United States Department of the Interior

FISH AND WILDLIFE SERVICE
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SUMMARY
FINAL BIOLOGICAL OPINION ON THE EFFECTS TO THE MEXICAN SPOTTED OWL FROM THE PROPOSAL TO IMPLEMENT THE RIO PENASCO II NON-PROGRAMMATIC VEGETATION MANAGEMENT PROJECT AND FOREST PLAN AMENDMENT, SACRAMENTO RANGER DISTRICT, LINCOLN NATIONAL FOREST, NEW MEXICO

Cons. #2-22-02-F-397

Date of the final biological opinion: March 9, 2005

Action agency: Sacramento Ranger District, Lincoln National Forest

Project: The project concerns the proposal to implement the Rio Peñasco II Non-Programmatic Vegetation Management Project and Forest Plan Amendment, Sacramento Ranger District, Lincoln National Forest. The project proposes precommercial and commercial thinning, an MSO monitoring program, and prescribed burning through broadcast burns, jackpot pile and pile burning with creep.

Species affected: Mexican spotted owl (*Strix occidentalis lucida*) and its designated critical habitat

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

Incidental take statement: We anticipate the harassment of an unspecified number of MSOs and the harm of 1 MSO associated with capture, handling, and radio-marking birds for the monitoring program and the possibility of an individual being accidentally injured or killed while being handled, captured, or following radio-marking. We also anticipate harassment of 12 PACs including 12 pairs of MSOs (and associated eggs/young) from commercial thinning operations.

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

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March 9, 2005

Cons. #2-22-02-F-397

Jose M. Martinez, Forest Supervisor
Lincoln National Forest
Federal Building
1101 New York Avenue
Alamogordo, New Mexico 88310-6992

Dear Mr. Martinez:

This responds to your October 27, 2004, amended Biological Assessment (BA) for the proposal to implement the Rio Peñasco II Non-Programmatic Vegetation Management Project and Forest Plan Amendment (Rio Peñasco II Project), Sacramento Ranger District, Lincoln National Forest (USDA Forest Service 2004). The BA evaluates the potential impact of modifications and additions to the original project on the Sacramento Mountains thistle (*Cirsium vinaceum*) (thistle) and the Mexican spotted owl (*Strix occidentalis lucida*) (MSO) and its designated critical habitat.

On August 31, 2004, the USDI Fish and Wildlife Service (Service) issued a final rule designating MSO critical habitat (69 FR 53182). For this reason, and because you modified your original proposed action, you submitted an amendment to the May 30, 2002 BA (USDA Forest Service 2002a). In the amended BA, you determined that the proposed action "may affect, is not likely to adversely affect" the thistle and requested concurrence. For the MSO, you determined the amended proposed action "may affect, is likely to adversely affect" the species and its designated critical habitat, and requested reinitiation of formal consultation under section 7 of the Endangered Species Act of 1973, as amended (Act)

On September 27, 2002, the Service issued a biological opinion on the effects of the Rio Peñasco II Project on the MSO (September 27, 2002 BO) and a conference opinion on the proposed endangered Sacramento Mountains checkerspot butterfly (*Euphydryas anicia cloudcrofti*) (checkerspot butterfly) and its proposed critical habitat (Enclosure). The current biological opinion supplements the analyses conducted in the Service's September 27, 2002 BO. The purpose of this biological opinion is to further identify and analyze features of the proposed action that differed from or add to those included in the original project as described in the May 30, 2002 BA. These new features include conducting prescribed burns within MSO habitat, parts of the MSO monitoring program, analyzing the impact of the

project on designated MSO critical habitat, and the effects of changing the location of precommercial and commercial treatments with some of the forest stands of the Rio Peñasco watershed. The Service has reviewed the September 27, 2002 BO for the project. In our analysis below, we modify the relevant sections that have changed.

The Service is committed to fuels reduction projects and fully supports the proposed project to reduce the risk of stand-replacing fires, especially in areas with sensitive resources. Threats of wide-scale habitat loss due to fire are real and immediate on many public lands. Reducing fuels in these areas also may help to protect habitat for threatened and endangered species. For example, the MSO Recovery Plan (Recovery Plan) (USDI Fish and Wildlife Service 1995) recognizes catastrophic wildfire as the greatest threat to the MSO and its habitat. Reduction in habitat and various habitat-based threats contributed to the listing of the MSO. Forest thinning, often in conjunction with prescribed fires, is extremely important as a management tool needed to enhance, and often to restore many of the ecosystem functions and processes. The long-term benefits to the MSO of many land management actions may contribute, in the short-term, to certain adverse affects to the MSO. Projects, such as the current one, fall into this category. Therefore, it is important to address adverse impacts by minimizing, to the greatest extent practical, those short-term adverse affects and move forward with proactive land management to restore ecosystem functions and community dynamics.

We are pleased that your proposed action includes treatments that will produce or maintain key habitat features (e.g., large trees, snags, logs, overstory, and hardwoods) for the MSO and its prey. Your project is extremely important because the rigorous monitoring program will determine if treatment objectives for the MSO and fuels reduction were met in the short and long-term. Wholesale use of fuels management programs, without understanding or monitoring effects on habitat may render many of these areas unusable to the MSO and may miss opportunities to improve our knowledge of these programs on habitat.

Thistle

You provided supplemental information in the BA that analyzes the effects of a proposal to conduct prescribed burns within areas occupied by the thistle. The BA lists two thistle occurrences in Cox Canyon, one in Lucas Canyon, and four within lower Water Canyon. All of these areas are either within or adjacent to forest stands where you are proposing to conduct prescribed burns. To avoid burning thistles, you will be applying a 200-foot protective buffer around all identified thistle occurrences. The BA also described that broadcast burns will occur under conditions that should provide sufficient moisture for additional protection of thistle occurrences.

All of the conservation measures identified in the September 27, 2002 BO for the thistle will continue to be part of the proposed action, with the following exceptions:

1. No broadcast burning will occur as a treatment under the Rio Peñasco II project (listed as Conservation Measure 4 in the September 27, 2002, BO); and

2. A buffer sufficient to prevent sediment flow, consisting of at least 200 ft above and 100 ft below and beside thistle occurrences will be established (listed as Conservation Measure 5a in the September 27, 2002, BO).

The following conservation measures are proposed as replacements:

1. In forest stands containing thistles where broadcast burning will be conducted, a minimum of a 200-foot protective no-burn buffer will be applied on all sides of thistle occurrences. This buffer will not be created by clearing all vegetation within the 200-foot area; and

2. Hand piles and jackpot piles will not be created within 300 feet of thistle occurrences.

The thistle is an easily recognized plant that grows in a unique habitat. Any additional sites discovered during field work associated with layout of this project will be documented and provided the protection of all conservation measures as they are described above and in the September 27, 2002 BO.

Because you will apply a 200-foot buffer around thistles, we do not expect that slash piling or burning will take place within areas occupied by the thistle. Therefore, we believe that the direct and indirect effects to the thistle are insignificant or discountable. Consequently, we concur with your determination that the proposed action "may affect, is not likely to adversely affect" the thistle or its habitat.

Checkerspot Butterfly

The BA also evaluated the potential impact of the proposed action on the butterfly. After the BA was submitted, however, we withdrew our proposed rule to list the butterfly as endangered with critical habitat (December 21, 2004; 69 FR 76428). Therefore, section 7 of the Act no longer applies to the butterfly. Still, it is our understanding that you will continue to follow the mitigation measures and best management practices as they were identified in the selected alternative of your environmental assessment (USDA Forest Service 2002). These mitigation measures and best management practices are consistent with the Lincoln National Forest Plan, as amended, and Forest Service policy related to designated sensitive species (FSM 2670.3). The Sensitive Species program was designed to meet this mandate and demonstrate the Agency's commitment to maintain biodiversity on National Forest System lands. The Forest Service is required to maintain "viable populations of existing native and desired non-native species in the planning area" (36 CFR 219.19). Additionally, the Lincoln National Forest Plan contains at least two standards and guidelines that directly apply to the butterfly including: 1) protecting and managing essential and critical habitats of threatened, endangered, and sensitive species through ensuring that legal and biological requirements of designated plant and animal species are met; and 2) identifying, protecting, and enhancing existing and potential habitat of all threatened, endangered, and sensitive species (USDA Forest Service 1986). We commend you for implementing a variety of recent actions that eliminated or lessened threats to the butterfly or have been beneficial for increasing our knowledge of the species. The current BA identified additional conservation

measures to reduce impacts on the butterfly and its habitat. Although we have not reviewed these conservation measures under the section 7 of the Act, we support the inclusion of these measures and recommend that you implement them as part of the current proposed action.

