United States Department of the Interior

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In Reply Refer To:
AESO/SE
22410-2007-F-0364

July 5, 2007

Mr. Alan Quan
Forest Supervisor
Prescott National Forest
344 South Cortez Street
Prescott, Arizona 86303

RE: Phase I Hazard Vegetation Removal in Utility Corridors on Arizona Forests

Dear Mr. Quan:

Thank you for your request for formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request was received electronically in our office on February 1, 2007. At issue are impacts that may result from the proposed Phase I Hazard Vegetation Removal in Utility Corridors on Arizona Forests located in Apache-Sitgreaves (ASNF), Coconino (CNF), Kaibab (KNF), Prescott (PNF), and Tonto National Forests (TNF), Arizona. The proposed action may adversely affect bald eagle (*Haliaeetus leucocephalus*); and the Mexican spotted owl (*Strix occidentalis lucida*) (MSO), southwestern willow flycatcher (*Empidonax traillii extimus*), loach minnow (*Tiaroga cobitis*) and their designated critical habitat.

We concur with your determinations of "may affect, not likely to adversely affect" for the lesser long-nosed bat (*Leptonycteris curasoae verbabuenae*), California condor (*Gymnogyps californianus*) (outside of its non-essential experimental boundaries), Chiricahua leopard frog (*Rana chiricahuensis*), Gila topminnow (*Poeciliopsis occidentalis*), Apache trout (*Oncorhynchus apache*); and Gila chub (*Gila intermedia*), Little Colorado spinedace (*Lepidomeda vittata*), razorback sucker (*Xyrauchen texanus*) and their designated critical habitat. You concluded that the project "may affect, but is not likely to adversely affect" spikedace (*Meda fulgida*) and its designated critical habitat. Additionally, you concluded that the proposed action "is not likely to jeopardize" the continued existence of the experimental non-essential populations of Mexican gray wolf (*Canis lupus baileyi*), Colorado pikeminnow (*Ptychocheilus lucius*), and California condor.

Our rationales for concurrence are provided at the end of this document (Appendix A).

This biological opinion (BO) is based on information provided in the December 28, 2006, biological assessment (BA) 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 or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

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CONSULTATION HISTORY

The consultation history shown below begins with the Forest Service (FS) request for formal consultation. For a complete list of the consultation history prior to February 1, 2006, please refer to the BA.

- February 1, 2007. FS requested formal consultation.
- February 26, 2007. Clarification letter from Salt River Project.
- March 20, 2007. FWS provided a draft BO to the FS.
- April 23, 2007. FS and utilities provided comments on draft BO.
- June 5, 2007. FWS provided a second draft BO to FS.
- June 18, 2007. FS provided comments on the second draft BO.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

For a complete description of the proposed action, please refer to the December 28, 2006, BA.

Background

Utilities within Arizona have numerous transmission, distribution, and communication lines that cross United States National Forest System (NFS) lands. These utility lines lie within existing rights-of-way (ROW) corridors and are included in a special use permit process with the FS. As part of the special use permit conditions, the FS authorizes the utility companies to conduct maintenance-related activities within an established ROW. Arizona Public Service (APS), Salt River Project (SRP), Western Area Power Administration (WAPA), Navopache Electric Co-op Inc. (NEC), Garkane Energy, and Qwest have entered into a consultation agreement (see BA, Appendix E) with the FS and FWS in an effort to streamline section 7 consultations on hazard tree removal and maintenance activities within ROW corridors. The consultation agreement includes two phases. Phase I of the consultation agreement will cover removal of all imminent danger, hazard vegetation[1] along utility corridors on all of the NFS lands in Arizona, with the exception of the Coronado National Forest. The purpose of hazard vegetation removal is twofold: 1) it allows the utility companies to provide uninterrupted service to customers, and 2) it provides protection against wildfires that could result from hazard vegetation coming into contact with power lines. Phase II will cover all utility line maintenance activities including vegetation maintenance (hazard vegetation and vegetation clearing) and equipment maintenance

[1] Hazard Vegetation: Hazard vegetation is a live or dead standing tree or vegetation having defects, singly or combined, in the roots, butt, bole, or limbs, which predispose it to imminent mechanical failure to the whole or part of a utility line, pole, or tower. The tree or vegetation must be located such that a failure of the tree or vegetation (or any part of the tree or vegetation) has a probability of causing damage to the utility line, pole, or tower. A "defect" is an injury or disease that seriously weakens the stems, roots, or branches of the tree or vegetation, predisposing it to fail (e.g., broken branches, split top) to continue standing. "Imminent" implies that damage resulting to the utility line, pole, or tower from the tree or vegetation could occur at any time. This definition applies to any vegetation that poses an immediate threat to a utility line. Hazard vegetation can include vegetation with arc potential (see Arc definition below).
Arc: The flow of electricity across a gap (through the air) from one conductor to another or to a grounded object. Arcing potential is evaluated by using accepted industry standards such as those recommended by the National Electric Safety Code. Trees or vegetation may not have defects predisposing them to imminent mechanical failure, but if vegetation is within arcing potential from a transmission or distribution line, it may pose a hazard. In this case, pruning of healthy trees or vegetation would be the preferred method for eliminating those hazards associated with arcing potential.

(repairing and replacing poles, conductors, insulators, and other associated hardware) along utility corridors on NFS lands in Arizona.

WAPA power lines will not be included in Phase I of this consultation, and Qwest is only included within this project as a paying partner for their communication lines that are under-built on power lines. Because communication lines are under-built on APS power lines, hazard vegetation is generally addressed by APS.

Project Area

The project area for Phase I include those areas where APS, SRP, Garkane, and NEC power lines are present on NFS lands in Arizona (Figure 2). A total of 2,208 miles of power line is within the project area. Of the 2,208 miles, APS has 1,474 miles (67%), SRP has 445 miles (20%), NEC has 236 miles (11 %), and Garkane has 54 miles (2 %) of power line. The project area includes a total of 18,286 acres. Of the 18,286 acres, APS has 13,181 acres, SRP has 3,971 acres, NEC has 945 acres, and Garkane has 188 acres of the project area. The calculated acres for the project area are based on the Vegetation Clearance Corridor (VCC) calculations (Table 1) and do not include areas outside of the VCC. However, hazard vegetation may also be located outside of the VCC which is not included in the acreage calculations. The VCC is different from the ROW. VCCs are based on industry reliability standards that define the area around power lines that needs to be maintained free of vegetation in order to comply with the industry standards and provide safe and reliable distribution of electricity. The VCC is calculated by using the defined clearance width for each voltage of line from Table 1 below and the distance between outside conductors. For example, if the distance between the two outside conductors for a 12 kV line is 8 feet, the clearance width would be 10 feet and the total VCC would be 28 feet (see Figure 1 for a representation of this example). Therefore, the acreage calculation is only an estimate but can be viewed as a baseline for project area acreages. Refer to the BA for a comprehensive list of each power line within the project area by utility with voltage, starting and ending points, Forest, and line name and/or number. The project area also includes any FS classified or authorized roads as well as air space above FS lands used by the utility companies for identifying and removing or pruning hazard vegetation.

Table 1. Vegetation Clearance Corridor Widths by Power Line Voltage

Line Voltage	Clearance Width (ft.)*	**Average Distance Between Conductors (ft.)	**Approximate Vegetation Clearance Corridor (VCC) Widths (ft.)
12 kV	10	8	28
69 kV	16	14	46
115 kV	17	16	50
230 kV	21	25	67
345 kV	50	56	156
500 kV	50	64	164

* Clearance width is the distance from the outside conductor that provides a safe clearance area.

** Note: The Average Distance Between Conductors is based upon averages. The actual distance between conductors can vary by the type of structure. Therefore, the actual VCC width for a specific line may be different from the widths listed in this table.

Action Area

The action area represents all areas to be affected directly or indirectly by the action (i.e., NFS authorization for the utilities to clear hazard vegetation on existing permitted NFS ROWs). For NFS-authorized, utility actions related to the clearing of hazard vegetation, the action area is expected to be wider than the footprint of the project area. The footprint of the project area includes the VCC (which includes the permitted ROW), any location outside of the VCC where hazard vegetation is located or downed vegetation is disposed, aircraft approaching and leaving the VCC over NFS lands, and FS authorized access roads traveled by vehicles approaching and leaving the VCC. Effects from the proposed action that extend beyond the project area footprint may also extend to adjacent or nearby non-Federal lands. These areas are also included as part of the action area.

Proposed Action

The proposed action of this consultation is the NFS authorization for utilities to conduct hazard vegetation identification, removal, and disposal on NFS lands (Phase I hazard vegetation removal as noted above). For this phase the utilities propose to identify (aerial and/or ground survey), remove or prune, and dispose of hazard vegetation along transmission, distribution, and communication lines on NFS lands in Arizona. Because of the nature of hazard vegetation as being "imminent", neither species specific nor fire restrictions apply for removal efforts. Therefore, hazard vegetation can potentially be removed or pruned at any time of year. All proposed activities for Phase I will conclude upon completion of Phase II programmatic consultation, currently estimated as Spring 2008.

Table 2 below identifies four actions that will be implemented by one or more utilities during Phase I. Although the actions listed in Table 2 for the most part are all implemented by APS, SRP, NEC, and Garkane, not all utilities manage their hazard vegetation operations in the same way. Therefore, we identified the following list of proposed actions described for aerial survey, ground survey, removal, and disposal that are common implementation procedures carried out by each utility company for Phase I hazard vegetation removal.

Table 2. Actions proposed by each utility.

Utility Action	APS	SRP	NEC	Garkane
Aerial Survey	Yes*	Yes*	No	Yes
Ground Survey	Yes	Yes	Yes	Yes
Removal	Yes	Yes	Yes	Yes
Disposal	Yes	Yes	Yes	Yes

***** APS and SRP agreed that for aerial helicopter flights during the bald eagle breeding season, they will avoid active bald eagle nests by providing a 1,000-feet lateral and vertical buffer. They have also agreed to coordinate with the Arizona Game and Fish Department Bald Eagle Management Program for information regarding the current nests being used by eagles.

Aerial Survey

- All flights will operate during daytime hours.
- Helicopters cruise 2,000 to 3,000 feet above the ground from the point of origin (airport) to the utility line.

- Helicopters will fly above and along utility lines for hazard vegetation identification, ranging from 50 to 300 feet above the ground.
- At any time during the flight the helicopter may hover or circle over possible hazard vegetation locations.

Ground Survey

- Crews will locate and confirm the hazard vegetation identified during aerial surveys.
- Crews may identify additional hazard vegetation not noted during the aerial survey.
- Crews will identify hazard vegetation during routine ground surveys (independent of aerial surveys).
- After hazard vegetation is confirmed or located, crews will record the line name/number, species, size class, and mark the hazard vegetation for future removal or pruning (NEC may remove or prune hazard vegetation at this time).
- Surveys will occur during daytime hours.
- Travel may include the following: 4x4 trucks, ATV, snowmobile, snowcat, or walking.
- Only classified roads and/or FS authorized roads are used to locate hazard vegetation. If road access to the hazard vegetation is not available, crews will walk to the area.

Removal or Pruning

- Occurs only after hazard vegetation is identified and marked.
- Crews may remove or prune hazard vegetation any time of year.
- Crews performing the removal will make an effort to avoid damaging any other trees when felling, but damage to other trees or vegetation may occur. If a tree is damaged or removed as a result of felling hazard trees, the species, size class, and location of the tree will be recorded.
- Travel may include the following: 4x4 trucks, bucket truck, ATV, snowcat, or walking.
- Equipment may include chainsaw, handsaw, climbing saddles, and rope.

Disposal

- Crews will dispose of hazard vegetation according to FS direction. The preferred disposal method for each utility is discussed in the BA.

The information that was not included in the descriptions above is timing and frequency of operations. The specific timing and frequency for each utility will be discussed and analyzed in the Effects of the Action section of this document. A complete description of each utility's hazard vegetation management operations can be found in the BA for this project.

Recording and Reporting Hazard Vegetation

- Location of trees or vegetation treated
- Powerline name and/or number
- Identification if the treated vegetation was inside or outside the VCC
- Status of the vegetation (alive or dead)
- Species of tree(s) or vegetation
- Size class and number of treated trees(s) and/or vegetation
- Date inventoried/identified and date treated
- Other trees or vegetation damaged or removed due to hazard vegetation treatment

The information gathered for hazard vegetation removal by each utility will be reported to the FWS each year on the January 1 following the previous year's work.

Conservation Measures

While conducting helicopter flights during the bald eagle breeding season (November through June), APS and SRP will avoid bald eagle nests with a 1,000-feet lateral and vertical buffer. They have also agreed to coordinate with the Arizona Game and Fish Department Bald Eagle Management Program for information regarding the current nests being used by eagles.

STATUS OF THE SPECIES AND CRITICAL HABITAT

Bald Eagle

The bald eagle south of the 40th parallel was listed as endangered under the Endangered Species Preservation Act of 1966, on March 11, 1967 (USFWS 1967), and was reclassified to threatened status on July 12, 1995 (USFWS 1995). No critical habitat has been designated for this species. The bald eagle was proposed for delisting on July 6, 1999 (USFWS 1999). The Center for Biological Diversity (Silver 2004) petitioned the FWS in October 2004, to determine that the Sonoran Desert nesting bald eagle was a distinct population segment, uplist the population to endangered status, and designate critical habitat. The FWS responded to the petition on August 30, 2006 (USFWS 2006b). We found that the petition provided substantial information for discreteness, but did not provide substantial information with respect to significance or threats (USFWS 2006b). Secretary of the Interior Dirk Kempthorne announced the removal of the bald eagle from the list of threatened and endangered species on June 28, 2007, citing a 25-fold increase in the numbers of bald eagles across the country in the last 40 years.

The bald eagle is a large bird of prey that historically ranged and nested throughout North America except extreme northern Alaska and Canada, and central and southern Mexico. The bird occurs in association with aquatic ecosystems, frequenting estuaries, lakes, reservoirs, major rivers systems, and some seacoast habitats. Generally, suitable nesting habitat for bald eagles includes those areas which provide an adequate food base (quantity, quality, continuity, accessibility) (Stalmaster 1987) of fish, waterfowl, and/or carrion, with large trees for perches and nest sites. In winter, bald eagles often congregate at specific wintering sites that are generally close to open water and offer good perch trees and protected night roosts (USFWS 1995). Bald eagles will lay between one to three eggs, typically fledging one to two eaglets. Three eaglet broods occur (i.e. Lake Mary breeding area in 2006), but are not typical.

Since listing, bald eagles have increased in number and expanded in range due to the banning of DDT and other persistent organochlorine compounds, habitat protection, and additional recovery efforts. Surveys in 1963 indicated 417 active nests in the lower 48 states with an average of 0.59 young produced per nest. Surveys in 1974 resulted in a population estimate of 791 occupied breeding areas in the lower 48 states (USFWS 1999). In 1994, 4,450 occupied breeding areas were reported with an estimated average of 1.16 young produced per occupied nest (USFWS 1995). We estimated that the breeding population exceeded 5,748 occupied breeding areas in 1998 (USFWS 1999) and may be closer to 10,000 territories in 2007 (G. Beatty, FWS, pers. comm.).

Hunt *et al.* (1992) summarized the earliest records from the literature for bald eagles in Arizona. Coues (1866) noted bald eagles in the vicinity of Fort Whipple (now Prescott) in 1866, and Henshaw (1875) reported bald eagles south of Fort Apache in 1875. The first bald eagle breeding information was recorded in 1890 near Stoneman Lake by S.A. Mearns. Additionally, Bent (1960) reported breeding eagles at Fort Whipple in 1866 and on the Salt River Bird Reservation (since inundated by Roosevelt Lake) in 1911. Additionally, there are reports of bald eagles along rivers in the White Mountains from 1937, and reports of nesting bald eagles along the Salt and Verde rivers as early as 1930. However, the historical distribution and abundance of bald eagles in Arizona is largely unknown (Hunt *et al.* 1992).

The 43 occupied bald eagle breeding areas in Arizona (Driscoll *et al.* 2006) are now predominantly located in the upper and lower Sonoran life zones. The Luna Lake Breeding Area, and recently discovered Crescent Lake, Canyon de Chelly, Lynx Lake and reoccupied Lake Mary Breeding Areas, are the few territories in Arizona where eagles have been found nesting and foraging in coniferous forests or high elevations, as opposed to the majority of breeding areas where Sonoran vegetation communities are part of their territories. Nearly all breeding areas in Arizona are located in close proximity to a variety of aquatic habitats including reservoirs, regulated river systems, and free-flowing rivers and creeks. The alteration of natural river systems has had both beneficial and detrimental affects to the bald eagle. While large portions of riparian forests were inundated or otherwise destroyed following construction of dams and other water developments, the reservoirs created by some of these structures enhanced habitat for the waterfowl and fish species (often nonnative species) on which bald eagles prey.

Bald eagles in Arizona consume a diversity of food items. However, their primary food is fish, which are generally consumed twice as often as birds, and four times as often as mammals. Bald eagles are known to catch live prey, steal prey from other predators (especially osprey), and use carrion. Carrion constitutes a higher proportion of the diet for juveniles and subadults than it does for adult eagles. Diet varies depending on what species are available locally. This can be affected by the type of water system on which the breeding area is based (Hunt *et al*. 1992).

The Arizona Game and Fish Department (AGFD) (1999) concluded that

> "evidence from the banding and identification of breeding adults defends the theory that Arizona's breeding population is not supported or maintained by immigration from other states or regions. Because adults return to the vicinity of their natal origin to breed, the large distance between small populations in the Southwest decreases the chance for movement between neighboring populations. Probably most convincing are the results from banding 256 nestlings over 20 years and identifying 372 breeding adults over 8 years. Only one individual from out-of-state entered the breeding population and one left. Additionally, the proportion of breeding adults with color bands (placed on as nestlings in Arizona) has steadily increased, while the presence of unmarked eagles has decreased. Thus, continued attention to the survivorship of all Arizona bald eagles is vital to the maintenance of our breeding population. We can not depend on immigration to Arizona from nearby states to make up for poor management in Arizona."

In addition to breeding bald eagles, Arizona provides habitat for wintering bald eagles, which migrate through the state between October and April each year. Bald eagles can be found statewide, and unlike some other states or areas, Arizona does not tend to have traditional

concentrations of hundreds of bald eagles annually. Rather, concentrations tend to be smaller and less predictable, occurring in areas like Mormon Lake/Lake Mary, San Carlos Lake, or the Black River. The average number of wintering bald eagles counted along standardized routes since 1995 is 332 birds (Jacobsen *et al.* 2005). In 2005, the standardized statewide Arizona winter count totaled 224 bald eagles (Jacobsen *et al.* 2005).

Past Consultations
Since 2001, nine Federal agency actions have undergone (or are currently under) formal section 7 consultation in Arizona that resulted in incidental take (Appendix B). In all of these projects, loss of breeding opportunities, disturbance, and in some cases direct mortality is anticipated. Reasonable and prudent measures were developed to minimize the take of bald eagles.

Mexican spotted owl

The MSO was listed as a threatened species in 1993 (USFWS 1993) and critical habitat was most recently designated in 2004 (USFWS 2004). The primary threats to the species were cited as even-aged timber harvest and catastrophic wildfire, although grazing, recreation, and other land uses were also mentioned as possible factors influencing the MSO population. The FWS appointed the Mexican Spotted Owl Recovery Team in 1993, which produced the Recovery Plan for the Mexican Spotted Owl (Recovery Plan) in 1995 (USFWS 1995). A revision of the Recovery Plan is currently being drafted.

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

The U.S. range of the MSO has been divided into six recovery units (RU), as discussed in the Recovery Plan. The primary administrator of lands supporting the MSO in the United States is the FS. Most owls have been found within Forest Service Region 3 (including 11 National Forests in Arizona and New Mexico). According to the Recovery Plan, 91 percent of MSO known to exist in the United States between 1990 and 1993 occurred on lands administered by the FS.

Historical and current anthropogenic uses of MSO habitat include both domestic and wild ungulate grazing, recreation, fuels reduction treatments, resource extraction (e.g., timber, oil, gas), and development. These activities have the potential to reduce the quality of MSO nesting, roosting, and foraging habitat, and may cause disturbance during the breeding season.

