



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
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Phone: (505) 346-2525 Fax: (505) 346-2542

April 8, 2009

Cons. # 22420-2009-F-0011

Jacque Buchanan, Forest Supervisor
Lincoln National Forest
3463 Los Palomas Road
Alamogordo, New Mexico 88310-6992

Dear Ms. Buchanan:

This responds to your request for informal 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.). This consultation concerns the effects of the proposed Sacramento Mountains Defoliation Project on the Mexican spotted owl (*Strix occidentalis lucida*) (MSO) and its designated critical habitat.

You determined that the proposed action "may affect, is not likely to adversely affect" the MSO and its designated critical habitat. We disagreed with these determinations. As such, we are providing a biological opinion which analyzes the anticipated adverse effects of the proposed action on the MSO and its designated critical habitat.

In future communications regarding this project please refer to consultation #22420-2009-F-0011. If we can be of further assistance, please contact Lynn Gemlo at (505) 761-4726.

Sincerely,

Wally Murphy
Field Supervisor

Enclosure



United States Department of the Interior

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SUMMARY BIOLOGICAL OPINION ON THE EFFECTS TO THE MEXICAN SPOTTED OWL FROM THE SACRAMENTO MOUNTAINS DEFOLIATION PROJECT, LINCOLN NATIONAL FOREST, NEW MEXICO

Cons. # 22420-2009-F-0011

Date of the biological opinion: April 8, 2009

Action agency: Lincoln National Forest

Project: This consultation concerns the effects of the proposed Sacramento Mountains Defoliation Project on the Mexican spotted owl (*Strix occidentalis lucida*) (MSO) and its designated critical habitat. The western portion of the Sacramento Mountains has experienced successive years of conifer tree defoliating insect outbreaks since 2002. Forest survey results estimate 14,500 acres with defoliation damage have been mapped on the Forest. Currently, the defoliated stands fall within a scattered pattern on the Sacramento Ranger District. Commercial harvest is proposed on 5,335 acres. Of the 5,335 acres of MSO restricted habitat in the proposed action, 3,068 acres (58 %) occur in MSO critical habitat unit BR-E-1. Harvest would focus on dead trees of commercial size, 9 inches diameter breast height (dbh) up to 24 inches dbh.

Species affected: Mexican spotted owl

Biological Opinion: The proposed action is not likely to jeopardize the Mexican spotted owl or adversely modify designated critical habitat.

Incidental take statement: No incidental take is anticipated from the proposed action.

Conservation Recommendations: Implementation of conservation recommendations is discretionary. Five conservation recommendations are provided.



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April 8, 2009

Cons. # 22420-2009-F-0011

Jacque Buchanan, Forest Supervisor
Lincoln National Forest
3463 Las Palomas Road
Alamogordo, New Mexico 88310-6992

Dear Ms. Buchanan:

This responds to your October 29, 2008, request for informal section 7 consultation under the Endangered Species Act of 1973, as amended (Act) on the Sacramento Mountains Defoliation Project, Sacramento Ranger District, Lincoln National Forest (Forest) in Otero County, New Mexico. The US Fish and Wildlife Service (Service) received your request, including the biological assessment (BA) for this project, on November 4, 2008 (USDA Forest Service 2008). This consultation concerns the possible effects of the proposed project on the Mexican spotted owl (*Strix occidentalis lucida*) (MSO) and its critical habitat.

CONSULTATION HISTORY

This biological opinion (BO) is based on information provided in the BA (USDA Forest Service 2008); email and telephone conversations between our staffs; data in our files; data presented in the MSO Recovery Plan (Recovery Plan), (USDI Fish and Wildlife Service 1995); Forest Service MSO data; literature review; and other sources of information including the final rules to list the MSO as threatened (USDI Fish and Wildlife Service 1993; 58 FR 14248) and final rule to designate critical habitat (USDI Fish and Wildlife Service 2004; 66 FR 8530). References cited in this BO are not a complete bibliography of all literature available on the MSO. A complete administrative record of this consultation is on file at this office. We received all the information necessary to begin formal consultation on November 4, 2008, when you submitted the BA.

You determined in the BA that the proposed action "may affect, is not likely to adversely affect" the MSO and "may affect, is not likely to adversely affect" its designated critical habitat. Prior to a final BA, we disagreed with these determinations. We discussed potential adverse effects to the MSO and its designated critical habitat with Forest staff on the phone and at a meeting on September 11, 2008. We determined that the proposed action "may affect, is likely to adversely affect" the MSO and "may affect, is likely to adversely affect" its designated critical habitat. As such, we developed the current document which constitutes the Service's BO based on our review of the proposed action and its effects on the MSO and its designated critical habitat in accordance with the Act.

This BO does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statute and the August 6, 2004, Ninth Circuit Court of Appeals decision in *Gifford Pinchot Task Force v U.S. Fish and Wildlife Service* (No. 03-35279) to complete the following analysis with respect to critical habitat.

BIOLOGICAL OPINION

I. Description of the proposed action

The BA contains a complete description of the proposed action and is herein incorporated by reference. According to the BA, the western portion of the Sacramento Mountains has experienced successive years of conifer tree defoliating insect outbreaks since 2002. Forest survey results estimate 14,500 acres with defoliation damage have been mapped on the Forest. Currently, the defoliated stands fall within a scattered pattern on the Sacramento Ranger District. Four insect species are causing the defoliation: Douglas-fir tussock moth, spruce budworm, New Mexico fir looper, and looper species *Nepytia janetae*. Early outbreak defoliation was mainly due to the Douglas-Fir tussock moth and the New Mexico fir looper. The spruce budworm and *Nepytia janetae* are now feeding on tree foliage with defoliation over the winter of 2006-2007, largely attributed to *Nepytia janetae*.

As stated in the BA, commercial harvest is proposed on 5,335 acres where only dead trees of commercial size will be felled and removed, nine inches dbh up to 24 inches dbh. Further, dead trees to be felled and removed in the proposed action which are considered hazard trees must meet the following; 1) tree is leaning toward a structure, 2) obvious instability of snag (eg. rot) which may be near the structure, and 3) a snag that is not a hazard toward a structure (eg. leaning the opposite direction) but may pose a risk toward sawyers who may be removing an adjacent snag that poses a risk toward a structure (eg. leaning toward the structure). Hazard trees targeted for felling range from a minimum of nine inches dbh to over 24 inches dbh. Currently, there are abnormally high levels of snags in the stands proposed for harvest. Normally, snag levels are 5-10 snags per acre in this area (Rhonda Stewart, pers. comm. 2009). Many snags will be retained across the untreated portions of the estimated 14,500 acres affected, as treatment will occur on only 5,335 acres. Due to the current conditions of the abnormally high occurrences of snags and dead trees, it is entirely possible that the treatment will return the snag component to closer approximate "normal" conditions. Of the 5,335 acres of MSO restricted habitat in the proposed action, 3,068 acres (58 %) occur in MSO critical habitat unit BR-E-1.

Trees that have no green needles and no new spring growth would be considered dead. Currently, not all trees in the proposed action are considered dead. However, the entire 5,335 acres may be harvested during implementation of the proposed action (up to five years) because future mortality may occur to the trees in the proposed action that are not considered snags. Current canopy cover in the project area will not be reduced by removal of these trees as the trees targeted for removal no longer provide cover and thus do not provide suitable nesting or roosting habitat.

