegetation and fuels reduction treatments would be strategically placed in the areas that are most at risk and in need of active restoration management. The proposed action is responsive to ecological resilience—restoration of fire-adapted ecosystems and sustainability of springs, wetlands and riparian areas (improved watershed health). There is an emphasis on connectivity and more timely and effective treatment of noxious weeds which have the capacity impair ecosystem integrity and function, outcompete native species, and alter the natural fire regime. An increased emphasis on restoration intensity emphasizes partnerships to get more work done on the ground to achieve desired conditions. Restoration methods are focused on mechanical thinning to reduce fire hazard, protect infrastructure, and ensure fuelwood collection is widely available.

Under the proposed action, 2 miles (3.2 kilometers) of roads would be decommissioned annually. This should benefit wide-ranging species, species that need connected habitats, and riparian species that could be impacted by sediment transport.

**Conservation Measures**

Specific conservation measures are proposed for the effects to the owl. Forest-wide LMP components, including desired conditions, standards, and guidelines included within each section, can function as conservation measures. Information on components are listed above. Specific components are referenced in the Effects of the Action section below. Any referenced component is included in Appendix B.

**Description of Action Area**

The action area is defined as all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR § 402.02). In delineating the action area, we evaluated the farthest reaching physical, chemical, and biotic effects of the action on the environment. The action area is typically larger than the area directly affected by the action. In this context, the action area for this consultation will include the entire Forest.

The Forest is one of five NFs in New Mexico, occupying approximately 1,486,372 acres within the San Juan, Rio Grande, Rio Chama, and Canadian River drainages and within four counties (Rio Arriba, Taos, Mora, and Colfax). The six Ranger Districts addressed in this analysis are the Camino Real, Canjilon, El Rito, Jicarilla, Tres Piedras, and Questa Ranger Districts. East of the Rio Grande Gorge, Questa and Camino Real Ranger Districts span the Sangre de Cristo Mountains (referred to as the "east side"). West of the Rio Grande, Tres Piedras, El Rito, and Canjilon Ranger Districts cover the slopes of the Tusas Mountains (the "west side"). To the far west, the Jicarilla Ranger District sits on the eastern edge of the San Juan Basin (Figure 1).

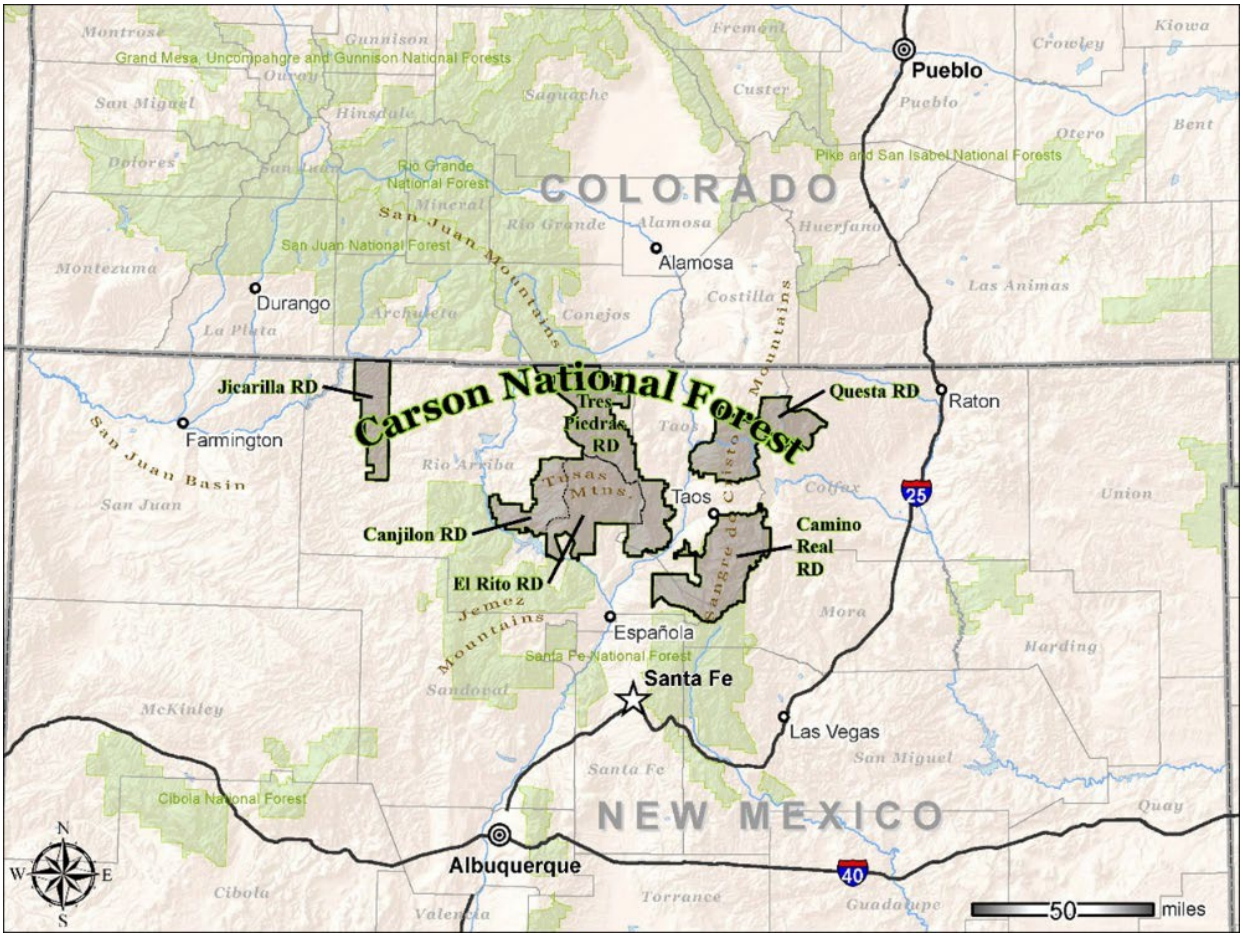

Figure 1. Vicinity map of the U.S. Forest Service, Carson National Forest, which includes the Camino Real, Canjilon, El Rito, Jicarilla, Tres Piedras, and Questa Ranger Districts, within Rio Arriba, Taos, Mora, and Colfax Counties in New Mexico (from USFS 2020).

## ANALYTICAL FRAMEWORK FOR THE JEOPARDY DETERMINATION

### Jeopardy Determination

In accordance with policy and regulation, the jeopardy analysis in this biological opinion relies on four components in our evaluation for each species: (1) the *Status of the Species*, which evaluates the species' range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the *Effects of the Action*, which determines the consequences of the proposed Federal action on the species that are reasonably certain to occur as a result of the proposed action; and, (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the species.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the species' current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the species in the wild.

The jeopardy analysis places an emphasis on consideration of the range-wide survival and recovery needs of the species and the role of the action area in the survival and recovery of the species as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

## STATUS OF SPECIES

### Mexican Spotted Owl

The Mexican spotted owl (owl) was listed as a threatened species on March 16, 1993 (USFWS 1993). The Service appointed the Mexican spotted owl Recovery Team in 1993 (USFWS 1993), which produced the Recovery Plan for the Mexican spotted owl in 1995 (USFWS 1995). Mexican spotted owl critical habitat was designated on August 31, 2004 (USFWS 2004). The Service released the final Mexican spotted owl Recovery Plan, First Revision (Recovery Plan) in December 2012 (USFWS 2012).

#### Description and Life History

The Mexican spotted owl is a medium-sized owl without ear tufts. They are mottled with irregular white spots on its brown abdomen, back, and head. Mexican spotted owls nest in caves, in stick nests built by other birds, on debris platforms in trees, and in tree cavities. Mexican spotted owls have distinct annual breeding periods, with courtship beginning in March. Eggs are typically laid in late March or early April, with eggs hatching approximately 30 days later. Nestling owls generally fledge in early to mid-June and will typically disperse from the nest area by late August or early September. A detailed account of the taxonomy, biology, and reproductive characteristics of the Mexican spotted owl is found in the Final Rule listing the owl

as a threatened species (USFWS 1993), the original Recovery Plan (USFWS 1995), and in the revised Recovery Plan (USFWS 2012). The information provided in those documents is included herein by reference.

Distribution and Habitat Requirements

The spotted owl occurs in forested mountains and canyonlands throughout the southwestern United States and Mexico (Gutierrez et al. 1995). It ranges from Utah, Colorado, Arizona, New Mexico, and the western portions of Texas south into several States of Mexico. Although the owl's entire range covers a broad area of the southwestern United States and Mexico, it does not occur uniformly throughout its range. Instead, the Mexican spotted owl occurs in disjunct localities that correspond to isolated forested mountain systems, canyons, and in some cases steep, rocky canyon lands. Known owl locations indicate that the species has an affinity for older, uneven-aged forest, and the species is known to inhabit a physically diverse landscape in the southwestern United States and Mexico.

In addition to this natural variability in habitat influencing owl distribution, human activities also vary across the owl's range. The combination of natural habitat variability, human influences on owls, international boundaries, and logistics of implementation of the Recovery Plan necessitates subdivision of the owl's range into smaller management areas. The 1995 Recovery Plan subdivided the owl's range into 11 "Recovery Units" (RUs): six in the United States and five in Mexico. In the first revision of the Recovery Plan, the RUs were renamed as "Ecological Management Units" (EMUs) to be in accord with current Service guidelines. The Mexican spotted owl's range within the United States is divided into five EMUs: Colorado Plateau (CP), Southern Rocky Mountains (SRM), Upper Gila Mountains (UGM), Basin and Range-West (BRW), and Basin and Range-East (BRE). Within Mexico, the Revised Recovery Plan delineated five EMUs: Sierra Madre Occidental Norte, Sierra Madre Occidental Sur, Sierra Madre Oriental Norte, Sierra Madre Oriental Sur, and Eje Neovolcanico.

Mexican spotted owl surveys since the 1995 Recovery Plan have increased our knowledge of owl distribution, but not necessarily of owl abundance. Population estimates, based upon owl surveys, recorded 758 owl sites from 1990 to 1993, and 1,222 owl sites from 1990 to 2004 in the United States. The revised Recovery Plan (USFWS 2012) lists 1,324 known owl sites in the United States. An owl site is an area used by a single owl or a pair of adults or subadult owls for nesting, roosting, or foraging. The increase in number of known owl sites is mainly a product of new owl surveys being completed within previously unsurveyed areas (e.g., several National Parks within southern Utah, Grand Canyon National Park in Arizona, Guadalupe National Park in West Texas, Guadalupe Mountains in southeastern New Mexico and West Texas, Dinosaur National Monument in Colorado, Cibola National Forest in New Mexico, and Gila National Forest in New Mexico). Thus, an increase in abundance in the species range-wide cannot be inferred from these data (USFWS 2012). However, we do assume that an increase in the number of areas considered occupied is a positive indicator regarding owl abundance.

Threats

Two primary reasons were cited for listing the Mexican spotted owl in 1993: (1) the historical alteration of its habitat as the result of timber-management practices; and (2) the threat of these practices continuing. The impacts associated with stand-replacing fire were also cited as a looming threat at that time. Since publication of the original Recovery Plan (USFWS 1995b), we have acquired new information on the biology, threats, and habitat needs of the Mexican spotted owl. Threats to its population in the U.S. (but likely not in Mexico) have transitioned from commercial-based timber harvest to the risk of stand-replacing wildland fire (USFWS 2012).

**ENVIRONMENTAL BASELINE**

Under section 7(a)(2) of the ESA, when considering the effects of the action on federally listed species, the Service is required to take into consideration the environmental baseline. Regulations implementing the ESA (50 FR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in progress. The environmental baseline defines the status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation. The environmental baseline refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (84 FR 44976-45018).

Currently, the Carson National Forest contains uncharacteristically dense forests with many more young trees than were present historically. These stands are at high risk for stand-replacing wildfire due to the accumulated buildup of both live and dead fuels and increased canopy density and fuel continuity. Fire regimes are disrupted in many of the vegetation types present on the Carson, largely a result of past fire suppression policies. In general, this has led to an overall change in seral stage proportion in many of the woody vegetation types. Many stands are now characterized by a preponderance of smaller-diameter, densely distributed trees uncharacteristic of reference conditions. Reference conditions for the Carson are characterized by forest stands containing widely spaced medium and large-diameter trees (Reynolds et al. 2013).

Changes to range management and grazing on the Forest have been made since critical habitat was determined for the owl in 2004. These current range management policies will not be substantially changed in the new LMP and therefore will have no new effects on the owl. Other aspects of the environmental baseline for the owl and its forested critical habitat within the action area of the Forest have not changed appreciably since 2005.

**Status of the Species within the Action Area**

Mexican Spotted Owl

Surveys conducted since 2014 following the monitoring protocol from the revised 2012 Recovery Plan have not detected any breeding owls on the Forest. Individual owls have been anecdotally detected on the Forest on the Camino Real, El Rito, and Tres Piedras Ranger Districts (Table 1). These anecdotal detections indicate that owls may be dispersing or moving through the Carson and suggests that the Forest may provide important connectivity between owl habitat in New Mexico and Colorado. The number of primary activity centers (PACs) on the Forest has remained unchanged since 2011 (Figure 2).

Table 1- Mexican spotted owl detections on the Carson since 2014.

| Date | Location General Description | District | Detection Type |
|---|---|---|---|
| July 4, 2015 | BCR Occupancy Survey site CAR0153 Mondragon Canyon | Camino Real | One male vocalization |
| May 17, 2016 | BCR Occupancy Survey site CAR0025 Cebedilla Canyon | Camino Real | One male and female vocalization |
| May 21, 2016 | Lower El Rito Project Area-Stone Angel Canyon by BCR | El Rito | One male vocalization |
| 2017 | No Detections | NA | NA |
| May 14, 2018 | BCR Occupancy Survey site CAR0153 Mondragon Canyon | Camino Real | One male vocalization |
| June 20, 2018 | BCR Occupancy Survey site CAR0025 Cebedilla Canyon | Camino Real | Unknown vocalization |
| May 16, 2019 | Rio Tusas/ Tusas Ridge-Lamy area by BCR | Tres Piedras | Unknown visual detection during daylight |

There are only two PACs on the Jicarilla Ranger District of the Forest, encompassing 1,474 acres of protected habitat (Figure 2). Neither PAC has been occupied since 1993. Unoccupied habitat for the owl is defined as owl recovery habitat. There are an estimated 196,971 acres of owl recovery habitat on the Forest. Based on the occurrence of primary vegetation types within this recovery habitat acreage, approximately 41,439 acres (21 percent) could be potential nesting and roosting habitat.

