

In Reply Refer To:  
Region 2/ES-SE  
Cons. # 000031RO  
02-02-94-F-0007

January 17, 2003

Mr. Harv Forsgren, Regional Forester  
USDA Forest Service  
333 Broadway SE  
Albuquerque, NM 87102

Dear Mr. Forsgren:

This document transmits the Fish and Wildlife Service's biological opinion based on our review of the proposed rate of implementation of the grazing Standards and Guidelines (S & Gs) in the June 1996 Forest Plan amendments for National Forests in Arizona and New Mexico, and its effects on the Mexican spotted owl (*Strix occidentalis lucida*) in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). This biological opinion is in response to your November 7, 2002, request for reinitiation of consultation on the June 1996 Forest Plan amendments, which were the subject of our November 25, 1996 biological opinion. Critical habitat for this species has been designated; however, this action does not affect any areas of critical habitat and the effects of the action on critical habitat are not addressed further in this biological opinion.

This biological opinion is based on information provided in the November 6, 2002, biological assessment, supplemental information provided by you, and other sources of information. A complete administrative record of this consultation is on file at this office.

### **Consultation History**

The final biological opinion on the amended Forest Plans for Region 3 of the Forest Service (FS) was issued by the Service on November 25, 1996. Numerous informal consultations on individual grazing allotments were subsequently completed. A biological opinion addressing the Mexican spotted owl on four allotments was completed on February 2, 1999. Additional consultations addressing the Mexican spotted owl and grazing are identified in the Effects of the Action section of this biological opinion. Service and Forest Service personnel met to discuss the potential for and possible scope of reinitiation on Forest Plans and implementation of grazing standards and guidelines and the Mexican spotted owl on October 18, October 22, and November 4, 2002. In a letter dated November 7, 2002, the Forest Service transmitted their Biological Assessment and requested reinitiation of consultation on the June 1996 Forest Plan amendment related to the rate of implementation of the grazing Standards and Guidelines. The Service

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acknowledged this request and reinitiation of consultation in a letter dated November 12, 2002. Service and Forest Service personnel met again on November 21 and 27, and on December 6 and 19, 2002. On December 5, 2002, the Service received from the Forest Service maps that depict the locations of Mexican spotted owl Protected Activity Centers (PACs) and grazing allotments. These maps include a specific numerical code for each PAC. Additional information on the status of projects affecting PACs was received on December 5, 2002 (post-1996 activities), December 19, 2002 (primarily pre-1996 activities and current PAC occupancy data), and January 10, 2002, (letter from the Forest Service withdrawing eight projects where incidental take of 12 PACs had been anticipated in earlier consultations).

## **BIOLOGICAL OPINION**

### **I. DESCRIPTION OF THE PROPOSED ACTION**

The Forest Service requested re-initiation of consultation on the June 1996 Forest Plan amendment related to the rate of implementation of the grazing Standards and Guidelines and their effects on the Mexican spotted owl. The Forest Service's request for re-initiation indicates that, with respect to grazing, the 1996 amendment is a prospective amendment intended to be implemented as the Forest Service conducts individual National Environmental Policy Act (NEPA) analyses and decisions on allotments across the Region. The Forest Service has already completed site-specific NEPA decisions on 202 allotments with Mexican spotted owl habitat; 128 of these allotments include PACs. They expect to complete site-specific NEPA requirements, and thereby fully implement the Forest Plan Standards and Guidelines for grazing on the remaining 307 allotments at a rate of approximately 38 per year from 2003 through 2010. Of the 307 allotments needing NEPA analysis and decision, 146 have owl PACs. These 146 allotments with PACS will receive the Forest Service's highest priority for site-specific NEPA analysis and site-specific consultation. The proposed action area is Arizona and New Mexico.

### **II. STATUS OF THE SPECIES (range-wide)**

The Mexican spotted owl was listed as a threatened species in 1993 (USDI 1993). The primary threats to the species were cited as even-aged timber harvest and the threat of catastrophic wildfire, although grazing, recreation, and other land uses were also mentioned as possible factors influencing the Mexican spotted owl population. The Service appointed the Mexican Spotted Owl Recovery Team in 1993, which produced the Recovery Plan for the Mexican Spotted Owl (Recovery Plan) in 1995 (USDI 1995a).

A detailed account of the taxonomy, biology, and reproductive characteristics of the Mexican spotted owl is found in the Final Rule listing the Mexican spotted owl as a threatened species (USDI 1993) and in the Recovery Plan (USDI 1995a). The information provided in those documents is included herein by reference. Although the Mexican spotted owl's entire range covers a broad area of the southwestern United States and Mexico, the Mexican spotted owl does

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not occur uniformly throughout its range. Instead, it occurs in disjunct localities that correspond to isolated forested mountain systems, canyons, and in some cases steep, rocky canyon lands. Surveys have revealed that the species has an affinity for older, multi-canopied forest, and the species is known to inhabit a physically diverse landscape in the southwestern United States and Mexico.

Since the owl was listed, the Service has completed a total of 91 formal consultations for the Mexican spotted owl. These formal consultations have identified incidences of anticipated incidental take of Mexican spotted owls in 251 PACs. The form of this incidental take is almost entirely harm or harassment. The effects of the take appear in many cases to be transitory, as a high proportion of PACs continue to be occupied (summarized in the Environmental Baseline). These consultations have primarily dealt with actions proposed by the Forest Service, Region 3. 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 owl location information) has resulted in a biological opinion that the proposed action would likely jeopardize the continued existence of the Mexican spotted owl.

In 1996, the Service issued a biological opinion on Forest Service Region 3's adoption of the Recovery Plan recommendations through an amendment of their Forest Plans. In this non-jeopardy biological opinion, we anticipated incidental take in the form of harm and harassment to owls within 10% of the PACs from treatments to reduce fuel accumulations and within 2% (in the Basing and Range-East Recovery Unit) and 5% (other Arizona and New Mexico recovery units) of PACs from road or trail building. These incidences of harm and harassment were considered likely to be of limited extent and intensity. To date, consultation on individual actions under the amended Forest Plans has resulted in instances of incidental take in the form of harm and harassment of owls in 183 PACs, including take anticipated in the wildland-urban interface (WUI) programmatic biological opinion (USDI 2001a). Again, the effects of the take for actions already implemented appear in many cases to be transitory and from short-term disturbance, as a high proportion of PACs continue to be occupied (summarized in the Environmental Baseline).

### **III. ENVIRONMENTAL BASELINE**

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

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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.

#### A. Status of the species within the action area

##### 1. Owl Abundance

The U.S. range of the Mexican spotted owl has been divided into six recovery units (RU), as discussed in the Recovery Plan. The primary administrator of lands supporting the Mexican spotted owl in the United States is the Forest Service. Most owls have been found within Forest Service Region 3 (including 11 National Forests in Arizona and New Mexico) (Table 1). Forest Service Regions 2 and 4 (including 2 National Forests in Colorado and 3 in Utah) support fewer owls. According to the Recovery Plan, 91% of Mexican spotted owls known to exist in the United States between 1990 and 1993 occurred on lands administered by the Forest Service.

