United States Department of the Interior

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August 22, 2013

Cons. # 02ENNM00-2013-FC-0041

Linda Riddle, District Ranger
Jemez Ranger District, Santa Fe National Forest
051 Woodsy Lane
P.O. Box 150
Jemez Springs, NM 87025

Dear Ms. Riddle:

Thank you for your request for formal conferencing with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). We began early coordination with you and your staff on December 26, 2012, when we received an addendum to the Biological Assessment (BA) dated August 8, 2011, that added the analysis of the Jemez Mountains salamander (*Plethodon neomexicanus*) (salamander) to the completed informal consultation of the proposed action to the Mexican spotted owl (*Strix occidentalis lucida*) (Cons. #02ENNM00-2012-I-0058). In a letter date February 13, 2013, and received by us on February 14, 2013, you requested initiation of formal conferencing because you determined that the proposed action "may affect, is likely to adversely affect" the salamander. At issue are impacts that may result from the proposed Paliza Prescribed Burn Project, located in Sandoval County, New Mexico. There is no proposed critical habitat for the salamander in the project area; therefore, none will be affected.

This conference opinion is based on information provided in all documents and appendices submitted with the BA, telephone conversations, email messages, and other sources of information. Literature cited in this opinion is not a complete bibliography of all literature available on the species of concern, fuel reduction projects and their effects, or on other subjects considered in this opinion. A complete record of this conference is on file at our office.

Consultation History

- **November 22, 2011**: The Forest Service sent us the original biological assessment and Environmental Assessment as a result of a consultation request for the Mexican spotted owl (*Strix occidentalis lucida*).
- **May 14, 2012**: The FWS completed informal consultation on the Mexican spotted owl.
- **February 25, 2013:** Forest Service personnel met with the FWS and the New Mexico Endemic Salamander Team to discuss monitoring and data collection associated with Paliza project.

- **January 30, 2013**: FWS personnel met with Forest Service personnel to discuss conferencing options on the salamander.

CONFERENCE OPINION

DESCRIPTION OF THE PROPOSED ACTION

Most of the information regarding the project in this Conference Opinion is from the February 13, 2013, addendum to the BA and appendices and the updated pages 9-13 submitted via email. The full project description and conservation measures from these two documents is incorporated by reference and summarized below.

The Santa Fe National Forest (Forest), Bureau of Indian Affairs (BIA), and the Pueblo of Jemez (Pueblo) are partners in planning and implementing a cross-jurisdictional prescribed burn project The BIA determined that the proposed action will have "no effect" to the salamander on the Pueblo because there is no suitable habitat present. The project consists of implementing four types of actions over 10 years, including:

Prescribed Burning: Low to moderate intensity prescribed burns will be conducted using a combination of manual and aerial ignition methods. Burning will start by manually burning (blacklining) the perimeter, including the thinned areas along the north and east boundaries. Manual ignitions will also be used along private properties, where there are special features to be protected. Backing fire ignition will be used in a pattern that starts on the ridges and moves slowly down to the drainage bottoms. Aerial ignitions will be used for the interior of the area, dropping ignitable ping pong balls from helicopters. All ignitions will be conducted under very specific weather and fuel moisture conditions to keep the burn within the prescription (burn plan). The manual and aerial ignition techniques to be used are those that have been successfully implemented in similar forest conditions. The fire should spread unevenly through the forest surface, based on fuel loads and moisture, mimicking historic wildfire patterns. The larger burn could be completed within 5-7 days, after the perimeter burns and lines are completed.

Fireline Preparation (Thinning): Fireline thinning will be done in narrow roadside strips, less than 200 yards wide, along the roads that make up the boundaries of the project area on Forest land. This will be accomplished by manually felling or mechanically masticating the smaller understory trees, generally those 3-12 inches in diameter, over a maximum of 929 acres. Fire containment lines (strips of exposed soil) may be created with hand tools or bulldozers as necessary. Fireline construction will be limited in extent as most of the area is already lined by existing roads or trails (including unauthorized routes); they will mostly occur around private property lines and a short stretch of the northern boundary. This will enhance the safety and effectiveness of the fuelbreaks. No additional thinning will occur throughout the interior of the area. The wood from the cut or masticated trees will remain on site or may be removed by the public for firewood. Any lopping, scattering, or piling of cut material will be done by hand. The wood residue will need to dry for 3-6 months prior to burning. Snags (dead standing trees) along

the burn perimeter will be felled as needed for firefighter safety and effectiveness of the fire containment lines.

Road Maintenance: No road or trail construction is proposed. However, prior to conducting the prescribed burn, heavy equipment will be used to grade some pre-existing, primitive roads to smooth out deep ruts and improve water drainage features, so they can be efficiently used by project vehicles during implementation of the prescribed burn and as fire containment lines. Roads that may require maintenance include Forest Roads 10, 137, 139, 266, 266EC, 266G, 270, 271, 292, and 466, and BIA routes 266 (Bear Springs), 805 (Hondo Canyon), and 803 (Borrego Canyon) on Pueblo land. Forest Road 10 and the entire project area will be closed to the public for an estimated 5-7 days during aerial ignitions for safety purposes.