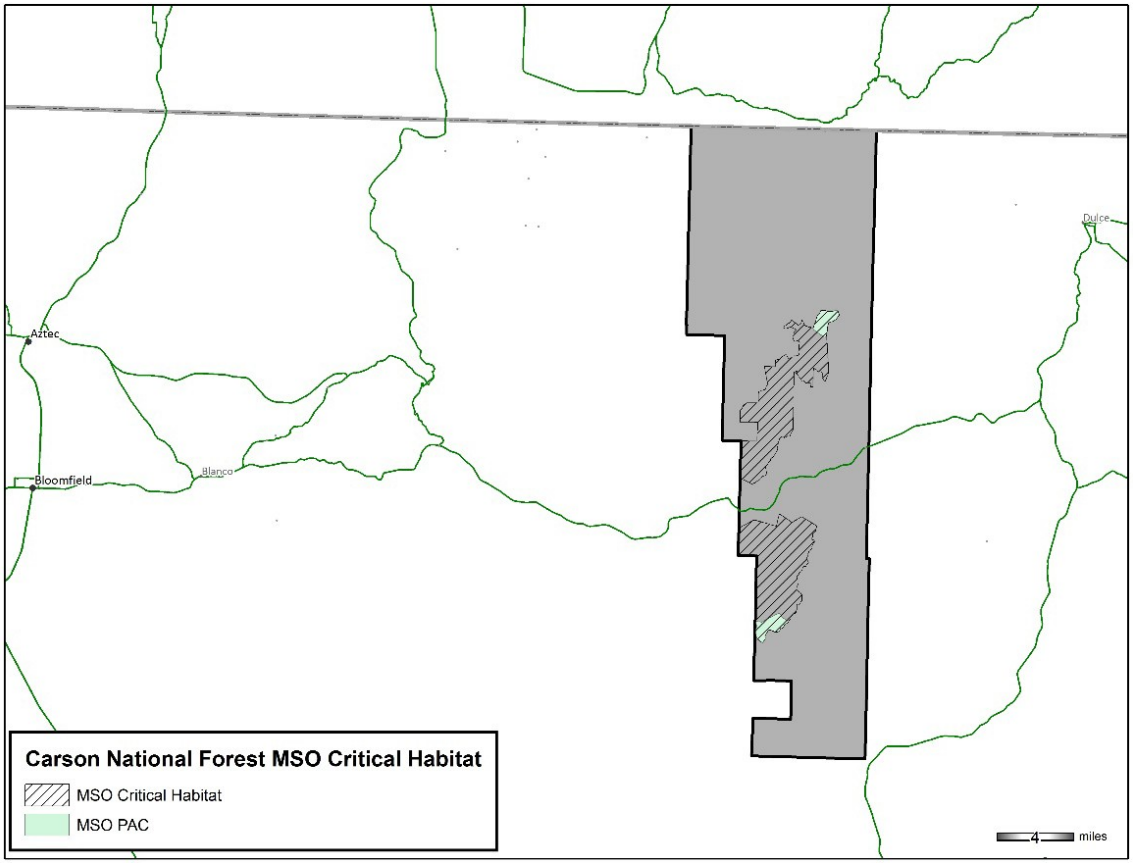


Figure 2- Mexican spotted owl critical habitat and PACs on the Jicarilla RD.

**Factors affecting the Mexican spotted owl within the action area**

Past and ongoing state, local, and private actions that are reasonably certain to continue in the action area include the following:

- Forestry management activities (e.g., mechanical thinning, prescribed fire and managed wildfire);
- Recreational activities (e.g., hunting, fishing, hiking, camping, wildlife viewing);
- Transportation and road maintenance;
- Livestock grazing;
- Firewood collection; and,
- Climate change.

These past and ongoing activities have resulted in the modification of vegetation, soil compaction, and disturbance to owl habitat. Vegetation within the action area is described in more detail in the Description of the Action Area section, in the BA (USFS 2020), and in the LMP (USFS 2021). Most of the frequent fire mixed conifer vegetation within the action area that the owl primarily utilizes is considered to be highly to moderately departed from reference conditions.

Historical timber harvest has been largely responsible for the overall decrease in large trees across Rocky Mountain forests since the late 1800s, while active fire suppression and passive fire suppression (roads, excessive removal of fine fuels by improper grazing, community development, etc.) have been largely responsible for reduced fire frequency (Schoennagel et al. 2004). A reduced fire frequency allows fuels to accumulate and tree canopies to close, facilitating insect and disease outbreaks, uncharacteristically severe fires, and increases in the early seral (grass/forb/shrub, seedling/sapling) states that follow fire. In September 1996, the USFS amended the Forest LMP to incorporate Regional guidance for Northern Goshawk (*Accipiter gentilis*) habitat and owl recovery. As a result, the Forest shifted emphasis from producing and selling timber products to wildlife habitat management and restoration. The Forest's forestry program developed a new mandate to integrate with the wildlife, watershed, and fuels management programs. From 2002–2008, timber management revolved around fuel reduction in both the wildland-urban interface and non- wildland-urban interface. Since 2008, the Forest's timber management has primarily revolved around forest ecosystem restoration, which includes improving forest health, watershed condition, and wildlife habitat, while reducing fuels and providing wood products to local communities (USFS 2015).

Within the Forest, very little recovery habitat has been burned, and no protected activity centers or critical habitat have been burned. Fire effects can include a mix of positive low- to moderate-severity fire effects to habitat components (e.g., reduced risk of high-severity fire, increase in snags), and potentially negative high-severity fire effects within nesting/roosting habitat (e.g., loss of large, mature trees, snags and logs). Since 2012, the Forest has implemented projects consistent with the 1986 Land and Resource Management Plan. Some projects have affected potential owl habitat, but the Service determined that these projects resulted in insignificant and discountable effects. The Service previously concurred on "may affect, not likely to adversely affect" determinations for the owl on projects such as the El Rito Canyon Landscape Restoration Project (USFWS 2015), Rio Tusas-Lower San Antonio Landscape Restoration Project (USFWS 2017), and the Pueblo Ridge Restoration Project (USFWS 2020). No Forest projects have directly affected the owl. The Forest therefore concluded that the environmental baseline for the owl and its critical habitat within the action area has not changed appreciably since 2005. The Forest stated that these actions likely resulted in positive effects for the owl, such as reduced high-intensity wildfire risk and improved forest health within recovery habitat.

## EFFECTS OF THE ACTION

Effects of the action refer to the consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (84 FR 44976-45018). The BA (USFS 2020) includes effects or impacts on species or critical habitat; effects or impacts will be referred to as consequences in this opinion.

Since this is a programmatic consultation and many site-specific actions have not yet been planned, we will only discuss consequences in terms of the general effects we anticipate will occur to each species and its critical habitat. In general, we discuss each plan section and the

consequences from the components associated with them from the BA. The LMP components provide direction to protect, limit, or mitigate effects on species or critical habitat. A table with components including objectives, standards, and guidelines that are specifically referred to in this consultation is included in Appendix B of this opinion. More detailed information on the sections can be found in the Forest's LMP (USFS 2021). Because the Forest's BA (USFS 2020) and LMP (USFS 2021) do not authorize site-specific actions, nor do they typically prescribe the timing or exact location of specific land management activities, a more detailed effects discussion will occur as each site-specific project is developed, and these projects will be consulted on separately, as required. Specifically, each site-specific project or activity implemented under the revised LMP that may affect a listed species or critical habitat will undergo a separate ESA section 7(a)(2) consultation.

Consequences of the proposed action on species and critical habitat in the action area

Forest-wide activities are expected to occur throughout the Forest in areas or habitats where federally listed species (and critical habitat if applicable) occur. Effects to the owl could occur due to forest-wide activities in all sections covered in the LMP including vegetation management, water resources, soil, air, wildlife, fish, and plants, wildland fire management, sustainable rangelands and livestock grazing, sustainable forestry and forest products, traditional communities and uses, cultural and historic resources, minerals and mining, recreation, special uses, transportation and forest access, as well as management area specific and designated area direction programs. In each section below, we reference the individual components (Desired Conditions - DC, Objectives – O, Standards - S, Guidelines – G) and any Management Approaches that were included in these sections in the BA (USFS 2020) if they could affect species in that section. The full text from these components is included in Appendix B. Additional information for these components and for each section can be found in the BA (USFS 2020) and LMP (USFS 2021).

***Vegetation Management sections include All Vegetation (VEG), Climate Change, Insects and Disease, and Plant Community Species Composition***

Mexican spotted owl

Based on the information included in the BA (USFS 2020) for the Vegetation Management sections of the LMP (USFS 2021), there is a potential for consequences to the Mexican spotted owl (owl) based on Forest management activities referenced in this section (e.g., mechanical treatments, prescribed fire). Plan components for Vegetation, Wildland Fire, Sustainable Forest Products, and individual Vegetation Communities would guide project development.

There are no desired conditions, objectives, standards, or guidelines for management of the wildland-urban interface that would affect the owl. Due to the complexity in defining the wildland-urban interface, the Forest does not have the wildland-urban interface identified spatially. Achievement of desired conditions for All Vegetation (FW-VEG-DC-1, 3,4), Climate Change (FW-VEG-DC-2), Insect and Diseases (FW-VEG-DC-12; FW-VEG-MWC-DC-6, FW-VEG-MCD-DC-6), and sections within the Vegetation Management section may help reduce consequences to the owl. Forest-wide objectives (FW-VEG-MCD-O-1) may be beneficial to the

owl and critical habitat since it includes mechanically treating 5,500 to 10,000 acres during each 10-year period following plan approval of highly departed forest habitat which could lead to improvements in PCEs found within critical habitat. Additionally, these sections include numerous standard and guideline components that are also likely beneficial since they include specifications, constraints, or requirements promoting management for natural ecosystems and may help reduce consequences of the proposed action on the owl.

Within particular forest types including Ponderosa-Pine Forest (PPF) and Dry Mixed Conifer (MCD), there are LMP components that are likely to benefit the owl including desired conditions to maintain appropriate seral states at the landscape (1,000 to 10,000 acres or more), mid (100 to 1,000 acres) and fine scales (less than 10 acres), while reducing fire risk through vegetation management and fuels reduction projects. Achievement of these desired conditions (FW-VEG-PPF-DC 1-21; FW-VEG-MCD-DC 1-21) may help reduce consequences to the owl through promoting management for a full range of owl life stage needs (fledging, nesting, dispersal, roosting), conditions that likely support adequate prey base, vegetative conditions broadly resistant to a variety of disturbances, and ecosystems are intact and functioning within endemic levels of disturbance. Additionally, these sections include guidance components (FW-VEG-MCD-G 1-6, FW-VEG-PPF-G 1-8) that are also likely beneficial since they include specifications for retention of hardwoods and canopy cover to benefit owl prey base.

***Water Resources (includes Watersheds and Riparian Areas)***

Mexican spotted owl

Based on the information included in the BA (USFS 2020) for the Water Resources sections of the LMP (USFS 2021), there is a low potential for consequences to the owl based on Forest management activities referenced in these sections that focus primarily on water quality and quantity and ground cover in habitats adjacent to riparian areas. Riparian vegetation comprises a very small portion (4 percent) of the Forest and there are no protected activity centers in this vegetation type. Achievement of desired conditions for the Watershed and Riparian Areas sections (FW-WSW-DC-1-2; FW-WSW-RMZ-DC-9; FW-WSW-RMZ-STM-DC-2 and 5) within the Water Resources section may help reduce consequences to the owl. An objective (FW-WSW-RMZ-O-1) to annually improve at least 200 to 300 acres of nonfunctioning and functioning-at-risk riparian areas could benefit recovery habitat for the owl by improving foraging and dispersal habitat. Additionally, guidelines (FW-WSW-RMZ-G-1, 2) will establish management zones around perennial waters and prevent new infrastructure development to help move these systems toward desired conditions and help reduce consequences of the proposed action on the owl.

***Wildlife, Fish, and Plants***

Mexican spotted owl

Based on the information included in the BA (USFS 2020) for the Wildlife, Fish, and Plants sections of the LMP (USFS 2021), there is a low potential for consequences to the owl based on desired conditions and other components referenced in these sections. Achievement of desired conditions for the Wildlife, Fish, and Plants sections (FW-WFP-DC 1-7) may help reduce any

potential consequences and help promote conservation and recovery for the owl and critical habitat. Additionally, these sections include multiple guideline components (FW-VEG-G 1-3, FW-WFP-G 1-3) that are also likely beneficial since they include species protection measures from approved recovery plans to provide protection and development of suitable owl habitat and may help reduce consequences of the proposed action on the owl.

***Soil***

Mexican spotted owl

Achieving the desired conditions for soils (FW-SL-DC-1-3) will promote properly functioning areas to prevent excess erosion that will protect owl prey habitat and aid plant regeneration. Additionally, improving vegetation structure and ecosystem function coupled with guidelines (FW-SL-G-1-3) can benefit the owl by ensuring long-term positive impacts on prey habitat.

***Non-native Invasive Species***

Based on the information regarding non-native invasive species included in the BA (USFS 2020) from the Wildlife, Fish, and Plants sections of the LMP (USFS 2021), there are no objectives specific to this section of the plan. Although non-native invasive species have not been identified as a threat to the owl (USFWS 2012), guidance found in the Nonnative Invasive Species section would be generally positive for promoting ecological integrity as well as food and cover for owl prey. Potential disturbance resulting from invasive species management would be minimized or eliminated by timing restrictions mentioned above (FW-WFP-G-3).

***Air***

Mexican spotted owl

Based on the information included in the BA (USFS 2020) for the Air section of the LMP (USFS 2021), there is a potential for consequences to the owl and designated critical habitat based on Forest management activities referenced in this section (e.g., prescribed fire). There are no objectives or standards. Achievement of desired conditions for the Air section (FW-DC-AIR 1-4) may help reduce any potential consequences to the owl and critical habitat. Additionally, this section includes two guideline components (FW-GDL-AIR 1-2) that are also likely beneficial since they include specifications maintaining or improving air quality and may help reduce consequences of the proposed action on the owl and critical habitat.

***Wildland Fire Management (Fire)***

Mexican spotted owl

Based on the information included in the BA (USFS 2020) for the Wildland Fire Management section of the LMP (USFS 2021), there is a potential for consequences to the owl and its designated critical habitat based on Forest management activities referenced in this section (i.e., prescribed fire and naturally ignited wildfire management). Achievement of desired conditions for the Fire section (FW-FIRE-DC-1, 2) may help reduce consequences to the owl and critical

habitat. Forest-wide O (FW-VEG-MCD-O 2) may be beneficial to the owl and critical habitat since it includes prescribed burning at least 20,000 to 40,000 acres during each 10-year period following plan approval to reduce wildfire risk and restore natural conditions which could lead to improvements in PCEs found within critical habitat. Additionally, this section include a standard (FW FIRE-S 5) and several guideline components (FW-FIRE-G-1, 2, 5, 8; FW-FIRE-G-9) that are also likely beneficial since they include constraints and specifications maintaining or improving the Forest's natural fire regime and may help reduce consequences of the proposed action on the owl and critical habitat.