The project area is comprised of two separate and distinct areas. The northern portion of the project area surrounds the village of Cloudcroft, New Mexico on its northern, southern and

eastern margins. The southern portion of the project area begins approximately seven miles south of Cloudcroft and extends approximately another 10 miles to the southeast.

In the project area, entire mountain sides of forest stands have been defoliated and few conifer trees with green needles remain. The defoliators are primarily affecting Douglas-fir and white fir, but white pine, Englemann spruce, and ponderosa pine are also affected. All ages and sizes of conifer trees are affected. The elevations of the project area range from around 8,500 feet to just over 9,600 feet.

Harvest operations would utilize conventional harvest equipment such as rubber tired skidders and would utilize existing system and non-system roads. Most of the road system needed to access harvest operations is already in place. Approximately 15 miles of closed system roads will be re-opened for project implementation. After implementation of this project, the 15 miles of re-opened roads will be closed again. Project implementation will also require approximately 11.75 miles of new temporary roads which will be obliterated and revegetated post-harvest. Approximately 3.41 miles of closed system road will be removed permanently from the Forest system. During closure, the roads will be scarified, outsloped, culverts pulled and revegetation steps taken.

Commercial harvest and hazard tree treatment would begin in the summer of 2009. Harvest operations would take place for up to five years due to delayed tree mortality. Units with the greatest mortality would have precedence for implementation. Slash resulting from harvest operations would be piled and burned at central landings, or piled and ground into chips or chunks, and spread across the forest floor. Broadcast burning may be applied within stands after harvest in the proposed project area. Broadcast burning will be limited in its application and will not be applied across the entire project area. Burning prescriptions will be limited in size within stands and will not burn over the entire project area. Piling and chipping is proposed for harvest units in the vicinity of Cloudcroft and the Cloudcroft Recreation Area. Grinding and chipping the slash would eliminate pile burning and the resulting smoke. The Recovery Plan (1995) states long-term benefits to from prescribed burning to MSO habitat. The Forest will comply with the RP regarding specific guidelines related to burning for the MSO.

Following harvest, reforestation is planned. Reforestation surveys would be conducted following harvest and areas lacking sufficient natural regeneration would be planted with native species suitable for the site.

The following are identified in the BA (pp. 16-17 and Appendix A pg. 25) and comment letter (USDA March 31, 2009) on the draft BO as actions that will be fully implemented as part of the proposed action. These project design features represent actions proposed by the Forest that is evaluated below as part of our jeopardy and adverse modification analyses. They are intended to minimize impacts associated with the MSO and designated critical habitat. Therefore, these actions are non-discretionary, and must be undertaken by the Forest because they are part of the proposed action. If they are not fully implemented, the Service should be contacted to determine if reinitiation of formal consultation is required (50 CFR 402.16).

Project Design Features

- Unoccupied MSO habitat that has survey over 5 years old must be resurveyed the year before implementation to prevent disturbance to any future nesting pairs.
- MSO surveys will follow Forest Service Region 3 protocol standards. No proposed treatment activities including prescribed burning will occur within MSO PACs between March 1 and August 31, unless monitoring determines the PAC is not occupied by a breeding pair in a given year, in accordance with regional survey protocol. Breeding season restrictions could be temporarily waived. The waiver of breeding season restrictions would pertain only to a specific site during a given year and is applicable to any potential disturbance activities in the proposed action. Monitoring would be conducted and the temporary waiver would be implemented in coordination and full communication with the Service.
- All treatments that fall within the Rio Penasco II Watershed Restoration Project MSO study will only be implemented under the following conditions: 1) control or treatment areas are dropped by the USDA Forest Service Rocky Mountain Research Station; 2) the MSO study within the Rio Penasco II Watershed Restoration Project is completed.
- All trees greater than 24 inches dbh will be retained unless an overriding management situation requires removal to protect human safety and/or property.
- A minimum of three larger snags per acre will be retained in all stands as required in the northern goshawk guidelines for mixed conifer (USDA 1996). These guidelines are based on sound science and ecological principles, and are applicable to, and overlap MSO PACs. This requirement has been applied and used in previous projects on the Forest.
- If at least three snags greater than 18 inches dbh are not available, the three largest snags or snags with obvious wildlife use will be retained. To reduce losses of large snags (3 per acre greater than 18 inches) or snags with obvious heavy use (cavities present and visible), cutting unit boundaries and/or prescriptions will be modified to save the snag: so that it is no longer a hazard.
- Retain 10-15 tons per acre of downed woody material within mixed conifer stands. Favor the retention of logs greater than 12 inches midpoint dbh and 8 feet in length. Treat retained large woody material in such a way that it still performs a biological purpose for MSO. When downed woody material doesn't exist, suitable size snags will be felled or retained for down woody material recruitment.
- Dead trees will only be deemed as a hazard if they meet the following conditions; 1.) tree is leaning toward the structure, 2) obvious instability of snag (eg. rot) which may be near the infrastructure, 3) a snag that is not a hazard toward an infrastructure (eg. leaning the opposite direction) but may pose a risk toward sawyers who may be removing an adjacent snag that poses a risk toward an infrastructure (eg. leaning toward the infrastructure).

- No ground disturbing activities will disturb oak.
- Any re-opened or temporary roads needed for implementation that fall within MSO Protected Activity Centers (PAC) will adhere to breeding season restrictions or be cleared with biological clearance through Region 3 Monitoring.
- Allow no timber harvest except for fuel-wood and fire risk abatement in established PACs. For PACs destroyed by fire, windstorm, or other natural disaster, salvage timber harvest or declassification may be allowed after evaluation on a case-by-case basis in consultation with the Service.
- Allow no timber harvest except for fire risk abatement in mixed conifer and pine-oak forests on slopes greater than 40 percent where timber harvest has not occurred in the last 20 years.
- Limit human activity in PACs during the breeding season (March 1st through August 31st).
- In protected and restricted areas, when activities conducted in conformance with these standards and guidelines may adversely affect other threatened, endangered, or sensitive species or may conflict with other established recovery plans or conservation agreements; consult with the Service to resolve the conflict.
- Road or trail building in PACs should be avoided but may be permitted on a case by case basis for pressing management reasons.
- Harvest fuel-wood when it can be done in such a way that effects on the MSO are minimized. Manage within the following limitations to minimize effects to MSO: 1) Retain key forest species such as oak, and 2) Retain substantive amounts of key habitat components such as snags and large downed logs (eg. snags 18 inches dbh and larger, down logs over 12 inches midpoint dbh).
- Salvage activities should maintain and enhance native species and natural recovery processes.
- Salvage should leave residual snags and logs at levels and size distributions that emulate those following pre-settlement, stand-replacing fires. Scientific information applicable to local conditions should be the basis for determining the levels.

II. Status of the species (range-wide)

Mexican spotted owl

Listing/threats to survival

The MSO was listed as a threatened species in 1993 (USDI Fish and Wildlife Service 1993). The primary threats to the species were cited as even-aged timber harvest and stand-replacing wildfire, although grazing, recreation, and other land uses were also mentioned as possible factors influencing the MSO population. The Fish and Wildlife Service appointed the Mexican

Spotted Owl Recovery Team in 1993, which produced the Recovery Plan in 1995 (USDI Fish and Wildlife Service 1995). Another factor that contributed to declines included the lack of adequate existing regulatory mechanisms. The Recovery Plan (USDI Fish and Wildlife Service 1995) also notes that forest management has created habitats favored by great horned owls, increasing the likelihood of predation. Other threats include the potential for increasing malicious and accidental anthropogenic harm (e.g., shooting and vehicle collisions), and for the barred owl to expand its range, resulting in competition or hybridization with the MSO.

