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AESO/SE

2-21-90-F-299-R1

May 23, 2001

Mr. Robert E. Hollis, Division Administrator
U.S. Department of Transportation
Federal Highway Administration, Arizona Division
234 North Central Avenue, Suite 330
Phoenix, Arizona 85004

Dear Mr. Hollis:

This reinitiated biological opinion responds to your request for consultation with the U.S. Fish and Wildlife Service pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request for reinitiation of formal consultation was dated April 2, 2001, and received by us on April 2, 2001. At issue are impacts that may result from use of Federal Highway Administration (FHWA) funds for proposed construction of the Christopher Creek and Kohls Ranch segments of Arizona Department of Transportation's (ADOT) State Route (SR) 260 improvements from Payson to Heber, Gila and Navajo counties, Arizona. FHWA/ADOT proposes to widen from 2 to 4 lanes and make other improvements to 7.6 miles of SR 260. Impacts resulting from the project may affect the following listed species: Mexican spotted owl (*Strix occidentalis lucida*) (threatened), spikedace (*Meda fulgida*) (threatened), loach minnow (*Tiaroga cobitis*) (threatened); and may also affect one species proposed for listing as threatened, the Chiricahua leopard frog (*Rana chiricahuensis*). We concur that the proposed action is not likely to adversely affect the latter three species. The basis for our conclusion is provided in Appendix 1 of this biological opinion.

This reinitiated biological opinion was prepared using information from the following sources: your April 2, 2001, request for consultation; a March 2001 biological assessment and evaluation for the Christopher Creek and Kohls Ranch design segments (Smith 2001); the final biological assessment for the SR 260 location/design concept study, Payson-Heber Highway (ADOT/FHWA 1996), the Fish and Wildlife Service's (Service) June 27, 1995, biological opinion on the SR 260 proposed improvements from Payson to Heber; and our files. Literature cited in this reinitiated biological opinion is not a complete bibliography of all literature available on the affected species, nor is it a complete review of the effects of highway construction on these species. A complete administrative record of this consultation is on file in our office.

CONSULTATION HISTORY

Consultation began informally on this project in 1990. Consultation history until issuance of the biological opinion on June 27, 1995, is summarized in that opinion and is included here by reference. In the biological opinion, we found that the proposed improvements to SR 260 from Payson to Heber were not likely to jeopardize the continued existence of the Mexican spotted owl; nor were they likely to result in destruction or adverse modification of critical habitat. Critical habitat for the owl was withdrawn by the Service in a March 25, 1998, Federal Register notice. Critical habitat was again proposed in a Federal Register notice dated July 21, 2000, including several areas of the Tonto and Apache-Sitgreaves National Forests. However, in the final rule designating critical habitat, no habitat was designated on any National Forest, thus none occurs in the SR 260 action area. The biological opinion included three terms and conditions:

1. A study is to be defined and implemented which addresses movement patterns of the Mexican spotted owl within the project area. The intent of the study is to assess those aspects of Mexican spotted owl foraging, dispersal, and seasonal movements, so that possible modifications of the proposed project may be implemented to reduce incidental take of Mexican spotted owl related to 1) road construction activities, 2) modification and loss of Mexican spotted owl habitat, and 3) Mexican spotted owl/vehicle collisions. Understanding the behavior pattern of Mexican spotted owls in the project area may provide various methods of altering the proposed project design to minimize incidental take. Special attention should be given to evaluating roadway design to minimize potential owl/vehicle collisions since this will be a persistent threat to the owl long after construction activities have been completed. The study should be initiated 3-5 years prior to commencement of construction in an area with Mexican spotted owls, critical habitat, or Mexican spotted owl habitat.
2. Additional Mexican spotted owl surveys will be conducted in all potential habitat according to the current standardized Forest Service protocol for the two years prior to commencement of construction of each road segment. Additional surveys will not be necessary in the areas where the behavior study is being conducted.
3. Measures will be taken to minimize noise disturbance caused by heavy machinery or, when possible, construction will be conducted during the nonbreeding season. Nighttime construction activities requiring the use of lights will be avoided.

The study described in the first term and condition was carried out from 1997-1999 (Reichenbacher 2000). The report is considered a draft by FHWA and ADOT; however, it is the best information available about Mexican spotted owls in the action area. In addition, surveys for Mexican spotted owls were carried out in the highway corridor in the Kohls Ranch and Christopher Creek segments in 1997, 1998, 2000, and 2001. The 2001 surveys are not yet completed. The results of the study and surveys are summarized herein in the "Environmental Baseline". The biological opinion was programmatic in scope, and found that "site specific consultations will be completed prior to initiation of construction of major segments of the road."

This is the first reinitiation of that biological opinion. Six other segments are planned for

construction, including the Diamond Point, Preacher Canyon, Mogollon Rim, Forest Lakes, Brookbank Canyon, and Heber segments. Two other segments were widened from two to four lanes by 1992, before the listing of the Mexican spotted owl, including the segment from Payson to Star Valley, and between Colcord Road and Junction Rim Road, at the top of the Mogollon Rim, just east of the Christopher Creek segment.

Donald Smith, Sverdrup Civil, Inc., a consultant for ADOT, contacted the Service about reinitiation requirements in March 2001. A meeting was held among FHWA, ADOT, and other representatives on April 2, 2001, to discuss the project, compliance needs, and schedules. At that meeting, FHWA and ADOT expressed a need to have a completed reinitiated biological opinion by mid May to meet contracting schedules.

Description of the Proposed Action

The proposed action is a subset of the action described in the Service's June 27, 1995, biological opinion. Considered herein are the Christopher Creek segment (milepost 272.0 to 277.2) (Figure 1) and the Kohls Ranch segment (milepost 266.4 to 268.8) (Figure 2). These correspond to portions of the Alternatives C3-1a and C3-3a (Christopher Creek) and a portion of the Alternative F1-1a and all of F3-1a and F1-3a (Kohls Ranch) described in the biological opinion.

ADOT is planning to widen and reconstruct the existing two-lane SR 260 roadway into a four-lane divided roadway. In the vicinity of both Christopher Creek and Kohls Ranch communities, the four-lane divided highway will include roadway construction on new alignments to the north and south of existing SR 260, respectively. The Christopher Creek project begins at MP 272.3, with the four-lane widening of SR 260 for approximately 1,400 feet to the east before the new divided roadway departs the existing alignment near MP 272.6. At that point, the four-lane divided highway will traverse Tonto National Forest land, head southeasterly across Christopher Creek, and then traverse the ridge that passes between the Christopher Creek and Hunter Creek communities. The new roadway will then rejoin existing SR 260 near MP 275.5, and continue to MP 277.2 where it transitions into the existing four-lane roadway.

The Kohls Ranch project consists of widening the existing roadway between Thompson Draw (MP 266.4) and just west of Indian Gardens, where the four-lane divided roadway will diverge to the north side of the existing SR 260 roadway and continue to the northeast and east across the Tonto National Forest before crossing Tonto Creek and rejoining SR 260 just east of Forest Road 289, at approximately MP 269.0. The planned construction start for Kohls Ranch segment is summer 2002; it should be completed by summer 2004. Construction of the Christopher Creek segment is planned for September or October, 2001 to April 2004. Further information about construction design, specifications, or other project information can be found in the Service's June 27, 1995, biological opinion, Smith (2001), and FHWA/ADOT (1996).

