



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

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July 8, 2016

Cons. #02ENNM00-2016-F-0252

Maria T. Garcia, Forest Supervisor  
Santa Fe National Forest  
11 Forest Lane  
Santa Fe, New Mexico 87508

Dear Ms. Garcia:

Thank you for your July 5, 2016, request to reinitiate the February 3, 2016, informal consultation (Consultation #02ENNM00-2016-I-0252) with the U.S. Fish and Wildlife Service (Service or FWS) on the National Forest Service (Forest Service) proposed project to protect and improve habitat conditions for the New Mexico meadow jumping mouse (*Zapus hudsonius luteus*) (jumping mouse) within the San Diego and Cebolla/San Antonio allotments, Jemez Ranger District, Santa Fe National Forest. The amended Biological Assessment (BA), dated July 5, 2016, evaluates the effects from the proposed "Upper Cebolla Fence Project" on the jumping mouse and its proposed critical habitat (now designated), the Jemez Mountains salamander (*Plethodon neomexicanus*) (salamander) and its designated critical habitat, and the Mexican spotted owl (*Strix occidentalis lucida*) (MSO) and its designated critical habitat pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. § 1531 et seq.). The Forest Service has specifically requested re-initiation of the initial February 3, 2016, informal section 7 consultation as a formal consultation for the salamander and MSO due to changes in timing and location of the proposed action which result in adverse effects to each species. The Forest Service has determined that the proposed action does not result in a changed circumstance from the original analysis conducted on January 25, 2016, for the New Mexico meadow jumping mouse and its designated critical habitat or for the MSO designated critical habitat, but "may affect, is likely to adversely affect" the salamander and its designated critical habitat and "may affect, is likely to adversely affect" the MSO.

This re-initiated consultation hereby incorporates by reference your January 25, 2016, BA (referenced in the original informal consultation as January 21, 2016), the Service's final February 3, 2016, concurrence letter, your July 5, 2016, BA amendment, and your re-initiation letter dated July 5, 2016, with your effects determinations. Unless otherwise stated, since conservation measures to protect the salamander and MSO specified in the January 25, 2016, BA will still be in place and are not affected by the changes in the proposed action, this biological

opinion (BO) is in addition to, and supplemental to, all the measures and analyses contained in the January 25, 2016, BA and February 3, 2016, concurrence letter.

The proposed action is the installation of fence for the “Upper Cebolla Fence Project”. We concur with your determinations of “may affect, is not likely to adversely affect” for the New Mexico meadow jumping mouse and its critical habitat and for Mexican spotted owl critical habitat for the following reasons:

- Changes to the proposed action regarding the timing and location of the fence installation do not change the analyses or effects to the jumping mouse or its critical habitat.
- The key habitat components of Mexican spotted owl protected and recovery habitat and the primary constituent elements of spotted owl critical habitat will not be adversely affected by the proposed action. Tree removal and effects to forest structure within protected, recovery, and critical habitat will be minimal and will not impede the ability of owls to use the area. No trees greater than nine inches diameter-at-breast height will be removed to minimize effects to habitat structure, and any trees that lean away from the fence or do not otherwise impeded fence construction will not be removed. Logs and woody debris will be left on-site and crews will limit the amount of ground disturbance of woody debris and decaying stumps and logs to the greatest extent possible in owl habitat.
- The overall intent of the proposed fence is to protect and enhance riparian habitat so there should be long-term beneficial effects to riparian habitat. With the fence construction, livestock access to the Cebolla Riparian pasture (which includes MSO critical habitat) is expected to be greatly reduced, which should benefit MSO prey species habitat within the Rio Cebolla.

You determined that the proposed action “may affect, is likely to adversely affect” the Jemez Mountains salamander and its designated critical habitat and the Mexican spotted owl and requested initiation of formal consultation. This current document constitutes the Service’s BO based on our review of the proposed action and its effects on the salamander and its designated critical habitat and the MSO in accordance with section 7 of the ESA.

This BO relies on the revised regulatory definition of “destruction or adverse modification” of designated or proposed critical habitat from 50 Code of Federal Regulations (CFR) 402.02. As of February 11, 2016, the definition of “destruction or adverse modification” has been revised to align it with the conservation purposes of the Endangered Species Act of 1976, as amended, and the ESA’s definition of “critical habitat” (81 FR 7214). Specifically the rule states: “Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features.” The revised definition continues to focus on the role that critical habitat plays for the conservation of listed species and acknowledges that the development of physical and biological features may be necessary to enable the critical habitat to support the species recovery.

## **Consultation History**

The Forest Service submitted a BA for the original proposed project to protect and improve habitat conditions for the New Mexico meadow jumping mouse within the San Diego and Cebolla/San Antonio allotments, Jemez Ranger District, Santa Fe National Forest on January 25, 2016. We concurred with the Forest Service's determinations that the proposed action for the San Diego and Cebolla/San Antonio Allotments "may affect, is not likely to adversely affect" the jumping mouse; is "not likely to adversely modify" proposed jumping mouse critical habitat and "may affect, is not likely to adversely affect" critical habitat if the designation is finalized; "may affect, is not likely to adversely affect" the MSO or its critical habitat; and "may affect, is not likely to adversely affect" the salamander or its critical habitat in our February 3, 2016, concurrence letter. The Forest Service contacted the Service on June 13, 2016, to discuss ways to provide more immediate protection to the jumping mouse and its designated critical habitat. We considered moving the installation dates for the fence up from the original proposed project and also discussed the need to re-initiate the original consultation because of the changes in the proposed action. On June 20, 2016, we met to discuss the proposed action and members of our staffs conducted a field assessment to identify placement of fencing and other measures to minimize impacts to the salamander, MSO, and their critical habitat. On June 24, 2016, we received a partial BA addendum detailing changes to the proposed action and on July 5, 2016, we received your letter requesting re-initiation, the complete BA addendum, and updated effects determinations.

## **BIOLOGICAL OPINION**

### **DESCRIPTION OF THE PROPOSED ACTION**

#### **ANALYTICAL FRAMEWORK FOR THE JEOPARDY AND ADVERSE MODIFICATION DETERMINATIONS**

##### **Jeopardy Determination**

In accordance with policy and regulation, the jeopardy analysis in this BO relies on four components in our evaluation: (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 direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the species; 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 in this BO 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.

#### Adverse Modification Determination

In accordance with policy and regulation, the adverse modification analysis in this BO relies on four components: 1) the Status of Critical Habitat, which evaluates the range-wide condition of proposed critical habitat for the species in terms of primary constituent elements (PCEs), the factors responsible for that condition, and the intended recovery function of the critical habitat overall; 2) the Environmental Baseline, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; 3) the Effects of the Action, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the PCEs and how they will influence the recovery role of affected the critical habitat unit; and, 4) Cumulative Effects, which evaluates the effects of future, non-Federal activities in the action area on the PCEs and how they will influence the recovery role of the affected critical habitat unit.

For purposes of the adverse modification determination, the effects of the proposed Federal action on each species' critical habitat is evaluated in the context of the range-wide condition of the critical habitat, taking into account any cumulative effects, to determine if the critical habitat range-wide would remain functional (or would retain the current ability for the PCEs to be functionally established in areas of currently unsuitable but capable habitat) to serve its intended recovery role for the species.