Global climate change may also be a threat to the MSO (e.g., see GAO 2007). The global average temperature has risen by approximately 0.6 degrees Celsius during the 20th Century (Intergovernmental Panel on Climate Change 2001). Warming temperatures have been documented in recent decades in the southwestern United States. In New Mexico, mean annual temperature has increased by 0.6 degree per decade beginning in 1970, and warming is greatest in spring (Lenart 2005). High elevation environments influenced by snow, such as the Sacramento Mountains, and the uppermost limits of vegetation and other complex life forms, are among the most sensitive to climate changes occurring on a global scale (Thompson 2000). Studies have shown that since 1950, the snowmelt season in some watersheds of the western United States has advanced by about 10 days (Dettinger and Cayan 1995, Dettinger and Diaz 2000, Stewart et al. 2004). Such changes in the timing and amount of snowmelt are thought to be signals of climate-related change in high elevations (Smith et al. 2000, Reiners et al. 2003). The impact of climate change is the intensification of natural drought cycles and the ensuing stress placed upon high elevation montane habitats (Intergovernmental Panel on Climate Change 2001, Cook et al. 2004, Breshears et al. 2005, Mueller et al. 2005).

Life history

A detailed account of the taxonomy, biology, and reproductive characteristics of the MSO is found in the Final Rule listing the MSO as a threatened species (USDI Fish and Wildlife Service 1993) and in the Recovery Plan (USDI Fish and Wildlife Service 1995). The information provided in those documents is included herein by reference. Although the MSOs entire range covers a broad area of the southwestern United States and Mexico, the MSO does not occur uniformly throughout its range. Instead, it occurs in disjunct localities that correspond to isolated forested mountain systems, canyons, and in some cases steep, rocky canyon lands. Surveys have revealed that the species has an affinity for older, uneven-aged forest, and the species is known to inhabit a physically diverse landscape in the southwestern U.S. and Mexico.

The U.S. range of the MSO has been divided into six Recovery Units (RU), as discussed in the Recovery Plan (USDI Fish and Wildlife Service 1995). The primary administrator of lands supporting the MSO in the U.S. is the Forest Service. Most MSOs have been found within Forest Service Region 3 (including 11 National Forests in Arizona and New Mexico). Forest Service Regions 2 and 4 (including two National Forests in Colorado and three in Utah) support fewer MSOs. According to the Recovery Plan (USDI Fish and Wildlife Service 1995), 91 percent of MSO known to exist in the United States between 1990 and 1993 occurred on lands administered by the Forest Service.

Habitat impacts

Historical and current anthropogenic uses of MSO habitat include both domestic ungulate grazing, recreation, fuels reduction treatments, resource extraction (e.g., timber, oil, gas), and development. These activities have the potential to reduce the quality of MSO nesting, roosting, and foraging habitat, and may cause disturbance during the breeding season. Livestock and wild ungulate grazing is prevalent throughout Region 3 National Forest lands and is thought to have a negative effect on the availability of grass cover for prey species. Recreation impacts are increasing on all forests, especially in meadow and riparian areas. There is anecdotal information and research that indicates that MSOs in heavily used recreation areas are much more erratic in their movement patterns and behavior (Swarthout and Steidl 2001, 2003). Fuels reduction treatments, though critical to reducing the risk of severe wildfire, can have short-term adverse effects to MSO through habitat modification and disturbance. As the population grows, especially in Arizona, small communities within and adjacent to National Forest System lands are being developed. This trend may have detrimental effects to MSO by further fragmenting habitat and increasing disturbance during the breeding season. West Nile Virus also has the potential to adversely impact the MSO. The virus has been documented in Arizona, New Mexico, and Colorado, and preliminary information suggests that MSOs may be highly vulnerable to this disease (Courtney et al. 2004). Unfortunately, due to the secretive nature of MSOs and the lack of intensive monitoring of banded birds, we will most likely not know when MSOs contract the disease or the extent of its impact to MSO range-wide.

Currently, high severity, stand-replacing fires are influencing ponderosa pine and mixed conifer forest types in Arizona and New Mexico. Uncharacteristic, severe, stand-replacing wildfire is one of the greatest threats to MSO within the action area. As throughout the West, fire severity and size have been increasing within this geographic area. Bond et al. (2002) described short-term effects of wildfires on MSOs throughout the species' range. The authors reported that relatively large wildfires that burned nest and roost areas appeared to have little short-term (1-year) effect on survival, site fidelity, mate fidelity, and reproductive success of MSOs, as rates were similar to estimates independent of fire. However, Elliot (1995), MacCracken et al. (1996), and Gaines et al. (1997) reported in some cases, large stand-replacing wildfires appeared to have a negative effect on MSOs. Jenness (2000) reported low- to moderate-severity fires did not adversely affect MSOs. Bond et al. (2002) hypothesized that MSOs may withstand the immediate, short-term effects of fire occurring at primarily low- to moderate-severities within their territory. The Forest Service reported similar results following the 2002 Lakes Fire in the Jemez Mountains of north-central New Mexico (USDA Forest Service 2003). Danney Salas (USDA Forest Service, pers. comm., 2003) reported that of the 10 protected activity centers (PACs) that are monitored within the footprint of the Scott Able Fire, MSOs were detected in 9 of them. He also reported that the same number of MSO pairs before and after the Bridge Fire were detected and reproduced within the burn area. He also indicated that there were two MSO nest areas found in areas where fire retardant (slurry) was used during suppression activities. Given historical fire regimes within its range, the MSO may be adapted to survive wildfires of various size and severities. Therefore, prescribed burning and other forest management activities could be an effective tool to reduce fire risk and restore forests to natural conditions with short-term impacts to MSOs. For example, prescribed fire may prove useful in the creation or maintenance of habitat for MSOs or their prey (Gutierrez et al. 2003). Bond et al. (2002)

cautioned that programmatic prescribed burning in MSO territories could not be justified solely on their observations. Manipulative experiments are needed to evaluate effects of fire (or other forest management activities) on MSOs (Bond et al. 2002).

Population dynamics

A reliable estimate of the numbers of MSOs throughout its entire range is not currently available (USDI Fish and Wildlife Service 1995) and the quality and quantity of information regarding numbers of MSO vary by source. USDI Fish and Wildlife Service (1991) reported a total of 2,160 MSOs throughout the United States. Fletcher (1990) calculated that 2,074 MSOs existed in Arizona and New Mexico. However, Ganey *et al.* (2000) estimates approximately $2,950 \pm 1,067$ (SE) MSOs in the Upper Gila Mountains RU alone. The Forest Service Region 3 most recently reported a total of approximately 1,025 PACs established on National Forest Service lands in Arizona and New Mexico (B. Barrera, pers. comm. June 18, 2007). The Forest Service Region 3 data are the most current compiled information available to us; however, survey efforts in areas other than National Forest Service lands have resulted in additional sites being located in all recovery units.

