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Cons. # 02ENNM00-2011-FC-0099

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

Dear Ms. Garcia:

This responds to the May 22, 2013, request for reinitiation of formal consultation with the U.S. Fish and Wildlife Service (Service) under section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). The request concerns the reinitiation of the National Biological Opinion on the Nationwide Aerial Application of Fire Retardant on National Forest System Lands dated December 6, 2011 (Nationwide BO). The purpose of this document is to reinitiate the Nationwide BO for the Santa Fe National Forest, New Mexico to include the Jemez Mountain salamander (*Plethodon neomexicanus*) that was proposed as endangered with critical habitat in September 12, 2012 (77 FR 56481). The current conference opinion also reinitiates the Nationwide BO for the Santa Fe and Lincoln National Forests New Mexico, and Apache-Sitgreaves National Forests, Arizona, for the New Mexico meadow jumping mouse that was proposed as endangered with critical habitat on June 20, 2013 (78 FR 37363; 78 FR 37328). You submitted an amendment to the original Nationwide Biological Assessment that evaluates the potential impacts of this project on the proposed Jemez Mountains salamander and proposed critical habitat and the proposed New Mexico meadow jumping mouse and proposed critical habitat requested reinitiation of the Nationwide BO. The Jemez Mountains salamander and the New Mexico meadow jumping mouse are likely to be adversely affected by the proposed action. The Service's Threatened and Endangered Species System (TESS) online database that can be accessed by searching for the scientific name or the common name in the TESS database, available online at <http://ecos.fws.gov>. Additional information on each species' natural history and status can be obtained from the respective listing packages.

This Nationwide BO is programmatic in scope. This reinitiation in the form of a conference opinion only addresses impacts to Jemez Mountains salamander found on or immediately adjacent to Santa Fe National Forest lands and impacts to the New Mexico meadow jumping mouse found on or immediately adjacent to Santa Fe, Lincoln, and Apache-Sitgreaves National Forests lands. The Nationwide BO is hereby incorporated by reference including the, description of the proposed action, reporting and monitoring information, and the action area.

Jemez Mountains salamander (*Plethodon neomexicanus*) (FS Region 3, Santa Fe National Forest)Environmental Baseline

The Jemez Mountains 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. 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 (Service 2012). 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 Jemez Mountains 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 Jemez Mountains 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.

Critical habitat

Approximately 90,716 ac (36,711 ha) of critical habitat is proposed for two units in the Jemez Mountains, New Mexico. 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 USFS lands, 14,935 ac (6,044 ha) on VCNP 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 USFS 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. Proposed critical habitat for the Jemez Mountains Salamander covers large portions of watersheds and therefore, will not be mapped for avoidance. Not using fire retardant beyond the 300-foot buffer to a waterway would exasperate the risk of loss of the species due to expected increase in fire sizes (see Krueger 2011b in Nationwide Biological Assessment).

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

(i) 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.

Effects of the Action

The effects on the Jemez Mountains salamander or its habitat from fire retardants remain unknown. The use of fire retardants may both protect and negatively impact the salamander and its habitat. Amphibians, like the salamander, are typically very susceptible to chemicals (LABAT Environmental 2007) due to their permeable skin. However, because the salamander has permeable skin, and breathes and carries out physiological functions with its skin, it may be susceptible if it comes in contact with fire retardants. In general, fire suppression chemicals do not cause harm to most terrestrial wildlife, vegetation, and soils because the ammonium compounds used have minimal or minor toxicological or ecological effects (see Final Environmental Impact Statement) to terrestrial ecosystems. However, most research has been limited to effects on aquatic species with ranging sensitivities to toxicity that can also vary depending on water hardness that effects the rate of ammonia breakdown in aquatic systems.

The Jemez Mountains salamander is surface active during the monsoon season from July through mid-September depending on the year. Though lightning-caused wildland fires do occur during this period; large, high-intensity fires where retardant is likely to be used are more likely to start early in the monsoon season or prior to this time of year when the region is the driest. Therefore, the effects from direct contact with retardant are reduced due to the temporal differences between the time retardant is likely used and the time where the Jemez Mountains salamander would be most active during the main part of the monsoon period. Regardless, the potential for salamanders to encounter retardant in its environment is possible and may affect the ability of individuals to carry out biological functions such as respiration, foraging, and reproduction. Fire suppression chemicals in retardant are likely to persist into the monsoon period, but they are not expected to have long-term effects on terrestrial ecosystems (Labat Environmental 2007). Environmental degradation is not expected to reduce the concentrations of any chemicals over time, since the length of time elapsing between application and exposure could vary greatly, and could possibly be very short. The substrate on which the fire retardant is applied could have a significant effect on its persistence in the terrestrial environment (Labat Environmental 2007 and references therein). This is because the time-toxicity relationship is complex and will vary according to site-specific conditions. Still, the overall rapid degradation of both foam and non-foam chemicals that was documented during toxicity studies suggests that long term effects from fire retardant chemicals tested would be unlikely (Poulton et al. 1997).

When active above ground, the species is usually found under decaying logs, rocks, bark, moss mats, or inside decaying logs or stumps. As noted, because surface activity of salamanders is seasonally-driven with moisture, and the need for fire retardant use is typically during dry times,

the co-occurrence of timing of salamander surface activity and fire retardant use will not be common. However, it is possible that some small percentage of the population is vulnerable to retardant drops if some salamanders are surface active during drier times or are surface active within a moist microhabitat when fire retardants are used. Therefore, the aerial application of fire retardant has low likelihood of direct effects since the co-occurrence of salamander surface activity and use of fire retardant is low, and if some salamanders are surface active, they will most likely be under or inside objects that provide cover such as logs, rocks, stumps, or bark. Still, mobility for this species is limited due to their small size and likely small home range. Salamanders that are hit by falling retardant may be injured or killed depending on the amount of retardant falling on that location and the amount of protective cover between them and the retardant load. Although data on the potential short and long-term toxicity of fire retardants to salamanders are lacking, it is reasonable to assume that direct effects to the Jemez Mountains salamander may result to individuals covered by retardant or indirectly affected by ingesting prey that have been exposed to retardant. For these reasons, we believe it is likely that individual Jemez Mountains salamanders may be affected within occupied habitat.

