

SUMMARY
BIOLOGICAL OPINION ON THE EFFECTS TO THE MEXICAN SPOTTED OWL
AND THE MOUNT GRAHAM RED SQUIRREL FROM
THE SNOWFLAT CAMP AREA IMPROVEMENT PROJECT

2-21-95-F-060

Date of the Opinion: April 24, 1997

Action Agency: U. S. Forest Service, Region 3

Project: Snowflat Camp Area Improvement Project

Listed Species Affected: Mexican spotted owl (*Strix occidentalis lucida*)
Mount Graham red squirrel (*Tamiasciurus hudsonicus*
grahamensis)

Biological Opinion: It is the opinion of the Service that this project is not likely to jeopardize the continued existence of the Mexican spotted owl or the Mount Graham red squirrel.

Incidental take statement:

Anticipated take: *Exceeding this level may require reinitiation of formal consultation.*

Reasonable and prudent measures: *Implementation of these measures through the terms and conditions is mandatory.*

Terms and conditions: *Terms and conditions implement reasonable and prudent measures and are mandatory requirements.*

Conservation recommendations: *Implementation of conservations recommendations is discretionary.* Two conservations recommendations are provided. Both are relevant for the Mexican spotted owl, but only one includes consideration of the Mount Graham red squirrel.

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AESO/SE
2-21-95-F-060

April 24, 1997

Mr. John McGee
Coronado National Forest
300 West Congress
Tucson, Arizona 85701

Dear Mr. McGee:

The U. S. Fish and Wildlife Service has reviewed the Biological Assessment and Evaluation for the proposed Snow Flat Camp Area Improvement Project on the Coronado National Forest, Safford Ranger District, Graham County, Arizona. Your March 14, 1995, request for formal consultation was received on March 15, 1995. This document represents the Service's biological opinion on the effects of that action on Mexican spotted owl (*Strix occidentalis lucida*) (owl) and the Mount Graham red squirrel (*Tamiasciurus hudsonicus grahamensis*) (squirrel) in accordance with section 7 of the Endangered Species Act of 1973, as amended, (16 U.S.C. 1531 et seq.).

This biological opinion is based on information provided in the March 14, 1995, and December 21, 1993, BAEs, correspondence on the project dated May 9, 1995, and October 13, 1995, a formal monitoring report for owls dated September 2, 1994, an undated wildlife report, field investigations, and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, recreation activities and its effects on those species, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file in this office.

It is the opinion of the Service that the Snowflat Camp Area Improvement Project is not likely to jeopardize the continued existence of the Mexican spotted owl or the Mount Graham red squirrel.

CONSULTATION HISTORY

An initial BAE dated December 21, 1993, was provided to the Service, and a second BAE was provided on March 15, 1995. In a letter dated April 19, 1995, the Service advised the Forest Service that it could not concur with a determination that the project would not affect the Mount Graham red squirrel and suggested additional information that would be useful for evaluating the project. Answers to questions that were posed in that letter were provided to the Service in a May 9, 1995, letter from the Forest Service to the Service. The Service could not concur with the determination of may affect, not likely to adversely affect. The May 9, 1995, letter stated that if the Service could not concur with the Forest Service's determination of effect, then the Forest Service wished to begin formal consultation immediately. Thus, we have included evaluation of the effects on the project on the Mount Graham red squirrel in this biological opinion.

Additional information was provided for this consultation in a letter dated October 13, 1995, which discusses the anticipated use levels following campground construction, and in a subsequent meeting held on September 27, 1996, at which the October 13 letter was discussed.

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

The proposed Snowflat Camp Area Improvement Project is located in the Pinaleno Mountains in southeast Arizona on the Safford Ranger District, Coronado National Forest. The Forest Service proposes to develop a non-fee campground in an area that is currently used for dispersed camping. The project areas surrounds a two-acre cienega with a large associated grass upland area of approximately eight acres. Surrounding the grass upland and within the proposed project area are approximately four acres of the surrounding forest. Thus, approximately 14 acres, including the grass upland area, are within the area committed to developed recreation.

Construction activity would clear less than two acres for all facilities. Specifically, the Service understands that the four acres of forest would be subjected to partial tree removal and 1.89 acres of the four acres would be cleared for facilities such as roads and camp spurs. Approximately 72 to 96 trees of all sizes classes may be removed with the majority of the trees being less than 12 inches in diameter at breast height (dbh).

The completed campground would consist of twelve car campsites, six tent sites, and one group tent site with two tent pads. Bear-proof food storage and refuse containers would be installed for all tent sites. Each camp site would have a designated fire ring with a grill, a picnic table, individual parking spurs, and, where necessary, retaining walls. A parallel parking area would be constructed for the tent sites. Camping spurs, road locations, and parking areas have been located in order to minimize tree removal and to maintain or improve the cienega and surrounding grass upland integrity. Approximately 0.25 miles of new road and 0.25 miles of new trail would be constructed. A campground host site would also be developed. As noted in the BAE, all construction would take place outside of the breeding season for the MSO (March 1 - August 31).

The October 13, 1995, letter indicates that the campground would be designed for individual family use and that it would not be reserved for large groups.

