April 8, 2016

AESC/SE
02EAAZ00-2016-F-0222

Memorandum

To: Tucson Field Manager, U.S. Bureau of Land Management, Tucson, Arizona

From: Field Supervisor

Re. Kelvin Bridge Replacement Project
FHWA File# BR-PPN-0(169)T
ADOT File# 0000-PN-PPN-SB-410-01C
DOI-BLM-AZ-G020-2016-0002-EA

Thank you for your correspondence and request for consultation and conference 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 dated January 4, 2016 and was received by us via certified mail on January 7, 2016. The final biological evaluation (BE) for the proposed action, dated December 2015, was also received on January 7, 2016. At issue are the possible effects to threatened and endangered species of a bridge replacement project on the Gila River and Florence-Kelvin Highway just south of the town of Kelvin, Pinal County, Arizona.

Your letter concluded that the proposed action “may affect, and is likely to adversely affect” the endangered southwestern willow flycatcher (Empidonax traillii extimus) (flycatcher) and its designated critical habitat, and the threatened Distinct Population Segment (DPS) of the western yellow billed cuckoo (Coccyzus americanus) (cuckoo) and its proposed critical habitat. You also concluded that the project “may affect, but is not likely to adversely affect” the endangered ocelot (Leopardus pardalis), endangered spikedace (Meda fulgida), and endangered loach minnow (Tiaroga cobitis). You also asked that we provide conservation recommendations for the former candidate species, Sonoran desert tortoise (Gopherus morafkai).

Below, we provide our biological opinion (BO) for the flycatcher, cuckoo, and flycatcher designated critical habitat. We also provide our conference opinion (CO) on proposed critical habitat for the cuckoo, which can be converted to a BO if proposed critical habitat for the cuckoo is designated in the future. We concur with your determinations on the ocelot, spikedace, and loach minnow and provide our rationales in Appendix A.

On October 6, 2015, we removed the Sonoran desert tortoise from the candidate list (80 FR 60321), and as a result, there is no requirement to consult with FWS on this species at this time. Note that the Arizona Department of Transportation (ADOT) is a signatory to a Candidate
Conservation Agreement (CCA) for the tortoise, issued in May 2015. Pursuant to that agreement, ADOT has agreed to a number of conservation actions on behalf of the tortoise, as outlined on page 49 of the CCA. The CCA is available on our website (http://www.fws.gov/southwest/es/arizona/Conservation_Agreements.htm). This biological and conference opinion is based on information provided in the December 2015 BE, email correspondence, telephone conversations, and other sources of information found in the administrative record supporting this biological and conference opinion. Literature cited in this BO/CO is not a complete bibliography of all literature available on the species of concern, the effects of bridge building on those species, or on other topics considered in this opinion. A complete administrative record of this consultation is on file at this office (file number 02EAAZ00-2016-F-0222).

Consultation History

The Kelvin Bridge Replacement Project was the subject of a formal and informal consultation with the Federal Highway Administration (FHWA) in 2006. FHWA, the lead Federal agency on the project at that time, initiated consultation because of possible effects of the project on the endangered southwestern willow flycatcher and its designated critical habitat, the threatened bald eagle (Haliaeetus leucocephalus), and endangered cactus ferruginous pygmy owl (Glaucidium brasilianum cactorum) (consultation # 02EAAZ00-2006-F-0429). On June 27, 2006, we issued a final biological opinion on the project stating that neither incidental take of flycatchers or adverse modification of flycatcher critical habitat were likely to occur as a result of the proposed action, due primarily to the lack of suitable flycatcher breeding habitat in the project area at the time, the small amount of vegetation removal that would occur, and the fact that construction activities were to take place outside the flycatcher breeding period. We also issued a concurrence letter for the bald eagle. We took no action on the pygmy owl because it had been removed from the endangered species list before we received FHWA’s consultation request.

The Florence-Kelvin Highway (highway) and the existing Kelvin Bridge (bridge) is managed by Pinal County but is located on a right-of-way (ROW) easement granted by the U.S. Bureau of Land Management (BLM). A similar easement will be required for the new bridge location. On January 27, 2012, BLM informed us that it was negotiating with Pinal County to establish an easement for the new bridge, and on March 29, 2012 BLM informed us that it had assumed discretion as the lead Federal agency for the proposed action. The March 2012 memo asked if re-initiation of the 2006 consultation would be necessary, given that estimates of impacts to flycatcher critical habitat (i.e., amount of vegetation removal) had changed since 2006. On April 23, 2012, we responded that the proposed changes were within the scope of the effects analysis and conclusions found in our June 2006 BO, and that re-initiation would not be required.

After 2012, changes to the bridge design and bridge replacement proposal occurred, and BLM re-analyzed the project’s potential effects on threatened and endangered species. As a result, BLM updated the BE for the project and initiated formal and informal consultation. The consultation history for the current request follows:
November 18, 2015  We received a draft BE for the project, dated September 29, 2015, with a request for our review and comments. The cuckoo, ocelot, spikedace, and loach minnow had been added to the BE’s list of affected species, and construction plans had changed to include work on the bridge during the flycatcher and cuckoo breeding periods. Design changes to the proposed bridge included modification of the bridge pier system from three dual column piers to seven single column piers, relocation of bridge piers to avoid impacts to Waters of the U.S., and reduction of the bridge height by two feet.

December 1, 2015  We received a revised mitigation section for the draft BE.

December 3, 2015  We sent you our comments on the draft BE and revised mitigation measures.

January 7, 2015

May 17, 2016

June 28, 2016  We sent you our final biological and conference opinion.

BIological and Conference Opinion

Description of the Proposed Action

The proposed bridge would be constructed by ADOT with funds provided by the FHWA and Pinal County. The following summary of the proposed action is taken from the final BE. Maps, photographs, and diagrams of the action area are included in the BE and are incorporated herein by reference.

General Project Description

The highway and existing bridge serve traffic traveling between the Town of Florence and Communities of Kelvin, Kearny, and Riverside. The bridge replacement would shift traffic from the existing two-lane bridge to a new bridge with two lanes located 50 feet (ft) east (upstream) of the existing bridge. After the new bridge is built, the existing bridge would remain accessible to the public for non-motorized use as part of the Arizona National Scenic Trail.

The new bridge is designed to span the Gila River with seven single-column piers arranged so that none of them would be placed in the river channel. Heavy equipment would not be used in the flowing channel or adjacent wetlands, nor would the river itself be altered in any way. The "project limits," defined in the BE as the construction footprint (area of disturbance), would include 2.1 acres (ac) that would be permanently impacted by the new bridge piers, riprap, and new roadways. Temporary surface disturbances and vegetation removal would occur within 5.0 ac as a result of geotechnical testing, construction of temporary roads and workspace, and
construction of a temporary bridge. Thus, the construction footprint would include a total of 7.1 ac of permanent and temporary disturbance. The project would take between 18-21 months to complete and would begin between October and December 2016. Construction activities are expected to occur at various levels of capacity throughout each day, up to 24 hours a day and 7 days a week. Construction of the new bridge would occur in four steps, as follows:

1. **Geotechnical Borings and Site Preparations**

   Geotechnical borings would be needed to determine how deep the bridge pier supports need to be constructed. Six borings were done at six locations in 2004. Three new borings would be required to complete the project. The new borings would require one truck-mounted drill rig and one work haul truck. Vegetation would be cleared in a path that would allow the drill rig to back down to each boring location and to exit along the same path.