The current biological opinion (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. USDI Fish and Wildlife Service (CIV No. 03-35279) to complete the following analysis with respect to critical habitat. This consultation analyzes the effects of the action and its relationship to the function and conservation role of MSO critical habitat to determine whether the current proposal destroys or adversely modifies critical habitat. This document and the relevant analyses from our September 27, 2002 BO represent our biological opinion for the MSO and its designated critical habitat in accordance with section 7 of the Act.

Consultation History

On September 27, 2002, we issued you a final biological opinion for the project. On July 22, 2004, the Forest Service submitted a batched request for informal conferencing that included the Rio Peñasco II project because the area was within our proposed designation of critical habitat for the MSO. The final rule designating MSO critical habitat was published on August 30, 2004 (USDI Fish and Wildlife Service 2004; 69 FR 53182). We specifically excluded the Peñasco II project area from the final designation of MSO critical habitat. Nevertheless, on September 28, 2004, the Forest Service submitted a new BA and requested reinitiation of informal consultation for the Rio Peñasco II project because new treatment areas were proposed outside of the original project boundary. These new treatment areas were located within designated MSO critical habitat, and the Forest Service determined that the proposed action "may affect, is not likely to adversely affect" the MSO and its critical habitat. On October 7, 2004, the Forest Service modified their determination in the BA and requested reinitiation of formal consultation because they now determined the proposed action "may affect, is likely to adversely affect" the MSO and its critical habitat. The proposed action was further modified on October 27, 2004 when the Forest Service submitted another amendment to the BA (describing spacing between timber landings).

This BO supplements the effects analysis in the September 27, 2002 BO and is based on information provided in the BA; the October 7, and 27, 2004 amendments to the BA, the August 2002 environmental assessment (EA) for the project, a progress report on the monitoring program (Ward et al. 2003); the amended section 10(a)(1)(A) scientific recovery permit for the project; email and telephone conversations between our staffs; data in our files, especially from the previous consultation; data presented in the Recovery Plan (USDI Fish and Wildlife Service 1995); 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; 69 FR 53182). References cited in this BO are not a complete bibliography of all literature available on the MSO, the proposed action, or on other subjects considered in this BO. A complete administrative record of this consultation is on file at this office. We received all

the information necessary to begin formal consultation on October 27, 2004, when you submitted the final amendment to the BA and requested reinitiation of formal consultation.

DESCRIPTION OF THE PROPOSED ACTION

Vegetation Treatments

The Forest Service did not propose changing the methods of mechanical thinning activities from those analyzed in the September 27 2002 BO. Therefore, other than those differences or additions to the proposed action specifically detailed below, the description of the previous proposed action is hereby incorporated by reference (USDI Fish and Wildlife Service 2002; USDA Forest Service 2002a). These new actions are summarized below and their associated effects are analyzed under the current biological opinion. The reason for these changes include: 1) some treatments were not feasible to implement; 2) ground truthing illustrated that a different treatment was warranted because of forest stand conditions; or 3) refinements of MSO protected activity centers (PACs) or study buffers within the project area justified a change (USDA Forest Service 2004).

In the September 27, 2002 BO, we reviewed the effects of precommercial and commercial thinning, an MSO monitoring program, and burning slash piles. The proposed changes identified in the current BA are hereby incorporated by reference, but briefly include the addition of broadcast burns and jackpot pile and pile burning with creep (i.e., fire unintentionally moving beyond the pile), mechanically treating new areas that were not analyzed in the original proposal, and switching some precommercial mechanical thinning treatments units with those originally proposed as commercial thinning units and vice versa (USDA Forest Service 2004).

Broadcast burns use controlled fire as a silvicultural treatment to burn a designated area within well-defined boundaries for the purpose of reducing fuel hazards. Jackpot pile burning refers to a modified method of broadcast burning, mainly used to dispose of slash where fuel is not continuous. Pile burning is simply the burning of slash piles (e.g., from limbs and tops of trees) created by thinning activities. Tractor yarding of slash material will be utilized over the majority of the commercial timber stand areas. Where treated stands do not have sufficient commercial value, the downed material will be hand piled and burned.

Under the current action, the Forest Service proposes to introduce broadcast and jackpot pile burns into about 8,500 acres (ac) within the Rio Peñasco Watershed. Of these, there are about 760 of protected habitat (220 ac within the Goodsell PAC and 545 ac protected steep slope habitat) and 7,740 ac considered restricted habitat (USDA Forest Service 2004). The Forest also proposes to conduct broadcast burning as a maintenance tool in units that have previously been precommercially or commercially thinned. Broadcast burns will be conducted within the next 10 to 12 years and then occur on a regular basis every 7 to 15 years. The remaining 16,600 ac of MSO habitat is proposed to receive pile burning with creep. Although not identified by the Forest Service in the BA, we assume that burn plans will be prepared for each prescribed burn, consistent with Forest Service policy and the Lincoln National Forest Plan as amended (FSM 5140; USDA Forest Service 1986).

The BA indicates that, as part of the proposed action, the following conservation measures for the MSO will be implemented to minimize impacts to the MSO and its habitat:

1. All restricted habitat will be managed according to recovery plan standards (i.e., retain trees greater than 61 cm (24 in) unless overriding management situations require their removal to protect human safety and/or property (for example, the removal of hazard trees along roads, in campgrounds, and along power line;

2. All treatments will be managed by retaining trees greater than 61 cm (24 in), unless deemed a hazard tree;

3. All treatments will retain some trees greater than 18" dbh (diameter at breast height);

4. No treatments in 100 ac roost-nest buffer found within PAC;

5. Implementing breeding season restrictions on all PACs, which includes road use in new temporary or re-opened roads (March 1 to August 31);

6. Presence surveys will occur for at least two years before treatment occurs;

7. All new temporary or reopened roads will be closed, both within and outside of PACs;

8. Micro-habitat vegetation monitoring will occur within project treatment areas using Region 3 protocol;

9. Save all snags over 14 inches dbh that are not hazard trees. Insure that at least 3 snags, 18 inches dbh or greater per acre are left after treatment. To reduce losses of large snags (3 per ac 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;

10. Retain 10-15 tons of downed woody material favoring not removing any logs greater than 12-inch midpoint diameter; and

11. Burning prescriptions will be adjusted to maintain threshold conditions and kept outside of MSO roost-nest buffers.

Applicable Forest Plan Standards and Guidelines

Forest Plans are regulated by the National Forest System Land and Resource Management Planning (36 CFR 219). In 1996, the 11 National Forest Plans in the Southwestern Region of the Forest Service were amended to add specific standards and guidelines for the MSO, and other management prescriptions (Forest Plan Amendments) (USDA Forest Service 1995, 1996). Standards and guidelines are the bounds and constraints within which all Forest Service management activities are to be carried out in achieving Forest Plan objectives

(USDA Forest Service 1996, p. 87). Guidelines are the detailed information about implementation standards. While standards and guidelines both specify management bounds and constraints, the standards contain no discretionary elements, whereas the guidelines may occasionally contain discretionary elements. The language and intent of the Forest Plan Amendments were to incorporate the recommendations of the Recovery Plan (USDI Fish and Wildlife Service 1995) to provide primary direction for site-specific project design (USDA Forest Service 1995) (i.e., the Forest Plan Amendments are applied through project level environmental analysis and decisions).

The Lincoln National Forest Plan provides management direction and standards and guidelines for projects on National Forest lands. These standards and guidelines are listed in the 1985 Lincoln National Forest Plan, as amended, (Lincoln National Forest Plan) and in the Forest Plan Amendments (USDA Forest Service 1986, 1995). For example, the environmental assessment for this project included amending the Lincoln National Forest Land Management Plan. One of our major assumptions in Programmatic and site-specific consultations for the Forest Service is that activities will be planned within the bounds and constraints of the applicable Forest Plan. For these reasons, the Service assumes that the proposed action will conform to the Lincoln National Forest Plan, as amended, including the Forest Plan Amendments.

The applicable standards and guidelines from the Lincoln National Forest Plan include but are not limited to:

1. Retain all snags greater than 18 inch dbh within the spruce-fir, mixed conifer, or ponderosa pine forest habitat types unless removal is necessary for safety;

2. Retain key forest species such as oak;

3. Retain key habitat components such as snags and large downed logs; and

4. Evaluate all prescribed burns for coordination with other resource activity needs.

Monitoring Program

As identified in the September 27, 2002 BO, the monitoring program is expected to last about 10 years. Additional details on methods for estimating parameters associated with the monitoring program have been described in a draft study plan (Ward and Ganey 2004). This draft study plan is currently undergoing peer-review, validating our assumption in the original BO, that the study plan would be reviewed for appropriate scientific conduct, including reliability of proposed scientific design, data collection, and analysis procedures. We are supplementing the information from the September 27, 2002 BO, based upon more detailed information provided by the Forest Service Research staff. Nevertheless, much of the information and analyses are still valid. For example, in the original BO, we assumed that MSOs would be captured and marked (leg bands) as part of the monitoring program and would follow accepted procedures (e.g., see Franklin et al. 1996). This is still accurate.