The March 14, 1995, BAE predicted 16,900 Recreation Visitor Days (RVDs) per season at the Snowflat Camp area. However, the subsequent October 13, 1995, letter, and clarification of that letter provided at a meeting on September 27, 1996, indicated that current use is estimated at five RVDs per day for the weekdays and an average of 50 RVDs for weekend days, with a 169-day season of use from May 15 to November 1. The letter notes that reservation groups have consisted of up to 200 persons at one time (PAOT), and that groups of this size camped in the area approximately five times over a given season. The October 13, 1995, letter notes that use data regarding Snow Flat were collected from minimal Forest Service District records, and from individual observations. The letter additionally notes that there are no camping receipts for tallying information on use at Snow Flat. The letter concludes that, with no established capacity, RVDs and PAOTs are "...not generally used as reliable measures of visitor use at undeveloped sites." However, estimates were provided. Total use levels were estimated at 9010 RVDs before development as follows:

$$\begin{aligned} \text{High Use Weekends} &= 5/\text{season} \times 200 \text{ PAOT} \times 4 \text{ RVDs/weekend} = 4000 \text{ RVDs} \\ \text{Regular Weekends} &= 19/\text{season} \times 50 \text{ PAOT} \times 4 \text{ RVDs/weekend} = 3800 \text{ RVDs} \\ \text{Weekdays} &= 121/\text{season} \times 5 \text{ PAOT} \times 2 \text{ RVDs/day} = \underline{1210 \text{ RVDs}} \end{aligned}$$

9010 RVDs

Preliminary RVD estimates for visitor use following completion of Snow Flat Camp improvements for a 169 day use season are as follows:

$$\begin{aligned} \text{High Use Weekends} &= 5/\text{season} \times 100 \text{ PAOT} \times 4 \text{ RVDs/weekend} = 2000 \text{ RVDs} \\ \text{Regular Weekends} &= 19/\text{season} \times 60 \text{ PAOT} \times 4 \text{ RVDs/weekend} = 4560 \text{ RVDs} \\ \text{Weekdays (121)} &= 121/\text{season} \times 10 \text{ PAOT} \times 2 \text{ RVDs/day} = \underline{2420 \text{ RVDs}} \end{aligned}$$

8980 RVDs

The Forest Service is therefore predicting a decrease of 30 RVDs per season. The October 13, 1995, letter indicates that PAOTs reflect the maximum number of visitors at one time at a developed site, and is a more accurate estimate. Following proposed Snowflat Camp improvements, maximum PAOTs would be 100. The Forest Service notes in the BAE that, due to improved road conditions and the existence of camping facilities, an increase in weekday use is likely to increase over current levels.

STATUS OF THE MEXICAN SPOTTED OWL - Rangewide

The Mexican spotted owl was proposed for listing on November 4, 1995 (56 CFR 56344) and listed as threatened on March 16, 1993 (58 FR 14248). Critical habitat for the owl was designated on June 6, 1995 (60 FR 29914). The proposed project is within critical habitat.

The Mexican spotted owl was originally described from a specimen collected at Mount Tancitaro, Michoacan, Mexico, and named *Syrnium occidentale lucidum*. The spotted owl was later assigned to the genus *Strix*. Specific and subspecific names were changed to conform to taxonomic standards and became *S. o. lucida*. The American Ornithologists' Union currently recognizes three spotted owl subspecies, including the California (*S. o. occidentalis*), Mexican (*S. o. lucida*), and Northern (*S. o. caurina*). The Mexican spotted owl is mottled in appearance with irregular white and brown spots on its abdomen, back, and head. The spots of the Mexican spotted owl are larger and more numerous than in the other two subspecies giving it a lighter appearance. Unlike most owls, spotted owls have dark eyes. Several thin white bands mark an otherwise brown tail.

The Mexican spotted owl is distinguished from the California and northern subspecies chiefly by geographic distribution and plumage. The Mexican spotted owl has the largest geographic range of the three subspecies. Its range extends from the southern Rocky Mountains in Colorado and the Colorado Plateau in southern Utah southward through Arizona and New Mexico and, discontinuously through the Sierra Madre Occidental and Oriental to the mountains at the southern end of the Mexican Plateau.

Using starch-gel electrophoresis to examine genetic variability among the three subspecies of spotted owls, Barrowclough and Gutierrez (1990) found the Mexican spotted owl to be distinguishable from the other two subspecies by a significant difference in allelic frequency at one locus. They concluded that this genetic variation, which suggests prolonged geographic isolation of the Mexican subspecies, indicates that the Mexican spotted owl may represent a species distinct from the California and northern spotted owls.

Although the range of the owl covers a broad area of the southwestern United States and Mexico, much remains unknown about the species' distribution within this range. This is especially true in Mexico where much of the owl's range has not been surveyed. Information gaps also appear for the species' distribution within the United States. It is apparent that the owl occupies a fragmented distribution throughout its United States range corresponding to the availability of forested mountains and canyons, and in some cases, rocky canyon lands.

The primary administrator of lands supporting owls in the United States is the Forest Service. According to the Recovery Plan, 91 percent of owls known to exist in the United States between 1990 and 1993 occur on land administered by the Forest Service (U.S. Department of the Interior 1995). The majority of known owls have been found within Region 3 of the Forest Service, which includes 11 National Forests in New Mexico and Arizona. Forest Service Regions 2 and 4, including two National Forests in Colorado and three in Utah, support fewer owls.

The range of the Mexican spotted owl in the United States has been divided into six recovery units (RUs) as discussed in Part II.B. of the Mexican Spotted Owl Recovery Plan (Plan) (U.S. Department of the Interior 1995). An additional five RUs were designated in Mexico. While the Recovery Plan provides distribution, abundance, and density estimates by RU, there is currently no reliable estimate of the numbers of owls throughout its entire range due to the limited information currently available. Owl surveys conducted from 1990 through 1993 indicate that the species persists in most locations reported prior to 1989, with the exception of riparian habitats in the lowlands of Arizona and New Mexico, and all previously occupied areas in the southern States of Mexico. Increased survey efforts have resulted in additional sightings for all recovery units.

Fletcher (1990) calculated that 2,074 owls existed in Arizona and New Mexico in 1990 using information gathered by Region 3 of the Forest Service. Fletcher's calculations were modified by McDonald *et al.* (1991), who estimated that there were a total of 2,160 owls in the United States. However, these numbers are not reliable estimates of current population size for a variety of statistical reasons. While the number of owls throughout the range is currently not available, the Recovery Plan reports an estimate of owl sites based on 1990-1993 data. An owl "site" is defined as a visual sighting of at least one adult owl or a minimum of two auditory detections in the same vicinity in the same year. Surveys from 1990 through 1993 indicate one or more owls have been observed at a minimum of 758 sites in the United States and 19 sites in Mexico. The greatest concentration of known owl sites in the United States occurs in the Upper Gila Mountain (55.9 percent), followed by the Basin and Range-East (16.0 percent), Basin and Range-West (13.6 percent), Colorado Plateau (8.2 percent), Southern Rocky Mountain-New Mexico (4.5 percent), and Southern Rocky Mountain-Colorado (1.8 percent) RUs. At best, total numbers in the United States range from 777 individuals assuming each known site was occupied by a single owl, to 1,554 individuals assuming each known site was occupied by a pair of owls.