***Sustainable Rangelands and Livestock Grazing (GRZ)***

Mexican spotted owl

Based on the information included in the BA (USFS 2020) for the Sustainable Rangelands and Livestock Grazing sections of the LMP (USFS 2021), there is a potential for consequences to the owl based on Forest management activities referenced in this section (i.e., livestock grazing, wild horse grazing). Achievement of desired conditions for the Sustainable Rangelands and Livestock Grazing section (FW-GRZ-DC 4, FW-GRZ-DC 5) may help reduce consequences to the owl by maintaining compatibility with ecological functions and processes and helping to ensure native shrub understory and grass vegetation development is balanced with owl needs and livestock grazing. Additionally, this section includes standard (FW-GRZ-S 1) and guideline components (FW-GRZ-G 1,2,6,7) that are also likely beneficial since they include constraints and specifications for livestock grazing and may help reduce consequences of the proposed action on the owl and critical habitat. Impacts of grazing by wild horses could also have consequences to the owl. Desired conditions and guidance are in place to help reduce any negative consequences of the wild horse impact to owl habitat (DA-WHT-DC-3, DA-WHT-G-1).

***Sustainable Forestry and Forest Products (FFP)***

Mexican spotted owl

Based on the information included in the BA (USFS 2020) for the Sustainable Forestry and Forest Products section of the LMP (USFS 2021), there is a potential for consequences to the owl and its designated critical habitat based on Forest management activities referenced in this section (i.e., private and commercial timber harvest, fuelwood collection). Achievement of desired conditions for the Sustainable Forestry and Forest Products section (FW-FFP-DC-1, 3-5) may help reduce consequences to the owl and critical habitat by helping to ensure private and commercial timber harvest enhance ecological conditions for wildlife through restoration and maintenance. Two desired conditions (FW-FFP-DC-3; FW-FFP-DC-5) reference the availability of fuelwood to the public and the harvesting of dead or dying trees, which may have consequences to the owl or critical habitat. There are no objectives or standards for this section, but guidelines from all vegetation types, ponderosa pine, frequent fire mixed conifer, and wildlife, fish, and plant sections of the LMP may help reduce consequences of the proposed action on the owl.

***Traditional Communities and Uses***

Mexican spotted owl

Based on the information included in the BA (USFS 2020) for the Traditional Communities and Uses section of the LMP (USFS 2021), there is a potential for consequences to the owl and its designated critical habitat based on Forest management activities referenced in this section (e.g., fuelwood gathering). Achievement of desired conditions for the Sustainable Forestry and Forest Products section (FW-FFP-DC 3) may help reduce consequences to the owl and critical habitat by protecting forest resources or owl habitat that is associated with this activity in cultural or historic areas. There is a guideline component (FW-RHC-G 1) that is likely beneficial since it includes specifications for areas where traditionally used products collection may not occur and may help reduce consequences of the proposed action on the owl and critical habitat.

***Recreation (REC)***

Mexican spotted owl

Based on the information included in the BA (USFS 2020) for the Recreation section of the LMP (USFS 2021), there is a potential for consequences to the owl based on Forest management activities referenced in these sections (i.e., recreational development, rock climbing, trails and trailhead use, developed and dispersed camping, road management, land use authorization, improving natural landscapes). Achievement of desired conditions for the Recreation (FW-REC-DC-3, 5), Wildlife, Fish and Plants (FW-WFP-DC-7), and Transportation and Forest Access (FW-TFA-DC-4) sections may help reduce consequences to the owl by directly protecting them or minimizing effects to the owl and owl habitat from these recreational activities. The Forest-wide objective component (FW-TFA-O1) for Transportation and Forest Access may be beneficial since it includes evaluation of trails and roads with the option to improve, remove, or decommission at least 2 miles of roads annually, which could lead to increases or improvements in suitable habitat for the owl. Forest-wide guidelines for Recreation (FW-REC-G 1, 5) and Transportation and Forest Access (FW-TFA-G-6) may reduce consequences to the owl by assuring compatible and sustainable recreational activities and trail design. Additionally, these sections include standard components (FW-REC-S 1, 2; FW-TFA-S 1, 2) that are likely beneficial since they include constraints and specifications with regards to recreation, roads, special use, and scenic areas in or near owl habitat, and may help reduce consequences of the proposed action on the owl.

***Transportation and Forest Access (TFA)***

Mexican spotted owl

Based on the information included in the BA (USFS 2020) for the Transportation and Forest Access section of the LMP (USFS 2021), there is a potential for consequences to the based on Forest management activities referenced in these sections (i.e., trail and road development and maintenance, road decommissioning). While there are no desired conditions described for the Transportation and Forest Access section of the LMP, achievement of desired conditions of other components from other sections of the LMP may help reduce consequences for the owl by

supporting those other components. This section includes an objective (FW-TFA-O 1) and a guideline component (FW-TFA-G 6) that are likely beneficial since they include specifications promoting and enhancing connectivity for future land exchanges and may help reduce consequences of the proposed action on the owl.

***Special Uses (SU)***

Based on the information included in the BA (USFS 2020) for the Special Uses section of the LMP (USFS 2021), there is some potential for consequences to the owl based on Forest management activities referenced in these sections (i.e., utility lines, communication sites, research permits). This section includes guideline components (FW-SU-G 1, FW-SU-G 5) that are likely beneficial since they allow the Forest to manage utility permits in a way that utility locations do not conflict with wildlife needs, and includes the timing restrictions from the Wildlife, Fish, and Plants section of the plan.

***Minerals and Mining (Locatable, Leasable, and Salable Minerals; Geology, Abandoned Mines, Caves, Renewable Energy)***

Mexican spotted owl

Based on the information included in the BA (USFS 2020) for the Minerals and Mining section of the LMP (USFS 2021), there is a low potential for consequences to the owl since no active, locatable, mineral mines occur on the Forest. There is some opportunity for public harvest of sand and gravel and decorative stone referenced in this section (e.g., exploration and mining of minerals, caves). Additionally, this section includes a guideline component (FW-WFP-G-1-3) that is likely beneficial since it includes constraints on timing of any extractive actions and adopting other recovery plan measures from the Wildlife, Fish, and Plants section that may help reduce consequences of the proposed action on the owl.

***Management Areas (Recommended Wilderness, Eligible Wild and Scenic Rivers, Conservation Management Areas, and Restoration Management Areas) and Designated Areas (Wilderness and Inventoried Roadless Areas, Wild Horse Territories)***

Mexican spotted owl

Based on the information included in the BA (USFS 2020) for the Management Areas and Designated Areas sections of the LMP (USFS 2021), there is a potential for consequences to the owl based on Forest management activities referenced in these sections (e.g., vegetation treatments). Already developed areas, including developed winter and summer resorts and the developed recreation site management area, would most likely be avoided by the owl. Achievement of desired conditions for the Management Areas sections (specifically MA-RWMA-DC-2, 3 for Recommended Wilderness, FW-EWSR-DC-1 for Eligible Wild and Scenic Rivers, MA-VVMA-DC-1–5 and MA-SAMA-DC-1–3 for the San Antonio and Valle Vidal Management Areas, and MA-JICMA-DC-1–2 for the Jicarilla Natural Gas Management Area) and Designated Areas (DA-WILD-DC-1–3 for Designated Wilderness Areas, DA-IRA-DC-1, 2 for Inventoried Roadless Areas, DA-WHT-DC-3 for Wild Horse Areas) may help reduce consequences for the

owl by promoting natural ecological conditions and reducing disturbance levels in owl habitat. Additionally, these sections include standard (MA-RWMA-S-1, 4, MA-VVMA-S-5, MA-SAMA-S-1, MA-JICMA-S-10; DA-WILD-S-1, 2) and guideline components (MA-RWMA-G-2, DA-WHT-G-1) that are likely beneficial since they include constraints and specifications with regards to disturbance levels, new surface use, use of managed fire, timber harvest, timber roads or motorized trials, and wild horse grazing, and may help reduce consequences of the proposed action on the owl and critical habitat.

## CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The New Mexico Department of Game and Fish manages big game hunting on the Forest, including within owl habitat. This could result in some disturbance to owls during hunting seasons. These effects vary across the action area, but do not result in significant effects to the owl. Traditional fuelwood collection is ongoing, but also considered to have insignificant effects to the owl.

Since the entire action area for this opinion includes the Camino Real, Canjilon, El Rito, Jicarilla, Tres Piedras, and Questa Ranger Districts found on the Forest, then all lands within the action area are managed by Federal agencies and any activities that could potentially affect listed species are Federal activities that are subject to additional section 7 consultation. However, the effects of these Federal activities are not considered cumulative effects. Forestry management practices, infrastructure maintenance, livestock grazing, mining, off-highway vehicle use, and other activities occur on these lands and are expected to continue into the foreseeable future.

## CONCLUSION

Mexican spotted owl

After reviewing the current status of the owl, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that implementation of the Forest's revised LMP will not jeopardize the continued existence of the owl. We base our conclusion on the following:

1. Implementation of the management direction within the revised LMP will allow the Forest to manage for owl recovery and implement the owl's Recovery Plan (USFWS 2012).
2. The LMP components (desired conditions, objectives, standards, and guidelines) recognize the need to reduce the potential for landscape level, stand-replacing fire in mixed conifer forests that the owl occupies. Implementation of these components will improve forest condition and sustainability and reduce the risk of high severity fire and the loss of owl habitat.

3. While some short-term adverse effects or consequences may occur as part of implementing the management direction within the revised LMP, the components will help to minimize them and over the long-term, the sustainability and resiliency of owls will be improved.

**INCIDENTAL TAKE STATEMENT**

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined (50 CFR § 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Harass" is defined (50 CFR § 17.3) as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary and must be undertaken by the Forest so that they become binding conditions of any grant or permit issued to an applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The Forest has a continuing duty to regulate the activity covered by this incidental take statement. If the Forest (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Forest must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

Programmatic Consultations

The proposed action described above is a "framework programmatic action" as defined in 50 CFR 402.02. In accordance with 50 CFR 402.14(i)(6), an incidental take statement is not required at the programmatic level for a framework that does not authorize future actions; incidental take resulting from any action subsequently authorized, funded, or carried out under the program will be addressed in subsequent section 7 consultation, as appropriate. This biological opinion provides a broad-scale examination of the proposed action's potential impacts on Mexican spotted owl, but we lack reasonable certainty of where, when, and how much incidental take may occur. Therefore, we have not quantified the amount and extent of incidental take that may result from the proposed action and have not exempted such take in this biological opinion.

## CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as the Service suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibility. In order for the Service to be kept informed of activities that either minimize or avoid adverse effects or that benefit listed species or their habitats, the Service requests notification of the implementation of the conservation recommendations. These recommendations include:

Mexican spotted owl

1. We recommend the Forest to continue working with the Service to implement actions to protect PACs from high-severity fire and improve the resiliency of fire-adapted forested habitats.
2. We recommend the Forest to continue working with the Service to conduct owl surveys over the next several years to attempt to determine how owls modify their territories in response to fuels treatments, forest restoration, and wildland fire. This information will aid in understanding the short- and long-term impacts of these actions on the owl, and their subsequent effect on the status of the species.
3. We recommend the Forest to continue working with the Service to design forest restoration treatments across the Forest that protect existing nest/roost replacement habitat from high severity, stand-replacing fire and enhance existing or potential habitat to aid in sustaining owl habitat across the landscape. Owl PACs can be afforded substantial protection from wildland fire by emphasizing fuels reduction and forest restoration in surrounding areas outside of PACs and nest/roost replacement recovery habitat.

### Disposition of Dead of Injured Listed Species

Upon locating a dead, injured, or sick listed species, initial notification must be made to the Service's Law Enforcement Office, 4901 Paseo del Norte NE, Suite D, Albuquerque, NM 87113, 505-248-7889, within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to the New Mexico Ecological Services Field Office (see contact information on Biological Opinion cover letter). Care must be taken in handling sick or injured animals to ensure effective treatment and care and in handling dead specimens to preserve the biological material in the best possible state.

## REINITIATION NOTICE

This concludes formal consultation on the effects of the U.S. Forest Service’s Carson National Forest Land Management Plan Revision. As provided in 50 CFR §402.16, reinitiation of formal

consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded (applicable to future tiered consultations); (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending consultation with the Service.

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# APPENDIX A

## CONCURRENCE FOR CONSULTATION #02ENNM00-2019-F-0621

The Carson National Forest (Forest) made an effects determination for the proposed action of "*may affect, is not likely to adversely affect*" for the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) and threatened Canada lynx (*Lynx canadensis*). The Forest also made an effects determination for the proposed action of "*may affect, is not likely to adversely affect"* for Mexican spotted owl and southwestern willow flycatcher designated critical habitat. There is no proposed or designated critical habitat on the Forest for Canada lynx.

For these species, please contact the U.S. Fish and Wildlife Service (Service) if: 1) new information reveals effects of the action that may affect these species or their critical habitat in any way not considered in this analysis, or 2) the action is modified in a manner that causes an effect to these species or their critical habitat not considered in this analysis.

We agree with the Forest's "*may affect, is not likely to adversely affect"* determinations and provide our rationales below.

**Mexican spotted owl critical habitat**

The Mexican spotted owl (*Strix occidentalis lucida*) was listed as threatened under the Endangered Species Act in 1993 (USFWS 1993). Critical habitat was designated for the spotted owl in 2004 (USFWS 2004). A Recovery Plan for the Mexican spotted owl was finalized in 1995 (USFWS 1995a). and was revised in 2012 (USFWS 2012). The USFWS concurs with your determination that the proposed action "*may affect, but is not likely to adversely affect*" Mexican spotted owl critical habitat. Our concurrence is based on the following reasons:

- The environmental baseline for the owl and its forested critical habitat within the action area of the Forest has not changed appreciably since 2005.
- The proposed plan will provide protection and conservation for the owl over the life of the plan and provide 7(a)(1) conservation actions by ameliorating threats to the owl.
- Primary constituent elements (PCEs) of the critical habitat would not be adversely affected from activities under the Insects and Disease, Forested Vegetation Types, Water Resources (includes riparian), Wildlife, Fish, and Plants, Wildland Fire Management, Sustainable Forestry and Products, Traditional Communities and Uses, Recreation, Infrastructure, Management Areas, and Designated Areas components of the plan.
- The Forest has monitored the owl annually during breeding season since 2014 and will continue to annually monitor occupancy of the critical habitat.
- Primary Activity Centers (PACs) will be monitored annually for occupancy.
- Owl surveys and monitoring will be conducted in advance of project implementation within suitable habitat across the Forest.
- Based on the information included in the BA (USFS 2020) for all the sections of the LMP (USFS 2021), there is a low potential for consequences to Mexican spotted owl critical habitat based on Forest management activities referenced throughout the sections.