Researchers studied MSO population dynamics on one study site in Arizona ($n = 63$ territories) and one study site in New Mexico ($n = 47$ territories) from 1991 through 2002. The Final Report, titled "Temporal and Spatial Variation in the Demographic Rates of Two Mexican Spotted Owl Populations," (*in press*) found that reproduction varied greatly over time, while survival varied little. The estimates of the population rate of change ($\Lambda = \text{Lamda}$) indicated that the Arizona population was stable (mean Λ from 1993 to 2000 = 0.995; 95 percent Confidence Interval = 0.836, 1.155) while the New Mexico population declined at an annual rate of about 6 percent (mean Λ from 1993 to 2000 = 0.937; 95 percent Confidence Interval = 0.895, 0.979). The study concludes that spotted MSO populations could experience great (>20 percent) fluctuations in numbers from year to year due to the high annual variation in recruitment. However, due to the high annual variation in recruitment, the MSO is then likely very vulnerable to actions that impact adult survival (e.g., habitat alteration, drought, etc.) during years of low recruitment.

Prey species and habitat

MSO foraging habitat includes a wide variety of forest conditions, canyon bottoms, cliff faces, tops of canyon rims, and riparian areas (Gutierrez and Rinkevich 1991, Willey 1993). Ganey and Balda (1994) reported that MSOs foraged more frequently in unlogged forests containing uneven-aged stands of Douglas-fir and white fir, with a strong component of ponderosa pine, than in managed forests.

The primary MSO prey species are woodrats (*Neotoma* spp.), peromyscid mice (*Peromyscus* spp.), and microtine voles (*Microtus* spp.) (USDI Fish and Wildlife Service 1995, Young et al. 1997, Delaney et al. 1999, Seamans and Gutierrez 1999). Mexican woodrats (*N. mexicana*) are typically found in areas with considerable shrub or understory tree cover and high log volumes, or rocky outcrops associated with pinon-juniper woodlands (Sureda and Morrison 1998, Ward

2001). Sureda and Morrison (1998) and Ward (2001) found deer mice (*P. maniculatus*) to be more abundant and widespread in the 60 to 100 year old stands of mixed-conifer forests. Mexican voles (*M. mexicanus*) are associated with mountain meadows and high herbaceous cover, primarily grasses, whereas long-tailed voles (*M. longicaudus*) are found in dry forest habitats with dense herbaceous cover, primarily forbs, many shrubs, and limited tree cover (Ward 2001). High levels of MSO reproductive success and production may be due to prey abundance (Delaney et al. 1999). Ward and Block (1995) documented an increase in MSO production when moderate to high levels of woodrats, peromyscid mice, and voles were consumed. A diverse prey base is dependent on availability and quality of diverse habitats. MSO prey species need adequate levels of residual plant cover, understory cover, and high log volume. Therefore, a wide variety of forest and vegetative conditions are important to the MSO and its prey.

Critical habitat

The final MSO critical habitat rule (USDI Fish and Wildlife Service 2004) designated approximately 8.6 million acres of critical habitat in Arizona, Colorado, New Mexico, and Utah, mostly on Federal lands (USDI Fish and Wildlife Service 2004). Within this larger area, critical habitat is limited to areas that meet the definition of protected and restricted habitat, as described in the Recovery Plan (USDI Fish and Wildlife Service 1995). Protected habitat includes all known MSO sites and all areas within mixed conifer or pine-oak habitat with slopes greater than 40 percent where timber harvest has not occurred in the past 20 years. Restricted habitat includes mixed conifer forest, pine-oak forest, and riparian areas outside of protected habitat.

The primary constituent elements (PCE) for MSO critical habitat were determined from studies of their habitat requirements and information provided in the Recovery Plan (USDI Fish and Wildlife Service 1995). Since MSO habitat can include both canyon and forested areas, PCEs were identified in both areas. The PCEs which occur for the MSO within mixed-conifer, pine-oak, and riparian forest types that provide for one or more of the MSOs habitat needs for nesting, roosting, foraging, and dispersing are in areas defined by the following features for forest structure and prey species habitat:

PCEs related to forest structure include:

- A range of tree species, including mixed conifer, pine-oak, and riparian forest types, composed of different tree sizes reflecting different ages of trees, 30 percent to 45 percent of which are large trees with 12 inches dbh or more;
- A shade canopy created by the tree branches covering 40 percent or more of the ground;
- Large, dead trees (snags) with a dbh of at least 12 inches.

PCEs related to the maintenance of adequate prey species include:

- High volumes of fallen trees and other woody debris;

- A wide range of tree and plant species, including hardwoods;
- Adequate levels of residual plant cover to maintain fruits and seeds, and allow plant regeneration.

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

Consultations

Since the owl was listed, we have completed or have in draft form a total of 205 formal consultations for the MSO. These formal consultations have identified incidences of anticipated incidental take of MSO in 413 PACs. The form of this incidental take is almost entirely harm or harassment, rather than direct mortality. These consultations have primarily dealt with actions proposed by Forest Service Region 3. However, in addition to actions proposed by Forest Service Region 3, we have also reviewed the impacts of actions proposed by the Bureau of Indian Affairs, Department of Defense (including Air Force, Army, and Navy), Department of Energy, National Park Service, and Federal Highway Administration. These proposals have included timber sales, road construction, fire/ecosystem management projects (including prescribed natural and management ignited fires), livestock grazing, recreation activities, utility corridors, military and sightseeing overflights, and other activities. Only two of these projects (release of site-specific owl location information and existing forest plans) have resulted in biological opinions that the proposed action would likely jeopardize the continued existence of the MSO. The jeopardy opinion issued for existing Forest Plans on November 25, 1997 was rendered moot as a non-jeopardy/no adverse modification and a the BO was issued the same day.

In 1996, we issued a biological opinion on Forest Service Region 3 adoption of the Recovery Plan recommendations through an amendment to their Land and Resource Management Plans (LRMPs). In this non-jeopardy biological opinion, we anticipated that approximately 151 PACs would be affected by activities that would result in incidental take of MSOs. In addition, on January 17, 2003, we completed a reinitiation of the 1996 Forest Plan Amendments biological opinion, which anticipated the additional incidental take of five MSO PACs in Region 3 due to the rate of implementation of the grazing standards and guidelines, for a total of 156 PACs. Consultation on individual actions under these biological opinions resulted in the harm and harassment of approximately 243 PACs on Region 3 Forest Service lands. Forest Service Region 3 reinitiated consultation on the LRMPs on April 8, 2004. On June 10, 2005, the Service issued a revised biological opinion on the amended LRMPs. We anticipated that while the Region 3 Forests continue to operate under the existing LRMPs, take is reasonably certain to occur to an additional 10 percent of the known PACs on NFS lands. We expect that continued operation under the plans will result in harm to 49 PACs and harassment to another 49 PACs. To date, consultation on individual actions under the amended Forest Plans, as accounted for under the June 10, 2005, biological opinion has resulted in the incidental take of MSOs

associated with 40 PACs. Incidental take associated with Forest Service fire suppression actions, which was not included in the LRMP proposed action, has resulted in the incidental take of MSOs associated with 14 PACs.

III. Environmental baseline

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are anticipated impacts of all proposed Federal projects that have undergone section 7 consultation, and impacts of State and private actions that are contemporaneous with the consultation in progress.

Status of the species within the action area

Mexican spotted owl

The Forest is within the Basin and Range - East Recovery Unit (RU). This RU is an important source population for other areas (USDI Fish and Wildlife Service 1995). MSOs here occur in isolated mountain ranges scattered across the region, the largest portion occurring in the Sacramento Mountains. In this RU, MSOs have been reported on Forest Service lands in the Sandia, Manzano, Sacramento, and Guadalupe Mountains, and in Guadalupe National Park, Carlsbad Caverns National Park, and the Mescalero Apache Reservation. MSOs are most common in mixed-conifer forest, but have been found in ponderosa pine forest and pinon/juniper woodland (Skaggs and Raitt 1988, USDI Fish and Wildlife Service 1995).