#### Proposed Action

The Santa Fe National Forest (SFNF) proposes to construct cross fences in 7 locations (1, 2, 3c, 3d, 4c, 5b, and 6; Figure 1) within the Cebolla/San Antonio Allotment to aid in the protection and conservation of designated critical habitat for the New Mexico meadow jumping mouse (NMMJM). The proposed action is to provide long lasting protection to critical habitat by installing cross fences in Roads, Pony, Hay, and Oat Canyons. Fences will be placed in locations along an approximate 8 foot right of way and where natural barriers can be utilized. The 4-strand wire fences will be constructed to wildlife friendly standards (see A Landowner's Guide to Fences and Wildlife: Practical Tips to Make Your Fences Wildlife Friendly (Fence Guides) in Appendix A of the BA, page 10). Further, when possible, fences will be installed tree to tree affixed to boards in order to reduce the amount of t-post use, brace installation, and tree removal. Fence construction is expected to occur over the first 2 weeks of July 2016, but may continue as necessary until seasonal monsoons start and moisture levels are conducive to supporting surface activity of salamanders. This will be determined by the project biologist. Construction activities will include 20-30 personnel, all-terrain vehicles (ATV), hand tools (i.e. t-post pounders), wire stretchers, hammers, pliers, handsaws, and chainsaws.

This project is intended to be adaptive in that priority fences have been identified that have the most ability to manage livestock and keep cows from drifting down to the Rio Cebolla and critical habitat for the NMMJM. These are the Road Canyon #1 and #2 fences and the Oat Canyon #5b fence and will be installed first. Therefore, if monitoring shows the need for



additional protection of NMMJM, then additional fencing as needed and as proposed within this analysis will be installed.

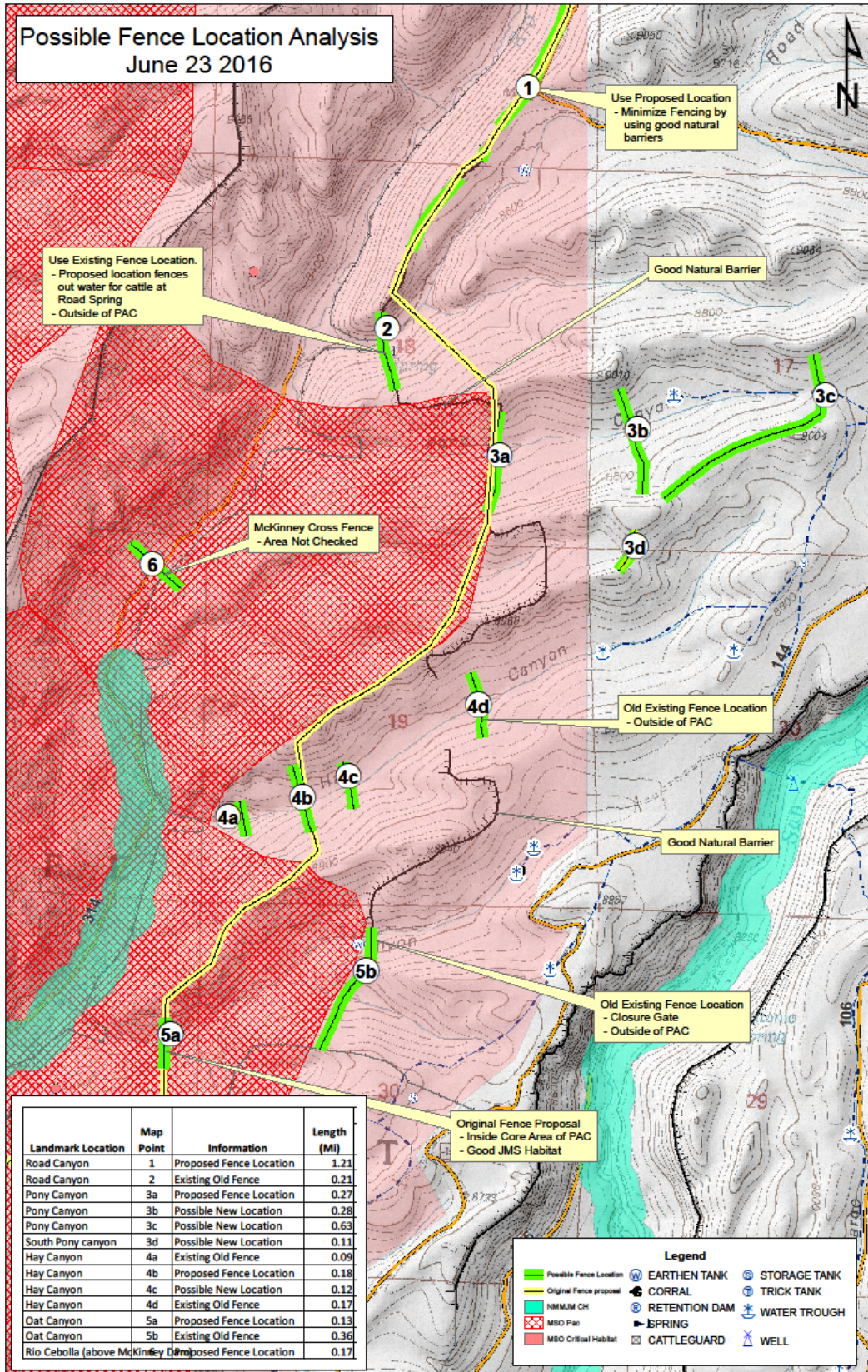


Figure 1. Road Pasture Fence Locations and segment lengths.

## Conservation Measures

The following Conservation Measures are included in the proposed action:

- 1) All permanent fences will be wildlife friendly using New Mexico Game and Fish design recommendations. Further, certain visualization techniques (e.g. PVC placed on top fence wire or vinyl tabs placed on wire) will be used to increase visibility and minimize entrapment on all fence locations (see Fence Guides in Appendix A of the BA, page 10).
- 2) Old unused fences within the project area will be identified and removed.
- 3) The tree to tree method will be used in order to reduce t-post use, brace installation, and tree removal.
- 4) Cutting/bucking of large diameter downed trees will be avoided. If necessary, focus cutting in areas where trees may lay above the ground (e.g. butt or top ends).
- 5) No felling of trees > 9 inch diameter at breast height (dbh) to limit the amount of habitat disturbance for the MSO and salamander, unless they pose an absolute safety issue.
- 6) Trees that lean away or do not pose an installation, maintenance, and/or safety issue will be left alone.
- 7) The tops of fallen trees will be lopped, scattered, and/or piled around the fence path. Logs and woody debris will be left on-site in MSO and salamander habitat.
- 8) During fence installations, crews will limit the amount of ground disturbance of rocks, bark, moss mats, woody debris, and decaying stumps and logs to the greatest extent possible in MSO and salamander habitat.
- 9) Habitat elements for the MSO and salamander, and project level disturbance, will be monitored throughout project implementation and post-project at specific locations identified by project biologists and the Service. At least two specific locations will be visited per year.
- 10) This project is intended to be adaptive through monitoring. If additional fence installations must occur during the salamander active or MSO breeding seasons, then re-initiation with the service will occur. Further mitigations such as a Biological Monitor or fence re-route may be needed.