- Potentially beneficial LMP components to the critical habitat can be primarily found throughout the sections of the plan. Specific components under the Vegetation Management (FW- VEG-DC-1-4,12; FW-VEG-MWC-DC-6, FW-VEG-MCD-DC-6; FW-OBJ-VEG 1, FW-STD-VEG 1-4), Watersheds and Waters Resource Features (FW-WSW-DC-1-2; FW-WSW-RMZ-DC-9; FW-WSW-RMZ-STM-DC-2, 5), Soils (FW-SL-DC-1-3), Wildlife, Fish, and Plants (FW-WFP-DC 1-4, 7; FW-VEG-G 1-3, FW-WFP G 1-3), Nonnative Invasive Species (FW-WFP-G-3), and Wildland Fire Management (FW-FIRE-DC-1, 2; FW-VEG-MCD-O-2; FW FIRE-S 5; FW-FIRE-G-1, 2, 5, 8, 9), sections are referenced in the BA. Additional LMP components which balance multiple use with species needs are referenced in the BA for the Sustainable Rangelands and Livestock Grazing (FW-GRZ-DC-4, 5; FW-GRZ-S-1; FW-GRZ-G-1,2,6,7), Sustainable Forestry and Forest Products (FW-FFP-DC-1, 3-5), Traditional Communities and Uses (FW-FFP-DC-3, FW-RHC-G-1), Recreation (FW-REC-DC-3, 5; FW-WFP-DC-7; FW-TFA-DC-4, FW-TFA-O-1, FW-REC-G-1, 5; FW-TFA-G-6; FW-REC-S-1, 2; FW-TFA-S-1, 2), Transportation and Forest Access (FW-TFA-O1, FW-TFA-G-6), Special Uses (FW-SU-G-1,5), and Minerals and Mining (FW-WFP-G-1-3) sections. A number of management area components (MA-RWMA-DC-2, 3; MA-VVMA-DC-1–5, MA-SAMA-DC-1–3; MA-JICMA-DC-1–2; DA-WILD-DC-1–3, DA-IRA-DC-1, 2; MA-RWMA-S-1, 4; MA-VVMA-S-5; MA-SAMA-S-1; MA-JICMA-S-10; DA-WILD-S-1, 2; MA-RWMA-G-2) may also provide benefits.

**Southwestern willow flycatcher and critical habitat**

The southwestern willow flycatcher (*Empidonax traillii extimus*) (flycatcher) was listed as endangered, without critical habitat on February 27, 1995 (USFWS 1995b). Critical habitat was designated on July 22, 1997 (USFWS 1997). A final recovery plan for the willow flycatcher was completed in August 2002 (USFWS 2002).

The Service concurs with your determination that the proposed action "*may affect, but is not likely to adversely affect*" southwestern willow flycatcher and its critical habitat. Our concurrence is based on the following reasons:

- The Rio Grande del Rancho critical habitat unit contains minimal trails and does not have a large enough waterway for watercrafts. No actions are proposed to increase fishing or other recreational activities within this critical habitat unit.
- There is no grazing within the Rio Grande del Rancho critical habitat unit.
- The Forest will continue to annually monitor the occupancy of the critical habitat along the Rio Grande del Rancho.
- Flycatcher surveys and monitoring will be conducted in advance of project implementation within suitable habitat across the Forest.
- The proposed plan will provide protection and conservation for the flycatcher over the life of the plan and provide 7(a)(1) conservation actions by ameliorating threats to the flycatcher.
- The Forest will continue to improve the riparian condition at Stewart Meadows wetland area on the Tres Piedras RD and Lower El Rito Creek on the El Rito RD to improve the

sites as a future flycatcher nesting habitat. Stewart Meadows is excluded from livestock grazing, while Lower El Rito Creek is seasonally excluded from grazing. Based on the information included in the BA (USFS 2020) for all the sections of the LMP (USFS 2021), there is a low potential for consequences to flycatcher critical habitat based on Forest management activities referenced throughout the sections.

- Potentially beneficial LMP components to the species and critical habitat can be found throughout the sections of the plan. Specific components under the Vegetation (FW-DC-VEG 1-4, FW-VEG-G-1–3, FW-VEG-MCD-O-1, FW-VEG-PPF-O-1), Forest Products (FW-FFP-S-1–2; FW-FFP-G-1–3), Watersheds and Waters Resource Features (FW-WSW-DC-1, 6–7, FW-WSW-G-4), Riparian Management Zones (FW-WSW-RMZ-G-1, FW-WSW-RMZ-G-2, FW-WSW-RMZ-WR-DC-3, FW-WSW-RMZ-FSR-DC-1-5, WSW-RMZ-DC-1–4; FW-WSW-RMZ-STM-DC-1, 4–5, 8; FW-WSW-RMZ-WB-DC-3; FW-WSW-RMZ-WR-DC-1–3, FW-WSW-RMZ-FSR-DC-1–13, FW-WSW-DC-1–5, FW-WSW-RMZ-DC-1–4, FW-WSW-RMZ-STM-DC-1, 4–5, 8, FW-WSW-RMZ-WB-DC-3, FW-WSW-RMZ-WR-DC-1–3, FW-WSW-RMZ-FSR-DC-1–13, and FW-WSW-RMZ-FSR-G-1, FW-WSW-DC-4–5, FW-WSW-RMZ-DC-5, FW-WSW-RMZ-STM-DC-2–4, FW-WSW-RMZ-O-1, FW-WSW-RMZ-STM-O-1–2, FW-WSW-RMZ-G-2-3; FW-WSW-RMZ-G-4, FW-WSW-RMZ-WR-S-1-3; FW-WSW-RMZ-FSR-G-1, FW-WSW-G-1), Soils (FW-SL-G-1–3), Wildlife, Fish and Plants (FW-WFP-DC-1–3, 6-10; FW-WFP-G-1, FW-WFP-G-5,6), Nonnative Invasive Species (FW-NIS-DC-1, FW-NIS-S-1, FW-NIS-G-1-7), and the Wildland Fire Management (FW-FIRE-DC-1–2, 4, FW-FIRE-S-2, FW-FIRE-G-1, 4; FW-FIRE-G-8-9, FW-VEG-MCD-O-2, FW-VEG-PPF-O-2) sections are referenced in the BA. Additional plan components which balance multiple use with species needs are referenced in the BA for the effects of Rangelands and Livestock Grazing (FW-GRZ-DC-4–6, FW-GRZ-S-1; FW-GRZ-G-1–3), , Recreation (FW-REC-G-1, 3; FW-REC-S-1–2), Transportation and Forest Access (FW-TFA-G-1–4, 5–9), and Minerals and Mining (FW-MM-DC-1, FW-MM-S-3, FW-MM-G-1) sections. A number of Management Area, Eligible Wild and Scenic River, Wild and Scenic River and Designated Area components (MA-RWMA-DC-2, 3; MA-RWMA-S-1,4; MA-RWMA-G-2; MA-VVMA-DC-1–5, MA-SAMA-DC-1–3; MA-VVMA-S-5; MA-SAMA-S-1; FW-EWSR-DC-1, FW-EWSR-S-1–8, FW-EWSR-G-1; FW-WSR-DC-1, FW-WSR-S-1–3; DA-WILD-DC-1-3, DA-WILD-S-1-2) may also provide benefits.

**Canada lynx**

On March 24, 2000, the U.S. Fish and Wildlife Service published the final rule listing the contiguous United States distinct population segment of Canada lynx as a threatened species (65 FR 16052); however, the Canada lynx is currently being considered for delisting due to recovery as of January 2018 (USFWS 2018). Critical habitat has not been designated on the Forest (USFWS 2014)

The Service concurs with your determination that the proposed action "*may affect, but is not likely to adversely affect*" the Canada lynx. Our concurrence is based on the following reasons:

- There has been no records of breeding or denning on the Forest but it has been documented that occasionally an individual lynx may roam out of Colorado onto the

Carson. The proposed plan has components for resource areas that provide protection and conservation for listed species over the life of the plan and helps provide the 7(a)(1) conservation actions for the lynx by ameliorating threats to the species and by meeting recovery plan objectives to protect and improve habitat for the species. Desired conditions provide the basis for most of the 7(a)(1) conservation actions.

- Based on the information included in the BA (USFS 2020) for all the sections of the LMP (USFS 2021), there is a low potential for consequences to the lynx based on Forest management activities referenced throughout the sections.
- Potentially beneficial LMP components to the species can be found throughout the sections of the plan. Specific components under the Vegetation (FW-VEG-SFF-DC-8-10, 15-16; FW-VEG-DC-1-4; FW-VEG-SFF-DC-4, 13, 15; FW-VEG-SFF-DC-1-4; FW-VEG-SFF-DC 2, 3, 9; FW-VEG-G-1-4; FW-VEG-ASP-G 1), Watersheds and Water (FW-WSW-DC-1–2; FW-WSW-O-1; FW-WSW-RMZ-DC-9; FW-WSW-RMZ-STM-DC-2 and 5; FW-WSW-RMZ-O-1, FW-WSW-RMZ-G-1-2), Soil (FW-SL-G-1–3), and Wildlife, Fish and Plants (FW-WFP-DC 1-4, 7; FW-WFP-O-1, 4; FW-WFP-G-1-3) Wildland Fire Management (FW-FIRE-S-5; FW-FIRE-G-1, 2, 5, 8, 9), Sustainable Rangelands and Livestock Grazing (FW-GRZ-DC-4, 5, 6; FW-GRZ-S-1), Sustainable Forestry and Forest Products (FW-FFP-DC-1, 3–5; FW-FFP-S-1, 2, 5; FW-FFP-G-1; FW-WSW-RMZ-FSR-G-2,3) and Transportation and Forest Access (FW-TFA-G-6; FW TFA-O-1) sections are referenced in the BA. Additional plan components which balance multiple use with species needs are referenced in the BA for the Special Uses (FW SU-G-1, 5), and Recreation (FW-WFP-DC-7; FW-REC-S-1, 2; FW-REC-G-1, 3; FW-TFA-S-2; FW-TFA-G-1–4, 8–9) sections. A number of management areas components (MA-RWMA-DC-2, 3; MA-RWMA-S-1; MA-RWMA-G-2; MA-VVMA-DC-1-5; MA-SAMA-DC-1-3; MA-VVMA-S-5; MA-SAMA-S-1; DA-WILD-DC-1-3; DA-WILD-S-1, 2; DA-IRA-DC-1, 2) may also provide benefits.

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# APPENDIX B

U.S. Forest Service Carson National Forest Land Management Plan Components specifically referenced from Biological Assessment (USFS 2020) and referred in U.S. Fish and Wildlife Service Biological Opinion Consultation #02ENNM00-2020-F-0621.

Components code abbreviations include:

| Acronym | Resource | Acronym | Resource |
|---|---|---|---|
| AIR | Air Resources | NTRL | National Scenic, Historic, and Recreational Trails |
| ALP | Alpine and Tundra | O | Objective |
| ASP | Aspen | PART | Partnerships |
| BOT | Botanical Areas | PJO | Piñon-Juniper Woodland |
| BP | Bristlecone Pine | PJS | Piñon-Juniper Sagebrush |
| CAM | Caves and Abandoned Mines | PPF | Ponderosa Pine Forest |
| CDNST | Continental Divide National Scenic Trail | REC | Recreation |
| CR | Cultural Resources | RHC | Rural Historic Communities |
| CRF | Cliffs and Rocky Features | RMZ | Riparian Management Zones |
| DA | Designated Areas | RWMA | Recommended Wilderness Management Area |
| DC | Desired Condition | S | Standard |
| DEVRES | Developed Winter and Summer Resorts | SAGE | Sagebrush |
| EWSR | Eligible Wild and Scenic Rivers | SAMA | San Antonio Management Area |
| FAC | Facilities Infrastructure | SCEN | Scenery |
| FFP | Forestry and Forest Products | SFF | Spruce-Fir Forest |
| FIRE | Wildland Fire Management | SL | Soil Resources |
| FRT | Federally Recognized Tribes | SNS | Springs and Seeps |
| FSSR | Forest, Shrub, and Scrub Riparian | STM | Streams |
| FW | Forestwide | SU | Special Uses |

| Acronym | Resource | Acronym | Resource |
|---|---|---|---|
| G | Guideline | TFA | Transportation and Forest Access |
| GMMA | Grassland Maintenance Management Area | VEG | Vegetation |
| GRZ | Livestock Grazing | VFSYU | Vallecitos Federal Sustained Yield Unit |
| IRA | Inventoried Roadless Area | VVMA | Valle Vidal Management Area |
| JICMA | Jicarilla Natural Gas Management Area | WB | Waterbodies |
| LAND | Lands | WFP | Wildlife, Fish, and Plants |
| MA | Management Area | WHT | Wild Horse Territories |
| MCD | Mixed Conifer, with Frequent Fire | WILD | Existing Wilderness |
| MCW | Mixed Conifer, with Aspen | WR | Wetland Riparian |
| MM | Minerals and Mining | WSW | Watersheds and Water |
| MSG | Montane Subalpine Grassland | WSR | Existing Wild and Scenic Rivers |
| NIS | Nonnative Invasive Species | ZOO | Zoological Areas |
| NSBW | National Scenic Byway | | |

| Component Code | Plan Component |
|---|---|
| FW-VEG-DC-1 | Ecosystems contain a mosaic of vegetation conditions, densities, and structures. This mosaic occurs at a variety of scales across landscapes and watersheds, reflecting the disturbance regimes that naturally affect the area. Natural ecosystem functions (energy flow, hydrologic and nutrient cycling) facilitate the shifting of plant communities, structure, and ages across the landscape over time. |

| Component Code | Plan Component |
|---|---|
| FW-VEG-DC-2 | Ecosystems are resilient or adaptive to the frequency, extent, and severity of disturbances (e.g., human impacts, fire in fire-adapted systems, flooding in riparian systems, insects, pathogens, and climate variability). Natural disturbance regimes, including fire, predominate where practical and are allowed to function in their natural ecological role. Wildfire maintains and enhances resources, including wildlife habitat for species associated with fire-adapted systems. Uncharacteristic wildland fire behavior is minimal or absent on the landscape. |
| FW-VEG-DC-5 | Ecological conditions affecting habitat quality, distribution, and abundance contribute to self-sustaining populations of native and desirable nonnative plants and animals that are healthy, well distributed, genetically diverse, and connected (on NFS lands and to adjacent public and privately conserved lands), enabling species to adapt to changing environmental and climatic conditions. Conditions provide for the life history, distribution, and natural population fluctuations of the species within the capability of the ecosystem. |
| FW-VEG-DC-14 | Habitats and refugia for rare, endemic, and culturally important species are intact, functioning, and sufficient for species persistence and recovery. |
| FW-VEG-DC-15 | Overall plant composition similarity to site potential; averages more than 66 percent but can vary considerably at fine-and mid-scales owing to a diversity of seral conditions. |
| FW-VEG-DC-20 | The structure and function of the vegetation and associated microclimate and special features (e.g., snags, logs, large trees, interlocking canopy, cliffs, cavities, talus slopes, bogs, fens, rock piles, specific soil types, and wet areas) exist in adequate quantities within the capability of the Carson, to provide habitat and refugia for at-risk species or species with restricted distributions. |
| FW-VEG-DC-21 | Ecological conditions, as described in these desired conditions, provide habitat to support, sustain, and recover rare, endemic, or at-risk species. |