Avoidance maps were not prepared for this species because there is a higher risk to loss of individuals and habitat from not using fire retardant. The effects associated with the non-use of fire retardant (i.e., through buffers) and the increased potential for severe, type-changing wildfire would be more detrimental to the species than the application of fire retardant in occupied habitat. As a result of altered fire regimes in the southwestern United States, woody fuel loads have built up in the woodland habitats of the Jemez Mountains salamander, increasing the risk for high intensity stand replacing fires.

The Forest Service assumed that use of fire retardant may affect up to 270 acres under similar conditions to the Las Conchas Fire. During the Las Conchas Fire, there were 198 loads of retardant dropped for a total 469,980 gallons. This would equate to about 135 to 270 acres depending on the concentration of the retardant used. To put into perspective, the Las Conchas fire burned 156,593 acres; less than one percent (<1 percent) of the acres burned during the Las Conchas Fire were covered by retardant.

In summary, there is a risk of injury or death to individual Jemez Mountains salamanders from the application of fire retardant on their habitats. The extent of this risk is difficult to quantify; however, based on the best available information presented above, we believe it is not significant. It is important to note that Jemez Mountains salamanders may be directly killed by fire in their habitats, and that their suitable habitats may be significantly affected by uncontrolled wildfire such that long-term habitat loss is the result. The potential for habitat loss from uncontrolled wildfires is a greater concern for the species than the potential for loss of individual Jemez Mountains salamanders due to retardant.

Critical habitat

Approximately 90,716 ac (36,711 ha) of critical habitat is proposed for two units in the Jemez Mountains, New Mexico, with the much of the critical habitat occurring on Forest Service lands.

Proposed critical habitat for the salamander occurs in the Jemez Mountains in the form of mixed conifer communities; the aerial application of fire retardant has a high probability of being used due to this forest type comprising a large part of the salamanders habitat and being the most volatile fuel type. The aerial use of fire retardant would be needed to protect habitat from large scale fire events and not using fire retardant beyond that avoided for waterway protection would exasperate the risk of loss of the species due to expected increase in fire sizes. Nevertheless, we do not anticipate that any of the proposed PCEs have the potential to be adversely affected by the proposed action and the effects would be insignificant and discountable. Therefore, we conclude that the proposed action “May Affect, is Not Likely to Adversely Affect” proposed critical habitat for the Jemez Mountains salamanders on the Santa Fe National Forest.

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 Jemez Mountains salamanders and its proposed critical habitats on the Santa Fe National Forest. We are not aware of any cumulative effects that would affect this species.

Conclusion

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 aerially applied fire retardant on Forest Service lands is not likely to jeopardize the continued existence of the proposed Jemez Mountains salamander. Affects to proposed critical habitat are anticipated to be insignificant and discountable. Our determination is based on the following:

1. Although the salamander may be susceptible to chemicals due to their permeable skin, the habitats of the Jemez Mountains salamanders is distributed across the landscape with no particular concentration. This distribution also reduces the risk of a significant portion of the potentially available habitat for the population being affected by retardant drops associated with a particular fire.
2. The Jemez Mountains salamander spends the majority of its life underground and, when above ground, likely spends the majority of its time under objects that provide cover such as logs, rocks, stumps, or bark. Nevertheless, the Jemez Mountains salamander is surface active during the monsoon season from July through mid-September. The effects from direct contact with fire retardant are likely reduced due to the temporal differences between the time retardant is used and the time where the Jemez Mountains salamander would be most active during the main part of the monsoon period.
3. The best available information suggests that high intensity burns pose a serious threat to the Jemez Mountains salamander. There is a higher risk to loss of individuals and habitat from severe wildfire than from not using fire retardant.

4. While direct effects to the Jemez Mountains salamander may result to individuals covered by retardant or indirectly affect individuals salamanders by ingesting prey that have been exposed to retardant, these effects are unlikely to impair the overall population of the species.

Amount or Extent of Take Anticipated

We anticipate the following form of take as a result of the proposed action: harm or harassment of Jemez Mountains salamander through the implementation of the proposed action. Activities associated with the implementation of this aerial retardant may kill or injure Jemez Mountains salamander through chemical ingestion of prey covered in retardant. Additionally, Jemez Mountains salamander that are hit by falling retardant may be injured or killed depending on the amount of retardant falling on that location and the amount of protective cover between them and the retardant load. These activities may significantly disrupt normal behavior patterns including, but not limited to, breeding, feeding, or sheltering.

We also recognize that many areas of potential habitat have not been surveyed for presence of Jemez Mountains salamander within the entire action area. These areas generally occur outside of areas proposed as critical habitat. Therefore, we assume that unsurveyed potentially occupied habitat may support Jemez Mountains salamander that will also be taken as result of the proposed action.

Based on the best available information concerning the Jemez Mountains salamander, habitat needs of this species, the project description, and information furnished by the Forest Service, take is anticipated to occur. This taking could be in the form of death, injury, harm or harassment. Any such take will be reported to the Service on an annual basis (see Reasonable and Prudent Measures).

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, and the proposed action will take place on such a large scale that detection of a dead or injured individual will be extremely difficult. Therefore, it is difficult to estimate the number of individuals that will be taken as a result of the proposed action. Based on the information provided by the Forest Service regarding fire retardant use during the Las Conchas Fire, we believe that between 135 to 270 acres were affected. Although proposed critical habitat will not be adversely affected by the proposed action, the two units are considered occupied and represent the best information we have concerning the majority of known Jemez Mountains salamander locations. Consequently, take will be tallied when areas of Jemez Mountains salamander proposed critical habitat is affected (see below) and when each increment of 270 acres of unsurveyed potentially occupied habitat is affected. Incidental take will be tallied annually and reported. Take is anticipated for the Jemez Mountains salamander as a result of the following:

1. Aerial application of fire retardant on no more than 270 acres of areas proposed as critical habitat (permitted take is 270 acres per year); or

2. Aerial application of fire retardant on no more than 270 acres of unsurveyed potentially occupied Jemez Mountains salamander habitat areas outside of the units proposed as critical habitat (permitted take is 270 acres per year); or
3. Aerial application of fire retardant on no more than 270 cumulative acres of areas proposed as critical habitat and unsurveyed potentially occupied Jemez Mountains salamander habitat areas outside of the units proposed as critical habitat (permitted take is 270 cumulative acres per year).