## STATUS OF THE SPECIES AND CRITICAL HABITAT

### Jemez Mountains Salamander

The Jemez Mountains salamander was listed as an endangered species on September 10, 2013 (78 FR 55600) and its critical habitat was designated on November 20, 2013 (78 FR 69569). The salamander is uniformly dark brown above, with occasional fine gold to brassy coloring with stippling dorsally (on the back and sides), and is sooty gray ventrally (underside). The salamander is slender and elongate, is a member of the family Plethodontidae, is strictly terrestrial, and does not use standing surface water for any life stage. Respiration occurs through the skin, which requires a moist microclimate for gas exchange.

This lungless salamander is found primarily in conifer habitats with abundant rocks and surface logs, especially on steep north-facing slopes. They typically occur between 7,200 and 9,500 feet, but have been found as low as 6,998 feet and as high as 10,990 feet (Ramotnik 1988). They are found in relatively high humidity microhabitats and soils that contain deep igneous, subsurface rock that is fractured to allow retreat underground to below the frost line. Much of their life cycle occurs underground, with surface activity inside rotted coniferous logs or under rocks

during a brief period of the summer when conditions are warm and wet. Their habitat is typically mixed-conifer forest, consisting primarily of Douglas fir, blue spruce, Engelmann spruce, white fir, limber pine, Ponderosa pine, Rocky Mountain maple, and aspen (Degenhardt et al., 1996; Reagan 1967). The species has occasionally been found in stands of pure Ponderosa pine and in spruce-fir and aspen stands, but these forest types have not been adequately surveyed. Approximately 75 percent of their diet is comprised of ants; other prey items include beetles, mites, spiders, earthworms, and other small invertebrates. Range movements are poorly documented, but home ranges tend to be very small.

Current threats include wildfire, logging, habitat loss (road construction, development), and chytridiomycete fungal (*Batrachochytrium dendrobatidis*) infection (77 FR 56481). Additional threats affecting the salamander and its associated habitat include alterations to habitat of varying magnitude from fire suppression, forest composition and structure conversions, post-fire rehabilitation, forest and fire management, roads, trails, habitat fragmentation, and recreation. Some of these threats may be exacerbated by the current and projected effects of climate change.

The salamander spends much of its life underground and can be found above ground when relative environmental conditions are warm and wet, which is typically from July through September, but occasional salamander observations have been made in May, June, and October. Relatively warm and wet environmental conditions suitable for salamander aboveground activity (but cool and wet microhabitats) are likely influenced by snow infiltration and summer monsoon rains. Additional information on the salamander's natural history and status can be obtained from the final listing rule (77 FR 56482).

### **Jemez Mountains Salamander Critical Habitat**

The Jemez Mountains salamander final critical habitat rule designated approximately 90,716 ac (36,711 ha) as critical habitat in two units in the Jemez Mountains, New Mexico (78 FR 69569). Unit 1 consists of 42,445 ac (17,177 ha) in Rio Arriba and Sandoval Counties, New Mexico, in the western portion of the Jemez Mountains, of which 41,466 ac (16,781 ha) is federally managed, with 26,531 ac (10,736 ha) on Forest Service lands, 14,935 ac (6,044 ha) on formerly Valles Caldera National Preserve lands that are now National Park Service lands, 73 ac (30 ha) on New Mexico Department of Game and Fish lands, and 906 ac (367 ha) on private lands. Unit 2 consists of 48,271 ac (19,535 ha) in Los Alamos and Sandoval Counties, New Mexico, in the eastern, southern, and southeastern portions of the Jemez Mountains, of which 46,375 ac (18,767 ha) is federally managed, with 30,366 ac (12,288 ha) on Forest Service lands, 8,811 ac (3,565 ha) on VCNP lands, and 7,198 ac (2,912 ha) on National Park Service lands (Bandelier National Monument), and 1,897 ac (768 ha) are on private lands. The status of designated critical habitat has not changed significantly from that published in the final rule.

The primary constituent elements of Jemez Mountains salamander consist of four components:

D) Moderate to high tree canopy cover, typically 50 to 100 percent canopy closure, that provides shade and maintains moisture and high relative humidity at the ground surface, and:

(A) Consists of the following tree species alone or in any combination:  
Douglas fir (*Pseudotsuga menziesii*); blue spruce (*Picea pungens*); Engelmann spruce (*Picea engelmannii*); white fir (*Abies concolor*); limber pine (*Pinus flexilis*); Ponderosa pine (*Pinus ponderosa*); and aspen (*Populus tremuloides*); and



(B) Has an understory that predominantly comprises: Rocky Mountain maple (*Acer glabrum*); New Mexico locust (*Robinia neomexicana*); oceanspray (*Holodiscus* spp.); or shrubby oaks (*Quercus* spp.).

II) Elevations from 6,988 to 11,254 feet (2,130 to 3,430 meters).

III) Ground surface in forest areas with:

(A) Moderate to high volumes of large fallen trees and other woody debris, especially coniferous logs at least 10 inches (25 centimeters) in diameter, particularly Douglas fir, which are in contact with the soil in varying stages of decay from freshly fallen to nearly fully decomposed; or

(B) Structural features, such as rocks, bark, and moss mats that provide the species with food and cover.

IV) Underground habitat in forest or meadow areas containing interstitial spaces provided by:

(A) Igneous rock with fractures or loose rocky soils;

(B) Rotted tree root channels; or

(C) Burrows of rodents or large invertebrates.

### **Mexican Spotted Owl**

In 1993, the FWS listed the Mexican spotted owl as threatened under the ESA. The FWS 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). The FWS released the final Mexican spotted owl Recovery Plan, First Revision (Recovery Plan) in December 2012 (USFWS 2012a). Critical habitat was designated for the spotted owl in 2004 (USFWS 2004).

A detailed account of the taxonomy, biology, and reproductive characteristics of the MSO 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 2012a). The information provided in those documents is included herein by reference.

The MSO occurs in forested mountains and canyonlands throughout the southwestern United States and Mexico (Gutiérrez 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 MSO'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 revision of the Recovery Plan, the FWS renamed RUs as "Ecological Management Units" (EMUs) to be in accord with current FWS guidelines. We divide the Mexican spotted owl's range within the United States 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) (see Appendix A of the revised recovery Plan, Figure 2). 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 MSO surveys, recorded 758 owl sites from 1990 to 1993, and 1,222 owl sites from 1990 to 2004 in the United States. The Recovery Plan (USFWS 2012a) lists 1,324 known owl sites in the United States. An owl site is an area used by a single or a pair of adult 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 2012a). However, we do assume that an increase in the number of areas considered to be occupied is a positive indicator regarding MSO abundance.

We are currently working with the Southwestern Region of the Forest Service to conduct a pilot study for the population monitoring recommended in the Revised Recovery Plan (USFWS 2012a). The effort to conduct this work occurred during the 2014 breeding season and has continued into the 2015 breeding season, but only on National Forest System lands. The Recovery Team, Forest Service, and the Rocky Mountain Bird Observatory (RMBO, contractor) are continuing to collect data and develop a strategy for incorporating additional lands (e.g., National Park Service, Bureau of Land Management, Department of Defense) into the monitoring. Currently, based on the work conducted by the Forest Service and RMBO, we have a process for conducting rangewide population monitoring, but we need to further develop the potential strategy for collecting rangewide habitat monitoring data.