   Site preparations would involve clearing of vegetation at the new bridge site to provide access, work space, and pier and rip rap locations. Vegetation would also be removed south of the existing bridge, at the southern end of the project area, where new roadway would connect the existing highway to the new bridge. Removal of native riparian woodland vegetation, such as cottonwood, willow, and seep willow, would be avoided where possible, and natural regeneration of native plants would be encouraged by cutting vegetation with hand tools, mowing, trimming, or using other removal methods that allow root systems to remain intact.

   A staging area for construction equipment and materials would be required during the course of construction. The proposed staging area is to be located north of the Gila River along the west side of the existing highway in a previously-disturbed area. The construction staging area would be approximately 50 ft by 50 ft and would be fenced using self-supporting, chain-link temporary construction fencing.

2. **Bridge Construction**

   Construction of the bridge would require drilling for seven pier foundations, each of which would be supported below grade by 8-ft diameter concrete shafts. Above grade, piers would be framed and poured and then precast concrete girders to support the bridge deck would be lifted into place with a crane. The bridge’s concrete deck, abutments, and ramps would then be formed and poured. Completion of the bridge would require frequent delivery of concrete and other materials to the project site and to both sides of the Gila River. However, the load limit of the existing bridge (15 tons) is insufficient for transporting heavy equipment and material from one side of the river to the other.

   Under the assumed construction scenario described in the BE, the bridge would be built on one side of the river and continue on that side until the bridge reached the halfway point of its span. Construction would then start on the other side of the river. Work on the second part of the span would rely on a temporary bridge to transport heavy equipment and materials across the river.

   The temporary bridge would span 80 ft and would be designed to avoid impacts to the Gila River’s flowing channel, banks, and wetland areas. The temporary bridge design is not final, but the bridge would be anchored on prefabricated concrete footings or driven piles. In the event of
a flood, water would likely overtop the temporary bridge; however, the temporary bridge would be designed to withstand floodwaters, and after floodwaters had subsided, the bridge’s short approach ramps would be rebuilt as needed. During construction, a containment system would be installed on the temporary bridge and the new bridge to keep construction materials from falling into the Gila River.

3. Detour and Access Road Construction and Highway Realignment

During construction of the new bridge, the old bridge would remain open to traffic; thus, detours would not be needed until after the new bridge is built (i.e., when the highway is realigned to the new bridge). During construction of the new roadway, detour roads would be necessary to control local traffic. Vegetation removal would take place within the detour road alignments prior to blading and grading, but paving the detour roads would not be necessary. However, paving of the realigned highway and a new local resident access road would be necessary. Grading of the new paved roadways would involve some soil removal. This excess soil would be stockpiled for use in post-construction re-vegetation efforts. Total length of the realignment would be approximately 1,500 ft. Vegetation removal for the roadway realignment, access road construction, and detour roads would occur outside the riparian zone.

4. Detour Road Removal and Re-vegetation

After bridge and road construction are complete, temporary detour and access roads would be removed and all temporary impact areas (e.g., roads, work areas) where vegetation removal occurred would be reseeded and replanted with species that are indigenous to the area. To guide restoration efforts, a site restoration plan would be prepared before vegetation clearing and other surface disturbances occur. The plan would include a pre-construction inventory of native plants in all areas that would be temporarily disturbed. The inventory would provide a “snapshot” of vegetation in these areas before construction, and ultimately would allow a close match between the original site condition and the restored condition, with an emphasis on establishing native riparian species, e.g., cottonwoods and willows.

During restoration, trees would be planted at various heights to simulate the original condition. Trees would be planted as potted plants or pole plantings and would receive irrigation for the first two years after planting.

The contractor would also be required to control noxious weeds that may occur within the project limits, and would follow Environmental Protection Agency and BLM requirements and policies on weed control methods. The contractor would submit a Pesticide Use Proposal to BLM for approval prior to using herbicides to control noxious and invasive plants. FWS guidelines for herbicide use, contained in Recommended Protection Measures for Pesticide Applications in Region 2 of the U.S. Fish and Wildlife Service (White 2007), should be incorporated into that proposal.

After the restoration plan has been implemented, a qualified biologist would monitor restored areas at least twice a year, once in April and once in September, for two years. Annual reports
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with supporting maps would be provided to BLM and would include information on planting success by species, species composition, and density of noxious weeds.

**Conservation Measures**

Conservation measures not already discussed, or not discussed in other sections below, include general measures, such as best management practices (BMPs) to avoid negative effects to soil and water quality in the Gila River, and measures specific to this project that would clearly define and limit work areas and minimize removal of native and riparian vegetation, all of which would help to reduce the project’s negative effects on the flycatcher and its designated critical habitat, and the cuckoo and its proposed critical habitat.

**General Measures**

- A Storm Water Pollution Prevention Plan and Spill Prevention and Pollution Prevention Plan would be prepared prior to construction to assure that the proposed action would not adversely impact soils or water quality.
- Waste Management and Containment Plans would be developed to address the safe handling, storage, transportation, and disposal of construction waste, trash, litter, garbage, and hazardous materials (e.g., fuels, lubricants).
- Erosion control BMPs, e.g., use of hay bales, silt fences, and other methods of erosion control would prevent soils exposed during construction from becoming sediment carried off the site and into the river.

**Specific Measures**

- At least 45 days prior to construction, a qualified senior biologist (biological monitor) would be hired under contract to ADOT to monitor construction activities at the Kelvin Bridge crossing and to report on the project’s environmental effects, environmental compliance (i.e., with the general and specific mitigation measures summarized in this section and throughout the BO/CO), and to the extent possible the effectiveness of mitigation.
- Monitoring frequency would depend on the type and timing of activities. Vegetation clearing, temporary bridge construction, and pier construction could require daily visits. At a minimum, the biological monitor would conduct weekly visits, beginning with pre-construction activities, and ending with completion of the bridge. Monitoring for the post-construction restoration effort would occur twice each year for two years.
- Before construction, the biological monitor would present an environmental awareness program to all workers who would be involved with the project on the ground, focusing on flycatcher and cuckoo biology, critical habitats of both species, and construction avoidance areas within the project limits (see below).
- Before construction, the biological monitor, ADOT, and BLM would identify and mark the perimeters of work areas, identify and mark individual trees that would be pruned or removed from work areas, and identify and flag native trees, shrubs, and cacti that would not be removed from work areas.
Before construction, the biological monitor, ADOT, and BLM would identify and mark the following areas to be avoided during vegetation clearing and construction activities:

- Wetland areas.
- The ordinary high water mark (OHWM) of the Gila River.
- Active bird nests.
- Critical habitats.

Wetland areas and the OHWM would be fenced with orange construction fencing to reduce construction impacts to the Gila River.

To prevent impacts to protected migratory birds, any active bird nest found within 100 ft of the construction area would be reported to the biological monitor who would then establish and mark an avoidance area, e.g., with plastic fence or T-posts.

In work areas, vegetation clearing would be limited to an area extending 20 ft beyond and parallel to the edges of the new bridge. The work areas would be fenced with five-ft-high orange construction fencing. Proposed vegetation clearing inside work areas would involve removal of designated critical habitat for the flycatcher and proposed critical habitat for the cuckoo. The work area limit and fencing would prevent further encroachment into designated and proposed critical habitats.