EFFECT OF THE TAKE

In this conference opinion, we find that this level of anticipated take is not likely to jeopardize the continued existence of the proposed Jemez Mountains salamander.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize take of the Jemez Mountains salamander. The prohibitions against taking the Jemez Mountains salamander found in section 9 of the Act do not apply until the species is Federally-listed. However, the Service advises the Forest Service to consider implementing the following reasonable and prudent measures for the Jemez Mountains salamander. If this conference opinion is adopted as a biological opinion following a listing or designation of critical habitat, these measures, with their implementing terms and conditions, will be non-discretionary.

1. Protect Jemez Mountains salamander habitat on the Santa Fe National Forest.

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 measure described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

The following terms and conditions will implement reasonable and prudent measure 1:

- 1.1 To the extent feasible without compromising human health and safety, incorporate conservation measures during site-specific emergency consultations on suppression of wildfire in occupied Jemez Mountains salamander and its unsurveyed potentially occupied habitat to limit the amount of retardant dropped, with the overall goal of containing the wildfire to limit all of the associated impacts to the species and its habitat.
- 1.2 To the extent feasible without compromising human health and safety, close coordination shall occur with local pilots and resource advisors during wildfires to minimize impacts on the Jemez Mountains salamander and its habitat.

- 1.3 During any emergency situation, the primary objective for the Jemez Mountains salamander is to provide recommendations for minimizing adverse effects without impeding response efforts. During emergency events, protecting human life and property should come first every time. Consequently, no constraints for protection of Jemez Mountains salamander habitat are necessary if they place human lives or structures (e.g., houses) in danger. Importantly, you should also not delay response to the emergency for these measures.
- 1.4 The Forest Service shall document fire retardant drops, report incidental take, and monitor the effects of the proposed action on the Jemez Mountains salamander and its habitat. Those findings shall be reported to us by December 31 of each year. The report shall document the areas and acreage burned, the amount of proposed critical habitat and unsurveyed potentially occupied Jemez Mountains salamander habitat affected by fire retardant drops, the implementation and effectiveness of the terms and conditions of this conference opinion, information about Jemez Mountains salamander monitored or encountered (including Jemez Mountains salamander surveys that were conducted), any rehabilitation completed, quantification of any incidental take as defined in this conference opinion, and any recommendations for actions in the upcoming year(s). Maps shall also be provided which will include each fire and fire retardant suppression activities that occurred.

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 Jemez Mountains salamander.

In furtherance of the purposes of the Act, we recommend implementing the following action:

1. When the Forest Service initiates emergency consultation for wildfire suppression actions within Jemez Mountains salamander habitat, continue to coordinate with U.S. Fish and Wildlife Service Biologists to try and incorporate actions that benefit the species if a Burned Area Emergency Response (BAER) plan is developed.
2. The Forest Service is encouraged to continue surveying and monitoring occupied and potentially occupied Jemez Mountains salamander habitats.

New Mexico meadow jumping mouse (*Zapus hudsonius luteus*) (FS Region 3, Santa Fe National Forest; Lincoln National Forest, and Apache-Sitgreaves National Forests)

Environmental Baseline

In May 2013, the Service completed the draft New Mexico Meadow Jumping Mouse Species Status Assessment Report (SSA Report; Service 2013) that provides a thorough assessment of jumping mouse biology and natural history and assesses demographic risks (such as small population sizes), threats, and limiting factors in the context of determining viability and risk of extinction for the species. In the SSA Report, we compile biological data and a description of past, present, and likely future threats (causes and effects) facing the New Mexico meadow jumping mouse. This information is summarized below, but is also hereby incorporated by reference.

The New Mexico meadow jumping mouse has exceptionally specialized habitat requirements characterized by tall (average stubble height of herbaceous vegetation of at least 69 cm (27 inches) and dense riparian herbaceous vegetation (cover averaging at least 61 vertical cm (24 inches)) that may only be met when herbaceous vegetation achieves its full potential growth. Tall, dense herbaceous riparian vegetation is composed primarily of sedges and forbs that are associated with perennial flowing water and adjacent uplands that can support the vegetation characteristics needed by foraging, breeding, and hibernating jumping mice. The jumping mouse must have rich, abundant food sources during the summer so it can accumulate sufficient fat reserves to survive their long hibernation period. In addition, individual jumping mice also need intact upland areas (areas up gradient and beyond the floodplain of rivers and streams) adjacent to riparian wetland areas because this is where they build nests or use burrows to give birth to young in the summer and to hibernate over the winter.

The jumping mouse is a small mammal whose historical distribution likely included riparian wetlands along streams in the Sangre de Cristo and San Juan Mountains from southern Colorado to central New Mexico, including the Jemez and Sacramento Mountains and the Rio Grande Valley from Espanola to Bosque del Apache National Wildlife Refuge, and into parts of the White Mountains in eastern Arizona.

The jumping mouse life history (short active period, short lifespan, low fecundity, specific habitat needs, and low dispersal ability) makes populations highly vulnerable to extirpations when habitat is lost and fragmented. Based on historical (1980s and 1990s) and current (from 2005 to 2012) data, the distribution and abundance of the New Mexico meadow jumping mouse has declined significantly rangewide. The majority of local extirpations have occurred since the late 1980s to early 1990s as we found about 70 formerly occupied locations are now considered to be extirpated. Since 2005, researchers have documented 29 remaining populations spread across the 8 conservation areas (2 in Colorado, 15 in New Mexico, and 12 in Arizona). The current records of sites found since 2005 are: three localities in the Sangre de Cristo Mountains along the border of Colorado and New Mexico; seven localities in the Jemez Mountains, four localities in the Sacramento Mountains, and one locality at Bosque del Apache NWR, New Mexico; two localities in the San Juan Mountains, Colorado; and 12 localities in the White Mountains, Arizona. Nearly all of the current populations are isolated and widely separated, and

all of the 29 populations located since 2005 have patches of suitable habitat that are too small to support resilient populations of jumping mouse. In addition, 11 of the 29 populations documented as extant since 2005 have been substantially compromised since 2011 (due to water shortages, excessive grazing, or wildfire and postfire flooding), and these populations could already be extirpated.