Past, current, and future timber-harvest practices in the Region 3 of the Forest Service, in addition to catastrophic wildfire, were cited as the primary factors leading to listing of the spotted owl as a threatened species. Fletcher (1990) estimates that 420,000 hectares (1,037,000 acres) of habitat were converted from suitable to capable. Of this, about 78.7 percent, or 330,000 hectares (816,000 acres) was a result of human activities, whereas the remainder was converted naturally, primarily by wildfire. Other factors which have or may lead to the decline of this species include a lack of adequate regulatory mechanisms. In addition, the Recovery Plan notes that forest management has created ecotones favored by great horned owls, and there is as a result an increased likelihood of contact between spotted

owls and great horned owls. Increases in scientific research, birding, educational field trips, and agency trips are also likely to increase. Finally, there is a potential for increasing malicious and accidental anthropogenic harm, and the potential for the barred owl to expand its range, resulting in competition and/or hybridization with the spotted owl.

Based on short-term population and radio-tracking studies, and longer-term monitoring studies, the probability of an adult Mexican spotted owl surviving from one year to the next is 0.8 to 0.9. Juvenile survival is considerably lower, at 0.06 to 0.29, although it is believed these estimates may be artificially low due to the high likelihood of permanent dispersal from the study area, and the lag of several years before marked juveniles reappear as territory holders and are detected as survivors through recapture efforts (White *et al.* 1995). Little research has been conducted on the causes of mortality, but predation by great horned owls, northern goshawks, red-tailed hawks, and golden eagles, starvation, and accidents or collisions may all be contributing factors.

STATUS OF THE MEXICAN SPOTTED OWL - Recovery Unit

The proposed project occurs within the Basin and Range-West Recovery Unit. This RU is dominated by Madrean elements, and includes numerous mountain ranges such as the Chiricahua, Huachuca, Pinaleno, Bradshaw, Pinal, Santa Catalina, Santa Rita, Patagonia, Santa Teresa, Atascosa, Mule, Dragoon, Peloncillo, Mazatzal, and Rincon Mountains. Vegetation within the RU ranges from desertscrub to semi-desert grassland in the valleys, and upwards in elevation to montane forests. Montane vegetation includes interior chaparral, encinal woodlands, Madrean pine-oak woodlands at low and middle elevations, and ponderosa pine, mixed-conifer, and spruce-fir forests at higher elevations. Within the Basin and Range-West RU, the majority of the owls occur in the isolated mountain ranges in encinal oak woodlands, mixed-conifer and pine-oak forests, and rocky canyons.

Federal lands encompass 36% of this RU, and are mostly administered by the Bureau of Land Management and the Forest Service, with a small portion managed by the National Park Service. Owls occur primarily on lands managed by the Forest Service within the Coronado National Forest. The dominant land use activity is recreation, and includes hiking, birdwatching, camping, off-road driving, skiing, and hunting. Livestock grazing also occurs in low and middle elevations.

STATUS OF THE MOUNT GRAHAM RED SQUIRREL - Rangewide

Most of the background information contained in this biological opinion is from the Mount Graham Red Squirrel Recovery Plan (U.S. Fish and Wildlife Service 1993). The Mount Graham red squirrel was listed as an endangered species pursuant to the Act on June 3, 1987 (52 FR 20997). Critical habitat for this subspecies was designated on January 5, 1990 (55 FR 425). The proposed project is not within critical habitat.

The Mount Graham red squirrel is a small, grayish-brown arboreal rodent with a rusty to yellowish tinge along the back. The tail is fluffy and the ears are slightly tufted in winter. In summer, a black lateral line separates the upper parts from the white underparts. The subspecies is one of two that occur in Arizona. First described in 1894 by J.A. Allen, the type specimen of the species is from the Pinaleno Mountains, Graham County, Arizona. It was designated as a subspecies based on pelage characteristics and its isolation from other populations for at least 10,000 years. It is also slightly smaller in several standard measurements than the Mogollon red squirrel (*T. h. mogollonensis*), the only other subspecies that occurs in Arizona. Although Hoffmeister (1986) thought the subspecies was not strongly

differentiated from the Mogollon red squirrel, the subspecies designation was retained by both Hall (1981) and Hoffmeister (1986). Recent research with both protein electrophoresis (Sullivan and Yates, in press) and mitochondrial DNA (Riddle, Yates, and Lee, in press) has provided data which in conjunction with morphological and ecological considerations has demonstrated that the squirrel is a distinct population that likely deserves subspecific status.

Although the squirrel has historically been restricted to a relatively small area, both its range and numbers have declined during the past century. Early accounts of the species abundance used descriptions such as "common" and "abundant". By the 1950s, the population was described as "not abundant anywhere in the Mountains". By the mid-1960s it was rare enough to be considered extirpated. The squirrel may have once occupied the western-most peaks of the range (West Peak and Blue Jay Peak), but no additional records of squirrels from the western portion of the range have since been verified. Although not well documented, the decline of the squirrel may be attributable to the expansion of logging operations in the Pinalenos. By 1973, most accessible and marketable timber had been cut, thereby altering the age structure and density of the squirrel's habitat. Logging operations and road building to accommodate harvests resulted in windthrow that destroyed additional habitat for the squirrel. Additional losses of old-growth coniferous forest resulted from both natural and man-caused fires, ice storms, recreational development, road construction, and establishment of other structures. These direct losses not only reduced the amount of habitat, but also resulted in forest fragmentation that may have reduced the quality of habitat. This fragmentation might have also isolated some pockets of the squirrel population and prevented successful dispersal and/or movements between areas, thus reducing genetic flow within the population.