There are 196 PACs within the Basin and Range East RU, with 145 PACs on the Lincoln National Forest. The Sacramento Ranger District has 114 PACs; the Guadalupe Ranger District has 10 PACs; and the Smokey Bear Ranger District has 21 PACs. Additional PACs are located on the Mescalero Apache Reservation (37 PACs), the Guadalupe Mountains National Park (11 PACs), and the Cibola National Forest (3 PACs).

Major threats, in order of potential effects, include: 1) catastrophic, stand-replacement fires, 2) some forms of timber harvest, 3) fuelwood harvest, 4) grazing, 5) agriculture or development for human habitation, and 6) forest insects and disease (USDI Fish and Wildlife Service 1995). Minor threats include: 1) certain military operations, 2) other habitat alterations (e.g. power line and road construction, noxious weed control), 3) mining, and 4) recreation. Minor threats are activities not currently extensive in time or space but are potential threats to the MSO.

The dominant land uses within the RU include timber management and livestock grazing. Recreational activities such as off-road driving, skiing, hiking, camping, and hunting are locally common within the RU (USDI Fish and Wildlife Service 1995).

Past and present Federal, State, private, and other human activities that have undergone informal consultation and conferencing and may affect the MSO and its habitat are as follows: The Hay and Scott Able timber sales, Bridge salvage sale, Walker fire salvage sale, Wildland Urban Interface Projects, livestock grazing, recreational activities, recreation and scenic vista

developments, road construction, maintenance activities, land exchanges, right-of-way issuances, off-road motorcycle events, power line construction, wildlife research projects, urban development, and catastrophic wildfires, their suppression and rehabilitation activities.

The likelihood of MSOs occurring within the action area is very high. Informal and formal monitoring has confirmed MSO presence, in that, 14 PACs have been designated and monitored in proximity to the proposed action.

Factors affecting the species environment within the action area

Mexican spotted owl

MSOs in this RU occur in isolated mountain ranges, the largest portion occurring in the Sacramento Ranger District. As noted, the Sacramento Ranger District contains the majority of designated PACs on Forest Service lands (USDA Forest Service 2002).

Fires such as the Peppin, Scott Able, and Walker have modified thousands of acres of habitat and impacted multiple MSO territories. The Peppin Fire in the Capitan Mountains Wilderness burned approximately 65,000 acres (26,315 ha). The Scott Able fire burned 16,034 acres (6,491 ha), of which 14,551 acres (5,889 ha) are administered by the Forest and 1,483 acres (600 ha) were on private land. Approximately 12,291 acres (4,976 ha) that burned were considered suitable MSO habitat. The Scott Able fire affected all or portions of 6 PACs and 2 PACs are adjacent to the burned area. Heavy fuel loads contributed to these large-scale fires, which likely caused relatively short-term (3 to 5 years) adverse impacts on soils and water resources from fire-induced erosion and increased sediment delivery to streams.

Critical Habitat

There are 253,726 acres of designated critical habitat in the Basin and Range East RU. The Lincoln National Forest is within the Basin and Range East RU and has four designated critical habitat units. Approximately 1 percent (3,068 acres) of the total critical habitat within the Basin and Range-East Recovery Area of MSO critical habitat occurs within the project area. All of the 3,068 acres of critical habitat are within restricted MSO habitat. The proposed project falls within critical habitat unit BR-E-1. MSO critical habitat is limited to areas within the mapped boundaries that meet the definition of protected and restricted habitat as described by the MSO Recovery Plan and contains one or more primary constituent elements (USDI Fish and Wildlife Service 1995; 69 FR 53182).

Past and present Federal, State, private, and other human activities that have undergone informal consultation and conferencing and may affect the MSO and its habitat are as follows: WUI treatments, prescribed fire, vegetative thinning, livestock grazing, recreational activities, recreation developments, maintenance activities, power line construction, wildlife research projects, and catastrophic wildfires, their suppression and rehabilitation activities.

IV. 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. Direct effects are the direct and immediate effects of the project on the species or its habitat. Direct effects result from the agency action including the effects of interrelated actions and interdependent actions.

Mexican Spotted Owl

Habitat

All of the 14 PACs near the proposed action have been surveyed through 2008. Most of the PACs had confirmed occupancy in 2008. Surveys were also conducted in the proposed project area in 2007 and 2008. Results showed occurrences of single owls in the area outside of PACs.

In the proposed action, commercial harvest (up to five years) may occur on 5,335 acres of MSO restricted habitat. No harvest will occur within MSO protected habitat. Harvest would focus on dead trees of commercial size, 9 to 24 inches dbh. Trees that have no green needles and no new spring growth would be considered dead. Currently, not all trees in the proposed project are dead. The defoliated stands sustained a range of dead and live trees. However, the entire 5,335 acres may be harvested during implementation of the proposed action because future mortality may occur to the trees in the proposed action that are not considered snags. Many areas in the stands have large patches of dead trees with the largest patch estimated at 100 acres. The proposed project may also fell and remove snags over 24 inches dbh. However, it is unclear how many snags over 24 inches dbh will be felled. The BA states trees over 24 inches dbh will only be felled and removed if they meet the definition of a hazard tree (see project design features pp. 3-5). This is consistent with Recovery Plan guidelines (USDI Fish and Wildlife Service 1995) and amendment (USDI Fish and Wildlife Service 2001) of retaining all trees greater than 24 inches dbh in restricted habitat unless overriding management situations require their removal to protect human safety and/or property (i.e. hazard trees). This is likely a small part of the total snags removed across the 5,335 acres in the proposed project. Overall, the large snag component of MSO foraging and dispersal habitat will be greatly reduced by the proposed project. Currently, there are abnormally high levels of snags in the stands proposed for harvest. Normally, snag levels are 5-10 snags per acre in this area (Rhonda Stewart, pers. comm. 2009). Removal of snags will also affect the recovery of the large down log component of MSO habitat in the future. Though the Forest is removing snags 9 to 24 inches dbh with an unknown amount over 24 inches dbh, Henjum et al. (1994) recommends snags greater than 20 inches dbh or older than 150 years be retained. In addition, Beschta et al. (1995) recommended that salvage logging should leave 50 percent of the standing dead trees in each diameter class to preserve important ecological functions. If the majority of these snags are felled and removed in these areas, the proposed action may render stands unsuitable for foraging and dispersal by MSO. There is the potential for all 5,335 acres to be harvested leaving open stands with few habitat components remaining except for down wood, snags less than nine inches dbh and three larger snags per acre

(USDA 1996). High stand densities may impede movements of spotted owls, whereas low stand densities may be too open for spotted owl nesting or roosting (Gutierrez et al. 1992). For these reasons, the felling and removal snags and hazard trees will adversely affect the MSO and its habitat.