The primary sources of past and future habitat losses are from grazing pressure (which removes the needed vegetation) and water management and use (which causes vegetation loss from mowing and drying of soils), lack of water due to drought (exacerbated by climate change), and wildfires (also exacerbated by climate change). Additional sources of habitat loss are likely to occur from scouring floods, loss of beaver ponds, highway reconstruction, residential and commercial development, coalbed methane development, and unregulated recreation (SSA Report; Service 2013). Some threats may also be exacerbated by the current and projected threats of climate change, flooding, the reduction in the distribution and abundance of beaver, and small, isolated populations.

Critical Habitat

We proposed to designate approximately 310.5 km (193.1 mi) (5,892 ha (14,560 ac)) in eight units as critical habitat for the New Mexico meadow jumping mouse in the states of Colorado, New Mexico, and Arizona. Proposed critical habitat units are depicted for Bernalillo, Colfax, Mora, Otero, Rio Arriba, Sandoval, and Socorro Counties, in New Mexico; Las Animas, Archuleta, and La Plata Counties, Colorado; and Greenlee and Apache Counties, Arizona. This includes the following areas proposed as critical habitat:

1. Units 3 in the Jemez Mountains that consists of 1,118 ha (2,761 ac) of streams within three subunits on private lands and areas owned by the Forest Service and the State of New Mexico within Sandoval County, New Mexico.

Subunit 3-A consists of 234 ha (579 ac) along 11.5 km (7.1 mi) of San Antonio Creek on private lands and areas owned by the Forest Service. This subunit begins along the northern part of San Antonio Creek where it exits the boundary of the Valles Caldera National Preserve and follows the creek through mostly Forest Service lands where it meets private land immediately downstream of the San Antonio Campground. Based upon the capture of one New Mexico meadow jumping mouse since 2005 (Frey 2005a), approximately 0.4 ha (1 ac) within this unit along San Antonio Creek is considered occupied. The occupied area is located within a wet meadow near the southwestern part of San Antonio Campground (Frey 2005a). The occupied area is centered around the capture location plus an additional 0.8-km (0.5-mi) segment upstream and downstream of this area. The remaining unoccupied areas within Subunit 3-A are found both upstream and downstream of the occupied area.

Subunit 3-B consists of 429 ha (1,060 ac) along 20.7 km (12.9 mi) of the Rio Cebolla on private lands and areas owned by the Forest Service and the State of New Mexico. This subunit extends from an old beaver dam about 0.6 km (0.4 mi) north of Hay Canyon downstream about where it

meets the Rio de las Vacas. Based upon captures of the New Mexico meadow jumping mouse since 2005 (Frey 2005a; Frey 2007), approximately 10.7 ha (26.4 ac) within this unit on State of New Mexico and Forest Service lands in New Mexico are considered occupied. The occupied areas occurs at six locations along the Rio Cebolla: near the western edge of the northwestern pond along the access road within the New Mexico Department of Game and Fish's Seven Springs Hatchery; within Fenton Lake State Park at the upper end of Fenton Lake Marsh above Highway 126 and the New Mexico Highway 126 bridge; within Fenton Lake State Park Day Use Area at the mouth of a small tributary that enters the southwest side of Fenton Lake; within Lake Fork Canyon inside a livestock enclosure above the bridge on Forest Road 376; within a network of channels, beaver ponds, and wet meadows about 0.9 kilometers (0.6 miles) southwest of Forest Road 376 bridge; and about 2.7 km (1.7 mi) north of the confluence of the Rio Cebolla and the Rio de las Vacas (Frey 2005a; Frey 2007). The occupied areas are centered around the six capture locations plus an additional 0.8-km (0.5-mi) segment upstream and downstream of these areas. The remaining unoccupied areas within Subunit 3-B are found both upstream and downstream of the occupied areas.

Subunit 3-C consists of 454 ha (1,122 ac) along 23.3 km (14.5 mi) of the Rio de las Vacas on private lands and areas owned by the Forest Service. This subunit starts about 0.8 km (0.5 mi) north of Forest Road 94 adjacent to Burned Canyon and extends downstream to the confluence with the Rio Cebolla Subunit. Although much of the habitat was historically occupied with individuals detected as recently as 1989 (Morrison 1985; 1992; Frey 2005a), no New Mexico meadow jumping mice were captured during surveys in 2005 (Frey 2005a). The entire subunit is considered unoccupied.

2. Unit 4 consists of 777 ha (1,920 ac) of streams within five subunits on private lands and areas owned by the Forest Service within Otero County, New Mexico.

Subunit 4-A consists of 105 ha (260 ac) along 5.2 km (3.2 mi) of Silver Springs Creek on private lands and areas owned by the Forest Service. This subunit begins about 0.3 km (0.2 mi) north of the intersection of Forest Road 162 and New Mexico Highway 244 and follows Silver Springs Creek downstream to the boundary of Forest Service and Mescalero Apache lands. Based upon the capture of one New Mexico meadow jumping mouse since 2005 (Frey 2005a), approximately 5.4 ha (13.3 ac) within this unit on Forest Service lands in New Mexico are considered occupied at the time of listing. The occupied area is located within a grazing enclosure containing well-developed riparian habitat about 7.4 km (4.6 mi) north of Cloudcroft along middle Silver Springs Creek, at Junction of Turkey Pen Canyon and Forest Road 405 (Frey 2005a). The occupied area is centered around the capture location plus an additional 0.8-km (0.5-mi) segment upstream and downstream of this area. The remaining unoccupied areas within Subunit 4-A are found both upstream and downstream of the occupied area.

Subunit 4-B consists of 136 ha (335 ac) along 6.4 km (4.0 mi) of the Rio Peñasco on private lands and areas owned by the Forest Service. This subunit begins at the junction of Forest Service Road 164 and New Mexico Highway 6563 and follows the Rio Peñasco drainage downstream to about 2.4 km (1.5 mi) below Bluff Spring at the boundary of private and Forest

Service lands. Although much of the habitat was historically occupied with individuals detected as recently as 1988 (Morrison 1989; Frey 2005a), no New Mexico meadow jumping mice were captured during surveys in 2005 (Frey 2005a). The entire subunit is considered unoccupied.