Maintenance Burning: maintenance burns of low to moderate intensity will be conducted every 5-10 years to maintain the desired conditions.

Conservation Measures

The Forest will implement the following conservation measures as part of the proposed action:

1) When bulldozers or heavy equipment are used, the following timing restrictions will be used to minimize adverse effects to the salamander:

    a) bulldozers or heavy equipment use will generally be limited to October 16 through May 15, when the salamander is unlikely to be on or near the surface.

    b) If bulldozers or heavy equipment are used outside of October 16 through May 15, then activities must occur between May 15 to July 1 or prior to the start of summer monsoon.

    c) In the event an exception to the above dates is needed, the Forest will contact the FWS to discuss how to minimize adverse effects to the salamander and its habitat and determine whether the conference opinion requires reinitiation.

2) The Forest will focus on:

    a) maintaining large logs with replacement through felling where necessary; and

    b) supporting studies that either monitor log consumption and variables that influence large diameter log consumption during prescribed fire parameters or test the efficacy of specific treatments to logs or areas that could increase large diameter log retention.

3) The Forest will continue to collaborate with and support several vegetation and salamander habitat projects in the Paliza prescribed burn:

a) The Bandelier National Monument fuels monitoring crew has been contracted to do full stand exams within the boundaries of the Paliza prescribed burn. This monitoring includes plot measures of standing live/dead trees, canopy cover, and Brown's transects which count and measure length and diameter of all woody materials on the ground, and photo monitoring before and after implementation. Specific data collection relevant to salamanders and their habitat is being incorporated.

b) The Forest is collaborating with Rocky Mountain Research Station to study fire effects from the Paliza prescribed burn on archaeological sites on Forest lands. This research may be expanded to also assess effects of the Paliza prescribed burn on potential suitable salamander habitat in large logs by placing heat sensors in and around logs pre-burn. Parameters may include diameter, moisture, and surrounding vegetation, with monitoring post-fire to assess log retention. This research is proposed for Forest lands only.

c) The Nature Conservancy, through a Collaborative Forest Restoration Program grant, is working toward a set of collaboratively developed Best Management Practice for forest restoration in salamander habitat. There are three main components:

- increase the number of salamander surveys, especially in areas the Endemic Salamander Team considers undersurveyed;
- reconstruct historic stand structure and fire frequency in important salamander locations to act as a reference point for restoration objectives;
- characterize the current forest conditions in the same areas as the historic stand reconstruction to better illustrate changes that have taken place as a result of fire suppression, and to evaluate the risk of these stands to crown fire.

d) Large (12" plus) decayed logs are considered important habitat elements for the salamander. The Nature Conservancy, the New Mexico Endemic Salamander Team, FWS, US Geological Survey, New Mexico Department of Game and Fish, and Forest staff are collaborating to assess effects of the burn on large log retention. Location of large logs will be field marked pre-burn and data collected including parameters such as species, diameter, and length. Monitoring post-burn will assess log retention under prescribed fire conditions. The intent of the log retention study is to assess how an important salamander habitat feature (large, decomposing logs) may be altered from a prescribed fire designed to reduce fuel loads. The goal is to assess and develop strategies to minimize these potential impacts to the salamander and its habitat.

Action Area

The action area includes 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]. We have defined the

action area as lands within the immediate vicinity project including 11,440 acres on the Forest, 2,895 on the Pueblo, and 47 acres of private land. The burn will occur across the entire area on Forest and Pueblo land, but the private land will not be treated without landowner consent. The action area lies approximately 4 miles east of the Village of Jemez Springs and 2.5 miles northeast of Ponderosa.. Elevations range from 6,800-9,100 feet (Figures 1 and 2; Appendix A).

STATUS OF THE SPECIES

The Jemez Mountains salamander was proposed as an endangered species with critical habitat on September 12, 2012 (77 FR 56481). 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, and it possesses foot webbing and a reduced fifth toe. This salamander 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 occur between 7,200 and 9,500 feet (ft) but has been found as low as 6,998 ft and as high as 10,990 ft (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 the 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. Habitat is typically mixed-conifer forest, consisting primarily of Douglas fir (*Pseudotsuga menziesii*), blue spruce (*Picea pungens*), Engelman spruce (*P. engelmannii*), white fir (*Abies concolor*), limber pine (*Pinus flexilis*), Ponderosa pine (*P. ponderosa*), Rocky Mountain maple (*Acer glabrum*), and aspen (*Populus tremuloides*) (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. Current threats include wildfire, logging, habitat loss (road construction, development), and chytridiomycete fungal (*Batrachochytrium dendrobatidis*) infection (77 FR 56481). Range movements are poorly documented, but home ranges tend to be very small (Marvin 2001), on the order of a few meters to a few dozen meters in diameter.