The Forest Service modified methods used to capture MSOs following the death of a male MSO from capture-related trauma (described below under Environmental Baseline Section). You evaluated and changed MSO capture equipment, techniques, and procedures to minimize or avoid future injuries to MSOs. This inquiry focused specifically on ways to reduce the possibility of a noosed MSO banging against objects as it is lowered to the ground, and/or reducing the possibility of a hard landing. MSOs are now captured using primarily your modified snare pole design (Ganey and Ward 2003).

You also have fit certain MSOs with radio telemetry transmitters following procedures identified in Ganey and Ward (2003). It is estimated that between 32 to 52 MSOs will be radio-marked (P. Ward, USDA Forest Service, pers. comm., 2004). Radio-marked MSOs are monitored year-round.

For these reasons, the following conservation measures for the MSO will be implemented:

1. Snare poles will be modified following Ganey and Ward (2003);

2. All personnel involved in MSO capture and banding activities will be trained using capture techniques that emphasize MSO safety and utilize model MSOs for practice;

3. MSOs will be fitted with radio telemetry transmitters if the bird is determined to be in good physical condition and when the transmitter and attachment harness package is no more than approximately 3 percent of body mass (Ward and Ganey 2003a); and

4. Transmitters were specifically designed for this study to weigh approximately 15 g including the harness and be streamlined with no protuberances that could concentrate pressure in one spot on an MSO's back (Ward and Ganey 2003a).

STATUS OF THE SPECIES (range-wide)

a. Species/critical habitat description

The MSO was listed as threatened on March 16, 1993 (USDI Fish and Wildlife Service 1993). The Service was ordered to re-propose critical habitat by April 13, 2004, the final rule on MSO critical habitat was published on August 30, 2004 (USDI Fish and Wildlife Service 2004).

The American Ornithologist's Union recognizes three spotted owl subspecies: California spotted owl (*S. o. occidentalis*), Mexican spotted owl (*S. o. lucida*), and northern spotted owl (*S. o. caurina*). The MSO is distinguished from the California and northern subspecies by plumage, genetic makeup, and geographic distribution. This owl is mottled in appearance with irregular white and brown spots on its abdomen, back and head. Its white spots are larger and more numerous than in other subspecies giving it a lighter appearance. Several thin white bands mark its brown tail. Unlike most other owls, all spotted owls have dark eyes.

S. o. lucida has the largest geographic range of the three subspecies. Its range extends from Aguascalientes, Mexico, through the mountains of Arizona, New Mexico, and western Texas, the canyons of southern Utah, and the Front Range of central Colorado. The MSO's distribution is fragmented throughout its range, corresponding to forested mountains and rocky canyon lands (USDI Fish and Wildlife Service 1995, Tarango et al. 1997, Young et al. 1997, Sureda and Morrison 1998, Gutierrez et al. 1995, Peery et al. 1999, Sorrentino and Ward 2003).

There are approximately 8.6 million ac of critical habitat designated in Arizona, Colorado, New Mexico, and Utah on Federal lands. 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 is defined as occupied mixed-conifer or pine-oak forests 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 areas.

Protected and restricted habitat are two of the three types of MSO habitat discussed in the Recovery Plan and these habitat types were used as the basis for defining critical habitat (69 FR 53182). Protected areas include known MSO sites (PACs), areas in mixed-conifer and pine-oak types with greater than 40 percent slopes where timber harvest has not occurred in the past 20 years and administratively reserved lands, such as Wilderness Areas or Research Natural Areas. Restricted habitat includes mixed-conifer forest, pine-oak forest, and riparian areas outside of protected areas. Canyon habitats may also be used for nesting and roosting, and are typically characterized by cooler conditions found in steep, narrow canyons, often containing crevices, ledges, and/or caves. These canyons frequently contain small clumps or stringers of ponderosa pine, Douglas-fir, white fir, and/or pinyon-juniper. Because MSO habitat may also exhibit a combination of attributes, we designated primary constituent elements for both forested and canyon types of critical habitat. Because canyon habitat does not occur within the action area, we have only listed primary constituent elements for forested critical habitat.

Within forests, the following are considered primary constituent elements:

1. 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 a trunk diameter of 12 inches (0.3 meters) or more when measured at 4.5 feet (1.4 meters) from the ground;

2. A shade canopy created by the tree branches covering 40 percent or more of the ground; and

3. Large dead trees (snags) with a trunk diameter of at least 12 inches (0.3 meters) when measured at 4.5 feet (1.4 meters) from the ground.

The primary constituent elements related to maintenance of adequate prey species include:

4. High volumes of fallen trees and other woody debris;

5. A wide range of tree and plant species, including hardwoods; and

6. Adequate levels of residual plant cover to maintain fruits, seeds, and allow plant regeneration.

b. Life history

The MSO occupies a broad geographical area, but does not occur uniformly throughout its range (USDI Fish and Wildlife Service 1995). Instead, the MSO occurs in disjunct localities that correspond to isolated mountain systems and canyons. The MSO is frequently associated with mature mixed-conifer, pine-oak, and riparian forests (Ganey et al. 1988, Skaggs and Raitt 1988, Ganey and Balda 1989, Gutierrez and Rinkevich 1991, Willey 1993, Fletcher and Hollis 1994, Ganey and Dick 1995, Gutierrez et al. 1995, Seamans and Gutierrez 1995, Ward et al. 1995). Mature mixed-conifer forests are mostly composed of Douglas-fir (*Psuedotsuga menziesii*), white fir (*Abies concolor*), limber pine (*Pinus flexilis*) or blue spruce (*Picea pungens*). Pine-oak forests are mostly composed of ponderosa pine (*Pinus ponderosa*) and Gambel oak (*Quercus gambellii*). Riparian forests are dominated by various species of broadleaved deciduous trees and shrubs (USDI Fish and Wildlife Service 1995). Riparian forests function as important components of ecosystems supporting MSOs. These communities, particularly mature, multilayered forests, can be important linkages between otherwise isolated subpopulations of MSOs (USDI Fish and Wildlife Service 1995). They may serve as direct avenues of movement between mountain ranges or as stopover sites and connect large expanses of landscape that otherwise would be inhospitable to dispersing MSOs. Historical evidence shows that MSOs once nested in riparian habitats (USDI Fish and Wildlife Service 1995).

MSOs breed sporadically and do not nest every year (Gutierrez et al. 1995). Calling activity increases from March through May (although nesting females are largely silent during April and early May), and then declines from June through November (Gutierrez et al. 1995). MSOs are usually silent from December through February (Gutierrez et al. 1995). Courtship begins in March with pairs roosting together during the day and calling to each other at dusk (Ganey 1988). Eggs are laid in late March or early April (Delaney et al. 1999). The incubation is approximately 30 days and performed entirely by the female (Ganey 1988, Forsman et al. 1984). Foraging is entirely by males during incubation and the first half of the brooding period, females leave the nest only to defecate, regurgitate pellets, or receive prey from their mate (Forsman et al. 1984, Ganey 1988).

MSOs are highly selective for roosting and nesting habitat, but forage in a wider array of habitats (USDI Fish and Wildlife Service 1995, Ganey and Balda 1994, Seamans and Gutierrez et al. 1995). Roosting and nesting habitat exhibit certain identifiable features, including large trees with trunk diameters greater than 12 inches (in) (30.5 centimeters [cm]), high tree basal area, uneven-aged tree stands, multi-storied canopy, moderate to high canopy closure, and decadence in the form of downed logs and snags (Ganey and Balda 1989, Ganey and Dick 1995, Grubb et al. 1997, Tarango et al. 1997, Peery et al. 1999, Ganey et al. 2000,

Geo-Marine 2004). Canopy closure is typically greater than 40 percent (Ganey and Balda 1989, Fletcher 1990, Zwank et al. 1994, Grubb et al. 1997, Tanrango et al. 1997, Ganey et al. 1998, Young et al. 1998, Ganey et al. 2000, Geo-Marine 2004).

All nests reported by Zwank et al. (1994), Seamans and Gutierrez (1995), and Geo-Marine (2004) were in mixed-conifer or Douglas-fir habitat. Roost and nest trees were the oldest and largest within tree stands (Ganey and Balda 1989, 1994, Seamans and Gutierrez 1995). MSOs use areas that contain a number of large trees of different types including mixed-conifer and pine-oak with smaller trees under the canopy of the larger trees. These types of areas provide vertical structure and high plant species richness that are important to MSOs (Ganey and Dick 1995, Seamans and Gutierrez 1995, Ganey et al. 2003). Tarango et al. (1994) and Ganey et al. (2000) recorded seven or more tree species at roost sites. Therefore, mixed-conifer dominated by Douglas-fir, pine-oak, and riparian forests with high tree diversity are important to the MSO.