A reliable estimate of the numbers of owls throughout its entire range is not currently available (USDI 1995a) and the quality and quantity of information regarding numbers of Mexican spotted owl vary by source. USDI (1991) reported a total of 2,160 owls throughout the United States. Fletcher (1990) calculated that 2,074 owls existed in Arizona and New Mexico. However, Ganey *et al.* (2000) estimate approximately  $2,950 \pm 1,067$  (SE) Mexican spotted owls in the Upper Gila Mountains RU alone. The Forest Service Region 3 most recently reported a total of approximately 980 protected activity centers (PACs) established on National Forest lands in Arizona and New Mexico (USDA Forest Service, Southwestern Region, December 19, 2002) (Table 1). Based on this number of Mexican spotted owl sites, total numbers in the United States may range from 980 individuals, assuming each known site was occupied by a single Mexican spotted owl, to 1,960 individuals, assuming each known site was occupied by a pair of Mexican spotted owls. The Forest Service Region 3 data are the most current compiled information available to us; however, surveys efforts in areas other than National Forest system lands have likely resulted in additional sites being located in all Recovery Units.

**Table 1.** Protected activity centers (PACs) by Recovery Unit (RU) for National Forest lands in the Southwestern Region (Arizona and New Mexico).

Recovery Unit	Number of PACS	Percent of PACs by RU
Colorado Plateau RU	22	2.2

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Southern Rocky Mountains - New Mexico RU	50	5.1
Upper Gila Mountains RU	618	63.1
Basin and Range - West RU	154	15.7
Basin and Range - East RU	136	13.9
<b>TOTALS</b>	<b>980</b>	<b>100</b>

The Southwestern Region of the Forest Service has conducted fairly intensive spotted owl inventories since 1988. In November 1995, the Forest Service reported a total of 864 management territories (USDA, Forest Service, *in litt*, November 9, 1995). Prior to the listing of the Mexican spotted owl, Region 3 issued guidelines for its management. Those guidelines were issued as Interim Directive Number 1 (ID No. 1) in June 1989, then revised and reissued as ID No. 2 approximately one year later. Interim Directive Number 2 guidelines required establishing management territories around all nesting and roosting spotted owls, as well as territorial owls detected at night for which daytime locations were not recorded. All management territories (except those on the Lincoln and Gila National Forests) consisted of approximately 2,000 acres of habitat per territory. Since that time, the Forest Service Region 3 has incorporated the recommendation of the Recovery Plan and established 600 acre PACs at all Mexican spotted owl sites known from 1989 to present. Table 2 displays the number of known management territories in 1996 compared to the number of currently designated PACs. Due to intensive survey efforts the number of known owl sites has increased since 1996. The relative percentage of known sites by National Forest has not changed significantly.

**Table 2.** Number of management territories (MT) as reported by the Forest Service in 1996, percent of MTs as a proportion of the MTs in the Southwestern Region in 1996, protected activity centers (PACs) as reported by the Forest Service in 2002 and the percentage of PACs as proportion of the PACs in the Southwestern Region.

National Forest	1996 Number of MTs	1996 Percent of MTs	2002 Number of PACs	2002 Percent of PACs
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Apache-Sitgreaves	120	13.9	136	13.9
Carson	3	0.3	2	0.2
Cibola	42	4.8	53	5.4
Coconino	155	18.0	181	18.5
Coronado	109	12.6	107	10.9
Gila	194	22.4	224	22.9
Kaibab	6	0.9	6	0.6
Lincoln	126	14.5	136	13.9
Prescott	10	1.2	15	1.5
Santa Fe	66	7.6	48	4.9
Tonto	33	3.8	72	7.3
<b>TOTALS</b>	<b>864</b>	<b>100</b>	<b>980</b>	<b>100</b>

## 2. Habitat Status

The current condition of Mexican spotted owl habitat within Arizona and New Mexico is a result of historic and recent human use, as well as climate change, vegetative species conversion, and wildfires. As stated in the 1996 Forest Plan Amendments biological opinion, a precise assessment of baseline owl habitat is difficult to assemble. According to the Forest Service, there is an approximate total of 6.6 million acres of Mexican spotted owl habitat on National Forest Lands in the Southwestern Region. This figure included approximately 935 PACs (588,000 acres), other protected habitat (2.1 million acres), and restricted habitat (3.9 million acres) (USDI Fish and Wildlife, April 2001). Though we have received more current information regarding PAC delineation and occupancy (980 PACs have been delineated on Region 3 National Forest lands as of December 31, 2002), we consider the estimate of PAC acres and habitat to be fairly accurate.

Historic and current anthropogenic uses of Mexican spotted owl habitat include both domestic and wild ungulate grazing, recreation, fuels reduction treatments, resource extraction (e.g., timber, oil, gas), and development. These activities have the potential to reduce the quality of Mexican spotted owl nesting, roosting, and foraging habitat, and may cause disturbance during the breeding season. Livestock and wild ungulate grazing is prevalent throughout Region 3 National Forest lands and in some cases, can potentially have a negative effect on the availability of grass cover for prey species. Recreation impacts are increasing on all forests, especially in meadow and riparian areas. Fuels reduction treatments, though critical to reducing the risk of

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catastrophic wildfire, can have short-term adverse effects to Mexican spotted owl through habitat modification and disturbance. As the population grows, especially in Arizona, small communities within and adjacent to National Forest System lands are being developed. This trend may have detrimental effects to Mexican spotted owl by further fragmenting habitat and increasing disturbance during the breeding season.

Currently, high intensity, stand-replacing fires are influencing ponderosa pine and mixed conifer forest types in Arizona and New Mexico. Mexican spotted owl habitat in the southwestern United States has been shaped over thousands of years by fire. Since Mexican spotted owl occupy a variety of habitats, the influence and role of fire has most likely varied throughout the owl's range. In 1994, at least 40,000 acres of nesting and roosting habitat were impacted to some degree by catastrophic fire in the Southwestern Region (Sheppard and Farnsworth 1995, unpublished Forest Service Report). Between 1991 and 1996, the Forest Service estimated that approximately 50,000 acres of owl habitat has undergone stand replacing wildfires (G. Sheppard, Forest Service, Kaibab National Forest, Arizona, pers. comm.). However, since 1996, fire has become catastrophic on a landscape scale and has resulted in hundreds of thousands of acres of habitat lost to stand-replacing fires. This is thought to be a result of unnatural fuel loadings, past grazing and timber practices, and a century of fire suppression efforts. The 2002 Rodeo-Chediski fire, at 462,384 acres, burned through approximately 55 PACs on the Tonto and Apache-Sitgreaves National Forests and the White Mountain Apache Reservation. Of the 11,986 acres of PAC habitat that burned on National Forest lands, approximately 55% burned at moderate to high severity. Based on the fire severity maps for the fire perimeter, tribal and private lands likely burned in a similar fashion. The Service define moderate severity burn as high scorch (trees burned may still have some needles), and high severity burn as completely scorching all trees (trees completely dead).

#### **B. Status of the species by Recovery Unit**

As stated above, the Recovery Plan divided the range of the owl into eleven geographic areas called Recovery Units. Six RUs were designated within the United States: Colorado Plateau, Southern Rocky Mountains - Colorado, Southern Rocky Mountains - New Mexico, Upper Gila Mountains, Basin and Range - West, and Basin and Range - East. The RUs were identified based on physiographic provinces, biotic regimes, perceived threats to owls or their habitat, administrative boundaries, and known patterns of owl distribution. The Southwestern Region of the Forest Service includes five of the six RUs located in the United States. The Forest Service Region 3 does not manage any National Forest Lands in the Southern Rocky Mountains - Colorado RU.

A discussion of the owl's status and its habitat is provided below for each RU in Arizona and New Mexico. These summaries provide a prelude to the analysis of effects on the owl and its habitat within these RUs. The tables provided under each RU list the number of PACs designated in Region 3; the number of those PACs considered by the Forest Service to be occupied; and estimated acreage for PACs, protected habitat, and restricted habitat from the 2001 WUI programmatic opinion.