A reliable estimate of the numbers of owls throughout its entire range is not currently available (USFWS 1995) and the quality and quantity of information regarding numbers of MSO vary by source. USFWS (1991) reported a total of 2,160 owls throughout the United States. Fletcher (1990) calculated that 2,074 owls existed in Arizona and New Mexico. However, Ganey *et al.* (2000) estimates approximately 2,950 ± 1,067 (SE) MSOs in the Upper Gila Mountains RU

alone. The FS Region 3 most recently estimates a total of approximately 1,025 PACs established on NFS lands in Arizona and New Mexico (B. Barrera, USFS, pers. comm. June 2007). Based on this number of MSO sites, total numbers in the United States may range from 1,025 individuals, assuming each known site was occupied by a single MSO, to 2,050 individuals, assuming each known site was occupied by a pair of MSOs. The FS Region 3 data are the most current compiled information available to us; however, survey efforts in areas other than NFS lands have resulted in additional sites being located in all Recovery Units.

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

Since the owl was listed, we have completed or have in draft form a total of 178 formal consultations for the MSO. These formal consultations have identified incidences of anticipated incidental take of MSO in 370 PACs. The form of this incidental take is almost entirely harm or harassment, rather than direct mortality. These consultations have primarily dealt with actions proposed by FS Region 3. However, in addition to actions proposed by FS Region 3, we have also reviewed the impacts of actions proposed by the Bureau of Indian Affairs, Department of Defense (including Air Force, Army, and Navy), Department of Energy, National Park Service, and Federal Highway Administration. These proposals have included timber sales, road construction, fire/ecosystem management projects (including prescribed natural and management ignited fires), livestock grazing, recreation activities, utility corridors, military and sightseeing overflights, and other activities. Only two of these projects (release of site-specific owl location information and existing forest plans) have resulted in biological opinions that the proposed action would likely jeopardize the continued existence of the MSO.

In 1996, we issued a biological opinion on FS Region 3 adoption of the Recovery Plan recommendations through an amendment to their Land and Resource Management Plans (LRMPs). In this non-jeopardy biological opinion, we anticipated that approximately 151 PACs would be affected by activities that would result in incidental take of MSOs, with approximately 91 of those PACs located in the Upper Gila Mountains RU. In addition, on January 17, 2003, we completed a reinitiation of the 1996 Forest Plan Amendments biological opinion, which anticipated the additional incidental take of five MSO PACs in Region 3 due to the rate of implementation of the grazing standards and guidelines, for a total of 156 PACs. Consultation on individual actions under these biological opinions resulted in the harm and harassment of approximately 243 PACs on Region 3 NFS lands. FS Region 3 reinitiated consultation on the LRMPs on April 8, 2004. On June 10, 2005, the FWS issued a revised biological opinion on the amended LRMPs. We anticipated that while the Region 3 Forests continue to operate under the existing LRMPs, take is reasonably certain to occur to an additional 10 percent of the known

PACs on NFS lands. We expect that continued operation under the plans will result in harm to 49 PACs and harassment to another 49 PACs. To date, consultation on individual actions under the amended Forest Plans, as accounted for under the June 10, 2005, biological opinion has resulted in the incidental take of owls associated with 19 PACs. Incidental take associated with Forest Service fire suppression actions, which was not included in the LRMP proposed action, has resulted in the incidental take of owls associated with 11 PACs.

Mexican spotted owl critical habitat

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

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

Primary constituent elements related to forest structure include:

- A range of tree species, including mixed conifer, pine-oak, and riparian forest types, composed of different tree sizes reflecting different ages of trees, 30 percent to 45 percent of which are large trees with diameter-at-breast height (dbh) of 12 inches or more;

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

- Large, dead trees (snags) with a dbh of at least 12 inches.

Primary constituent elements related to the maintenance of adequate prey species include:

- High volumes of fallen trees and other woody debris;

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

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

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

Certain forest management practices may also enhance tree growth and mature stand characteristics where the older, larger trees are allowed to persist.

Southwestern willow flycatcher

Description
The southwestern willow flycatcher is a small grayish-green passerine bird (Family Tyrannidae) measuring approximately 5.75 inches. The song is a sneezy "fitz-bew" or a "fit-a-bew", the call is a repeated "whitt". It is one of four currently recognized willow flycatcher subspecies (Phillips 1948, Unitt 1987, Browning 1993). It is a neotropical migrant that breeds in the southwestern U.S. and migrates to Mexico, Central America, and possibly northern South America during the non-breeding season (Phillips 1948, Stiles and Skutch 1989, Peterson 1990, Ridgely and Tudor 1994, Howell and Webb 1995). The historical breeding range of the southwestern willow flycatcher included southern California, Arizona, New Mexico, western Texas, southwestern Colorado, southern Utah, extreme southern Nevada, and extreme northwestern Mexico (Sonora and Baja) (Unitt 1987).

Listing and critical habitat
The southwestern willow flycatcher was listed as endangered, without critical habitat on February 27, 1995 (USFWS 1995). Critical habitat was later designated on July 22, 1997 (USFWS 1997a). A correction notice was published in the Federal Register on August 20, 1997 to clarify the lateral extent of the designation (USFWS 1997b).

On May 11, 2001, the 10th circuit court of appeals set aside designated critical habitat in those states under the 10th circuit's jurisdiction (New Mexico). The FWS decided to set aside critical habitat designated for the southwestern willow flycatcher in all other states (California and Arizona) until it could re-assess the economic analysis.

On October 19, 2005, the FWS re-designated critical habitat for the southwestern willow flycatcher (USFWS 2005). A total of 737 river miles across southern California, Arizona, New Mexico, southern Nevada, and southern Utah were included in the final designation. The lateral extent of critical habitat includes areas within the 100-year floodplain. The primary constituent elements of critical habitat are based on riparian plant species, structure and quality of habitat and insects for prey. A variety of river features such as broad floodplains, water, saturated soil, hydrologic regimes, elevated groundwater, fine sediments, etc. help develop and maintain these constituent elements (USFWS 2005).

A final recovery plan for the southwestern willow flycatcher was signed by the FWS Region 2 Director on August 30, 2002, and was released to the public in March, 2003 (USFWS 2002). The Plan describes the reasons for endangerment, current status of the flycatcher, addresses important recovery actions, includes detailed issue papers on management issues, and provides recovery goals. Recovery is based on reaching numerical and habitat related goals for each specific Management Unit established throughout the subspecies range and establishing long-term conservation plans (USFWS 2002).

Reasons for endangerment
Reasons for decline have been attributed primarily to loss, modification, and fragmentation of riparian breeding habitat, along with a host of other factors including loss of wintering habitat and brood parasitism by the brown-headed cowbird (Sogge *et al.* 1997, McCarthey *et al.* 1998).

Habitat loss and degradation are caused by a variety of factors, including urban, recreational, and agricultural development, water diversion and groundwater pumping, channelization, dams, and livestock grazing. Fire is an increasing threat to willow flycatcher habitat (Paxton *et al.* 1996), especially in monotypic saltcedar vegetation (DeLoach 1991) and where water diversions and/or groundwater pumping desiccates riparian vegetation (Sogge *et al.* 1997). Willow flycatcher nests are parasitized by brown-headed cowbirds (*Molothrus ater*), which lay their eggs in the host's nest. Feeding sites for cowbirds are enhanced by the presence of livestock and range improvements such as waters and corrals, agriculture, urban areas, golf courses, bird feeders, and trash areas. When these feeding areas are in close proximity to flycatcher breeding habitat, especially coupled with habitat fragmentation, cowbird parasitism of flycatcher nests may increase (Hanna 1928, Mayfield 1977a, 1977b).

Habitat

The southwestern willow flycatcher breeds in dense riparian habitats from sea level in California to approximately 8,500 feet in Arizona and southwestern Colorado. Historical egg/nest collections and species' descriptions throughout its range describe the southwestern willow flycatcher's widespread use of willow (*Salix* spp.) for nesting (Phillips 1948, Phillips *et al.* 1964, Hubbard 1987, Unitt 1987, San Diego Natural History Museum 1995). Currently, southwestern willow flycatchers primarily use Geyer willow (*Salix geyeriana*), coyote willow (*Salix exigua*), Goodding's willow (*Salix gooddingii*), boxelder (*Acer negundo*), saltcedar (*Tamarix* sp.), Russian olive (*Elaeagnus angustifolio*), and live oak (*Quercus agrifolia*) for nesting. Other plant species less commonly used for nesting include: buttonbush (*Cephalanthus* sp.), black twinberry (*Lonicera involucrata*), cottonwood (*Populus* spp.), white alder (*Alnus rhombifolia*), blackberry (*Rubus ursinus*), and stinging nettle (*Urtica* spp.). Based on the diversity of plant species composition and complexity of habitat structure, four basic habitat types can be described for the southwestern willow flycatcher: monotypic willow, monotypic exotic, native broadleaf dominated, and mixed native/exotic (Sogge *et al.*1997).

Tamarisk is an important component of the flycatchers's nesting and foraging habitat in Arizona and other parts of the bird's range. In 2001 in Arizona, 323 of the 404 (80 percent) known flycatcher nests (in 346 territories) were built in a tamarisk tree (Smith *et al.* 2002). Tamarisk had been believed by some to be a habitat type of lesser quality for the southwestern willow flycatcher, however comparisons of reproductive performance (USFWS 2002), prey populations (Durst 2004) and physiological conditions (Owen and Sogge 2002) of flycatchers breeding in native and exotic vegetation has revealed no difference (Sogge *et al.* 2005).

Open water, cienegas, marshy seeps, or saturated soil are typically in the vicinity of flycatcher territories and nests; flycatchers sometimes nest in areas where nesting substrates were in standing water (Maynard 1995, Sferra *et al.* 1995, 1997). However, hydrological conditions at a particular site can vary remarkably in the arid Southwest within a season and among years. At some locations, particularly during drier years, water or saturated soil is only present early in the breeding season (i.e., May and part of June). However, the total absence of water or visibly saturated soil has been documented at several sites where the river channel has been modified (e.g. creation of pilot channels), where modification of subsurface flows has occurred (e.g. agricultural runoff), or as a result of changes in river channel configuration after flood events (Spencer *et al.* 1996).

The flycatcher's habitat is dynamic and can change rapidly: nesting habitat can grow out of suitability; saltcedar habitat can develop from seeds to suitability in five years; heavy runoff can

remove/reduce habitat suitability in a day; or river channels, floodplain width, location, and vegetation density may change over time. The flycatcher's use of habitat in different successional stages may also be dynamic. For example, over-mature or young habitat not suitable for nest placement can be occupied and used for foraging and shelter by migrating, breeding, dispersing, or non-territorial southwestern willow flycatchers (McLeod *et al.* 2005, Cardinal and Paxton 2005). That same habitat may subsequently grow or cycle into habitat used for nest placement. Flycatcher habitat can quickly change and vary in suitability, location, use, and occupancy over time (Finch and Stoleson 2000).

Breeding biology

Throughout its range the southwestern willow flycatcher arrives on breeding grounds in late April and May (Sogge and Tibbitts 1992, Sogge *et al.* 1993, Sogge and Tibbitts 1994, Muiznieks *et al.* 1994, Maynard 1995, Sferra *et al.* 1995, 1997). Nesting begins in late May and early June and young fledge from late June through mid-August (Willard 1912, Ligon 1961, Brown 1988a, 1988b, Whitfield 1990, Sogge and Tibbitts 1992, Sogge *et al.* 1993, Muiznieks *et al.* 1994, Whitfield 1994, Maynard 1995). Typically one brood is raised per year, but birds have been documented raising two broods during one season and renesting after a failure (Whitfield 1990, Sogge and Tibbitts 1992, Sogge *et al.* 1993, Sogge and Tibbitts 1994, Muiznieks *et al.* 1994, Whitfield 1994, Whitfield and Strong 1995).

Rangewide distribution and abundance

Unitt (1987) documented the loss of more than 70 southwestern willow flycatcher breeding locations rangewide (peripheral and core drainages within its range), estimating the rangewide population at 500 to 1000 pairs. Since 1993, a total of 133 sites once known to have breeding flycatchers are no longer presently occupied by nesting birds (Durst *et al.* 2006). There are currently 275 known southwestern willow flycatcher breeding sites in California, Nevada, Arizona, Utah, New Mexico, and Colorado (all sites from 1993 to 2005 where a resident flycatcher has been detected) holding an estimated 1,214 territories (Durst *et al.* 2006). It is difficult to arrive at a grand total of flycatcher territories since not all sites are surveyed annually to determine the actual abundance of birds. Also, sampling errors may bias population estimates positively or negatively (e.g., incomplete survey effort, double-counting males/females, composite tabulation methodology, natural population fluctuation, and random events) and it is likely that the total breeding population of southwestern willow flycatchers fluctuates. Numbers have increased since the bird was listed and some habitat remains unsurveyed; however, after nearly a decade of intense surveys, the existing numbers are just past the upper end of Unitt's 1987 estimate. About 50 percent of the 1,214 territories (Table 3) currently estimated throughout the subspecies range are located at four general locations (Cliff/Gila Valley – New Mexico, Roosevelt Lake - Arizona, San Pedro River/Gila River confluence – Arizona, Middle Rio Grande, New Mexico).

The survival and recovery of the flycatcher is not dependent on having a few locations with large numbers of birds, but rather properly distributed populations throughout the subspecies' range placed close together (USFWS 2002). Southwestern willow flycatchers are believed to function as a group of meta-populations (USFWS 2002). Esler (2000) describes Levins' meta-population theory as that which addresses the demography of distinct populations (specifically extinction probabilities), interactions among sub-populations (dispersal and recolonization), and ultimately persistence of the aggregate of sub-populations, or the meta-population. Meta-population theory has been applied increasingly to conservation problems, in particular those cases where species' ranges have been fragmented by habitat alteration by humans. An incidence function analysis completed for the southwestern willow flycatcher incorporated a spatial component to estimate

probabilities of habitat patch extinction and colonization (Lamberson *et al.* 2000). Modeling indicated that persistence of flycatcher populations is reduced when populations are small and widely distributed. Conversely, meta-populations are more stable when sub-populations are large and close together. However, where populations exceed 10 pairs, it is best to colonize a new site, rather than risk the effects of catastrophic events (fire, disease, flood, etc.). In other words, there needs to be considerable progress to reach greater meta-population stability through developing larger sites in closer proximity to each other (USFWS 2002).

Arizona distribution and abundance

Unitt (1987) concluded that "...probably the steepest decline in the population level of *E.t. extimus* has occurred in Arizona..." Historical records for Arizona indicate the former range of the southwestern willow flycatcher included portions of all major river systems (Colorado, Salt, Verde, Gila, Santa Cruz, and San Pedro) and major tributaries, such as the Little Colorado River and headwaters, and White River.

In 2005, 483 territories were known from 47 sites along 15 drainages in Arizona (English *et al.* 2006). The lowest elevation where territorial pairs were detected was 459 feet along the Lower Colorado River; the highest elevation was near Hereford Bridge along the upper San Pedro River (4,150 feet). In most previous years, some nests had been detected near 8,000 feet in the White Mountains of eastern Arizona. However, no territories were detected in 2005.

As reported by English *et al.* (2006), the largest concentrations of breeding willow flycatchers in Arizona in 2005 were near the San Pedro River/Gila River confluence (348 flycatchers, 185 territories); at the Salt River and Tonto Creek inflows to Roosevelt Lake (278 flycatchers, 153 territories); Big Sandy River, Wikieup (62 flycatchers, 33 territories); Gila River, Safford area (54 flycatchers, 31 territories); Verde River, Horseshoe Lake (38 flycatchers, 23 territories); Topock Marsh on the Lower Colorado River (36 flycatchers, 21 territories); and Alamo Lake on the Bill Williams River (includes lower Santa Maria and Big Sandy river sites) (26 flycatchers, 14 territories). Combined, Roosevelt Lake and the San Pedro/Gila confluence make up 338 (70 %) of the 483 territories recorded in the state.

Table 3. Estimated rangewide population for the southwestern willow flycatcher based on 1993 to 2005 survey data for Arizona, California, Colorado, New Mexico, Nevada, Utah, and Texas[1].

State	Number of sites with WIFL territories 1993-05[2]	Percentage of sites with WIFL territories 1993-05	Number of territories[3]	Percentage of total territories
Arizona	117	42.5 %	495	40.8 %
California	94	34.2 %	191	15.7 %
Colorado	10	3.6 %	63	5.2 %
Nevada	13	4.7 %	68	5.6 %
New Mexico	38	13.8 %	393	32.4 %
Utah	3	1.1 %	4	0.3%
Texas	?	?	?	?
Total	275	100 %	1,214	100 %

[1]Durst *et al.* 2006.
[2]Site boundaries are not defined uniformly throughout the bird's range.
[3] Total territory numbers recorded are based upon the most recent years survey information from that site between 1993 and 2005.

While numbers have significantly increased in Arizona (145 to 495 territories from 1996 to 2005), overall distribution of flycatchers throughout the state has not changed much. Note that 70 percent of all known territories in Arizona since listing occur at two locations (Roosevelt and San Pedro River/Gila River confluence). Recovery and survival of the flycatcher depends not only on numbers of birds, but territories/sites that are well distributed (USFWS 2002). Currently, population stability in Arizona is believed to be largely dependent on the presence of two large populations (Roosevelt Lake and San Pedro/Gila River confluence). Therefore, the result of catastrophic events or losses of significant populations either in size or location could greatly change the status and survival of the bird. Conversely, expansion into new habitats or discovery of other populations would improve the known stability and status of the flycatcher.

The primary constituent elements of southwestern willow flycatcher critical habitat are:

1. Riparian habitat in a dynamic successional riverine environment (for nesting, foraging, migration, dispersal, and shelter) that comprises:

    a. Trees and shrubs that include, but are not limited to, willow species, box elder, tamarisk, Russian olive, cottonwood, stinging nettle, alder, ash, poison hemlock,

blackberry, oak, rose, false indigo, Pacific poison ivy, grape, Virginia creeper, Siberian elm, and walnut.

b. Dense riparian vegetation with thickets of trees and shrubs ranging in height from 2 to 30 meters (m) (6 to 98 feet (ft.). Lower-stature thickets (2 to 4 meters or 6 to 13 feet tall) are found at higher elevation riparian forests, and tall-stature thickets are found at middle- and lower-elevation riparian forests;

c. Areas of dense riparian foliage at least from the ground level up to approximately 4 m (13 ft) above ground or dense foliage only at the shrub level, or as a low, dense tree canopy;

d. Sites for nesting that contain a dense tree and/or shrub canopy (the amount of cover provided by tree and shrub branches measured from the ground) (*i.e.*, a tree or shrub canopy with densities ranging from 50 percent to 100 percent); or

e. Dense patches of riparian forests that are interspersed with small openings of open water or marsh, or shorter/sparser vegetation that creates a mosaic that is not uniformly dense. Patch size may be as small as 0.1 ha (0.25 ac) or as large as 70 ha (175 ac).

2. A variety of insect prey populations found within or adjacent to riparian floodplains or moist environments, including: flying ants, wasps, and bees; dragonflies; flies; true bugs; beetles; butterflies/moths and caterpillars; and spittlebugs.

A variety of river features such as broad floodplains, water, saturated soil, hydrologic regimes, elevated groundwater, fine sediments, etc. help develop and maintain these constituent elements (USFWS 2005).

Past Consultations

Since listing in 1995, at least 154 Federal agency actions have undergone (or are currently under) formal section 7 consultation throughout the flycatcher's range (Appendix C). Since critical habitat was finalized in October 2005, five formal opinions have been completed for southwestern willow flycatcher critical habitat in Arizona. While many opinions were issued for the previous critical habitat designation, the stream reaches and constituent elements have changed.

Many activities continue to adversely affect the distribution and extent of all stages of flycatcher habitat throughout its range (development, urbanization, grazing, recreation, native and non-native habitat removal, dam operations, river crossings, ground and surface water extraction, etc.). Stochastic events also continue to change the distribution, quality, and extent of flycatcher habitat.