**Southwestern Willow Flycatcher and Western Yellow-billed Cuckoo**

- Vegetation clearing activities would be restricted to the period October 1-March 31 of any given year. No vegetation clearing activities would occur from April 1-September 30.
- Vegetation clearing within southwestern willow flycatcher and yellow-billed cuckoo critical habitat required for construction access would be limited to no more than 20 ft beyond the edge of the new bridge.
- If any species listed as threatened or endangered under the Act is encountered during construction activities, all work would cease and FWS would be contacted for guidance.

**Action Area**

FWS defines the action area as all areas to be affected directly or indirectly by the proposed action, and not merely the immediate area involved in the action (50 CFR § 402.02). In delineating the action area, we evaluated the farthest reaching physical, chemical, and biotic effects of the action on the environment, focusing on, but not exclusive to, the Florence-Kelvin Highway crossing of the Gila River, as described above.

**STATUS OF THE SPECIES AND CRITICAL HABITATS**

**Southwestern Willow Flycatcher**

The flycatcher was listed as endangered without critical habitat on February 27, 1995 (60 FR 10694). Critical habitat was designated on July 22, 1995 (62 CFR 39129) and revised on January 2, 2013 (78 CFR 344). The original critical habitat designation included 1,556 stream
mi in the desert Southwest. The revised rule reduced designated critical habitat to approximately 1227 stream mi. A recovery plan for the species was completed in 2002 (U.S. Fish and Wildlife Service [USFWS] 2002), and a 5-year review was done in 2014 (USFWS 2014). The 5-year review determined that no change was needed to the species’ classification as endangered.

The flycatcher is one of four currently recognized subspecies of the willow flycatcher, a neotropical migrant and spring/summer resident of North America (Unitt 1987, Browning 1993). This subspecies breeds in the southwestern U.S. and winters in Mexico, Central America, and possibly northern South America (Phillips 1948, Stiles and Skutch 1989, Peterson 1990, Ridgely and Tudor 1994, Howell and Webb 1995). In Arizona, the subspecies increased from 145 to 459 breeding territories from 1996 to 2007 (English et al. 2006, Durst et al. 2008). Currently, population stability of the subspecies in Arizona depends on two large populations at Roosevelt Lake and the confluence of the San Pedro and Gila Rivers. However, catastrophic events and losses of birds within these populations could alter the status of the subspecies quickly and significantly. Conversely, expansion into new habitats or discovery of other populations would improve the bird’s known status.

The flycatcher is a riparian obligate species breeding in mesic areas with standing water or saturated soils. Flycatchers are typically found along rivers, lakesides, and other wetlands with dense riparian habitat consisting of multi-layered tree canopies of varying sizes and age classes. Occupied flycatcher territories are usually located near or over surface water or saturated soils in habitat patches at least 33 ft in diameter. In the Southwest, flycatchers arrive on territories in late April or early May, and nest building begins in mid-May. Flycatchers are insectivores, foraging in dense shrub and tree vegetation along rivers, streams, and other wetlands.

Flycatcher territories occur within two distinct habitat types in Arizona: 1) mixed riparian/tamarisk (Tamarix spp.) habitats below 4,000 ft in elevation; and 2) willow (Salix spp.) thickets in broad, flat drainages above 7,000 ft. Historical egg/nest collections and species descriptions throughout its range describe the flycatcher’s widespread use of willow for nesting (Phillips 1948, Phillips et al. 1964, Hubbard 1987, Unitt 1987). The subspecies also nests in boxelder (Acer negundo), tamarisk (also called saltcedar), Russian olive (Elaeagnus angustifolia), and live oak (Quercus agrifolia).

Tamarisk is an important component of this flycatcher’s nesting and foraging habitats. In 2001, 323 of the 404 known flycatcher nests in Arizona (80 percent) were in tamarisk (Smith et al. 2002). Tamarisk had been thought to represent poorer flycatcher habitat; however, comparison of reproductive performance, prey populations, and physiological condition of flycatchers breeding in native and exotic vegetation showed no differences (Durst 2004, Owen and Sogge 2002, Sogge et al. 2005, Sogge et al. 2008, USFWS 2002).

Flycatcher habitat is dynamic and can change rapidly (Finch and Stoleson 2000). Tamarisk can develop from seed to suitability in 4-5 years. Heavy flooding can eliminate or reduce the quality of habitat in a day. Flycatcher use of habitat in different successional stages may also be dynamic. Over-mature or developing riparian vegetation not suitable for nest placement can be occupied and used for foraging and shelter by migrating, breeding, dispersing, or non-territorial flycatchers (McLeod et al. 2005, Cardinal and Paxton 2005).
The flycatcher is endangered primarily because land and water management actions associated with agriculture and urban development have reduced, degraded, and eliminated much of its riparian habitats. Other threats include human recreation along rivers and streams, livestock grazing, predation, brood parasitism by brown-headed cowbirds (Molothrus ater), invasion of the tamarisk-eating leaf beetle (Diorhabda carinulata), and wildfires that have become more frequent and destructive as a result of the proliferation of exotic vegetation and degraded watersheds. Nestling predation and brood parasitism are the most common forms of direct mortality. All existing threats are compounded by the risk of stochastic events because the subspecies’ habitats are fragmented and because populations occur at low numbers.

Because tamarisk is prevalent throughout the flycatcher’s range and is used heavily by the subspecies (Durst et al. 2008), the introduced tamarisk-eating leaf beetle is a particularly serious threat. In 2009, 13 of 15 flycatcher nests on the Virgin River in Utah failed following defoliation of tamarisk by this beetle (Paxton et al. 2010). As of 2012, the insect had been found in southern Nevada and Utah and northern Arizona and New Mexico. Tamarisk often flourishes in areas where native trees are unable to grow due to water diversions, flow regulation, and groundwater pumping. Loss of tamarisk, without replacement by native trees will likely impact flycatchers wherever their range overlaps with the tamarisk leaf-eating beetle.

In pre-settlement times, fire was not a primary disturbance factor in southwestern riparian areas (USFWS 2002). Recently, however, fire size and frequency have increased because of an increase in dry, fine fuels in riverbeds and riparian systems. Drying of river beds due to human land-use practices, increases in human-caused ignitions, and the presence of tamarisk, a highly flammable plant, are largely responsible for these fuels. In June 1996, a fire destroyed approximately one-half mile of occupied tamarisk flycatcher nesting habitat on the San Pedro River in Pinal County, Arizona resulting in the loss of up to eight nesting pairs (Paxton et al. 1996).