| Component Code | Plan Component |
|---|---|
| FW-VEG-G-1 and FW-WFP-G-1 | Management activities and special uses occurring within federally listed species' habitat should integrate habitat management objectives and species protection measures from the most recent approved U.S. Fish and Wildlife Service recovery plan, to maintain the persistence or contribute to the recovery of that species. Deviation from recovery plans may occur through consultation with U.S. Fish and Wildlife Service personnel. |
| FW-VEG-G-2 and FW-WFP-G-2 | Where the Forest Service has entered into a signed conservation agreement that provides guidance on activities or actions to be carried out by the Carson National Forest personnel, those activities or actions should be undertaken consistent with the guidance found within the conservation agreement, to maintain the persistence or contribute to the recovery of federally listed species. |
| FW-VEG-ALP-DC-6 | Alpine ecosystems occupy harsh high-elevation sites, resulting in short stature and relatively slow growth for both shrubs and herbaceous species. Wetland communities are present in snow-loaded depressions and are dominated by plane leaf willow, snow willow, and artic willow. Alpine fellfields are free of snow in the winter and dominated by alpine clover, tufted hairgrass, and Bellardi bog sedge, to allow for the persistence of at-risk species. |
| FW-VEG-ALP-DC-7 | Key features (e.g., boulder fields and talus slopes) that are necessary for alpine-dependent plant and animal species (e.g., alpine larkspur, marmots, pika, and bighorn sheep) are well distributed and not uncharacteristically disturbed, commensurate with the capacity of the vegetation community. |
| FW-VEG-ALP-DC-8 | The alpine and tundra vegetation community continues to be resilient to natural and human-caused impacts. |
| FW-VEG-ALP-G-1 | Trail construction and maintenance in the alpine and tundra vegetation community should minimize disturbance to at-risk plants and to important key habitat features (e.g., rock outcrops, willows, and talus slopes) for at-risk species and other alpine-dependent species (e.g., yellow-bellied marmot and American pika), to maintain the persistence of native species. |

| Component Code | Plan Component |
|---|---|
| FW-VEG-ALP-G-2 | To assist breeding and nesting success of at-risk species, adaptive seasonal use or percent utilizations for livestock grazing should be considered and based on the best available information, as well as on site-specific factors (e.g., topography and available habitat). |
| FW-VEG-MCD-DC-1 and 2 | The dry mixed conifer forest is a mosaic of forest conditions composed of structural stages ranging from young to old trees. Forest appearance is variable but generally uneven-aged and open with occasional patches of even-aged structure. The forest arrangement is in small clumps and groups of trees interspersed within variably sized openings of grass/forb/shrub vegetation associations. Size, shape, number of trees per group, and number of groups per area vary across the landscape. Groups of aspen and oak in all structural stages are present. Higher tree densities exist in some locations such as north-facing slopes and canyon bottoms. Seral-stage proportions are applied at the landscape scale. |
| FW-VEG-MCD-DC-4 | Old growth occurs throughout the landscape, typically in small areas as individual old-growth components or as clumps of old growth. Old-growth components include old trees, dead trees (snags), downed wood (coarse woody material), and structural diversity. The location of old growth shifts on the landscape over time as a result of succession and disturbance (tree growth and mortality). |
| FW-VEG-MCD-DC-5 | The dry mixed conifer forest is composed predominantly of vigorous trees. Declining trees provide for snags, top-killed, lightning-and fire-scarred trees, and coarse woody material, all well distributed throughout the landscape. |
| FW-VEG-MCD-DC-6,<br><br>FW-VEG-PPF-DC-7 | Dwarf mistletoe occurrences may be present on ponderosa pine and Douglas-fir, but rarely in other tree species. Dwarf mistletoe occurs in less than 15 percent of host trees in uneven-aged forest structures and less than 25 percent in even-aged forest structures. Infection size, severity, and amount of mortality varies among infected trees. Witches' brooms may be scattered throughout the infections, providing structural diversity in the stand and improved foraging and nesting habitat for wildlife species, such as small mammals (e.g., tree squirrels) and raptors (e.g., goshawks). |

| Component Code | Plan Component |
|---|---|
| FW-VEG-MCD-DC-8 | At the mid-scale, appearance is variable, but generally uneven-aged and open. Openness typically ranges from 50 percent in more productive sites to 90 percent in less productive sites. Depending on past disturbance events and subsequent regeneration establishment small patches (generally less than 60 acres) of even-aged forest structure are occasionally present. A small percentage of the landscape may be predisposed to larger even-aged patches, based on physical site conditions that favor mixed-severity and stand-replacement fire and other disturbances. Disturbances sustain the overall variation in age and structural distribution. |
| FW-VEG-MCD-DC-11 | Snags are typically 18 inches or greater in diameter at breast height and average 3 per acre. Smaller snags, 8 inches and above in diameter at breast height, average 8 snags per acre. Downed logs (greater than 12-inch diameter at mid-point, greater than 8 feet long) average 3 per acre within forested areas. Coarse woody material, including downed logs, ranges from 5 to 15 tons per acre. |
| FW-VEG-MCD-DC-12 | In certain places basal area is 10 to 20 percent higher than in the general forest. Examples include mid-to old-age tree groups in goshawk post-fledging family areas, north-facing slopes, and canyon bottoms. Goshawk nest areas have forest conditions that are multi-aged but are dominated by large trees with relatively denser canopies than other areas in the dry mixed conifer type. |
| FW-VEG-MCD-DC-15 | The wildland-urban interface comprises smaller and more widely spaced groups of trees and lower numbers of snags and coarse woody debris than surrounding general forest. Crown base heights may be higher than in areas outside the wildland-urban interface. Within the wildland-urban interface, fires burn primarily on the forest floor and rarely spread as crown fire. |
| FW-VEG-MCD-DC-16 | Tree groups are typically less than 1 acre and consist of 2 to 50 trees per group, but are sometimes larger, such as on north-facing slopes. Regeneration openings occur as a mosaic and are similar in size to nearby groups. |
| FW-VEG-MCD-DC-17 | Interspaces between groups are variably shaped, comprised of a native grass-forb-shrub mix and may contain individual trees or snags. |

| Component Code | Plan Component |
|---|---|
| FW-VEG-MCD-DC-18 | Trees typically occur in irregularly shaped groups and are variably spaced with some tight clumps. Trees within groups are of similar or variable ages, often containing more than one species. Crowns of trees within mid-aged and old groups are interlocking or nearly interlocking. |
| FW-VEG-MCD-O-1 | Mechanically treat at least 5,500 to 10,000 acres, during each 10-year period following plan approval. |
| FW-VEG-MCD-O-2 | During each 10-year period following plan approval, treat at least 20,000 to 40,000 acres using a combination of prescribed fire and naturally ignited wildfire to make progress toward or to maintain desired conditions. |
| FW-VEG-MCW-DC-2 | The mixed conifer with aspen vegetation community comprises variable species of differing ages in a mosaic of seral stages and structures. Its arrangement on the landscape is similar to historic patterns, with groups and patches of variably sized and aged trees and other vegetation. A range of seral states, each characterized by distinct dominant species composition and biophysical conditions, are distributed across the landscape, such that each state adequately supplies the subsequent states progressively through time. Canopies in older seral stages are generally more closed than in dry mixed conifer. |
| FW-VEG-MCW-DC-4 | Old growth generally occurs over large areas and includes old trees, snags, coarse woody material, and structural diversity. The location of old growth shifts on the landscape over time as a result of succession and disturbance (tree growth and mortality). |

| Component Code | Plan Component |
|---|---|
| FW-VEG-MCW-DC-5 | The wet mixed conifer forest is composed predominantly of vigorous trees; older, declining trees provide snags and coarse woody material. Generally, there are an average of 20 snags greater than 8 inches in diameter per acre and 1 to 5 of those snags are 18 inches or greater in diameter. Lower snag densities are associated with early seral stages and higher densities are associated with late seral stages. Coarse woody debris, including downed logs, ranges from 5 to 20 tons per acre for early-seral stages; 20 to 40 tons per acre for mid-seral stages; and 35 tons per acre or greater for late-seral stages. |
| FW-VEG-MCW-DC-6 | Dwarf mistletoe occurrences may be present in stands with a Douglas-fir or spruce component, but rarely in other tree species. Occurrence size, severity, and amount of mortality varies among infected stands. Witches' brooms may be scattered throughout the infection, providing structural diversity in the stand and improved foraging and nesting habitat for wildlife species, such as small mammals (e.g., tree squirrels) and raptors (e.g., goshawks and red-tailed hawks). |
| FW-VEG-MCW-DC-8 | The size and number of groups and patches vary depending on disturbance, elevation, soil type, aspect, and site productivity. Groups and patches of tens of acres or less are relatively common. A mosaic of groups and patches of trees are present, primarily even-aged groups and patches that are variable in size, age, and species composition. Openness and prevalence of some species, such as aspen, is dependent on seral stage. Grass, forb, and shrub openings created by disturbance may compose 10 to 100 percent of the mid-scale area, depending on disturbance history. Aspen is occasionally present in large patches. |
| FW-VEG-MCW-DC-9 | Basal area varies from 20 to 180 plus square foot per acre, depending on site productivity, disturbance history, and seral stage. |

| Component Code | Plan Component |
|---|---|
| FW-VEG-MCW-DC-10 | Forest conditions in some areas contain 10 to 20 percent higher basal area in mid-aged to old tree groups than in the general forest (for example, goshawk post-fledging family areas, Mexican spotted owl nesting and roosting habitats, and north-facing slopes). Interspaces with native grass, forb, and shrub vegetation typically range from 10 to 50 percent of the area. Goshawk nest areas have forest conditions that are multi-aged but dominated by large trees with relatively denser canopies than other areas in the wet mixed conifer type. |
| FW-VEG-MCW-DC-12 | Fire behavior is often characterized by smoldering low-intensity surface fire, with single tree and isolated group torching. Due to the presence of ladder fuels when environmental conditions align fires transition rapidly into the canopy as passive or active crown fire behavior with conifer tree mortality up to 100 percent across mid-scale patches (10 to 1,000 acres). High-severity fires generally do not result in areas of mortality exceeding 1,000 acres. Other more frequent disturbances affect smaller areas. |
| FW-VEG-MCW-DC-14 | The wildland-urban interface is dominated by early-seral fire-adapted species growing in a more open condition than in the surrounding general forest. These conditions result in fires that burn primarily on the forest floor and rarely spread as crown fire. |
| FW-VEG-MCW-DC-15 | In mid-aged and older forests, trees are typically variably spaced with crowns interlocking (grouped and clumped trees) or nearly interlocking, occasionally with some single trees spaced apart from clumps. Trees within groups can be of similar or variable species and ages. Disturbances create small openings of varying size. |
| FW-VEG-MSG-DC-3 | Herbaceous vegetation cover (herbaceous cover, decaying debris, and leaf litter) is maintained at levels that contribute to suitable hydrologic function, soil stability, and nutrient cycling, while providing food and cover for at-risk species and other wildlife species. A diversity of native grass and forb species and adequate plant litter reduce soil compaction and erosion. |

| Component Code | Plan Component |
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| FW-VEG-MSG-DC-4 | Soil function is sustained. Soils are permeable and capable of infiltrating water to reduce overland flows during precipitation events and allow for burrowing by small mammals (e.g., Gunnison's prairie dog, ground squirrels, and masked shrew). Adequate water infiltration discourages arroyos, gullies, and head cuts from forming in drainages. Existing arroyos and gullies are stabilizing and recovering. |
| FW-VEG-MSG-DC-9 | Depending on soil type, bare soil is no more than 30 percent by area and is most often less than 10 percent. Basal vegetation varies between 30 and 75 percent groundcover. Organic litter varies between 15 and 50 percent cover. Vegetation composition averages 40 to 60 percent grass, and 10 to 30 percent forbs. |
| FW-VEG-MSG-DC-10 | Vegetation conditions provide hiding, nesting, and thermal cover in contiguous blocks for wildlife, including small mammals and songbird nesting. Soil condition, as defined by basic soil functions (e.g., stability, soil hydrology, and nutrient cycling), has the capacity to support the diversity of associated species (e.g., western burrowing owl, prairie dog, and masked shrew). |
| FW-VEG-PJO-DC-2 and 5 | Pinyon-juniper woodland (persistent) is characterized by even-aged patches of pinyons and junipers that form multi-aged woodlands at the landscape level. The composition, structure, and function of vegetative conditions are resilient to the frequency, extent and severity of disturbances (for example, insects, diseases, and fire), and climate variability. Insects and disease occur at endemic levels. Fire as a disturbance is less frequent and variable due to differences in ground cover, though some sites are capable of carrying surface fire. The fires that do occur are mixed to high severity (fire regime groups III, IV, V). Seral stage proportions are applied at the landscape scale, where low overall departure from reference proportions is a positive indicator of ecosystem condition. |

| Component Code | Plan Component |
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| FW-VEG-PPF-DC-2 | The ponderosa pine forest vegetation community comprises trees of varying ages in a mosaic of seral stages and structures. Its arrangement on the landscape is similar to historic patterns, with groups and patches of variably sized and -aged trees. Forest appearance is generally uneven-aged and open; occasional areas of even-aged structure may be present. Denser stand conditions exist in some locations, such as north-facing slopes and canyon bottoms. |
| FW-VEG-PPF-DC-5 | Old growth structure (large, old ponderosa pine trees with reddish-yellow, wide platy bark; flattened tops; moderate to full crowns; and large drooping or gnarled limbs) occurs throughout the landscape, generally in small areas as individual old growth components or as clumps of old growth. Old growth is generally intermixed with groups of uneven-aged trees; may occasionally occur in larger even-aged patches. |
| FW-VEG-PPF-DC-6 | Vigorous trees dominate, but older, declining, top-killed, lightning-scarred, and fire-scarred trees are a component that provide for snags and coarse woody debris that are irregularly distributed across the landscape and may not exist in some patches. |
| FW-VEG-PPF-DC-8 | The mosaic of tree groups generally comprises an uneven-aged forest with all age classes present. Occasionally, patches of even-aged forest structure are present, based upon disturbance events and regeneration establishment. A small percentage of the landscape may be predisposed to larger even-aged patches, based on physical site conditions that favor mixed-severity and stand-replacement fire and other disturbances. Disturbances sustain the overall age and structural distribution. |