FHWA/ADOT in Smith (2001) did not propose any specific measures to minimize effects of the proposed action to the Mexican spotted owl or its habitat. However, ADOT (Jim Rindone,

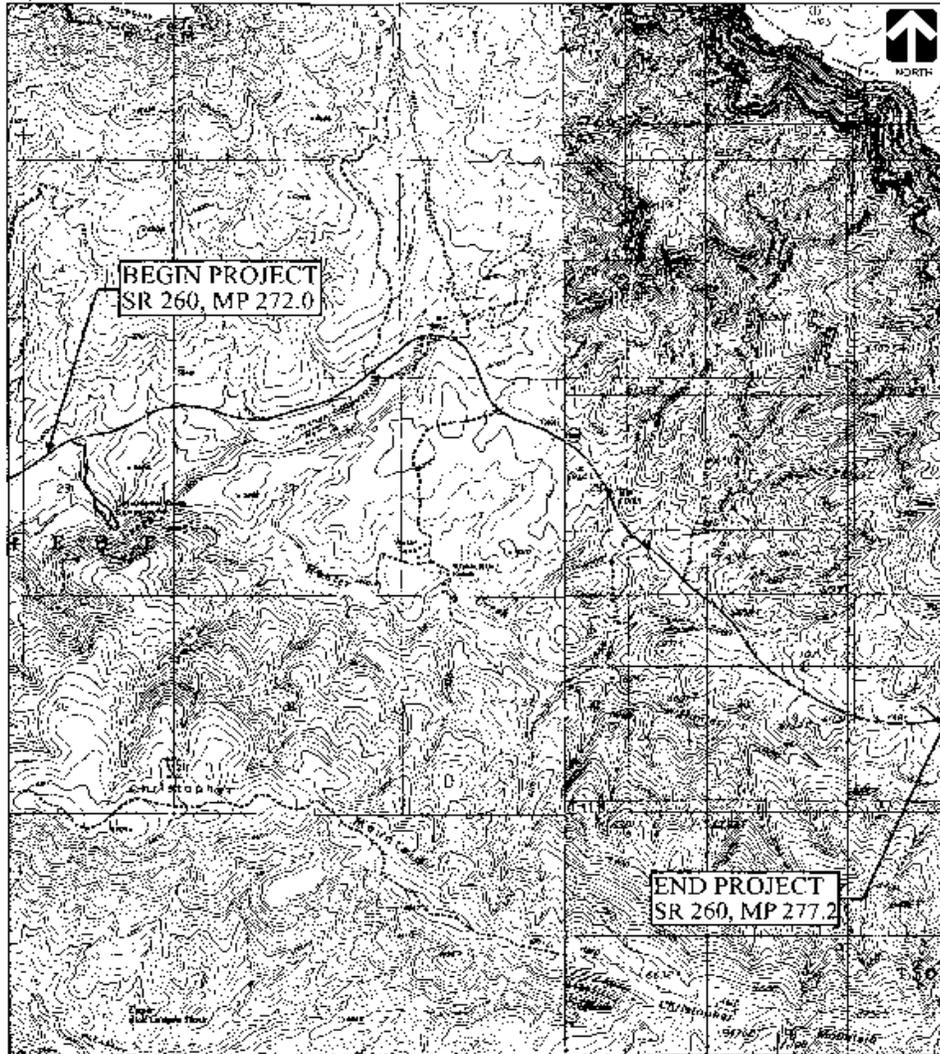


Figure 1: SR 260 Project, Christopher Creek segment

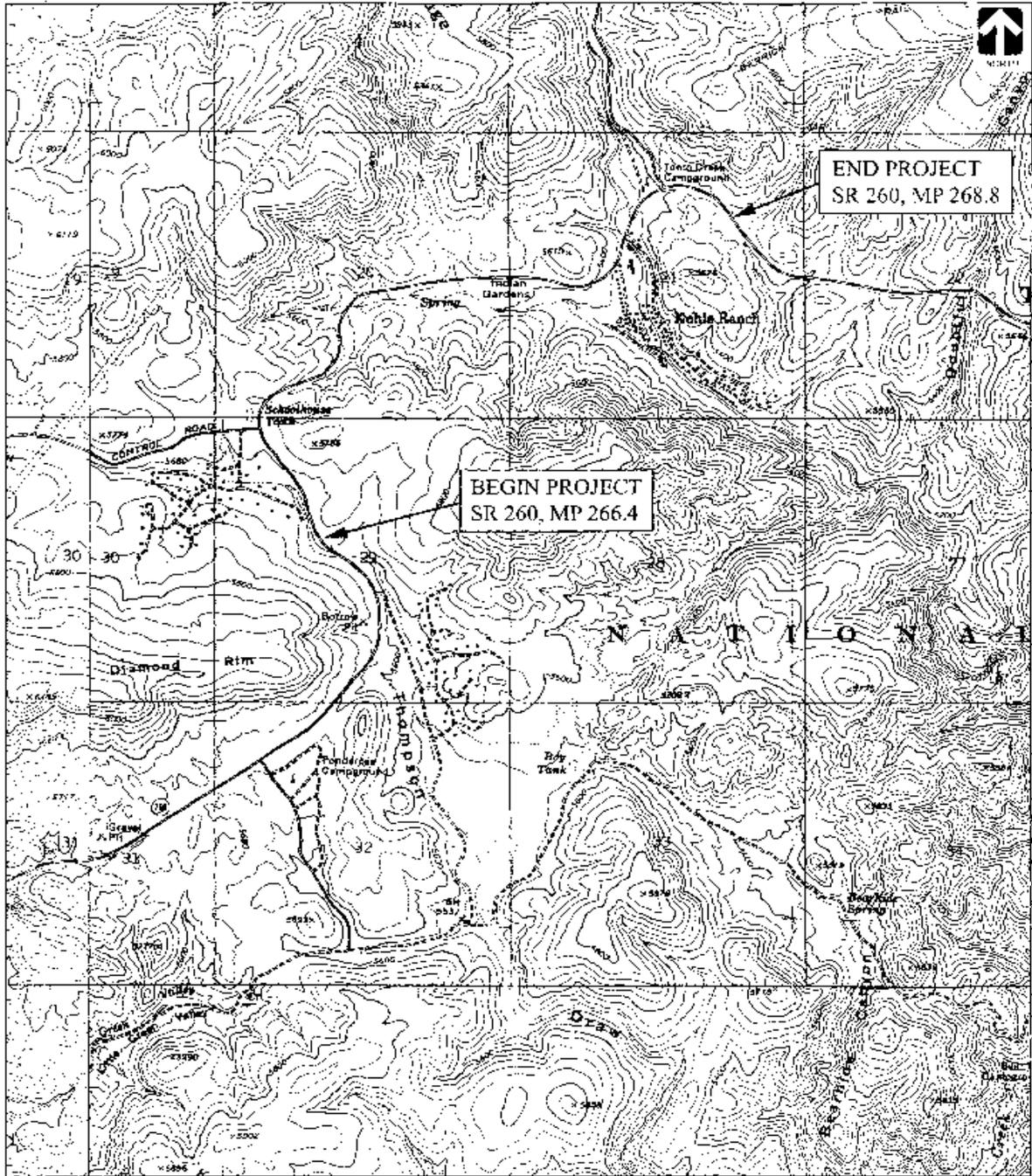


Figure 2: SR 260, Kohls Ranch segment

ADOT, pers. comm.) committed to monitor according to Service protocol, the 7 Mexican spotted owl protected activity centers (PACs) nearest to the Christopher Creek and Kohls Ranch segments through the end of construction activities (scheduled to be completed in 2004).