Juvenile MSOs disperse from their natal territories in September and October, into a variety of habitats ranging from high-elevation forests to pinon-juniper woodlands and riparian areas surrounded by desert grasslands (Gutierrez et al. 1995, Arsenault et al. 1997, Willey and c. Van Riper 2000). Observations of long-distance juvenile dispersal provide evidence that they use widely spaced islands of suitable habitat which are connected at lower elevations by pinon-juniper and riparian forests. MSOs have been observed moving across open low desert landscapes between islands of suitable breeding habitat (Arsenault et al. 1997, Ganey et al. 1998, Willey 1998). MSO movements were also observed between sky island mountain ranges in New Mexico (Gutierrez et al. 1996). As a result of these movement patterns, isolated populations may have genetic significance to the MSO's conservation (Keitt et al. 1995, Gutierrez and Harrison 1996, Seamans et al. 1999, Willey and c. Van Riper 2000). Therefore, contiguous stands or islands of suitable mixed-conifer, pine-oak, and riparian forests are important to the MSO.

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 dependant 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.

c. Population dynamics

Historic population size estimates and range of the MSO are not known however, present population size and distribution are thought to be similar (USDI Fish and Wildlife Service 1995). Ninety-one percent of known MSOs existing in the United States between 1990 and 1993 occurred on land administered by the Forest Service (USDI Fish and Wildlife Service 1995). Most MSOs have been found within the 11 National Forests of Arizona and New Mexico. It is unknown why Colorado and Utah support fewer MSOs. In 2002, Forest Service reported 987 PACs in Arizona and New Mexico (USDA Forest Service 2002b). Additional surveys are likely to document more MSOs on Forest Service and other lands. For example, Geo-Marine (2004) reported an additional 26 activity centers not previously designated by the Gila National Forest. Current information suggests there are 15 PACs in Colorado, 105 PACs in Utah, and 43 PACs on National Park Service lands in Arizona, therefore, 1,176 PACs have been identified. Based on this number of MSO sites, we believe that the total known MSO numbers on Federal lands in southwestern United States range from 1,176 or 2,352, depending on whether one bird or a pair occupies the PAC. Seamans et al. (1999) reported evidence of 10 percent or greater population declines in central Arizona and west-central New Mexico. Both populations experienced lower survival rates in the late 1990's. Gutierrez et al. (2003) concluded that with four additional years of data on these same populations, the decline observed by Seamans et al. (1999) on the Arizona study area was temporary, whereas the decline in New Mexico appeared to be continuing. Wide population fluctuations may be common for populations of MSOs (Gutierrez et al. 2003).

The Lincoln National Forest is within the Basin and Range - East RU and contains the third largest number (138) of MSO PACs in the United States (USDA Forest Service 2003). Because of the high concentration of MSOs, 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. There are 109 designated PACs within the Sacramento Ranger District. They 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).

d. Status and distribution

Two primary reasons were cited for listing the MSO as threatened in 1993: 1) Historical alteration of its habitat as the result of timber management practices, specifically the use of

even-aged silviculture, and the threat of these practices continuing; and 2) the danger of catastrophic wildfire. Another factor that contributed to declines included the lack of adequate existing regulatory mechanisms. The Recovery Plan also notes that forest management has created habitats favored by great horned owls, increasing the likelihood of predation. Other threats identified in the Recovery Plan 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. The Recovery Plan outlines management actions that guide land management agencies in efforts to remove recognized threats and recover the MSO.

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 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).

Geo-Marine, Inc. (2003) results suggest that MSOs avoid areas with aircraft noise and were found in areas with low aircraft noise. Johnson and Reynolds (2002) and Geo-Marine, Inc. (2003) reported that MSOs did not flush from their roost or nest as a response to aircraft noise. Delaney et al. (1999) found that MSOs did not flush when noise stimuli from helicopters and chainsaws were greater than 115 yards (yds) (105 meters [m]) away. Chainsaws were more disturbing to MSOs than helicopter flights at comparable distances (Delaney et al. 1999). Delaney et al. (1999) recommended a 115-yd buffer for helicopter overflights to minimize MSO flushing responses and any potential effects on nesting activity. Other recommendations were diurnal flights and separating overflights along the same path by seven days (Delaney et al. 1999).

Since the owl was listed, we have completed or have in draft form a total of 146 formal consultations for the MSO. These formal consultations have identified incidences of anticipated incidental take of MSO in 335 PACs. To date, consultations on individual actions under the amended Forest Plans have resulted in 240 PACs adversely affected, with 44 of those in the Basin and Range East RU. These consultations have primarily dealt with actions proposed by the Forest Service, Region 3. Region 3 of the Forest Service reinitiated consultation on the Forest Plans on April 8, 2004. However, in addition to actions proposed by the 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 one of these projects (release of site-specific MSO location information) has resulted in a BO that the proposed action would likely jeopardize the continued existence of the MSO.

ENVIRONMENTAL BASELINE

Under section 7(a)(2) of the Act, when considering the effects of the action on federally listed species, we are required to take into consideration the environmental baseline. Regulations implementing the Act (50 FR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone section 7 consultation, and the impacts of State and private actions that are contemporaneous with the consultation in progress. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

STATUS OF THE SPECIES (within the Action Area)

Mexican spotted owl

The RU contains the third largest number (138) of MSO PACs in the United States (USDA Forest Service 2003). MSOs in this RU occur in isolated mountain ranges, the largest portion occurring in the Sacramento Ranger District. The Sacramento Ranger District contains 11 percent (110 of 987) of the designated PACs on Forest Service lands (USDA Forest Service 2002). These data illustrate the relatively high density of PACs within the Sacramento Ranger District.

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).

Fires such as the Burgett, Bridge, Scott Able, and Walker have modified thousands of acres of habitat and impacted multiple MSO territories. The Scott Able fire burned 16,034 ac (4,488.7 ha), of which 14,551 ac (5,889 ha) are administered by the Lincoln National Forest and 1,483 ac (600 ha) were on private land. Approximately 12,291 ac (4,974 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. The Burgett fire affected all or portions of 3 PACs and the Walker Fire affected 2 PACs.

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.

Ongoing Activities

The Forest Service estimates that activities conducted as part of the original project have mechanically treated approximately 4,850 of the 25,100 ac of MSO habitat. This includes treating protected steep slope, restricted, and threshold habitat. Estimates of the acreages treated to date are provided on pages 18 of the BA, and are hereby incorporated by reference (USDA Forest Service 2004). We also note that 23 ac from the nest/roost area of the Pierce PAC mistakenly received precommercial treatment. This precommercial treatment removed trees less than 9 inch diameter at breast height (dbh), slightly reducing the basal area and canopy cover within treated areas of the PAC.

MSO Monitoring

In 2002, the Forest Service completed a pilot study on the MSO monitoring component of the project (Ward and Ganey 2003). Objectives of the pilot study were: 1) finalize the selection of treatment and paired-control areas given occupancy by MSOs during the 2002 breeding season; and 2) quantify food and den selection by Mexican woodrats, the MSO's preferred prey. We issued an amended section 10(a)(1)(A) scientific recovery permit in 2003 (USDI Fish and Wildlife 2003). MSOs were captured, banded, and radio telemetry was attached to some individuals were during 2003 and 2004 (USDA Forest Service 2002, Ganey 2003, Ward and Ganey 2003a, Ganey and Ward 2003). Additional details on methods recommended for estimating parameters associated with the effects of forest thinning projects were subsequently described in a draft formal study plan for the monitoring program (Ward and Ganey 2004). The BA also noted that MSO surveys will be conducted annually within 60 PACs across the Sacramento Ranger District (USDA Forest Service 2004).

As part of the continued monitoring, several MSO mortalities have been reported. The harm of one MSO was attributed to the Forest Service as a result of trauma during capture, whereas the cause of the other three mortalities are considered acts of nature and are not attributed to Forest Service activities. We summary the mortalities below:

On July 6, 2003, the Forest Service reported an MSO mortality that occurred during capture and banding activities. We sent this animal to the U.S. Geological Survey's National Wildlife Health Center (NWHC) for necropsy. The MSO (FWS band number 1177-05837) was an adult male weighing 615 grams. The bird was in good body condition and good post mortem condition. Examination indicated that the animal likely died from trauma as a result of injuries associated with capture and banding activities, specifically the initial noosing and capture (NWHC 2003).

There have been three additional MSO bodies recovered within the last few months including: 1) on October 12, 2004, a intact (no signs of predation) radio-marked female MSO was found near Spud Patch Canyon; 2) on October 20, 2004, a partially eaten radio-marked male MSO was found near the bottom of Lucas Canyon; and 3) on January 6, 2005, the radio transmitter from the Zinker Canyon female MSO was found (predation was assumed because of feathers and dried flesh on the intact harness).