Threats affecting the salamander and its associated habitat within the action area include habitat loss, degradation, and modification, from severe wildland fire, but also 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

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 proposed listing rule (77 FR 56482).

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current 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.

Status of species within the action area

The action area has become a homogenous, middle-age, closed canopy forest, lacking in structural and biological diversity. The pine trees have become stressed by the overcrowded conditions, and many pine stands are dominated by white fir trees, a shade-loving, but fire intolerant species. The project area is predominantly ponderosa pine forest on south-southwest facing slopes and quite dry. It is unknown whether the salamander occurs within the project area; however, we have assumed the action area is occupied because part of the project area lies above 7,200 feet and is within this salamander's range. Although there are 7 negative survey points within the boundary of the prescribed burn and no Essential Survey Habitat or known occupied habitat exists in the area, there are 295 acres of Regular Survey Habitat in the area (NMEST 2000, 2000b). Moreover, there are at least 30 negative surveys between the Paliza prescribed burn boundary and nearest occupied site. The project area is in the southwestern section of the Jemez District which is drier and transitions into pinon-juniper to the south and west relative to occupied salamander habitat. This drier condition, in addition to the distance of the project area from occupied habitat, and multiple negative surveys between this project and occupied habitat suggest a low likelihood that the salamander occurs in the project area. Nevertheless, because the action area contains unsurveyed habitat that contains similar habitat features found in occupied salamander habitat, the Forest concluded that the action area may harbor undocumented salamanders and assumed the area may be occupied for section 7 purposes. Consequently, the Forest analyzed habitat and geologic variables to estimate the areas and acreage where the salamander would be more likely to occur.

The salamander is found in habitats with specific microhabitat conditions. Preferred microhabitat is characterized by relatively high humidity and soils that contain deep, igneous subsurface rock that is fractured vertically and horizontally to allow the species to retreat underground to below the frost line. Habitats where pumice is the dominant subsurface structure are generally not occupied. In the analysis conducted by the Forest, soils associated with rhyolitic rock formation that are likely to be conducive to suitable salamander habitat were mapped. Approximately 1,600 acres contain those rhyolitic soils. Outside of those areas, the soil associations, many of which include pumice soils, indicate low likelihood of potential for the

salamander. Of the areas with rhyolite-association, Sites 1, 2, and 3 border the boundary of the prescribed burn (Figure 3; Appendix A).

Ponderosa pine is the dominant forest cover or ecosystem type, covering roughly 73 percent of the project area. About 13 percent is mixed conifer forest (on cool-moist slopes), 13 percent piñon-juniper woodland (on dry low elevation slopes), and 1 percent shrub or grass (see Figure 2 for vegetation cover type map). Mixed conifer forest contains one or more species of white fir, Douglas-fir, blue spruce, and limber pine. Classification of mixed conifer in the MSO Recovery Plan requires that only 20 percent of the dominant overstory trees consist of mixed conifer species, as opposed to the 50 percent minimum that is used to classify vegetation cover types in the Forest Service FSVeg database. Thus, about 600 acres classified as mixed conifer (protected habitat) consist of predominantly ponderosa pine overstory trees.

The tree canopy is overly dense and closed, lacking in the canopy gaps needed to support vegetative ground cover. The deficit of grasses and shrubs in this area reduces biological diversity needed for quality wildlife habitat, as well as the area's ability to support surface fires. Historic meadows, aspen patches, and riparian vegetation have also greatly diminished from historic pre-settlement conditions due to conifer encroachment in the absence of a frequent surface fire regime.

In summary, there has been a significant decline in the diversity and abundance of grasses, shrubs, aspen, meadows, riparian vegetation, mature forest, and canopy gaps. The heterogeneous mosaic pattern that existed on this landscape has now given way to a homogenous closed canopy, mid-age forest. This major decline in diversity impacts wildlife species richness.

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. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

Prescribed Burn

We find that it is unlikely salamanders will be directly affected because prescribed burning will occur when conditions are dry enough to carry a fire, which is likely too dry for salamanders to be present on the surface and potentially exposed to fire. Additionally, prescribed fire is not expected to substantially burn through cool-moist mixed conifer stands on north-facing slopes, which is primarily associated with potential salamander habitat in the action area. This will naturally limit direct effects to salamanders. Additionally, because the salamander evolved in a fire-adapted environment and some fires would have historically occurred when salamanders were on the surface, some avoidance capability may have developed so that some individuals can escape underground if ambient temperatures begin to exceed tolerance.

Depending on time of year, fire can also negatively impact the salamander when the species is active above ground (typically from July to September). However, prescribed fire in the Jemez Mountains is often planned when the salamanders are not active above ground, because low wind and increased moisture during this time allow more control, lowering chances of the fire's escape. Burning in spring may occur in March through early May when soil temperatures begin to warm, but may also occur during August or early September. It is unlikely that the salamander would be on or near the surface during these periods because soil moistures of ground fuels must be dry enough to carry a fire. The prescribed burn would follow a burn plan that prescribes the range of moisture of ground fuels. Consequently, even though this may be within the active season of the salamander, there is a very low potential of individuals being active on or near the surface because the low range of fuel moisture needed to carry a fire would be an insufficient amount to trigger surface activity of salamanders. Therefore, we conclude there is a low potential for direct effects to salamander from the prescribed burn.