| Component Code | Plan Component |
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| FW-VEG-PPF-DC-9, 12, 13 | The ponderosa pine forest vegetation type is characterized by variation in the size and number of tree groups depending on elevation, soil type, aspect, and site productivity. The more biologically productive sites contain more trees per group and more groups per area, resulting in less space between groups. Openness typically ranges from 52 percent in more productive sites to 90 percent in less productive sites. In areas with high fine-scale aggregation of trees into groups, mid-scale openness ranges between 78 to 90 percent. Tree density within forested areas generally ranges from 22 to 89 square foot basal area per acre. Ground cover consists primarily of perennial grasses and forbs capable of carrying surface fire, with basal vegetation values ranging between about 5 and 20 percent. |
| FW-VEG-PPF-DC-10 | Ponderosa pine snags are typically 18 inches or greater in diameter at breast height and average 1 to 2 snags per acre. Downed logs (greater than 12 inches in diameter at mid-point, greater than 8 feet long) average 3 logs per acre within the forested area of the landscape. Coarse woody material, including downed logs, ranges from 3 to 10 tons per acre. |
| FW-VEG-PPF-DC-11 | Where the potential exists, Gambel oak thickets with various diameter stems and low-growing, shrubby oak are present. These thickets provide forage, cover, and nesting habitat for species (e.g., small mammals, birds, deer, and elk). Gambel oak mast (acorns) provides food for wildlife species (e.g., black bear). The distribution and abundance of oak balances wildfire hazard fuels reduction and tree regeneration with wildlife habitat, grazing conditions, age class diversity, and soil condition. |
| FW-VEG-PPF-DC-13 | Forest conditions in some areas contain 10 to 20 percent higher basal area in mid-aged to old tree groups than in the general forest (for example, goshawk post-fledging family areas, Mexican spotted owl nesting and roosting habitats, drainages, and steep north-facing slopes). Goshawk nest areas have forest conditions that are multi-aged but dominated by large trees with relatively denser canopies than other areas in the ponderosa pine type. |

| Component Code | Plan Component |
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| FW-VEG-PPF-DC-14,<br><br>FW-VEG-PJO-DC-12,<br><br>FW-VEG-PJS-DC-12 | In the wildland-urban interface, the density of snags, downed logs, coarse woody debris, live trees, and Gambel oak may be at the low range of desired conditions, to reduce fire intensity and assist the control of fire. Groups of trees may be smaller, more widely spaced, or may have fewer trees per group (but still within desired condition) compared to areas outside the wildland-urban interface. Crown base heights may be higher than in areas outside the wildland-urban interface to reduce the potential for fire spreading to the tree canopy. |
| FW-VEG-PPF-DC-15-16 | Trees typically occur in irregularly shaped groups and are variably spaced with some tight clumps. Crowns of trees within the mid-to old-age groups are interlocking or nearly interlocking. Interspaces surrounding tree groups are variably shaped and comprised of a grass/forb/shrub mix. Some natural openings contain individual trees. Trees within groups are of similar or variable ages and may contain species other than ponderosa pine. Size of tree groups typically is less than 1 acre but averages 0.5 acres. Groups at the mid-to old-age stages consist of 2 to approximately 40 trees per group. |
| FW-VEG-PPF-G-1 | Vegetation treatments should be designed such that structural stages and age classes are proportionally represented to assure continuous recruitment of old growth characteristics at the appropriate scale over time. |
| FW-VEG-PPF-O-1 | Mechanically treat at least 22,000 to 50,000 acres, during each 10-year period following plan approval. |
| FW-VEG-PPF-O-2 | During each 10-year period following plan approval, treat at least 80,000 to 125,000 acres using a combination of prescribed fire and naturally ignited wildfire to make progress toward or maintain desired conditions. |
| FW-VEG-SAGE-DC-2 | The composition, structure, and function of biotic and abiotic components of the sagebrush vegetation community are within or moving toward reference conditions. The majority of sagebrush is in mid-seral or mature states. |

| Component Code | Plan Component |
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| FW-VEG-SAGE-DC-3 | Shrub cover and the distribution of large contiguous shrub patches meet the needs of a variety of sagebrush-obligate wildlife species, as described in these desired conditions. |
| FW-VEG-SFF-DC-2 | Spruce-fir forest vegetation community comprises multiple species of varying ages in a mosaic of seral stages and structures. Its arrangement on the landscape is similar to historic patterns, with groups and patches of variably sized and aged trees and other vegetation. Tree canopies are generally more closed than in mixed conifer forests. |
| FW-VEG-SFF-DC-3 | Old growth generally occurs over large areas and includes old trees, snags, coarse woody material, and structural diversity. The location of old growth shifts on the landscape over time as a result of succession and disturbance (tree growth and mortality). |
| FW-VEG-SFF-DC-4 | The spruce-fir community is composed predominantly of vigorous trees dominate, but older declining, top-killed, lightning-scarred, and fire-scarred trees are a component that provide for snags and coarse woody debris and are well-distributed throughout the landscape. Generally, there are 13 to 30 snags greater than 8 inches in diameter per acre and 1 to 3 of those snags are 18 inches or greater in diameter. Lower snag densities within those ranges are associated with early seral states and higher densities are associated with late seral states. Coarse woody debris ranges from 5 to 30 tons per acre for early-seral stages, 30 to 40 tons per acre for mid-seral stages, and 40 tons per acre or greater for late-seral stages |
| FW-VEG-SFF-DC-7 | In the lower-elevation type, mixed-severity fire (fire regime group III) occurs infrequently (150 to 400 years); in the upper-elevation type, high-severity fire (fire regime groups IV and V) occurs very infrequently (greater than 400 years). |
| FW-VEG-SFF-DC-8 | At the mid-scale, the distribution of groups and patches varies, depending on disturbance, elevation, soil type, aspect, and site productivity. Patches are primarily even-aged with variation in species composition and size but are mostly in the hundreds of acres. Disturbances of thousands of acres are rare. There may be frequent small disturbances resulting in groups and patches of tens of |

| Component Code | Plan Component |
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| | acres or less. Disturbance-created grass, forb, and shrub openings may compose up to 100 percent of the mid-scale area, depending on the local disturbance history. |
| FW-VEG-SFF-DC-9 | Basal area varies from 20 to 250 plus square feet per acre depending on site productivity, disturbance history, and seral stage. |
| FW-VEG-SFF-DC-12 | Mixed-severity (fire regime group III) and high-severity (fire regime groups IV and V) fires and other disturbances maintain desired overall tree density, structure, species composition, coarse woody material, nutrient cycling and satisfactory soil conditions. The understory consists of shrubs, perennial grasses, and forbs with plant basal cover ranging from about 5 to 20 percent depending on site conditions. |
| FW-VEG-SFF-DC-13 | Forest conditions in some areas contain at least 10 percent higher basal area than the general forest (for example, goshawk post-fledging family areas and north-facing slopes). Nest areas have forest conditions that are multi-aged but dominated by large trees with relatively denser canopies than other areas in the spruce-fir type. |
| FW-VEG-SFF-DC-14 | The wildland-urban interface has strategically located areas in a more open condition than occur in the surrounding general forest. Grass/forb/shrub vegetation and aspen may make up a much larger percentage of the wildland-urban interface than they do in the general forest. Structures in the wildland-urban interface are surrounded by grassy openings with very few to no trees, such that available fuels support surface fires. |
| FW-VEG-SFF-DC-15 | Mid-age to old trees grow tightly together with interlocking crowns. Trees are generally of the same height and age in early group or patch development but may be multilayered in late development. Gaps are present as a result of disturbances. |
| FW-SL-DC-1 | Soil productivity, function, and inherent physical, chemical, and biological processes remain intact or are enhanced. Soils can readily absorb, store, and transmit water vertically and horizontally; accept, hold, and release nutrients; and resist erosion. |

| Component Code | Plan Component |
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| FW-SL-DC-2 | Downed woody material occurs at levels (size, decay, and amount) sufficient to support soil productivity through nutrient cycling. |
| FW-SL-DC-4 | Relatively undisturbed biological soil crusts (i.e., soil consisting of cyanobacteria, lichens, mosses, microfungi, and algae) are present or reestablished where the potential exists. |
| FW-SL-G-2 | Soil compaction from all management activities should not affect ecological and hydrological functions. |
| FW-SL-G-3 | Masticated material should not exceed an average depth of 4 inches, to mitigate burn severity and protect soil function. |
| FW-SL-S-1 | Ground-disturbing management activities should be designed to minimize short-and long-term impacts to soil resources (e.g., soil compaction and soil loss). Where disturbance cannot be avoided, project-specific soil and water conservation practices should be developed. |
| FW-WSW-DC-1 | Watersheds are functioning properly or trending toward proper functioning condition and resilient in that they exhibit high geomorphic, hydrologic, and biotic integrity relative to their potential condition. |
| FW-WSW-DC-4 | Aquatic habitats are connected and free from alterations (such as temperature regime changes, lack of adequate streamflow, barriers to aquatic organism passage) to allow for species migration, connectivity of fragmented populations and genetic exchange. Barriers to movement are located where necessary to protect native fish from nonnative species or for agricultural benefit (e.g., headgates). |
| FW-WSW-DC-5 | Aquatic and riparian habitats support self-sustaining populations of native fish, as well as other aquatic and riparian species. Ecosystems provide the quantity and quality of aquatic and riparian habitat commensurate with reference conditions. |

| Component Code | Plan Component |
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| FW-WSW-DC-6 | Most watersheds support multiple uses (e.g., timber, cultural uses, traditional uses, human subsistence, recreation, and grazing) with no long-term decline in ecological conditions, although some watersheds are reserved to preserve ecological functions. |
| FW-WSW-DC-7 | Surface water and groundwater quality meet State water quality standards for designated uses. |
| FW-WSW-G-2 | New or rerouted roads should not be located within 300 feet of water resource features (except where necessary for stream crossings or to provide for resource protection), to avoid the long-term adverse impacts associated with the occupancy and modification of floodplains and water resource features. |
| FW-WSW-G-4 | New groundwater wells, particularly those in riparian management zones (e.g., along streams or around seeps, springs, lakes, and wetlands), should be located to minimize effects on the character and function of connected water resources. |
| FW-WSW-O-1 | Improve or maintain watershed function on at least 5,000 to 10,000 acres annually to include installing 35 to 100 erosion control treatments to stabilize headcuts, road drainage impacts, and other erosional features. Treatments align with priority watersheds or other community priorities. |
| FW-WSW-RMZ-DC-1 | Riparian ecosystems are not fragmented or constrained, and are properly functioning, commensurate with their type and capability, riparian ecosystems have vegetation, landform, large coarse woody debris, litter, and root masses to capture sediment, filter contaminants, dissipate stream energy and overland flow from uplands to protect and enrich soils and stabilize banks and shorelines. |
| FW-WSW-RMZ-DC-4 | Riparian vegetation (density and structure) provides site-appropriate shade to regulate water temperature in streams. |

| Component Code | Plan Component |
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| FW-WSW-RMZ-DC-9 | Commensurate with the capability of individual riparian types and consistent with the hydrologic cycle, riparian vegetation provides life-cycle habitat needs for native and desirable nonnative, obligate riparian, and aquatic species and supports other wildlife |
| FW-WSW-RMZ-G-1 | Riparian management zones should be defined by either a site-appropriate delineation of the riparian area or mapped wetlands and a minimum buffer of 100 feet from the edge of all perennial and intermittent streams, lakes, seeps, and springs and 15 feet from the edges of ephemeral channels. The exact width of riparian management zones may vary based on ecological or geomorphic factors or waterbody type but includes those areas that provide riparian and aquatic ecosystem functions and connectivity. |
| FW-WSW-RMZ-G-2 | Within riparian management zones, recreation activities; permitted uses; structural developments such as livestock water gaps, pipelines, or other infrastructure; and management activities should occur at levels or scales that move toward desired conditions for healthy water, soils, and vegetation while aligning with the most current regional riparian strategy. |
| FW-WSW-RMZ-O-1 | Restore structure and function of at least 200 to 300 acres of nonfunctioning and functioning-at-risk riparian areas annually. Treatments align with priority watersheds or other community priorities. |
| FW-WSW-RMZ-FSR-DC-1 | Desired seral stage proportions for forest and shrub riparian–cottonwood group at landscape scale: |
| FW-WSW-RMZ-FSR-DC-5 | Woody riparian species are reproducing and are structurally diverse with all age classes present at the landscape scale. Diverse vegetation structure, including mature trees, snags, logs, and coarse woody debris, is present to provide habitat for riparian-dependent species. |
| FW-WSW-RMZ-FSR-G-2 | Fuelwood cutting or wood removal should be managed to protect understory species, maintain tree density (including wildlife cover and stream shading), promote large woody material recruitment, and avoid channel down-cutting and accelerated erosion. |

| Component Code | Plan Component |
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| FW-WSW-RMZ-FSR-G-3 | Large mature cottonwood trees should be protected from management activities that could degrade the quality of suitable habitat for at-risk species. Projects occurring in these areas should incorporate restoration prescriptions, to ensure persistence of this habitat type. |
| FW-WSW-RMZ-SNS-6 | Seep and spring ecosystems are not fragmented by infrastructure or development, consistent with valid existing water rights. Springs are only developed or altered by human-made structures (e.g., head boxes, cisterns, and pipelines) consistent with valid water rights. |
| FW-WSW-RMZ-STM-DC-2 | Stream ecosystems, including ephemeral watercourses, provide connectivity that is important to at-risk species—for dispersal, access to new habitats, perpetuation of genetic diversity, seasonal movement, as well as nesting and foraging. |
| FW-WSW-RMZ-STM-DC-3 | Aquatic species are able to move throughout their historic habitat, including opportunities for seasonal and opportunistic movements. Barriers to movement only exist to protect native aquatic species from nonnative aquatic species or for agricultural benefit (e.g., headgates). |
| FW-WSW-RMZ-STM-DC-9 | Habitat conditions, as described in stream desired conditions, are capable of supporting self-sustaining native aquatic species populations. These habitat conditions include stream characteristics (i.e., riffles, runs, pools, and channel meandering) that allow for natural processes to occur (e.g., floodplain connectivity and organic matter and sediment transport). Quality aquatic habitat is provided by overhanging banks, woody and herbaceous overstory, and instream large woody debris, which regulate stream temperatures; maintain soil moisture; create structural and compositional diversity; and provide cover, food, and water for riparian species along streams. |
| FW-WSW-RMZ-STM-G-2 | Heavy equipment and vehicles used for instream restoration management activities should be free of petroleum-based fluid residue and leaks. |
| FW-WSW-RMZ-STM-G-3 | Streambeds should contain less than 20 percent fines (sand, silt, and clay) in fish spawning habitat. |

| Component Code | Plan Component |
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| FW-WSW-RMZ-STM-G-5 | In-stream authorized and other management activities that have the potential to directly deliver sediment to at-risk species core habitats should be limited to times outside of spawning and incubation seasons for those species, to protect spawning fish, eggs, and embryos. |
| FW-WSW-RMZ-STM-O-1 | Restore or enhance at least 100 to 150 miles of stream habitat, during each 10-year period following plan approval. |
| FW-WSW-RMZ-STM-S-1, FW-WSW-RMZ-WB-S-1, FW-WSW-RMZ-SNS-S-1 | Activities in and around waters should use decontamination procedures to prevent the spread of chytrid fungus, other pathogens, and nonnative species that are harmful to aquatic wildlife. |
| FW-WSW-RMZ-WR-DC-3 | Wetlands have groundcover and species composition (richness and diversity) indicative of site potential with vegetation comprised mostly of sedges, rushes, perennial grasses, and forbs. Meadows with the potential for hardwood shrubs contain a diversity of age classes (at least 2) along the banks of perennial stream. |
| FW-WSW-S-1 | For all management activities, applicable best management practices should be identified and implemented, to maintain water quality, water quantity, and timing of flows and to prevent or reduce accelerated erosion. |
| FW-CAM-DC-2 | Cave and abandoned mine features provide microclimate (temperature and humidity) and geological features for associated species (e.g., bats and snakes) that require specialized niches for roosting and overwintering. |
| FW-CAM-DC-3 | Archaeological, geological, and biological features of caves and abandoned mines are not disturbed by visitors. |
| FW-CAM-G-1 | Caves or abandoned mines that are to be closed should use the most currently recommended closure devices, to allow for the continued use of any species determined to be present in the cave or abandoned mine. |