Loach minnow

Loach minnow (*Tiaroga cobitis*) was listed as a threatened species on October 28, 1986 (USFWS 1986), and critical habitat was finalized March 21, 2007 (USFWS 2007). Loach minnow is a small, slender, elongate fish with markedly upwardly-directed eyes (Minckley 1973). Historical range of loach minnow included the basins of the Verde, Salt, San Pedro, San Francisco, and Gila rivers (Minckley 1973, Sublette *et al.* 1990). Habitat destruction plus

competition and predation by non-native species have reduced the range of the species by about 85 percent (Miller 1961, Williams *et al*. 1985, Marsh *et al*. 1989). Loach minnow remains in limited portions of the upper Gila, San Francisco, Blue, Black, Tularosa, and White rivers, and Aravaipa, Turkey, Deer, Eagle, Campbell Blue, Dry Blue, Pace, Frieborn, Negrito, Whitewater and Coyote creeks in Arizona and New Mexico (Barber and Minckley 1966, Silvey and Thompson 1978, Propst *et al*. 1985, Propst *et al*. 1988, Marsh *et al*. 1990, Bagley *et al*. 1995, USBLM 1995, Bagley *et al*. 1996).

Loach minnow is a bottom-dwelling inhabitant of shallow, swift water over gravel, cobble, and rubble substrates (Rinne 1989, Propst and Bestgen 1991). Loach minnow uses the spaces between, and in the lee of, larger substrate for resting and spawning (Propst *et al.* 1988; Rinne 1989). It is rare or absent from habitats where fine sediments fill the interstitial spaces (Propst and Bestgen 1991). Loach minnow feed exclusively on aquatic insects (Schrieber 1978, Abarca 1987). Loach minnow live between two and three years with reproduction occurring primarily in the second summer of life (Minckley 1973, Sublette *et al*. 1990). Spawning occurs in March through May (Britt 1982, Propst *et al.* 1988); however, under certain circumstances loach minnow also spawn in the autumn (Vives and Minckley 1990). The eggs of loach minnow are attached to the underside of a rock that forms the roof of a small cavity in the substrate on the downstream side. Limited data indicate that the male loach minnow may guard the nest during incubation (Propst *et al.* 1988, Vives and Minckley 1990).

Critical habitat

Critical habitat for loach minnow includes approximately 522 river miles in Arizona and New Mexico, organized into four complexes. The four complexes are: the Black River complex in Apache and Greenlee counties, Arizona; the Middle Gila/Lower San Pedro/Aravaipa Creek River complex in Pinal and Graham counties, Arizona; the San Francisco and Blue Rivers complex in Pinal and Graham counties, Arizona, and Catron County, New Mexico; and the Upper Gila River Complex in Catron, Grant, and Hidalgo counties, New Mexico.

The critical habitat designation listed primary constituent elements that are essential for the conservation of loach minnow. The primary constituent elements are summarized below:

1. Permanent, flowing, water with low levels of pollutants;

2. Sand, gravel, and cobble substrates with low or moderate amounts of fine sediment and substrate embeddedness. Suitable levels of embeddedness are generally maintained by a natural, unregulated hydrograph that allows for periodic flooding or, if flows are modified or regulated, a hydrograph that allows for adequate river functions, such as flows capable of transporting sediments.

3. Streams that have low gradients, water temperatures between 35-85^{o} Fahrenheit, pool, riffle, run, and backwater components, and an abundant aquatic insect food base.

4. Habitat devoid of nonnative fish species detrimental to loach minnow or habitat in which detrimental nonnative fish species are at levels which allow persistence of loach minnow.

5. Areas within perennial, interrupted stream courses which are periodically dewatered but that serve as connective corridors between occupied or seasonally occupied habitat and through which the species may move when the habitat is wetted.

The appropriate and desirable level of these factors may vary seasonally and is highly influenced by site-specific circumstances. Therefore, assessment of the presence/absence, level, or value of the constituent elements must include consideration of the season of concern and the characteristics of the specific location. The constituent elements are not independent of each other and must be assessed holistically, as a functioning system, rather than individually. In addition, the constituent elements need to be assessed in relation to larger habitat factors, such as watershed, floodplain, and streambank conditions, stream channel geomorphology, riparian vegetation, hydrologic patterns, and overall aquatic faunal community structure.

The status of loach minnow is declining rangewide. Loach minnow currently exist in approximately 419 miles of streams, which represents only 15 to 20 percent of their historical range. In occupied areas, loach minnow may be common to very rare. Loach minnow are common only in Aravaipa Creek and the Blue River in Arizona, and limited portions of the San Francisco, upper Gila, and Tularosa rivers in New Mexico (USFWS 2000). Although it is currently listed as threatened, the FWS has found that a petition to uplist the species to endangered status is warranted. A reclassification proposal is pending; however, work on it is precluded due to work on other higher priority listing actions (USFWS 1994).

Our information indicates that 33 formal consultations have been completed for actions affecting the loach minnow. Adverse effects to loach minnow have occurred due to these projects and many of these consultations have required reasonable and prudent measures to minimize effects to species. Overall, the species is still declining.

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.

Bald eagle

The number of breeding bald eagles in the Southwestern Recovery Region, specifically in Arizona, is on an upward trend. In 1990, 28 breeding areas were known in AZ, and currently 43 breeding areas are known to be occupied in AZ. Over half of all known AZ bald eagle breeding areas are on FS land. Overall this provides protection for the long-term persistence of eagles from such activities as landscape changing development. However, the Arizona population remains small and under threat from a variety of factors.

Human disturbance of bald eagles is a continuing threat, which may increase as numbers of bald eagles increase and human development continues to expand into rural areas (USFWS 1999). The bald eagle population in Arizona is exposed to increasing hazards from the regionally increasing human population, resulting in extensive loss and modification of riparian breeding

and foraging habitat through clearing of vegetation, changes in groundwater levels, groundwater pumping, surface water diversion, alteration of natural hydrologic regimes, changes in water quality, and alteration of prey base. Threats persist in Arizona due to the proximity of bald eagle breeding areas to major human population centers and recreation areas. Additionally, because water is a scarce resource in the Southwest, recreation is concentrated along available water courses. Some of the continuing threats and disturbances to bald eagles include entanglement in monofilament fish line and fish tackle; overgrazing and related degradation of riparian vegetation; malicious and accidental harassment including shooting, off-road vehicles, recreational activities (especially watercraft), and low-level aircraft overflights; alteration of aquatic and riparian systems for water distribution systems and maintenance of existing water development features such as dams or diversion structures; collisions with transmission lines; poisoning; and electrocution (Driscoll *et al.* 2006; Stalmaster 1987).

Currently, there are 30 bald eagle breeding areas within NFS lands in Arizona. Nest areas from 15 breeding areas occur within 0 to 0.5 mile of an APS, NEC, or SRP power line involved in the proposed action (Table 4). A single nest area exists on the ASNF, while three are found on CNF, three on the PNF, and eight on the TNF. Three nest areas are found adjacent to relatively isolated coniferous forest lined lakes (Luna Lake, Lower Lake Mary and Lynx Lake), while the four along or very near the Verde River, two along Tonto Creek, two along or very near the Salt River at Roosevelt Lake, and three along the lower Salt River below Saguaro Lake are found in canyons and riparian areas of the Sonoran Desert. Bald eagles breeding at Luna Lake, Lower Lake Mary and Lynx Lake perch and nest in coniferous trees. The remaining territories have nests either placed on cliffs (Bartlett, Tower, Ladders, Coldwater, Pinal, Bull Dog), cottonwood trees/snags (Oak Creek, Sheep, Tonto, Pinto, Granite Reef) or both cliff and tree nests are present with the breeding area (Orme). Occupancy is high at these breeding areas, with all territories having eagles present in recent years (Driscoll *et al.* 2006). The Lake Mary eagles occupied the breeding area in 2007, but failed to lay eggs.

Wintering eagles can be found anywhere within Arizona, however some of the largest concentrations of wintering eagles in Arizona can be found near Lake Mary on the CNF (Driscoll *et al*. 2006). Wintering eagles are more commonly detected on the CNF and along the Mogollon Rim east to the White Mountains perching, foraging, and roosting in coniferous forested habitat. Between November 2006 and May 2007, 556 trees (532 were removed and 24 were pruned) were treated along the CQ-12 line under emergency consultation procedures (the effects of that action will be evaluated under a separate consultation).

Table 4. Nest areas on FS lands from AZ bald eagle breeding areas within 0 to 0.5 mile of utility lines.

Bald Eagle Breeding Area	Forest	Power Line Name/Number	Utility Company	Voltage
Luna	ASNF	Nutrioso-Alpine 131	NEC	345 kV
Lower Lake Mary	CNF	CQ-12	APS	Distribution
Oak Creek	CNF	NW-2;GS-2	APS	345 kV; Distribution
Coldwater	CNF	NW-2	APS	345 kV
Tower	PNF	QS-10;230-2	APS	Distribution; 230kV
Lynx	PNF	SDG-1	APS	Distribution
Ladders	PNF	NW-2	APS	345 kV
Bartlett	TNF	345-1	APS	345 kV
Sheep	TNF	TT-14	APS	Distribution
Tonto	TNF	TT-14/APS 123	APS	Distribution
Pinto	TNF	PN-145	SRP	Distribution
Pinal	TNF	500-3/Coronado to Silverking	APS/SRP	500 kV
Orme	TNF	VE-122	SRP	Distribution
Granite Reef	TNF	VE-122	SRP	Distribution
Bull Dog	TNF	Goldfield to Steward Mtn./VE-122	SRP	115 kV; Distribution

Mexican spotted owl

MSO habitat within the action area consists predominately of ponderosa pine/Gambel oak and mixed conifer forest, and is located within all five national forests included in this consultation.

There are approximately 71 PACs within the action area and almost 3,000 acres of protected steep-slope and restricted habitat. Table 5 lists the MSO PACs, acres of MSO habitat and acres of critical habitat within the action area by utility line name/number, Forest, and utility. PACs that occur within the action area were determined by overlaying a map of all of the utility lines with a map of established PACs. A 0.25 mile buffer was then placed around the utility line VCC corridor and any PAC that occurred within this buffer was included in the analysis. We do not know whether a nest core has been determined for these PACs, or, if a nest core exists, where it is located within the PAC. However, information for one PAC on Coconino National Forest (Aqueduct PAC, #040734) that is bisected by a distribution line has been studied in detail and was part of a prior APS vegetation clearing consultation (USFWS October 14, 2004). The line occurs on top of a ridge dominated by pure ponderosa pine and the habitat within the ROW was found not to contain suitable MSO nesting or roosting habitat (*Id.*). All designated PACs are located within the Upper Gila Mountains and Basin and Range West RU. Where this project overlays the Colorado Plateau RU, there are no designated PACs.

Critical habitat for the action area was determined by overlaying the utility line VCC corridor map on the designated critical habitat map. The actual estimate of critical habitat was then narrowed to areas that met the definition of protected or restricted habitat (USFWS 2004). The BA (Table 26, page 75) states that there are approximately 1,543 acres of critical habitat within the action area.

Table 5. MSO PACs, MSO protected steep-slope and restricted habitat, and MSO designated critical habitat within the action area by forest (table adopted from Tables 24, 25, and 26 in December 2006 BA).

National Forest	PACs w/in 0.25 mile of Project Area	PACs w/in or adjacent to Project Area	Total Acres PSS/RH[1]	Total Acres w/in CHB[2]	Total Acres of P/PSS/RH[3] w/in CHB
Apache-Sitgreaves	9	15	1093.37	1146.31	738.50
Coconino[4]	7	16	496.88	267.12	209.48
Kaibab	1	0	106.97	195.81	76.40
Prescott	2	8	171.39	97.90	74.67
Tonto	6	7	1095.85	740.57	443.96
Total	25	46	2964.46	2447.71	1543.01

1. PSS/RH stands for Protected Steep-Slope and Restricted Habitat
2. CHB stands for Critical Habitat Boundary
3. P/PSS/RH stands for PAC, Protected Steep-Slope and Restricted Habitat
4. There are three PACs that are duplicated between different utility lines on the Coconino NF. The total number of PACs for the Coconino NF is 23.

Historical and current anthropogenic uses of MSO habitat include both domestic and wild ungulate grazing, recreation, fuels reduction treatments, resource extraction (e.g., timber, oil, gas), and development. These activities have the potential to reduce the quality of MSO nesting, roosting, and foraging habitat, and may cause disturbance during the breeding season. Livestock and wild ungulate grazing is prevalent throughout Region 3 NFS lands and has the potential to negatively affect the availability of grass cover for prey species. Recreation impacts are increasing on all forests, especially in meadow and riparian areas. There is anecdotal information that indicates that owls in heavily used recreation areas are much more erratic in their movement patterns and behavior (Buck Springs Range Allotment Management Plan Biological Assessment and Evaluation, Coconino National Forest, December 21, 2001). Fuels reduction treatments, though critical to reducing the risk of catastrophic wildfire, can have short-term adverse affects to MSO through habitat modification and disturbance. As the population grows, especially in Arizona, small communities within and adjacent to NFS lands are being developed. This trend may have detrimental effects to MSO by further fragmenting habitat and increasing disturbance during the breeding season. West Nile Virus also has the potential to adversely impact the MSO. The virus has been documented in Arizona, New Mexico, and Colorado, and preliminary information suggests that owls may be highly vulnerable to this disease (Courtney et al. 2004). Unfortunately, due to the secretive nature of owls and the lack of intensive monitoring of banded birds, we will most likely not know when owls contract the disease or the extent of its impact to MSO range-wide.

Currently, high-intensity, stand-replacing fires are influencing ponderosa pine and mixed conifer forest types in Arizona and New Mexico. Uncharacteristic, severe, stand-replacing wildfire is probably the greatest threat to MSO within the action area. As throughout the West, fire severity and size have been increasing within this geographic area. Table 6 shows several stand-replacing fires that have had a large influence on MSO habitat in the Upper Gila Mountain RU in the last decade. Obviously the information in Table 6 is not a comprehensive analysis of fires in the Upper Gila Mountains RU or the effects to MSO. However, the information does illustrate the influence that stand-replacing fire has on current and future MSO habitat in this RU. This list

of fires alone estimates that approximately 11 percent of the PAC habitat within the RU suffered high-to moderate-intensity, stand-replacing fire in the last eleven years.

Table 6. Some recent influential fires within the Upper Gila Mountains Recovery Unit, approximate acres burned, number of PACs affected, and PAC acres burned.

Fire Name	Year	Total Acres Burned	# PACs Burned	# PAC Acres Burned
Rhett Prescribed Natural Fire	1995	20,938	7	3,698
Pot	1996	5,834	4	1,225
Hochderffer	1996	16,580	1	190
BS Canyon	1998	7,000	13	4,046
Pumpkin	2000	13,158	4	1,486
Rodeo-Chediski	2002	462,384	55	~33,000
Total	6 years	525,894	84	~43,645

As in the Upper Gila Mountain RU, the Basin and Range West RU has also experienced multiple wildfires that have influenced MSO habitat within the action area. The Four Peaks/Lone Fire was a severe, high-intensity wildfire on the Tonto NF that burned through two MSO PACs. In 2003, there were two fires that burned at high-intensity across significant acreage that included MSO habitat. The Willow Fire, which burned on the Tonto NF in June 2004, burned several thousand acres of MSO habitat. Though the severity of the burn in six PACs has not been assessed yet, based on fire behavior and discussions with fire fighters, effects were likely severe (D. Pollack, Tonto NF, Arizona, pers. comm., June 2004).

The Colorado Plateau RU in Arizona has also been impacted by wildfire. During the summer of 2006, the Warm Fire on the Kaibab National Forest burned approximately 10,500 acres of MSO critical habitat. The fire occurred during red flag weather conditions, which resulted in a high-severity burn that will likely impact owl habitat on the Kaibab Plateau for the next 150 years. It should be noted that no PACs have been designated on the Kaibab Plateau; however, it is suspected that the Plateau is functioning as dispersal habitat for birds moving between Arizona and Utah.

Another significant factor affecting MSO habitat within the action area is the implementation of fuels reduction projects (thinning and prescribed burning) over large areas. These projects are expected to protect MSO habitat in the long-term by reducing the risk of high-severity wildfire. However, even projects with projected long-term benefits may reduce habitat quality for wildlife in the short-term. Fuels reduction treatments can adversely affect the key habitat components and primary constituent elements of MSO critical habitat directly or indirectly by altering their habitat and/or prey. The result of decreasing and/or removing these habitat elements may cause a reduction in nesting, roosting, and prey habitat for an unknown period of time. Within the project area, there are many fuels reduction projects that are currently being or will be implemented soon.

Southwestern willow flycatcher

Throughout the action area of the five National Forests, there are streams where flycatcher breeding and migration habitat exists and areas where it is most likely to be found. The areas where birds could be or are most likely to be present and where there is a need for hazard vegetation removal to occur on the TNF (Verde and Salt rivers, Tonto and Cherry creeks), the ASNF (Little Colorado, Blue, and San Francisco rivers, and the east and west forks of the Little Colorado River), and small portions of the PNF and CNFs (Verde River and Chevelon Creek) (Table 7).

About 50 percent of all the known breeding pairs are found at four locations throughout the subspecies' range (Cliff/Gila Valley and Middle Rio Grande - New Mexico, Roosevelt Lake and Gila/San Pedro river confluence, Arizona). The Roosevelt population is the largest on Forest Service lands within the action area. Throughout all National Forests, issues on and off the Forests have contributed to the decline in habitat conditions, such as water diversions, groundwater pumping, habitat clearing, flood control projects, development, livestock grazing, dam operations, and changes in annual flows due to off stream uses of water have affected the ability of the aquatic habitats to support flycatcher habitat.

Riparian habitats by nature are dynamic, with their distribution in time and space governed mostly by flood events and flow patterns. Current conditions along southwestern rivers and streams throughout much of the Forests are such that normal flow patterns have been greatly modified, flood events are more catastrophic as a result of degraded watershed conditions, stream channels are highly degraded, floodplains and riparian communities are reduced in extent, wildfires in riparian habitats are increasing, and the species composition of riparian communities are modified with exotic plant species. Habitat loss and fragmentation can lead to increased brood parasitism and nest predation. These conditions have significantly diminished the potential for southwestern rivers and streams to develop suitable nesting habitat for the southwestern willow flycatcher and for those habitats to remain intact and productive for nesting flycatchers.

On the TNF and in proximity to areas where hazard vegetation may require removal, southwestern willow flycatchers are known to nest within the conservation space at Roosevelt Lake (Salt River and Tonto Creek arms), and on main stem Tonto Creek. The general Roosevelt Lake/Tonto Creek/Salt River location can be the densest location of nesting flycatchers in Arizona and throughout the birds range, with nearly 200 flycatcher territories. On the ASNF where hazard vegetation may be located, willow flycatchers nest nearby at two sites near the Town of Greer along the Little Colorado River and at a site near the Town of Alpine along the San Francisco River. There are few flycatcher breeding territories at high elevation, and the Greer location has been the most reliable high elevation location in Arizona. At their closest, power line crossings are about 0.25 mile away from flycatcher nesting locations on the Little Colorado River, and range from about 0.5 mile to 7.0 miles away at the other locations. Flycatchers could be found during migration on any of these streams and possibly others.

Critical Habitat

Power lines cross southwestern willow flycatcher critical habitat on five streams on the TNF, ASNF, CNF, and PNFs (Table 7). Power lines cross flycatcher critical habitat along the Little Colorado River three times, and the West and East Forks of the Little Colorado a single time apiece. The Verde River crosses flycatcher critical habitat six times on the PNF and CNFs.

Table 7. Power lines that cross over streams near southwestern willow flycatcher habitat and designated critical habitat (CH), National Forest Lands, Arizona.