Although the prescribed burn will likely result in long-term benefits to the salamander and its habitat, it also has the potential to cause temporary indirect impacts. Burning in potential habitat is expected to be mostly of low intensity, with some pockets of moderate intensity. Within the areas that burn under moderate intensity, we anticipate canopy closure could be modified for the short-term and the amount of large woody debris (decomposing logs) may be reduced. The scattered openings would quickly fill in with herbaceous plant cover that would help retain soil moisture. Additionally, it is likely that most of the large logs on the north-facing slopes would remain following the prescribed fire due to the higher moisture content. Alternatively, conducting prescribed fires may also consume ground litter that helps to create moist conditions and stabilize soil and rocky slopes. Based on information provided by the Forest, we expect that areas containing rhyolitic soils will burn at lower intensity than other sites, suggesting there is a lower potential to burn tree canopy within the areas that contain the highest potential for salamander occurrence. For these reasons, we expect the low to moderate intensity prescribed burn would retain the majority of important habitat components such as the dominant and co-dominant (larger) trees and overstory canopy cover, while consuming primarily the smaller trees and fine surface fuels. By returning low and moderate severity fire into the ecosystem in which the salamander evolved, hazardous fuels would be reduced, while beginning to restoring forest composition and structure to the area. Prescribed fire may also benefit the salamander in the long-term by reducing the risk of severe wildland fires and by returning the natural fire cycle to the ecosystem. However, it is unknown what impacts will result from prescribed burning within potential salamander habitat. As a result, we conclude there some, albeit low, potential for indirect adverse effects to the salamander and its habitat.

Fireline Preparation and Road Maintenance

Fireline preparation and the use of bulldozers to create fire containment lines along roads on the north and east boundaries. This will remove smaller understory trees, generally those 3-12 inches in diameter within no more than 929 acres. The maximum width of the fire line will be 30-40 feet, which may cause fragmentation or short-term loss of potential habitat. Use of bulldozers to create fire lines has the potential to directly affect salamanders that may be present

in the area. Although the incorporation of seasonal timing restrictions eliminates the potential of any adverse effects to individual salamanders that are surface active, salamander that are underground may still be impacted because it is unknown how deep bulldozers will scrape when creating firelines. Nevertheless, there are only a few areas that contain suitable salamander habitat where firelines will be created, but conclude that there is still a very small potential that salamanders could be injured or killed from bulldozer use.

Although the creation of firelines could initially create drier conditions, felled trees will be left on-site to provide shade and moisture retention. It is possible that some of these trees that are close to access roads may be removed by the public for firewood, but, because no off-road travel will be permitted, the possible firewood collection area will only be a narrow corridor where wood could easily be carried to vehicles. Finally, heavy equipment use for road grading will occur on pre-existing primitive roads and only on the road prism; thus, direct and indirect adverse effects from road maintenance are not expected.

Maintenance Burning

Maintenance burns that are expected to be conducted every 5-10 years could disturb potential habitat; however, direct and indirect effects to the salamander from maintenance burning are not anticipated.

Summary

We anticipate few short-term adverse effects, but long-term benefits from the implementation of the Paliza prescribed burn. The burn may benefit the salamander by reducing the probability of a large crown fire that may otherwise severely impact habitat. Reducing the risk of crown fires in this area will reduce chances for spread of fire to surrounding areas of salamander habitat. With an increase in dominance by fire-adapted ponderosa pine and Douglas-fir, the area should become more resilient to withstand future surface fires without promoting crown fire behavior. Future fires will likely be cooler, with less reduction of large ground woody debris. Because the proposed action entails low to moderate intensity prescribed burns and will occur when salamanders are unlikely to be surface active, we anticipate few adverse effects. The best information suggests that salamander do not occur in the action area. If they do occur, is extremely unlikely that individuals would be surface active during prescribed fire operations. It is important to note that salamanders and their suitable habitats may be significantly affected by uncontrolled wildfire. The potential for habitat loss from uncontrolled wildfires is a greater concern for the species than the low potential for adverse effects from the proposed action.

CUMULATIVE EFFECTS

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities that are reasonably certain to occur within the action area of the Federal action subject to consultation." Other activities have the potential to affect the salamanders and its proposed critical habitats on the Santa Fe National Forest. We are not aware of any cumulative effects that will affect this species.

CONCLUSION

Jeopardize the continued existence of, is defined as, 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 calls for 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).