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### 1. Colorado Plateau Recovery Unit

Recovery Unit	# PACs in Region 3	# PACs considered occupied	# Acres in PACs in Region 3	# Acres of Protected Habitat in Region 3	# Acres of Restricted Habitat in Region 3
Colorado	22	20	~16,760	~196,732	~273,522

The Colorado Plateau RU is the largest of the six recovery units, extending from southwestern Utah, through northern Arizona into northwestern New Mexico, and a small portion of the southwestern corner of Colorado. In northern Arizona and New Mexico, owls have been reported in both canyon and montane habitats. Owl habitat in this RU appears to be in the form of isolated, geographically segregated patches. Recent records of Mexican spotted owl exist for the Grand Canyon and Kaibab Plateau in Arizona; the Chuska Mountains, Black Mesa, and Fort Defiance Plateau on the Navajo Reservation; and, the Zuni Mountains and Mount Taylor in New Mexico. Currently, the Forest Service has designated 22 Mexican spotted owl PACs in this RU on the Mount Taylor Ranger District, Cibola National Forest.

The distribution of Mexican spotted owl within this RU appears to be highly fragmented. The disjunct owl distribution may be a natural occurrence due to the spatial arrangement of habitat, the result of past management, a reflection of inadequate survey efforts, or a combination of all three. Potential threats in the southeastern portion of this RU (Arizona and New Mexico) include timber harvest and/or intensive fuels reduction treatments; overgrazing; catastrophic fire; and oil, gas, and mining development. Sixteen wildland urban interface treatment areas are planned in Mexican spotted owl habitat on the Cibola National Forest, as analyzed in the WUI programmatic opinion. Within these areas, we expect a portion of one PAC to receive intensive fuels reduction treatments and for up to 7,757 acres of protected habitat and 4,000 acres of restricted habitat to be treated. Wildfire data collected from the Forest Service indicate that six fires burned in PACs during the 2002 fire season. The fires ranged in size from 0.1 to 2 acres and did not modify habitat within owl activity centers.

### 2. Southern Rocky Mountains - New Mexico Recovery Unit

Recovery Unit	# PACs in Region 3	# PACs considered occupied	# Acres in PACs in Region 3	# Acres of Protected Habitat in Region 3	# Acres of Restricted Habitat in Region 3
SRM - New Mexico	50	36	~19,040	~159,456	~314,360

The Southern Rocky Mountains-New Mexico Recovery Unit encompasses a large portion of northern New Mexico, but encompasses a fairly small portion of the known owl sites throughout



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its range. However, Johnson and Johnson (1985) documented approximately 40 observations (historic sites) of owls throughout this recovery unit. Current owl sites have been recorded in the Jemez and Sangre de Cristo Mountains, Bandelier National Monument and areas surrounding Los Alamos. Owls generally occupy deep, narrow, forested canyons with cool, shady places to roost. A majority of the habitat in this RU is administered by the Carson and Santa Fe National Forests.

Catastrophic wildfire and continued timber harvest activities are considered to be the greatest threats to Mexican spotted owl recovery within this RU. The Cerro Grande (2000), Dome (1995), and Viveash (2000) fires are examples of recent fires that resulted in stand-replacement events within eleven PACs on the Santa Fe National Forest. Currently, there are a total of 26 wildland urban interface treatment areas within this RU. Seven PACs, 28,674 acres of protected habitat, and 40,000 acres of restricted habitat are proposed for fuels reduction treatments. Approximately 25% of the acreage proposed for treatment will not follow the Recovery Plan recommendations for fuels reduction treatments in Mexican spotted owl habitat, but will be more intensive.

### 3. Upper Gila Mountains Recovery Unit

Recovery Unit	# PACs in Region 3	# PACs considered occupied	# Acres in PACs in Region 3	# Acres of Protected Habitat in Region 3	# Acres of Restricted Habitat in Region 3
Upper Gila Mountains	618	~588	~391,722	~747,578	~2,820,626

The Upper Gila Mountains Recovery Unit is a relatively narrow band of owl habitat bounded on the north by the Colorado Plateau RU and to the south by the Basin and Range-West RU. The southern boundary includes the drainages below the Mogollon Rim in central and eastern Arizona. The eastern boundary extends to the Black, Mimbres, San Mateo, and Magdalena mountain ranges of New Mexico. The northern and western boundaries extend to the San Francisco Peaks and Bill Williams Mountain north and west of Flagstaff, Arizona. This is a topographically complex area consisting of steep foothills and high plateaus dissected by deep forested drainages. This recovery unit can be considered a "transition zone" because it is an interface between two major biotic regions: the Colorado Plateau and Basin and Range Provinces (Wilson 1969). Most habitat within this recovery unit is administered by the Kaibab, Coconino, Apache-Sitgreaves, Tonto, Cibola, and Gila national forests. The north half of the Fort Apache and northeast corner of the San Carlos Indian reservations are located in the center of this RU and also support Mexican spotted owl.

The Upper Gila Mountains RU consists of pinyon/juniper woodland, ponderosa pine/mixed conifer forest, some spruce/fir forest, and deciduous riparian forest in mid- and lower-elevation canyon habitat. Climate is characterized by cold winters and over half the precipitation falls

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during the growing season. Most of the mature trees on the gentle slopes surrounding the canyons had been partially or completely harvested prior to the species' listing as threatened in 1993, however, Mexican spotted owl nesting habitat remains in steeper areas. Mexican spotted owls are widely distributed and use a variety of habitats within this RU.

This RU contains the largest known concentration of Mexican spotted owls with approximately 63% of known Mexican spotted owl PACs in Region 3. Because of its central location and its large and relatively continuous Mexican spotted owl population, the Recovery Team believes that this RU is critically important to the overall stability and persistence of the Mexican spotted owl in the United States. Specifically, this RU may be considered a source population, providing immigrants to smaller, isolated populations in other RUs. Although there are few data on dispersal patterns or movements between RUs, the Recovery Plan recommends maintaining the Mexican spotted owl population at current levels and at least the current level of connectivity within the RU. Significant discontinuities that develop in the distribution of Mexican spotted owl within this RU and the loss of habitat to support the local sub-populations, may compromise the recovery of the species.

Currently, catastrophic wildfire is probably the greatest threat to Mexican spotted owls within the Upper Gila Mountains RU. As throughout the West, fire intensity and size has been increasing within this geographic area. Table 4 shows several high-intensity fires that have had a large influence on Mexican spotted owl habitat in this RU in the last decade. Obviously the information in Table 4 is not a comprehensive analysis of fires in the Upper Gila Mountains RU or the effects to Mexican spotted owls. However, the information does illustrate the influence that stand-replacing fire has on current and future Mexican spotted owl habitat in this RU. This list of fires alone estimates that approximately 11% of the PAC habitat within the RU suffered high to moderate intensity, stand-replacing fire in the last seven years.

**Table 4.** Names of a few influential fires within the Upper Gila Mountains Recovery Unit, approximate acres burned, number of PACs affected, and PAC acres burned.

Fire Name	Year	Total Acres Burned	# PACs Burned	# PAC Acres Burned
Rhett Prescribed Natural Fire	1995	20,938	7	3,698
Pot	1996	5,834	4	1,225
Hochderffer	1996	16,580	1	190
BS Canyon	1998	7,000	13	4,046
Pumpkin	2000	13,158	4	1,486
Rodeo-Chediski	2002	462,384	55	~33,000

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TOTAL		525,894	84	~43,645
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There are 73 wildland urban interface project areas with Mexican spotted owl habitat in the Upper Gila Mountain RU. Of these project areas, we estimated that 7,000 acres in 31 PACs will have some level of fairly intensive fuels reduction treatment. The proposed action may also potentially affect up to 31,374 acres of protected habitat and 90,000 acres of restricted habitat.