The squirrel inhabits only the Pinaleno Mountains of Graham County, Arizona, and its entire range is within the Safford Ranger District of the Coronado National Forest. The squirrel occurs in upper elevation mature to old-growth associations in mixed conifer and spruce-fir associations above approximately 2,425 meters (8,000 feet). It may inhabit drainage bottoms where the mixed conifer association reaches lower elevations. Historically, the squirrel was common above 2,590 meters (8,500 feet) but is currently seldom found below 2,804 meters (9,200 feet). Currently the highest densities of middens are in the upper elevation Engelmann spruce (*Picea engelmanni*) and corkbark fir (*Abies lasiocarpa* var. *arizonica*) associations. Lower densities of middens are found in mixed conifer stands dominated by Douglas-fir (*Pseudotsuga menziesii*), with white fir (*A. concolor*) and Mexican white pine (*Pinus strobiformis*) sub-dominants and little to no spruce. The transition between the two associations occasionally contains squirrel densities equal to those in the spruce-fir associations. The spruce-fir association is generally found at elevations above approximately 3,110 meters (10,200 feet), although it extends lower on north-facing slopes. The transition varies widely in elevation depending upon aspect but generally grades into mixed conifer associations with little to no Engelmann spruce and/or corkbark fir, at about 2,835 meters (9,300 feet) elevation. Mixed conifer associations extend down to approximately 2,460 meters (8,000 feet) elevation.

Habitat analysis reported by the Forest Service in 1988 determined that 4,750 hectares (11,733 acres) of the 9,083 hectares (22,435 acres) that occurs above 2,425 meters (8,000 feet) was suitable squirrel habitat. An estimate of 444 total midden areas was derived. A 1986 evaluation of habitat capability by the Forest Service, using a computer Habitat Capability Model, produced an estimate that the existing habitat could support up to 502 squirrels. Based on information as of 1991, the Forest Service estimated current and future habitat capability for the Pinalenos using a Habitat Capability model. The estimate suggested that under optimal conditions, the existing habitat could support approximately 650 squirrels.

As of October 1991, a total of 549 active, inactive, and abandoned midden locations have been found in the Pinalenos. The majority of squirrel habitat (85 percent) has been surveyed. As of 1991, approximately 50 percent (238) of all known middens were located within the transition vegetation association. The Engelmann spruce and corkbark fir associations contained 37 percent (203) of the currently known middens. Mixed conifer associations contained the remaining 13 percent of the known locations. Seven percent of the currently known (as of 1991) active and inactive middens are located below 2,743 meters (9,000 feet) elevation; 31 percent (171) are located between 2,743 meters (9,001 feet) and 2,896 meters (9,500 feet); 31 percent (168) are located between 2,896 meters (9,501 feet) and 3,048 meters (10,000 feet); and 31 percent (171) of the known middens are located above 3,048 meters (10,000 feet).

The forest in the Pinalenos has been subjected to modification, clearing, opening, and fragmentation that has reduced suitable habitat acreage to approximately 4,680 hectares (11,700 acres). Of this area, only 1,093 hectares (2,700 acres) are currently considered to be good to excellent quality. Mannan and Smith (1991) predicted that developments that open the forest canopy, remove large trees, or reduce amounts of dead and downed wood will reduce the number of potential middens for squirrels in the Pinaleno Mountains.

Population ecology of the squirrel is largely unknown. So are survival rates. Massive mortality probably occurs between weaning age and age of first reproduction, followed by a plateau in adult mortality, ending in an increased mortality in older age classes. Survival rates likely vary markedly over years, and are presumably related to the supply of closed cones available for storage. Population estimates have been derived for the years 1986-1995 (personal communication, Carl Russworm) and the estimates obtained ranged from a low of 146 to a high of 439 squirrels. The estimates made in spring ranged from 146 to 383 squirrels. Fall estimates ranged from 191 to 439 squirrels.

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

Mexican Spotted Owl

The Forest Service has formally consulted on approximately 165 timber sales and other projects in Arizona and New Mexico since August 1993. These projects have resulted in the anticipated incidental take of 40 owls. In addition, the Bureau of Indian Affairs has consulted on one timber sale on the Navajo Reservation which resulted in an anticipated take of four owls. The Federal Highway Administration in Arizona has consulted on one highway construction project that resulted in an undetermined amount of incidental take. The take associated with this action will be determined following further consultation.

The proposed project falls within the Basin and Range-West RU, as described in the Recovery Plan. This RU includes most of southern Arizona and a small portion of southwestern New Mexico. Within this RU, owl territories occur in both heavily forested terrain and in areas with hardwood and conifer stringers dominated by Madrean Evergreen woodland. The subpopulation occurs in widely distributed territory clusters of varying sizes. The Sky Island Division may represent an important demographic link between the Mogollon Province demes

and those in the Sierra Madre Occidental. Demographic persistence and connectivity within the Division and between divisions may be hindered by the compounding factors of naturally disjunct habitat and long dispersal distances.

The risk of catastrophic habitat loss due to fire is moderately high. In the past four years, the Noon, Arcadia, and Clark Peak wildfire have resulted in the loss of MSO habitat within this RU. The Noon Fire of 1993 was estimated to have burned 620 acres of which 316 acres were considered suitable spotted owl habitat and 144 acres were considered capable spotted owl habitat. It was estimated that 60 percent burned at low intensity or not at all, 20 percent burned with a medium intensity, and 20 percent burned at high intensity. The Arcadia Campground fire of 1995 burned approximately 150 acres of suitable spotted owl habitat. The fire was a low intensity fire and it is estimated that approximately 10 percent of the trees in the area were killed or scorched with the potential to kill. The Clark Peak fire of 1996 burned an estimated 2,650 acres of which 1,480 were suitable spotted owl habitat and 1,170 were in capable spotted owl habitat. Of the 1,480 acres of suitable habitat, 1,030 acres were burned intensely, while 450 were burned moderately, and of the 1,170 acres of capable habitat, 980 were burned intensely, while 190 were burned moderately (personal communication, Genice Froehlich).