After reviewing the current status of the species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our conference opinion that the Paliza Prescribed Burn Project is not likely to jeopardize the continued existence of the proposed Jemez Mountains salamander. We also do not expect the effects of the proposed action to impede the survival or recovery of Jemez Mountains salamander. There is no critical habitat in the project area and no effects to critical habitat are anticipated. Our conclusion is based on the following:

1. The best available information suggests that high intensity, uncontrolled wildfire pose a serious threat to the salamander and its habitat. Prescribed fire is an essential management tool to help prevent or reduce the probability for landscape-wide, stand-replacing wildfires and is thought to be necessary for the long-term sustainability of salamander habitat. There is a much higher risk to loss of individuals and habitat from severe wildfire than from prescribed fire use and associated actions.

2. The effects from direct contact with fire are likely reduced due to the temporal differences between the time prescribe fire is used in early spring and the time where the salamander would be most active. For prescribed fires that occur during August or early September, there is a very low potential of individuals being active on or near the surface because the low range of fuel moisture needed to carry a fire would be an insufficient amount to trigger surface activity of salamanders.

3. Prescribed burning is expected to result in modification of canopy closure and quantity of cover objects (logs, stumps, or bark) in potential salamander habitat in an area of approximately 1,600 acres on National Forest lands. However, the prescribed burning is expected to result in low and moderate severity burns, and will likely benefit habitat in both the short-term and long-term.

4. The majority of effects from bulldozer use in potential salamander habitat will be minimized by the incorporation of timing restrictions. In the event an exception to the timing restriction is needed, the Forest will contact the FWS to discuss how to minimize adverse effects to the salamander and its habitat and determine whether the conference opinion requires reinitiation.

AMOUNT OR EXTENT OF TAKE

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act 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 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 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 prohibitions against taking the species found in section 9 of the Act do not apply until the species is listed. However, the FWS advises the Forest to consider implementing the following reasonable and prudent measure. If this conference opinion is adopted as a biological opinion following a listing or designation of critical habitat, this measure, with its implementing term and condition, will be non-discretionary. The Forest has discretion to regulate the activity that is covered by this incidental take statement. If the species is listed and the Forest: 1) fails to adhere to the term and condition of the incidental take statement through enforceable terms that are added to permits or contracts, and/or 2) fails to retain oversight to ensure compliance with these term and condition, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, we recommend that the Forest report the progress of the action and its impact on the species to the FWS as specified in the incidental take statement.

Amount of Take

Incidental take of salamanders is reasonably certain to occur as a result of implementation of the proposed action. We anticipate that bulldozing firelines is likely the only action that may result in take of salamanders. This incidental take is expected to be in the forms of harm (including direct fatality) and harassment resulting from the effects of the proposed action on salamander. Providing a numerical estimate of incidental take is the preferred method of measuring take, and for some animals, this method is biologically defensible as the ecology of the animal lends itself to them being more detectible (e.g., long-lived, territorial species such as the desert tortoise). However, it is difficult to quantify the number of individual salamanders that may be incidentally taken because: 1) dead or impaired individuals are almost impossible to find and losses may be masked by seasonal fluctuations in environmental conditions; 2) the status of the species is changing over time through immigration, emigration, and natural loss; and, 3) the species is small-bodied, well camouflaged, and occurs predominantly underground, and thus individuals are difficult to detect.

We are not providing a numerical estimate for incidental take of salamanders associated with this action, recognizing that it is highly unlikely that any salamanders will be found because we anticipate that individuals will be underground or within other cover objects (e.g., logs), making it extremely difficult to encounter them. When the species is above ground and surface active, we are capable of counting salamanders to some extent, but weather conditions (moisture and temperature) and many other factors can limit the detectability of individuals on any given survey. "Detectability" refers to the reality that even in locations actually occupied by a given species of interest, it is very common for individual animals and even species to be missed and go undetected. Based upon our knowledge of Jemez Mountains salamander ecology, we know that this species can have very low detectability. Even very experienced surveyors can miss individuals.

All of these factors result in even the most experienced salamander biologist being unable to show that any estimated numerical take occurred or did not occur at a site. Although there is no means of equating one dead salamander (assuming one was found) to a number of dead salamanders not observed, we are providing a mechanism to quantify when take would be considered to be exceeded as a result of implementing the proposed action. We will assume that if any dead or impaired salamanders are found then take will have been exceeded. By setting a threshold of one salamander, we have set an incidental take limit that is measurable and indicates that the salamander is being impacted at a level where the actions causing the take (e.g., bulldozing) need to change. We conclude that the incidental take of Jemez Mountains salamander will be considered exceeded if there one dead or impaired salamander is located. If one impaired or dead salamander is found, 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.

EFFECT OF THE TAKE

In the accompanying conference opinion, the FWS determined that this level of anticipated take is not likely to jeopardize the continued existence of the salamander.

REASONABLE AND PRUDENT MEASURES

The reasonable and prudent measures, and 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 FWS believes that the following reasonable and prudent measure is necessary and appropriate to minimize impacts of incidental take of the salamander:

1. The Forest will monitor habitat to ensure that authorized take is not exceeded.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the Forest and their employees, contractors, or subcontractors must comply with the following term and condition, which implement the reasonable and prudent measure described above and outline required reporting/monitoring. This term and condition is nondiscretionary.