#### 4. Basin and Range - West Recovery Unit

Recovery Unit	# PACs in Region 3	# PACs considered occupied	# Acres in PACs in Region 3	# Acres of Protected Habitat in Region 3	# Acres of Restricted Habitat in Region 3
Basin and Range-West Recovery Unit	154	149	~80,467	~930,615	~366,251

This RU encompasses a small portion of New Mexico and the majority of southern Arizona and is the second largest RU in the United States. The northern border of this RU is defined by the base of the Mogollon Rim. The western boundary defines the western extent of the Mexican spotted owl's range. Land ownership within this RU is a mosaic of public and private lands, with the Mexican spotted owl primarily occupying Forest Service lands. The Forest Service has designated 154 PACs on the Coronado, Tonto, Prescott, and Apache-Sitgreaves National Forests.

The RU is characterized by numerous mountain ranges which rise abruptly from the broad, plain-like valleys and basins. In southern Arizona, these mountain ranges are often referred to as the Sky Islands. Vegetation ranges from desert scrubland and semi-desert grassland in the valleys upwards to montane forests (chaparral and pine-oak woodlands at low and middle elevations and ponderosa pine, mixed-conifer, and spruce-fir forests at higher elevations). Within the Sky Islands, Mexican spotted owl habitat is characterized by woodland habitat with PACs occurring in both heavily forested terrain and in areas with hardwood and conifer stringers dominated by Madrean evergreen woodland. In general, however, much of the Mexican spotted owl habitat occurs in forested, steep-slope canyons and drainages. The mature trees throughout much of the forest outside of these canyons and drainages have been partially or completely harvested.

The primary threats to Mexican spotted owls within this RU are catastrophic wildfire, recreation, and livestock grazing (USDI 1995a). As in the Upper Gila Mountain RU, this area has experienced multiple wildfires that have influenced Mexican spotted owl habitat. The Clark Peak, Gibson Canyon, Miller, Noon, Rattlesnake, Shovel, Bullock, and Oversight fires burned at varying intensities throughout Mexican spotted owl PACs on the Coronado National Forest. The Four Peaks/Lone Fire was a catastrophic, high-intensity wildfire on the Tonto National Forest

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that burned through two Mexican spotted owl PACs. The Coronado, Tonto, and Prescott National Forests are used heavily for recreation, mainly due to their proximity to the large urban areas of Tucson and Phoenix. Riparian areas may provide important dispersal habitat between mountain ranges in this RU, so grazing in these areas is of concern due to potential negative impacts.

There are a total of 38 wildland urban interface projects in this RU. Nineteen of the proposed projects contain Mexican spotted owl PACs; 28 PACS within these project areas will receive fuels reduction treatments. The Prescott National Forest is expecting to treat seven of the 15 known PACs on the forest. The WUI programmatic biological opinion states that only four of the PACs are expected to receive intensive treatments. Approximately 8,927 acres of protected habitat and 55,000 acres of restricted habitat occurs within the proposed project area. No more than 2,000 acres of protected habitat are expected to be intensively treated, with the remainder of protected habitat treated per the recommendations in the Recovery Plan. The restricted habitat is all located within 0.5 mile of private land and will most likely receive fairly intensive treatments.

#### 5. Basin and Range - East Recovery Unit

Recovery Unit	# PACs in Region 3	# PACs considered occupied	# Acres in PACs in Region 3	# Acres of Protected Habitat in Region 3	# Acres of Restricted Habitat in Region 3
Basin and Range-East	138	133	~80,434	~102,061	~127,937

A majority of the Basin and Range-East RU is within New Mexico. Habitat is administered by the Lincoln and Cibola National Forests. The 136 PACs listed in the above table are all located on the Lincoln National Forest. This RU is characterized by numerous parallel mountain ranges separated by alluvial valleys and broad, flat basins. Mexican spotted owls occur in the isolated mountain ranges scattered throughout this RU, but the largest concentration of Mexican spotted owls in the RU occur in the Sacramento Mountains on the Lincoln National Forest. Mexican spotted owls are most common in mixed-conifer forest, but are also found in ponderosa pine forest and pinyon-juniper woodland. Current Mexican spotted owl sites have been recorded on National Forest System lands in the Sandia, Manzano, Sacramento, and Guadalupe mountains and in Guadalupe National Park and on Mescalero Apache Tribal lands.

Mexican spotted owls occurring in the Sacramento Mountains have been exposed to various disturbances for more than a century. Natural disturbances include forest fires, and human

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disturbances include timber and fuelwood harvest, livestock grazing, development, and recreation. Coniferous forests, especially mixed-conifer, were extensively logged during an era of railroad logging from 1890 to 1945 (Glover 1984). Consequently, much of the habitat currently used by Mexican spotted owls in the Sacramento Mountains is second growth forest with a high density of relatively small sized trees, poles, and saplings.

Past timber harvest practices have left a few remnant mature stands and residual pockets of "old-growth" trees in the Sacramento Mountains. Many of these stands are small (less than ten acres) and exist as groves amid the younger coniferous forest. The Recovery Plan states that these remnant patches are critical to the Mexican spotted owl, particularly for nesting and roosting (USDI 1995a).

According to the Recovery Plan, the greatest threats to recovery in this RU are catastrophic fire, some forms of timber harvest, and fuelwood harvest. Recovery in this unit will require maintenance of existing and future populations by conserving habitats in areas not only inhabited by Mexican spotted owls, but also in areas between occupied sites.

The Service consulted on eleven wildland urban interface fuels reduction projects containing Mexican spotted owl habitat in the Basin and Range - East RU as a part of the WUI programmatic opinion (USDI 2001a). Approximately 71 of the 133 viable PACs on the Lincoln National Forest occur within the 0.5 mile wildland urban interface buffer. However, in order to maximize the likelihood that these PACs will be able to support reproductive pairs, the Lincoln National Forest proposed to thin mixed conifer stands according to the Recovery Plan guidelines. The proposed action is expected to affect approximately 11,238 acres of protected habitat, with 7,600 acres receiving intensive fuels reduction treatments not in compliance with the Recovery Plan guidelines. In addition, approximately 41,000 acres of restricted habitat within 0.5 mile of private land will be treated.

Within the last couple of years, at least three fires have impacted Mexican spotted owl habitat on the Lincoln National Forest. The Cree fire (2000) burned through one PAC that is no longer considered viable as a result of the fire. The Scott Able fire (2000) burned through eight PACs, but destroyed habitat in three PACs such that one is no longer viable and two others needed to be reconstructed with additional habitat. Finally, the Penasco fire (2002) burned through six PACs, but only one PAC lost a significant amount of habitat.

#### **IV. EFFECTS OF THE ACTION**

This section includes an analysis of the direct and indirect effects of the proposed action on the species and/or critical habitat and its interrelated and interdependent activities. The effects of livestock grazing on spotted owls prey populations and their habitats is extraordinarily complex. The discussion below outlines the most current information we have on spotted owl-prey relationships and the current knowledge of the effects of grazing on Mexican spotted owl and their habitat. Because the effects analysis addresses the rate of implementation of Forest Service

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Standards and Guidelines, we also include a description of the protection provided by the Standards and Guidelines as well as the effects of the rate of implementation.