Mexican Spotted Owl STATUS OF THE SPECIES

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 Final Mexican spotted owl Recovery Plan (USDI 1995). 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, much remains unknown about the species' distribution and ecology. This is especially true in Mexico where much of the Mexican spotted owl's range has not been surveyed. The Mexican spotted owl currently occupies a broad geographic area but does not occur uniformly throughout its range. Instead, it occurs in disjunct localities that correspond to forested isolated mountain systems, canyons, and in some cases, steep, rocky canyon lands. The primary administrator of lands supporting Mexican spotted owl in the United States is the U.S. Forest Service. Most owls have been found within Forest Service Region 3 (including 11 National Forests in Arizona and New Mexico). 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 percent of Mexican spotted owls known to exist in the United States between 1990 and 1993 occurred on lands administered by the Forest Service.

Surveys have revealed that the species has an affinity for older, well-structured forest, and the species is known to inhabit a physically diverse landscape in the southwestern United States and Mexico. The range of the Mexican spotted owl has been divided into six Recovery Units (RUs), as discussed in the Mexican spotted owl Recovery Plan (USDI 1995). The Recovery Plan reports an estimate of owl sites. 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. This information was reported for 1990-1993. The greatest known concentration of known owl sites in the United States occurs in the Upper Gila Mountains RU (55.9 percent), followed by the Basin and Range-East RU (16.0 percent), Basin and Range-West RU (13.6 percent), Colorado Plateau RU (8.2 percent), Southern Rocky Mountain-New Mexico RU (4.5 percent), and Southern Rocky Mountain-Colorado RU (1.8 percent). Owl surveys conducted from 1990 through 1993 indicate that the species persists in most locations reported prior to 1989.

A reliable estimate of the numbers of owls throughout its entire range is not currently available (USDI 1995) 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.

The Forest Service reported a total of approximately 935 PACs established on National Forest lands in the Southwestern Region (USDA Forest Service, Southwestern Region, February 28, 2001). The information provided from the Forest Service also included a summary of acres of protected habitat, acres of restricted habitat, and PACs in the Region by Mexican spotted owl Recovery Unit

From 1991 through 1997, Gutierrez *et al.* (1997, 1998) studied the demographic characteristics of two Mexican spotted owl populations in the Upper Gila Mountains Recovery Unit. The owl populations studied were located on the Coconino and Gila National Forests. Results of this several-year study have shown a decline in the population trend of Mexican spotted owls within these areas. The reason for the reported decline is unknown. According to Gutierrez *et al.* (1997), such a trend could be a result of: 1) density dependent responses to an increase over carrying capacities; 2) a response to some environmental factor; or 3) senescence. The latter (i.e. senescence) seems unlikely because there was also a negative linear trend in survival estimates for owls less than three years of age. Regarding carrying capacities, responses to density dependence are difficult to prove in the absence of removal or addition experiments. Environmental factors undoubtedly play a role in owl survival, either through weather events causing direct mortality or indirectly through availability of habitat or prey (Gutierrez *et al.* 1997). This study found that the ability of adult birds to survive successive years of poor environmental conditions may be low (Gutierrez *et al.* 1998).

The proposed SR 260 project is located within the Upper Gila Mountains RU as defined by the Mexican spotted owl Recovery Plan (USDI 1995). This RU is a relatively narrow band bounded on the north by the Colorado Plateau RU and to the south by the Basin and Range West RU. The southern boundary of this RU 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 east of Flagstaff, Arizona. This is a topographically complex area consisting of steep foothills and high plateaus dissected by deep forested drainages. This RU 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). Habitat within this RU is administered by the Kaibab, Coconino, Apache-Sitgreaves, Tonto, Cibola, and Gila National Forests. The northern half of the Fort Apache and northeastern corner of the San Carlos Indian Reservations are located in the center of this RU and contain an important habitat link between owl subpopulations at the western and eastern ends of the RU and the subpopulations directly south within the Basin and Range West RU.

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.

The Upper Gila Mountains RU consists of deep forested drainages on the Mogollon Plateau. Vegetation generally consists of pinyon/juniper woodland, ponderosa pine/mixed conifer forest, some spruce/fir forest, and deciduous riparian forest in middle and lower elevation canyon habitats. Climate is characterized by cold winters and over half the precipitation falls during the growing season. Much of the mature stand component on the gentle slopes surrounding the canyons has been partially or completely harvested. Most of the forest habitat on steeper ground that may serve as Mexican spotted owl nesting habitat is in suitable condition. Mexican spotted owls are widely distributed and use a variety of habitats within this RU. Owls most commonly nest and roost in mixed-conifer forests dominated by Douglas fir and/or white fir and canyons with varying degrees of forest cover (Ganey and Balda 1989; USDI 1995). Owls also nest and roost in ponderosa pine-Gambel oak forest, where they are typically found in stands containing well-developed understories of Gambel oak (USDI 1995).

This RU contains the largest known concentration of Mexican spotted owl with approximately 55 percent of known Mexican spotted owl territories (USDI 1995). The Forest Service reports a total of 542 PACs within the Upper Gila Mountains RU (USDA Forest Service, Southwestern Region, February 28, 2001). This RU is located near the center of the Mexican spotted owl's range within the United States and is contiguous to four of the other five RUs within the United States. Because of its central location and its large and relatively continuous spotted owl population, the Mexican spotted owl Recovery Team believes that the population in this RU could be uniquely important to the overall stability and persistence of the Mexican spotted owl population in the United States. Specifically, this population could serve as the source population, providing immigrants to smaller, more isolated populations in other RUs. Although the Recovery Team has no data on dispersal patterns or movements between RUs, the Recovery Team believes that this population should be maintained at current levels and with at least the current level of connectivity within the RU (USDI 1995). Significant discontinuities that develop in the Mexican spotted owl's distribution within this RU, and the loss of habitat to support the local sub-populations, may compromise the recovery of the species. In the action area, PACs are clustered in the canyons at the base and on the escarpment of the Mogollon Rim, and in canyons to the south of SR 260. A description of vegetation communities and terrain in the action area is provided in Reichenbacher (2000) and FHWA/ADOT (1996).

The biological opinion included discussion of 14 Mexican spotted owl management territories within 2 miles of the SR 260 project. Nine were located on the Tonto National Forest, and 5 were on the Apache-Sitgreaves Forest. According to the opinion, SR 260 did not pass through any of the 14 management territories, although the northwestern boundary of the Horse Tank management territory was within 0.2 mile of SR 260, and the boundaries of the Trailhead 260 and Lower Gordon management territories adjoined SR 260 just below the Mogollon Rim crossing. The Service's June 27, 1995, biological opinion noted that Mexican spotted owls had been observed flying over SR 260, but no vehicular collisions with Mexican spotted owls on SR

260 were known. The primary effects to Mexican spotted owl discussed in the opinion were increased injury or mortality of owls due to collisions with vehicles, increased fragmentation of occupied habitat, and possible disturbing effects of construction noise. The opinion anticipated that approximately 1,000 acres of forested habitat would be removed, and another 519 acres would be secondarily affected, and effectively lost as habitat for the owl. The opinion found that not all of the effects could be quantified due to uncertainties concerning how the project might affect owl movement patterns, natal dispersal, and foraging behavior. Thus, the programmatic nature of the opinion, the stated need for future, segment-specific consultation, and a need for further studies of owls in the project area.