Designated Critical Habitat

In 2013, FWS designated 208,973 ac of critical habitat for the southwestern willow flycatcher along 1,227 mi of rivers and streams in 24 management units in California, Arizona, New Mexico, Colorado, Utah, and Nevada (78 CFR 344). FWS proposed the following primary constituent elements (PCEs) for flycatcher critical habitat based on riparian plant species, structure and quality of habitat, and insects for prey:

1. Primary Constituent Element 1—Riparian vegetation. Riparian habitat along a dynamic river or lakeside, in a natural or manmade successional environment (for nesting, foraging, migration, dispersal, and shelter) that is comprised of trees and shrubs (that can include Gooddings willow, coyote willow, Geyer’s willow, arroyo willow, red willow, yewleaf willow, pacific willow, boxelder, tamarisk, Russian olive, buttonbush, cottonwood, stinging nettle, alder, velvet ash, poison hemlock, blackberry, seep willow, oak, rose, sycamore, false indigo, Pacific poison ivy, grape, Virginia creeper, Siberian elm, and walnut) and some combination of:
   (a) Dense riparian vegetation with thickets of trees and shrubs that can range in height
from about 2 to 30 m (about 6 to 98 ft). Lower-stature thickets (2 to 4 m or 6 to 13 ft tall) are found at higher elevation riparian forests and tall-stature thickets are found at middle and lower-elevation riparian forests;
(b) 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 or tree level as a low, dense canopy;
(c) Sites for nesting that contain a dense (about 50 percent to 100 percent) tree or shrub (or both) canopy (the amount of cover provided by tree and shrub branches measured from the ground);
(d) Dense patches of riparian forests that are interspersed with small openings of open water or marsh or areas with shorter and sparser vegetation that creates a variety of habitat 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. Primary Constituent Element 2—Insect prey populations. A variety of insect prey populations found within or adjacent to riparian floodplains or moist environments, which can include: flying ants, wasps, and bees (Hymenoptera); dragonflies (Odonata); flies (Diptera); true bugs (Hemiptera); beetles (Coleoptera); butterflies, moths, and caterpillars (Lepidoptera); and spittlebugs (Homoptera).

Western Yellow-billed Cuckoo

The western yellow-billed cuckoo was listed as threatened under the Act on October 3, 2014 (79 FR 59992). Critical habitat for the cuckoo was proposed on August 15, 2014 (79 FR 48548).

The yellow-billed cuckoo is a Neotropical migrant that winters in South America and breeds in North America. Cuckoos throughout the western continental United States and Mexico are generally larger than their eastern counterparts, with significantly longer wings, longer tails, and longer and deeper bills (Franzreb and Laymon 1993). Birds with these characteristics occupy the Western Distinct Population Segment (DPS) and we refer to them as the “western yellow-billed cuckoo.” Only the Western DPS was listed as threatened in 2014. Cuckoos in the west arrive on their breeding grounds 4 to 8 weeks later than eastern yellow-billed cuckoos at similar latitudes (Franzreb and Laymon 1993, Hughes 1999).

Cuckoos in the DPS were formerly widespread and locally common in California and Arizona, more narrowly distributed but locally common in New Mexico, Oregon, and Washington and uncommon along the western front of the Rocky Mountains north to British Columbia (American Ornithologists’ Union 1998, Hughes 1999). The species may be extirpated from British Columbia, Washington, and Oregon (Hughes 1999). The cuckoo is now very rare in scattered drainages in western Colorado, Idaho, Nevada, and Utah, with single, nonbreeding birds most likely to occur (79 FR 48548, 79 FR 59992). The largest remaining breeding areas are in southern and central California, Arizona, along the Rio Grande in New Mexico, and in northwestern Mexico (79 FR 59992).

In Arizona, the species was a common resident in the (chiefly lower) Sonoran zones of southern, central, and western Arizona; scarce in the north-central part of the state; and very rare in the
northeast (Phillips et al. 1964). In Arizona, the cuckoo now nests primarily in the central and southern parts of the state.

Western populations of the cuckoo are most commonly found in dense woodlands, consisting primarily of cottonwood (P. fremontii), willow (Salix spp.), and mesquite (Prosopis spp.) along riparian corridors in otherwise arid areas (Laymon and Halterman 1989, Hughes 1999). Occupied riparian habitat in Arizona may also contain box elder (Acer negundo), Arizona alder (Alnus oblongifolia), Arizona walnut, Arizona sycamore (Platanus wrightii), oak (Quercus spp.), netleaf hackberry ( Celtis reticulata), velvet ash (Fraxinus velutina), Mexican elderberry (Sambucus mexicanaus), tamarisk (Tamarix spp.; also called saltcedar), acacia (Acacia spp.), and seepwillow (Corman and Magill 2000, Corman and Wise-Gervais 2005). Tamarisk may be a component of breeding habitat, but there is usually a native riparian tree component within occupied habitats (Gaines and Laymon 1984, Johnson et al. 2008, McNeil et al. 2013, Carstensen et al. 2015). Although cuckoos are most commonly found in riparian gallery forests in Arizona, they may also use narrow bands of riparian woodland (Arizona Game and Fish Department [AGFD] 2015, Cornell Lab of Ornithology 2015). Adjacent habitat on terraces or in upland areas (such as mesquite) can enhance the value of these narrow bands of riparian woodland.

Throughout the West, the majority of nests are placed in willow trees, but cottonwood, mesquite, walnut, box elder, sycamore, hackberry, oak, alder, soapberry (Sapindus saponaria), acacia, and tamarisk are also used (Laymon 1980, Hughes 1999, Corman and Magill 2000, Corman and Wise-Gervais 2005, Holmes et al. 2008, Tucson Audubon 2015a, Tucson Audubon 2015b).

Within the boundaries of the DPS, cuckoos occur from sea level to elevations up to 7,000 ft or more; however, the moist conditions that support riparian plant communities typically occur at lower elevations. In southeastern Arizona, however, cuckoos are also found nesting along more arid ephemeral and intermittent drainages with sycamore, mesquite, walnut, hackberry, alder, or mixed oak assemblages (Corman and Magill 2000, Corman and Wise-Gervais 2005, AGFD 2015, Cornell Lab of Ornithology 2015).

Habitat for the cuckoo in much of its range is associated with perennial rivers and streams that support the expanse of vegetation characteristics needed for breeding. The range and variation of stream flow frequency, magnitude, duration, and timing that will establish and maintain riparian habitat can occur in different types of regulated and unregulated flows depending on the interaction of the water and the physical characteristics of the landscape (Poff et al. 1997, USFWS 2002). Hydrologic conditions at western yellow-billed cuckoo breeding sites can vary widely between years, and especially among years of low rainfall. Water or saturated soil may not always be present in occupied cuckoo habitats. Cuckoos may move from one area to another within and between years in response to hydrological conditions. They may also nest at more than one location in a year. Some individuals roam widely (several hundred miles), apparently assessing food resources before selecting a nest site (Sechrist et al. 2012).

Humid conditions created by surface and subsurface moisture and a multi-layered canopy appear to be important habitat parameters for cuckoos. The species appears to be restricted during nesting to drainages where humidity is adequate for successful hatching and rearing of young (Hamilton and Hamilton 1965, Gaines and Laymon 1984).
The association of breeding with large tracts of suitable riparian habitat is likely related to home range size. Individual home ranges during the breeding period average over 40 ha, and home ranges up to 202 ha have been recorded (Laymon and Halterman 1987, Halterman 2009, Sechrist et al. 2009, McNeil et al. 2011, McNeil et al. 2012). Within riparian habitat, cuckoos require relatively large patches of multilayered habitat for nesting (>20 hectares), with optimal size generally greater than 80 ha (Laymon and Halterman 1989).

In addition to dense, multi-layered woodlands, cuckoos need adequate foraging areas near the nest. Foraging areas can be less dense or patchy with lower levels of canopy cover and may include a mix of shrubs, ground cover, and scattered trees (Carstensen et al. 2015, Sechrist et al. 2009, USFWS, unpubl. data). Cuckoos often forage in open areas, woodlands, orchards and adjacent streams (Hughes 1999), which include stands of smaller mesquite trees and even tamarisk. In Arizona, adjacent habitat is usually more arid than occupied nesting habitat. Habitat types include Sonoran desertsrub, Mojave desertsrub, Chihuahuan desertsrub, chaparral, semidesert grassland, plains grassland, and Great Basin grasslands (Brown 1994, Brown et al. 2007, Brown and Lowe 1982).