### **Owl-Prey Relationships**

Mexican spotted owls consume primarily small to medium-sized (10-300g), nocturnal rodents (Gutierrez et al. 1995). However, the owl's food habits vary according to geographic location. For example, woodrats comprise 76% (median for 7 studies summarized by Ward and Block 1995) of biomass consumed by Mexican spotted owls occurring in canyons of southern Utah compared to 23% (median for 2 studies summarized by Ward and Block 1995) in forested environments of the Sacramento Mountains. Intermediate amounts of woodrats are consumed by Mexican spotted owl in central portions of its range (Ward 2001).

The most in-depth study to-date on Mexican spotted owl prey relationships was conducted by Ward (2001) in the Sacramento Mountains of central New Mexico. The investigation focused on one population of Mexican spotted owls over a six-year period (1991-1996) concentrating on five rodents that were most common in the owl's diet; deer mouse (*Peromyscus maniculatus*), brush mouse (*P. boylii*), Mexican vole (*Microtus mexicanus*), long-tailed vole (*M. longicaudus*), and Mexican woodrat (*Neotoma mexicana*). Comparing the dietary proportions of the owl's common prey to proportions estimated to occur in the owl's foraging areas, he found that mice and voles were captured in proportion to their availability and that woodrats were selected in greater proportions relative to their availability. Given the 6-year averages of percent biomass consumed, woodrats could be considered a primary prey for these owls. Additional analysis of prey selection ratios relative to the owl's potential for meeting energetic needs for reproduction indicated that these owls preferred Mexican woodrats. However, during one of the six breeding seasons examined, Mexican spotted owls tended to select voles when woodrats and white-footed mice were less available. Also despite the preference for Mexican woodrats, reproductive output by spotted owls in the Sacramento Mountains was correlated with available biomass of mice and voles, and not with biomass of woodrats. Thus, because Mexican woodrats are currently less available and consumed in less amounts compared to other spotted owl populations, the owls in the Sacramento Mountains have demonstrated a greater use of alternative prey, including long-tailed and Mexican voles. Ward (2001) postulated that voles may be important in this area because they could be an alternative food source when other prey species are diminished.

### **Effects of Livestock Grazing on Mexican Spotted Owls**

Impacts can vary according to numbers of grazers, grazing intensity, grazing frequency, and timing of grazing as well as habitat type and structure and plant composition (Ward and Block 1995). It is well documented that repetitive, excessive grazing of plant communities by livestock can significantly alter plant species density, composition, vigor, regeneration, above and below ground phytomass, soil properties, nutrient flow, water quality, and ultimately lead to desertification when uncontrolled (Kauffman and Krueger 1984, Orodho et al. 1990, Vallentine 1990, Milchunas and Lauenroth 1993). In contrast, moderate to light grazing can benefit some plant and animal species under certain conditions and in certain environments, maintain communities in certain seral stages, and increase primary productivity (Reynolds 1980, Hanley and Page 1982, Kauffman and Krueger 1984, McNaughton 1993).

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No studies document the direct and indirect effects of livestock grazing on Mexican spotted owls or its prey (see review by USDA Forest Service 1994, Utah Mexican Spotted Owl Technical Team 1994, Ward and Block 1995). Despite the dearth of information about spotted owls and grazing, there exists some knowledge regarding the effects of livestock grazing and small mammals frequently consumed by spotted owls and regarding mesic or montane plant communities inhabited by the owl's prey (Ward and Block 1995). For example, Szaro (1991) examined the effects of grazing in New Mexico within livestock exclosures compared to areas continuously grazed. Greater numbers and species of small mammals were captured in the exclosure compared to the grazed areas. Schultz and Leininger (1990) examined effects of cattle exclusion along a riparian community in Colorado. Deer mice were significantly more abundant in grazed areas and western jumping mice were significantly more abundant in ungrazed areas. Further, long-tailed and mountain voles were not observed in grazed areas. Other studies have shown similar results: lack of a numerical decrease by deer mice following grazing (Reynolds 1980), and significant decrease in voles caused by grazing induced by loss of cover in mesic habitats (Grant et al 1982). Therefore, grazing may influence prey availability in dissimilar ways; grazing that reduces dense grass cover can create favorable habitat conditions for deer mice while creating unfavorable conditions for voles.

The 1993 final rule to list the Mexican spotted owl as a threatened species under the Act did not mention grazing as a threat (USDI 1993). However, the Recovery Plan (USDI 1995a) postulates on the direct and indirect effects of both grazing by livestock and wildlife (i.e., elk, deer). A direct effect is excessive grazing that alters prey availability. Indirectly, within conifer forests, grazing can remove or greatly reduce grasses and forbs thereby allowing large numbers of conifer seedlings to become established thus, decreasing the potential for beneficial low-intensity ground fires. Establishment of large numbers of seedlings coupled with the reduction in light ground fuels may act synergistically with fire suppression to contribute to dense overstocking of ladder fuels. This dense overstocking can alter forest structure and composition and degrade spotted owl and prey habitats while increasing risks of stand-replacing fires (USDI 1995a). In general, predicting the magnitude of grazing effects on spotted owls and their habitats requires a better understanding of the relationship between spotted owl habitat and grazing (USDI 1995a). Further, while the potential for grazing to influence various components of spotted owl habitat cannot be ignored, current predictions of grazing effects on plant communities as they relate to the owl are inexact (USDI 1995a).

#### **Protection Provided by the Grazing Standards and Guidelines**

The Recovery Plan provides explicit goals for managing grazing in protected and restricted habitat. One such goal is monitoring use by livestock and wildlife in "key grazing areas." These areas are primarily riparian areas, meadows, and oak types. Other goals include maintaining good to excellent range conditions in key areas while accommodating the needs of the owl and its prey; implementing and enforcing grazing utilization standards that would attain good to excellent range condition within the key grazing area; establishing maximum allowable use levels that are conservative and that will speed attaining and maintaining good to excellent range condition; ensuring that the allowable use of plant species will maintain plant diversity, density, vigor, and regeneration over time; restore adequate levels of residual plant cover, fruits, seeds,

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and regeneration to provide for the needs of prey species; and restoring good conditions to degraded riparian communities.

In the following discussion, the grazing guidelines identified in the Recovery Plan are summarized (paragraphs numbered 1, 2, and 3) along with the Forest Plan Amendments that address the intent of the Recovery Plan guidelines.

- (1) Monitor grazing use and livestock and wildlife in "key grazing areas" to detect changes in plant composition. The intent is to maintain good to excellent range conditions in key areas while accommodating the needs of the owl and its prey.

The amended forest plan guidelines for grazing management include identification of key ungulate forage monitoring areas. Within these areas, key species are to be selected to monitor average allowable use. The Biological Assessment and the Final Environmental Impact Statement (FEIS) provide guidance for allowable key species utilization by ungulates in key forage monitoring areas.

By themselves, the grazing management guidelines would seem to fall short of the Recovery Plan guidelines. However, the guidelines within the Amended Forest Plan for Mexican spotted owl include a provision that, with respect to domestic livestock grazing, forage utilization standards in the forest plans be implemented to maintain owl prey availability and promote the development of owl habitat. These guidelines also include the direction to, "strive to attain good to excellent range conditions." Grazing Management Standards include the statement that, "Forage use by grazing ungulates will be maintained at or above a condition which assures recovery and continued existence of threatened and endangered species." The Service assumes that activities will be planned within the bounds of the amended forest plan standards and guidelines for the Mexican spotted owl as well as the grazing management standards and guidelines.