MSO PACs do not encompass all of the home ranges used by resident owls. In fact, PACs were established using the size of owl activity centers, not the size of home ranges. Nevertheless, owls forage more than or as expected in unlogged forests, and less than or as expected in selectively logged forests (Ganey and Balda 1994). Both high-use roosting and high-use foraging sites had more big logs, higher canopy closure, and greater densities and basal areas of both trees and snags than random sites (Ganey and Balda 1994). Owls clearly use a wider variety of forest conditions for foraging than they use for roosting; however, they have been found to generally avoid habitat within managed (i.e., logged) forests (Ganey and Balda 1994). By reducing the key habitat elements within the project area, MSO foraging and dispersal habitat will be adversely affected. Specifically, the removal of snags will significantly affect restricted habitat outside of PACs. Further, the Recovery Plan (USDI Fish and Wildlife Service 1995) guidelines and associated amendment (USDI Fish and Wildlife Service 2001) for restricted habitat note that important but difficult-to-replace components (i.e. hardwoods, large down logs, large trees greater than 18 inches dbh and all snags) are to be retained. However, few snags will be retained in stands with this proposed project. Moreover, the potential for significantly opened canopy conditions and large gaps on the landscape will result in very open forest stands, which may increase the abundance of great horned owls, a predator of MSOs (Ganey et al. 1997, Ganey 2005). As a result, we would anticipate that MSOs will likely avoid foraging and dispersal within the open forest stands in the proposed project area.

Disturbance

The effects of noise, human intrusion and smoke-related disturbances on habitat selection of MSO is not well understood. In the most recent review of spotted owl research, none of these types of disturbance were considered a threat to the species (Courtney et al. 2004). Many human-caused disturbances have been shown to affect birds of prey (Fyfe and Olendorff 1976). However, at the individual level, based on anecdotal information and effects to other bird species (Wesemann and Rowe 1987, Delaney et al. 1999, Delaney and Grubb 2001, Swarthout and Steidl 2001), disturbance to spotted owls increases with proximity to the activity and an increase in noise level. These are similar to results reported for bald eagles (Grubb and King 1991), gyrfalcon (Platt 1977), and other raptors (Awbrey and Bowles 1990). Delaney et al. (1999) examined the effects of helicopter noise (at distances less than 30 meters to greater than 105 meters) and chainsaws (six to 400 meters) on nesting and post-fledging MSOs. Results showed that only two flush responses occurred at greater than 60 meters distance. One was a helicopter at 89 meters and one was from a chainsaw at 105 meters. Chainsaws did consistently elicit higher response rates than helicopters at similar distances. Further, disturbances did not affect reproductive success or the number of young fledged. Johnson and Reynolds (2002) examined the effects of lowflying jet aircraft noise on MSOs and showed that responses to lowflying F-16 overflights did not exceed responses to naturally occurring events. Swarthout and Steidl (2001) examined behavioral responses of MSOs at varying distances to hikers and concluded that they altered their behavior in the presence of a hiker at up to distances of 181 ft (55 m). Further study

(Swarthout and Steidl 2003) showed that high levels of short-duration recreational hiking near nests may be detrimental to MSOs.

There are 13 MSO nest sites greater than 600 feet from any proposed project activities (Jack Williams, pers. comm.). Therefore, any harvest operations will remain greater than 600 feet from 13 MSO nest sites and are not within PACs. Based on the best available information, the indirect effects of disturbance on MSOs from harvest operations during the breeding season would not be adverse because this distance will shield MSOs from behavioral disruptions. The proposed project activities occurring near MSO PACs and nest sites during the entire breeding season will result in effects that are insignificant and discountable. One nest site (Lightning Lake) is within 220 feet of proposed harvest activities (Jack Williams, pers. comm.). Therefore, a breeding season restriction (March 1st – August 31st) will be applied to minimize effects from disturbance to the Lightning Lake nest site.

Slash resulting from harvest operations would be piled and burned at central landings, or piled and ground into chips or chunks, and spread across the forest floor. These activities are outside of any PACs. There are 13 MSO nest sites greater than 600 feet from any proposed project activities (Jack Williams, pers. comm.). Therefore, any burning activities will be greater than 600 feet from 13 MSO nest sites. Smoke may affect short-term foraging behavior of MSOs utilizing the harvest area by limiting site distance of prey. The inhalation of smoke by MSO may also negatively affect individuals during pile burning. Short-term disturbance from smoke effects will likely affect foraging MSO in the breeding season but will result in effects that are insignificant and discountable. One nest site (Lightning Lake) is within 220 feet of proposed harvest activities (Jack Williams, pers. comm.). Therefore, a breeding season restriction (March 1st – August 31st) will be applied to minimize effects from disturbance to the Lightning Lake nest site.

Interrelated and Interdependent Activities

The construction and reopening of access roads are considered interrelated and interdependent with the implementation of the proposed project. The use of these roads during project implementation by field crews and vehicles, and any maintenance of the roads, or road repairs are also considered interrelated and interdependent with the implementation of the current proposed project.

Out of 15 miles of closed roads to be re-opened, the proposed action includes re-opening a 0.21 mile road segment that occurs in an MSO PAC. According to the BA, re-opening of all closed roads will not remove MSO habitat. It is expected to impact small amounts of vegetation and few, if any trees less than nine inches dbh. The Recovery Plan (USDI Fish and Wildlife Service 1995) states road building in PACs should generally be avoided. A breeding season restriction (March 1st – August 31st) in this PAC will minimize disturbance from road activities to the MSO. New temporary roads include 11.75 miles in MSO restricted habitat. These are proposed for obliteration and revegetation post-harvest. Suitable MSO habitat is not expected to be impacted from road activities. Although disturbance from road activities may affect MSOs outside of PACs within the breeding season, we believe these will be insignificant and discountable.

Mexican Spotted Owl Critical Habitat

On the Lincoln National Forest, protected or restricted habitat is generally composed of mixed conifer (USDI Fish and Wildlife Service 1995). The designation includes PCEs related to canyon habitat, but this habitat type does not occur within the action area. Therefore, we did not analyze the effects of this project on PCEs within canyon habitat. Additionally, the habitat-based guidelines and definitions of protected and restricted habitat of the Recovery Plan (USDI Fish and Wildlife Service 1995) were utilized for our critical habitat designation and the analysis. Consequently, much of our analysis and conclusions detailed above are relevant to the current adverse modification analysis.

The conservation measures identified above and in the BA will be fully implemented by the Forest as part of their proposed action. These measures represent actions that were evaluated as part of our adverse modification analysis. These conservation measures will help minimize or avoid adverse impacts to the function and conservation role of MSO critical habitat. Without these conservation measures, the negative effects to the function and conservation role of MSO critical habitat likely would be greater. The expected effects on the PCEs of MSO critical habitat as a result of the proposed Sacramento Mountains Defoliation Project are summarized below.

Range of Tree Sizes

The proposed action will remove most of the dead trees in the forest stands due to insect defoliation. Live trees will not be removed. As a result, the proposed project will not affect the proportion of live trees in the stands due to harvest. Therefore, we do not expect adverse effects to this PCE.

Canopy Closure

The current condition in stands proposed for harvest has open canopies due to defoliation. Living tree canopies that may provide shade and high canopy closure are greatly reduced. Current canopy cover in the project area will not be reduced by removal of these trees as the trees targeted for removal no longer provide cover and thus do not provide suitable nesting or roosting habitat. Harvest of snags and hazard trees will not appreciably reduce the current canopy closure. Therefore, we do not expect adverse effects to this PCE.