Two primary reasons were cited for the original listing of 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 danger of stand-replacing fire was also cited as a looming threat at that time. Since publication of the original Recovery Plan (USFWS 1995), 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 2012a). Recent forest management has moved away from a commodity focus and now emphasizes sustainable ecological function and a return toward pre-settlement fire regimes, both of which have potential to benefit the spotted owl. However, as stated in the revised Recovery Plan

(USFWS 2012a), there is much uncertainty regarding thinning and burning treatment effects and the risks to owl habitat with or without forest treatment as well. Therefore, efforts to reduce fire risk to owls should be designed and implemented to evaluate the effects of treatments on owls and retention of or movement towards desired conditions.

Southwestern forests have experienced larger and more severe wildland fires from 1995 to the present, than prior to 1995. Climate variability combined with unhealthy forest conditions may also synergistically result in increased negative effects to habitat from fire. The intensification of natural drought cycles and the ensuing stress placed upon overstocked forested habitats could result in even larger and more severe fires in owl habitat. Currently, high-severity, stand-replacing fires are influencing ponderosa pine and mixed conifer forest types in Arizona and New Mexico. Uncharacteristic wildland fire is probably the greatest threat to the Mexican spotted owl within the action area. As throughout the West, fire severity and size have been increasing within this geographic area. Landscape level wildland fires, such as the Rodeo-Chediski Fire (2002), the Wallow Fire (2011), and the Whitewater-Baldy Complex (2012) have resulted in the loss of tens of thousands of acres of occupied and potential nest/roost habitat across significant portions of the Mexican spotted owl's range. Although owls will forage in burned areas, the lack of suitable nest/roost habitat in severely burned areas likely limits the use of these areas to foraging, particularly over the long-term.

Historical and current anthropogenic uses of Mexican spotted owl habitat include both domestic and wild ungulate grazing, recreation, fuels reduction treatments, resource extraction (e.g., timber, oil, gas), and development. These activities have the potential to reduce the quality of owl nesting, roosting, and foraging habitat, and may cause disturbance during the breeding season. Livestock and wild ungulate grazing is prevalent throughout the range of the owl and is thought to have a negative effect on the availability of grass cover for prey species. Recreation impacts are increasing throughout the Southwest, especially in meadow and riparian areas. There is anecdotal information and research that indicates that owls in heavily used recreation areas are much more erratic in their movement patterns and behavior. Fuels reduction treatments, though critical to reducing the risk of severe wildland fire, can have short-term adverse effects to owls through habitat modification and disturbance. As the human population grows in the southwestern United States, small communities within and adjacent to wildlands are being developed. This trend may have detrimental effects to spotted owls by further fragmenting habitat and increasing disturbance during the breeding season.

Several fatality factors have been identified as particularly detrimental to the Mexican spotted owl, including predation, starvation, accidents, disease, and parasites. For example, West Nile Virus also has the potential to adversely impact the Mexican spotted owl. The virus has been documented in Arizona, New Mexico, and Colorado, and preliminary information suggests that owls may be highly vulnerable to this disease (Courtney et al. 2004). Unfortunately, due to the secretive nature of spotted owls and the lack of intensive monitoring of banded birds, we will most likely not know when owls contract the disease or the extent of its impact to the owl range-wide.

Finally, global climate variability may also be a threat to the owl. Changing climate conditions may interact with fire, management actions, and other factors discussed above, to increase impacts to owl habitat. Studies have shown that since 1950, the snowmelt season in some watersheds of the western U.S. has advanced by about 10 days (Dettinger and Cayan 1995, Dettinger and Diaz 2000, Stewart et al. 2004). Such changes in the timing and amount of

snowmelt are thought to be signals of climate-related change in high elevations (Smith et al. 2000, Reiners et al. 2003). The impact of climate change is the intensification of natural drought cycles and the ensuing stress placed upon high-elevation montane habitats (IPCC 2007, Cook et al. 2004, Breshears et al. 2005, Mueller et al. 2005). The increased stress put on these habitats is likely to result in long-term changes to vegetation, and to invertebrate and vertebrate populations within coniferous forests and canyon habitats that affect ecosystem function and processes.

### **Mexican Spotted Owl Critical Habitat**

The FWS designated critical habitat for the Mexican spotted owl in 2004 on approximately 8.6 million acres (3.5 million hectares) of Federal lands in Arizona, Colorado, New Mexico, and Utah (USFWS 2004). Within the designated boundaries, critical habitat includes only those areas defined as protected habitats (defined as Protected Activity Centers and unoccupied slopes >40 percent in the mixed conifer and pine-oak forest types that have not had timber harvest in the last 20 years) and restricted (now called “recovery”) habitats (unoccupied owl foraging, dispersal, and future nest/roost habitat) as defined in the 1995 Recovery Plan (USFWS 1995). The primary constituent elements (PCEs) for Mexican spotted owl critical habitat were determined from studies of their habitat requirements and information provided in the Recovery Plan (USFWS 1995). Since owl habitat can include both canyon and forested areas, PCEs were identified in both areas. The PCEs identified for the owl within mixed-conifer, pine-oak, and riparian forest types that provide for one or more of the owl’s habitat needs for nesting, roosting, foraging, and dispersing are:

- A range of tree species, including mixed conifer, pine-oak, and riparian forest types, composed of different tree sizes reflecting different ages of trees, 30 to 45 percent of which are large trees with dbh (4.5 ft. above ground) of 12 inches or more;
- A shade canopy created by the tree branches covering 40 percent or more of the ground;
- Large, dead trees (snags) with a dbh of at least 12 inches;
- High volumes of fallen trees and other woody debris;
- A wide range of tree and plant species, including hardwoods; and,
- Adequate levels of residual plant cover to maintain fruits and seeds, and allow plant regeneration.

The PCEs listed above usually are present with increasing forest age, but their occurrence may vary by location, past forest management practices or natural disturbance events, forest-type productivity, and plant succession. These PCEs may also be observed in younger stands, especially when the stands contain remnant large trees or patches of large trees. Certain forest management practices may also enhance tree growth and mature stand characteristics where the older, larger trees are allowed to persist.

Steep-walled rocky canyonlands occur typically within the Colorado Plateau Ecological Management Unit, but also occur in other EMUs. Canyon habitat is used by owls for nesting, roosting, and foraging, and includes landscapes dominated by vertical-walled rocky cliffs within complex watersheds, including many tributary side canyons. These areas typically include parallel-walled canyons up to 1.2 miles (2 kilometers) in width (from rim to rim), with canyon reaches often 1.2 miles (2 kilometers) or greater, and with cool north-facing aspects. The PCEs related to canyon habitat include one or more of the following:

- Presence of water (often providing cooler and often higher humidity than the surrounding areas);
- Clumps or stringers of mixed-conifer, pine-oak, piñon-juniper, and/or riparian vegetation;
- Canyon walls containing crevices, ledges, or caves; and,
- High percent of ground litter and woody debris.