- (2) Implement and enforce grazing utilization standards that would attain good to excellent range conditions within the key grazing areas. Establish maximum allowable use levels that are conservative and that will expedite attaining and maintaining good to excellent range conditions. A primary purpose is to maintain and restore adequate levels of residual plant cover, fruits, seeds, and regeneration to provide for the needs of prey species and development of future owl foraging and dispersal habitat.

Allowable use guidance for given range conditions and management strategies is provided in the guidelines for grazing management, with the provision that they be applied in the absence of more specific guidelines currently established through site specific NEPA analysis for individual allotments. It is not clear whether these use levels are conservative with respect to the needs of the owl, or whether the guidelines, by themselves, will expedite attainment of good to excellent range conditions. However, the Mexican spotted owl guidelines call for management strategies to move riparian vegetation toward good condition as soon as possible and to implement the



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forage utilization standards to promote development of owl habitat and attain good to excellent range conditions.

- (3) Implement management strategies that will restore good conditions to degraded riparian communities as soon as possible. Strategies may include reductions in grazing levels and increased numbers of exclosures to protect riparian plant cover and regeneration, and to prevent damage to stream banks and channels.

The amendments on grazing management do not specifically address riparian areas, other than to describe the allowable proximity of key monitoring areas to perennial streams. More specific guidance on riparian habitats is provided in the Mexican spotted owl guidelines for Riparian Areas and Domestic Livestock Grazing. The guidelines for Riparian Areas call for conformance with forest plan riparian standards and guidelines and management strategies that should move degraded riparian vegetation toward good condition as soon as possible. The section of the Mexican spotted owl guidelines on Domestic Livestock Grazing states that forage utilization standards and guidelines are to be implemented to maintain and restore riparian ecosystems.

It is not clear that the amendments on grazing management alone would provide adequate direction to expedite improved conditions for the Mexican spotted owl. However, amended guidelines for the Mexican spotted owl, which according to the Biological Assessment are to be applied across the landscape, together with the continuing riparian guidelines, should moderate or avoid adverse effects to the Mexican spotted owl and its critical habitat (there is no critical habitat designated on FS land, so BA does not impact critical habitat) from grazing activities. Therefore, the Grazing Management amendments, the Mexican spotted owl amendments, and the existing riparian guidelines, when implemented together, provide direction that should result in activities that would not likely impede the recovery of the Mexican spotted owl.

#### **Effects of the Rate of Implementation of Standards and Guidelines**

Normally, the Service would frame its review of the effects of plan-level guidance in terms of the general projected effects of future projects that conform to the direction and not on the effects of a specified group of projects. However, in deference to the Forest Service's request that the Service review the effects of the rate of implementation of plan-level guidance, we will project the general effects of this rate in application of plan guidelines. These effects will be projected based on the results of past site-specific grazing allotment management determined in previous site-specific consultations on grazing management allotments that did not apply the grazing Standards and Guidelines. According to the Biological Assessment for the re-initiation on implementation rate of grazing standards and guidelines for the Mexican spotted owl, protective measures are in place for the owl with regards to grazing management activities. Although all of the allotments have not gone through site-specific NEPA analysis, all allotments have site-specific consultations completed. Thus, the following discussion is a retrospective review of past informal and formal consultations on allotments that did not apply the grazing standards and guidelines.

#### **Informal/Formal Consultations**

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The Service and the Forest Service developed Guidance Criteria, dated February 13, 1998, to be used in determining whether management of individual Forest Service grazing allotments adversely affect listed species, including the Mexican spotted owl. In a letter dated March 5, 1998, the Service concurred with these criteria as a mechanism for making these determinations. That letter indicated that allotments that meet "no effect" or "not likely to adversely affect" for a species would meet informal section 7 requirements for that species, and that representatives of the two agencies would meet and review a sample of determinations made using these criteria and identify and correct any problems that have been encountered in their application. The outcome of the application of these guidance criteria were summarized in the Service's February 2, 1999, Biological Opinion for on-going management on 21 grazing allotments. Thus, of the 962 allotments identified for consultation, 619 were determined to have no effect on listed species; 321 were determined to "not likely adversely affect listed species." The 21 remaining allotments were found to have adverse effects on one or more listed species and were therefore subject to the formal section 7 review. Of these 21 allotments, only four concerned the Mexican spotted owl. To summarize, out of 962 allotments that were reviewed, only four (Foote Creek, Sapillo, Limestone, and Pigeon Allotments) were found to adversely affect the Mexican spotted owl.

In addition, other allotments that were not included in the February 2, 1999, Biological Opinion also went through formal consultation. Allotments that went through formal consultation are discussed below.

Foote Creek, Sapillo, and Limestone Allotments: These allotments are located within the Upper Gila Mountains Recovery Unit. The Service stated that over-utilization of forage and browse occurred throughout these Allotments. The Service anticipated that take of owls would likely occur within three Mexican spotted owl PACs in the Foote Creek Allotment and three Mexican spotted owl PACs within the Limestone Allotment as a result of impacts from on-going grazing activities on habitat for owl prey species. Take was expected in the Sapillo Allotment, however, there was conflicting information provided by the Forest and thus, no PACs were mentioned, but take was anticipated for 2 pair of owls for this allotment. Reasonable and prudent measures provided by the Service for these allotments included maintaining desirable owl habitat characteristics and monitoring grazing activities and resulting incidental take.

Pigeon Allotment: This allotment is located within the Basin & Range West Recovery Unit. The Service stated that over-utilization of forage and browse occurred throughout this allotment. The Service anticipated take of one pair of owls would likely occur as a result of impacts from on-going grazing activities on habitat for owl prey species. Reasonable and prudent measures provided by the Service for this allotment included maintaining desirable owl habitat characteristics and monitoring grazing activities and resulting incidental take.

Mud-Tinny and Tinny Springs Allotments: These allotments are located within the Upper Gila Mountains Recovery Unit. According to the April 22, 1999, Biological Opinion, the Forest Service proposed to reduce utilization levels from 50% to 40% in meadows and spring areas within owl PACs. The Service stated that take of owls was likely to occur in the form of harm by the reduction of suitability of habitat for prey species (i.e., limiting the availability of prey for

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owls) within three PACs. To minimize the take, reasonable and prudent measures included implementing and enforcing grazing restrictions at springs and associated meadows in PACs within two pastures, and monitoring grazing use in key grazing areas in two pastures.

Udall Allotment: This allotment is located within the Upper Gila Mountains Recovery Unit. According to the February 28, 2002, Biological Opinion, the Environmental Assessment for this allotment stated that the unsatisfactory range conditions associated with heavy over-story canopy will not improve significantly with the implementation of any livestock grazing prescription. However, the Service concluded that no incidental take of Mexican spotted owls was expected because the Forest was implementing several measures consistent with the Recovery Plan to ensure adequate prey base for owls on the allotment. Specifically, the Forest planned to fence several riparian and meadow areas and check utilization levels at the end of the grazing period. Although the Service was concerned with time needed for the allotment to recover and some negative impacts on owl prey species, the Biological Opinion stated that the Forest was implementing enough measures to ensure the success of Mexican spotted owl on the allotment.