Stream/ River Name	Power Line	Utility	Forest	# of times line crosses	Location of Crossing	In CH	Nearest Nest (miles)
Little Colorado River	62	NEC	ASNF	3	Near Greer	Yes	0.5/ 0.25
Little Colorado, East Fork	62	NEC	ASNF	1	Near Greer	Yes	-
Little Colorado, West Fork	62	NEC	ASNF	1	Near Greer	Yes	-
Verde River	NW-2	APS	PNF/ CNF	2	West of Cornville/ East of Table Mountain	Yes	-
Verde River	CU-6	APS	CNF	1	1.5 mi. south of Camp Verde	Yes	2.25
Verde River	NW-9	APS	-	1	N of Cottonwood - not on NFS land	No	2.0
Verde River	QS-10	APS	PNF	1	Near Perkinsville	No	-
Verde River	500-2	APS	PNF	1	West of Perkinsville	No	-
Chevelon Canyon	345-1	APS	ASNF	1	2.75 Mi. South of Chevlon Canyon Campground	No	-
Salt River	PN145	SRP	TNF	1	East of Roosevelt Lake	Yes	0.55
Salt River	500-3/ Coronado to Silverking	APS/ SRP	TNF	1	East of Roosevelt Lake	Yes	2.6
Cherry Creek	500-3/ Coronado to Silverking	APS/ SRP	TNF	1	1.85 mi. W of Dagger Peak on S end of Cherry Creek	No	-
San Francisco River	131	NEC	ASNF	1	Near Alpine	No	0.45
Tonto Creek	TT-14	APS	TNF	2	At Punkin Center/ South of Jake's Corner	Yes	7.0
Blue River	131	NEC	ASNF	20	Along Blue R. from New Mexico Border to W of Bear Mtn.	No	-

Loach minnow

Within the action area, loach minnow occur in the following locations: Blue River and Campbell Blue Creek. A complete record documenting the status of the species and critical habitat in the stream reaches that are directly and indirectly affected by the proposed action are not currently available. Therefore, we are providing the status of the species and critical habitat for each stream in its entirety. The following information originated from the loach minnow critical habitat final rule (USFWS 2007).

Blue River

The Blue River extends 51.1 miles from the confluence with the San Francisco River upstream to the confluence of the Campbell Blue and Dry Blue creeks. The Blue River was occupied at the time of listing and continues to be occupied by loach minnow today.

Campbell Blue Creek
The Campbell Blue Creek extends 8.1 miles from the confluence of Dry Blue and Campbell Blue Creeks upstream to the confluence with Coleman Canyon. This area is considered occupied.

All of the stream reach locations above contain one or more of the critical habitat primary constituent elements including sufficient flow velocities and appropriate gradients, substrates, depths, and habitat types (e.g., pools, riffles) (USFWS 2005).

Our records indicate that loach minnow have been documented within the vicinity (≤1 mile) of all of the low-water crossings throughout the >20 mile section of Campbell Blue Creek and Blue River. The number, frequency, and/or seasonal use of vehicles using these low-water crossings are not specifically known. Loach minnow are susceptible to mortality when vehicles cross stream channels or at low-water crossings. Adverse effects of roads and road crossings on streams have been documented for many types of streams and fish species (Dobyns 1981, Meehan 1991, Megahan *et al.* 1992, Young 1994) and can include disturbance which results in sudden dispersal that can impair feeding or sheltering; crushing by vehicles, and habitat destruction. Vehicles crossing streams may also cause a wash out of sediment on the stream bottom. A wash out of sediment on the stream bottom may reduce the availability of spawning habitat by filling in spaces between cobble and rubble substrate a short distance downstream while at the same time potentially improving the spawning habitat for loach minnow where vehicles cross. When spawning, loach minnow fix the eggs to the underside of rocks in shallow riffle areas; these eggs may be susceptible to crushing if vehicles cross streams during the spring and fall spawning season.

During the last century, both the distribution and abundance of the loach minnow have been greatly reduced throughout the species' range (Propst *et al*. 1988). Competition and predation by non-native fish and habitat destruction have reduced the historic range of the loach minnow by about 85 percent (Miller 1961, Hendrickson and Minckley 1984, Williams *et al*. 1985, Marsh *et al*. 1989, USFWS 1986, 1994). Both historical and present landscapes surrounding loach minnow habitats have been impacted to varying degrees by domestic livestock grazing, mining, agriculture, timber harvest, recreation, development, or impoundments (Hendrickson and Minckley 1984; Belsky *et al*. 1999). These activities degrade loach minnow habitats by altering flow regimes, increasing watershed and channel erosion and thus sedimentation, and adding contaminants to streams and rivers (Belsky *et al*. 1999). As a result, these activities may affect loach minnow through direct mortality, interference with reproduction, and reduction of invertebrate food supplies.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

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

Bald eagle

At bald eagle breeding areas in proximity to power lines, we do not anticipate adverse effects to nesting eagles will occur. We anticipate that disturbance to wintering bald eagles on the CNF and ASNFs are reasonably expected to occur from on-the-ground hazard vegetation removal, but will not result in incidental take.

Aerial Reconnaissance of Hazard Vegetation
Helicopter reconnaissance flights will occur throughout the year, including the bald eagle nesting season. Utilities (APS and SRP) flying within bald eagle breeding areas have proposed a conservation measure to ensure that helicopters will, during the December through June nesting season, stay 1,000 feet away from known nests. Both APS and SRP have nest map atlases and updated locations of eagle nest locations from AGFD specifically to ensure that they avoid eagle nests during their normal operations. As a result, this conservation measure will result in no adverse effects to all breeding bald eagles at the nest from this proposal. Helicopter reconnaissance flights could flush a perching or foraging breeding bald eagle (greater than 1,000 feet from the nest) or a wintering bald eagle. However, we anticipate that these instances will be rare due to the relative infrequency of helicopter flights, the lack of hazard vegetation in bald eagle breeding areas (eagles nest primarily along canyon desert streams), and the short duration of helicopters being in an particular spot. As a result, the rare instance of disturbance to breeding or wintering eagles statewide from helicopter reconnaissance flights will not significantly impair individual birds.

Removal and Disposal of Hazard Vegetation
At 14 of the 30 locations where bald eagles nest on NFS lands, we do not anticipate any adverse effects from on-the-ground hazard vegetation removal. These sites are the Blue Point, Fish Creek, Horse Mesa, Rock Creek, Dupont, 76, Redmond, Needle Rock, Yellow Cliffs, Cliff, Horseshoe, Table Mountain, East Verde, and Perkinsville breeding areas. All of the nest areas at these breeding areas are greater than 0.5 mile from any potential on-the-ground hazard vegetation removal. Additionally (with the exception of Dupont and Rock Creek), all of these breeding areas exist in the Sonoran Desert where vegetation is less likely targeted for removal due to the presence of lines crossing over canyons and shorter desert vegetation not being a hazard. As a result, we do not anticipate any hazard removal activities adversely affecting eagles

away from the nest area by removing important perching or foraging trees. If any vegetation does require removal at these breeding areas, workers could encounter an eagle causing it to flush from a tree or possibly from a prey item; however we anticipate these will be rare instances. As a result, these instances would not be expected to occur in a frequency at these 14 breeding areas to adversely affect eagles or to occur in places where eagles are dependent upon acquiring food to successfully reproduce or live. Therefore, the instances of disturbance to eagles at these 14 breeding areas are considered extremely unlikely to occur.

At 10 other breeding areas, a transmission or distribution line exists within 0.5 mile from the nest area; however the project proposal states that it is not expected that hazard vegetation removal activities will occur in these areas. These 10 breeding areas are the Oak Creek, Coldwater, Ladders, Tonto, Pinto, Pinal, Box Bar, Orme, Granite Reef, and Bull Dog. All of these breeding areas exist in the Sonoran Desert where hazard vegetation is not as prevalent, and therefore, the need for hazard vegetation removal is not as great. No nest trees occur in proximity to lines that would require removal. If any vegetation does require removal at these breeding areas, we anticipate that it will be minimal. As a result, because eagles are in the area, workers could cause a bird to flush while perched outside of the nest area or possibly from a prey item. We anticipate that if these disturbances to birds do occur, they will be rare and likely be an isolated incident, rather than a reoccurring pattern. Because no work is anticipated in these areas and no nests are in proximity where they could be considered hazard vegetation, we do not anticipate adversely affecting eagles at these 10 breeding areas from on-the-ground hazard vegetation removal. Therefore, the likelihood of disturbance to eagles at these 10 breeding areas would be considered discountable.

The biological assessment indicated that there may be six breeding areas BAs where hazard vegetation removal could adversely affect bald eagles (Luna, Lower Lake Mary, Tower, Lynx, Bartlett, and Sheep breeding areas). We do not anticipate adverse effects to breeding eagles at any of these breeding areas.

Both the Bartlett and Tower breeding areas have nests located on cliffs and transmission lines in proximity. However, these lines are high above the river where riparian vegetation can not become a hazard. Both of these nest areas do not have tall coniferous trees in the breeding area, but canyon walls and shorter desert riparian vegetation. The nest area for the Tower breeding area exists in the Mormon Pocket area of the upper Verde River where cliff walls exist on both sides of the river without a wide expansive floodplain to develop abundant riparian forests. At the Bartlett breeding area, the nest area is high along a cliff wall with the transmission towers high on top of these cliffs without any risk of hazard vegetation growing near the lines. Transmission lines at both of these breeding areas either cross rivers perpendicularly or travel well away from the water where hazard vegetation may be an issue within the stream corridor where the eagles perch and forage. As a result, there is little opportunity for these lines to intersect with the locations where eagles nest, perch, and forage. As a result, we do not anticipate that any hazard vegetation removal will occur that would disturb eagles nesting, perching, or foraging, or change the quality of their foraging/perching environment at the Bartlett and Tower breeding areas.

The Sheep breeding area exists in the Sonoran Desert, however unlike the Tower or Bartlett breeding areas, there are no cliffs within the area where eagles primarily nest and forage. The communities of Tonto Basin and Punkin Center are spread along this section of creek (both sides) and are largely what these distribution lines service. There are no large coniferous trees

that can grow into these lines, nor is there dense riparian forest within Tonto Creek that is expected to cause necessary removal of abundant vegetation. The Tonto Creek floodplain is about 0.25 mile wide, and is largely open areas of rock and sand, with isolated cottonwood trees and a river channel. A distribution line crosses the floodplain upstream of the nest area, but then parallels the stream outside of the floodplain. Vegetation underneath these lines is primarily upland desert plants such as mesquite and cactus. As a result, we do not anticipate that any hazard vegetation removal will occur that would disturb the Sheep eagles nesting, perching, or foraging, or change the quality of their foraging/perching environment.

The Luna breeding area exists within the coniferous forest environment of the Alpine Ranger District. The configuration of the forest and stand of trees, the eagle nesting and foraging areas, and location of the transmission lines leads us to conclude that hazard vegetation removal will not adversely affect these eagles. The nest tree sits at the front of a stand of trees with Luna Lake to the south. The transmission line exists behind these trees approximately 0.5 mile away to the north. Luna eagles forage frequently at Luna Lake on waterfowl and fish, perching on various trees near the nest area with their focus toward the lake. There is no transmission line running near Luna Lake, around Luna Lake, or between the nest area and the lake. As a result, we do not anticipate any on-the-ground hazard tree removal to impact any nest trees, perching or foraging trees. Because eagles are in the general area and can travel across large areas, workers could cause a bird to flush while perched outside of the nest area or possibly from a prey item. We anticipate that if these disturbances to birds do occur, they would be rare and likely isolated incidents, rather than a reoccurring pattern. Due to the approximate 0.5 mile distance between the nest area and the existing transmission line, and the topography and trees that provide a buffer between them, we do not anticipate any on-the-ground hazard tree removal to disturb the Luna eagles at the nest or at important perching or foraging areas.

The Lynx breeding area has a distribution line that is located across the lake from the nest, but this line exists close to foraging and perching locations. Little is known about how exactly the Lynx eagles exploit resources within the breeding area for food, other than capturing food at Lynx Lake and visiting other nearby locations such as Watson and Goldwater lakes. At Lynx Lake, the distribution line ends at the opposite side of the lake from the nest area. Should on-the-ground hazard tree removal occur in that area, we do not expect it to disturb eagles at the nest, but we would expect it to disrupt foraging and perching activities. However, because the distribution line ends at a single location (as opposed to traveling around the lake), any activity would be short in duration, and there are abundant trees surrounding the nest area. We do not anticipate that that any disturbance to eagles would rise to the level of incidental take.

The CQ-12 distribution line parallels the foraging and perching habitat for the Lake Mary breeding eagles along the length of Lower Lake Mary and Mormon Lake. At the north end of the distribution line, the nest is found across the lake and about 0.75 mile away. The CQ-12 line exists along the east side of Lake Mary and then crosses over to travel along the west side of Mormon Lake. We believe that these water bodies provide the forage base for the Lake Mary eagles, therefore it is expected that the trees in and around the CQ-12 line are used by the eagles for foraging.

APS (L. Young, APS, electronic transmission, May 3, 2007) determined that nearly all hazard trees have been removed along the CQ-12 line. APS does not expect any more than 20 trees to be removed under this Phase 1 consultation. As a result of the minimal amount of tree removal occurring along CQ-12 along Lake Mary and Mormon Lake during Phase 1 and the distance

from the known nest, we do not anticipate it will result in adverse effects to the Lake Mary breeding eagles. We do not anticipate that any further hazard tree removal about 0.75 mile away from the eagle nest will influence the bird's behavior. Sound and human activity from tree removal activities will be far enough away to not influence eagle nesting behavior. Additionally, the removal of 20 trees or less along the length of Mormon Lake and Lake Mary is not expected to adversely alter or influence eagle foraging behavior. There is an abundance of trees along the length of these two lakes for eagles to acquire food from. Additionally, the time required to remove 20 trees is relatively short, likely less than a few days. Therefore there will be a short duration of time that workers will be spending in the breeding area. Because eagles are expected to be in the area year-round and can travel across large areas, workers could cause a bird to flush while it is perched outside of the nest area, while hunting, or possibly from a prey item. We anticipate that these disturbances will be extremely unlikely to occur and would be isolated incidents, rather than a reoccurring pattern.

Wintering eagles also use Mormon Lake/Lake Mary for perching, roosting, and foraging. The Mormon Lake/Lake Mary area has traditionally been the location where the most abundant number of wintering eagles has been recorded. At a single time, it is not uncommon to detect 40 eagles in a single day. At a maximum, approximately 150 eagles were detected at a single time in the mid-1990s in the Lake Mary/Mormon Lake area. Because there is the potential to remove traditional roost trees along the CQ-12 line adjacent to this important foraging and roosting area, we anticipate there could be adverse effects to wintering eagles from hazard vegetation removal activities. This disturbance could increase the energetic costs important for eagles to conserve while on migration in the winter (Stalmaster 1987). However, because wintering eagles are not associated with a territory and their behavior is nomadic and opportunistic, we are reasonably certain that the effect will not cause incidental take of migrant eagles.

Migrant bald eagles will use other portions of all other FS lands statewide, especially those along the Mogollon Rim east to the White Mountains on the CNF, TNF, and ASNF. Therefore due to the wide ranging locations and habitats where wintering eagles may be found, there is the opportunity for on-the-ground hazard vegetation removal, reconnaissance helicopter flights, and road use to disturb perching or foraging eagles, or for the utilities to remove trees used for roosting or foraging. Due to the nomadic and opportunistic behavior of migrant eagles, the sporadic and site-specific nature of hazard vegetation removal, and the short duration of road use and helicopter disturbance, we do not anticipate any of these actions to lead to incidental take of bald eagles.

Mexican spotted owl

Aerial Reconnaissance of Hazard Vegetation
APS, SRP, and Garkane use helicopters to examine utility lines for hazard vegetation. NEC does not conduct helicopter flights for identifying hazard vegetation. However, APS is the only utility that flies over utility lines during the MSO breeding season (March 1 through August 31). SRP regularly flies outside the MSO breeding season to identify hazard trees. There are approximately 41 PACs on the five forests that occur within or adjacent to the action area over which APS and SRP may conduct reconnaissance flights during the breeding season.

Typically, APS helicopter flights will occur at 50 to 300 feet above the ground at speeds of 50 to 95 miles per hour. During helicopter flights, the helicopter generally will make one pass over an area, but may circle or hover briefly to obtain a closer look. Flights occur on each line

approximately one to five times per year, but not on consecutive days and typically a month or more apart. Cruising flight between survey areas is 2,000 to 3,000-feet above ground.

Noise from all air operations, especially low-flying aircraft, can contribute to the disturbance of MSO. Low-level flights have the greatest potential to disturb owls because these aircraft move slowly and are relatively noisy (Delaney *et al*. 1997). Although the effects of over-flights may vary with location, specific conditions, and aircraft type, Delaney *et al*. (1999) found that a 345-feet hemispherical management protective zone should minimize, and possibly eliminate, spotted owl flush response and negative effects to prey delivery rates associated with helicopter over-flights. However, the proposed action includes APS conducting one to five helicopter flights per year along utility lines during the breeding season at altitudes less than 345 feet (down to 50 feet). This action may result in temporary disturbance to owls that may result in MSO flush responses or decreased prey delivery rates. If MSO are breeding, flushing or decreased prey delivery rates may have adverse effects not only to adults, but to eggs, nestlings, and/or fledgling owls as well.

Removal and Disposal of Hazard Vegetation
The direct and indirect effects of the removal and disposal of hazard vegetation (i.e., trees and snags) in MSO habitat include disturbance and habitat modification. The use of chainsaws to remove trees can be disruptive to breeding owls and the removal of trees from within protected and restricted habitat may result in a loss of large dbh trees, reduced canopy closure within and adjacent to the utility line VCC corridor, and reduced snags.

Hazard trees or snags may be ground surveyed, removed, and/or pruned at any time of year, including the MSO breeding season. Ground survey crews consist of one to four people and vegetation pruning or removal crews consist of two to six people. The duration of ground surveying or removal efforts are generally short and occur from one day to a week at a time. An exception to this is along the Garkane Big Spring Circuit distribution line, where there is a very high concentration of hazard vegetation, and crews working in this area could be present for longer than a week. However, the Garkane power line is on the North Kaibab Ranger District of the Kaibab NF where there are currently no identified PACs.

Crews will use chainsaws to conduct tree pruning and removal. Disposal of hazard vegetation includes lopping off limbs away from the trunk and scattering brush. The trunk is then cut to manageable lengths of eight feet or less and either left on site or taken off of the corridor. Generally chainsaw sound levels are from 106 to 117 decibels (dBA). It is unknown where within the project area hazard vegetation may be pruned or removed, but trees and snags could potentially be pruned or removed within any of the 46 PACs located within or immediately adjacent to the project area or within 0.25 mile of the 25 PACs located within 0.25 mile of the project area (71 PACs total). In addition, trees and snags may be removed from approximately 3,000 acres of protected steep-slope and restricted habitat, although we do not expect the entire 3,000-acre area to be impacted at this time.

Hazard trees removed could include large trees, hardwoods, and snags. The removal of these components could result in decreased canopy cover, reduced canopy structure (e.g., simplify a multi-storied canopy to a single-story canopy), and reduced availability of nesting and roosting habitat along the utility corridors. Data we have received to date on emergency hazard vegetation removal indicates that over the last several months, approximately 853 trees have been removed from the Coconino NF alone, with 65% (556) of the removals occurring along one

utility line (CQ12). The trees have ranged in size from five inches dbh up to greater than 24 inches dbh. Trees removed have been both alive and dead (snags), conifers and hardwoods, and located both in and outside the VCC. These hazard trees occurred both singly and in large groups along utility corridors, although the removal of large groups of trees has been rare. Based on this information and the amount of vegetation still left in the corridor, we predict that during the life of this project, a similar pattern of removal will occur, but the total numbers of trees removed should decrease over time.

The removal of multiple sizes of live and dead trees, small and large, can impact the multi-storied nature of a stand, reduce canopy cover in patches, reduce or remove snags, and create openings. At a small scale, the removal of a few trees may have little to no impact on habitat structure and function. However, when groups of trees and/or rare habitat components are removed (e.g., large dbh trees and snags), the removal of these trees may reduce nesting and roosting habitat for both owls and their prey.

Our guidance is to limit potentially disturbing activities to areas ≥ 0.25 mile from MSO nest sites during the breeding season (March 1 to August 31). Mechanical noise and human presence during the breeding season may result in failed reproductive efforts, abandonment of the nest, and/or starvation. Delaney *et al*. (1999) also found that ground-based disturbances elicited a greater flush response than aerial disturbances. As stated above, chainsaw noise levels are expected to range from 106 to 117 dBA, which exceeds the sound level at which owls will flush (Delaney *et al*. 1997). In addition, Swarthout and Steidl (2001) found that MSO modified their behavior (e.g., increased perch height) and/or flushed in response to recreationists (hikers).