Subunit 4-C consists of 264 ha (652 ac) along 11.4 km (7.1 mi) of the Rio Peñasco on private lands and areas owned by the Forest Service. This subunit begins at the junction of Wills Canyon and Forest Service Road 169 and follows the Rio Peñasco drainage downstream to the junction of Forest Road 212. Based upon the capture of two New Mexico meadow jumping mice in 2012, following the cessation of grazing for 2 years, (Forest Service 2012h; Service 2012d; U.S. Army Corps of Engineers 2012; 2012a), approximately 0.3 ha (0.75 ac) within this unit on Forest Service lands in New Mexico are considered occupied at the time of listing. The occupied area is located within a wetland at the junction of Cox Canyon and the Rio Peñasco (Forest Service 2012h). The occupied area is centered around the capture location plus an additional 0.8-km (0.5-mi) segment upstream and downstream of this area. The remaining unoccupied areas within Subunit 4-C are found both upstream and downstream of the occupied area.

Subunit 4-D consists of 111 ha (275 ac) along 5.6 km (3.5 mi) of streams on private lands and areas owned by the Forest Service. This subunit begins at upper Mauldin Spring, the head of the Wills Canyon, and follows the drainage downstream along Forest Service Road 169 to the boundary of Forest Service and private lands in the vicinity of Bear Spring. Based upon the capture of one New Mexico meadow jumping mouse in 2012 (Forest Service 2012h), approximately 0.8 ha (1.9 ac) within this unit on Forest Service lands in New Mexico are considered occupied at the time of listing. The occupied area is located within a grazing enclosure at Lower Mauldin Spring in Wills Canyon (Forest Service 2012h). The occupied area is centered around the capture location plus an additional 0.8-km (0.5-mi) segment upstream and downstream of this area. The remaining unoccupied areas within Subunit 4-D are found both upstream and downstream of the occupied area.

Subunit 4-E consists of 161 ha (398 ac) along 7.7 km (4.8 mi) of Agua Chiquita Creek on areas owned by the Forest Service. This subunit begins about 0.8 km (0.5 mi) upstream of the livestock enclosure around Barrel and Sand Springs along Agua Chiquita Creek and follows the canyon downstream along Forest Service Road 64 to Crisp, a Forest Service riparian pasture. Based upon multiple captures of New Mexico meadow jumping mice since 2005 (Frey 2005a; Forest Service 2010; Service 2012d), approximately 4.9 ha (12.0 ac) within this unit on Forest Service lands in New Mexico are considered occupied at the time of listing. The occupied areas are located within two of four fenced livestock enclosures including: the enclosure surrounding Sand and Barrel Springs and the most downstream section of the second in the series of four enclosures (Frey 2005a; Forest Service 2010; Service 2012d). The occupied areas are centered around the two capture locations plus an additional 0.8-km (0.5-mi) segment upstream and downstream of these areas. The remaining unoccupied areas within Subunit 4-E are found both upstream and downstream of the occupied areas.

3. Unit 5 consists of 2,448 ha (6,047 ac) of streams within eight subunits on private lands and areas owned by the Forest Service and the State of Arizona within Greenlee and Apache Counties, Arizona.

Subunit 5-A consists of 478 ha (1,181 ac) along 22.6 km (14.0 mi) of the Little Colorado River on private lands and areas owned by the Forest Service. This subunit encompasses the East and West Forks of the Little Colorado River. The East Fork Segment begins 0.8 km (0.5 mi) upstream of the Phelps Research Natural Area and follows the drainage downstream about 3.2 km (2.0 mi) to the confluence of Lee Valley Creek and then runs upstream about 1.6 km (1.0 mi) to the dam of Lee Valley Reservoir. The subunit continues from the confluence of Lee Valley Creek and the East Fork, downstream to the confluence of the West Fork of the Little Colorado River, continuing to about 8.9 km (5.5 mi) upstream along the drainage to about 0.8 km (0.5 mi) past Sheep's Crossing. Based upon multiple captures of New Mexico meadow jumping mice since 2008 (Frey 2011; ADGF 2012), approximately 0.6 ha (1.5 ac) within this unit on Forest Service lands in Arizona are considered occupied at the time of listing. The occupied area is within a livestock enclosure along a short 0.4-km stream reach that is 1.8 km (1.1 mi) south of Greer, below Montlure Camp ((Frey 2011; ADGF 2012). In 2011, the Wallow Fire burned much of this area, and surveys during 2012 continued to detect New Mexico meadow jumping mice (ADGF 2012). The occupied areas are centered around the capture locations plus an additional 0.8-km (0.5-mi) segment upstream and downstream of this area. The remaining unoccupied areas within Subunit 5-A are found both upstream and downstream of the occupied area.

Subunit 5-B consists of 413 ha (1,021 ac) along 20.4 km (12.7 mi) of Nutrioso Creek on private lands and areas owned by the Forest Service. This subunit begins at the confluence of Paddy Creek about 4.8 km (3 mi) south of the town of Nutrioso and follows the drainage downstream about 16 km (10 mi) to Nelson Reservoir. Based upon multiple captures of New Mexico meadow jumping mice since 2008 (Frey 2011; ADGF 2012), approximately 1.9 ha (4.9 ac) within this unit on Forest Service lands in Arizona are considered occupied at the time of listing. The occupied area is a short 1.3-km (0.8-mi) stream reach 3.9 km (2.4 mi) south of the town of Nutrioso. In 2011, the Wallow Fire burned much of this area, and surveys during 2012 continued to detect New Mexico meadow jumping mice (ADGF 2012). The occupied area is centered around the capture locations plus an additional 0.8-km (0.5-mi) segment upstream and downstream of this area. The remaining unoccupied areas within Subunit 5-B are found both upstream and downstream of the occupied area.