Pleasant Valley Allotment: This allotment is located within the Upper Gila Mountains Recovery Unit. According to the November 30, 2001, Biological Opinion, the Biological Assessment and Evaluation for this allotment stated that current authorized stocking levels were significantly above capacity, and that both woody and herbaceous cover for rodent species was less than desirable. Further, the Forest did not provide supporting documentation indicating the proposed action (i.e., 10-year term grazing permit) would allow the allotment to attain good to excellent range conditions. No surveys were conducted for owls within this allotment and no protected habitat was identified. Thus, the Service did not anticipate take of Mexican spotted owl would result. However, the Service recommended that reductions in grazing levels and increased numbers of exclosures, complete rest, limited winter use, and other methods were needed to restore good conditions to degraded riparian communities within the allotment.

Pinto Creek Allotment: This allotment is located within the Basin and Range West Recovery Unit (Tonto National Forest). This allotment is discussed in the February 28, 2002, Biological Opinion for "On-going and Long-term Grazing on the Tonto National Forest." The Service analyzed impacts of grazing on 20 owl PACs in or near these 20 allotments. Originally, the Forest made "may affect, likely to adversely affect" determinations for 10 allotments. Four of the ten allotments were later removed from the consultation. Five others were reduced to "not likely to adversely affect" determinations based on change in management, with which the Service concurred. The Pinto Creek Allotment was the only allotment analyzed. The Biological Opinion states that the Pinto Creek Allotment is near one owl PAC and that the proposed action has the potential to affect owl habitat and prey on the Pinto Creek Allotment. However, the Service anticipated no take of Mexican spotted owl would occur. Discretionary conservation recommendations were provided to minimize or avoid adverse affects on listed species and to implement the Recovery Plan.

Lone Mountain and Mescal Allotments: These allotments are located within the Basin & Range West Recovery Unit. These allotments were addressed in the July 29, 1999, Biological Opinion

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for "On-going and Long-term Grazing on the Coronado National Forest." The Service stated that high utilization levels as well as salt placement in these allotments are not consistent with the recommendations in the Recovery Plan to maintain good to excellent grazing conditions. Because of diligent management by the Permittee in the Lone Mountain Allotment, range conditions greatly improved (75 % in moderately high condition with an upward trend) as compared with most allotments in the San Rafael Valley area. However, the Service concluded that owl reproductive success within three PACs may be negatively affected due to the high utilization by livestock within riparian areas and thus, take of owl was anticipated to occur within three PACs. To minimize the take, reasonable and prudent measures included implementing and enforcing grazing restrictions in riparian areas within identified PACs within the two allotments, and monitoring grazing use in key grazing (i.e., riparian areas, meadows, oak types).

In summary, approximately 1,350 grazing allotments occur in the Southwestern Region according to the Forest Service; of which, 274 have owl PACs. Of the 274 allotments that have owl PACs, only 11 grazing allotments went through formal consultation. Incidental take was anticipated to occur within 12 owl PACs and for 3 pairs (i.e., a PAC was not identified). In addition, all previous Biological Opinions that addressed grazing management by allotment concluded with the determination of "not likely to jeopardized the continued existence of the Mexican spotted owl."

#### **Projections from the Rate of Implementation**

According to the Forest Service's November 6, 2002, Biological Assessment for this consultation, there are 307 allotments that need NEPA analysis and decisions. Of the 307, 146 allotments have owl PACs. Based on current and predicted future funding levels and agency priorities, the Forest Service expects to complete NEPA requirements on the remaining 307 at a rate of 38 per year from 2003 through 2010. However, the Forest Service has stated that the 146 allotments with owl PACs will receive highest priority for site-specific NEPA analysis over the remaining. Pursuant to the Forest Service's estimate of 38 allotments per year, NEPA should be completed on the 146 allotments that contain owl PACs within approximately 4 years (i.e., 2007).

In the absence of application of the grazing standards and guidelines in the 1996 Forest Plan Amendments, there are three primary means through informal and formal consultation by which the effects of grazing on the Mexican spotted owl can be reduced:

(1) The mutually agreed upon Grazing Guidance Criteria provided protective measures for the owl. In order to meet these criteria and attain Endangered Species Act compliance within informal consultation, grazing management practices have been adjusted by manipulating utilization rates, reducing herd size, making changes in rotation schedules, and reductions in grazing duration. Furthermore, the Forest Service continues to establish "key ungulate forage monitoring areas" sites within grazing allotments, and riparian management practices have been implemented to exclude or closely restrict livestock grazing within sensitive riparian habitats.

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(2) Implementation of the grazing recommendations as stated within the Mexican Spotted Owl Recovery Plan.

(3) Reasonable and Prudent Measures and the implementing Terms and Conditions within site-specific Biological Opinions enforce criteria consistent with the Recovery Plan that minimize incidental take.

Despite these protections, impacts to the Mexican spotted owl may still occur. However, based on the retrospective analysis of past consultations provided in the previous section, effects of the rate of implementation of the standards and guidelines are not substantial. Most allotments do not require formal consultation on the Mexican spotted owl, and out of 274 allotments that the Forest Service has indicated have Mexican spotted owl PACs present, the total incidental take anticipated in past consultations amounts to the equivalent of 15 PACs (the 12 PACs and 3 pairs identified in the previous section). Projecting this amount of incidental take into the future for the 146 allotments that will have an implementation rate of 38 per year with respect to the grazing standards and guidelines, we project that the amount of take that will occur during that time is the equivalent an estimate of 4.3 PACs, or 4.3 pairs of Mexican spotted owl.

## V. 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 consultations 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 NEPA or other environmental laws.

### A. State and Private Activities

The Service's most recent assessment of Mexican spotted owl and their habitat on non-Federal lands is found in the final rule designating critical habitat (USDI 2001). According to the Recovery Plan (USDI 1995a), 91 percent of Mexican spotted owls known to exist in the United States between 1990 and 1993 occurred on land administered by the Forest Service. The Act prohibits incidental taking of listed species through habitat degradation, but the Service is unaware of instances where private actions have resulted in such habitat degradation. Regulations require only that actions "reasonably certain to occur" be considered in the analysis of cumulative effects. While the Service has no data on the extent of harvest of Mexican spotted owl habitat on State and private lands, it is reasonable to assume that some of these lands are not sufficiently timbered for commercially viable harvests; are inaccessible for purpose of timber harvest; are logistically unavailable; or are otherwise not subject to habitat-degrading activities.

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In addition, human-caused wildfire, wildfire suppression and wildfire risk reduction will also effect the Mexican spotted owl. Risk-reduction efforts on State and private lands that change the vegetative structure or components beyond the range of natural variability may remove or degrade habitat resulting in localized habitat loss and take of Mexican spotted owl. Therefore, many of these actions may result in a habitat conservation plan (HCP) as provided by section 10 of the Act. Nevertheless, increasing awareness of wildfire risk may also result in fuels treatment of State and private lands that may benefit the Mexican spotted owl by preventing or reducing the impacts of wildfire.

#### B. Tribal Lands

Tribal lands are held in "trust" by the Federal Government. They are not considered public lands or part of the public domain. Tribes are sovereign governments with management authority over wildlife and other Tribal land resources. For the purposes of this biological opinion, Tribal management of Mexican spotted owl habitat that does not involve Federal agency actions is considered non-Federal and therefore is considered under this cumulative effects analysis. The previous final rule designating critical habitat for the Mexican spotted owl states that approximately 15% of Mexican spotted owl habitat in the United States occurs on Tribal lands (USDI 1995). Tribal beliefs and philosophies guide resource management on Tribal lands. Some Tribes consider owls a bad omen; however, Tribal beliefs also dictate that all living creatures are essential parts of nature and, as such, they are revered and protected (USDI 1995a). Many Tribes maintain professionally staffed wildlife and natural resources management programs to ensure prudent management and protection of tribal resources, including threatened and endangered species. In 2001, the Service formally consulted on the Mexican spotted owl Management Plan for the Mescalero Apache Indian Reservation (USDI 2001b). Therefore, the effects to the Mexican spotted owl from these activities are captured under the "Environmental Baseline" section above and are not considered a cumulative effect.