“Management territory” was a designation that predated the finalization of the Mexican spotted owl recovery plan. After the plan was finalized in 1995, management territories were redrawn as PACs. All of the management territories/PACs near the Christopher Creek and Kohls Ranch segments were revised in 1996. The most recent analysis of Mexican spotted owl habitat shows 6 PACs within 2 miles of SR 260 in the Christopher Creek segment, and one PAC within 2 miles of the Kohls Ranch segment (Table 1). Five of these PACs are clustered along the base of the Mogollon Rim from about Tonto Creek south of the Rim, to the Highway Yard at the eastern end of the Christopher Creek segment. Two other PACs are located south of SR 260, including one in the Christopher Mountain area (120410) and another along Gordon Creek (120506). The Kohls Ranch segment is mostly west of the PACs, but the eastern terminus, which is just east of

Table 1: Protected Activity Centers (PACs) within 2 miles of the SR 260 Christopher Creek and Kohls Ranch Segments

Segment	PACs within 2 miles of Segment
Kohls Ranch	120402 (Promontory West)
Christopher Creek	120407 (See Canyon), 120404 (Hole in the Ground), 120410 (Christopher Mountain), 120406 (Maintenance Yard), 120409 (260 Trailhead), 120506 (Turkey Peak NW)

Tonto Creek, is within 2 miles of PAC 120402. The Christopher Creek segment lies closer to the Mogollon Rim, and thus is closer to more PACs.

Reconnaissance surveys for Mexican spotted owl were initiated in 1993 as part of the environmental studies that were conducted in association with ADOT’s SR 260/Payson to Heber Location/Design Concept Study. In accordance with the Forest Service protocol at that time, these surveys were conducted in areas of potential, suitable, and proposed critical habitat identified by Tonto National Forest biologists along the SR 260 project area. Surveys were conducted between June 30 and August 13, 1993, in the areas north and south of the existing roadway between Control Road near Thompson Draw and Colcord Road at the base of the

Mogollon Rim. The surveys included the planned widening/reconstruction and realignment areas at Christopher Creek and Kohls Ranch. At that time, no Mexican spotted owl were observed or heard within the vicinity of the existing roadway. Supplemental reconnaissance surveys were conducted between June 12 and July 20, 1997, and again between April 22 and July 2, 1998, pursuant to the reasonable and prudent measures in the June 27, 1995, biological opinion. Again, Mexican spotted owl were not observed or heard along or in close proximity to the proposed highway improvements between Control Road and Colcord Road. Similar negative results were obtained for areas adjacent to the road during the four surveys conducted between June 9 and August 7, 2000, and for four survey periods conducted in April and May 2001 (Don Smith, pers. comm. 2001).

Occupancy and reproductive status of Mexican spotted owls in the 7 PACs within the SR 260 segments under consultation are presented in Table 2. Only data since the 1995 biological

Table 2: Occupancy and reproductive status of Mexican spotted owls in PACs within 2 miles of the Christopher Creek and Kohls Ranch segments, 1996-2000 (from Reichenbacher 2000 and Tonto National Forest files)

PAC	YEAR																		
	M ¹	F ²	Y ³	1996			1997			1998			1999			2000			
	M	F	Y	M	F	Y	M	F	Y	M	F	Y	M	F	Y	M	F	Y	
120402	NI ⁴	NI	NI	NI	NI	NI	NI	NR ⁵	NR	NR	Y	Y	2Y	NI	NI	NI			
120407	NI	NI	NI	NI	NI	NI	NI	NR	NR	NR	NI	NI	NI	NI	NI	NI			
120404	NI	NI	NI	NI	NI	NI	NI	NR	NR	NR	NI	NI	NI	NI	NI	NI			
120410	NR	NR	NR	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI			
120406	Y	Y	? ⁶	Y	N	N	N	Y	?	?	Y	Y	?	NI	NI	NI			
120409	? ⁷	? ⁷	? ⁷	N	N	N	N	N	N	N	N	N	N	NI	NI	NI			
120506	N	N	N	N	N	N	N	N	N	N	NR	NR	NR	NR	NR	NR			

¹Male

²Female

³Young

⁴No information

⁵Informal surveys, no owls detected

⁶Nesting status undetermined

⁷Owl presence confirmed, but sex and breeding status unknown

opinion is presented. None of the PACs were monitored annually during this time period; four were monitored only informally and for only one year. Mexican spotted owls were detected during the four year period in three of the 7 PACs, and reproduction was only documented in one PAC once. A lack of data for most years in most PACs or absence of surveys according to protocol, makes it difficult to assess recent occupancy and reproductive status for the 7 PACs.

The owl study required by the terms and conditions of the June 27, 1995, opinion, is very insightful in regard to presence and behaviors of owls in the project area. Reichenbacher (2000) conducted a radio-telemetry study of Mexican spotted owls from April 30, 1997, to April 10, 1999, in the vicinity of the SR 260 crossing of the Mogollon Rim. He chose to work in proximity to 7 PACs that were closest to SR 260, including 2 of the PACs in Table 1: 120406 and 120409. Seventeen owls were radiotelemetered and located at 2,007 foraging and roost locations. Five of the 17 owls crossed SR 260 during the study; these birds crossed SR 260 a total of 24 times. The owls were found primarily in canyons and ravines below the Rim. Mean home range size was 1,730 acres. For owls with more than 100 night activity sample points, mean home range was 2,355 acres.

Reichenbacher (2000) documented juvenile dispersal twice, both involving birds in the Maintenance Yard PAC (120406). One of the birds moved 18 miles from the Twin Lakes PAC to the Maintenance Yard PAC in August-November 1998; the other was fitted with a transmitter in September 1998 in the Maintenance Yard PAC, and was not observed again. Reichenbacher (2000) suggests this bird emigrated to the Maintenance Yard PAC from outside the study area and then did not remain in the study area. However, the origin of the bird is unknown, and its disappearance may have been an artifact of a faulty transmitter. Reichenbacher (2000) cites several documented instances of juvenile dispersal and wintering in areas different than their natal areas. Dispersal can be through areas that spotted owls are not typically associated with (Arsenault *et al.* 1997). Reichenbacher (2000) suggests that dispersing juvenile owls could cross SR 260 at virtually any location in the study area, and dispersal could involve birds from the study area or from other, more distant, PACs.

Two instances of mortality were recorded during the study, including an adult female that was apparently killed by a great horned owl, and an adult male that was found dead March 19, 1999, apparently as a result of a collision with a vehicle on SR 260. The bird was found about 160 feet east of the Woods Canyon Lake Road turnoff, and about 20 feet south of the edge of the SR 260 pavement on the Apache-Sitgreaves National Forest. The Service's forensic laboratory in Ashland, Oregon, found that the bird's injuries were consistent with a vehicle collision. Reichenbacher (2000) surmised that "it is not hard to imagine the Mexican spotted owl may be attracted to a forest edge along a cleared highway margin." Here, they would find perches and sufficient cover to allow them to wait for preferred prey items. It is certainly possible that our LGM1 (the telemetered owl found dead on SR 260) was killed while foraging along SR 260. However, of the 2,086 owl locations during the study, only 12 were within 100 feet of the road. If the birds preferred to hunt along SR 260, many more locations would have been close to the road.