Subunit 5-C consists of 252 ha (622 ac) along 11.8 km (7.3 mi) of the San Francisco River and its tributary Turkey (=Talwiwi) Creek on private lands and areas owned by the Forest Service. This subunit begins about 0.6 km (0.4 mi) west of Forest Road 8854 along the San Francisco River and follows the drainage downstream about 10.5 km (6.5 mi), including a 1.3-km (0.8-mi) segment of Turkey (= Talwiwi) Creek that is south of Arizona Highway 180, then continues downstream to the headwaters of Luna Lake. Based upon multiple captures of New Mexico meadow jumping mice since 2008 (Frey 2011), approximately 0.9 ha (2.3 ac) within this unit on Forest Service lands in Arizona are considered occupied at the time of listing. There are two occupied areas within this unit including: a small livestock enclosure along a 0.2-km (0.1-mi)

stream reach of upper Turkey Creek at the junction of Highway 80 and Forest Road 289; and two fenced livestock enclosures along a 0.4-km (0.2-mi) stream reach at the junction of the San Francisco River and Forest Road 8854 (Frey 2011). In 2011, the Wallow Fire burned much of this area, and surveys during 2012 did not detect New Mexico meadow jumping mice (ADGF 2012). However, until multiple years of surveys determine that the population has been extirpated, we consider this area to be occupied by the New Mexico meadow jumping mouse. The occupied areas are centered around the capture locations plus an additional 0.8-km (0.5-mi) segment upstream and downstream of these areas. The remaining unoccupied areas within Subunit 5-C are found both upstream and downstream of the occupied areas.

Subunit 5-D consists of 421 ha (1,040 ac) along 20.3 km (12.6 mi) of the East Fork of the Black River areas owned by the Forest Service. This subunit begins 0.8 km (0.5 mi) north of the intersection of Three Forks Road and Route 285 and follows the drainage downstream about 20.3 km (12.6 mi), where it abuts the West Fork Black River Subunit (see “West Fork Black River Subunit” below). Based upon multiple captures of New Mexico meadow jumping mice since 2008 (Frey 2011; ADGF 2012), approximately 6.9 ha (16.9 ac) within this unit on Forest Service lands in Arizona are considered occupied at the time of listing. The occupied area is located along the headwaters of the East Fork Black River near the intersection of Three Forks Road and Route 285 (Frey 2011; ADGF 2012). In 2011, the Wallow Fire burned much of this area and surveys during 2012 continued to detect New Mexico meadow jumping mice (ADGF 2012). The occupied area is centered around the capture location plus an additional 0.8-km (0.5-mi) segment upstream and downstream of this area. The remaining unoccupied areas within Subunit 5-D are found both upstream and downstream of the occupied area.

Subunit 5-E consists of 481 ha (1,188 ac) along 23.0 km (14.3 mi) of the West Fork of the Black River on private lands and areas owned by the Forest Service and the State of Arizona. The proposed subunit begins at the confluence of the West Fork of the Black River and Burro Creek and follows the drainage downstream where it abuts the East Fork Black River Subunit (see “East Fork Black River Subunit” above). Based upon multiple captures of New Mexico meadow jumping mice since 2008 (Frey 2011; ADGF 2012), approximately 13.7 ha (33.9 ac) within this unit on Forest Service lands in Arizona are considered occupied at the time of listing. The occupied areas occur at four locations: along the upper West Fork Black River just north of Forest Road 116; immediately adjacent to the campground along the middle Fork of the Black River; at the junction of Forest Road 68 and the middle Fork of the Black River; and near the junction of the lower Fork of the Black River and Home Creek (Frey 2011; ADGF 2012). In 2011, the Wallow Fire burned much of this area and surveys during 2012 continued to detect New Mexico meadow jumping mice at the lower and middle sections of the West Fork Black River (ADGF 2012). Although New Mexico meadow jumping mice were not detected at the upper West Fork Black River location, until multiple years of surveys determine that the population has been extirpated, we consider this area to be occupied by the New Mexico meadow jumping mouse. The occupied areas are centered around the capture locations plus an additional 0.8-km (0.5-mi) segment upstream and downstream of these areas. The remaining unoccupied areas within Subunit 5-E are found both upstream and downstream of the occupied areas.

Subunit 5-F consists of 196 ha (485 ac) along 8.9 km (5.5 mi) of Boggy Creek and Centerfire Creek on areas owned by the Forest Service. The East Segment of the subunit begins 0.8 km (0.5 mi) north of the intersection of Route 25 and Boggy Creek and follows the drainage downstream to the confluence with Centerfire Creek. The West segment begins 0.8 km (0.5 mi) north of the intersection of Route 25 and Centerfire Creek and follows the drainage downstream to the confluence with Boggy Creek, then continues downstream to the confluence with the Black River. Based upon multiple captures of New Mexico meadow jumping mice since 2008 (Frey 2011; ADGF 2012), approximately 3.0 ha (7.5 ac) within this unit on Forest Service lands in Arizona are considered occupied at the time of listing. The occupied areas are located within fenced livestock enclosures at the junction of Forest Road 25 and Boggy Creek; and within a fenced livestock enclosure at the junction of Forest Road 25 and Centerfire Creek (Frey 2011; ADGF 2012). In 2011, the Wallow Fire burned much of this area, and surveys during 2012 continued to detect New Mexico meadow jumping mice (ADGF 2012). The occupied areas are centered around the capture locations plus an additional 0.8-km (0.5-mi) segment upstream and downstream of these areas. The remaining unoccupied areas within Subunit 5-F are found both upstream and downstream of the occupied areas.

Subunit 5-G consists of 104 ha (256 ac) along 4.8 km (3.0 mi) of Corduroy Creek on lands owned by the Forest Service. The proposed subunit begins at the headwaters about 0.8 km (0.5 mi) south of the intersection of County Road 24 and County Road 8184A and follows the drainage downstream to the confluence with Fish Creek. Based upon multiple captures of New Mexico meadow jumping mice since 2009 (Frey 2011; ADGF 2012), approximately 0.4 ha (1.1 ac) within this unit on Forest Service lands in Arizona are considered occupied at the time of listing. The occupied area is located within fenced livestock enclosures at the junction of Forest Road 8184A and Corduroy Creek (Frey 2011; ADGF 2012). In 2011, the Wallow Fire burned much of this area, and surveys during 2012 continued to detect New Mexico meadow jumping mice (ADGF 2012). The occupied area is centered around the capture location plus an additional 0.8-km (0.5-mi) segment upstream and downstream of this area. The remaining unoccupied areas within Subunit 5-G are found both upstream and downstream of the occupied area.