Habitat needs during migration are not well understood, although they appear to include a relatively wide variety of conditions. Migrating cuckoos have been found in coastal scrub, second-growth forests and woodlands, hedgerows, forest edges, and in smaller riparian patches than those used for breeding.

The primary threat to the western yellow-billed cuckoo is loss or fragmentation of high-quality riparian habitat suitable for nesting (Corman and Wise-Gervais 2005, 79 FR 48548, 79 FR 59992). Factors leading to habitat loss and degradation include alteration of flows in rivers and streams, encroachment into suitable habitats due to agricultural and other developments, stream channelization and stabilization, diversion of surface and ground water for agricultural and municipal purposes, livestock grazing, wildfire, establishment of nonnative vegetation, drought, and prey scarcity due to pesticides (Ehrlich et al. 1992, 79 FR 59992). Pesticide use is widespread in agricultural areas in the U.S. and northern Mexico.

Ongoing threats to small isolated populations cause remaining populations to be increasingly susceptible to further declines and local extirpations through increased predation rates, barriers to dispersal, chance weather events, fluctuating availability of prey populations, collisions with tall vertical structures during migration, defoliation of tamarisk by the introduced tamarisk leaf beetle (Diorhabda spp.), increased fire risk, and climate change events (Thompson 1961, McGill 1975, Wilcove et al. 1986). The warmer temperatures already occurring in the southwestern United States may alter the plant species composition of riparian forests over time. An altered climate may also disrupt food availability for the western yellow-billed cuckoo if the timing of peak insect emergence changes in relation to when the cuckoos arrive on their breeding grounds.

In summary, habitat for the western yellow-billed cuckoo has been modified and curtailed, resulting in the availability of only remnants of formerly large tracts of native riparian forests, many of which are no longer occupied by western yellow-billed cuckoos. Despite recent efforts to protect existing habitats, and to restore additional, riparian habitats in the Sacramento, Kern,
and Colorado Rivers, and other rivers in the range of the western yellow-billed cuckoo, these efforts offset only a small fraction of historical habitat that has been lost. Therefore, we expect the threat resulting from the combined effects associated with small and widely separated habitat patches to continue to affect a large portion of the cuckoo’s range.

**Proposed Critical Habitat**

In 2014, FWS proposed 546,335 ac of riparian woodlands as critical habitat for the western yellow-billed cuckoo in 80 units in California, Arizona, New Mexico, Colorado, Utah, Idaho, Nevada, Wyoming, and Texas on August 15, 2014 (79 FR 48548). FWS proposed the following primary constituent elements (PCEs) for cuckoo critical habitat:

**PCE 1: Riparian woodlands.** Riparian woodlands with mixed willow and cottonwood vegetation, mesquite-thorn forest vegetation, or a combination of these that contain habitat for nesting and foraging in contiguous or nearly contiguous patches that are greater than 325 ft (100 meters) in width and 200 ac (81 ha) or more in extent. These habitat patches contain one or more nesting groves, which are generally willow-dominated, have above average canopy closure (greater than 70 percent), and have a cooler, more humid environment than the surrounding riparian and upland habitats.

**PCE 2: Adequate prey base.** Presence of a prey base consisting of large insect fauna (for example, cicadas, caterpillars, katydids, grasshoppers, large beetles, dragonflies) and tree frogs for adults and young in breeding areas during the nesting season and in post-breeding dispersal areas.

**PCE 3: Dynamic riverine processes.** River systems that are dynamic and provide hydrologic processes that encourage sediment movement and deposits that allow seedling germination and promote plant growth, maintenance, health, and vigor (e.g. lower gradient streams and broad floodplains, elevated subsurface groundwater table, and perennial rivers and streams). This allows habitat to regenerate at regular intervals, leading to riparian vegetation with variously aged patches from young to old.

**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 subspecies and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

**Description of the Action Area**

The Gila River begins in western New Mexico and flows westward through southern Arizona to the Colorado River. Within the action area, the Gila River is classified as perennial (U.S. Geological Survey [USGS] 2013). Flows are variable, however, due to regulated releases from
Coolidge Dam and the San Carlos Reservoir, about 40 mi upstream of the project limits. The Bureau of Indian Affairs operates Coolidge Dam and releases water based on the demands of downstream users. Water releases occur year-round with the highest generally occurring during summer months. However, in some years, the reservoir does not have sufficient volume to maintain continual releases, and as a result the Gila River can have intermittent flows, although the channel within the project limits usually retains saturated soils and isolated pools at a minimum. Natural inflows from the San Pedro River, which joins the Gila River approximately 15 mi upstream of the project area, contributes to the Gila River’s hydrograph. The San Pedro River is undammed, but flows depend on a variety of factors including groundwater pumping and water diversions for agricultural use (Arizona Department of Water Resources [ADWR] 2010). Recent studies indicate that San Pedro groundwater is being pumped in excess of recharge (National Riparian Service Team 2012).

Within the project limits, the floodplain of the river extends approximately to twice the width of the river itself, and the river banks slope gently toward the channel from the south, but climb sharply on the north side of the channel. Peak flows for this reach of the river usually occur in August during the summer monsoon season. Lowest flows usually occur in November, prior to the onset of winter precipitation. Average flows have a water depth of approximately one to five feet, as measured at the USGS gauging station directly downstream of the project area (USGS 2013).

The upland portions of the project limits include disturbed and undisturbed areas within the Sonoran desertscrub biotic community (Brown 1994). Disturbed areas are primarily associated with existing roadways, which include the highway, paved county roads, unpaved secondary roads, and roadway shoulders. The Southern Pacific Railroad runs east to west about 300 ft north of the river. The community of Kelvin is one mi north of the existing bridge. Riverside is one mi east of the bridge. Both towns have populations under 250.

Riparian areas within the project limits are classified as Sonoran riparian deciduous forest, Sonoran riparian scrubland, or Sonoran interior marshland (Brown 1994). The riparian zone forms a belt 100-200 ft wide on each side of the river, but narrows somewhat upstream and downstream of the project limits. Within the project limits, vegetation is dominated by dense, mature stands of tamarisk (Tamarix spp.), with some Fremont cottonwood (Populus fremontii), Goodding’s willow (Salix gooddingii), and velvet mesquite intermixed. Some tamarisk trees are up to 40 ft in height, and most of the cottonwoods and willows are 20-40 ft tall. Vegetative cover is 80% or more, and tree branches hang over the river and in places extend over the water 5-15 ft. Habitat conditions upstream and downstream of the project limits are similar, but include patches of monotypic tamarisk and patches dominated by willow and cottonwood.

Status of the Species and Critical Habitat in the Action Area

Southwestern Willow Flycatcher

Flycatcher occurrence on the Gila River and at Kelvin Bridge has been well documented since 1995 as a result of increased monitoring efforts that followed the species’ listing that year, and protocol surveys done specifically to assess the effects of this proposed action (Kelvin Bridge
replaced), since it was first proposed in 2006. Protocol surveys on the Gila River also occurred from 1996-2006 in response to the raising of Roosevelt Dam, in Gila County, in 1996, and subsequent inundation of large tracts of flycatcher habitat on Roosevelt Lake in 2005. Our 1996 biological opinion on this project required the dam operator, the U.S. Bureau of Reclamation (BOR), in cooperation with AGFD, to assess flycatcher responses at Roosevelt Lake and to monitor adjacent flycatcher populations on the Gila River and San Pedro River. One objective was to assess relationships between flycatcher abundance and distribution on the Gila River and dam operations at Coolidge Dam. BOR subsequently contracted with SWCA Environmental Consultants (SWCA), Flagstaff, Arizona, to continue flycatcher monitoring on the Gila River after 2006. Results of these and other surveys are detailed in the final BE, in our 2006 biological opinion on the first Kelvin Bridge proposal, and in numerous reports generated by the AGFD/BOR study and subsequent SWCA studies (e.g., Ellis et al. 2008, Graber et al. 2012, and others cited below). We provide a brief summary of these data below.