Overall, the status of the owl and its designated critical habitat has not changed significantly range-wide in the U.S. (which includes Utah, Colorado, Arizona, New Mexico, and extreme southwestern Texas) based upon the information we have, since issuance of the 2012 Land Resource Management Plan (LRMP) BOs for the National Forests in the Southwestern Region of the Forest Service (i.e., see USFWS 2012b). This means that the distribution of owls continues to cover the same area and critical habitat is continuing to provide for the life history needs of the Mexican spotted owl throughout all of the EMUs located in the U.S. We do not have detailed information regarding the status of the Mexican spotted owl in Mexico, so we cannot make inferences regarding its overall status.

However, this is not to say that significant changes have not occurred within the owl's U.S. range. Wildland fire has resulted in the greatest loss of Protected Activity Centers and critical habitat relative to other actions (e.g., such as forest management, livestock grazing, recreation, etc.) throughout the U.S. range of the Mexican spotted owl. These wildland fire impacts have mainly impacted Mexican spotted owls within the UGM EMU (e.g., Slide and Schultz Fires on the Coconino National Forest (NF), Rodeo-Chediski and Wallow Fires on the Apache-Sitgreaves NF and Whitewater-Baldy Complex on the Gila NF) and BRW EMU (e.g., Horseshoe 2 Fire on the Coronado NF); but other EMUs have been impacted as well (SRM EMU, the Santa Fe NF by the Las Conchas Fire, CP EMU by the Warm Fire). However, we do not know the extent of the effects of these wildland fires on actual owl numbers.

## **ENVIRONMENTAL BASELINE**

Under section 7(a) (2) of the ESA, when considering the effects of the action on federally listed species, we are required to take into consideration the environmental baseline. Regulations implementing the ESA (50 CFR 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 actions in the action area that have undergone section 7 consultation, and the impacts of State and private actions that 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.

### **Description of the Action Area**

The Cebolla/San Antonio grazing allotment is located within the Jemez Ranger District of the Santa Fe National Forest and will serve as the analysis area for this biological assessment. The Cebolla/San Antonio Allotment is approximately 26,107 acres with elevations that range from 7,600 feet to 9,800 feet. The allotment is dominated by ponderosa pine and mixed conifer forest with some blue spruce present in cool air drainages and north aspects. Areas suitable for livestock grazing include grassland stringers and swales, open ponderosa pine forests, mixed conifer timber harvest areas and riparian areas along the Rio Cebolla and Rio San Antonio.

## **A. Status of the species and critical habitat within the action area**

### **Jemez Mountains Salamander**

The Cebolla/San Antonio Allotment is approximately 26,107 acres with elevations that range from 7600 feet to 9800 feet, is within the western critical habitat unit, and is considered occupied by the salamander. The current conditions of the natural systems in the action area and throughout the range of the salamander are significantly departed from the reference condition and are at risk to a variety of threats, especially fire, but also forest pests and disease and post-fire flooding and erosion. These current conditions and associated high risk to fire are a significant threat to the salamander and its habitat. Because the action area includes a large portion of the range of the species where the primary threats affecting this species are the same threats that affect the status of the range-wide, the status of the species in the action area is nearly equivalent to the range-wide status of the species. A current and applicable assessment of the status of the species can be found in the final listing rule for the salamander (77 FR 56482).

### **Mexican Spotted Owl**

Mexican spotted owls are located within the Cebolla/San Antonio Allotment. The allotment contains 10 Protected Activity Centers (PACs) and high quality foraging habitat within the Cebolla riparian pasture. The most recent Mexican spotted owl surveys in the 10 PACs were completed in 2013; it is likely that all of the PACs are occupied. Of the ten PACs within the allotment, there are two PACs (Pony and Oat Canyon) that are within the fence construction action area.

## **B. Factors affecting the species and critical habitat within the action area**

The action area consists entirely of National Forest System lands, and there are no State, tribal, or private actions impacting the Mexican spotted owl or the Jemez Mountains salamander within the project area. Consultations that have occurred with the Forest Service include:

- **Large Ungulate Exclosures, Southwest Jemez Mountains, Collaborative Forest Landscape Restoration Project – USFS Grant (2015)** – Insignificant and discountable effects to the MSO and its designated critical habitat and the Jemez Mountains salamander and its designated critical habitat. Cons. # 02ENNM00-2016-I-0074.
- **Southwest Jemez Mountains Restoration Project (2015)** – Biological opinion on the proposed action on the effects of the Southwest Jemez Mountains Restoration Project, Santa Fe National Forest Jemez Ranger District, Sandoval County, New Mexico. Cons. # 02ENNM00-2014-F-0266.
- **Conference Determinations for New Mexico Meadow Jumping Mouse and Proposed Critical Habitat for Projects that have undergone the NEPA Process, Silvicultural Projects, Prescribed Burn Projects, and Other Miscellaneous Projects (2013)** – Insignificant and discountable effects to the jumping mouse and its proposed critical habitat. Cons. # 02ENNM00-2014-I-0039

- **Cebolla/San Antonio EA (1998)** – Issuance of the 10 year Grazing Permit for the Cebolla/San Antonio Grazing Allotment. Determination of "may affect, is not likely to adversely affect" for Peregrine Falcon, Bald Eagle, and MSO using the 1998 Grazing Guidance Criteria for Determining the Effects of Issuing Term Grazing Permits on Threatened, Endangered, or Species Proposed for Listing, updated August 25, 1998.

### **Jemez Mountains Salamander**

Habitat loss, degradation, and modification through the interrelated effects from severe wildland fire, historical and current fire management practices, forest composition and structure conversions, and climate change have impacted the salamander by curtailing its range and affecting its behavioral and physiological functions. Because the salamander has highly permeable skin used for gas exchange and respiration, it must stay moist at all times or it will die. Salamanders have little control in maintaining water balance except through physically changing where they are in the environment, seeking high-moisture areas to hydrate and avoiding warm, dry areas where they would otherwise dehydrate. Warmer temperatures increase water use and dehydration, as well as increase metabolic processes, which then in turn require additional energy for the salamander. These life-history traits make hydration maintenance the most important activity of the salamander life functions. Therefore, any action or factor that warms and dries its habitat adversely affects the Jemez Mountains salamander and its ability to carry out normal behavior (foraging and reproduction).

Furthermore, historical silvicultural practices removed most of the large-diameter Douglas fir and ponderosa pine trees from the Jemez Mountains, including throughout the action area. This change affects the salamander now and will continue to do so in the future, because a lack of large trees results in a lack of the highest quality cover objects (especially Douglas fir trees) available to Jemez Mountains salamanders now and in the future. For other related plethodontid salamanders, these types of cover objects have been identified as an important habitat component in providing resiliency from the effects of factors that warm and dry habitat, such as climate change.

Finally, this species has a restricted range within one small mountain range in northern New Mexico, with no movement or expansion potential to other areas outside of its current range. This species is not able to tolerate the hot dry conditions at lower elevations that completely surround the Jemez Mountains and occupies habitat to the highest elevations in this mountain range. Within its occupied habitat where habitat features are continuous, Jemez Mountains salamander observations are often isolated. Within the restricted habitat of the Jemez Mountains, this species likely makes only very small movements. This information suggests recolonization or expansion opportunities, particularly after habitat alteration, and genetic exchange among populations may be limited.