The reasonable and prudent measure, with the implementing term and condition, are designed to minimize incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the FWS the need for possible modification of the reasonable and prudent measure.

The following Term and Condition is established to implement Reasonable and Prudent Measure 1.

1.1 Within the project area, the Forest shall monitor bulldozing activities within the 1,600 acres of habitat that contains rhyolitic soils and has the highest potential for salamander occurrence to ensure that no salamanders are killed or impaired.

Disposition of dead or injured listed animals

Upon finding dead, injured, or sick individual endangered or threatened species, initial notification must be made to the nearest FWS Law Enforcement Office. In New Mexico, contact the Law Enforcement Office (505-346-7828) or the New Mexico Ecological Services Field Office (505-346-2525). Written notification must be made within 5 calendar days and include date, time, and location, photograph, and any other pertinent information. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible condition. If feasible, remains of intact specimens of listed species will be submitted to educational or research institutions holding appropriate State and Federal permits. If such institutions are not available, information noted above will be obtained and the carcass left in place.

Arrangements regarding proper disposition of potential museum specimens will be made with the institution before carrying out of the action. A qualified biologist should transport injured animals to a qualified veterinarian. Should any listed species survive treatment, we should be contacted regarding final disposition of the animal.

CONSERVATION RECOMMENDATIONS

Sections 2(c) and 7(a)(1) of the Act direct Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of listed species. Conservation recommendations are discretionary agency activities to minimize or avoid effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information on listed species. The recommendations provided here do not necessarily

represent complete fulfillment of the agency's section 2(c) or 7(a)(1) responsibilities for the salamander. In furtherance of the purposes of the Act, we recommend implementing the following action:

1. The Forest Service is encouraged to continue surveying and monitoring occupied and potentially occupied salamander habitats.

REINITIATION NOTICE

This concludes formal conferencing on the Paliza Prescribed Burn Project, on the Santa Fe National Forest. You may ask the FWS to confirm the conference opinion as a biological opinion issued through formal consultation if the salamander is listed. The request must be in writing. If the FWS reviews the proposed action and finds that there have been no significant changes in the action as planned or in the information used during the conference, the FWS will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary.

After listing of the salamander as endangered/threatened and designation of critical habitat for this species and any subsequent adoption of this conference opinion, the Federal agency shall request reinitiation of consultation if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may impact listed species or critical habitat in a manner or to an extent not considered in this conference 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 conference opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

In future communications regarding this project, please refer to consultation #02ENNM00-2013-FC-0041. If you have any questions or would like to discuss any part of this conference opinion, please contact Michelle Christman or Eric Hein of my staff at 505-761-4715 or 505-761-4735, respectively.

Sincerely,

Wally "J" Murphy
Field Supervisor

cc:
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico

LITERATURE CITED

Degenhardt, W. G., C. W. Painter, and A. H. Price. 1996. Amphibians and Reptiles of New Mexico. Albuquerque, NM, University of New Mexico Press.

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Ramotnik, C. A. 1988. Habitat requirements and movements of Jemez Mountains salamanders, (*Plethodon neomexicanus*). Master of Science thesis, Colorado State University, CO. 84 pp.

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Appendix A

Figure 1. Paliza Prescribed Burn Project.