Critical Habitat

There are 212,882 ac of critical habitat designated on the Sacramento Ranger District, Otero County, New Mexico. That represents less than 2.5 percent of the 8,647,749 ac designated throughout the MSO's range in the southwestern United States. 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 1995; 69 FR 53182). Within the project area, the vegetative communities and structural attributes used by the MSO consist primarily of mixed conifer forests. Lands located within the mapped boundaries of the original Rio Peñasco II project were excluded from designated critical habitat. Lands adjacent to the original Rio Peñasco II project boundaries were designated as critical habitat. The Forest Service estimated that the Rio Peñasco II project areas outside the original boundary contain approximately 1,374 ac of MSO critical habitat within critical habitat unit BR-E-1b. Based on the Forest Service estimate and related information described above, we estimate that less than 1 percent (i.e., 1,374 ac ÷ 8.6 million ac) of designated MSO critical habitat will be affected by this project.

EFFECTS OF THE ACTION

The Forest Service estimates that the proposed action will continue to treat MSO habitat over about 8 more years (Appendix A, Table 1).

We believe that the current proposed project will reduce the existing threat of catastrophic wildfire. The Service has reviewed the September 27, 2002 BO and the current BA for the project and its effects to the MSO and found that the effects to the MSO from the current proposed action that relate to thinning activities are no greater than those anticipated when

we first reviewed the project. The spatial configuration of treatments is still interspersed across the project area, and the total amount of MSO habitat proposed to be treated has been reduced (Appendix A, Table 1). The project proposes to precommercially and commercially thin forest stands within and surrounding MSO habitat and will construct or reopen the same amount of roads. Thus, our original analysis and conclusions remain unchanged. The proposed project will to result in adverse effects to MSOs; however, we continue to believe that this proposed project, in conjunction with the monitoring program, will assess the combined effects of thinning and fuels treatments on MSOs and their habitat. We conclude that the effects analysis for vegetation management activities (i.e., thinning and pile burning), as described in the September 27, 2002 BO remains valid and is hereby incorporated by reference (USDI Fish and Wildlife Service 2002). The effects analysis in this biological opinion supplements our previous analyses. Still, we find that this proposed project meets the spirit and intent of fire abatement program described in the Recovery Plan (USDI Fish and Wildlife Service 1995).

Prescribed Burning

In the September 27, 2002 BO, we only analyzed the effect of pile burning on the MSO and its habitat. The current proposal supplements the project's fire-related activities with broadcast and jackpot pile burns, and pile burning with creep. We review these additional proposed actions below.

Fires have played an important role in the composition and structure of conifer forests. Generally, historic natural fires in ponderosa pine were light in intensity depending of fuel loadings and weather conditions. This created a situation whereby some areas did not burn, some areas burned intensely with crown fires, and most areas burned lightly leaving large fire resistant trees, killing shrub top growth, and removing dead fuels (Wright and Bailey 1982). In mixed conifer forests, historic fires often were composed of intense, crown-replacement in small patches. Prescribed fires and, in a worse case scenario pile, burning with creep may be expected to alter mixed conifer habitats of the MSO in the short-term to a greater extent now than historically because the fuel accumulations that are characteristic of many MSO nest and roost sites generally place them at higher fire risk. This is particularly true in the project area, as fire has been excluded for many years, and fuel loadings are very high and continuous within MSO habitat. In addition, historic grazing in the action area reduced fine fuels (grasses and forbs) necessary for re-current, low intensity fires, potentially assisting in the establishment of high numbers of tree saplings and encouraging the establishment of shade-tolerant and fire-sensitive species (Belsky and Blumenthal 1997).

Injury to ponderosa pine from ground fires is generally confined to scorch of bark and lower branches because the thick bark of this tree insulates the cambium (Patton and Gordon 1995). Bradley et al. (1992) indicates that ponderosa pine trees that are heavily infected by the dwarf mistletoe (*Arceuthobium campylopodum*) are more susceptible to fire-related mortality and crown scorch than uninfected or moderately infected trees. On moist sites, ponderosa pine often forms two-storied stands that may be quite susceptible to crown fire. The tendency for regeneration of ponderosa pine to form dense understories, or "dog-hair" thickets, on such sites creates fuel ladders that can carry surface fires to the crowns of overstory trees (Bradley

et al. 1992). The thinning effect of fire is therefore much more pronounced in dense stands than it is in more open and mature stands. Heavy accumulations of litter at the base of pole and saw-timber-sized ponderosa pine can increase the severity and duration of fire.

Mature Douglas fir has relatively high resistance to fire damage. Saplings and small pole-sized trees of this species, however, are vulnerable to surface fires because of their thin bark (Bradley et al. 1992). Douglas fir occurs in open stands, but it also grows in dense stands with continuous understory fuels. Dense sapling and thickets of pole-sized trees can form an almost continuous layer of flammable foliage 10-26 feet above the ground that will support wind-driven crown fires. Crowning and "torching" of individual Douglas fir is also aided by the presence of large, dense witches'-brooms caused by the dwarf mistletoe. As with ponderosa pine, heavy fuel accumulations at the base of Douglas fir increases the probability of fire injury. Heavy litter accumulations may allow injury to tree roots, causing delayed mortality and often resulting in sterilization of soils (Bradley et al. 1992).

If the Forest Service conducts broadcast or jackpot pile burns they will treat a maximum of approximately 8,500 ac of MSO habitat over next eight years. They are also proposing to treat approximately 16,600 ac of MSO habitat by burning slash piles and allowing creep. The Forest Service indicated that these burns will be consistent with the Recovery Plan. The MSO Recovery Plan (USDI Fish and Wildlife Service 1995) recognizes catastrophic fire as the greatest threat to MSO habitat. Prescribed burns are extremely important management tools needed to enhance, and often to restore many of the ecosystem functions and processes. The long-term benefits to the MSO of many land management actions may contribute, in the short-term, to certain adverse effects to the MSO. Prescribed fire projects often fall into this category. Species such as the MSO, whose habitats have been reduced, degraded, or altered, may currently respond to fire differently than they did historically when fire occurred in a more natural setting. As noted, the Recovery Plan (USDI Fish and Wildlife Service 1995) encourages fire management programs which take an active role in fuels management and understand the ecological role of fire. Therefore, fire plays the dual role of being both potentially beneficial and catastrophic to the MSO and its habitat.

We assume the following guidance from the Recovery Plan will be followed for specific fire-related activities:

1. Within each PAC designate 100 ac centered on the nest site. These 100 ac will be deferred from treatments described below;

2. Within the remaining 500 ac of the PAC, combinations of thinning trees less than 9 inches dbh, treatment of fuels, and prescribed fire can be used to reduce fire hazard and improve MSO prey habitat. Large logs (greater than 12 inches midpoint diameter), grasses, forbs, and shrubs should be retained or enhanced. Emphasis of the spatial configuration should mimic natural mosaic patterns;

3. Within PACs, treatments can only occur during the nonbreeding season (1 September to 28 February);

4. Following treatments within PACs, effects to MSO, prey species, and their habitats should be assessed;

5. Within steep slopes (i.e., greater than 40 percent) that are considered protected habitat, thinning of trees less than 9 inches dbh, treatment of fuels, and prescribed fires and WFURB are allowed. No breeding season restrictions apply;

6. Within wilderness research areas that are considered protected habitat, encourage the use of wildland use fires. No breeding season restrictions apply;

7. Within restricted habitat, the use of prescribed fires is strongly encouraged to reduce hazardous fuel accumulations. No breeding season restrictions apply; and

8. Within other forest and woodland types, proactive fuels management is encouraged. No breeding season restrictions apply.

The potential for effects to MSO to occur depends largely upon the specific type of fire activity and its location, within or in proximity to MSO habitat, or the timing, duration, and breadth of the action. We anticipate that broadcast and jackpot pile burns will consume some downed logs, snags, shrubs, and other understory vegetation, and prescriptions will likely provide protective measures to reduce some, but not all adverse impacts. Some of the anticipated effects are generally: 1) mortality of tree seedlings and up to 50 percent reproduction of 1 to 9 inch dbh trees; 2) ground fuel accumulations will be lessened; and 3) an increase in snags and downed woody material. Fire activity from these burns may range from creeping surface fires of less than one foot in pine litter and duff to an active surface fire which could actively torch groups of seedling and small pole-sized trees (e.g., 1 to 4 inch dbh). It is also possible that overstory tree canopy cover and understory ladder fuels would be broken and patchy, effectively mitigating opportunities for continuous crown fire runs, while allowing limited torching of canopy patches.