Although the Coronado National Forest does not have an active timber program, localized projects such as road construction, mining, and other construction may adversely impact individual PACs and restricted habitat. The Forest Service estimated that within the 4,700 acre analysis area, 654 acres have been modified at some time in the past primarily from past logging activities. Much of the modified area is close to meeting definitions of nesting habitat.

Within the Basin and Range-West RU in which the proposed project occurs, spotted owls were located in rocky canyons or in several forest types at elevations ranging from 1,125 to 2,930 meters (3,690 to 9,610 feet) of the Atascosa-Pajarito, Santa Rita, Santa Catalina, Patagonia, Whetstone, Galiuro, Huachuca, Chiricahua, Pinaleno, Superstition, Sierra Ancha, Mazatzal, and Bradshaw Mountains, Arizona. Below 1,300 meters (4,264 feet), spotted owls were found in steep canyons containing cliffs and stands of live oak, Mexican pine, and broadleaved riparian vegetation (Ganey and Balda 1989). Above 1,800 meters (5,904 feet) spotted owls were found in mixed conifer and pine-oak forests. Mid-elevation observations included sites with Arizona cypress and the other forest types previously mentioned (U. S. Department of the Interior 1995).

Mount Graham Red Squirrel

At least two previous Federal projects have been determined to adversely affect the squirrel. A July 14, 1988, biological opinion (U. S. Department of Interior 1988) issued by the Service stated that implementation of the Coronado National Forest Plan was not likely to jeopardize the continued existence of the squirrel. The biological opinion also stated that, according to an amendment to the Forest Plan, a project titled the Snow Flat-Treasure Park Campground would be deferred until the next planning period which would allow time for development of the recovery plan and additional research on the squirrel. The same biological opinion stated that the establishment of the seven telescope Mount Graham Observatory on Emerald and High Peaks was likely to jeopardize the continued existence of the squirrel. Reasonable and prudent alternatives to avoid jeopardizing the squirrel and reasonable and prudent measures to eliminate or minimize incidental take were provided in the biological opinion.

A November 7, 1990, biological opinion (U. S. Department of Interior 1990) issued by the Service for the Pinaleno Mountains Recreation Projects stated that the projects were not likely

to jeopardize the continued existence of the squirrel. However, incidental take was expected, and reasonable and prudent measures were provided in the opinion to address that incidental take. The opinion also stated that the Service concurred with a determination of no effect to the squirrel for a project titled Snow Flat Dispersed Area. The description of that project outlined much less development and expected use than the current proposal.

The proposed project area is approximately 1500 meters (0.93 miles) west of the summit of Heliograph Peak, which has several known squirrel middens in the immediate vicinity. Part of Heliograph Peak is within squirrel critical habitat, but as stated previously, the project area is not within critical habitat.

The Forest Service believes the middens at the Snow Flat area appear to be an extension of the Heliograph sub-population. They believe it is possible that these middens, which were only discovered in 1992 and 1993, may have been established as the habitat on Heliograph Peak has deteriorated. According to the Forest Service, during the 1989-90 cone failure, several middens in the Heliograph Peak sub-population were abandoned and have remained so since that time, due to further habitat degradation caused by the wind storms of 1992-93. However, they also believe that because Snow Flat has a high percentage of ponderosa and southwestern white pine, it is not considered good red squirrel habitat. Most of the Douglas-fir and white fir in the area is less than 100 years old.

The project area is at an elevation of approximately 2680 meters (8,800 feet). Thus, it apparently falls within the mixed conifer association. There are currently eight known squirrel middens in the vicinity of the proposed project. According to the Service's measurements and calculations, the distances from the known middens to the area of project development range from approximately 200 to 500 meters (656 to 1,640 feet) with the majority around 350 meters (1,148 feet) from the project. Although some of these middens have been included in the midden censuses that have been conducted in the past several years, they have not been monitored individually in a way that would allow evaluation of occupancy/success of squirrels at the middens. A May 1995 inspection of the seven previously known middens by the Forest Service revealed that three were active, three were inactive, and one was not found. The most recent search for squirrel middens in the vicinity of the project area occurred in the late Spring of 1995. One additional midden was located approximately 500 meters west of the proposed project site, thus resulting in a total of eight known middens for the area.

EFFECTS OF THE ACTION ON THE MEXICAN SPOTTED OWL

The Service was not able to concur with the Forest Service's determination of not likely to adversely affect the spotted owl. The May 9, 1995, letter from the Forest Service indicates that the Forest Service has located a roost tree with an immature female 1500 feet south of the edge of the proposed action. The construction of a campground could affect owls in a number of ways. The effects of recreation on the spotted owl have been described in the Recovery Plan (Part III.B. and III.C.). Depending on the location, duration of construction, size, type of use, timing of use, and other factors, the proposed activity could result in changes in owl behavior including the disruption of nesting, roosting, and foraging activity. The Plan states that camping by small groups should be considered a low-impact activity; but that camping by large groups (≥ 12 people) should be considered a moderate-impact activity. Increased human activity as a result of increased recreational opportunities in the area could also affect the behavior of the owls.

The proposed project will potentially affect two spotted owl PACs. The nest sites for these owls have not been located. The Coronado National Forest has not provided information to

the Service indicating that they have converted their management territories into PACs, as recommended in the Plan, although the BAE dated March 14, 1995, states that if the District expands the cores to 600-acre PACs, that essentially the entire top of the mountain outside the spruce-fir zone will become a PAC. Therefore, the Service is assuming that this project will fall within a PAC when PACs are established for these owls.