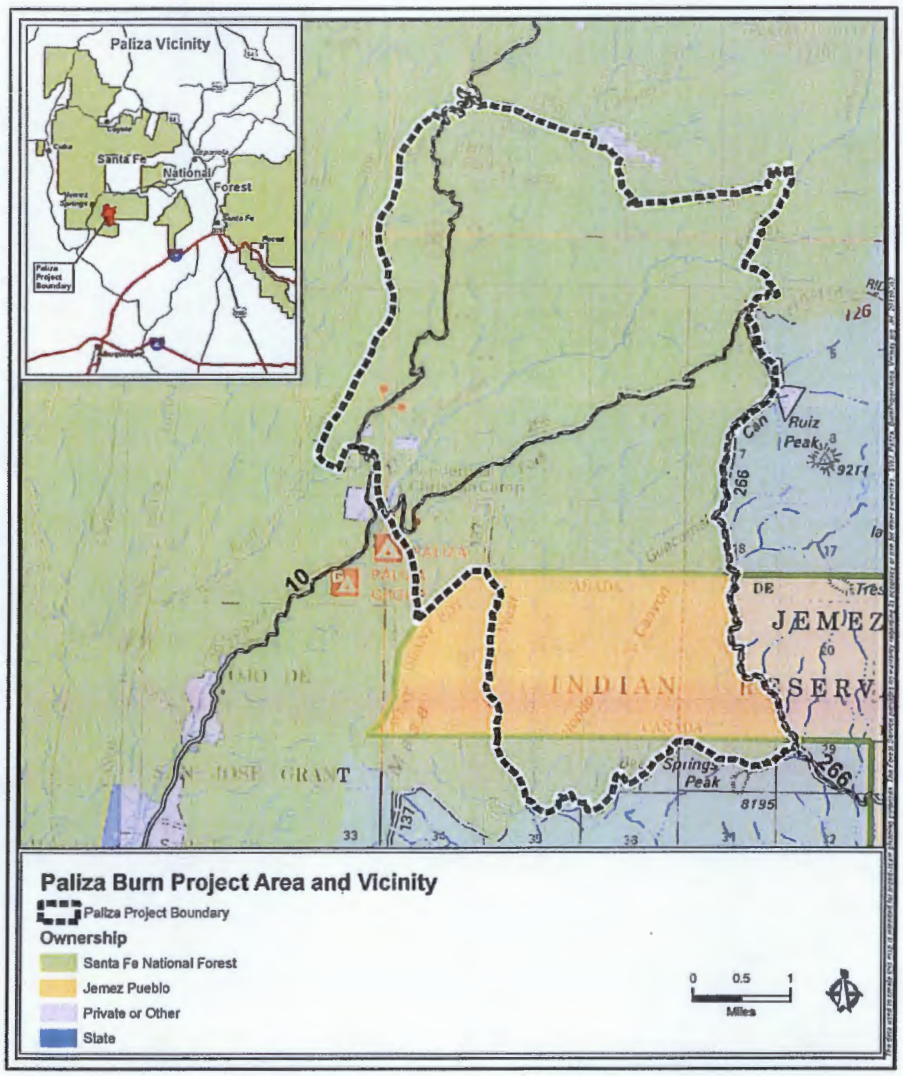


Figure 2. Vegetation cover types within the Paliza Prescribed Burn Project.