In a study to assess the effects of hikers on the behavior of nesting MSO, Swarthout and Steidl (2003) noted that female MSOs decreased the amount of time they handled prey by 57 percent and decreased the amount of time they performed daytime maintenance activities by 30 percent while hikers were present. In addition, hikers caused both female and male owls to increase the frequency of contact vocalizations. Birds may respond to disturbance during the breeding season by abandoning their nests or young; by altering their behavior such that they are less attentive to their young, which may increase the risk of the young being preyed upon or by disrupting feeding patterns; or by exposing young to adverse environmental stress (Knight and Cole 1995). There is also evidence that disturbance during years of a diminished prey base can result in lost foraging time which, in turn, may cause some raptors to leave an area or not to breed at all (Knight and Cole 1995). Topographic screening between the area of disturbance and the bird's location creates a noise buffer, and may assist in the reduction of noise disturbance (Knight and Cole 1995).

Because hazard vegetation is considered an "imminent" hazard, it is not possible to avoid ground surveying or removing hazard vegetation during the breeding season. Therefore, some level of hazard vegetation will likely be removed during the MSO breeding season. The potential for the presence of humans and/or noise disturbance from chainsaws at 106 to 117 dBA during the breeding season could result in failed reproductive efforts, abandonment of the nest, and/or starvation. These impacts should be short-term since workers addressing hazard vegetation are typically in an area for only a few days. Due to the hazardous nature of the proposed action, the Forest Service and the utility companies have not proposed conservation measures that will minimize adverse effects to MSO. In addition, surveys are not part of the proposed action, so nest locations will not be determined prior to hazard tree removal.

Though the specific location of tree removal in owl habitat is unknown, it is predicted that the greatest concentration of hazard vegetation would be removed along the 32 utility lines with a hazard rank of 1 to 5 listed in the BA (Appendix D). These areas have higher densities of dead or dying trees due to environmental factors (e.g., high density of bark beetle killed trees) and/or have not been maintained for a decade or more. Thirteen of these 32 high hazard risk utility lines are located within or adjacent to 28 PACs (Table 24, pages 71-74 in BA). Of those 28 PACs, we examined the maps and attempted to approximate the potential for disturbance and/or habitat modification to owls associated with the PAC (Table 8). For example, PAC #10115 on utility line #131 is bisected the entire length of the PAC by the utility corridor. There is a higher likelihood that hazard tree removal within this PAC may result in disturbance to owls (almost anywhere in the PAC is ≤ 0.25 mile from the utility line), and removal of trees (alive and dead) is more likely to occur within the nest core of this PAC, since so much of the PAC is impacted by the utility corridor. Hazard vegetation may need to be removed from a PAC not included in Table 8, which attempts to narrow down the potential sites where adverse effects to PACs are reasonably certain to occur.

Table 8. The PACs, listed by Forest and Utility Line, rated most likely to have hazard tree removal.

National Forest	Utility Line	PAC Number	RU	High Potential for Disturbance	High Potential Tree Removal in Nest Core
Apache-Sitgreaves	131	010115	UGM	Yes	Yes
Coconino	NP-1	040512	UGM	Yes	Yes
	CQ-12	040541	UGM	Yes	Possible
	BR-12 Cragin	040734	UGM	Yes	No[1]
	ELN-1	040205	UGM	Yes	Yes
Prescott	CDS-2	090305	BRW	Yes	Yes
	WSP-12	090306	BRW	Yes	Yes
	WSP-12	090314	BRW	Yes	Yes
	PJ-1	090302	BRW	Yes	Yes
Tonto	PR-6 Kohls Ranch/Christopher Creek	120403	UGM	Yes	Yes
	PR-6 Young	120506	UGM	Possible	Possible
	TT-12	120419	UGM	Possible	Possible

[1] SRP/APS distribution line occurs along a ridge top dominated by pure ponderosa pine that bisects a PAC; prior Section 7 consultation for APS vegetation clearing on this line found that habitat in the ROW (that could be clear as part of this action) was not suitable for MSO nesting or roosting (USFWS October 14, 2004).

For some of the above listed PACs we have more information than for others. For example, the Lockwood PAC (#040541) is a PAC for which we have a significant amount of data due to past consultations and its extensive survey history. Though the known nest locations of this PAC are greater than 0.25 mile from the power line corridor, this PAC also has a portion of the Arizona Trail that transects the nest buffer. In a biological opinion dated August 14, 2001, (USFWS 2001) we anticipated that harm and harassment resulting from immediate and long-term recreational use of the Arizona Trail would occur within the Lockwood PAC. Therefore, though the power line does not transect the nest buffer itself, there is already a large amount of activity occurring within the PAC and at some unknown point, even limited tree removal in conjunction with these other activities may result in further adverse effects. The CQ-12 line has had high

numbers of hazard trees along the line, and may continue to have hazard trees along the line for the life of this consultation (approximately Spring 2008 with completion of Phase II programmatic opinion) (though hazard tree removal should decrease with time).

Critical Habitat
As stated above, approximately 1,543 acres of MSO critical habitat occurs within the action area. This acreage total includes both protected and restricted habitat composed of forested mixed conifer and pine-oak habitat. Canyon habitat, as defined in the critical habitat rule (USFWS 2004) will not be impacted by the proposed action. Therefore, we will not analyze the effect of this project on the primary constituent elements within canyon habitat.

We identified primary constituent elements in the final rule designating critical habitat (USFWS 2004). The importance of each of these components to MSO habitat is described in the final rule (USFWS 2004) and the Recovery Plan (USFWS 1995). The information provided in those documents is included herein by reference. The expected effects on the primary constituent elements of MSO critical habitat as a result of this hazard vegetation removal project are summarized below by forest structure and prey species habitat.

Forest Structure
Range of trees species, tree size: In forested critical habitat, a range of tree species, composed of different tree sizes reflecting different ages of trees, 30 percent to 45 percent of which are large trees with dbh of 12 inches or more, is desired. Diversity in tree size distributions is typical of MSO habitat and provides the vertical structure that is thought to be important to owls (Seamans and Gutierrez 1995). We do not know how many large, live conifers (pines and firs) greater than 18 inches dbh, large snags, conifers less than 18 inches dbh, and Gambel oak (or other hardwood tree species) will be removed as a result of this action. However, the removal of hazard vegetation will result in impacts to the size and species structure of MSO critical habitat along utility corridors. This impact to tree species diversity and loss of certain sized trees will result in a short-term adverse effect to this primary constituent element. Large, live trees are an important element of MSO habitat, and owl use is often correlated with a medium-to-large tree component (USFWS 1995). Large trees and snags take many years to develop and are very difficult to replace, even over the long-term.

A shade canopy created by the tree branches covering 40 percent or more of the ground: We expect that shade canopy may be reduced in small patches following hazard tree removal along utility corridors. However, we would not expect canopy closure to fall below 40 percent. We would expect that some small reduction (5 to 10 percent) may actually aid in increasing the understory herbaceous and forb production along utility corridors, which may benefit MSO prey species.

Large, dead trees (snags) with a dbh of at least 12 inches: Large snags will most likely be reduced following hazard tree removal. The reduction of this habitat component may be significant in terms of maintaining MSO and prey habitat. However, since snags are likely to be identified as hazard vegetation along utility corridors, it is likely that following hazard tree removal within the project area, this habitat component may be lost within treated MSO habitat, resulting in adverse effects to this primary constituent element.

Maintenance of adequate prey species

High volumes of fallen trees and other woody debris: After hazard vegetation is removed, the branches of the tree are cut away from the trunk and lopped and scattered off of the power line corridor. The different utilities have variable means of dealing with slash. In general, felled trees will be lopped in manageable lengths and either scattered throughout the immediate area, within or adjacent to the power line corridor. These actions may result in reduced large, full length logs on the ground which may result in reduced prey habitat in the powerline corridor. In general, the larger the diameter and the greater the length of a log, the more useful it is to wildlife (Maser *et al.* 1979), which includes MSO prey species. By cutting the hazard trees into smaller lengths, the logs may be less attractive habitat for prey species.

A wide range of tree and plant species, including hardwoods: We do not expect that this primary constituent element will be adversely affected by the proposed action. Plant species richness will likely increase in the small, localized canopy gaps created through hazard tree removal. However, it is also expected that Gambel oak and aspen trees may be removed along utility corridors, resulting in a loss of tree species diversity.

Adequate levels of residual plant cover to maintain fruits and seeds, and allow plant regeneration: The more trees that are removed from the utility VCC, the more likely that the corridor will provide conditions suitable for increased herbaceous plant growth as the canopy is opened up. The mosaic effect created by opening up small patches of forest within protected and restricted habitat is also expected to increase herbaceous plant species diversity and, in turn, assist in the production and maintenance of the MSO prey base. The function and conservation role of this primary constituent element should not be compromised by the proposed action.

Summary of effects to Critical Habitat

In summary, MSO critical habitat primary constituent elements may be adversely affected by the proposed action. Snags, large trees, and hardwoods will be lost during hazard tree removal. The utility corridor we are most concerned with may result in a loss of primary constituent elements resulting from hazard tree removal is the Garkane Big Springs distribution line on the North Kaibab Ranger District, Kaibab National Forest. The snags and live trees to be removed along this utility line number over 300 and we expect that almost the entire 30 acres of critical habitat along the Big Springs line may be impacted by this action.

However, we find that the effects to the function and conservation role of critical habitat relative to the Basin and Range West, Colorado Plateau, and Upper Gila Mountains RUs and the entire designation are not significant because the impacts will be temporary and occur in a very small area relative to the three RUs and the overall critical habitat designation. Therefore, we conclude that the primary constituent elements of MSO critical habitat will continue to serve the intended conservation role for the species with the implementation of the proposed action.

Southwestern willow flycatcher

We anticipate that hazard vegetation removal will result in some adverse effects to southwestern willow flycatcher critical habitat and subsequent effects to the species as a whole. However, we do not anticipate that the operations associated with removal of hazard vegetation will rise to the level of incidental take of southwestern willow flycatchers.

Aerial Reconnaissance of Hazard Vegetation

Helicopter reconnaissance flights will occur during the flycatcher breeding season, but we do not anticipate that they will indirectly impact flycatcher habitat or directly disturb southwestern willow flycatchers to the point where incidental take will occur. The nearest flycatcher breeding site to a hazard vegetation removal area is 0.25 mile away. Helicopter flights can travel very low, sometimes as low as 50 feet above the ground. However traveling at this distance is not typical, often for safety purposes, and a flying height closer to 300 feet above ground level is more typical. Flight speed is 50 to 95 miles per hour. Helicopters generally make one pass over an area but may circle or hover briefly (generally only for minute or so) to obtain a closer look at a vegetation problem area. Due to the height and short duration near habitat, we do not anticipate that the helicopters will damage or alter flycatcher habitat. Because migrant flycatchers can be found on many different streams in different locations and breeding flycatchers can extend away from their nest area to forage or explore, it is not unreasonable to anticipate that a flycatcher may be alerted to a helicopter conducting reconnaissance flights. Yet, because these transmission and distribution lines are primarily crossing flycatcher habitat in a perpendicular manner, we do not anticipate helicopters will be in and around flycatcher habitat for a very long time, or flying directly over any known nesting areas. As a result, any disturbance caused to migrant or breeding southwestern willow flycatchers as a result of helicopter reconnaissance flights are anticipated to be short in time, intensity, and duration, and would likely represent isolated and not repeated events.

Removal and Disposal of Hazard Vegetation

Power line crossings occur near known southwestern willow flycatcher breeding habitat in seven instances, but never closer than 0.25 mile to known nest areas, and they cross or parallel a variety of streams where migration stops may occur. Other crossings near flycatcher nest areas range from 7.0 miles away along Tonto Creek to 0.45 mile away from known nest areas on the San Francisco River. Utilities and the FS determined that riparian vegetation is less likely to be the target of hazard vegetation removal because power lines typically cross high enough to not necessitate removal. For example, in a clarification letter from SRP (February 26, 2007), they stated that no vegetation clearing will be needed on the two lines that cross the Salt River at the east end of Roosevelt Lake (500kv line by the Highway 288 Bridge and the distribution line near Meddler Point). However, the letter also concluded that the need to remove riparian vegetation can not be eliminated in some other areas. Additionally, there is no seasonal limitation to when habitat may be removed. As a result, we can expect some habitat to be removed and disposal activities to occur near breeding flycatchers and during migration season. Because flycatchers can be found migrating on a variety of streams with a wide variety of quality habitat, it is not unreasonable to anticipate hazard vegetation and disposal activities disturbing a migrating bird. However, we do not anticipate that the few trees that might be removed will impact the quality of vegetation for migration or cause such a disturbance to lead to incidental take. The disturbance will be temporary in nature and quality of habitat necessary for migration appears to be abundant. While we do not anticipate alteration of any habitat flycatchers place nests in because of the distance power lines are from known nest areas, it is not unreasonable to anticipate that a foraging flycatcher or dispersing breeding/newly fledged flycatcher away from a nest area could be disturbed by hazard vegetation removal and disposal activities. In either instance (disturbance to breeding or migrating flycatchers), we expect that if birds were disrupted, it would be a rare and isolated incident. We do not anticipate these isolated events would cause disturbance to a degree that it would impact the bird's health or its ability to capture prey and feed young, and therefore conclude that any disturbance to breeding, dispersing, or migrating flycatchers as a result of hazard vegetation removal or disposal will be insignificant.

Hazard vegetation may remove southwestern willow flycatcher critical habitat at the eight locations where power lines cross streams. Hazard vegetation removal may occur through designated critical habitat along the Verde River (three times), the Little Colorado River (three times), and the East and West Forks of the Little Colorado River (one time apiece). We anticipate that some of the primary constituent elements will be adversely affected. Specifically, removal of riparian vegetation (e.g. by cutting down and removing cottonwood, willow, and tamarisk trees) would adversely affect primary constituent element 1a. (riparian trees and shrubs). Additionally, the vegetation structure of habitat described in primary constituent elements 1b. and 1c., would also be adversely affected by removing riparian trees and shrubs, particularly by removing larger overstory trees. We anticipate that vegetation removed in these locations would be larger tree species such as cottonwood, willow, and tamarisk.

Loach minnow

NEC is the only utility company with actions that occur within occupied habitat or loach minnow critical habitat. Therefore, APS, SRP, and Garkane are not included in the effects discussion below. As shown in Table 2 under the Proposed Action section of this document, NEC will not conduct aerial surveys of utility lines.

Removal and Disposal of Hazard Vegetation
The NEC utility line that occurs within or near populations of loach minnow and critical habitat is distribution line #131. Distribution lines require approximately 28 feet VCC. Phase I operations along distribution line #131 have potential direct and/or indirect effects to loach minnow occupied or critical habitat in Campbell Blue Creek and Blue River.

Along this line, NEC conducts one routine survey for hazard vegetation on a yearly basis. These surveys occur in the fall any time from August to November. Although NEC has a program for identifying and removing hazard vegetation on an annual basis, hazard vegetation can be removed or pruned at any time of year.

Hazard vegetation surveys by ground crews involve utilizing numerous routes for access to utility corridors. There are eight roads identified for Phase I operations that may be utilized by NEC to access distribution line #131. These roads are identified as FR 281, FR 281-H, L, M, V, W, Y, FR 30, and FR 567. FR 281 and 30 are the primary routes along this portion of the project area and follows distribution line #131. These roads are used by the public year round for recreational opportunities and access to private lands. The seven remaining roads spur from FR 281 and provide additional access to the utility corridor. These roads do not receive the level of use compared to FR 281 or 30.

Travel along the utility corridors during ground surveys will include the entire length of the utility line owned and operated by NEC. Once the hazard vegetation is identified, hazard vegetation removal will require utilizing similar routes for access to the hazard vegetation only.

We anticipate the frequency of access trips to the utility corridor for Phase I operations will be four trips and may occur at any time of year. One trip consists of NEC crew's access to and from the utility corridor. The NEC line #131 follows the Blue River and Campbell Blue Creek 100-year floodplain for more than 20 miles. Along this >20-mile stretch all roads identified for

Phase I operations (except FR 30) traverse the river and creek. There are seven crossings along the Blue River and one crossing along Campbell Blue Creek. Since there are eight potential road crossings and NEC may complete up to four trips per crossing, Phase I operations are not expected to exceed 32 trips (or 64 crossings) along the Blue River and Campbell Blue Creek. Maintenance of the NEC line #131 was completed near Campbell Blue Creek approximately three years ago and it is likely that hazard tree removal along this section of line will not be necessary during Phase I operations (John Edwards, NEC pers. comm., 2007). Therefore, NEC access to line #131 along Campbell Blue Creek may be limited to the annual survey conducted in the fall. Although the frequency of all hazard vegetation removal activities will not exceed four trips on each road crossing, the timing of crossings along the >20 mile section is not known. We anticipate at least one crossing will occur in the fall between August and November; however, all other hazard vegetation removal and pruning may occur any time of year.

The proposed action states that hazard vegetation removal may occur at any time of year along the 20-mile section of road. Therefore, direct impacts to loach minnow and eggs from vehicles crossing occupied streams could occur at any time. However, it is likely the majority of hazard vegetation removal activities (ground survey, removal, and disposal) and subsequent impacts to loach minnow and eggs will occur between August and November, outside of the primary breeding season of March to May. These effects are likely to result in mortality to loach minnow and eggs as a result of NEC vehicles crossing seven stream sections along the Blue River and one crossing along Campbell Blue Creek. Loach minnow may be adversely affected by increased sediment deposition on the stream bottom. Adverse effects of stream sedimentation to fish and fish habitat have been extensively documented (Murphey *et al.* 1981; Wood *et al.* 1990; Newcombe and MacDonald 1991; Barret 1992; Megahan *et al.* 1992). Because of their benthic habit, loach minnow and their eggs are particularly vulnerable to substrate sedimentation. Physical habitat alteration or destruction associated with vehicles crossing streams may occur; however, the frequency of occurrence is limited in scope and we do not expect impacts will affect the persistence of loach minnow in this habitat.

Removal or pruning of hazard vegetation in riparian areas can indirectly modify habitat for loach minnow through the reduction of large shade trees and vegetation. Increasing solar radiation in shallow streams can result in a localized reduction in stream benthic communities (Kelly *et al.* 2003) upon which loach minnow relies for food. Aerial photos of the riparian areas along distribution line #131 were reviewed by the FS. The FS noted a riparian vegetation deficit and a lack of mature riparian forest which could produce large shade trees. Therefore, we believe that adverse effects from hazard vegetation removal or pruning in riparian areas along Campbell Blue Creek and Blue River are not likely to occur as few trees will likely need to be removed or pruned.

Unless directed by the FS to dispose of hazard vegetation differently, NEC typically lops the limbs off of the trunk and cuts the trunk to approximately 20 inch lengths, leaving the limbs and trunk within the perimeter of the power line corridor. The FS describes the impact of disposal within the watershed will have minimal effects to loach minnow. Disposal could be beneficial if the disposition of vegetation is used to assist in soil retention. We believe the negative effects of vegetation disposal within the utility corridors along Campbell Blue Creek and Blue River are insignificant, and that beneficial effects to any loach minnow habitat may occur through soil retention.

The effect of vehicles crossing Campbell Blue Creek and Blue River will result in direct effects to primary constituent element one. This primary constituent element describes the importance of living areas for adult, juvenile, and larval loach minnow and spawning areas with appropriate water levels, flows, and substrates. The weight of vehicles crossing sections of the creek and river will contribute to the continued compaction and disruption of suitable spawning habitat for loach minnow. Although the potential impact areas are localized, NEC is not expected to exceed 64 potential crossings. However, we believe Phase I operations will adversely affect this constituent element.