Large Snags

Large snags are an important PCE of critical habitat and that PCE will be significantly reduced by the proposed project on 3,068 acres of critical habitat. The proposed project will remove most snags over nine inches dbh. Snags up to and over 24 inches dbh may also be removed if they meet the definition of a hazard tree but this may be a small portion of the total snags felled. Currently, there are abnormally high levels of snags in the stands proposed for harvest. Normally, snag levels are 5-10 snags per acre in this area (Rhonda Stewart, pers. comm. 2009). The number of larger snags retained is proposed to be three per acre above 18 inches dbh unless those are not available, then the next three largest snags will be retained. The selective removal of snags will leave fewer to contribute to important ecological processes in critical habitat.

Further, the Recovery Plan (USDI Fish and Wildlife Service 1995) guidelines and associated amendment (USDI Fish and Wildlife Service 2001) for restricted habitat note that important but difficult-to-replace components (i.e. hardwoods, large down logs, large trees greater than 18 inches dbh and all snags) are to be retained. However, few snags will be retained in stands with this proposed project which is counter to Recovery Plan (USDI Fish and Wildlife Service 1995) guidelines. For these reasons, we find the removal of dead trees up to 24 inches dbh and above will result in adverse effects to this PCE.

High Volumes of Fallen Trees and Woody Debris

We expect that a reduction in volumes of fallen trees and other woody debris will result from the proposed action. The removal of most snags from the stands will preclude recruitment and recovery of large down logs in critical habitat. Although conservation measures have been designed to protect large down logs and other important features of MSO habitat (i.e. retain 10-15 tons of down woody material per acre), we anticipate this PCE will incur long-term adverse effects because future replacement of fallen trees and woody debris for long-term recruitment will be removed.

Plant Species Richness, including hardwoods

The proposed project will harvest only snags in the project area. Therefore, treatments will not affect the "wide range of tree and plant species, including hardwoods" within the treatment units. Moreover, a standard and guideline from the Forest Plan indicates that key forest species such as oak will be retained. Thus, any effects to this PCE are expected to be insignificant and discountable.

Residual Plant Cover for Prey Species

There will be a short-term loss of vegetation at localized sites where harvesting activities occur due to mechanical disturbance to vegetation. This may result in short-term impacts to prey species due to habitat loss and a decrease in prey abundance. Plant cover may recover in the future depending on how the treatment areas are managed. Thus, we anticipate this PCE will incur short-term adverse effects.

In summary, some PCEs of MSO critical habitat will be adversely affected by the proposed action. Large snags, fallen trees and woody debris, and residual cover for prey species will likely be the PCEs affected most by the proposed action. We find that the effects to the function and conservation role of critical habitat relative to the RU and the entire designation are not significant because the impacts will occur in a relatively small area relative to the RU and the overall critical habitat designation. Therefore, we conclude that the PCEs of MSO critical habitat will serve the intended conservation role for species with implementation of the proposed action.

Cumulative Effects

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this BO. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The Service's most recent assessment of the MSO and its habitat on non-Federal lands is found in the final rule designating critical habitat (USDI Fish and Wildlife Service 2004).

In past BOs, it has been stated that, "Because of predominant occurrences of the MSO on Federal lands, and because of the role of the respective Federal agencies in administering the habitat of the MSO, actions to be implemented in the future by non-Federal entities on non-Federal lands are considered of minor impact." However, there has been a recent increase of harvest activities on non-Federal lands within the range of the MSO.

Future actions on non-Federal lands adjacent to the Forest within or adjacent to the project area that are reasonably expected to occur include livestock grazing, urban development, road construction, logging, fuelwood gathering, vegetation management (e.g., mowing or herbicide treatments), fuels management, fire suppression activities, wildland urban interface vegetative treatments, trail construction, campground activities and other associated recreation. These activities reduce the quality and quantity of MSO nesting, roosting, and foraging habitat, cause disturbance to MSOs and will contribute as cumulative effects to the proposed action.

The major concern in assessing cumulative impacts is the further loss of currently occupied and unoccupied habitat that contributes to a functioning MSO population, including those areas necessary to provide connectivity between populations. We believe that the continuing rate of habitat loss has the potential to disrupt the population dynamics of this species.

Finally, increased warming could result in the intensification of outbreaks of forest "pest" insect species or wildfire (Logan et al. 2003; GAO 2007). Climatic disturbance may alter the distribution and phenology of plants within MSO habitat, which could negatively alter the landscape for both MSOs and their prey (Van Riper III et al. 2008). Habitat specialists such as the spotted owl may be at high risk to climate change (GAO 2007). For example, precipitation can influence MSO survival and reproduction (Seamans et al. 2002). As directed in Secretarial Order 3226, we have considered and analyzed potential climate change impacts on the MSO (USDI 2001). It is possible that the effects of climate change may result in future State, tribal, local, or private actions through increased forest thinning to treat future insect or disease outbreaks. Although we recognize and are concerned about the impact of changes in climate and the potential resulting forest management activities on the MSO and its habitat, we are unclear how to address a threat of this magnitude and complexity.

Conclusion

After reviewing the current status of the MSO, the environmental baseline for the action area, the effects of the proposed Sacramento Mountains Defoliation Project and the cumulative effects, it is our biological opinion that the project, as proposed, is not likely to jeopardize the continued

existence of the MSO and is not likely to destroy or adversely modify designated critical habitat. We find the proposed action has the potential to cause adverse effects to MSO restricted habitat and designated critical habitat. Nevertheless, it is anticipated that these impacts will not affect the role of critical habitat unit BR-E-1 relative to the conservation of the MSO and to the overall critical habitat designation. These conclusions are based on the following:

1. Though treatments will result in the loss of important snag habitat in MSO restricted habitat resulting in adverse affects to the MSO, no take of the MSO is anticipated to occur.
2. Most of the proposed action treatments will occur in MSO restricted habitat and critical habitat only and not in PACs except for re-opening of a 0.21 mile road segment in a PAC. This re-opening is expected to impact small amounts of vegetation and few, if any trees less than nine inches dbh.
3. A breeding season restriction (March 1st – August 31st) will be applied to minimize effects from disturbance from the proposed action treatments near an MSO nest site.
4. The proposed project included 3,068 acres of critical habitat. This is one percent of the designated critical habitat in the Basin and Range East RU and less than 0.05 percent of designated critical habitat in the range of the MSO. Due to the relatively small size of the area in comparison to the RU and the range of the MSO, we do not expect the effects of the proposed action to appreciably alter the function and intended conservation role of MSO critical habitat range-wide.
5. The implementation of the proposed action is not expected to impede the ability of the survival or recovery of the MSO within the Basin Range East RU or range-wide.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit take of endangered and threatened species without special exemption. Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm means an act that actually kills or injures listed species. Such acts may include significant habitat modification or degradation that result in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass means an intentional or negligent act or omission that creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior that includes, but is not limited to, breeding, feeding or sheltering. Incidental take is incidental to, and not the purpose of, carrying out an otherwise lawful activity. In section 7(b)(4)(iv) and section 7(o)(2) of the Act, incidental take not intended as part of agency action is not considered prohibited taking if such taking meets the terms and conditions of an Incidental Take Statement.

Amount or extent of take

Using available information summarized within this document, we have identified conditions of possible adverse effects to MSO within restricted habitat associated with the proposed action. However, based on the best available information concerning the MSO, habitat needs of the species, the project description, and information furnished in the BA, we do not believe that the removal of snags in restricted habitat was reasonably certain to effect the MSO to the point where incidental take occurred. This is based upon the relatively small amount of effects to habitat resulting from snag removal in restricted habitat and no harvest activities in MSO PACs.