The Recovery Plan indicates that "No harvest of trees > 22.4 cm (9 inches) dbh is allowed in PACs." As noted in the project description, between 72 to 96 trees of all size classes will be removed, with most being < 12 inches dbh. It is not clear how many of these trees are nine inches dbh. The purpose of this provision in the Recovery Plan is to retain all large trees within PACs. PACs receive the highest level of protection under the Recovery Plan as they are essential to protection and eventual recovery of the owl. The Recovery Plan lists as its primary objective protection of the best available habitat for the owl. While the Recovery Plan acknowledges that knowledge of owl habitat is incomplete, it notes that occupied owl habitat exhibits certain features, including high tree basal area, presence of large trees, high canopy cover, and downed logs and snags. The protection of trees greater than nine inches is aimed at enhancing this component of owl habitat.

The Recovery Plan additionally recommends minimization of fuelwood harvest within PACs in order to minimize adverse effects on the owl, its prey, and their habitats. While no formal fuelwood harvest is identified as part of this project, it is likely to occur at some scale as recreationists search nearby areas for firewood. Because downed logs and snags are easiest to obtain (compared to live trees), it is anticipated that they will be the first to be collected. Loss of this habitat component can adversely affect the prey base on which the owl depends.

The Recovery Plan additionally discourages road building within PACs, except where "...pressing management needs can be demonstrated." The BAE indicates that approximately 1.89 acres will be cleared for roads and camp spurs.

EFFECTS OF THE ACTION ON THE MOUNT GRAHAM RED SQUIRREL

Approximately 14 acres, including the meadow, is within the area committed to developed recreation for this project. Construction activity will completely clear less than two acres for all of the planned facilities. Due to better road conditions and better camping facilities, an increase in weekday road traffic and camping recreation may occur from the proposed action. The current maximum persons at one time is approximately 200 and will be decreased to about 100 after implementation of the proposal. Additionally, RVDs are decreasing from 9010 per season to 8980 per season.

Recreational use could adversely affect the squirrel in several ways. Direct mortality due to increased traffic is one example. Road kill deaths may be highest during juvenile dispersal; however, any animal whose midden activity areas is near a road may be at risk. Other forms of direct mortality may include poaching and capture by pets.

Loss of habitat and habitat components may result from recreational activities as well. Fuelwood gathering for campfires, wild food collection, trampling of tree seedlings at campsites and other areas, and other such activities, may affect squirrels. In addition, development of the campground could decrease or eliminate the occupation of potential habitat by squirrels in the vicinity of the proposed project.

Presence of people at squirrel midden sites may interrupt the normal activities of squirrels. The squirrels may fail to engage in normal behavior necessary for survival, waste valuable

energy resources, or unnecessarily expose themselves to predators, in exhibiting behavior as a response to human presence. Recreating humans may also try to abuse, pursue, or capture squirrels they encounter, lure them with unnatural foods, or vandalize middens.

Nothing is currently known regarding how the current level of recreation in the project area may be influencing the use of habitat by squirrels in the vicinity. In addition, there is no information as to how the current level of recreation is influencing the normal behavior of the squirrels that are known to exist in the vicinity of the project. The extent of the actual effects of the expected increase in weekday recreation and the loss of land resulting from construction of the campground are also unknown, although the effects discussed above from those actions can be expected. For example, the BAE stated that the nearest known midden is approximately 680 feet from the project area, and up a steep drainage that hikers normally have no reason to enter. However, during a site visit to that midden, many discarded items (trash) were discovered just downslope of that midden near a well-traveled path that led to the proposed project area. The BAE also stated that current use of the jeep trail, which is near several known middens, is not expected to be altered. However, an increase in weekday use in the area may be expected to result in a similar level of increased use for any trails or roads in the area. The BAE also stated that, because the nearest known midden is over 680 feet from the project area, no indirect effects will occur. However, the project area does have squirrel habitat around it, and the use of that habitat by squirrels could be affected by activities that may occur up to 220 feet from the edge of the proposed action.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, local or private actions that are reasonably certain to occur in the action area considered in this biological 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 ESA.

Examples of ongoing or past Federal activities that may affect the spotted owl include the maintenance of roads, dead and down fuelwood harvest (both permitted and unpermitted), and the unregulated use of Turkey Flat summer homes.

In past biological opinions, it has been stated that, "Because of the predominant occurrence of the owls on Federal lands, and because of the role of the respective Federal agencies in administering the habitat of the owl, actions to be implemented in the future by non-Federal entities on non-Federal lands are considered of minor impact." However, there has been a recent influx of harvest activities on non-Federal lands. Much of the non-Federal lands being harvested are adjacent to or within National Forests (i.e., private inholdings). These activities reduce the quality and quantity of owl nesting, roosting, and foraging habitat and could cause disturbance to breeding owls. All forests and RUs throughout the State could be impacted, which could result in adverse cumulative effects in the future.

Past fire suppression activities have resulted in increased fuel loads and increased the potential for wildfires as evidenced by the Clark Peak fire in 1996. Recreational use of the surrounding forest is expected to increase and subsequently the potential for human-induced wildfires may also increase. Catastrophic wildfires have been identified as one of the primary threats to spotted owls and their habitat throughout most of its range.

CONCLUSION

After reviewing the current status of the spotted owl and the Mount Graham red squirrel, the environmental baseline for the action area, the effects of the proposed Snowflat Camp area improvements, 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 either the spotted owl or the Mount Graham red squirrel.

INCIDENTAL TAKE STATEMENT FOR THE MEXICAN SPOTTED OWL

Sections 4(d) and 9 of ESA, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined 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. Harass is defined as 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 any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. 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 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 implemented by the agency so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order 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 require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, 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.

For the purposes of consideration of incidental take of owls by the proposed project under consultation, incidental take can be broadly defined as either the direct mortality of individual birds, or the alteration of habitat that affects the behavior (i. e., breeding or foraging) of the birds to such a degree that the birds are considered lost as viable members of the population and are thus "taken". They may fail to breed, fail to successfully rear young due to inadequate food supplies available in the altered habitat, raise fewer young, raise less fit young, or desert the area because of disturbance when the habitat no longer meets the owl's needs.