The Forest Service did not describe whether any constraints, beyond those specific guidelines provided by the Recovery Plan, would be placed upon pile or jackpot pile burning. Still, some short-term adverse effects to MSO habitat can be expected from these activities. For example, we anticipate that pile and jackpot pile burning may result in the scorching of tree crowns where piles or fuels are located close to trees, resulting in tree mortality or reduced vigor. If any trees are killed by scorch, they will be left as future snags.

We recently developed policy to adapt a long-term view of the benefits of fuels treatment projects (USDI Fish and Wildlife Service 2002b). Some projects, such as the current one, may have short-term adverse impacts on the MSO, but at the same time present opportunities for significant long-term benefits. As described in the September 27, 2002 BO, the Forest Service has designated 109 PACs across the District. We assume that the PAC information and other specific guidance from the Recovery Plan (identified above) will be incorporated by the Forest as they develop and implement individual prescribed fire plans. The Service stresses the need to view MSO data as an essential piece of information related to managing the fire component of this project on the Lincoln National Forest. Prescriptions should be

tailored to maintain key structural features of MSO and small prey habitat. This will assist in the control of these fire-related activities ensuring that, while some dead and down material will be lost, adequate levels will be retained and/or generated by tree mortality while still meeting the desired objectives of treatments. Therefore, we expect important habitat components will be retained or replaced throughout MSO habitat.

The implementation of broadcast and jackpot pile burns should result in cool, low intensity burns within MSO habitat that will create natural mosaics. High intensity burns should not occur within MSO habitat or will be small scale (e.g., less than a few acres). However, it cannot be ruled-out that instances may occur where loss of the dead and down components reaches a level in a given area that may adversely affect the MSO. We expect that such an effect would be very short-term as replacement material (tree mortality from bark beetle and burns, etc.) will be readily available to again bolster this habitat component to acceptable levels in these circumstances. Although short-term adverse affects to MSO habitat may occur, we believe these will be temporary and not likely to cover a significant portion of the action area. Similar to the proposed thinning activities reviewed in the September 27, 2002 BO, we expect that broadcast, jackpot, and pile burning will provide conditions suitable for increased herbaceous plant growth by removing dead plant debris within treated areas. The mosaic created by burned and unburned areas is expected to increase herbaceous plant species diversity and, in turn, assist in the production and maintenance of the MSO prey base. In addition, proposed treatments are expected to favor larger conifers and oaks which supply a large amount of forage for MSO prey (e.g., seeds, buds, acorns, etc.).

We believe that broadcast burns are not expected to significantly alter key habitat components (e.g., canopy closure) inside the Goodsell PAC or within other MSO habitat. These burns will likely target dead and live fuels near the forest floor, including dead and down material, live brush and, in some cases, "dog-hair" thickets of conifer. Generally, these activities will not affect canopy closure, but will reduce the amount of surface and ladder fuels. Therefore, we believe that the successful implementation of these burns will further assist in reducing the existing threat of catastrophic wildfire. If low intensity broadcast burns can retain the characteristics recommended by the Recovery Plan, then anticipated adverse effects to MSO habitat are likely to be few, and may in fact be beneficial.

It may be possible that low-intensity fires benefit MSOs although we are unaware of any definitive scientific evidence to support this conclusion. Bond et al. (2002) examined the short-term effects of wildfires on all three subspecies of spotted owls. They determined that spotted owls exhibited high estimates of post-fire survival, site fidelity, and average number of fledglings per pair, one year after both low and high severity fires. Unfortunately, their study describes only very short-term results, and was not designed to address the long-term effects of wildfires on spotted owls. Bond et al. (2002) stated that while they do not yet advocate wholesale prescribed burning in MSO territories, they do believe that their observations justify large-scale experiments to corroborate their observations and to establish cause-and-effect relationships. As described in the September 27, 2002 BO and below, the proposed action includes a monitoring component that will contribute to the body of knowledge on the effects of fire and thinning on MSOs.

The effects of fire include both negative and beneficial effects on MSO habitat. Beneficial aspects would include increased response of herbaceous vegetation after a fire. Negative effects would include the loss of MSO prey habitat components such as herbaceous cover, down logs and snags. The effects of fire on the prey base of the MSO are complex and are dependent on the variations in fire characteristics and in prey habitat. Fire intensity, size, and behavior are influenced by numerous factors such as vegetation type, moisture, fuel loads, weather, season, and topography.

All fire-related activity will be monitored and extinguished if weather conditions fall outside of fire prescription parameters. The Forest Service requires, and will prepare written, site-specific prescribed burn plans that are approved by a line officer and contain standards for smoke management and other resource constraints (USDA Forest Service 2002). The purpose of these plans is to ensure that resource management objectives are clearly defined and that the site, environment, or human health is not harmed. The plan must complete a risk assessment to quantify the chance of fire escaping and develop a contingency plan for action taken to prevent escape and if it does, quickly contain the escape. The Forest Service's requirement for a prescribed burn plan will also minimize the chance of fire escaping because a contingency plan for action will be developed to prevent or quickly contain an escaped broadcast, jackpot pile, or pile burn. Therefore, escaped fires are not expected to occur.

In summary, reintroducing fire into the ecosystem could have many benefits. Among these are the reduction of woody fuels which would decrease the possibility of intense, stand-replacing fires and resulting erosion, soil sterilization, and increased plant mortality. Ultimately, if fire continues to be excluded from the system, a major wildfire will occur with potentially devastating effects to the MSO and its habitat. Historic low-intensity fires that removed small trees and ground fuels, but rarely killed mature trees, occurred at frequent intervals. Implementing the proposed action would reduce fuels and hopefully begin to restore a natural fire regime in which frequent, low-intensity fire would act to maintain a mosaic of fuel loads across the area. We expect that forest health conditions will improve under the current proposed action, because broadcast burns will be applied across the landscape and should assist in maintaining and restoring healthy forest conditions that will benefit the MSO.

Monitoring Program

We amended the section 10(a)(1)(A) scientific recovery permit (50 CFR 17.22, 17.32) for the project to include capturing, handling, banding (USDI Fish and Wildlife Service aluminum and color-band), radio-marking, and immediately releasing unharmed an unspecified number of MSO (permit number TE814833). MSOs will continue to be primarily captured using a snare pole. The USDA Forest Service's Rocky Mountain Research Station crews have used this technique for years to capture hundreds of MSOs. Snare poles also have been used by all researchers to capture spotted owls throughout the western United States, which entails thousands of captures (Ganey and Ward 2003a). Thus, we conclude that the snare pole design and capture techniques are safe under most circumstances. We believe the Forest Service snare pole design modifications will improve safety to MSOs.

The Forest Service also provides training to all MSO crew members that stresses the importance of MSOs' safety as a priority (e.g., use caution to gently lower an MSO to the ground through an unobstructed pathway; carefully assess the area of capture for potential hazards before proceeding with capture attempts, etc.). They also identify those crew members that have enough upper body strength to control MSOs and guide them from obstacles during practice sessions (on model MSOs). Only these individuals are designated as snare pole operators. This increased emphasis on safety will also minimize the chance of injury to MSOs.

Other MSO capture techniques exist, but successful use of these alternate capture methods is more dependent on MSO position and forest condition. These methods include baited mist nests, balchatri traps, pan traps, board traps, dip nets, and hand grabs (Ganey and Ward 2003a). Many if not all of these methods are less practical or successful than the snare pole. For example, they often require greater time commitments, which increases human presence and the possibility of disturbance to MSO. These techniques also generally involve greater handling time or more potential damage to MSO plumage (Ganey and Ward 2003). For these reasons, we agree with the Forest Service and believe that the more efficient snare pole be used as the primary capture method. We believe that the modified snare pole design is the safest and most efficient method for capturing MSO for this study. The increased emphasis on training will also reduce the probability that an MSO will be injured during capture operations. Nevertheless, when wild animals are handled, there is always the possibility that an individual will be injured.

As noted in the September 27, 2002 BO, harassment of MSOs may occur from capture, banding, and release activities associated with the monitoring program. The monitoring program stems from recommendations in the Recovery Plan, but is likely to result in an unspecified level of harassment on individual MSOs. Nevertheless, these activities and study methods are essential to acquire information on the species demography, dispersal, and habitat and management requirements.

The monitoring program will also use radio telemetry to track individual MSOs and collect demographic and movement data (e.g., foraging activity) (Ward and Ganey 2004). The following analysis was conducted because this aspect of your coordinated management, research, and monitoring program was not previously evaluated.

This Forest Service will continue to capture and band an unknown number of MSOs and attach radio transmitters to some individuals. Transmitters weigh approximately 15 g including the harness. This is approximately 3 percent of body mass for a 500 g male MSO, and approximately 2.5 percent of body mass for a 600 g female MSO. This is within recommended guidelines from the USGS Bird Banding Laboratory (i.e., no more than 3 to 5 percent of body mass), and lighter than backpack transmitters used successfully in previous studies of MSOs (Ganey and Balda 1989, 1994, Ganey et al. 1999, 2003). This should lessen the energetic burden of MSOs that are radio-marked, but will still result harassment of individuals.