Disposition of Dead or Injured Listed Species

Upon finding a dead, injured, or sick individual of an endangered or threatened species (e.g., MSO), initial notification must be made to the nearest Service Law Enforcement Office. In New Mexico, contact (505/346-7828) or the NMESFO (505/346-2525). Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph, and any other pertinent information. Caution must be exercised when 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, the remains of intact specimens of listed animals shall be submitted to educational or research institutions holding appropriate State and Federal permits. If such institutions are not available, the information noted above shall be obtained and the carcass left in place.

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

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The recommendations provided here relate only to the proposed action and do not represent complete fulfillment of the agency's section 7(a)(1) responsibility for this species. We recommend the following conservation recommendations be implemented:

1. When piling and burning slash, the Forest should: a) stack compact piles relatively high in relation to width or diameter; b) arrange piles far enough apart to prevent inter-ignition; c) consider igniting alternating piles or placing piles far enough away from surrounding MSO key habitat components to avoid damage from burning or scorching;
2. Following the Recovery Plan (USDI Fish and Wildlife Service 1995), conduct an ecosystem assessment to document that a surplus of threshold habitat exists at the Forest

and District Level (i.e., a larger landscape level). Manage this habitat toward target conditions following Table III.B.1. The assessment should be completed by the end of FY 2009. If a deficit of threshold habitat is found, additional forest stands should be identified that:

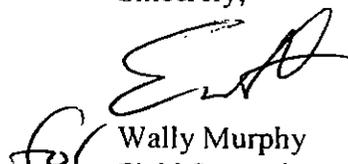
- a. have the site potential to reach target conditions; and
 - b. whose current conditions most closely approach target conditions.
3. Conduct all proposed activities in a manner that will minimize disturbance to the MSO and minimize modification and loss of MSO habitat.
 4. The Forest should provide the Service with information on appropriate amounts of residual snags and down wood in the proposed project area that are based on pre-settlement and natural fire regimes.. Scientific information specific to this area should be the basis for determining these levels.
 5. In order for us to be kept informed of actions that either minimize or avoid adverse effects or that benefit listed species and their habitats, we request notification of the implementation of the conservation recommendations.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the Sacramento Mountains Defoliation Project. As provided in 50 CFR 402.16, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the proposed action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in this opinion; or (4) a new species or critical habitat is designated that may be affected by the proposed action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take shall cease pending reinitiation.

In future communications regarding this project, please refer to consultation #22420-2009-F-0011. If you have any questions or would like to discuss any part of this biological opinion, please contact Lynn Gemlo of my staff at (505) 761-4726.

Sincerely,


Wally Murphy
Field Supervisor

Jacque Buchanan, Forest Supervisor

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cc:

District Ranger, Sacramento Ranger District, Lincoln National Forest, Cloudcroft, New Mexico

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

Director, New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division,
Santa Fe, New Mexico

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File Code: 1950/2670

Date: March 31, 2009

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USFWS-NMESFC

Dear Mr. Murphy:

This letter is written in response to the US Fish and Wildlife Service (Service) Draft Biological Opinion dated March 18, 2009, regarding consultation # 22420-2009-F-0011 on the Lincoln National Forest (Forest) proposal for the Sacramento Mountains Defoliation Project. The Draft Opinion deals with the effects of the proposed project on the Mexican spotted owl (*Strix occidentalis lucida*; MSO). A "no effect" determination is applicable to all other federally listed and candidate species. The Forest appreciates this opportunity to provide these comments on the Draft Biological Opinion.

As a point of clarification, it should be noted that the BA documented a determination of "May Affect, not likely to Adversely Affect" for the MSO and a "May Affect, not likely to Adversely Affect" on Critical Habitat (Forest Service 2009). No activities will occur in MSO Protected Activity Centers (PAC's) but will occur in MSO Restricted Habitat. The Forest understands that the Service made a determination of "May Affect, Likely to Adversely Affect" the MSO and a further determination of "May Affect, Likely to Adversely Affect" Critical Habitat.

First, under the "Description of the proposed action" section, page 2, the Forest has included a statement recognizing that the snag component is abnormally high due to the actions of defoliating insects. Many snags will be retained across the untreated portions of the 14,500 acres affected, as treatment will only occur on up to 5,335 acres. Due to the current condition of the abnormally high occurrence of snags and dead trees, it is entirely likely that the treatment will return the snag component to more closely approximate "normal" conditions. The Forest requests an acknowledgement in the "MSO Habitat" section, page 13, and the "Large Snags" section, page 16.

no species

Second, the Forest has added a design feature that should be included in the "Project Design Features" section on page 4. The Forest will retain a minimum of 3 snags per acre within the treated areas under this project as required by the Northern Goshawk Guidelines for mixed conifer (USDA Forest Service ROD for Amendment of Forest Plans for Arizona & New Mexico, 1996). These guidelines are based on sound science and ecological principles, and are applicable to, as well as overlap, MSO PACs. This requirement has been applied and used in previous projects on the Forest, with concurrence from the Service.

Third, under the "Project Design Features" section, on page 4, the Forest has added a feature providing that breeding season restrictions could be temporarily waived if Formal Monitoring should indicate no presence of MSO or no nesting in a given year. If MSO are present but not nesting, it is recognized that there will be disturbance to individual owls, but not disruption

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during the nesting season. This Formal Monitoring conditional request would pertain only to a specific site during a specified time period of 1 year, but would be applicable to any potential disturbance authorized under the proposed action. The monitoring would be conducted, and the temporary waiver would be implemented in coordination and full communication with the Service. This feature was discussed with the Service in a recent personal communication.

Fourth, under the "Disturbance" section, on page 14, the Service appears to identify a 600 foot buffer for activities, specific to 13 MSO nest sites. However, upon direct communication with the Service, this was not the intent. For clarification, there are 13 MSO nest sites that are greater than 600 feet from any activity that would be associated with this proposal. Only one PAC nest site, Lightning Lake, falls within 220 feet of any potential activity. The Forest requests a clear statement that operational limitations placed on any harvest and burning activities are applicable only for the Lightning Lake nest site. These limitations would not be applicable to the remaining 13 nest sites where no activities associated with this project are proposed within close proximity to the nests.

Fifth, under the "Disturbance" section, on page 14, the Service identifies harvesting activities and burning, with a final sentence regarding breeding season restrictions (USFWS 2009). The Recovery Plan cites long-term benefits to MSO habitat from prescribed burning. The Forest will continue to comply with the MSO Recovery Plan regarding specific guidelines related to burning. The Forest would like clarification that where the BO cites a breeding season restriction of "March 1 through August 31," the reference is meant to be specific to a single MSO nest site, not the entire treatment area.

Under "Conservation Recommendations" section, pages 19-20, item clarification (#2, #4): The Forest is in the process of conducting an MSO threshold analysis for the Lincoln National Forest. This assessment is estimated to be completed by the end of FY2009. Historical documentation, including photo documentation (where available), will also be used in this analysis to ascertain natural fire regimes and provide an approximation of residual snags and down wood.

In closing, I would like to thank you again for this opportunity to review and provide comments on this draft opinion. If you have any questions regarding our comments, please feel free to contact Rhonda S. Stewart, Forest Wildlife Biologist, at (575) 434-7222.

Sincerely,



JACQUELINE A. BUCHANAN
Forest Supervisor

cc: Donna L Owens, Gary K Ziehe, Chad Stewart, Terry DeLay, Rhonda S Stewart, Jack D Williams, Kathryn Wallace