AMOUNT OR EXTENT OF TAKE

In the accompanying biological opinion, the Service determined that the level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat. The Service anticipates that incidental take of two spotted owls may result from this proposed action. The incidental take is expected to be in form of harassment and harm due to disruption of normal reproductive behavior and habitat modification.

Utilizing the best available information concerning the owl, its habitat needs, the project description provided in your request for consultation, take is considered likely as a result of this proposed project as a result of the following:

1. The Service believes the proposed project will fall within a PAC when PACs are established for the spotted owls in the Pinalenos based on information provided in the BAE. The BAE states that essentially the entire top of the mountain outside the spruce-fir zone will become a PAC if 600-acre PACs are established for known spotted owls.
2. Because the nest sites are not known for the owls in the area, minimizing and monitoring disturbance during campground construction and during campground use will be difficult.
3. Upon project completion, the owls will be exposed to continual disturbance by recreationists. Due to better road conditions and better camping facilities, an increase in weekday road traffic and camping is being predicted as a result of this project. Off-trail use of the area surrounding the campground, and fuelwood gathering, is expected to continue or increase.

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.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measure(s) are necessary and appropriate to minimize take:

1. Continue gathering information on habitat use and nest sites of spotted owls in the areas surrounding the proposed project.
2. Minimize disturbance to the MSO both during and after construction is completed.
3. Conduct all proposed actions in a manner that will minimize modification and loss of owl habitat.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of ESA, the (agency) must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

- 1.1 If a campground is developed, the effect of such a project on recreational use will be closely monitored. The Forest Service will monitor the recreational use before and after the campground is developed to obtain information on how and to what extent development of a campground changes recreational use of a site.
- 1.2 The Forest Service will continue monitoring (with a minimum of four surveys/year) until the nest sites of affected owls both directly and indirectly, are found or it can be determined that the owls have abandoned the area. If a nest site is found within one mile of the campground, the Forest Service will monitor occupancy and reproductive

status of the nest sites and will submit annual reports to the Service on the status of the owls for a minimum of five continuous years (1998-2003) at which time the need for the report will be reevaluated. In these reports the Forest Service will document use or evidence of use (i.e., new trails, discarded items) and increased use by recreationists in the management territories of PACs.

- 2.1 The Service and the Forest Service are aware of at least one non-designated path that leads toward occupied spotted owl habitat. Human recreation access and travel on that path will be prohibited and that prohibition will be carried out in the most appropriate manner. Recreation will be prohibited on any new paths or trails that are discovered in the PACs when designated.
- 2.2 Restrictions will be posted sufficiently for all recreationists to observe prior to opening of the campground for use and will include the following:
 - a. All pets must be on a leash or confined at all times;
 - b. All firearm discharge or archery in the campground and its vicinity will be prohibited;
 - c. No more than 100 persons at one time will be allowed in the campground; and
 - d. All camping within one mile of the campground that is outside of the designated campground sites will be prohibited.
- 3.1 Minimize the removal of trees ≥ 9 inches dbh.
- 3.2 Restrictions on fuelwood collection will be posted sufficiently for all recreationists to observe prior to opening of the campground for use and will include the following:
 - a. Collection of downed logs greater than 12 inches in diameter at midpoint is prohibited.
 - b. Collection of standing snags or portions of standing snags (i.e., smaller branches) is prohibited.
- 3.3 The Forest Service will submit, as part of the annual report discussed in 1.2 above, the amount of dead and down material for a one-quarter mile ring around the campground. The need for continued reports will be reevaluated after the 5th year report. The amount of dead and down material in this area should be determined prior to opening of the modified campground in order to provide baseline data for use in further evaluation.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize or remove the impacts of the incidental take that might otherwise result from the proposed action. Anticipated incidental take in the form of dead owls following implementation of reasonable and prudent measures is set at zero.

INCIDENTAL TAKE FOR THE MOUNT GRAHAM RED SQUIRREL

As noted under the Incidental Take Statement for the spotted owl, the measures described below are non-discretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order 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 require the applicant to adhere to the terms and conditions of the incidental take statement through

enforceable terms that are added to the permit or grant document, 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.

AMOUNT OR EXTENT OF TAKE

The Service anticipates that the incidental take of Mount Graham red squirrels may be difficult to detect. Take may be expected to occur due to traffic mortalities, poaching, harassment or capture by pets, or other pursuit, abuse, or capture by recreationists. Take could also result from modification of habitat as a result of development of the campground or actions of recreationists, vandalism of middens, fuelwood gathering, or wildfood collection. Take could also result from the presence of recreationists that affect the normal behavior of squirrels resulting in loss of energy or exposure to predators. Impacts to the species as a result of such occurrences would be difficult to detect and measure. However, other more obvious take could be detected and measured. Thus, if any Mount Graham red squirrel mortalities or modification of middens occurs in the areas as a result of human recreational use, the anticipated level of incidental take would be considered to be exceeded, and reconsultation with the Service on this project will be required.

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.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measure(s) are necessary and appropriate to minimize take of squirrels. Implementation of these measures shall be conducted in accordance with the terms and conditions in the following section.