Forest Service research staff worked on the transmitter design with the manufacturer to ensure that transmitters are light, streamlined, and have no protuberances that could concentrate pressure in one spot on an MSO's back. It is important to recognize that using radio telemetry in the study of MSOs is extremely important. Without radio telemetry, a substantial amount of information would be difficult if not impossible to collect (e.g., dispersal information). However, we acknowledge that there is some potential to affect avian agility and flight with the use of telemetry (e.g., see Foster et al. 1992 and studies reviewed therein). Additionally, there is also a potential for MSOs to be adversely affected by reducing the amount of prey that can be carried (i.e., because of the additional transmitter weight), and subsequently has the potential to lower the number of young that are produced (Paton et al. 1991, Foster et al. 1992). Nevertheless, if proper techniques are used to capture and harness MSOs, the effects to the species would likely be minimal (Block 1992). We are also encouraged that the Forest Service researchers designed a transmitter package specific to MSOs. This will minimize risks to radio-marked birds.

The transmitter will be attached to an elastic harnesses that is stitched together with cotton threads (Samuel and Fuller 1996). It is believe that the cotton stitching will allow the transmitter to fall off as the thread decomposes over time (Amlaner et al. 1978, Hirons and Owen 1982 cited in Samuel and Fuller 1996). The objective is to allow free movement of the wings and fit the transmitter snug against the animal to prevent a leg becoming entangled in the straps. The principal investigators involved in the monitoring program are experienced in attachment of transmitters using this design and attachment method. No other field crew members will be allowed to attach transmitters until the principal investigators have determined that other members are adequately trained and skilled in the techniques. Although these methods provide adequate protective measures to limit adverse impacts to the MSO, we still conclude that these activities will harass an undetermined number of MSOs.

Some studies have also suggested that radio-marked birds may be more susceptible to predation than unmarked birds (Skaggs 1990, Marks and Marks 1987); however, other researchers have reported that as long as the transmitters are attached correctly, any debilitating effects caused by transmitters should be negligible (Foster 1992). We do not expect that MSO survival will be greatly influenced by radio-marking. Forest Service research staff are experienced and have included measures to reduce and perhaps avoid adverse affects to MSOs. However, there still remains the potential, albeit small, that the radio attachment harness will loosen and an individual MSO will become entangled and die or that the transmitter may somehow contribute to an MSO being more susceptible to predation. As a result, we anticipate that the radio-marking activities could harm an MSO.

The draft study plan for the monitoring program includes: 1) determining the types and extent of treatments to be implemented; 2) determining the response variables to monitor; 3) determining the sampling regime for monitoring response variables; 4) assigning project sites to treatments and controls; and 5) determining operational needs for conducting treatments and monitoring. The study plan will likely be finalized in the near future. The final study plan for the monitoring program will be consistent with the intent of the current Recovery Plan and will incorporate these tenets (W. Block, pers. comm., 2002). We conclude that the monitoring program stems from recommendations in the Recovery Plan, but is likely to result

in an unspecified level of harassment on individual MSOs and could result in harm to one MSO. Nevertheless, we conclude these activities and study methods are essential to acquire information on the species demography, dispersal, and habitat and management requirements.

Interrelated and Interdependent Actions

We also must consider the effects of interdependent and interrelated actions of this proposed project to the MSO. Interrelated actions are actions that are part of a larger action, and are dependent on the larger action for their justification. Interdependent actions are actions that have no independent utility apart from the action under consideration. The Service has reviewed the September 27, 2002 BO in conjunction with the current BA for the project and its effects to the MSO, and found that our analysis of interdependent and interrelated actions remains unchanged.

Indirect effects

Indirect effects are those that are caused by, or result from, the proposed action, and are later in time, but are reasonably certain to occur. It is our expectation that the majority of these actions will likely result in insignificant and discountable effects to the MSO. The Service has reviewed the September 27, 2002 BO in conjunction with the current BA for the project and its effects to the MSO, and found that our analysis of indirect effects remains unchanged.

Summary

Given the considerable degree of conservation measures related to this project that have been incorporated into the Forest Service's proposed action and the high likelihood that prescribed burns will result in low to moderate intensity burns, we believe that effects to MSO may result in short-term adverse affects with long-term benefits to the MSO. We do not anticipate any additional take (i.e., beyond that anticipated in the September 27, 2002 BO) will occur from these supplemental vegetation management activities. However, we still anticipate that capture, banding, and radio-marking activities will result harass and harm MSOs.

MSO Critical Habitat

The Recovery Plan encourages land management agencies to conduct fuels reduction projects within MSO habitat and provides guidelines for these actions that will aid in reducing fuels, but still maintain habitat and minimize effects to MSO. These guidelines were designed to protect MSO habitat over the long-term by reducing the likelihood of severe crown fire; however, short-term effects from fuels reduction treatments can adversely affect the primary constituent elements of MSO critical habitat directly or indirectly by affecting their habitat and/or prey.

There are also 1,374 ac of restricted habitat that are proposed to be treated. These lands occur outside of the original project boundary that was analyzed in the September 27, 2002 BO. For this reason, this area was designated as MSO 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 primary constituent elements

related to canyon habitat, but this habitat type does not occur within the action area or will be unaffected by the proposed activities. Therefore, we do not analyze the effects of this project on primary constituent elements within canyon habitat. Additionally, the habitat-based guidelines and definitions of protected and restricted habitat of the Recovery Plan were utilized for our critical habitat designation, the September 27, 2002 BO, and the analysis above; consequently, much of our previous analyses and conclusions are relevant to the current adverse modification analysis.

As a result, some of primary constituent elements of MSO critical habitat have the potential to be adversely affected by the proposed action. For example, broadcast burning and mechanical thinning (commercial and precommercial) activities may affect the designated critical habitat by affecting snags, downed logs, woody debris, multi-storied canopies, and dense canopy cover. In addition, the proposed activities may change the structure of MSO prey species' habitat, affecting the abundance and composition of prey species. Although these activities may have adverse effects to MSO prey species and habitat in the short-term, the proposed treatments may increase the diversity of vegetative conditions and reduce the risk of catastrophic wildfire.

The conservation measures identified above and in the EA and BA will be fully implemented by the Forest Service as part of their proposed action. These measures represent actions that were evaluated as part of our adverse modification analyses. 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 primary constituent elements of MSO critical habitat in forests are further summarized:

Range of Tree Sizes

The full range of tree age classes that historically existed has been replaced by high densities of seedling trees and mid-story trees. Broadcast burns, jackpot pile burning, and mechanical thinning may decrease the number of small trees, but the range of size classes will generally remain unaffected. One of the primary purposes of this proposed project is to reduce fuel loadings and dense forested stands resulting from years of fire suppression. Proposed treatments include timber harvest, stand thinning, and fuels management. These treatments will enhance and protect the health of forest stands, especially in the wildland/urban interface, reduce the risk of insect and disease epidemics, reduce the danger of catastrophic wildfire in both human and threatened and endangered species' habitats, and contribute to the maintenance of a sustainable, forest product based economy. This is very similar to creating a diversified vegetative age class structure, which is recommended in the MSO Recovery Plan. Although short-term impacts may occur within localized areas, we do not expect the function and conservation role of this primary constituent element will be compromised.

Canopy Closure

Localized loss of canopy layers will result from broadcast burns, jackpot pile burning, and mechanical thinning; however, conservation measures (e.g., treat to Recovery Plan standards) will limit long-term impacts on this primary constituent element. Although this action is proposed to reduce the risk of catastrophic wildfire and also to evaluate these types of fuel management prescriptions on the MSO, commercial thinning of trees up to 24 inch dbh within 12 PACs will adversely affect this primary constituent element. We anticipate short-term effects to canopy closure will occur within the 17 to 60 ac per PAC; however, implementation of the proposed action is not expected to have a significant lasting effect on this primary constituent element. As a result, we do not expect the function and conservation role of this primary constituent element will be compromised.

Large Snags

The implementation of the proposed project is expected to result in the loss of some snags and the creation of others. For example, we anticipate minor loss of large diameter snags or trees. Measures to promote low to moderate intensity burns and to limit the rate of burning and intensity will eliminate or reduce loss of this primary constituent element. For example, the Forest has also proposed to save some snags over 14 inches dbh. Standards and guidelines from the Forest Plan indicate that all snags greater than 18 inch dbh will be retained. These measures will ensure that large snags are retained. Therefore, we conclude that loss of this primary constituent element will be short-term and likely be insignificant and discountable.