### **Mexican Spotted Owl**

Key factors that have affected the owl within the action area are vegetation removal activities associated with fuels reduction and forest restoration projects (i.e., Southwest Jemez Mountains Forest Restoration Project), fire and fuels management, maintenance of vegetation along utility corridors, lands projects involving infrastructure repair/maintenance, recreation, and wildfire. The projects have all included conservation measures to minimize effects to the owl and its habitat.



## **EFFECTS OF THE ACTION**

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action, which will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

### **Effects of the action on the Jemez Mountains salamander**

If the fence installation occurs during the period when summer rains start, and the localized habitat becomes wetted, and salamanders emerge to surface habitat, then effect to the species include possible crushing from the use of ATVs and foot traffic.

### **Effects of the action on PCEs in designated salamander critical habitat**

**PCE:** (A) Consists of the following tree species alone or in any combination: Douglas fir (*Pseudotsuga menziesii*); blue spruce (*Picea pungens*); Engelmann spruce (*Picea engelmannii*); white fir (*Abies concolor*); limber pine (*Pinus flexilis*); Ponderosa pine (*Pinus ponderosa*); and aspen (*Populus tremuloides*); and (B) Has an understory that predominantly comprises: Rocky Mountain maple (*Acer glabrum*); New Mexico locust (*Robinia neomexicana*); oceanspray (*Holodiscus* spp.); or shrubby oaks (*Quercus* spp.)

**Effect:** We anticipate that overall this PCE will be not be significantly affected because very limited tree felling will occur, and only when necessary within the 8-foot wide right of way needed for the fence, and only trees smaller than 9 inches dbh.

**PCE:** Ground surface in forest areas with moderate to high volumes of large fallen trees and other woody debris, especially coniferous logs at least 10 inches (25 centimeters) in diameter, particularly Douglas fir, which are in contact with the soil in varying stages of decay from freshly fallen to nearly fully decomposed.

**Effect:** We anticipate that overall this PCE will be not be significantly affected because crews will limit the amount of ground disturbance of rocks, bark, moss mats, woody debris, and decaying stumps and logs to the greatest extent possible and will avoid cutting/bucking of large diameter downed trees. If cutting of logs is necessary, cutting will be focused in areas where trees lay above the ground (e.g. butt or top ends) to maximize the size of log left in place and provide the greatest longevity to the decomposing log habitat feature. We anticipate effects to this PCE will be very small in scale.

**PCE:** Structural features, such as rocks, bark, and moss mats that provide the species with food and cover.

**Effect:** We anticipate that this PCE will not be significantly affected because crews will limit amount of ground disturbance of rocks, bark, moss mats, woody debris, and decaying stumps and logs to the greatest extent possible. We anticipate effects to this PCE will be very small in scale.

**PCE:** Underground habitat in forest or meadow areas containing interstitial spaces provided by: (A) igneous rock with fractures or loose rocky soils; (B) rotted tree root channels; or (C) burrows of rodents or large invertebrates.

**Effect:** In total, approximately 2 acres (total length of fence 2.81 miles X 8-foot wide right of way) of designated critical habitat will be disturbed from the proposed action. Of the 2 acres, approximately 0.34 acres may be impacted through compaction from use of livestock coming up against a new fenceline. We anticipate that when livestock encounter the new fenceline, they may walk along it searching for a way through. Compaction of this area may result in the loss of rotted root channels or burrows of rodents or large invertebrates.

**PCE:** Moderate to high tree canopy cover, typically 50 to 100 percent canopy closure that provides shade and maintains moisture and high relative humidity at the ground surface.

**Effect:** We anticipate that overall this PCE will not be significantly affected because very limited tree felling will occur, and only when necessary within 8-foot wide right of way needed for the fence, and only trees smaller than 9 inches dbh. However, within the 8-foot wide right of way, canopy may be reduced.

### **Effects of the action of Jemez Mountains salamander critical habitat**

In total, approximately 2 acres (total length of fence 2.81 miles X 8-foot wide right of way) of designated critical habitat will be disturbed from the proposed action. Of the 2 acres, approximately 0.34 acres may be impacted through compaction from use of livestock coming up against a new fence line. We anticipate that when livestock encounter the new fence line, they may walk along it searching for a way through. Compaction of this area may result in the loss of rotted root channels or burrows of rodents or large invertebrates. Additionally, trails and roads can act as barriers to movement in terrestrial salamander. New trails and roads can contribute to population fragmentation depending location, size, and depth of the trail or road. The proposed action may result in compaction of soils along the fence line, but because the fence will be on relatively steep and rocky slopes, it is anticipated that livestock will not continuously walk along the fence line, and impacts will be limited. We do not anticipate the new fence to contribute to fragmentation of salamander populations, because we do not anticipate extensive livestock use along the fence, nor for the compacted area along the fence to develop significant depth or width. Finally, canopy within the 8-foot wide right of way may be reduced resulting in warming and drying of microhabitat over an area of approximately 2 acres of habitat.

### **Effects of the action on the Mexican spotted owl**

As part of the proposed action, the Forest Service proposes to construct cross fences in 7 locations (fences 1, 2, 3c, 3d, 4c, 5b, and 6) totaling 2.81 miles. In addition, an 8-foot wide right of way is needed for construction. See Figure 1 for the locations of the fence segments in relation to designated PACs and suitable recovery habitat/critical habitat. The installation of fence segments #2, #5b, and #6 have the most potential to result in noise effects to owls. Project activities will occur during the Mexican spotted owl breeding season (March 1 through August 31). The Forest Service attempted to locate the proposed fencing in areas that would result in reduced effects to owls, but still provide functionality for livestock management. Fences in

PACs and suitable recovery habitat may create a new hazard for owls and may have the potential for short-term harm related to obstructing flight, particularly during the time frame that owls are learning that fences are there. However, the addition of bird diverters will help reduce the potential for owls to fly into the fences and be injured or die.

Mexican spotted owls associated with two PACs (Pony and Oat Canyon) may be affected by the proposed action either through noise disturbance and/or collisions with new fencing. Surveys have not been conducted since 2013, so we do not have current nest and/or roost location information. However, if owls associated with these PACs fledged young this year, at this stage of the breeding season, juvenile owls would still most likely be in the vicinity of the nest areas and relying on the adults for food. Fence construction will occur during the daytime hours though, which will reduce the potential to disrupting nighttime hunting and feeding behaviors.

All activities associated with fence installation could result in disturbance to owls, such as chainsaw and ATV operation, T-post pounding, and crew communications. Presumably, if owls are far enough away from the noise and/or topographical noise buffers are present, the disturbance would likely be infrequent and short-term. However, where these activities occur at a distance of 0.25 mile or less, noise disturbance could result in changes in owl behavior (such as flushing, an increase in vulnerability to predators, and heat-related stress) and reduced prey delivery to juvenile owls.