Reichenbacher (2000) suggested the following mitigation for SR 260: 1) Adjacent to the widened roadway segments, all stumps, low limbs on trees, small trees and large shrubs, unnecessary fence posts, stakes, and brush piles should be removed for 410 feet on each side of SR 260 - this is the approximate minimum width of the Brookbank Canyon - Black Canyon ridge system, which appeared sufficiently wide to discourage owl movement; 2) dead and downed plant material, rock piles, shrubs, bushes, and other rodent hiding or nesting places should be removed

from a 165-foot swath either side of the road to keep potential prey species populations low, and possibly reduce use of areas adjacent to the road by hunting owls - Reichenbacher (2000) suggested this would only be necessary in an area from about 0.62 mile east of Woods Canyon Lake Road to 0.62 mile west of that road, and for about 3.7 miles east of Brookbank Point Road (neither of which are in the Kohls Ranch or Christopher Creek segments); and 3) in the vicinity of PACs, all vegetation should be removed from the divided highway median for a three to five kilometer distance. A thick layer of gravel to prevent fossorial mammals from the colonizing the median strip would be ideal. FHWA/ADOT consider these mitigation measures as drafts that may change considerably in the final report. None of the above measures were included in the proposed action for the Kohls Ranch or Christopher Creek segments.

A total of 514 projects have undergone formal consultation for the owl in Arizona and New Mexico. Of that aggregate, 253 projects resulted in a total anticipated incidental take of 458 owls plus an additional unquantifiable number of owls. These consultations have primarily dealt with actions proposed by the Forest Service, Region 3, but have also addressed 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 FHWA. 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 construction activities.

Effects of the Proposed Action

Direct Effects to Owls

Reichenbacher's telemetry study and other information collected since the June 27, 1995, biological opinion make it clear that Mexican spotted owls can be expected to collide with and be killed by vehicles on SR 260, although the frequency at which this might occur, or the effect of road improvements on that frequency, are not clear. The biological opinion found that effects of the road improvements on foraging behavior, seasonal movements, and natal dispersal were unknown, but the study required by the terms and conditions was meant to clarify those relationships. Reichenbacher's study did not document foraging by owls along SR 260, but he suggested this might occur. Five of the telemetered owls crossed SR 260 for a total of 24 crossings, demonstrating that the highway is not a complete barrier to movement. However, no analysis was conducted to determine if movements across SR 260 were occurring more or less frequently than elsewhere in the study area. Reichenbacher presents evidence from other studies that juvenile owls can be expected to make long-distance seasonal movements that are likely to cross SR 260, other roads, and habitats not typically thought of as Mexican spotted owl habitat.

Reichenbacher (2000) concluded from telemetry and visual locations that SR 260 was probably neither a deterrent nor attractant for Mexican spotted owls. However, all but two roost sites were more than 660 feet from the road, and of the 2,086 owl locations during the study, only 12 were within 100 feet of the road. This lack of owl detections near the road is even more pronounced in the Christopher Creek segment, in which no owls were found closer than 0.5 mile to the road.

This suggests owls avoided the road, but this may be wholly, or in part, habitat related because the PACs and most owl localities are in the escarpment of the Mogollon Rim or in canyons to the south of the Rim, whereas SR 260 avoids most of the roughest terrain where owls occur.

Of the 24 crossings of SR 260 documented by Reichenbacher, only one was in the Christopher Creek segment, and no crossings were recorded in the Kohls Ranch segment. The adult male from the Maintenance Yard PAC was found south of SR 260 once, at about 0.5 mile south of the junction of SR 260 and Sharp Creek in the Christopher Creek segment. All other crossings documented were near or above the Rim, primarily on the Apache-Sitgreaves National Forest. Figure 23 of Reichenbacher (2000) illustrates all of his telemetry and visual locations of Mexican spotted owls. Two are within 0.5 mile of SR 260 in the Christopher Creek segment, all others are at least 0.6 mile away, with most being >1 mile distant. Reichenbacher did not monitor owls in the PACs closest to the Kohls Ranch segment, but only the eastern terminus of the segment is close to any PACs; PAC 120402 is no closer than 0.9 mile to the eastern end of the Kohls Ranch segment. Thus, we would expect Mexican spotted owls to cross the Kohls Ranch segment much less frequently than in the Christopher Creek segment. However, as Reichenbacher (2000) suggested, dispersing juvenile owls may cross SR 260 at almost any point, even in areas or habitats not typically thought of as Mexican spotted owl habitat. The work of Reichenbacher helps define the action area, which is defined at 50 CFR 402.02 as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” The Service believes the action area includes areas to be disturbed by construction and Mexican spotted owl PACs and unoccupied habitat within 2 miles of SR 260. Our inclusion of nearby PACs and other habitat is based on occasional crossings of the highway by Mexican spotted owls and possible foraging by owls along the highway.

FHWA/ADOT proposes to construct the Kohls Ranch and Christopher Creek segments beginning in fall of 2001 on the Christopher Creek segment, and completing construction by 2004. Noise and other activity associated with construction may disturb Mexican spotted owls. Delaney *et al.* (1997) reviewed literature on the response of owls and other birds to noise and drew the following conclusions: 1) raptors are more susceptible to disturbance-caused nest abandonment early in the nesting season, 2) birds generally flush in response to disturbance when distances to the source are less than approximately 200 feet and when sound levels are in excess of 95 dBA, and 3) the tendency to flush from a nest declines with experience or habituation to the noise, although the startle response cannot be completely eliminated by habituation. Service policy is to limit disturbing activities within 1,320 feet of Mexican spotted owl nest sites during the breeding season (March 1-August 31). This corresponds well with the Delaney *et al.*'s 1,330-foot threshold for alert responses to helicopter flights. For less intrusive forms of disturbance, smaller buffers are appropriate. Swarthout and Steidl (2001) examined flushing response of Mexican spotted owls to hikers and concluded that a 180-foot buffer around roost sites would eliminate virtually all owl behavioral responses to hikers. None of the PACs are closer than 0.8 mile to SR 260 and all but two telemetry and visual locations of Mexican spotted owls obtained by Reichenbacher (2000) in the Christopher Creek and Kohls Ranch segments were >0.6 mile away, with most being >1.0 mile away. No Mexican spotted owls were found in the Christopher Creek or Kohls Ranch segments of the SR 260 corridor during surveys in 1993, 1997-1999, and

2000-2001. Because of the distance from proposed construction areas to Mexican spotted owl use areas, few or no effects to owls are expected as a result of noise or visual disturbance. Reichenbacher (2000) documented a crossing of SR 260 by a Mexican spotted owl in the Christopher Creek segment, and suggested owls may sometimes forage along the highway, thus some disturbance may occur to Mexican spotted owls. These birds are most likely to be dispersing or wintering birds, but owls could occasionally forage along the highway during the nesting season, as well.