The Southern Ute Reservation has not supported Mexican spotted owls historically, and does not support habitat essential to the species' conservation (USDI 2000). Lands of the Ute Mountain Ute Tribe have low Mexican spotted owl population density and are isolated from other occupied areas in Colorado, New Mexico, and Utah (USDI 2000). The White Mountain Apache and Jicarilla Apache Tribes completed a Habitat Management Plans for the Mexican spotted owl during the mid-1990's. In addition, other tribal lands including the Picuris, Taos, and Santa Clara Pueblos in New Mexico and the Havasupai Reservation in Arizona may have potential Mexican spotted owl habitat. However, the available information, although limited, on the habitat quality and current or past Mexican spotted owl occupancy in these areas does not indicate that these areas are essential to the conservation of the species (USDI 2000). Additionally, the San Carlos Apache Reservation Mexican spotted owl management plan is expected to be completed in the near future. We reviewed an earlier draft of their plan and found it to be consistent with the Recovery Plan (USDI 1995a).

#### VI. CONCLUSION

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After reviewing the current status of the Mexican spotted owl, the environmental baseline for the action area, the effects of the proposed action, and available information on cumulative effects, it is the Service's biological opinion that the proposed action is not likely to jeopardize the continued existence of the Mexican spotted owl. Based on past experience in informal and formal consultations on grazing allotments and the Mexican spotted owl where the 1996 Forest Plan grazing standards and guidelines have not been implemented, relatively few allotments are likely to require formal consultation, still fewer are likely to result in incidental take, and none are likely to result in jeopardy to the Mexican spotted owl. In addition, although the implementation rate is slower than originally anticipated, protective measures are in place (as stated above) that are reducing negative impacts of grazing on Mexican spotted owls.

Critical habitat designated for this species is outside of Forest Service lands. This action does not affect areas designated as critical habitat and no destruction or adverse modification of critical habitat is anticipated.

#### INCIDENTAL TAKE STATEMENT

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 to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Forest Service so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The Forest Service has a continuing duty to regulate the activity covered by this incidental take statement. If the Forest Service (1) fails to assume and implement the terms and conditions of the incidental take statement through enforceable terms that are added to the permit, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Forest Service must report the progress of the action and its impact on the species to the Service as specified in the Incidental Take Statement. [50 CFR §402.14(i)(3)]

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### **Amount or extent of take anticipated**

The Service anticipates that the reproductive output of owls in five PACs could be taken as a result of this proposed action. Incidental take is expected to be in the form of harm, through the degradation of prey habitat that results in death or injury to listed species by significantly impairing the essential behavioral pattern of breeding. Excessive grazing can reduce ground-level vegetation needed for shelter and feeding of prey species and can therefore reduce prey availability. Mexican spotted owls are most likely to be affected by prey availability during times of breeding and feeding of young, owing to greater energy requirements at those times, and it is in the production of young that take is anticipated. This incidental take is therefore expressed in terms the reproductive output of birds in the PACs. The number of five PACs for which this will occur was rounded up to the nearest whole number from the figure of 4.3 PACs derived in the effects analysis from the retrospective analysis of past grazing consultations.

The described anticipated take is reasonably certain to occur at this time during this plan-level consultation. Each project will also be subject to site-specific consultation that will identify any incidental take anticipated from the site specific action. Plan-level incidental take is not intended to be additive to incidental take identified in site-specific consultations, but is our best estimate, given the limited detail available at the plan level, of the result of future site-specific actions. This incidental take statement does not obviate the need for consultation at the site-specific level or cover incidental take for any site-specific action. The reasonable and prudent measures and terms and conditions provided here are general in nature; site-specific consultations will likely provide more specific measures tailored to the locality in question.

### **Effect of the take**

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

### **Reasonable and prudent measure**

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of the Mexican spotted owl:

Because this incidental take statement is part of a plan-level consultation for which the details of specific actions are not available, we cannot at this time predict which specific allotments for which Forest Service management will result in incidental take. The reasonable and prudent measures will therefore be expressed in general terms as follows:

1. The Forest Service will manage grazing use within allotments in which take is anticipated in order to improve habitat conditions for the Mexican spotted owl's prey species.



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2. For any allotment in which management is found to result in incidental take of the owl during future site-specific consultations during the life of the proposed action, the Forest Service will assess and agree to monitor consistent with the nature of take.

#### **Terms and conditions**

In order to be exempt from the prohibitions of section 9 of the Act, the Forest Service must comply with the following terms and conditions, which implement the reasonable and prudent measure described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. The Forest Service, in consultation with the Service, will evaluate the factors leading to the take and determine what action can be instituted to correct actions that led to the take (e.g., reducing livestock numbers, exclusions, etc).
2. Monitoring activities may include, but are not necessarily limited to, the following: monitoring reproductive output of owls on any PACs where the take is found to occur, monitoring owl prey abundance, etc. Results of each yearly monitoring effort will be transmitted to the FWS Southwestern Regional Office, Albuquerque, within 90 days of the end of the breeding season.

#### **CONSERVATION RECOMMENDATIONS**

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. If take is found to occur because of on-going grazing activities, the Forest Service will give that allotment top priority for conducting NEPA and site-specific consultation to ensure expedient implementation of the Forest Plan guidance.
2. Adhere to existing biological opinions issued for grazing actions, including the on-going grazing consultation.
3. Schedule allotments with PACs as priority allotments for conducting NEPA and site-specific consultation to ensure that Forest Plan guidance is implemented as expediently as possible.

#### **REINITIATION NOTICE**

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This concludes reinitiation of formal consultation on the Mexican spotted owl on the actions outlined in the request for initiation of consultation. As provided in 40 CFR 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 affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. In future correspondence regarding this consultation, please refer to consultation #000031RO (original consultation number) or 02-02-94-F-0007 (new number within the Service's Section 7 database). If we can be of further assistance, please contact Bryan Arroyo at 505/248-6454.

Sincerely,

/s/ Susan E. MacMullin

(Acting) Assistant Regional Director - Ecological Services

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#### LITERATURE CITED

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UPDATE 97 BA → Info on ? species

NEEDS

2/21/08

GET NOI DEC

READ 97 BA & BO

RECTIFY W/ SOUTHWEST STRATEGY  
NATIONAL MOA FOREST PLAN CONSULTS  
CONSULT AGREEMENT

- BA WEAK LAST TIME
- SPECIES TEAMS RATHER THAN FOREST BY FOREST
- ACKNOWLEDGE STANDARDS/GUIDELINES THEN EVALUATE how actions have changed from there.
- WHAT DATA DO WE NEED TO PORTING CURRENT Activities?
- ESTABLISH BASELINE Activities from project out what activity levels will continue
- SRP TEAM WILL ID programs that affect species & project how will continue
- HOW MANY BO'S for each program J or NOWJ?
- FOREST BY FOREST REPORT → TARGETS MET?
- WALLY WILL DEVELOP SCOPE <sup>JG BA</sup> W/ FWS
- 3/13 or 14 meet w/ Guardians

PAT JACKSON

BOB PARRS

BOBBI

ROBBIE MAYS

DON DEBIENCE

STEVE DOMBLENS

SARA RINK

DEIFE

- Check on  
Copper Creek

MSD crit hab

- Call w/ Nolan

- let Wally know approach