Protocol surveys involved the use of call play-back methods, repeated site visits, and confirmation of flycatcher identity by the species characteristic song (see Sogge et al. 2010). Flycatcher protocol surveys require a minimum of 5 surveys within three time periods: Late May (1 survey), June (2 surveys), early July (2 surveys). Four established protocol survey sites occur within or partially within 0.5 mi of the project limits at Kelvin Bridge. At least one of these sites was surveyed every year from 1995-2015. Flycatchers were not detected at the Kelvin protocol sites in 1995, 2000–2001, 2003–2004, 2007, 2009–2011. Resident flycatchers, territories, or confirmed pairs were found in 1996-1999, 2006, and 2012-2015. Migrants only, but no resident or territorial birds, were detected in 2002 and 2005. A single flycatcher was detected in 2008; however, its status was not confirmed.

Surveys to assess the effects of the current action were done by BLM in 2012 and by SWCA in 2013. WestLand Resources, Inc. (WestLand), Phoenix, Arizona, conducted surveys in 2014 and 2015 (presumably for purposes related to a proposed tailings storage facility; see the cuckoo section below). The final BE provides the following summary of flycatcher protocol surveys conducted from 2012-2015:

2012 Two flycatcher territories were identified immediately upstream of the existing bridge (Marcia Radke, BLM, personal communication to Eleanor Gladding, SWCA Environmental Consultants, 2015).

2013 Three occupied nests were confirmed and each had two or three eggs. All three nests were in tamarisk and all three were within 280 ft of the existing bridge. The nearest nest was about 112 ft downstream of the bridge (Westland 2013). One nest produced at least 2 fledglings.

2014 Five territories were occupied within and adjacent to the project limits. The upstream territories were about 60, 250, and 400 ft from of the existing bridge. The downstream territories were 100 and 200 ft from the bridge. Breeding status was not confirmed at any of the five territories. Three territories were occupied 2.8 to 3.0 mi upstream of the project limits (Westland 2014).
Eleven detections occurred, one approximately 300 ft upstream of the bridge, 5 within 100 ft of the bridge, and five 250-500 ft downstream. Detections included 2 confirmed pairs. Breeding status was not confirmed for any of the individuals or pairs.

Thus, flycatchers were detected within 0.5 mi of the existing Kelvin Bridge during 12 of the 21 years that surveys occurred. Territories (2-5 each year) were confirmed from 1996-1999, but flycatchers were absent from the area from 2000-2011, with the exception of one year (2006). From 2012-2015, two to five territories were again detected each year at the bridge, and in 2013 three breeding attempts were confirmed.

Protocol surveys extending through 50-mi of the Gila River during the same time period showed a similar pattern during the same years, but at a larger scale. Kelvin Bridge lies within the flycatcher’s Middle Gila-San Pedro Critical Habitat Unit in Cochise, Pima, Pinal, and Gila Counties, Arizona (78 CFR 344). Critical habitat in the 6,703-ac Gila River segment begins at Dripping Springs Wash, approximately 15 mi downstream of Coolidge Dam, and extends 50.1 mi downstream, past the San Pedro/Gila River confluence, to the Ashurst-Hayden Diversion Dam near the Town of Cochran. Flycatcher numbers within this segment fell from 69 territories in 1999 to 14 in 2004, then doubled to 28 territories in 2005, 39 in 2006, and 62 in 2007 (Graber et al. 2008). Territory numbers on the Gila River increased steadily after 2007 to 188 territories in 2011 (Graber et al. 2012).

**Factors Affecting Species Environment and Critical Habitat Within the Action Area—Flycatcher**

Two primary and related factors influence flycatcher abundance and distribution within and near the project limits and throughout the designated critical habitat unit: 1) water releases from Coolidge Dam; and 2) the effects of stream flows on flycatcher habitat. The timing of releases is also important.

Ellis et al. (2008) and Graber and Koronkiewicz (2009) examined the effects of declining stream flows on flycatchers from Coolidge Dam during the late 1990s and early 2000s, followed by the return of more consistent flows from 2005-2007, using linear regression. Graber et al. 2012 continued monitoring flycatchers and flows after 2007. The study included protocol survey points from Dripping Springs Wash to the Kelvin Bridge, or to the town of Florence, downstream of the Ashurst-Hayden Diversion Dam when flows were high enough to survey from rafts or kayaks. They used mean monthly Gila River streamflow data collected at two USGS gauging stations (#09469500, below Coolidge Dam; #09474000, at Kelvin). Monthly streamflows from the two stations were averaged for use in the analysis. Linear regressions were performed on streamflow over four periods: 1) May of the previous year through April of the current year (annual); 2) July of the previous year through April of the current year (monsoon to breeding); 3) April–August (breeding); and 4) December–April (winter and spring).

All linear regressions showed a positive relationship between Gila River streamflow and the number of flycatcher territories. Streamflow from the beginning of the previous monsoon season through the beginning of the breeding season (July of the previous year through April of the current year) had the strongest relationship with the number of territories ($R^2 = 0.58$, $t = 3.31$, $P$
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= 0.011). July through April streamflow explained 58% of the variation in flycatcher territories from 1998 to 2007. On average, an increase of 1.3 territories occurred for every additional 100 cubic feet per second (cfs) of water flow.

From 1998 to 1999, mean monthly streamflow from July to April was 327 cfs and territory numbers increased by 30% along the Gila River (Appendix I). A high of 69 flycatcher territories were detected in 1999. From 2000 to 2004, July to April streamflow at the Gila River study area decreased to 160 cfs and became inconsistent due to limited releases from Coolidge Dam (the years 2000-2004 were drought years; McPhee et al. 2004). In 2004, only 14 territories were confirmed. The drought ended in 2005, storage at the San Carlos Reservoir increased, along with downstream water demand, and mean monthly flows increased to 300 cfs, 88 percent higher than the 2000-2004 flows. Territory numbers increased to 39 in 2006 and to 62 in 2007. Graber et al. (2012) reported streamflows above 300 cfs every year from 2008-2011, and during that time flycatcher abundance continued to increase, from 63 to 188 pairs.

Graber et al. (2012) concluded that the presence of water and/or saturated soil immediately adjacent to and/or under river bank vegetation is likely the primary habitat feature that drives flycatcher colonization and breeding. The presence of water at the time flycatchers arrive depends on precipitation and/or water releases prior to their arrival (Ellis et al. 2012). Surface water may positively affect flycatchers in several ways. Stream flows, standing pools, even saturated soils along with a substantially closed canopy help to create microclimates that are cooler and more humid than surrounding areas. Surface water may also influence the abundance of insect prey (Brown and Li 1996). These factors may contribute to adult physiological condition after adults arrive on nesting areas, may improve offspring survival, and may increase the chances of a successful second nesting attempt. Streamflows before flycatchers arrive on their territories (and presumably during the breeding period) may also have positive effects on streamside vegetation. Surface and ground water availability (influenced by rainfall and dam discharge) positively affected woody and herbaceous species richness and cover on the San Pedro River near its confluence with the Gila River (Lite et al. 2005).