The FS concluded in the BAE that Phase I operations are likely to adversely affect primary constituent elements 2 and 3. We have not concluded that the effects of the proposed action will impede natural flows or periodic flooding that maintain sand, gravel, and cobble substrates with low or moderate amounts of fine sediment and substrate embeddedness; however, there is a potential for increased substrate embeddedness in areas downstream of road crossings following use of these areas by NEC vehicles, which can result in disturbance of sediment at the road crossing. Disturbed sediments will then become entrained in the water column and settle in downstream areas. This could potentially impact the prey base at and downstream of road crossings. Based on the current riparian vegetation conditions (vegetation deficit and lack of mature riparian forest) described by the FS along the Campbell Blue Creek and Blue River, we do not believe the removal or pruning of vegetation along distribution line #131 utility corridor will alter the current temperatures in the creek or stream nor the abundance of aquatic insects. The removal of hazard vegetation along powerlines will benefit the area by reducing the arcing potential and the risk of trees falling on powerlines and igniting fires.

CUMULATIVE EFFECTS

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

Bald eagle

Non-Federal activities that are reasonably certain to occur, which could impact eagles, include clearing vegetation around power lines, road use, road maintenance, recreation, agriculture, development, water diversion, and groundwater pumping. These activities may reduce the quantity and quality of eagle nesting, roosting, and foraging habitat; result in disturbance to eagles, and contribute as cumulative effects to the proposed action.

Mexican spotted owl

Future non-federal actions within the action area that are reasonably certain to occur include the development and/or modification (e.g., road construction, land clearing, logging, fuelwood gathering) of private property in-holdings. These activities may reduce the quality and quantity of MSO nesting, roosting, and foraging habitat; result in disturbance to breeding MSOs; and contribute as cumulative effects to the proposed action. However, because of the occurrence of MSOs predominantly on Federal lands, and because of the role of the respective Federal

agencies in administering the habitat of the MSO, actions to be implemented in the future by non-Federal entities on non-Federal lands are considered to be of minor impact to the owl population, but may have significant impacts on the MSO PACs and critical habitat.

Southwestern willow flycatcher

Non-Federal activities that are reasonably certain to occur, which could impact flycatchers, include: power line clearing, road and bridge projects, agricultural land uses and runoff, livestock grazing, recreation, land clearing and development, water diversions, and groundwater pumping. These activities may reduce the quality and quantity of flycatcher nesting, foraging, and migration habitat; result in disturbance to breeding flycatchers; and contribute as cumulative effects to the proposed action.

Loach minnow

Non-Federal activities that are reasonably certain to occur, which could impact loach minnow, include recreation, power line clearing, road and stream crossing use and maintenance, agricultural runoff, livestock grazing, land clearing and development, forest fuel reduction, and water diversions and groundwater pumping. These activities may reduce the quality and quantity of loach minnow habitat, and contribute as cumulative effects to the proposed action.

CONCLUSION

Bald eagle

After reviewing the current status of the bald eagle, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the FWS's biological opinion that “Phase I Hazard Vegetation Removal in Utility Corridors on National Forests in Arizona,” as proposed, is not likely to jeopardize the continued existence of the bald eagle. No critical habitat has been designated for this species, therefore, none will be affected.

We present this conclusion for the bald eagle for the following reasons:

- The bald eagle across its range in the United States has reached nearly 10,000 pairs of breeding eagles in the lower 48 states.

- No incidental take of breeding or wintering bald eagles is anticipated.

- Helicopter reconnaissance flights will avoid all eagle nests by at least 1,000 feet.

- The site-specific and irregular nature of hazard vegetation removal project will not impair wintering bald eagles nomadic and opportunistic behavior to find and use roosts and foraging areas.

Mexican spotted owl and critical habitat

After reviewing the current status of the MSO and its critical habitat, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is our biological opinion that implementation of the "Phase I Hazard Vegetation Removal in Utility Corridors on Arizona Forests" will not likely jeopardize the continued existence of the MSO, and is not likely to destroy or adversely modify designated critical habitat of the species.

We present this conclusion for the MSO for the following reasons:

- Though treatments in critical habitat may result in the reduction and/or loss of some primary constituent elements and treatments in protected and restricted habitat may reduce key habitat components, the proposed action will increase the long-term viability of MSO habitat by reducing the threat of a severe, stand-replacing wildfire starting along utility corridors on National Forest system lands.

- The implementation of the proposed action is not expected to impede the survival or recovery of MSO within the Basin and Range West, Colorado Plateau, and Upper Gila Mountains Recovery Units. The proposed project includes approximately 1,543 acres of critical habitat. Due to the relatively small size of the area in comparison to the 3.2 million acres of critical habitat designated on Forest Service lands, the impacts to primary constituent elements will not appreciably reduce the value of critical habitat for the species' conservation, and do not rise to the level of destruction or adverse modification.

- While large dbh trees and snags will be removed by the proposed action, which may result in short-term disturbance and loss of primary constituent elements, we do not believe it will destroy the habitat for use by MSO or their prey species.

Southwestern willow flycatcher and critical habitat

After reviewing the current status of the southwestern willow flycatcher and its designated critical habitat, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the FWS's biological opinion that the "Phase I Hazard Vegetation Removal in Utility Corridors on National Forests in Arizona," as proposed, is not likely to jeopardize the continued existence of the southwestern willow flycatcher, and is not likely to destroy or adversely modify designated flycatcher critical habitat.

We present this conclusion for the southwestern willow flycatcher for the following reasons:

- No known breeding flycatchers will be incidentally taken by hazard vegetation removal or disposal.

- Critical habitat will be affected at a maximum of eight power line locations. None of the locations parallel designated critical habitat, but go across the stream reducing the amount of vegetation impacted. This vegetation may be trimmed, but is not expected to be eliminated, and is less than 1 percent of all designated critical habitat. Neither of these locations is known to house breeding flycatchers.

Loach minnow and its critical habitat

After reviewing the current status of loach minnow and its designated critical habitat, the environmental baseline for the action area, the effects of the Phase I proposed action and the cumulative effects, it is the FWS's biological opinion that the Phase I action, as proposed, is not likely to jeopardize the continued existence of the loach minnow, and is not likely to destroy or adversely modify designated critical habitat for loach minnow.

We present this conclusion for the loach minnow and its critical habitat for the following reasons:

- Within the action area, FR 281 and other FS classified roads follow and provide access across the Blue River. These roads are frequently used by the public year-round and regardless of road use, the loach minnow population continues to persist. Therefore, $\leq$ 32 trips (64 crossings) across eight stream crossings administered by NEC are not likely to jeopardize the population or species as a whole.

- The effects to critical habitat along the Campbell Blue Creek and Blue River are limited to existing road crossings where loach minnow are found above and below the impact area. Other than road crossings, primary constituent elements for loach minnow critical habitat remain unaffected by the proposed action.

The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any Conservation Measures that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations 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 (50 CFR 17.3) 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 (50 CFR 17.3) as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

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

AMOUNT OR EXTENT OF TAKE

Bald eagle

The FWS does not anticipate the proposed action will incidentally take any bald eagles for the following reasons: No bald eagle nests are found extremely close or underneath power lines that require hazard vegetation removal, therefore we do not anticipate disturbance to eagle nesting behavior.

- Helicopter reconnaissance flights will avoid all eagle nests by at least 1,000 feet.

- Hazard vegetation removal activities in bald eagle territories will not adversely influence foraging behavior because power lines are not abundant in bald eagle foraging habitat, are mostly perpendicular to rivers, cross high above the river, and do not typically require hazard tree removal.

- Most of the hazard vegetation has been removed from power line CQ-12 under emergency consultation. The removal of the remaining hazards is not extensive enough or of a long-enough duration to result in incidental take to the Lake Mary breeding eagles.

Mexican spotted owl

For the purposes of evaluating incidental take of MSO from the action under consultation, incidental take can be anticipated as either the direct mortality of individual birds, or the alteration of habitat that affects behavior (i.e. breeding or foraging) of birds to such a degree that essential behaviors are impaired, and the birds are thus "taken." They may fail to breed, fail to successfully rear young, raise less fit young, or desert the area because of disturbance or because habitat no longer meets the owl's needs.

In past Biological Opinions, we used the management territory to quantify incidental take thresholds for the MSO (see Biological Opinions provided to the Forest Service from August 23, 1993 through 1995). The current section 7 consultation policy provides for incidental take if an activity compromises the integrity of a PAC. Actions outside PACs will generally not be considered incidental take, except in cases when areas that may support owls have not been adequately surveyed.

Using available information as summarized within this document, we have identified conditions of possible incidental take for the MSO associated with the proposed action within the following PACs: 010115, 040512, 040541, 040734, 040205, 120403, 120506, 120419, 090305, 090306, 090314, and 090302. Based on the best available information concerning the MSO, habitat needs of the species, the project description, and information furnished by the FS, take is anticipated for the MSO as a result of the following actions:

1. The potential for multiple (one to five) flights along utility corridors during the breeding season. Low altitude helicopter flights may result in temporary disturbance to owls which could result in flush responses or decreased prey delivery/feeding.

2. The potential for hazard vegetation to be ground surveyed, removed, and/or disposed of during the breeding season within MSO PACs. These actions may result in disturbance to owls and the removal and/or modification of key habitat components and primary constituent elements that may result in degraded nesting, roosting, and foraging habitat. The modification of key habitat components and primary constituent elements is not expected to impact nesting or roosting habitat in PAC 040734 as the portion of the PAC that includes the utility line does not include nesting or roosting habitat. However, the proposed action may still result in disturbance to owls associated with the PAC and/or impact foraging habitat.

We anticipate that the take of MSO will be difficult to detect because finding a dead or impaired specimen is unlikely. However the level of incidental take can be anticipated by short-term disturbance that will affect the reproductive success and survival of MSO within the project area. We anticipate harm and harassment to MSO in the form of disturbance from the proposed action in these PACs. This may result in disrupted MSO reproduction and the ability of these PACs to contribute to recovery of the species in the short-term.

We anticipate the take of one pair of MSOs and/or associated eggs/juveniles in the form of harm and harassment associated with eight PACs in the Upper Gila Mountains RU (#010115, 040512, 040541, 040734, 040205, 120403, 120506, 120419) and four PACs in the Basin and Range West RU (#090305, 090306, 090314, 090302) due to disturbance and habitat modification resulting from hazard tree identification and removal along utility corridors within these PACs over the course of this proposed action (approximately Spring 2008 with the completion of Phase II

programmatic biological opinion). This anticipated take is in the form of short-term disturbance
(defined as one to three breeding seasons of non-habitat altering action that disrupts or is likely to disrupt owl behavior) and permanent habitat modification along the utility corridors within the PACs.

Southwestern willow flycatcher

The FWS does not anticipate the proposed action will incidentally take any southwestern willow flycatchers for the following reasons:

- No known nesting habitat is found underneath power lines that require hazard vegetation removal.

- Helicopter reconnaissance flights will not be traveling over nest sites where nesting flycatchers may be disturbed to the point of not nesting or losing clutches of eggs or nestlings.

- Any hazard vegetation removal will be greater than 0.25 mile away from the closest nesting pair of flycatchers, where on-the-ground activities are not expected to be close enough to disrupt normal flycatcher behavior to the point where it will cause incidental take.

Loach minnow

Take in the forms of harm, harassment, and death are reasonably certain to occur, as explained in the effects of the action. However, we anticipate incidental take of loach minnow will be difficult to detect for the following reasons: 1) the uncertainty of timing for Phase I actions limits our ability to predict the potential for fish and/or eggs to be present; 2) the number of other vehicles using the road crossings makes it difficult to determine take that is specific to the crossing of NEC vehicles; 3) dead or impaired individuals are difficult to find due to their small size and the likelihood for carcasses to be carried downstream or scavenged. Therefore, we can not quantify the amount of take that will occur from NEC vehicles associated with this proposed action but believe it will be small because of the limited number of crossings that will occur under this action. Loach minnow continue to persist in the action area in the presence of ongoing road crossings by the public, and we anticipate only a small increase in use of the road by NEC. We anticipate that this take will be reduced by implementation of the terms and conditions.

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. §§ 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

EFFECT OF THE TAKE

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

REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS

Mexican spotted owl

We determined that there are no additional measures that reasonably and prudently minimize the effects of incidental take of MSO. Therefore, no reasonable and prudent measures are included in this incidental take statement. The FS has committed to provide the FWS with an annual report summarizing hazard vegetation removed in the PACs identified above for which take is expected.

Loach minnow

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

The following reasonable and prudent measures are necessary and appropriate to minimize take of loach minnow.

1. The Apache-Sitgreaves NF shall require NEC to limit the number of trips necessary to remove hazard vegetation so that multiple entries across the Campbell Blue Creek and Blue River are minimized.

The following terms and conditions implement reasonable and prudent measure #1 for loach minnow:

1.1 Routine ground patrols shall be done in conjunction with line patrols to reduce the number of times NEC crews travel across Campbell Blue Creek and Blue River.

1.2 The timing of NEC crews pruning or removing trees will be coordinated such that the work will be consolidated with other work or work will be consolidated in such a way requiring the least number of low water crossings across Campbell Blue Creek and Blue River.

1.3 When possible, crews will walk over low water crossings rather than drive if the distance to the hazard tree removal or pruning is close enough that operations would not be greatly hindered.

1.4 Transport of line or ground patrol crew members shall occur in the least number of vehicles possible just as long as the safety of crew members is not compromised.

1.5 As long as the safety of crew members is not compromised, the FS shall require NEC to slow their vehicle speed to the extent that wakes/waves are minimized when NEC vehicles cross Campbell Blue Creek and the Blue River.

1.6 The FS shall, in conjunction with NEC, document the number of trips and time of year to determine which activities were completed under the proposed action, and

allow for evaluation of effects to loach minnow. The documentation shall be provided to the FWS by the end of the calendar year in which the activities took place. The first report summarizing the 2007 year of activity will be submitted by January 1, 2008, and final report will be submitted 90 days after completion of the project in 2008.

Review requirement: 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, the level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The FS must immediately provide an explanation of the causes of the taking and review with the Arizona Ecological Services Office the need for possible modification of the reasonable and prudent measures.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species initial notification must be made to the FWS's Law Enforcement Office, 2450 W. Broadway Rd, Suite 113, Mesa, Arizona, 85202, telephone: 480/967-7900) within three working days of its finding. Written notification must be made within five calendar days and 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 in handling dead specimens to preserve the biological material in the best possible state.

If possible, the remains of intact species shall be provided to this office. If the remains of the species 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 species survive, the AESO 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 the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

Bald eagle

1. We recommend that the FS evaluate how the Lake Mary eagles exploit the resources surrounding them to better understand the key elements to management of this breeding area, such as maintenance of prey resources, management of eagles access to prey, protection of foraging perches, maintain continuity of prey resources, etc.

2. We recommend that the FS reviews how recreational activity may be impacting the Lake Mary eagles in order to take appropriate management actions to minimize those impacts.

Mexican spotted owl

1. We recommend that the FS work with us to determine if additional acreage may need to be added to PACs bisected by utility corridors.

2. We recommend that the FS work with us and the utilities to minimize the effects of utility corridor management on listed species and their habitats.

3. We recommend that the FS conduct surveys for the next five years in all PACs impacted by utility corridors in order to determine nest core areas and potential effects of vegetation management in the utility corridors.

4. We recommend that the FS work with us to plan and implement actions to improve and create MSO habitat across the national forests in Region 3.

Southwestern willow flycatcher

1. We recommend that the FS continues to emphasize improving the distribution of nesting southwestern willow flycatchers throughout NFS lands, especially at high elevation habitat by improving the abundance and quality of preferred native habitat.

Loach minnow

1. We recommend that Apache-Sitgreaves NF evaluate the use of Forest roads crossing the Campbell Blue Creek and Blue River and potential effects to listed fish species and their habitat.

2. We recommend that Apache-Sitgreaves NF monitor loach minnow occupancy and habitat where FS or authorized roads cross the Campbell Blue Creek and Blue River in order to determine the potential effects of road use on loach minnow and its habitat. Blocknetting downstream of road crossings during periods of use might facilitate an understanding of fish mortality caused by vehicle crossings. Similarly, surveying in-stream road beds at crossings during the breeding season might provide valuable data on the use of these areas by spawning fish.

REINITIATION NOTICE

This concludes formal consultation on the action(s) outlined in the FS 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 retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

The FWS appreciates the FS efforts to identify and minimize effects to listed species from this project. For further information please contact Greg Beatty at (602) 242-0210 (x247) or Brenda

Smith at (928) 226-0614 (x101). Please refer to the consultation number, 22410-2007-F-0364, in future correspondence concerning this project.

Sincerely,

/s/ Steven L. Spangle
Field Supervisor

cc: Field Supervisor, Fish and Wildlife Service, Albuquerque, NM
Assistant Field Supervisor, Fish and Wildlife Service, Flagstaff, AZ
Bobbi Barrera, Southwestern Regional T&E Biologist, Albuquerque, NM
Ron Maes, Southwestern Regional Aquatics Biologist, Albuquerque, NM
Forest Supervisor, Apache-Sitgreaves National Forest, Springerville, AZ
Forest Supervisor, Coconino National Forest, Flagstaff, AZ
Forest Supervisor, Prescott National Forest, Flagstaff, AZ
Forest Supervisor, Kaibab National Forest, Williams, AZ
Forest Supervisor, Tonto National Forest, Phoenix, AZ
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ

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FIGURES

Figure 1. Representation of Vegetation Clearance Corridor for a 12 kV Power Line

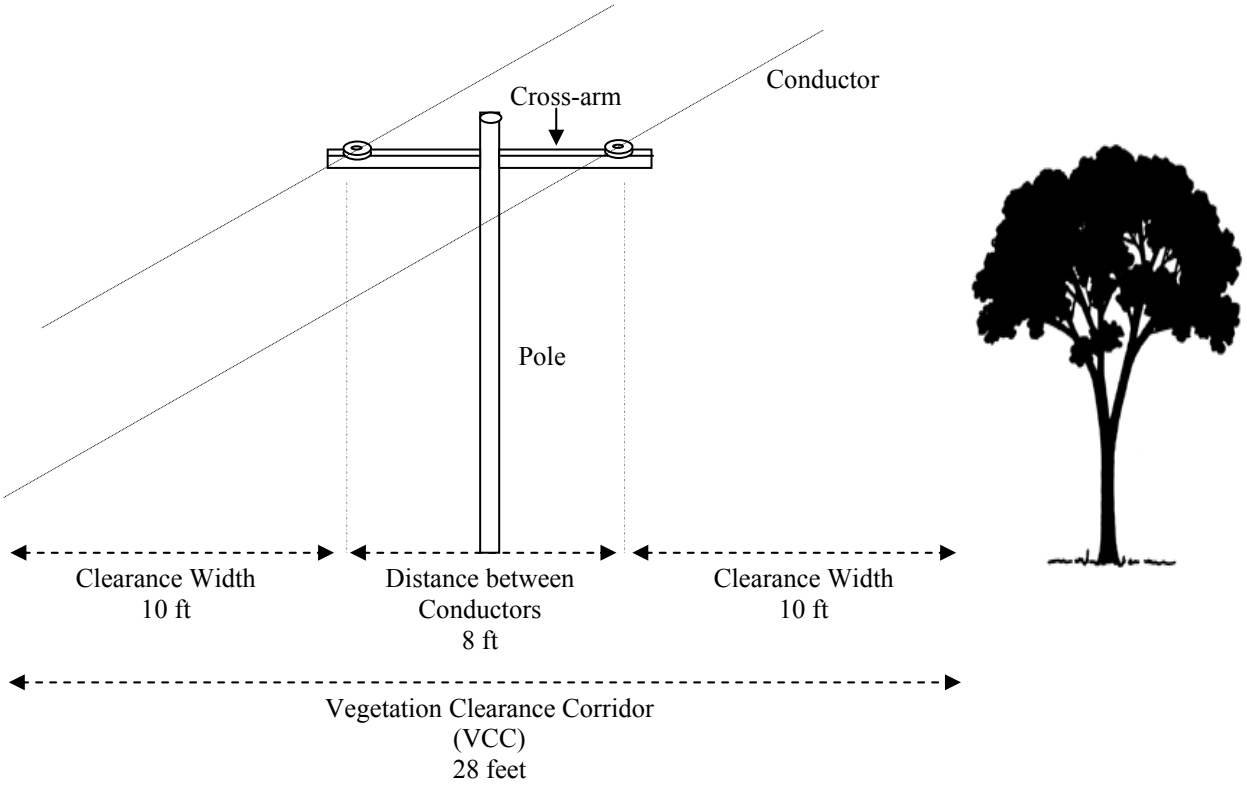
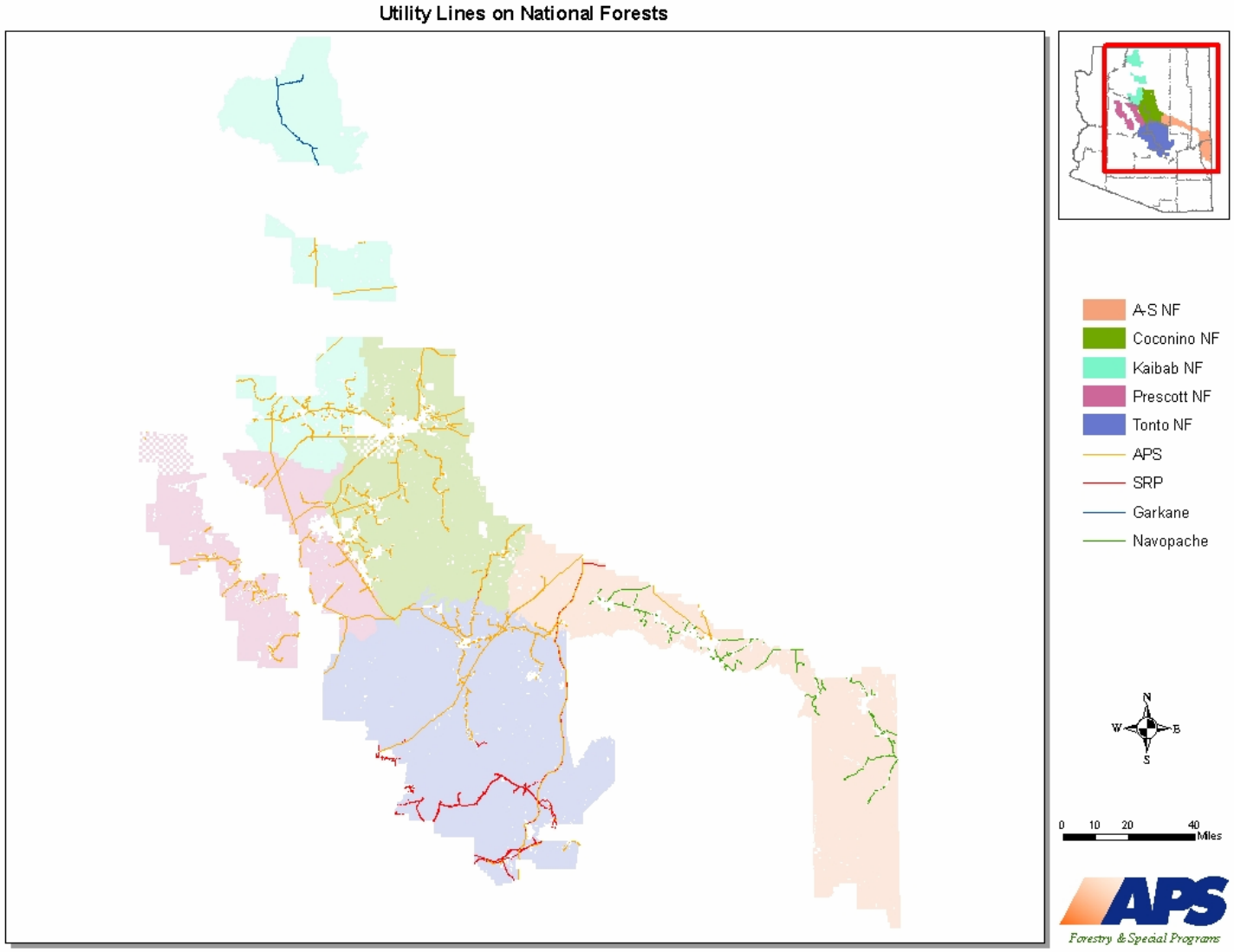


Figure 2. Overview Map of Project Area: Utility Lines and Forest Boundaries



APPENDIX A

This appendix contains our concurrences with your "may affect, not likely to adversely affect" determinations for the endangered lesser long-nosed bat, endangered California condor, threatened Apache trout, endangered Gila chub and its critical habitat, endangered Gila topminnow, threatened Little Colorado spinedace and its critical habitat, endangered razorback sucker and its critical habitat, threatened spikedace and its proposed critical habitat, and the threatened Chiricahua leopard frog. In addition, this appendix also contains your "not likely to jeopardize determinations" for the experimental, non-essential population of Colorado pikeminnow, Mexican gray wolf, and California condor.

Lesser long nosed bat

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the lesser long nosed bat. We base this concurrence on the following:

- The lesser long-nosed bat and roosting or maternity colonies are not known to occur on any of the National Forests covered under this consultation.

- Aerial surveys along the power line corridors will not occur during the time when bats are known to forage.

- Lesser long-nosed bat foraging habitat is known to occur within the action area; however, agave are not a target species for removal or pruning and on rare occasions a saguaro and/or organ pipe cactus may be removed or pruned.

California condor (outside non-essential experimental boundaries)

Condors are a wide-ranging species, and appear to rely primarily on areas within the non-essential experimental boundary, specifically within the Grand Canyon complex along the Colorado River corridor. Condors are occasionally found in Utah, Colorado, and Wyoming, and have also been detected within the action area for this project, foraging and roosting on the Kaibab NF and Coconino NF outside the non-essential boundaries. These instances on the Kaibab and Coconino NFs are not common.

We concur with your determination that the proposed action outside the non-essential experimental boundary, will not adversely affect the California condor. The condors outside of the experimental population area are fully protected as endangered. We base this concurrence on the following:

- Because of the rarity of their visits to National Forests within the action area, but outside of non-essential experimental boundary, the bird's wide ranging habitat requirements, and the narrow scope of hazard vegetation removal, we do not believe that any hazard vegetation removal will adversely impact habitat needs for the bird. No nest areas for condors occur outside of the non-essential experimental boundary, and all known nest areas in Arizona have occurred on cliffs. As a result, the effect of any hazard tree that may be removed in areas that condors visit would be considered insignificant.

- We also conclude that due to the infrequency of condors using National Forest lands outside of the non-essential experimental boundary, and the short-duration and site-specific nature of hazard vegetation removal, we do not anticipate that helicopter reconnaissance flights or on-the-ground vegetation removal/disposal activities will come in contact with condors.

California condor (inside non-essential experimental boundary)

You determined that the proposed action, within its non-essential experimental boundary, will not jeopardize the California condor.

- Because of the condor's status as an experimental, non-essential population, these condors are treated as though they are proposed for listing for section 7 consultation purposes. By definition, an experimental non-essential population is not essential to the continued existence of the species. Thus, no proposed action impacting a population so designated could lead to a jeopardy determination for the entire species.

Apache trout

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the Apache trout. We base this concurrence on the following:

- No direct effects to Apache trout will occur from hazard vegetation removal and/or associated activities. Most Apache trout streams do not have any utility lines within their watersheds or are a considerable distance (3 to 16 miles) from any existing utility lines. In addition, there are no low-water crossings that will be utilized to access the utility lines that cross either currently occupied habitat (Hannagan Creek) or soon to be occupied habitat (West Fork and East Fork of Little Colorado River).

- Indirect effects resulting from the removal of vegetation near Apache trout habitat will be insignificant. Ground disturbing activities from mechanical treatments will be limited near Hannagan Creek and the West and East Forks of the Little Colorado River, and we do not expect hazard vegetation removal in these areas to move sediment or alter hydrologic conditions.

Gila chub

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the Gila chub and its critical habitat. We base this concurrence on the following:

- Utility corridors that occur within the watershed of occupied Gila chub habitat do not have a high potential for hazard vegetation (Appendix D, BA). These utility lines primarily occur in areas where the lines are far above habitat, thus precluding the need to remove vegetation. Soil disturbance resulting from any hazard vegetation removal is expected to be localized and outside the areas occupied by Gila chub. Therefore, effects resulting from vegetation removal that

may occur in Gila chub habitat are expected to be insignificant.

- The likelihood of any direct or indirect interaction between the proposed action and primary constituent elements associated with designated Gila chub critical habitat are extremely low; therefore, any effects to critical habitat are assumed to be discountable.

Gila topminnow

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the Gila topminnow. We base this concurrence on the following:

- Only three of the ten populations of Gila topminnow within the action area are near utility lines. However, these utility lines do not bisect any of these waters and are 0.25 to 0.5 mile from Gila topminnow habitat. Due to the distance of these sites from these utility lines, the effect of hazard vegetation removal on the fish and its habitat is insignificant.

Little Colorado spinedace

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the Little Colorado spinedace and its critical habitat. We base this concurrence on the following:

- No direct effects to Little Colorado spinedace will occur from hazard vegetation removal and/or associated activities. There are no low-water crossings that will be utilized to access utility lines that occur near spinedace streams.

- Indirect effects resulting from the removal of vegetation near Little Colorado spinedace habitat will be insignificant. Ground disturbing activities from mechanical treatments should not result in significant sediment movement or alter hydrologic conditions.

- The likelihood of any direct or indirect interaction between the proposed action and primary constituent elements associated with designated Little Colorado spinedace critical habitat are extremely low; therefore, any effects to critical habitat are assumed to be discountable.

Razorback sucker

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the razorback sucker and its critical habitat. We base this concurrence on the following:

- Utility lines bisect the Salt and Verde rivers where razorback sucker are known to occur. However, these utility lines are strung high above the river channel and in most cases are well above the riparian corridor. It is expected that hazard vegetation removal will rarely, if ever, occur along the six transmission lines and four distribution lines that bisect potential habitat. Therefore, we believe that the

potential for this action to result in direct or indirect effects to the fish or its habitat is insignificant and discountable.

- Roads that access the ten utility lines do not enter the river in areas likely occupied by razorback sucker and use of these roads to access utility lines will not result in direct effects to the fish. In addition, the soils in the area are naturally unconsolidated and prone to movement during high flow events. Therefore, sediment input as a result of access to utility corridors is insignificant.

- The likelihood of any direct or indirect interaction between the proposed action and primary constituent elements associated with designated razorback sucker critical habitat are extremely low; therefore, any effects to critical habitat are assumed to be discountable.

Spikedace and critical habitat

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the spikedace and its critical habitat. We base this concurrence on the following:

- Spikedace are present in Eagle Creek, but there are no utility lines present in the Eagle Creek watershed. Therefore, the proposed action will not result in any effects to Eagle Creek spikedace.

- Spikedace were detected in the Verde River in 1999. Because of the species' small size and low numbers, it is difficult to detect; however, we believe that spikedace, while rare, still persist in the uppermost reaches of the Verde River. There are no low-water crossings that the project proponents use in the upper Verde River. Therefore, there should be no direct effects to spikedace resulting from accessing the utility lines. In addition, the soils in the area are naturally unconsolidated and prone to movement during high flow events. Therefore, sediment input as a result of access to utility corridors is insignificant.

- The likelihood of any direct or indirect interaction between the proposed action and primary constituent elements associated with spikedace critical habitat are extremely low; therefore, any effects to critical habitat are assumed to be discountable.

Chiricahua leopard frog

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the Chiricahua leopard frog. We base this concurrence on the following:

- No utility line corridor or access routes for these corridors exist in areas known to be occupied by Chiricahua leopard frogs. However, some utility corridors do occur within five miles of potential dispersal habitat for the frog. We do not expect travel along roads near these areas to result in significant effects to dispersing animals. The proposed action will likely result in relatively few visits to the area and the likelihood of the action impacting dispersing frogs is

discountable.

- Indirect effects resulting from the removal of vegetation near occupied or potential frog habitat will be insignificant and discountable. Ground disturbing activities from mechanical treatments should not result in significant sediment movement or alter hydrologic conditions.

Colorado pikeminnow

You determined that the proposed action will not jeopardize the Colorado pikeminnow:

- Because of the pikeminnow's status as an experimental, non-essential population, fish found in Arizona are treated as though they are proposed for listing for section 7 consultation purposes. By definition, an experimental non-essential population is not essential to the continued existence of the species. Thus, no proposed action impacting a population so designated could lead to a jeopardy determination for the entire species.

Mexican gray wolf

You determined that the proposed action will not jeopardize the Mexican gray wolf.

- Because of the wolves' status as an experimental, non-essential population, wolves found in Arizona are treated as though they are proposed for listing for section 7 consultation purposes. By definition, an experimental non-essential population is not essential to the continued existence of the species. Thus, no proposed action impacting a population so designated could lead to a jeopardy determination for the entire species.

APPENDIX B

Agency actions that have undergone formal section 7 consultation with levels of incidental take permitted for the bald eagle in Arizona since 2001.

Action	Year	Federal Agency	Incidental Take Anticipated
Arizona			
Revised Biological Opinion on Transportation and Delivery of Central Arizona Project Water to the Gila River Basin in Arizona and New Mexico and its Potential to Introduce and Spread Nonnative Aquatic Species 02-21-90-F-119a	2001	USBR	Amount or Extent Was Unquantifiable – Take was anticipated in the form of harm and harassment through: 1) alteration of fish prey species and through introduction of exotic plants and/or invertebrates (such as Salvinia) impacting eagle's ability to access prey, and 2) disturbance due to construction of fish barriers on upper Verde River and Fossil Creek.
Navajo Nation Water Quality 02-21-96-F-368	2001	EPA	Amount of take was unquantifiable due to the mobile nature of the eagle following exposure to impaired water quality.
Installation of Wind Turbine at Camp Navajo 02-21-02-F-0503	2003	DOD	One bald eagle as a result of collision with wind turbine.
Intra-Service Biological and Conference Opinion - Issuance of a Section 10(a)(1)(B) permit to Salt River Project for Operation of Roosevelt Dam 02-21-03-F-0003	2003	USFWS/SRP	Over 50 years, reduced productivity as a result of harm resulting in loss of 18 eaglets.
Bureau of Reclamation's Approval of Water Exchange by San Carlos Apache Tribe for Water Retention in San Carlos Lake. 02-02-04-F-0001 and 02-21-04-F-0077	2004	USBR	Loss of productivity at two bald eagle breeding areas (Coolidge and Granite Basin) for one year, totaling 4 eaglets/eggs.

Agency actions that have undergone formal section 7 consultation with levels of incidental take permitted for the bald eagle in Arizona since 2001.

Reconstruction of the Sunrise Park-Big Lake Road, also known as Forest Highway 43. 02-21-97-F-0229	2004	FHWA	Reduced productivity/success as a result of impacts to foraging and nesting from recreation resulting in less than six eaglets fledged over a 10-year period.
Big Lake Campground Expansion 02-21-04-F-0107	2004	USFS	Reduced productivity/success as a result of impacts to foraging and nesting from recreation resulting in less than 80 percent of statewide average eagle productivity in five-year intervals. Therefore, if less than 3 eaglets are fledged every 5 years, incidental take will be exceeded.
Programmatic Biological and Conference Opinion on the Continued Implementation of the Land and Resource Management Plans for the Eleven National Forests and National Grasslands of the Southwestern Region. 2-22-03-F-366	2005	USFS	On the Tonto, Prescott, Coconino, and Apache-Sitgreaves National Forests, incidental take is anticipated in the form of harm and harassment as a result of implementing Engineering, Range, Recreation, Forest Health and Forestry programs and on the Coronado NF from implementing Minerals program. If for two consecutive years occupancy falls below 21 breeding areas or less than 11 eaglets are fledged in a single year on these forest collectively, incidental take will have been exceeded.
Mountainaire Healthy Forests Restoration Act Project Biological Opinion 02-21-05-F-0343	2006	USFS	Two adult eagles and all young from the Lake Mary Breeding Area for 1-3 years when the FR 296/296A haul route is used.

DOD = Dept. of Defense; EPA = Environmental Protection Agency; FHWA = Federal Highway Administration; SRP=Salt River Project; USFS = U.S. Forest Service; USBR = U.S. Bureau of Reclamation; USFWS=U.S. Fish and Wildlife Service

APPENDIX C

Agency actions that have undergone formal section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide and conclusions on 2005 critical habitat designation.			
Action (County)	Year	Federal Agency[1]	Incidental Take Anticipated
Arizona			
Apache Maid Allotment (Yavapai, Coconino)	1995	USFS	None
Tuzigoot Bridge (Yavapai)	1995	NPS	Take of 1 WIFL each year the site is occupied
Windmill Allotment (Yavapai)	1995	USFS	Take of 1 WIFL nest annually for 2 years due to parasitism
Solomon Bridge (Graham)	1995	FHWA	Take of 2 territories
Tonto Creek Riparian Unit (Maricopa)	1995	USFS	Take unquantifiable. Take as a result of parasitism, disturbance, modification of nesting habitat, loss of nesting sites.
Eastern Roosevelt Lake Watershed Allotment (Maricopa)	1995	USFS	Take unquantifiable. Take as a result of parasitism, disturbance, modification of nesting habitat, loss of nesting sites.
Cienega Creek (Pima)	1996	BLM	Take of 1 WIFL nest annually by cowbird parasitism
Glen Canyon Spike Flow (Coconino)	1996	USBR	Take unquantifiable. Take of WIFL habitat, loss of riparian understory habitat
Verde Valley Ranch Development (Yavapai)	1996*	Corps	Take of 2 flycatcher territories
Modified Roosevelt Dam (Gila, Maricopa)	1996*	USBR	Take of 45 territories through habitat removal; take of 90 birds via reduced productivity/ survivorship.
Removal of unauthorized fill from Virgin River at Hidden Valley Hunting Preserve (Mohave)	1997	EPA	None

Agency actions that have undergone formal section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide and conclusions on 2005 critical habitat designation.			
Lower Colorado River Operations and Maintenance - Lake Mead to Southerly International Border - AZ/CA/NV (Mohave, La Paz, Yuma)	1997*	USBR	Take unquantifiable. Take as a result of riparian habitat loss and degradation, inundation, reduced productivity and survivorship, nest loss/abandonment, parasitism, recreation, fire, predation.
Blue River Road (Greenlee)	1997	USFS	Take unquantifiable. Take of WIFLs as a result of loss of habitat, feeding, sheltering, increased rates of mortality, starvation, predation.
Skeleton Ridge - Cedar Bench Allotments (Yavapai)	1997	USFS	Take unquantifiable. Take of WIFL in the form of habitat as a surrogate
White Canyon Fire – Emergency Consultation (Pinal)	1997	BLM	Take of 4 WIFL pairs from harassment
U.S. Hwy 93 Wickenburg (Mohave, Yavapai)	1997	FHWA	Harassment of 6 birds in 3 territories and 1 bird killed/decade
Safford District Grazing Allotments (Greenlee, Graham, Pinal, Cochise & Pima)	1997	BLM	Take unquantifiable. Take as a result of parasitism, disturbance, modification of nesting habitat, loss of nesting sites.
Lower Gila Resource Plan Amend. (Maricopa, Yavapai, Pima, Pinal, La Paz, Yuma)	1997	BLM	Take unquantifiable. Take of WIFLs measured by loss of cottonwood and willow seedlings, bark stripping, and trailing.
Storm Water Permit for Verde Valley Ranch (Yavapai)	1997	EPA	Take unquantifiable. Take in the form of degraded watershed and riparian WIFL habitat, and loss of WIFL habitat due to groundwater pumping and pollutants.
Gila River Transmission Structures (Graham)	1997	AZ Electric Power Coop. Inc.	Take from harassment or harm due to habitat modification, reduced productivity, disturbance, parasitism.