| Component Code | Plan Component |
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| FW-CAM-G-2 | The most current Forest Service guidance or most recent decontamination procedures should be used in caves and abandoned mines to avoid spread of white-nose syndrome (*Pseudogymnoascus destructans fungus*). |
| FW-CAM-G-3 | Management activities (e.g., prescribed fire, thinning) within 100 feet of a cave or abandoned mine openings should not affect microclimate conditions by altering vegetation, hydrology, and sedimentation, except where necessary to protect associated natural resources or to protect health and safety. |
| FW-CRF-DC-1 | Geological and biological features (e.g., talus slopes and rocky outcrops) of cliffs and rocky features provide wildlife and plant habitat, as well as scenic diversity. |
| FW-CRF-DC-2 | Cliff ledges provide cover and nesting habitat for wildlife (e.g., raptors, snakes, bats, birds, bighorn sheep, and small mammals). |
| FW-CRF-G-1 | Management activities affecting rockslides and talus slopes should maintain habitat and unique components (e.g., denning spaces and substrate) for wildlife (e.g., bighorn sheep, small mammals, lizards, snakes, rare plants, and land snails), to maintain the persistence or contribute to the recovery of at-risk species, unless they are to maintain designated road or trail access or protect public safety. |
| FW-CRF-G-2 | Rock climbing and related recreation activities should not disrupt the life processes of cliff or rocky feature at-risk species (e.g., American peregrine falcon, spotted bat, and small-headed goldenweed), diminish the function of specialized vegetation (e.g., mosses, lichens, and small headed goldenweed), to maintain the persistence or contribute to the recovery of at-risk species. |
| FW-WFP-DC-1 | Sustainable populations of terrestrial and aquatic plant and animal species, including at-risk species, are supported by healthy ecosystems, as described by vegetation and watersheds and water desired conditions. |

| Component Code | Plan Component |
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| FW-WFP-DC-3 | Ecological conditions (see desired conditions for vegetation and water resources) provide habitat that contributes to the survival, recovery, and delisting of species under the Endangered Species Act; precludes the need for listing new species; improve conditions for species of conservation concern; and sustains both common and uncommon native species. |
| FW-WFP-DC-4 | Habitat conditions (vegetation and watersheds and water desired conditions) provide the resiliency and redundancy necessary to maintain species diversity and metapopulations. |
| FW-WFP-DC-5 | Habitat connectivity and distribution provide for genetic exchange, daily and seasonal movements of animals, and predator-prey interactions across multiple spatial scales, consistent with existing landforms and topography. |
| FW-WFP-DC-6 | Habitat configuration and availability and species genetic diversity allow long-distance range shifts of plant and wildlife populations, in response to changing environmental and climatic conditions. Barriers to movement may exist to protect native species and prevent movement of nonnative species (e.g., a fish structure to protect Rio Grande cutthroat trout from nonnative invasion). |
| FW-WFP-DC-7 | To the extent possible, wildlife and fish are free from harassment and human disturbance at a scale that impacts vital functions (e.g., seasonal and daily movements, breeding, feeding, and rearing young) and could affect persistence of the species. |
| FW-WFP-DC-9 | Habitats allow the maintenance and promotion of interspecific relationships (such as predator-prey relationships and keystone species relationships). |
| FW-WFP-G-3 | Known active raptor nests, including those on cliff faces, should be protected from management activities and disturbance during the nesting season to maintain the persistence of or contribute to the recovery of at-risk species. Protection measures can include timing restrictions, adaptive percent utilizations, distance buffers, or other means of avoiding disturbance based on best available information and site-specific factors, such as topography, available habitat, and location. |

| Component Code | Plan Component |
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| FW-WFP-G-6 | To conserve wildlife habitat connectivity, constructed features (such as exclosures, wildlife drinkers, range improvements, fences, roads, and culverts) should be maintained to support the purpose(s) for which they were built. When no longer needed, constructed features should be removed to restore natural hydrologic function and maintain habitat connectivity. |
| FW-NIS-DC-1 | Nonnative invasive plant and animal species are absent or exist at levels where they do not disrupt ecological function or affect the sustainability of native and desirable nonnative species. |
| FW-NIS-G-2 | Desirable nonnative species (e.g., brown trout, brook trout, and Kentucky bluegrass) should be managed in such a way that they do not conflict with the recovery of native species or existing multiple uses. |
| FW-NIS-G-3 | Integrated pest management approaches and other treatments to control, treat or retreat noxious and invasive species should be used to improve watershed condition and maintain ecosystem function, while minimizing project impacts on native species. |
| FW-NIS-G-4 | If chemical application is necessary near sensitive habitat (e.g., developed sites, known at-risk plants, riparian areas), techniques (e.g., buffers, type of chemical, mixture) should be applied to minimize effects on native species and sensitive habitat |
| FW-NIS-G-5 | All ground-disturbing projects (including vegetation, roads, and fire, etc.) should assess the risk of noxious weed invasion and incorporate measures to minimize the potential for the spread of noxious and invasive species. |
| FW-NIS-G-6 | Preventive measures, such as requiring pre-and post-work cleaning of equipment and using certified weed-free seed, should be implemented through contracting, permitting, and other administrative processes. Weed-free plant material should be selected for all seeding and mulching projects, to restore natural species composition and ecosystem function to the disturbed area. Plant or seed materials should be used, which are appropriate to the site, capable of becoming established, and are not invasive. |

| Component Code | Plan Component |
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| FW-NIS-G-7 | Fill and rock material should be inspected for nonnative invasive plants, prior to using in a project, to control the spread on nonnative invasive plants. |
| FW-NIS-S-1 | Forest management activities must apply best management practices and management guidance from the most current Forest Service Southwestern Region guidance for invasive species management to minimize the introduction or spread of invasive species, including decontamination procedures on vehicles and equipment and using weed-free products. |
| FW-NIS-S-2 | Projects, authorized activities, and special uses shall be designed (for example, weed hay, off-highway vehicle washing, waders) to reduce the potential for introduction of new species or spread of existing invasive or undesirable aquatic or terrestrial nonnative populations. |
| FW-AIR-DC-2 | Air quality meets or surpasses State and Federal ambient air quality standards. |
| FW-AIR-DC-3 | Visibility at sensitive Class II areas is maintained or improved within the planning areas. |
| FW-AIR-DC-4 | There are no measurable exceedances to water chemistry or biotic components due to atmospheric deposition of pollutants. |
| FW-AIR-DC-5 | Smoke impacts on air quality-related values are consistent with state smoke management plans. |
| FW-AIR-G-2 | To reduce air impairments, dust abatement should occur during construction and road projects where dust is a potential effect. |
| FW-CR-DC-1 | Cultural and historic resources (including archeological sites, historic buildings, historic structures, and traditional cultural properties) that possess scientific, cultural, or social values are preserved and protected. Site integrity and stability are protected and maintained on sites that are susceptible to imminent risks or threats, or where the values are rare or unique |

| Component Code | Plan Component |
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| FW-FFP-DC-1 | Forest products (such as fuelwood, latillas, vigas, Christmas trees, herbs, medicinal plants, and pinyon nuts) are available to businesses and individuals in a sustainable manner (forest products recover between collections) where consistent with other resource needs that also effectively contributes to watershed health and the restoration and maintenance of desired vegetation conditions. |
| FW-FFP-DC-2 | Forest products are available for traditional communities and culturally important activities and contribute to the long-term socioeconomic diversity and stability of local communities. |
| FW-FFP-DC-3 | Forest products that are a by-product of management activities (such as fuelwood) are available for personal use by the public where consistent with other resource needs. |
| FW-FFP-DC-4 | Private and commercial timber harvest supplements other restoration and maintenance treatments at a scale that achieves landscape-level desired conditions and contributes to watershed restoration, function, and resilience; enhances wildlife habitat; creates opportunities for small and large businesses and employment in balance with other resource needs and concerns; and provides wood products. |
| FW-FFP-DC-5 | Harvest of dead and dying trees for economic value is consistent with the desired conditions of wildlife habitat, soil productivity, scenic integrity objectives, and ecosystem functions. |
| FW-FFP-G-2 | On lands classified as not suitable for timber production, timber harvesting should only be used for making progress toward ecological desired conditions or for salvage, sanitation, public health, or safety. |
| FW-FFP-G-3 | Log landing areas should be located outside of identified sensitive areas (for example, water resource feature management zones, riparian management zones, wetlands, archeological sites, threatened and endangered critical habitat, designated trails, and along Scenery Management System concern level 1 roads). When landings must be located in these areas, effects to the sensitive resource should be mitigated. |

| Component Code | Plan Component |
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| FW-FFP-S-1 | Regulated timber harvest activities shall occur only on those lands classified as suitable for timber production. Management activities (timber harvest, thinning, and prescribed burning) to meet other resource objectives is permitted on lands classified as suitable or unsuitable. |
| FW-FFP-S-2 | Timber harvest will occur only where soil, slope, and watershed conditions will not be irreversibly damaged. |
| FW-FIRE-DC-1 | Wildfires burn within the range of severity and frequency of historic fire regimes for the affected vegetation communities. High-severity fires rarely occur where they were not historically part of the fire regime. |
| FW-FIRE-DC-2 | Wildland fires protect, maintain, and enhance resources and move ecosystems toward desired conditions on a landscape scale. Wildland fire functions in its natural ecological role on a landscape scale and across administrative boundaries, under conditions where safety and values at risk can be protected. In frequent-fire systems, regular use of fire mitigates high-severity disturbances and protects social, economic, and ecological values at risk. |
| FW-FIRE-DC-3 | Planned and natural ignitions predominate. Unplanned human-caused ignitions are rare. |
| FW-FIRE-DC-4 | Wildland fires do not result in the loss of life, property, or cultural resources, or create irreparable harm to ecological resources. |
| FW-FIRE-G-1 | To restore fire on the landscape and progress toward ecological desired conditions (as described for various resources throughout the plan), naturally ignited fires (including those occurring in designated areas) should be allowed to perform their natural ecological role to meet multiple resource objectives. |
| FW-FIRE-G-2 | Response to wildfires that cross jurisdictional boundaries should be coordinated and managed to meet the responsible agency’s objectives. |

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| FW-FIRE-G-3 | Measures should be taken to prevent entrapment of fish and aquatic organisms and the spread of pathogens (e.g., chytrid fungus, Didymo, and whirling disease) when drafting (withdrawing) water from streams or other waterbodies for fire suppression activities. |
| FW-FIRE-G-4 | Measures should be taken to prevent the spread of invasive plant species by equipment, personnel, or rehabilitation operations. |
| FW-FIRE-G-9 | Post-fire restoration and recovery should be provided where critical resource concerns merit rehabilitation for controlling the spread of invasive species and, protection of areas of cultural concern, critical or endangered species habitat, or other highly valued resources such as drinking water. |
| FW-FIRE-S-2 | The response to wildfire must be spatially and temporally dynamic based on a risk management approach, while accomplishing integrated resource objectives. |
| FW-FRT-DC-3 | Forest resources important for cultural and traditional needs, as well as for subsistence practices and economic support of tribal communities, are available and sustainable. |
| FW-FRT-DC-6 | Traditional cultural properties, sacred sites, and other locations of traditional and cultural use identified as important to federally recognized tribes are unimpaired. |
| FW-GRZ-DC-3 | Rangelands are resilient to disturbances and variations in the natural environment (such as fire, flood, and climate variability). |
| FW-GRZ-DC-4 | Livestock grazing and associated management activities are compatible with ecological function and process (e.g., water infiltration, wildlife habitat, soil stability, and natural fire regimes). |
| FW-GRZ-DC-5 | Native plant communities support diverse age classes of shrubs, and vigorous, diverse, self-sustaining understories of grasses and forbs relative to site potential, while providing forage for livestock and wildlife. |

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| FW-GRZ-DC-6 | Wetland and riparian areas consist of native obligate wetland species and a diversity of riparian plant communities consistent with site potential and relative to riparian desired conditions. |
| FW-GRZ-G-1 | Forage use should be based on current and desired ecological conditions and livestock use as determined during planning cycles (such as annual operating instructions and permit renewal), to sustain livestock grazing and maintain ecological function and processes. |
| FW-GRZ-G-2 | Livestock grazing within riparian management zones should be managed to sustain proper stream channel morphology, floodplain function, and riparian vegetation desired conditions. |
| FW-GRZ-G-3 | New livestock troughs, tanks, and holding facilities should be located away from riparian management zones to protect riparian ecological resources and to minimize long-term detrimental impacts, unless necessary for resource enhancement or protection. |
| FW-GRZ-G-4 | New range infrastructure (such as troughs and tanks) should be designed to avoid long-term negative impacts to soil resources (like soil compaction and soil loss) to maintain hydrological function outside the structure's footprint. |
| FW-GRZ-G-5 | Salting or mineral supplementation should not occur on or adjacent to areas that are especially sensitive to salt (such as at-risk plant species habitat, riparian areas, wetlands, or archeological sites) and where there is increased traffic from ungulates to protect these sites. |
| FW-GRZ-G-6 | Restocking and management of grazing allotments following a major disturbance (such as fire or flood) should occur on a case-by-case basis after consideration of site-specific resource conditions. |
| FW-GRZ-G-7 | Vacant or understocked allotments should be considered for livestock use with permitted livestock during times or events when other active allotments are unavailable or require ecosystem recovery as a result of natural disturbances like wildfire or management activities such as vegetation restoration treatments. |

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| FW-GRZ-G-8 | Permit conversions to domestic sheep or goats should not be allowed within bighorn sheep-occupied habitat or areas of high risk of contact, to mitigate the potential transfer of disease from domestic sheep to bighorn sheep. |
| FW-GRZ-O-1 | Annually improve or maintain at least 6 to 10 existing range improvement structures for livestock grazing. |
| FW-GRZ-S-1 | Livestock management shall be compatible with capacity and address ecological concerns (such as forage, invasive plants, at-risk species, soils, riparian health, and water quality) that are departed from desired conditions, as determined by temporally and spatially appropriate data. |
| FW-GRZ-S-2 | New or reconstructed fencing shall allow wildlife passage, except where specifically intended to exclude wildlife (like an elk enclosure fence) or to protect human health and safety. |
| FW-GRZ-S-3 | New and reconstructed range improvements must be designed to prevent wildlife entrapment and provide safe egress for wildlife (for example, escape ramps in water troughs and cattle guards). |
| FW-GRZ-S-4 | Within bighorn sheep-occupied habitat or areas of high risk of contact domestic sheep allotments must be managed (e.g., fencing, increased herding, herding dogs, potential vaccine, or other scientifically supported strategies) to mitigate the potential transfer of disease from domestic sheep to bighorn sheep. |
| FW-LAND-DC-1 | NFS lands exist as a mostly contiguous land base that best provides for and contributes to long-term socioeconomic diversity and stability of local communities, management of vegetation and watershed health, wildlife habitat and diversity, and recreation and scenic opportunity. |
| FW-LAND-G-2 | Only one authorization for access should be issued for any singular block of private land, regardless of current or future landownership patterns, number of parcels affected, terrain, or inability of adjoining landowners to cooperate with each other. |