Effects to Mexican Spotted Owl Habitat

None of the 7 PACs occur closer than 0.8 mile to SR 260; thus habitat in PACs would not be directly affected by the proposed action. The area to be disturbed by construction of the Christopher Creek segment contains primarily ponderosa pine forest, but also areas with ponderosa pine-Gambel oak or mixed conifer associations. Five restricted habitat areas have been identified along the existing roadway in this segment and the proposed widening/reconstruction area between MP 274.8 and the easterly project limit at MP 277.2 (Figure 9 of Smith 2001). Four areas located along the south side of SR 260 are ponderosa pine-Gambel oak tree stands, and the one area north of SR 260 is a mixed-conifer stand comprised mainly of Douglas fir and ponderosa pine. Tree stand data obtained from the Tonto National Forest, Payson Ranger District, indicate the tree basal areas for all five areas range from 118.1 to 146.2 square feet per acre, which is below the threshold condition of 150 square feet per acre for pine-oak and mixed-conifer forests (USDI 1995). Although these five tree stands have potential as Mexican spotted owl habitat, the physical attributes of these stands do not meet the Mexican spotted owl Recovery Plan threshold criteria for basal area, the number of large trees per acre, or percent stand density of trees by index classes (personal communication, Don A. Pollock, Tonto National Forest, December 5, 2000). Proposed road improvements pass through approximately 635 feet of restricted habitat, and lie along the boundary of 2,545 feet of restricted habitat. D. Smith (pers. comm. 2001) estimated that 70.5 acres of restricted habitat will be cleared for the Christopher Creek segment.

According to the Recovery Plan, restricted habitat in the Upper Gila Recovery Unit should be managed so that at least 10 percent of a planning area, landscape, subregion, and region meet target/threshold conditions, as defined in Table III.B.1 of the Plan. For pine-oak woodlands, 20 square feet per acre of oak must be present for a stand to meet threshold conditions. In this case, the planning area would be the highway right-of-way. Furthermore, the Recovery Plan recommends that large trees (≥ 18 inches dbh) be retained within restricted habitat, and that all trees >24 inches dbh be retained in restricted habitat. The Recovery Plan recommends that difficult to replace habitat elements be retained and enhanced in restricted habitat, and that specifically, hardwoods should be retained. Often, larger oaks provide nesting structures for Mexican spotted owl and removal of these trees may affect nesting Mexican spotted owl now and in the future. In this case, it is unlikely that these large oaks would be used by nesting Mexican spotted owl due to their location within the right-of-way immediately adjacent to this heavily used highway. In the 70.5 acres of restricted habitat affected, FHWA/ADOT proposes to clear all trees, thus the proposed action will not meet Recovery Plan recommendations in regard to

target/threshold habitat conditions in restricted habitat. Also, trees over 24 inches dbh and large oaks will be removed, which is not in compliance with the Plan. However, loss of habitat is relatively small compared to restricted and PAC habitat available within the action area.

The Tonto National Forest found that no restricted Mexican spotted owl habitat is present in the area to be disturbed by construction of the Kohls Ranch segment. The majority of the area to be disturbed consists of ponderosa pine, with some alligator juniper, which is scattered throughout the proposed Kohls Ranch segment. These woodlands, and woodlands in the Christopher Creek segment not categorized as restricted, are defined in the Recovery Plan as “other forest and woodland types.” “Other forest and woodland types” are not typically used for nesting or roosting. However, they may provide habitat for foraging, dispersal, and may serve as wintering habitat. The Recovery Plan does not provide specific management guidelines for these forest and woodland types, but finds that guidelines for protected and restricted habitat may have some useful application in these forests in some cases. D. Smith (pers. comm. 2001) estimated that 256.8 acres in the Christopher Creek segment, and 172.3 acres in the Kohls Ranch segment of “other forest and woodland types” will be cleared. Again, these are relatively small areas compared to the available habitat in this forest type in the action area.

Although the cleared areas along the SR 260 corridor would not provide forested habitat for Mexican spotted owls, they could be used by owls for foraging. Owls may perch at the forest edge, on fence posts, highway signs, or other perches and search for rodents in the grassy margins along the roadway. Based on a lack of owl detections near SR 260 in the Kohls Ranch and Christopher Creek segments (Reichenbacher 2000), this probably occurs relatively infrequently. However, the road shoulders and cleared right-of-way could act as an attractive nuisance that may draw birds into the road corridor where they are more likely to be struck and killed by passing vehicles. Reichenbacher’s suggestion of removing all vegetation from the median and applying a thick layer of gravel, removal of dead and downed plant material, rock piles, vegetation from a 150-foot swath on either side of the roadway, and removal of all stumps, low limbs on trees, small trees and shrubs, unnecessary fence posts, stakes, and brush piles within 410 feet of the roadway, would discourage use by small mammals, reduce perch sites, and likely reduce use of the cleared right-of-way by foraging Mexican spotted owls. Reduced use by owls should reduce potential for collisions with vehicles. Clearance to 410 feet either side of the road would; however, result in an increased loss of habitat. Of these suggestions, the Service believes removal of lower limbs of the larger trees on the margin of the cleared right-of-way may have the greatest value in regard to reducing perching behavior by Mexican spotted owls. Other measures will likely be warranted in SR 260 segments where owls reside closer to the road.

The completion of the Christopher Creek and Kohls Ranch segments of SR 260 is not expected to have a significant effect on the level of vehicular use on SR 260. The segments total 7.6 miles of the approximately 50 miles of SR 260 slated for improvement. To what degree the current action or the entire project may facilitate greater travel into the Mogollon Rim area or points east is unknown. However, better access may support greater human use of forested areas on the Tonto and Apache-Sitgreaves National Forests, and bring recreationists, woodcutters, and others into contact with Mexican spotted owls and their habitat more frequently. This may result in an

increase of human-caused fires and other forms of habitat degradation or disturbance of owls. These indirect effects are expected to be more pronounced as more of the total 50 mile project is completed.

Mexican spotted owl critical habitat was finalized in a Federal Register notice dated February 1, 2001. No critical habitat was designated on any National Forest in Arizona, and no critical habitat is located in the action area. The nearest critical habitat is near Flagstaff. As a result, the proposed action will not affect Mexican spotted owl critical habitat.

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 are subject to the consultation requirements established under section 7, and, therefore, are not considered cumulative in the proposed action. Because of the predominance of National Forest lands in the action area and adjacent lands, most actions reasonably certain to occur in the action area will be Federal actions, and thus the effects of these actions are not considered cumulative. However, private lands occur in the Tonto Creek - Kohls Ranch and Christopher Creek areas. Actions on these lands, including wood cutting, development for residential or recreational purposes, livestock grazing, and other activities may occur on these properties without a Federal nexus; the effects of these activities on the Mexican spotted owl and its habitat would be considered cumulative effects. Compliance with the Act for private actions could occur through section 7 consultation, if a Federal nexus exists [e.g. the requirement for a section 404 permit from the Corps of Engineers, pursuant to the Federal Water Pollution Control Act (33 U.S.C 1251-1376)]. These actions could also be addressed through section 10(a)(1)(B) of the Act.

CONCLUSION

After reviewing the current status of the Mexican spotted owl, the environmental baseline for the action area, the effects of the proposed actions, and the cumulative effects, it is the Service's biological opinion that proposed improvements to SR 260 in the Christopher Creek and Kohls Ranch segments are not likely to jeopardize the continued existence of the Mexican spotted owl, and are not likely to result in destruction or adverse modification of critical habitat. We base these findings on the following:

1. No critical habitat occurs in or near the action area.
2. Although 7 PACs occur within 2 miles of the segments of SR 260 proposed for improvements, no PACs would be directly affected, and a relatively small acreage of restricted habitat would be affected.
3. Results of surveys, and telemetry and visual sightings of Mexican spotted owl by Reichenbacher (2000) suggest Mexican spotted owls infrequently use areas that will be

directly affected by construction activities. Areas frequented by owls are mostly far enough away that birds are expected to be minimally affected by loss of habitat, noise, and other project-related disturbance.