Agency actions that have undergone formal section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide and conclusions on 2005 critical habitat designation.			
Land and Resource Management Plans for the 11 National Forests and National Grasslands of the Southwestern Region of the U.S. Forest Service (Various AZ and NM)	1997	USFS	None
Phoenix Resource Management Plan (Apache, Navajo, Gila, Maricopa, Pinal, Pima, Santa Cruz, Yavapai)	1998	BLM	None
Yuma Resource Management Plan (Yuma, La Paz, Mohave)	1998	BLM	None
Arizona Strip Resource Mgmt Plan Amendment (Mohave)	1998	BLM	Take of 1 nesting attempt every 3 years. Take through parasitism, habitat loss from fire, recreation, development
CAP Water Transfer Cottonwood/Camp Verde (Yavapai, Maricopa)	1998	USBR	Take unquantifiable. Take through parasitism, disturbance, modification of nesting habitat, loss of nesting sites
Cienega Creek Stream Restoration Project (Pima)	1998	BLM	Take of 1 WIFL through harassment
Kearny Wastewater Treatment (Pinal)	1998	FEMA	Take unquantifiable. Take through WIFL habitat loss, modification, harassment.
Bridge Fire, San Pedro National Conservation Area, Emergency Consultation (Cochise)	1998	BLM	None
Reintroduction of Beaver into the San Pedro NCA (Cochise)	1998	BLM	Take of 1 WIFL nest every 5 years due to beaver, and 1 WIFL nest every 5 years due to flooding increased predation/parasitism

Agency actions that have undergone formal section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide and conclusions on 2005 critical habitat designation.			
SR 260 Cottonwood to Camp Verde (Yavapai)	1999	FHWA	Take unquantifiable. Take as a result of harm, injury, and death as a result of the loss of nesting sites, disturbance, modification of habitat, reduced productivity and survivorship, parasitism, and collision with vehicles.
Fort Huachuca Programmatic (Cochise)	1999	DOD	None
Alamo Dam Re-operation (LaPaz, Mohave)	1999	ACOE	Take of a WIFL nest with 2 eggs/fledglings every 20 years due to inundation.
Duncan HWY 75 Bridge over Gila River (Greenlee)	2000	FHWA	None
Red Creek Grazing Allotment (Gila)	2000	USFS	None
Re-initiation of 1997 BO for vegetation trimming at Gila River transmission structures (Graham)	2000	USDA/AZ Electric Power Coop. Inc.	No additional incidental take anticipated
Lower Colorado River, Interim Surplus Criteria Criteria/4.4 Plan (Mohave, La Paz, Yuma)	2001	USBR	Loss of 372 acres of flycatcher habitat
Mingus Ave Extension, Bridge over Verde River (Yavapai)	2001	ACOE	Take of WIFLs due to increased parasitism and disturbance, reduced habitat quality, survivorship, and productivity due to loss of 3.34 acres of habitat
Pleasant Valley Grazing Allotment, Apache (Greenlee)	2001	USFS	None
Peck Canyon Scour HWY I-19 protection (Santa Cruz)	2001	Corps	None
The Homestead at Camp Verde Development (Yavapai)	2001	EPA	None

Agency actions that have undergone formal section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide and conclusions on 2005 critical habitat designation.			
20 grazing allotments on Tonto National Forest (Various)	2002	USFS	None
Eagle Creek watershed grazing allotments -Tule, Mud Springs, Double Circle, East Eagle, Baseline - Horse Spring and Dark Canyon (Greenlee)	2002	USFS	None
Dos Pobres -San Juan Project (Graham)	2002	BLM	None
Re-initiation of Lower Colorado River Operations and Maintenance - Lake Mead to Southerly International Border - AZ/CA/NV (Mohave, La Paz, Yuma)	2002	USBR	None
Re-initiation of Fort Huachuca Programmatic (Cochise)	2002	DOD	None
Las Cienegas NCA RMP (Pima and Santa Cruz)	2002	BLM	Harassment of 6 flycatchers due to maintenance of road and trail crossings, recreational use, livestock management actions, fence maintenance and mortality of 1 due to increased cowbird parasitism
Lake Mead NRA Management Plan (Mohave, AZ and Clark, NV)	2002	NPS	Harassment to nesting and migrating birds due to recreationists. Harm as result of the loss of >5% of occupied/suitable habitat as a result of recreational activities (fire, etc.)
Issuance of Section 10 permit for Operation of Roosevelt Dam at Roosevelt Lake HCP (Gila, Maricopa)	2003	USFWS/SRP	Take of WIFLs measured by loss of 1,250 acres of occupied nesting habitat in a single year 2-3 times over a 50-year period. Loss of nesting habitat, nestlings and eggs due to habitat modification

Agency actions that have undergone formal section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide and conclusions on 2005 critical habitat designation.			
Livestock grazing on 18 allotments along the Middle Gila River Ecosystem (Pinal)	2003	BLM	Harm, harassment, injury and/or death resulting in degradation of 5 territories, greater than 10 percent parasitism, harassment of 5 pairs due to livestock management activities.
Issuance of permit for Safe Harbors Agreement for 60 acres at EC Ranch (Apache)	2003	USFWS/J.W. Crosswhite	Baseline is 0, ability to take all flycatchers at end of 50 year agreement by removing habitat
Re-initiation of U.S. Hwy 93 (Mohave,Yavapai)	2003	FHWA	Harassment and harm of 2 pairs of flycatcher through reduced productivity and survivorship as a result of permanent loss of nesting habitat, 2 birds killed or injured per decade to collision, and harassment and harm from increased predation and parasitism as a result of habitat modification, fragmentation
Approval of CAP water exchange by San Carlos Apache Tribe for retention in San Carlos Reservoir (Gila and Pinal)	2004	USBR	Harm to flycatchers below Winkelman on the Gila River resulting in failure of 43 percent of all nests due to dam operations
Biological and conference opinion for BLM Arizona Statewide Land Use Plan Amendment for fires, fuels, and air quality management (various)	2004	BLM	Harm, harassment and death of up to 5 pairs and their young/eggs due to fire suppression activities over next 10 years.
26 Bar Grazing Allotments (Apache)	2005	USFS	None. Grazing to occur in critical habitat on East Fork of Little Colorado River. No adverse modification.
Intra-Service Consultation on Issuance of Recovery Permits for the WIFL for Scientific Purposes (TE-100579) (various)	2005	USFWS	Harm and harassment of up to 7 pairs and 17 territorial males. No critical habitat.
Intra-Service Formal Section 7 Consultation/Conference Opinion for issuance of 10(a)(1)(B) permit for LCR MSCP (various)	2005	USFWS	Loss of 1853 acres of habitat, harm and harassment from operations and projects. No critical habitat.

Agency actions that have undergone formal section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide and conclusions on 2005 critical habitat designation.			
Land Resource Management Plan for National Forests, Region 3 (AZ and NM).	2005	USFS	Undeterminable number of territories on Carson, Gila, Tonto and A-S NFs. Exceeded when a site is lost w/out being replaced on Tonto or Gila NFs. No adverse modification of critical habitat.
Tamarisk Removal, Hazardous Fuels Treatment, and Boundary Fence Construction at Tumacácori National Historical Park (Santa Cruz)	2006	NPS	None. No critical habitat.
Colorado River Management Plan (Coconino and Mohave)	2006	NPS	None. No critical habitat.
Sunrise Park/Big Lake Road Hwy 43 Re-initiation (Apache)	2006	FHWA	No incidental take. Permanent loss of 0.20 ac of critical habitat, temporal loss of habitat. No adverse modification.
Cotton Lane Bridge, Bank Stabilization, and Habitat Modification at the Gila River (Maricopa)	2006	ACOE	None. No critical habitat.
BLM Lake Havasu Field Office Resource Management Plan (various)	2006	BLM	None. No critical habitat.
Replacement of 8th Ave Bridge, Gila River. (Safford and Graham)	2006	FHWA	None. Loss of 0.1 to 0.4 ac of critical habitat. No adverse modification.
Construction of Florence-Kelvin Bridge, Gila River. (Pinal)	2006	FHWA	None. Loss of 0.5 ac of critical habitat. No adverse modification.
California			

Agency actions that have undergone formal section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide and conclusions on 2005 critical habitat designation.			
Prado Basin (Riverside/San Bernardino)	1994	Corps	Harassment of 1 flycatcher. Adverse effect to proposed critical habitat, no adverse modification.
Mesa Grande and Lusardi Grazing Allotments (San Diego)	1994	USFS	Unquantifiable incidental take as a result of cowbird parasitism.
Building Removal, Prado Basin (Riverside)	1994	Corps	None. Adverse effect to proposed critical habitat, no adverse modification
Red Top Grazing Allotment, Cleveland National Forest (San Diego)	1994	USFS	Unquantifiable incidental take as a result of cowbird parasitism.
Storm Damage Repair at Four Locations Along State Route 76 (Riverside)	1994	FHWA	None Adverse effect to proposed critical habitat, no adverse modification
Orange County Water District (Orange)	1995	Corps	None
Temescal Wash Bridge (Riverside)	1995	Corps	Take of 2 flycatchers
Camp Pendleton (San Diego)	1995	DOD	Take 4 flycatcher territories
Grazing Allotments on the Cleveland National Forest (San Diego)	1995	USFS	None
Lake Isabella Operations (Kern)	1996	Corps	Inundation 700 acres critical habitat; reduced productivity 14 pairs
Recovery Permits in Region 1 (CA and NV)	1996	FWS	Unquantifiable take as a result of implementation of improper survey techniques leading to reduced nest success, increased parasitism/predation/ disturbance
Norco Bluffs Bank Stabilization Project (Riverside)	1996	Corps	Harassment to all flycatchers

Agency actions that have undergone formal section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide and conclusions on 2005 critical habitat designation.			
Hansen Dam Recreation-Swim Lake Project (Los Angeles)	1996	Corps	Harassment to all flycatchers
Sediment Removal Project at Fullerton Dam Basin (Orange)	1996	Corps	Harassment to all flycatchers
Renewal of the Fiver-Year Pesticide use Permit to the California Dept of Food and Ag for Use of Malathion to Control Curly Top Virus in California (various)	1996	BLM	Harm to 1 flycatcher as result of reduced prey availability.
Santa Clara River Bridge Replacement Project - BO Amendment (Los Angeles)	1996	FHWA	
Repair of the I-5 Bridge over the Santa Clara River (Los Angeles)	1996	FHWA	
Lake Isabella Long-Term Operations (Kern)	1997	Corps	Annual inundation of 1,100 ac critical habitat
H.G. Fenton Sand Mine and Levee near Pala on the San Luis Rey River (San Diego)	1997	Corps	None No adverse modification of proposed critical habitat.
Issuance of an Incidental Take Permit to the City of San Diego to the Multiple Spp. Conservation Program (San Diego)	1997	FWS	Unquantifiable number will be harmed. No adverse modification of proposed critical habitat.
Shearer Crossing Bridge Project, San Luis Rey River (San Diego)	1997	Corps	None
Cannon Road (Reaches 1 and 2) City of Carlsbad (San Diego)	1997	Corps	Harm to 3 non-paired flycatchers
Reinitiation of Cleveland National Forest Grazing Program (Orange/Riverside)	1997	USFS	Unquantifiable incidental take as a result of cowbird parasitism
City of Corona Wastewater Treatment Plant Outfall Project (Riverside)	1997	Corps	None

Agency actions that have undergone formal section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide and conclusions on 2005 critical habitat designation.			
South Bay Water Reclamation Plant and Dairy Mart Road and Bridge Improvements (San Diego)	1997	BLM	None
Western Riverside County Regional Wastewater Treatment System and Outfall Project in Prado Basin (Riverside)	1997	Corps	None
BO for the Seismic Retrofit of 13 Bridges in (San Luis Obispo and Santa Barbara)	1997	FHWA	
Biological and Conference Opinion for the Replacement of the Interstate 5 Bridge over the Santa Clara River (Los Angeles)	1997	FHWA	
Replacement of the Highway 101 Bridge over the Santa Clara River (Los Angeles)	1997	FHWA	
Mission Valley East Light Rail Transit Project, San Diego River (San Diego)	1998	FHWA	1 flycatcher due to harm
Partners for Fish and Wildlife Proposed Actions Region 1 (CA and NV)	1998	USFWS	None
Biological Opinion for Incidental Take Permit to County of San Diego under the Multiple Spp. Conservation Program for their Subarea Plan (San Diego)	1998	USFWS	Unquantifiable number will be harmed and harassed. No adverse modification of proposed critical habitat
Department of the Army Flood Control and Maintenance in the Mojave River (San Bernardino)	1998	Corps	
Hansen Dam Water Conservation and Supply Feasibility Study (Los Angeles)	1999	Corps	All flycatcher territories <1030 ft in elevation once every 7 years

Agency actions that have undergone formal section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide and conclusions on 2005 critical habitat designation.			
San Bernardino Flood Control Maintenance of Reaches 2-3 of the Santa Ana River (San Bernardino)	1999	Corps	Harassment of 1 flycatcher
Replacement of the Fifth Street Bridge Over City Creek, City of Highland (San Bernardino)	1999	FHWA	None
Southern CA Forest Plans (various)	1999	USFS	
Department of the Army Authorization to Conduct Flood Control Maintenance in the Mojave River (San Bernardino)	1999	Corps	
Natural River Management Plan, Santa Clarita (Los Angeles)	1999	Corps	
Re-initiation of Lake Isabella Dam Operation (Kern)	2000	Corps	Inundation of 1,100 ac critical habitat and reduced survival and productivity of all nesting pairs and young
Questar's southern trails pipeline, CA, AZ, UT (various)	2000	FERC	None
Mill Creek Diversion, Prado Basin (Riverside)	2000	Corps	None
Level 3 long haul fiber optic network, San Diego CA to CA/AZ state line (San Diego, Imperial)	2000	BLM	None
Realignment and Widening of Laguna Canyon Road, State Route 133 (Orange)	2000	FHWA	Harassment of 1 flycatcher
54 City of Coronoa Operation and Maintenance Projects on Federal Lands within the Prado Basin (Riverside)	2000	Corps	None Adverse effect to critical habitat, no adverse modification
Prado Dam Operation for Water Conservation (Riverside/San Bernardino)	2000	Corps	None Adverse effect to critical habitat, no adverse modification

Agency actions that have undergone formal section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide and conclusions on 2005 critical habitat designation.			
Valencia Company's Clean Water Act Section 404 Authorization for Portions of the Santa Clara River (Los Angeles)	2000	Corps	
Land and Resource Plans for 4 southern CA National Forests (various)	2001	USFS	Incidental take as described in 1-6-99-F-21, Southern CA Forest Plans.
San Timoteo Creek Reach 3B Flood Control Project (San Bernardino)	2001	Corps	Take of 1 pair of flycatchers and 16.2 ac of flycatcher habitat
CA FDA 5-year permit for malathion use (Imperial, Riverside)	2001	BLM	2 flycatchers
Prado mainstem and Santa Ana River flood control and Norco Bluffs stabilization project (Orange, Riverside, San Bernardino)	2001	Corps	None
Four grazing allotments on San Bernardino NF (San Bernardino)	2001	USFS	None
Cleveland NF grazing program (Orange, Riverside, San Diego)	2001	USFS	Two parasitized nests/year. Take through parasitism, nest abandonment, loss of eggs/young, degradation of nesting habitat
Sierra Nevada Forest Plan Amendment (various)	2001	USFS	None, incidental take will be evaluated in separate section 7 consultations.
Intra-Service opinion for issuance of a 10(a)(1)(b) permit for CA Dept of Corrections for 27 electrified fences (various)	2002	USFWS	2 WIFLs in the form of kill, wound, or harassment
Highway 71 widening amendment (Riverside)	2002	FHWA	None
Sierra Nevada Forest Plan Amendment, Supplemental EIS (various)	2003	USFS	None, incidental take will be evaluated in separate section 7 consultations.

Agency actions that have undergone formal section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide and conclusions on 2005 critical habitat designation.			
Intra-Service opinion for issuance of a 10(a)(1)(b) permit for City of Carlsbad SubArea HMP (San Diego)	2004	USFWS	Harm to 1 flycatcher due to loss of approx. 16 acres of riparian habitat. Adverse effects to critical habitat, no adverse modification
Intra-Service opinion for issuance of a 10(a)(1)(b) permit for Western Riverside County MHSCP (Riverside)	2004	USFWS	Loss of 3,207 acres of foraging habitat leading to harm and injury reducing in impaired reproduction and reduced life expectancy
Colorado			
AB Lateral -Hydroelectric - Hydropower Facility, Gunnison River to Uncompahgre River (Montrose)	1996	USBR	None
TransColorado Gas Transmission Line Project (Meeker, Colorado to Bloomfield, New Mexico)	1998	BLM	None
Control of non-native fishes in floodplain ponds of upper Colorado and Gunnison rivers.	1998	USFWS	Take of 1 pair nesting flycatchers to harassment and harm to 1 pair through loss of prey
Amendment for control of non-native fishes in floodplain ponds of upper Colorado and Gunnison rivers.	1998	USFWS	None
Development of Alexander off-channel cold-water fish ponds (Montrose)	1998	Corps	None
Pagosa Area Water and Sanitation District Water Intake (Archuleta)	2000	Corps	1 pair of flycatchers
US Highway 160/County Road 501 widening - realignment, Bayfield (La Plata)	2001	FHWA	2 pairs of flycatchers
Archuleta County Rd 119 widening/realignment, Pagosa Springs (Archuleta)	2001	Corps	1 pair of flycatchers

Agency actions that have undergone formal section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide and conclusions on 2005 critical habitat designation.			
Creation of defensible space by private land owners in habitat occupied by Federally listed species (various)	2002	USFWS/State of Colorado	Harm and harassment of flycatchers by loss of 10 acres of habitat
Los Pinos Bridge replacement (La Plata)	2003	FHWA	Harm to 1 pair of flycatchers due to loss/deterioration of habitat
Nevada			
Gold Properties Resort (Clark)	1995	BIA	Take of 1 flycatcher from habitat loss
Las Vegas Wash, Pabco Road Erosion Control Structure	1998	Corps	Take of 2-3 pairs of flycatchers
Clark County Multiple Species Habitat Conservation Plan	2000	USFWS	Conditional upon actions not yet completed by Clark County
Crystal Springs Exotic Vegetation Removal Project (Lincoln County)	2002	USFWS	Take of 1 pair of flycatchers due to habitat loss
Re-initiation of consultation for City of Mesquite's post-flood actions and 2005 flood control actions, Virgin River. (Clark, NV and Mohave, AZ)	2005	ACOE	Adverse affect to WIFL critical habitat, harm through loss of habitat to flycatchers and harassment of 8 flycatchers.
New Mexico			
Corrales Unit, Rio Grande (Bernalillo)	1995	Corps	None
Rio Puerco Resource Area (various)	1997	BLM	None
Taos Resource Area (various)	1997	BLM	1 pair of flycatchers
Caballo Resource Area (various)	1997	BLM	None
Farmington District Resource Management Plan (various)	1997*	BLM	None
Mimbres Resource Area Management Plan (various)	1997*	BLM	2 pairs of flycatchers
Discretionary actions related to water management on the Middle Rio Grande River (various)	2001*	USBR/Corps	None

Agency actions that have undergone formal section 7 consultation and levels of incidental take permitted for the southwestern willow flycatcher rangewide and conclusions on 2005 critical habitat designation.

Issuance of a 10(a)(1)(A) enhancement of survival permit to Caroline H. And Thomas W. Paterson on 209 acres of the Spur Ranch (Catron)	2002	USFWS	Up to 3 pairs of flycatchers and offspring at end of agreement.
Water and River Maintenance Operations on the Middle Rio Grande (various)	2003	Corps	15 pairs of flycatchers and their offspring for 10-year consultation period, no more than 5 in any one year.
Programmatic consultation to Land Use Plans to include wind energy	2005	BLM	None – would be addressed in individual section 7 consultations
Utah			
Reclamation of Atlas Mill Tailings Site (Moab)	1998	Nuclear Regulatory Commission	One pair of flycatchers as a result of harm and harassment
UT BLM Land Use Plans Amendments BA and Fire Management Plans BA (various)	2005	BLM	Harm and harassment, unquantifiable, will be addressed implementing more site and project specific project consultations.

BIA = Bureau of Indian Affairs; BLM = Bureau of Land Management; Corps = Army Corps of Engineers; DOD = Dept. of Defense; EPA = Environmental Protection Agency; FEMA = Federal Emergency Management Agency; FHWA = Federal Highway Administration; NF = National Forest; NPS = National Park Service; USBR = U.S. Bureau of Reclamation; USFS = U.S. Forest Service; WAPA =Western Area Power Administration.

* Jeopardy opinions.