The importance of surface water to flycatchers and their streamside vegetation is also evident when we focus on flycatchers and habitat conditions (i.e., critical habitat) at the Kelvin Bridge. Results of protocol surveys there from 1995-2015 show a pattern of occupancy and abundance similar to that of the critical habitat unit as a whole. Flycatchers were found at Kelvin from 1996 to 1999 (2 territories each year, 5 in 1999), in 2006 (1 territory), and from 2012-2015 (at least 2 territories each year, 5 in 2014). Thus, flycatchers were present before the drought, were absent during the drought, and returned after the drought (1 territory was found in 2006). Interestingly, flycatcher numbers at Kelvin did not increase steadily immediately after the drought, as they did in the critical habitat unit as a whole. Territory numbers at Kelvin did not reach pre-drought levels until 2014. The reason for this, we suspect, is that habitat conditions declined during the drought and did not fully recover until well after the drought ended. When we issued our first biological opinion for this project in 2006, vegetation within the project limits was dominated by tamarisk with intermixed cottonwood and willow, as it is today. However, in our 2006 biological opinion we noted that the riparian woodland at and near the Kelvin Bridge had "intermediate" density, presumably meaning that canopy closure was well less than it is now (80%). We also described the riparian habitat as "nominal" migration, stopover, foraging,
dispersal, and feeding habitat, and referred to the “baseline near-absence of breeding habitat within the project area.” In 2006, we considered it probable that habitat suitable for nesting flycatchers would develop at the site over time, and this is what occurred.

Flycatcher habitat within the project limits and immediately upstream and downstream contain all physical and biological features of PCE 1 (riparian vegetation) that are essential for flycatcher breeding, foraging, dispersal and migration. Within the project limits, riparian vegetation occurs as a broad, continuous belt of dense, young to mature woodland with a multilayered closed canopy and adjacent perennial surface water providing moisture and shade. Vegetation structure is patchy and complex, with variable species compositions, and tamarisk as the dominant species overall. We have no data on insect prey populations (PCE 2), but judging from recent survey results, indicating that flycatcher numbers at Kelvin have reached pre-drought levels, we assume that insect prey are readily available for flycatchers.

**Western Yellow-billed Cuckoo**

Cuckoo surveys were not done for the purposes of the Kelvin Bridge project; however, surveys were done from 2012-2014 in the vicinity of the bridge as part of the environmental review for another project, a proposed tailings storage facility for the Ray Mine in Pinal County. The surveys were done by Westland Resources, Phoenix, Arizona and followed a draft FWS survey protocol for cuckoos that has since been finalized (see Halterman et al 2015). The protocol was designed to assess presence or absence of cuckoos using call-playback methods, but it also provided guidelines for assessing breeding status, when possible, based on cuckoo behavior and the timing and location of detections. A minimum of four surveys are required during cuckoo protocol surveys, one in mid to late June, two in July, and one in early to mid-August. Below, we briefly summarize Westland’s surveys results by year (see Westland 2012, 2013, 2014 for details), and we discuss evidence that cuckoos breed in or near the action area.

**2012** Surveys occurred along a single 2.5-mi segment of the Gila River that included the Kelvin Bridge. Detections occurred during all 4 surveys, and included 14 confirmed detections and one unconfirmed detection. These included 13 cuckoos that were heard (i.e., birds that returned calls in response to call playback) and one cuckoo that was seen but did not return calls. Eight of the 13 cuckoos that returned calls were also detected visually. Nine of 14 confirmed detections were within 0.5 mi of the existing Kelvin Bridge, and two of these were visual sightings that occurred no more than 200 ft upstream of the project limits.

**2013** Surveys were along a single 3.9 mi segment of the river that included the Kelvin Bridge. No cuckoos were heard or seen in June or August, but six detections occurred during the July surveys. All six birds returned calls during call playback efforts, and two were also seen. All detections occurred outside the project limits. The nearest detection was approximately 0.6 mi upstream of the bridge. Other detections occurred downstream one to two miles away.

**2014** Surveys occurred at eight non-contiguous river segments extending from one mi below the Town of Kearny to a point 0.5 mi below Zelleweger Wash. Collectively, the eight
segments were about 5.1 mi in length, and Area 3, a 3,000-ft-long segment, included the Kelvin Bridge. Three cuckoo detections (none of them visual) occurred in June. No cuckoos were recorded in July or August. All detections were in segments adjacent to Area 3 and all of them were two or more mi from the bridge.

Cuckoos detected during call playback surveys can be confirmed as breeders only by directly observing copulation, fledglings, or an active nest (Halterman et al. 2015). Breeding can be inferred from other observed behaviors, e.g., courtship display, birds carrying food or nest material, birds traveling in pairs, or birds exchanging vocalizations. If these behaviors are not observed, breeding can be inferred from call playback data. Clusters of call playback detections in July, or detections of birds at the same location during at least two survey periods, suggest that breeders are present in an area. Most birds detected in July are assumed to be breeders because most migrants have left the area by then. The survey protocol is specific about reporting these detections: A possible breeding pair is reported if one or more birds are detected at a call-playback point during two of the required four surveys. A probable breeding pair is reported if birds are detected during three of the four required surveys. Most of Westland's confirmed cuckoo detections, 17 of 23 (>70%), occurred in July. In 2013, Westland reported a possible breeding pair based on a detection in August that was within about 0.17 mi of a detection in July. These detections occurred more than a mi downstream of the existing bridge.

The Kelvin Bridge is located within the cuckoo's proposed Lower San Pedro and Gila River Critical Habitat Unit in Cochise, Pinal, and Pima Counties, Arizona (79 FR 48548). On the San Pedro River, the unit extends from above the Town of Mammoth downstream to the San Pedro/Gila River confluence. On the Gila River, the unit begins at the confluence and continues downstream nearly to the town of Florence. The unit encompasses 23,399 ac and 59 mi of the river.

The riparian woodlands in and around the project limits that were surveyed for cuckoos contain some but not all of the physical and biological features of PCE I (riparian vegetation). Woodlands at the bridge extend continuously upstream and downstream of the bridge for many miles and have the spatial extent, canopy closure (80%), and structural development of cuckoo breeding and foraging habitat, but they are dominated by tamarisk. Cuckoos occasionally nest in tamarisk, but nests are usually in willows within mixed willow/cottonwood stands (Laymon 1980, Hughes 1999, Corman and Magill 2000). Cottonwoods and willows are present in the project area but are intermixed with tamarisk or occur in small patches where they are the dominant species.

Recent FWS guidance on consultations involving cuckoos caution that habitats containing tamarisk should not be overlooked as potential cuckoo breeding habitat (USFWS 2015). In Arizona and New Mexico, cuckoos breed in mixed native/tamarisk habitat, and tamarisk may contribute toward cover, temperature amelioration, increased humidity, and insect production where native habitat has been compromised by altered hydrology. In some areas, if tamarisk is removed, the remaining more exposed, hotter and drier habitat may be rendered unsuitable. For example, on the Rio Grande in New Mexico, a dense understory comprised of tamarisk, Russian olive, or native vegetation (e.g. willow) appears to be an important component for territory establishment (Sechrist et al. 2009). Cuckoos have not been found breeding in monotypic
tamarisk habitat in Arizona, but in some areas, in particular several reaches of the Gila River, cuckoos have been found breeding in tamarisk-dominated habitat.