High Volumes of Fallen Trees and Woody Debris

The absence of frequent, low-intensity fire has altered and degraded many of the forest stands within the action area. Due to decades of fire suppression, high accumulations of fuels have created the opportunity for high intensity, high severity, stand replacing fires. The high volumes of fallen trees and other wood debris and duff can increase fire severity. We also anticipate that commercial thinning activities will adversely affect this primary constituent element. For these reasons, management of this habitat component is problematic at best. We expect that a reduction in volumes of fallen trees and other woody debris will result from the proposed action. Although conservation measures have been designed to protect large down logs and other important features of MSO habitat, we anticipate this primary constituent element will incur short-term adverse effects. Nevertheless, the function and conservation role of this primary constituent element will be not be compromised.

Plant Species Richness, including hardwoods

We do not expect this primary constituent element will be adversely affected by the proposed action because plant species richness will likely increase due burning or other associated fuels management activities as small, localized canopy gaps are created. 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 primary constituent element are expected to be insignificant and discountable.

Residual Plant Cover for Prey Species

Short-term decrease in plant cover will result from fire-related activities and mechanical thinning. We expect long-term increases in residual plant cover because treatments will provide conditions suitable for increased herbaceous plant growth by removing a thick layer of dead plant debris within treated areas. The mosaic effect created by burned and unburned areas and by opening up small patches of forest within protected habitat are also expected to increase herbaceous plant species diversity and, in turn, assist in the production and maintenance of the MSO prey base. The Forest Service has proposed conservation measures to reduce short-term loss, but some adverse affects to MSO prey habitat are still anticipated. Still, we do conclude that the function and conservation role of this primary constituent element will be not be compromised.

In summary, several primary constituent elements of MSO critical habitat will be adversely affected by the proposed action. The volume of fallen trees, canopy cover, and woody debris and residual cover for prey species will likely be the primary constituent elements affected most by the action. We find that the effects to the function and conservation role of critical habitat relative to the Recovery Unit and the entire designation are not significant because the impacts will be temporary and occur in a very small area relative to the Recovery Unit and the overall critical habitat designation. Therefore, we conclude that the primary constituent elements 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 on endangered or threatened species or critical habitat that are reasonably certain to occur in the foreseeable future in the action area considered in this biological and conference opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. Cumulative effects analysis as stated here applies to section 7 of the Act and should not be confused with the broader use of this term in the National Environmental Policy Act or other environmental laws. 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 the predominant occurrence of the MSOs 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, future actions on non-Federal lands adjacent to the Forest Service lands that are reasonably expected to occur include urban development, road construction, land clearing, logging, fuelwood gathering, and other associated actions.

The proposed project area is located in the proximity of the Village of Cloudcroft, New Mexico. The area is interspersed by National Forest and non-Federal lands including

Highways 82 and 130, existing infrastructure (e.g., powerlines), developed private campgrounds, and the Village of Cloudcroft and surrounding residential areas, where activities occur either seasonally or year-round. These activities reduce the quality and quantity of MSO nesting, roosting and foraging habitat, and cause disturbance to breeding MSOs and contribute as cumulative effects to the proposed action.

CONCLUSION

After reviewing the current status of the MSO, the environmental baseline for the action area, the effects of the proposed action as described and analyzed above and within the September 27, 2002 BO, and the cumulative effects, it is the Service's biological opinion that the action, 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 found that some of the proposed actions have the potential to cause adverse effects to small areas of designated critical habitat. Nevertheless, it is anticipated that these impacts will be short-term and will not affect the role of critical habitat unit BR-E-1b relative to the conservation of the MSO and to the overall critical habitat designation. We also do not expect the effects of the proposed action to appreciably alter the function and intended conservation role of MSO critical habitat. These conclusions were reached because the proposed project is expected to assist the Forest Service in restoring and protecting forest stands in the action area. Intensive, destructive fires will likely occur less frequently and the treatments will minimize the potential risk of damaging life, property, and natural resources. This will assist in lessening the threat of wildfire to the MSO and its designated critical habitat.

This conclusion is based on the following:

1. The conservation measures included above and within the September 27, 2002 BO will be implemented to minimize or avoid effects to the MSO and designated critical habitat;

2. 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 Recovery Unit or range-wide;

3. These activities and study methods are essential to acquire information on the species demography, dispersal, and habitat and management requirements; and

4. The capturing, handling, banding, and radio-marking methods will comply with the section 10(a)(1)(A) scientific recovery permit for the MSO.

INCIDENTAL TAKE

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting to engage in any such conduct. Harass is further

defined by us as intentional or negligent actions that creates the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Harm is further defined by us to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as 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 a 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

The Service anticipates that the proposed action will result in incidental take of MSOs in the form of harm and harassment. This determination is based on the knowledge that a section 10(a)(1)(A) recovery permit has been issued for direct take of MSOs. We have reviewed the current proposed monitoring program for this project, and anticipate that take of additional MSOs may be in the form of harassment and harm from capture, handling, and radio-marking MSOs. Thus, the anticipated take related to the monitoring program from the September 27, 2002 BO is replaced by the current take statement. We consider this take an upper limit anticipated for the life of the project.

Based on the best available information concerning the MSO, habitat needs of this species, the proposed project description, and information furnished by the Forest Service, take is considered likely for the additional activities reviewed in the current BO for MSO as a result of the following actions:

1. The harassment of an unspecified number of MSOs and the harm of 1 MSO associated with capture, handling, and radio-marking birds for the monitoring program and the possibility of an individual being accidentally injured or killed while being handled, captured, or following radio-marking.

We do not anticipate additional take (i.e., above and beyond anticipated take from the September 27, 2002 BO) from the newly proposed habitat-altering activities reviewed in this biological opinion. Nevertheless, we still anticipate take will occur from those habitat-altering activities reviewed in the September 27, 2002 BO. The incidental take permit from that BO relate to habitat-altering activities is still valid and includes:

1. Harassment of 12 PACs including 12 pairs of MSOs (and associated eggs/young) from commercial thinning operations.

Effect of the take

In the September 27, 2002 BO and this accompanying biological opinion, the Service determined that this level of anticipated take is not likely to jeopardize the continued existence of the MSO.

Reasonable and Prudent Measures for the MSO

Due to the relevant conservation measures that are described in the proposed action, no additional reasonable or prudent measures and terms and conditions are necessary. Still, the reasonable or prudent measures and terms and conditions from the September 27, 2002 BO are still valid and are hereby incorporated by reference (USDI Fish and Wildlife Service 2002).

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize 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 necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibility for these species. 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. We recommend the following conservation recommendations be implemented:

1. When piling and burning slash, the Forest Service 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. Each year during training or refresher courses (e.g., chain saw certification or refresher class), the Forest Service should provide field crews an overview of the requirements of this project including the identified conservation measures and other minimization activities identified in the applicable NEPA document. This would minimize or avoid actions that would adversely affect the MSO or other natural resources, while ensuring consistent implementation of the project; and

3. Surveys should be completed within suitable MSO habitat following the Forest Service's Region 3 MSO Inventory Protocol that identifies surveys will be completed for 2 years prior to any habitat-altering activities. Additional years of surveys strengthen any inferences made in cases where owls are not detected. If habitat modifying or potentially disruptive activities are scheduled for a particular year, the second year of surveys should be conducted either the year before or the year of (but prior to) project implementation. No more than one year should intervene between the surveys and project implementation. If more than 5 years have elapsed between the end of the two years of survey and the initiation of the proposed action, then another year of survey is recommended prior to project implementation.

4. When conducting capture activities, the Forest Service should have at least one veterinarian available to treat injured MSOs.

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

DISPOSITION OF DEAD OR INJURED LISTED ANIMALS

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 New Mexico Ecological Services Field Office (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.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the proposal to implement the Rio Peñasco II Non-Programmatic Vegetation Management Project and Forest Plan Amendment, Sacramento Ranger District, Lincoln National Forest. As required by 50 FR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action that may impact listed species or critical habitat in a manner or to an extent not considered in this opinion; 3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or 4) a new species is listed or critical habitat designated that may be affected by the action.

In future communications regarding this project, please refer to consultation #2-22-02-397-F-532. If you have any questions or would like to discuss any part of this biological opinion, please contact Eric Hein of my staff at (505) 761-4735.

Sincerely,

Susan MacMullin

Susan MacMullin
Field Supervisor

Enclosure

cc:
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Appendix A.

Table 1. Refined treatments within the Rio Peñasco II Analysis area affecting MSO habitat

Status	Total MSO Habitat	# of PACs	Acres in PACs		Steep-slope Acres	Threshold Acres		Restricted Non-Threshold Acres
Existing condition	71,825	59	27,406		3,651	8,177		40,768
Proposed Action	25,091	37	4,955[1]	276[2]	1,052[1]	2,906[1]	1,835[2]	10,875[1,2]

[1]Pre-commercial thinning

[2]Commercial thinning