1. Monitoring of recreational use at the campground to determine and measure its effects on the squirrel will be conducted.
2. As per the Mount Graham Red Squirrel Recovery Plan, plans for monitoring developed and dispersed recreation sites and a long term comprehensive recreation plan will be developed.
3. Recreationists will be under restrictions at the campground and in the vicinity of the campground, and the restrictions will be posted for users of the area.
4. A Forest Service presence at the campground will be provided at all times that the campground is open to use.
5. The amount of area cleared for the project will be minimized to the greatest extent possible.
6. Human recreation access on non-designated paths that may be initiated and regularly used by recreationists in the vicinity of known squirrel middens of the project area will be monitored and prevented.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of ESA, the (agency) must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

- 1.1 If the campground is developed, the Forest Service will use this opportunity to closely monitor the effects of such a project. The Forest Service will monitor the recreational use before and after the campground is developed to obtain information on how and to what extent development of a campground changes recreational use of a site. Monitoring the recreational use of a campground will include determination of actual recreational use in relation to locations of squirrels. All squirrel middens in the vicinity of the project will be closely monitored to determine any direct effects of recreational use in relation to locations of squirrels. All squirrel middens in the vicinity of the project will be closely monitored to determine any direct effects of recreational use on the individual squirrels. The monitoring will be reported to the Service annually. The vicinity of the project area will be surveyed at least once annually after construction of the campground to determine the locations of any middens that have subsequently been established; once found, any such middens will be included in the monitoring effort. The impact of the actual physical construction of the campground on squirrel habitat will be determined and reported to the Service.
- 2.1 A plan for monitoring developed and dispersed recreation sites in the Pinalenos will be developed and implemented. Monitoring results will be used to improve management strategies, especially regarding protection of the Mount Graham red squirrel, as needed. In addition, the Forest Service will develop a long-term (at least 20 year) comprehensive recreation plan for the Pinalenos. The plan will outline all proposed recreational developments, if any, and rigorously assess potential effects to the squirrel and any that may develop within squirrel habitat.
- 3.1 Restrictions, that will be posted sufficiently for all recreationists to observe, shall be in place at the campground when it is open for use and will include the following:
 - a. All pets must be on a leash or confined at all times;
 - b. Firewood collection of material greater than 12 inches in diameter at midpoint will be prohibited at the campground and in the vicinity of the campground;
 - c. All off-road vehicle use in the campground or in the vicinity of the campground will be prohibited;
 - d. All firearm discharge or archery in the campground and its vicinity will be prohibited;
 - e. No more than 100 persons at one time will be allowed in the campground;
 - f. The road into the campground and the jeep trail will be posted with a speed limit, or physically modified if necessary, that will ensure slow speeds of all vehicles; and
 - g. All camping in the vicinity of the campground that is outside of the designated campground sites will be prohibited.
- 4.1 When open for use, the campground and vicinity, when open for use, will be patrolled daily or a campground host will be onsite to ensure compliance with restrictions. Personnel conducting the patrols or acting as host will be trained to be aware of activities that could affect the squirrel and will have the authority to act to deal with them. In addition, all such activities that do occur will be recorded and used in the reports required in term and condition 1.1 above.

- 5.1 Information provided to the Service stated that construction activity will completely clear less than two acres for all facilities involved in the project and that partial tree removal will not exceed four acres. Thus, no more than two acres may be completely cleared for the project, no more than four acres will receive partial tree removal, and all reasonable means available to reduce those amounts will be employed.
- 6.1 The Service and the Forest Service are aware of at least one non-designated path that leads toward squirrel middens. Human recreation access and travel on that path will be prohibited and that prohibition will be carried out in the most appropriate manner. The Forest Service will include detection of other such paths or trails in their monitoring of the project, and recreation use will be prohibited on any that are discovered.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. With implementation of these measures, the Service believes that no squirrel mortalities or human modification of middens, in the vicinity of the project area, will occur as a result of human recreation. In the event that either a squirrel mortality or human modification of a midden does occur in the area as a result of human recreation, then the incidental take allowed by this incidental take statement will be considered to be exceeded. If, during the course of the action, this minimized level of incidental take is exceeded, such incidental take represents new information requiring review of the reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Upon locating a dead, injured, or sick individual of an endangered or threatened species, initial notification must be made to the nearest Service Law Enforcement Office. Care should be taken in handling sick or injured individuals and in the preservation of specimens in the best possible state for later analysis of the cause of death. In conjunction with the care of sick or injured endangered species or preservation of biological materials from a dead animal, the finder has the responsibility to ensure that evidence associated with the specimen is not unnecessarily disturbed. In Arizona, contact Law Enforcement at (602) 379-6443, or the Arizona Ecological Services State Office at (602) 640-2720.

Notice: While the incidental take statement provided in this consultation satisfies the requirements of the Endangered Species Act, as amended, it does not constitute an exemption from the prohibitions of take of listed migratory birds under the more restrictive provisions of the Migratory Bird Treaty Act.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of ESA directs Federal agencies to utilize their authorities to further the purposes of 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.

The Service recommends that the following conservation measures be implemented for the proposed project.

1. Avoid any activities that adversely affect management territories, PACs, or spotted owl critical habitat through the implementation of the Recovery Plan recommendations.

The Service recommends against developing this campground in a PAC given that the location and status of the nest sites of two pairs of owls in the vicinity of the project are unknown.

2. The Service believes the stated goals of controlling erosion and preserving meadow habitat could be accomplished in other ways which would also obviate any effects to the spotted owl and the Mount Graham red squirrel. The Service recommends that:
 - a. Camping be prohibited within the meadow area;
 - b. The campground be posted with the necessary rules to prevent camping in meadows, overcrowding, off-road vehicle use, and any other restrictions necessary for ecosystem management and protection of listed species;
 - c. The campground be patrolled regularly to ensure compliance with the above; and
 - d. The proposed plan for development of the campground be dropped.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the action outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the 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 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 instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

In future communications regarding this project, please refer to consultation #2-21-95-F-060. If you have any questions or would like to discuss any part of this biological opinion, please contact Bill Austin, Mary Richardson, or Bruce Palmer.

Sincerely,

/s/ Sam F. Spiller
Field Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (GM:AZ)
Regional Forester, U.S. Fish and Wildlife Service, Albuquerque, NM
Field Supervisor, Fish and Wildlife Service, New Mexico Ecological Services State Office, Albuquerque, NM (Attn: Sarah Rinkevich)
Supervisor, Pinetop Fishery Resources Office, Fish and Wildlife Service, Pinetop, AZ
District Ranger, Safford Ranger District, Safford, AZ

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