4. Owls are expected to be killed by collisions with vehicles on SR 260, but this is expected to occur very infrequently due to an apparent avoidance of the highway by Mexican spotted owls.

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 to 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 FHWA so that they become binding conditions of any grant or permit issued to ADOT, as appropriate, for the exemption in section 7(o)(2) to apply. The FHWA has a continuing duty to regulate the activity covered by this incidental take statement. If the FHWA (1) fails to assume and implement the terms and conditions or (2) fails to require ADOT to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the FHWA 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)]

AMOUNT OR EXTENT OF TAKE

For the purposes of consideration of incidental take of Mexican spotted owl as a result of the proposed action, 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 birds to such a degree that the birds are considered lost as viable members of the population and thus “taken.” They may fail to breed, fail to successfully rear young due to inadequate food supplies available in altered habitat, raise fewer young, raise less fit young, or desert the area because of

disturbance or because habitat no longer meets the owl's needs.

Current section 7 consultation policy for Mexican spotted owl provides for incidental take if an activity compromises the integrity of a PAC. Actions outside PACs are generally not considered to result in incidental take; however, in this instance, data collected from the project area on owl movements suggest that take is likely to occur as result of collisions with vehicles outside of PACs (Reichenbacher 2000). Areas to be directly affected by construction have been adequately surveyed in accordance with Service protocols, and no Mexican spotted owls have been found. Thus, no incidental take associated with effects to habitat are anticipated in this area. Furthermore, PACs in the action area are far enough away (≥ 0.8 mile) from proposed construction activities that take is not anticipated as a result of noise or other disturbance of habitats in or birds using PACs.

Based on the above policies and the discussion of effects herein, the Service anticipates the following forms and amount of take in regard to the proposed action:

One Mexican spotted owl every ten years in the form of direct mortality resulting from an owl colliding with a vehicle on either the Kohls Ranch or Christopher Creek segments of SR 260.

If, during the life of the project, the amount of extent of take is exceeded, FHWA must reinitiate consultation with the Service immediately to avoid violation of section 9. Operations must be stopped in the interim period between the initiation and completion of the new consultation if it is determined that the impact of the additional taking will cause an irreversible or adverse impact on the species, as required by 50 CFR 402.14(i). An explanation of the causes of the taking will be provided to the Service.

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 Mexican spotted owl.

Reasonable and prudent measures

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

1. The FHWA shall minimize adverse affects of clearing Mexican spotted owl restricted habitat.
2. The FHWA shall monitor effects to the Mexican spotted owl and report to the Service the results of that monitoring.

Terms and conditions

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

1. The following terms and conditions are necessary to implement the reasonable and prudent measure 1.
 - a. FHWA shall designate a field contact representative (FCR) who shall be responsible for overseeing compliance with these terms and conditions and proposed minimization measures, and shall also be responsible for coordination on compliance with the Service. The FCR shall have the authority and the responsibility to halt all project activities that are in violation of these terms and conditions. The FCR shall have a copy of the terms and conditions and proposed minimization measures of this biological opinion while on the work site. Once the FCR has been designated, FHWA shall notify this office of whom the person is and how to contact them.
 - b. FHWA shall minimize disturbance of Mexican spotted owl habitat by containing their activities, including clearing, equipment staging areas, material stockpiles, etc. to the minimum area necessary to complete the job. Construction area boundaries will be clearly defined with flagging or other markers, and workers shall be informed that they must operate within those boundaries.
 - c. FHWA shall remove lateral branches on the lower one-third of the trunk for trees ≥ 9 inches dbh that are at edge of the cleared highway right-of-way in the Christopher Creek segment.
2. The following terms and conditions are necessary to implement the reasonable and prudent measure 2.
 - a. FHWA shall quantify the loss of restricted habitat and other woodland and forest type habitat for the Christopher Creek and Kohls Ranch segments, after the project is built.
 - b. Mexican spotted owl surveys according to Service protocol shall be conducted each year at points previously surveyed (see maps of stations in 3 May 2001 letter from Don Smith, Sverdrup, to Jim Rorabaugh, Fish and Wildlife Service) in portions of the Christopher Creek and Kohls Ranch SR 260 corridor in which construction is not yet completed. This shall include completing the 2001 surveys. If Mexican spotted owls are detected at any of these stations, FHWA will develop with the Service a plan to minimize take and effects to Mexican spotted owl. The plan shall be approved by the Service.
 - c. FHWA shall conduct informal searches for road-killed Mexican spotted owls on the road

and within 50 feet of either side of the pavement during the surveys in term and condition 2.b. Any finding of a dead or injured Mexican spotted owl during these surveys or at any other time shall be reported to the Service in accordance with the section "Disposition of Dead, Injured, or Sick Mexican Spotted Owls," below.

d. FHWA shall provide an annual report to this office summarizing the results of the monitoring required herein, construction activities completed, and any deviations in construction plans or schedules. The report shall also make recommendations, as needed, for modifying or refining these terms and conditions to enhance protection of the Mexican spotted owl or reduce needless hardship on the FHWA or its contractors. The report shall be due in this office January 1 of each year, beginning in 2002. The last required annual report shall be due after all construction activities have been completed. Reporting requirements for dead, injured, or sick Mexican spotted owls will continue for the life of the project.

The Service believes that no more than one Mexican spotted owl every ten years will be incidentally taken as a result of the proposed action. 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. If, during the course of the action, this level of incidental take is exceeded, such incidental take would represent new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. FHWA 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.

The Fish and Wildlife Service will not refer the incidental take of any migratory bird or bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. Sections 703-712), or the Bald and Golden Eagle Protected Act of 1940, as amended (16 U.S.C. Sections 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

DISPOSITION OF DEAD, INJURED, OR SICK MEXICAN SPOTTED OWLS

Upon locating a dead, injured, or sick spotted owl, initial notification must be made to the Service's Law Enforcement Office, Federal Building, Room 8, 26 North McDonald, Mesa, Arizona (telephone: 480/835-8289) within three working days of its finding. Written notification must be made within five calendar days and should include the date, time, and location of the animal, a photograph, if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling specimens to preserve the biological material in the set possible state. If possible, the remains of intact owl(s) shall be provided to this office. If the remains of the owl(s) are not intact or are not collected, the information noted above shall be obtained and the carcass left in place. Injured animals should be transported to a qualified veterinarian by an authorized biologist. Should the treated owl(s) survive, the Service should be contacted regarding the final disposition of the animal.

CONSERVATION RECOMMENDATIONS

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

1. FHWA should consider developing a mitigation policy for projects that result in loss of Mexican spotted owl protected, restricted, or other woodland and forest type habitats. The policy would include a mitigation formula to be used to provide habitat enhancement or compensation to land management agencies when Mexican spotted owl habitat is lost or degraded due to FHWA projects.
2. FHWA should work with the Service, the Forest Service, and other Tribal, State, and Federal agencies to implement the Mexican spotted owl recovery plan.
3. FHWA should consider funding monitoring, according to Service protocol, of the 7 PACs within 2 miles of the Christopher Creek and Kohls Ranch segments, at least through the end of construction.