There are a growing number of studies attempting to describe and quantify the impacts of non-lethal disturbance on the behavior and reproduction of wildlife, and Mexican spotted owls in particular. Delaney et al. (1997) reviewed literature on the response of owls and other birds to noise and concluded the following: 1) raptors are more susceptible to disturbance-caused nest abandonment early in the nesting season; 2) birds generally flush in response to disturbance when distances to the source are less than approximately 200 feet and when sound levels are in excess of 95 dBA; and 3) the tendency to flush from a nest declines with experience or habituation to the noise, although the startle response cannot be completely eliminated by habituation. Delaney et al. (1999) found that ground-based disturbances elicited a greater flush response than aerial disturbances. Our guidance is to limit potentially disturbing activities to areas  $\geq 0.25$  mile from Mexican spotted owl nest sites during the breeding season (March 1 - August 31). This corresponds well with the Delaney et al.'s (1999) 0.25 mile threshold for alert responses to helicopter flights. In addition, Delaney et al. (1999) found that Mexican spotted owls did not flee from helicopters when caring for young at the nest, but fled readily during the post-fledgling period. This may be a result of optimal fleeing decisions that balance the cost-benefit of fleeing. Frid and Dill (2002) hypothesize that this may be explained using predator risk-disturbance theory and perhaps the cost of an adult spotted owl fleeing during the nestling period may be higher than during the post-fledgling period.

In summary, project-related noise from ATVs, chainsaws, and fence construction is expected to be relatively loud ( $> 69$  dBA) and will occur during the breeding season for an extended period of time ( $> one$  hour) within two PACs where nesting sites are unknown. Noise generated during fence clearing and construction within and adjacent to these PACs could result in disturbance to owls, interfering with nesting and foraging activities post-fledging. Depending upon what areas the owls used this season for nesting and/or roosting, there may be some topographic screening from the fence locations (e.g., within a drainage, over a ridge, etc.), which could result in reduced noise impacts; however, because we have no current survey data, we must assume that owls associate with any one of the three PACs could be adversely affected by the project-related

noise. We do not expect, however, that the proposed action will have any long-term negative effects on Mexican spotted owl occupancy within the project area.

## **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 BO. 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 ESA.

### **Jemez Mountains salamander and Mexican spotted owl**

Unregulated activities on Federal and non-Federal lands, such as livestock trespassing and inappropriate use of Off Highway Vehicles, and residential and commercial development on inholdings are cumulative effects that can adversely affect species through a variety of avenues.

Climate change, in combination with drought cycles, is likely to exacerbate existing threats to the Mexican spotted owl and Jemez Mountains salamander habitats in the southwestern U.S., now and into the foreseeable future. Increased and prolonged drought associated with changing climatic patterns will adversely affect streams and riparian habitat by reducing water availability and altering food availability and predation rates. The continued warming and drying of forested habitats will likely alter vegetation structure and composition and reduce the amount and quality of nesting and roosting habitat for Mexican spotted owls and limit habitat quality and use for Jemez Mountains salamanders in the action area.

## **CONCLUSION**

This section presents the Service's opinion regarding whether the effects of the action, along with the interrelated and interdependent actions in the action area, in the presence of cumulative effects and given the overall rangewide status of the species, are likely to jeopardize the continued existence of the species or result in the destruction or adverse modification of 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).

*Recovery* means improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in section 4(a)(1) of the Act (50 CFR § 402.02).

*Destruction or adverse modification* means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features (50 CFR § 402.02).

### **Jemez Mountains salamander and critical habitat**

After reviewing the current status of the salamander and its critical habitat, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of the Jemez Mountains salamander and will not destroy or adversely modify its critical habitat. We base our conclusion on the following:

- The western Jemez Mountains salamander critical habitat unit, which will be affected by the proposed action from new patterns of allotment use by cattle, will continue to serve the function and conservation role of critical habitat for the Jemez Mountains salamander.
- Implementation of the proposed action will limit the amount of new fence necessary to meet objectives.
- All reasonable attempts will be made to implement the project prior to surface activity of the salamander in the action area.

### **Mexican spotted owl**

After reviewing the current status of the Mexican spotted owl and its critical habitat, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of the Mexican spotted owl. We base this conclusion on the following:

- There are a limited number of owls associated with two PACs that may be potentially affected by the proposed action for a short period of time (approximately two weeks). Therefore, the implementation of the proposed action is not expected to impede the survival or recovery of Mexican spotted owls within the Southern Rocky Mountains EMU.
- Effects to owls from the proposed fencing will not affect the long-term occupancy of the two PACs.

The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any Conservation Measures that were incorporated into the project design.

### **INCIDENTAL TAKE STATEMENT**

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting 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, and sheltering. Incidental take is defined

as take that is 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 that is incidental to and not intended as part of the agency action is not considered a prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are nondiscretionary, and must be implemented by the Forest Service so that they become binding conditions of any grant or permit issued to an applicant/permittee, as appropriate, for the exemption in section 7(o)(2) to apply. The Forest Service has a continuing duty to regulate the activity covered by this incidental take statement. If the Forest Service (1) fails to adhere to 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 Service must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [see 50 CFR 402.14(i)(3)].

## **AMOUNT OR EXTENT OF TAKE**

### **Jemez Mountains salamander**

Incidental take of Jemez Mountains salamanders is reasonably certain to occur as a result of implementation of the proposed action. We anticipate that take as a result of the proposed action will be in the form of harm or harassment of the Jemez Mountains salamander through effects that disturb or alter habitat from the implementation of the proposed action. We anticipate that harm or harassment will result from alterations of microsites within habitat (e.g. changes in the distribution of soil moisture or temperature and areas of soil compaction) over an area totaling approximately 2 acres. Some individuals may be injured or killed as a result of the implementation of the proposed action, but we anticipate this number to be small because most activities will occur when the salamander is below ground. There may be occasional individuals that are surface active when environmental conditions are generally not suitable for salamander surface activity, but the likelihood of those outlying active salamanders being present where an action is being implemented is low.

We anticipate that incidental take of Jemez Mountains salamander will be difficult to detect for the following reasons: the species has small body size and cryptic coloration, most actions (e.g., mechanical treatments) will take place on such a large scale that detection of a dead or injured individual will be extremely difficult, there is no means of equating one dead salamander (assuming one was found) to a number of dead salamanders not observed, and most take is expected to be in the form of harm or harassment resulting from effects related to alterations in microhabitat. For these reasons, it is not reasonable to express the amount of anticipated take of in terms of the number of individuals. Incidental take of habitat will not exceed 2 acres.

We conclude that the incidental take of Jemez Mountains salamanders will be considered exceeded if more than 2 acres of habitat disturbance is exceeded. If the annual or total take limit of habitat disturbance is exceeded, then as provided in 50 CFR Section 402.16, reinitiation of formal consultation would be required as the amount or extent of incidental take would be exceeded.



## **Mexican Spotted owl**

Incidental take of Mexican spotted owls is reasonably certain to occur as a result of implementation of the proposed action. We anticipate that take as a result of the proposed action will be in the form of harassment of the Mexican spotted owl through effects that disturb or alter behavior from the implementation of the proposed action. We anticipate that harm will result mainly from noise generated during fence clearing and construction within and adjacent to the Pony and Oat Canyon PACs that could result in disturbance to owls by interfering with nesting and foraging activities post-fledging. However, we expect the level of harassment to be very minor and do not expect that the proposed action will have any long-term negative effects on Mexican spotted owl occupancy within the project area for the following reasons:

- Mexican spotted owls associated with the Pony and Oat Canyon PACs will be temporarily affected by noise associated with the proposed action. Although owls may be disturbed by this noise, they are unlikely to abandon any juvenile owls they may have produced or their territories, even temporarily.
- Bird diverters will be placed on the fence as it is constructed in order to make it visible to owls and prevent them from being injured and/or killed by the fence.