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| FW-LAND-G-4 | Land ownership adjustments should consolidate and improve management efficiency of resources through real estate transactions, including sales, purchases, exchanges, and conveyances. |
| FW-MM-DC-1 | Energy, mineral, and mining activities meet the legal mandates to facilitate the development of minerals in a manner that minimizes adverse impacts to surface and groundwater resources, watershed and forest ecosystem health, wildlife and wildlife habitat, scenic character, and other desired conditions applicable to the area. |
| FW-MM-DC-2 | Reclamation of energy, mining, and mineral activity sites provides for public safety and the protection of forest resources, restoring them to a natural condition. |
| FW-MM-G-1 | To reduce erosion, restoration and reclamation of surface disturbance associated with mineral activities should be implemented to achieve 70 percent of groundcover (as compared to nearby undisturbed areas) with permanent weed-free native vegetation within three growing seasons. |
| FW-MM-G-2 | To reduce ecological impacts, reclamation should be carried out concurrently with mining. Restoration of the environment takes place at the earliest opportunity for each area on a mine site. |
| FW-MM-S-2 | Oil and gas leasing, exploration, and development are prohibited outside the Jicarilla Natural Gas Management Area (JICMA), until a leasing analysis has been conducted in accordance with 36 CFR 228 § 102. |
| FW-MM-S-3 | Mining operators using suction dredging with a 2-inch hose or larger or excavating more than 2 cubic yards per year must be notified if a plan of operation is required as indicated by the area involved, the nature of the proposed operations, the route of access to the area of operations, and the method of transport. |
| FW-REC-DC-13 | A system of motorized and non-motorized trails is available in a variety of settings that provide differing levels of challenge, types of experiences, and linkages to local neighborhoods, communities, and other public lands. |

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| FW-REC-DC-2 | Recreation activities important to traditional communities (e.g., hunting, fishing, camping, family and group gatherings, fuelwood and piñon nut collecting, and scenic driving) are available. |
| FW-REC-DC-7 and 8 | Conflicts among various recreation uses and other forest uses (such as grazing) are rare. There is minimal vandalism, theft, illegal activity, or resource damage on the national forest from recreation activities. |
| FW-REC-G-1 | Recreation activities should be compatible with and managed adaptively to minimize impacts to at-risk species and ecological desired conditions, including in riparian management zones (e.g., along streams, around seeps, springs, lakes, and wetlands). |
| FW-REC-G-3 | Recreation facilities and improvements should be designed to prevent human and wildlife conflicts; for example, provide animal-resistant trash cans, cap or screen pipes on gates and vault toilet vents, or put bases on interpretive signs. |
| FW-REC-G-9 | Where recreation or other management activities have the potential to trample known populations of at-risk plant species, activities should avoid or minimize habitat disturbance of known at-risk plant species to maintain the persistence of at-risk species. |
| FW-REC-S-1 | No new motorized routes (roads and trails) or areas shall be constructed or designated in desired primitive recreation opportunity spectrum settings. |
| FW-REC-S-2 | No new motorized routes (roads and trails) or areas shall be constructed or designated in desired semi-primitive nonmotorized recreation opportunity spectrum settings, except for necessary administrative activities, permitted activities, and emergency access. |
| FW-RHC-DC-3 | Forest resources important for cultural and traditional needs, as well as for subsistence practices and economic support (such as livestock grazing, acequias, and forest products) of rural historic communities are available and sustainable. |

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| FW-RHC-G-1 | Traditionally used products (such as fuelwood, latillas, and vigas) should be available on the national forest to rural historic communities, except in areas with resource concerns or in designated areas where such uses are not allowed or otherwise restricted by standards or guidelines set forth in other sections of this plan. |
| FW-SCEN-DC-3 | Landscapes possess vegetation patterns and compositions that are naturally variable in appearance and contribute to scenic values. The natural and cultural features that provide a sense of place are intact. |
| FW-SCEN-G-2 | Management activities should minimize visual disturbances and be consistent with or move the area toward achieving scenic integrity objectives: |
| FW-SU-DC-2 | Special uses activities support the public's need, and conflicts with multiple-use opportunities afforded to other forest users are minimized. |
| FW-SU-DC-3 | The number of communication sites are the minimum required to meet the needs of the Forest Service and serve the public. |
| FW-SU-DC-4 | Permitted utility infrastructure is in the public interest and is the minimum required to meet the needs of the public. |
| FW-SU-DC-5 | Vegetation conditions and land uses within a right-of-way or easement facilitate the operation and management of the associated facilities and structure and may differ from the surrounding vegetation desired conditions. |
| FW-SU-DC-7 | Services provided by recreation special uses enhance the recreation experiences of national forest visitors, increase public understanding and respect for the Carson and nearby communities, provide for public health and safety, and have minimal impact to ecological and cultural resources. |

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| FW-SU-DC-8 | Permitted outfitter and guide activities do not conflict with the experiences of other forest visitors. |
| FW-SU-G-1 | Communication equipment, pipelines, powerlines, fiber optic lines, and associated infrastructure should be co-located or adjacent and in the same corridor to minimize environmental disturbance. |
| FW-SU-G-4 | New or upgraded energy and utility lines should be located and designed to minimize impacts to wildlife, scenery, and wildfire risk. |
| FW-SU-S-2 | Designate no new transmission utility corridors. |
| FW-TFA-DC-1 | Roads, bridges, and trails are sustainably-designed; well-marked and maintained; provide safe and reasonable access for public travel, recreation uses, traditional and cultural uses, and land and resource management activities; and contribute to the social and economic sustainability of local communities. |
| FW-TFA-DC-5 | Unauthorized roads and trails are determined for their purpose in the transportation system or determined to be unneeded. Unneeded roads and trails are decommissioned to reduce impacts to ecological resources (i.e., watersheds, wildlife, and soil erosion) and improve habitat connectivity. |
| FW-TFA-G-1 | Unauthorized and maintenance level roads within a project area should be evaluated for use (e.g., temporary, administrative use, placed in storage) prior to any new road construction, to minimize negative impacts to ecological and cultural resources. |
| FW-TFA-G-2 | Construction of new system roads should be accompanied by a mitigating action (e.g., decommissioning of other unneeded roads and trails), to offset any resource damage resulting from their construction. |

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| FW-TFA-G-3 | All system roads not open to the public and unauthorized roads within an ecosystem restoration project area should be evaluated for need (e.g., administrative use, placed in storage, open to the public) or determined to be unneeded (available for decommissioning) to reduce the amount of system road maintenance. |
| FW-TFA-G-7 | To improve habitat connectivity, methods that accommodate wildlife (e.g., fencing, underpasses, overpasses, larger culverts) should be used when constructing or reconstructing highways or high traffic volume Forest Service roads. |
| FW-TFA-G-8 | System roads and trails should accommodate terrestrial and aquatic wildlife species movement and habitat connectivity. |
| FW-TFA-O-1 | Obliterate or naturalize at least 20 miles of unneeded roads within each 10-year period following plan approval. |
| DA-BOT-G-1 | Rock climbing and related recreation activities should not disrupt the life processes of small-headed goldenweed. Installation of permanent rock-climbing hardware should be allowed only by authorization, if small-headed goldenweed is being impacted. |
| DA-BOT-G-2 | Where recreation activities have the potential to trample known populations of small-headed goldenweed, signs should be posted educating the public to stay on designated trails. |
| DA-IRA-DC-1 | Inventoried roadless areas encompass large, relatively undisturbed landscapes. They provide public drinking water, serve as safeguards against the spread of invasive plant species, function as biological strongholds for populations of threatened and endangered species, and provide reference landscapes for study and research. |
| DA-IRA-DC-2 | Inventoried roadless areas appear natural, have high scenic quality, and provide opportunities for dispersed recreation. |

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| DA-IRA-G-1 | Inventoried roadless areas should be managed for semi-primitive nonmotorized and semi-primitive motorized recreation settings as defined in the recreation opportunity spectrum. |
| DA-IRA-G-2 | Management activities should be consistent with the scenic integrity objective of high in inventoried roadless areas as defined in the scenery management system. |
| DA-WILD-DC-1 | Wilderness contributes to ecosystem services such as clean air and water, wildlife habitat enhancement, and outstanding opportunities for solitude or primitive and unconfined recreation. |
| DA-WILD-DC-2 | Natural processes (e.g., insects, disease, blowdown, and fire) are maintained and function in their natural ecological role, and species are predominantly native. |
| DA-WILD-DC-3 | Wilderness represents an environment that is essentially an unmodified and natural landscape. Constructed features are rare and provided primarily for resource protection. When present, they reflect the historic and cultural landscape and utilize natural or complementary materials. |
| DA-WILD-S-1 | Group size limit shall be 15 persons and 15 recreational livestock per group, except as determined under special use permit, emergency services, formal agreements, and management activities for maintaining wilderness character. |
| DA-WILD-S-2 | Outfitter-guide activities shall include appropriate wilderness practices, such as “leave no trace” principles, and incorporate awareness for wilderness values in their interaction with clients and others. |
| DA-ZOO-S-1 | Management activities, including vehicle use, must not cause pollution or change in water chemistry of Middle Fork Lake. |
| MA-EWSR-DC-1 | The outstandingly remarkable values and free-flowing condition of eligible segments are preserved. |

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| MA-EWSR-DC-2 | Eligible river segments and their corridors are protected for the benefit and enjoyment of present and future generations. |
| MA-EWSR-DC-3 | The uses in eligible river corridors are consistent with the river's classification. |
| MA-EWSR-G-1 | New roads or motorized trails should not be constructed within 0.25 mile of a wild classified eligible river segment, to preserve the essentially primitive user experience. |
| MA-EWSR-S-1 | Any authorized water resources project in an eligible river segment must not adversely modify the river's free-flowing character. |
| MA-EWSR-S-2 | Any authorized project or activity within 0.25 mile of an eligible river segment must protect the outstandingly remarkable values that provide the basis of the river's eligibility for inclusion in the system. |
| MA-EWSR-S-3 | The classification of an eligible river segment must be maintained as inventoried. Any project or activity within 0.25 mile of an eligible river segment must preserve the appropriate user experience according to the river's classification. |
| MA-EWSR-S-4 | A suitability study must be conducted for any proposed project or activity that would conflict with the river's eligibility requirements. |
| MA-PRNA-DC-2 | Research natural areas are part of a national network of ecological areas for research, education, and maintenance of biological diversity, and serve as baseline areas for measuring ecological change from disturbances or stressors like climate change. |
| MA-RWMA-DC-1 | Recommended wilderness management areas retain their wilderness characteristics and contribute to clean air and water, wildlife habitat enhancement, primitive recreation opportunities, and other cultural ecosystem services. |

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| MA-RWMA-DC-2 | Natural processes (insects, disease, blowdown, fires) function within their natural ecological role or are mimicked (using prescribed fire). Human-caused fires are suppressed. |
| MA-RWMA-DC-3 | The environment within recommended wilderness management areas is essentially unmodified. Naturally occurring scenery dominates the landscape. Human-made features are rare and use natural or complementary materials. They are present when needed, to provide for public safety or resource protection. |
| MA-RWMA-G-2 | Unplanned natural and planned ignitions in recommended wilderness management areas should be used, to reduce the risks and consequences of uncharacteristic wildfire, to increase apparent naturalness, or to enhance ecosystem function. |

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| MA-RWMA-S-1-6 | The following activities are not allowed in recommended wilderness management areas:<br>• No new permanent or temporary roads, motorized trails, or mechanized (mountain bike or e-bike) trails for public access shall be constructed in or designated in recommended wilderness management areas.<br>• Timber harvest for the purpose of timber production must not be authorized in a recommended wilderness management area..<br>• Infrastructure related to special use permits for renewable (e.g. wind, solar, geothermal) and other energy developments for power generation are prohibited.<br>• Sales or extraction of common variety minerals shall not be permitted in recommended wilderness.<br>• Motor vehicles, motorized equipment (e.g., chainsaws or wheelbarrows), and mechanical transport shall not be allowed with the following exceptions<br>o unless specifically authorized for emergency use,<br>o for management activities that move the area toward desired conditions while protecting existing wilderness characteristics over the long-term, or<br>o for the limited needs required for authorized management of a grazing allotment or acequia access, which will not result in long-term degradation to wilderness characteristics.<br>• Mechanized recreation shall not be allowed. |
| MA-RWMA-S-7 | Nonnative invasive species shall be treated using methods, and in a manner, consistent with wilderness characteristics, or in order to allow natural processes to occur in a recommended wilderness management area. |
| MA-SAMA-S-1 | Addition to the current designated system of roads for public access is prohibited. |
| MA-SAMA-S-2 | Temporary roads that support ecosystem restoration activities, fuels management, or other short-term projects must be closed and rehabilitated upon project completion, to protect watershed condition, minimize wildlife disturbance, and prevent illegal motorized use. |

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| MA-SAMA-S-5 | Infrastructure related to special use permits for energy developments (e.g., wind, solar, electrical lines) is prohibited. |
| MA-SAMA-S-6 | Extraction of common variety minerals for commercial or public use is prohibited. |
| MA-VVMA-S-1 | Except for the Forest Road 1950 corridor, lands on the west side (Taos County) must be closed to all public entry from May to June 30, to provide security for elk calving. |
| MA-VVMA-S-12 | Infrastructure related to special use permits for energy developments (e.g., wind, solar, electrical lines) is prohibited. |
| MA-VVMA-S-16 | Extraction of common variety minerals for commercial or public use is prohibited. |
| MA-VVMA-S-17 | Temporary roads that support ecosystem restoration activities, fuels management, or other short-term projects must be closed and rehabilitated upon project completion, to protect watershed condition, minimize wildlife disturbance, and prevent illegal motorized use. |
| MA-VVMA-S-2 | Except for the Forest Road 1950, Forest Road 1910, and Forest Road 1900 corridors, lands on the east side (Colfax County) must be closed to all public entry from January 1 to March 31, to provide security for elk winter range. |
| MA-VVMA-S-5 | Addition to the current designated system of roads or motorized trails for public access is prohibited. |
| MA-VVMA-S-8 | Backcountry camping must be limited to outside of 0.5 mile of open roads, 100 yards of natural waters, or 300 yards of constructed waters. |