Subunit 5-H consists of 102 ha (253 ac) along 4.8 km (3.0 mi) of Campbell Blue Creek on private lands and areas owned by the Forest Service. The proposed subunit begins at the confluence with Cat Creek along Forest Road 281 and extends downstream to the confluence with Turkey Creek. Based upon multiple captures of New Mexico meadow jumping mice since 2008 (Frey 2011), approximately 0.008 ha (0.02 ac) within this unit on Forest Service lands in Arizona are considered occupied at the time of listing. The occupied area is located within a livestock enclosure 13 km (8 mi) north of the community of Blue (Frey 2011). In 2011, the Wallow Fire burned much of this area, and surveys during 2012 did not detect New Mexico meadow jumping mice (ADGF 2012). However, until multiple years of surveys determine that the population has been extirpated, we consider this area to be occupied by the New Mexico meadow jumping mouse. The occupied area is centered around the capture location plus an additional 0.8-km (0.5-mi) segment upstream and downstream of this area. The remaining

unoccupied areas within Subunit 5-H are found both upstream and downstream of the occupied area.

The proposed primary constituent elements of New Mexico meadow jumping mouse critical habitat consist of the following:

(i) riparian communities along rivers and streams, springs and wetlands, or canals and ditches characterized by one of two wetland vegetation community types:

(A) Persistent emergent herbaceous wetlands dominated by beaked sedge (*Carex rostrata*) or reed canarygrass (*Phalaris arundinacea*) alliances; or

(B) Scrub-shrub riparian areas that are dominated by willows (*Salix* spp.) or alders (*Alnus* spp.); and

(ii) Flowing water that provides saturated soils throughout the New Mexico meadow jumping mouse's active season that supports:

(A) Tall (average stubble height of herbaceous vegetation of at least 69 cm (27 inches) and dense herbaceous riparian vegetation (cover averaging at least 61 vertical cm (24 inches)) composed primarily of sedges (*Carex* spp. or *Schoenoplectus pungens*) and forbs, including, but not limited to one or more of the following associated species: spikerush (*Eleocharis macrostachya*), beaked sedge (*Carex rostrata*), reed canarygrass (*Phalaris arundinacea*), rushes (*Juncus* spp. and *Scirpus* spp.), and numerous species of grasses such as bluegrass (*Poa* spp.), slender wheatgrass (*Elymus trachycaulus*), brome (*Bromus* spp.), foxtail barley (*Hordeum jubatum*), or Japanese brome (*Bromus japonicas*), and forbs such as water hemlock (*Circuta douglasii*), field mint (*Mentha arvensis*), asters (*Aster* spp.), or cutleaf coneflower (*Rudbeckia laciniata*); and

(B) Sufficient areas of 9 to 24 km (5.6 to 15 mi) along a stream, ditch, or canal that contains suitable or restorable habitat to support movements of individual New Mexico meadow jumping mice; and

(C) Include adjacent floodplain and upland areas extending approximately 100 m (330 ft) outward from the water's edge (as defined by the bankfull stage of streams).

Effects of the Action

Jumping mouse populations are disjunct and isolated and can be very susceptible to localized impacts, including the application of fire retardant. Therefore, avoidance Area mapping is proposed for the jumping mouse to minimize the impacts of fire retardant application. The Forest Service established a 100-meter avoidance area along each side of the areas proposed as critical habitat in Units 3, 4, and 5 to protect breeding, rearing, and shelter sites for the jumping mouse. This will minimize the risk of to the jumping mouse being treated with fire retardant and

will protect habitat so that restoration of the necessary herbaceous vegetation will not be precluded by the use of fire retardant.

Direct impacts to the jumping mouse are not expected to occur due to the required avoidance mapping and implementation of the 2000 guidelines for all waterways due to limited mobility of species (SCREEN 2). However, given the fact that misapplications in avoidance areas have occurred in the past, the potential for misapplication in the jumping mouse habitat is still present (see Nationwide Biological Assessment), but the risk for misapplication of retardant is considered very low. The Forest Service believes that if misapplication occurs, it may affect 0.4 to 1.2 ha (1 to 3 ac) of jumping mouse habitat within each Forest for a total of 1.2 to 3.6 (3 to 9 ac). Even if misapplication occurs, fire retardant is unlikely to directly affect individual jumping mice because there are few areas within each of the proposed critical habitat units where the jumping mouse is considered occupied. Moreover, there is no habitat within the entire Units 3-C or 4-B that are considered occupied currently. Consequently, less than 1 percent [Santa Fe National Forest = 11.1 ha (27.4 ac) of 1,118 ha (2,761 ac); Lincoln National Forest = 11.4 ha (27.9 ac) of 777 ha (1,920 ac); Apache-Sitgreaves National Forests = 27.4 ha (68.1 ac) of 2,448 ha (6,047 ac)] of jumping mouse habitat is considered occupied and the chance of misapplication occurring within these areas is remote.

Although research is inconclusive, if retardant inadvertently comes in contact with the jumping mouse there could be some negative indirect effects of toxicity caused by eating seeds or vegetation covered with retardant (LABAT Environmental 2007 - deer mouse toxicity) (SCREEN 4). Similar to misapplication effects above, we believe this would be an extremely rare event based on the mandatory avoidance area. Nevertheless, it is remotely possible that some retardant may enter waterways indirectly following storm runoff, even when applications have been conducted beyond the 100-meter buffer along each side of the areas proposed as critical habitat, but these events would likely dilute the retardant. The effects of this runoff on the jumping mouse are unknown. As a result, we find that jumping mice inhabiting the few isolated riparian areas adjacent to streams will be less likely to be adversely affected by fire retardant entering those systems due to dilution from the water flows during and after fire suppression actions and due to the remote possibility of fire retardant indirectly entering the small amount of occupied habitat.

In summary, there is a very low risk of injury or death to individual jumping mice from the misapplication of fire retardant on their habitats because the Forest Service has established an avoidance buffer. Based on the best available information presented above, we believe it is not significant because no more than 9 acres of likely unoccupied habitat may be affected. It is important to note that jumping mice may be directly killed by fire in their habitats, and that their suitable habitats may be significantly affected by uncontrolled wildfire such that long-term habitat loss is the result. The potential for habitat loss from uncontrolled wildfires is a greater concern for the species than the remote potential of individual jumping mice being harmed or killed due to a misapplication of fire retardant.