We conclude that the incidental take of Mexican spotted owls will be considered exceeded if project activities expand to areas outside of the Pony and Oat Canyon PACs. If the total take limit of habitat and behavior disturbance is exceeded in these areas, then as provided in 50 CFR Section 402.16, re-initiation of formal consultation would be required as the amount or extent of incidental take would be exceeded.

The Fish and Wildlife Service will not refer the incidental take of any migratory bird or bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. § 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. § 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

## **EFFECT OF THE TAKE**

We have determined that the level of anticipated take described above is not likely to jeopardize the continued existence of the Mexican spotted owl or the Jemez Mountains salamander or to result in destruction or adverse modification of Jemez Mountains salamander designated critical habitat.

## **REASONABLE AND PRUDENT MEASURES**

The reasonable and prudent measures, and their implementing terms and conditions, are designed to minimize the effects of incidental take that might otherwise result from the action. In addition to the Conservation Measures already proposed as part of the project description, the Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of Mexican spotted owls and Jemez Mountains salamanders:

1. Minimize adverse effects to Jemez Mountains salamanders and their habitat affected by the Upper Cebolla Fence Installation Project.
2. Minimize adverse effects to Mexican spotted owls affected by the Upper Cebolla Fence Installation Project.

## **TERMS AND CONDITIONS**

In order to be exempt from the prohibitions of section 9 of the Act, the Forest Service must comply with the following terms and conditions, which implement the reasonable and prudent measures listed above and outline reporting/monitoring requirements. These terms and conditions are non-discretionary. The Service may approve deviation from these terms and conditions through site-specific project consultation. Examples warranting deviation from these terms and conditions may include, but are not limited to, instances where site-specific conditions dictate that full compliance with the condition is not necessary to avoid incidental take; the Forest Service lacks discretionary authority to implement the condition; or deviation from the condition is needed to meet the purpose and need of a project.

The following terms and conditions are established to implement reasonable and prudent measure 1:

- 1.1 The Forest Service shall not use ATVs in salamander habitat when soils are wetted and salamanders may be surface active in the action area to avoid crushing salamanders. ATVs may be used prior to salamander surface activity.
- 1.2 The Forest Service shall have a biological monitor on-site if activities are conducted when soils are wetted and salamanders may be surface active. The Biological Monitor will possess a federal permit or will work with the Service to gain appropriate training. The Biological Monitor will train field personnel to avoid stepping on or destroying above ground habitat.

If, during the course of the action, the level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The Forest Service must provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

## **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. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop 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.

### **Jemez Mountains salamander**

The Service recommends the Forest Service implement the following for the Jemez Mountains salamander:

1. The Forest Service should require the use of fire monitors when using chainsaws and other spark producing equipment in Jemez Mountains salamander habitat when conditions are dry. Wildfire remains the greatest threat to this species, and abundant fuels exist in the action area.
2. The Forest Service should continue to cooperate with New Mexico Department of Game and Fish (NMDGF), the Service, and other parties, in efforts to protect habitat within the action area from wildfire and other large-scale impacts.
3. The Forest Service should continue to cooperate with NMDGF, the Service, and other parties to participate in a rigorous approach to surveying for salamanders throughout its range, particularly in under-surveys areas.
4. The Forest Service should implement other actions that contribute to recovery and conservation of salamanders on the Santa Fe National Forest.

### **Mexican Spotted owl**

1. We recommend that the Forest Service conduct Mexican spotted owl surveys in currently unsurveyed recovery habitat and monitor existing PACs.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

### **Reporting Requirements Disposition of Dead or Injured Listed Animals**

Upon finding a dead or injured threatened or endangered animal, initial notification must be made to the Service's Division of Law Enforcement, 4901 Paseo Del Norte NE, Suite D, Albuquerque, New Mexico, 87113 (505-346-7828) 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, and any other pertinent information. Care must be taken in handling injured animals to ensure effective treatment and care and in handling dead specimens to preserve biological material in the best possible condition. If feasible, the remains of intact specimens of listed animal species shall be submitted as soon as possible to the nearest Service or NMDGF office, educational, or research institutions (e. g., University of New Mexico) holding appropriate state and Federal permits.

All reports should be electronically submitted via email to [NMESFO@fws.gov](mailto:NMESFO@fws.gov). You may contact the project biologist, Michelle Christman, at 505-761-4715, or by electronic mail at [Michelle.Christman@fws.gov](mailto:Michelle.Christman@fws.gov). If not available, contact the front desk at 505-346-2525 for immediate help.

### **REINITIATION STATEMENT**

This concludes formal consultation on the Santa Fe National Forest Service proposed project to protect and improve habitat conditions for the New Mexico meadow jumping mouse within the San Diego and Cebolla/San Antonio allotments, Jemez Ranger District, Santa Fe National Forest

/ Upper Cebolla Fence Project (Consultation #02ENNM00-2016-F-0252). 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; 2) new information reveals effects of the agency action that may adversely affect listed species or designated critical habitat in a manner or to an extent not considered in this BO; 3) the action is subsequently modified in a manner that causes an effect to a listed species or designated critical habitat that was not considered in this BO; or 4) a new species is listed or critical habitat designated that may be affected by this action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation of consultation with the Service.

Certain project activities may also affect species protected under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. sec. 703-712) and/or bald and golden eagles protected under the Bald and Golden Eagle Protection Act (Eagle Act). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the FWS. The Eagle Act prohibits anyone, without a FWS permit, from taking (including disturbing) eagles, and including their parts, nests, or eggs. If you think migratory birds and/or eagles will be affected by this project, we recommend seeking our Technical Assistance to identify available conservation measures that you may be able to incorporate into your project.

For more information regarding the MBTA, Eagle Act, and available permits, please visit the following websites: <http://www.fws.gov/migratorybirds> and <http://www.fws.gov/migratorybirds/mbpermits.html>. For information on protections for bald eagles, please refer to the FWS's National Bald Eagle Management Guidelines (72 FR 31156) and regulatory definition of the term "disturb" (72 FR 31132) published in the Federal Register on June 5, 2007 (<http://www.fws.gov/southwest/es/arizona/BaldEagle.htm>), as well at the Conservation Assessment and Strategy for the Bald Eagle in Arizona (SWBEMC.org).

We appreciate the Santa Fe National Forest's efforts to identify and minimize effects to federally listed species from this project. In future communications regarding this project please refer to consultation number 02ENNM00-2016-F-0252. If you have any questions or would like to discuss any part of this BO, please contact Michelle Christman of my staff at (505) 761-4715 or [michelle\\_christman@fws.gov](mailto:michelle_christman@fws.gov).

Sincerely,

Wally Murphy  
Field Supervisor

Enclosure

cc:

Director, New Mexico Department of Game and Fish, Santa Fe, NM (electronic copy)  
Director, New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division,  
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