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 reinitiation of formal consultation on the action outlined in this biological opinion. 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 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 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 accordance with the Service's June 27, 1995, biological opinion, FHWA will need to reinitiate formal consultation as construction of other SR 260 segments are proposed.

The Service appreciates your consideration of the threatened Mexican spotted owl. For further information, please contact Jim Rorabaugh (x238) or Sherry Barrett (520/640-4617) of my staff.

Mr. Robert E. Hollis

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Please refer to the consultation number 2-21-90-F-299-R1 in future correspondence concerning this project.

Sincerely,

/s/ David L. Harlow
Field Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (ARD-ES)
Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ
Field Supervisor, Fish and Wildlife Service, New Mexico Field Office, Albuquerque, NM

Forest Supervisor, Tonto National Forest, Phoenix, AZ
District Ranger, Tonto National Forest, Payson Ranger District, Payson, AZ
James Rindone, Environmental Planning Group, Arizona Department of Transportation,
Phoenix, AZ
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ

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APPENDIX 1: CONCURRENCES

Spikedace and Loach Minnow Status and Effects

Spikedace was listed as a threatened species on July 1, 1986. Critical habitat was designated for spikedace on March 8, 1994, but was set aside by order of the Federal courts in Catron County Board of Commissioners, New Mexico vs. U.S. Fish and Wildlife Service, CIV No. 93-730 HB (D.N.M., Order of October 13, 1994). Critical habitat was subsequently revoked by the Service. It was again designated on April 25, 2000. Critical habitat includes portions of the Verde, middle Gila, San Pedro, San Francisco, Blue, and upper Gila Rivers and Eagle, Bonita, Tonto, and Aravaipa Creeks and several tributaries of those streams. A total of 807 miles in Arizona and New Mexico were designated as critical habitat.

Spikedace is a small silvery fish whose common name alludes to the well-developed spine in the dorsal fin (Minckley, 1973). Spikedace historically occurred throughout the mid-elevations of the Gila River drainage, but is currently known only from the Verde, middle Gila, and upper Gila Rivers, and Aravaipa and Eagle Creeks (Barber and Minckley, 1966; Minckley, 1973; Anderson, 1978; Marsh *et al.*, 1990; Sublette *et al.*, 1990; Jakle, 1992; Knowles, 1994, Rinne 1999). Habitat destruction along with competition and predation from introduced nonnative species are the primary causes of the species decline (Miller, 1961; Williams *et al.*, 1985; Douglas *et al.*, 1994).

The loach minnow was listed as a threatened species on October 28, 1986. Critical habitat was first designated for loach minnow on March 8, 1994; however, that critical habitat designation was set aside by court order. Critical habitat was once again designated on April 25, 2000, including 898 miles of rivers and streams in the Gila River basin of Arizona and New Mexico.

The loach minnow is a small, elongated fish that was once widespread in the middle and upper Gila River basin from near Phoenix to the upper Gila River and its tributaries in New Mexico. The type specimen was collected on the San Pedro River in 1851. The San Pedro River through the project area is designated critical habitat for the loach minnow. The nearest known population of loach minnow is on Aravaipa Creek approximately 30 miles to the north-northeast of Cascabel (U.S. Fish and Wildlife Service 1991).

Neither spikedace nor loach minnow are currently extant in the Tonto Creek drainage, which includes Christopher Creek, Sharp Creek, and other drainages crossed by the Christopher Creek and Kohls Ranch segments of the SR 260 project. The only perennial streams crossed by the Kohls Ranch segment is Tonto Creek; the only perennial creeks crossed by the Christopher Creek segment are Christopher Creek and Sharp Creek. Critical habitat is designated for spikedace on Tonto Creek downstream of the Houston Creek confluence. Critical habitat for loach minnow is designated on Tonto Creek downstream of the Haigler Creek confluence. The former is approximately 15 miles south of the Kohls Ranch segment and 20 miles southwest of the Christopher Creek segment. The latter is about 8 miles south of the Kohls Ranch segment and 12

miles southwest of the Christopher Creek segment. SR 260 will span Tonto, Christopher, and Sharp creeks. Storm water pollution prevention plans will be prepared for these projects, which will specify erosion and sedimentation control measures during and after construction. Barriers will be constructed between working areas and stream courses to prevent discharge of contaminants. Mechanical equipment will not be allowed to operate in running streams.

Conclusion

The Service concurs with FHWA's determination that the proposed action may affect, but is not likely to adversely affect, the spikedace, loach minnow, and critical habitat designated for these species. We base these determinations on the following:

1. Spikedace and loach minnow are absent in the action area, and do not occur in Tonto Creek or its tributaries.
2. Critical habitat occurs more than 8 miles downstream of SR 260, and measures are proposed to minimize effects to fish habitat at and downstream of perennial stream crossings.

Chiricahua Leopard Frog Status and Effects

The Chiricahua leopard frog (*Rana chiricahuensis*) was proposed for listing as a threatened species without critical habitat in a Federal Register notice dated June 14, 2000. The rule included a proposed special rule to exempt operation and maintenance of livestock tanks on non-Federal lands from the section 9 take prohibitions of the Act. The species is typically a green frog with prominent dorsolateral folds and a salt and pepper pattern on the rear of the thighs.

The Chiricahua leopard frog is an inhabitant of cienegas, pools, livestock tanks, lakes, reservoirs, streams, and rivers at elevations of 3,281 to 8,890 feet in central and southeastern Arizona; west-central and southwestern New Mexico; and in Mexico, northern Sonora, and the Sierra Madre Occidental of Chihuahua, northern Durango and northern Sinaloa (Platz and Mecham 1984, Degenhardt *et al.* 1996, Sredl *et al.* 1997). Threats to this species include predation by nonnative organisms, especially bullfrogs, fish, and crayfish; disease; drought; floods; degradation and destruction of habitat; water diversions and groundwater pumping; disruption of metapopulation dynamics; increased chance of extirpation or extinction resulting from small numbers of populations and individuals; and environmental contamination.

The Chiricahua leopard frog is not currently known to occur in the Tonto Creek drainage; however, it occurred at Indian Gardens near Kohls Ranch as late as 1979. Surveys in 1992, 1993, and 1997 failed to find leopard frogs at Indian Gardens. Surveys at other nearby localities on the Tonto National Forest failed to locate additional populations (Sredl *et al.* 1995). Historically the species occurred at localities above the Mogollon Rim near the project area, including Nelson Reservoir. They also occurred in the Pyeatt Draw drainage to the west of the action area. The nearest extant population of Chiricahua leopard frogs is on the Fossil Creek

drainage, Coconino National Forest. As discussed for spikedace and loach minnow, measures are included in the proposed action to minimize disruption of perennial stream flow and function, to minimize sedimentation or erosion, and to prevent contamination of streams.

Conclusion

The Service concurs with FHWA's determination that the proposed action may affect, but is not likely to adversely affect, the Chiricahua leopard frog. We base this determination on the following:

1. Chiricahua leopard frogs are not known to occur in the project area.
2. Measures are proposed to minimize effects to potential Chiricahua leopard frog habitat at and downstream of perennial stream crossings.

No further section 7 consultation is required for this project at this time in regard to spikedace, loach minnow, and Chiricahua leopard frog. Should project plans change, or if additional information on the distribution of listed or proposed species or critical habitat becomes available, the conclusions herein may need to be reconsidered.

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