Critical habitat

The only PCE with a potential of being adversely affected is tall (average stubble height of herbaceous vegetation of at least 69 cm (27 inches) and dense herbaceous riparian vegetation (cover averaging at least 61 vertical cm (24 inches)). The aerial application of fire retardant has a very low probability of being used within areas proposed as critical habitat because the Forest Service has established an avoidance buffer. Based on the best available information presented above, we believe it is not significant because no more than 3.6 ha (9 ac) of proposed jumping mouse critical habitat may be affected. We anticipate that adverse effects would only occur from inadvertently dropping of retardant into waterways, which is not part of the proposed action under review, or indirectly from storm runoff. Nevertheless, we believe these scenarios will be rare, discountable events because the avoidance mapping will minimize their occurrence. As such, we do not expect that this PCE would be affected to the extent that the function and conservation role of proposed critical habitat would be compromised or appreciably reduced. We also do not anticipate any adverse effects to the other PCEs of proposed jumping mouse critical habitat. We find that the effects to the function and conservation role of proposed critical habitat relative the entire proposed designation are not significant because the impacts only have the potential to affect less than 1 percent (3.6 of 4,342 ha (9 of 10,728 ac)) of the proposed critical habitat on an irregular basis. Therefore, we conclude that the affected PCE of proposed jumping mouse critical habitat will serve the intended conservation role for species with implementation of 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 New Mexico meadow jumping mice and its proposed critical habitats on the Santa Fe, Lincoln, and Apache-Sitgreaves National Forests. We are not aware of any cumulative effects that would affect this species.

Conclusion

After reviewing the current status of the New Mexico meadow jumping mouse, the environmental baseline for the action area, the effects of the proposed action, and cumulative effects, it is our conference opinion that aerially applied fire retardant on Forest Service lands is not likely to jeopardize the continued existence of the species, nor is the project likely to destroy or adversely modify proposed critical habitat. The Service does not anticipate incidental take of the New Mexico meadow jumping mouse is reasonably certain to occur from the proposed action. Our conclusions are based on the following:

- 1) The Forest Service has established 100-meter avoidance zones along each side of the areas that have recently been proposed as critical habitat. This buffer will minimize fire retardant from entering waterways and will reduce the risk of retardant being dropped directly within and in

close proximity to streams containing New Mexico meadow jumping mouse or proposed critical habitat.

2) Runoff of fire retardant into waterways from applications beyond the avoidance buffer should have minimal effects to the species and proposed critical habitat because the concentration of retardants will likely be diluted by storm runoff prior to entering the waterways.

3) Less than 1 percent of proposed jumping mouse critical habitat is considered occupied. Although the chance of misapplication from pilot error may occur, the potential for dropping retardant within occupied jumping mouse habitat is considered remote and is not reasonably certain to occur.

4) The potential affects to critical habitat from misapplication would to affect less than 1 percent (3.6 of 4,342 ha (9 of 10,728 ac)) of proposed critical habitat.

INCIDENTAL TAKE STATEMENT

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.

Amount or Extent of Take Anticipated

We do not anticipate that the proposed project will result in incidental take of New Mexico meadow jumping mouse because avoidance buffers have been established around Units 3, 4, and 5 that were recently proposed as critical habitat and contain the only known jumping mouse locations within the National Forests. We do not anticipate the proposed action will disrupt breeding, feeding, or sheltering activities, nor result in any direct injury or mortality of individual jumping mice. Therefore, no reasonable and prudent measures are provided. However, if during the course of the action, incidental take occurs, such incidental take would represent new information requiring review of the project's effects. For example, if a misapplication occurs within occupied jumping mouse habitat, the Forest Service will determine if the jumping mouse

or its proposed critical habitat was impacted. If adverse impacts occurred, they will determine if there is a need to reinitiate consultation.

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 New Mexico meadow jumping mouse.

In furtherance of the purposes of the Act, we recommend implementing the following action:

1. Following containment of a wildfire that burned New Mexico meadow jumping mouse habitat, if a BAER plan is developed, coordinate with U.S. Fish and Wildlife Service biologists from New Mexico Ecological Services Field Offices to incorporate actions that benefit the species.
2. The Forest Service is encouraged to continue surveying and monitoring unoccupied or potentially occupied New Mexico meadow jumping mouse habitats.
3. Prior to March of year, coordinate with the U.S. Fish and Wildlife Service Arizona and New Mexico Ecological Services Field Offices to update your mapped avoidance zones with New Mexico meadow jumping mouse survey information from the previous field season.

REINITIATION - CLOSING STATEMENT

This concludes formal conferencing on the Nationwide Aerial Application of Fire Retardant to include the Jemez Mountain salamander for the Santa Fe National Forest and to include the New Mexico meadow jumping mouse for the Santa Fe and Lincoln National Forests New Mexico, and Apache-Sitgreaves National Forests, Arizona. You may ask the Service to confirm the conference opinion as a biological opinion issued through formal consultation if the Jemez Mountains salamander or New Mexico meadow jumping mouse are listed and critical habitat is designated. The request must be in writing. If the Service 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 Service will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary.

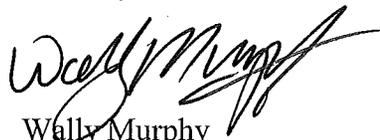
After listing of the Jemez Mountains salamander or New Mexico meadow jumping mouse as endangered/threatened and designation of critical habitat for these species and any subsequent adoption of this conference opinion, the Federal agency shall request reinitiation of consultation

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.

The incidental take statement for the Jemez Mountains salamander provided in this conference opinion does not become effective until the species is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. At that time, the project will be reviewed to determine whether any take of the Jemez Mountains salamander has occurred. Modification of the opinion and incidental take statement may be appropriate to reflect that take. No take of the Jemez Mountains salamander may occur between the listing of the Jemez Mountains salamander and the adoption of the conference opinion through formal consultation, or the completion of a subsequent formal consultation.

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

Sincerely,



Wally Murphy
Field Supervisor

cc:

Assistant Regional Director, Region 2 (ES), U.S. Fish and Wildlife Service, Albuquerque, NM
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Director, New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division,
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