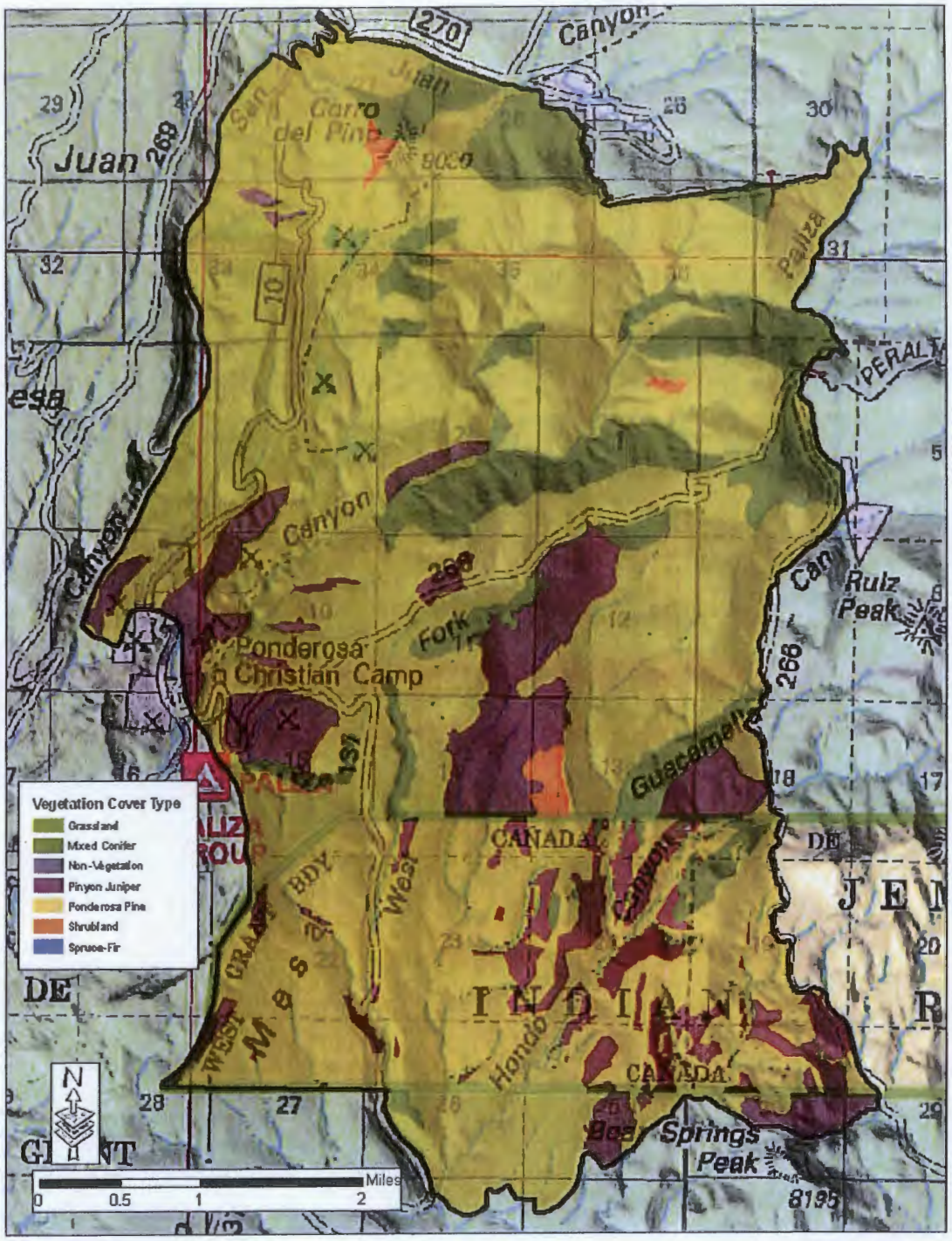
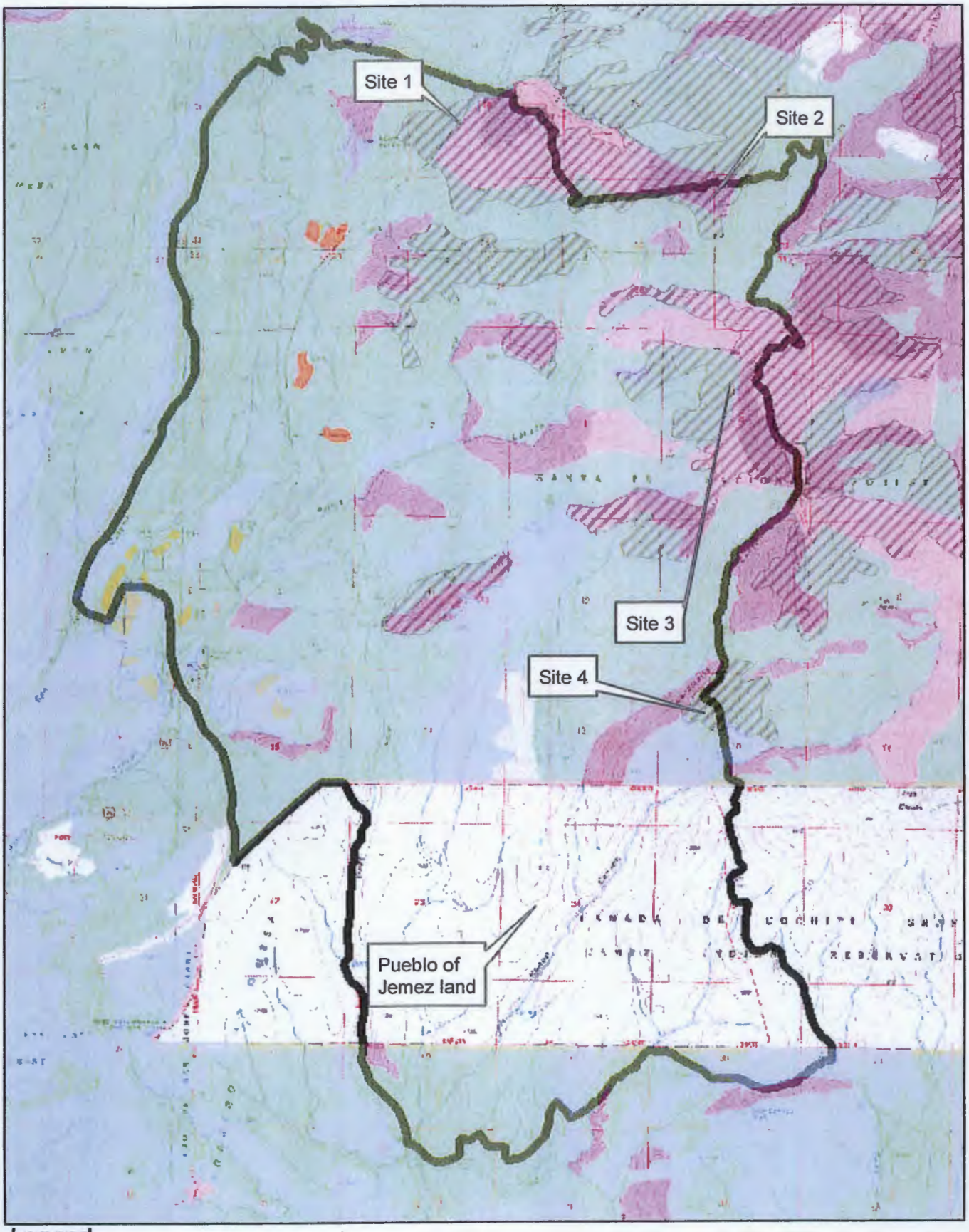


Figure 3. Vegetation and Soils

Paliza Rx Burn Vegetation and Soil



Legend

- Rhyolite-association
- Paliza_Boundary
- Burned up (recent fire)
- Douglas Fir
- Grassland (covertype undetermined)
- Pinyon/Juniper
- Ponderosa Pine
- White Fir

1 0.5 0 1 Miles