FWS guidance on consultations involving cuckoos (USFWS 2015) also points out that cuckoo foraging may extend into the uplands adjacent to currently suitable breeding habitat and may vary in species composition and density. The amount of non-riparian foraging habitat cuckoos use in fact may exceed the amount of riparian habitat they use. Foraging habitat types include mesquite bosques, Madrean evergreen woodlands, shrubby habitat that may or may not include mesquite, and semi-desert grassland. Cuckoos may use monotypic tamarisk habitat for foraging if it is adjacent to or near mixed native/tamarisk habitat.

The cuckoo survey protocol (Halterman et al. 2015), results of Westland’s cuckoo surveys in and near the project limits (Westland 2012, 2013, 2014), and recent FWS guidance on consultations involving cuckoos (USFWS 2015) suggest that some of the 23 cuckoos detected during protocol surveys were migrants, and that riparian vegetation at and near the Kelvin Bridge is suitable as resting and foraging habitat for migrants. The survey protocol (Page 16, Figure 2) indicates that cuckoos detected during any of the 3 survey periods could be migrants, but birds detected during the first period only (June 15-July 1) are likely to be migrants. In 2014, all three detections were in June. Habitat needs during migration are not well understood; however, they appear to include a relatively wide variety of conditions. Migrating cuckoos have been found in coastal scrub, second-growth forests and woodlands, hedgerows, forest edges, and in smaller riparian patches than those used for breeding.

The survey protocol also indicates that most cuckoos detected during July are likely to be breeders. The fact that more than 70 percent of Westland’s detections occurred in July suggests that some of the 23 cuckoos detected during all three years of surveys were breeding birds. Although we have no direct evidence of cuckoo breeding in or near the project limits, we consider it probable that cuckoos do breed within the action area.

Factors Affecting Species Environment and Critical Habitat Within the Action Area—Cuckoo

The cuckoo is a riparian obligate breeder but 90-95 percent of its historical riparian habitat has been lost, altered, or degraded (Governor’s Riparian Habitat Task Force 1990, Ohmart 1994). Most riparian habitats in the Southwest have been fundamentally altered by a century or more of urban and agricultural development, water diversions, dam building, ground water pumping, livestock grazing, and other human disturbances.

In the past, riparian habitats occupied by cuckoos by their nature were dynamic and were governed primarily by floods and flow patterns. Historically, cuckoos depended on natural flood cycles to generate the riparian woodlands and galleries it used for nesting, and to recycle old habitats as they grew out of suitability. Periodic flooding allowed the deposition of moist sediments and regeneration of native riparian species, i.e., willows and cottonwoods.

The stretch of the Gila River downstream from Coolidge Dam does not receive the magnitude and variability of annual peak flows from flood events that occurred prior to construction of the
dam, and today very few patches of native riparian habitat exist below the dam. Currently, water releases from Coolidge Dam may occur year-round with the highest releases generally occurring during summer months, and the lowest during Spring. However, in some years, the reservoir does not have sufficient volume to maintain continual releases, and as a result the Gila River can have intermittent flows. Natural inflows from the San Pedro River, which joins the Gila River approximately 15 mi upstream of the project area, contributes to the Gila River’s hydrograph. However, flows from the San Pedro River depend on a variety of factors, including groundwater pumping and water diversions for agricultural use (Arizona Department of Water Resources [ADWR] 2010). Recent studies indicate that San Pedro groundwater is being pumped in excess of recharge (National Riparian Service Team 2012).

Thus, past and current conditions within the action area—the loss of natural, periodic flooding, diminished and in some years non-existent spring peak flows, combined with relatively higher late-spring and summer flows in the Gila River, along with intermittent contributions from the San Pedro River—tend to disfavor the establishment and/or maintenance of native cottonwood/willow forests while creating the conditions under which nonnative tamarisk thrives. Current conditions within the project limits tend to promote flycatcher nesting habitat at the expense of cuckoo nesting habitat. These factors, coupled with the inability of native vegetation to regenerate under altered hydrological conditions, are a significant threat to the cuckoo within the action area and throughout its range.

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, which 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.

Southwestern Willow Flycatcher

Direct effects to flycatchers from the proposed action would involve removal of 1.2 ac of suitable nesting, foraging, and migration habitat, including 0.4 ac of riparian vegetation that would be permanently removed for bridge piers, and 0.8 ac that would be removed temporarily for workspace and equipment access and would be restored after project completion. Direct effects also include disturbance and harassment of flycatchers that arrive in the project area during construction, including migrants and resident birds that would remain in the area to breed. Vegetation removal activities would be restricted to the period October 1-March 31, when flycatchers are on the wintering grounds; thus, no direct impacts (injuries or fatalities) to adult flycatchers, their eggs, or young would be expected to occur as a result of vegetation removal operations.
Effects of vegetation removal

The removal of riparian vegetation will adversely affect nesting flycatchers by removing breeding and foraging habitat and altering overall breeding habitat quality. Protocol surveys from 2012-2015 confirmed the presence of two to five flycatcher territories in the immediate vicinity of the Kelvin Bridge during each of those years. Nesting attempts (nests with eggs) and fledglings were confirmed in 2013. Surveyors reported 11 detections of flycatchers within 0.1 mi of the bridge in 2015. Our analysis indicates that two nesting territories were wholly or partially contained within the project limits in 2013 and 2014, and at least one territory probably overlapped into the project limits in 2015. Thus, it is likely that one to two pairs of flycatchers will be displaced by the direct loss of breeding and foraging habitat in the 2017 and 2018 breeding periods, or subsequent two year period.

In addition, vegetation removal will create gaps in the continuity of flycatcher habitat that may affect adjacent pairs that are not displaced. These gaps may result in increased temperatures and lower relative humidity in the adjacent nesting territories, reducing egg-hatching rates, productivity of insects, and the overall suitability of nesting and foraging habitats for the adjacent pairs. Increasing habitat fragmentation and reducing cover can also improve access to flycatcher territories, eggs, and nestlings by predators and cowbirds (79 FR 48548).

Thus, as a result of vegetation removal, we anticipate fewer territories and fewer nesting attempts to occur. From those flycatchers that do attempt to nest, we also expect reduced productivity (numbers of nesting attempts, eggs laid and hatched, nestlings, and fledglings) from reduced habitat quality and possibly increased levels of predation and brood parasitism.

Because the removal of 1.2 acres of habitat is a small fraction of the 6,703-ac of critical habitat in the Gila segment of the Middle Gila/San Pedro River Critical Habitat Unit, we do not anticipate significant impacts to occur to migrating flycatchers. Migrant flycatchers are able to take advantage of a broader range of riparian habitats than nesting flycatchers for shelter, cover, and food and will use areas briefly as they move from one location to another. Thus the relatively small amount of Gila River habitat temporarily affected by this project is not expected to substantially influence the overall quality of migration habitat or adversely affect migrating flycatchers. We expect they will utilize unaffected available habitat as needed.

Effects of the timing of bridge construction

Vegetation removal will occur before flycatchers arrive on their breeding grounds on the Gila River, but construction activities will be well underway when they arrive. Construction will take approximately 18-21 months to complete and will affect suitability of the area for breeding flycatchers during the 2017 and 2018 breeding periods, or subsequent two year period (given the project does not remain on schedule).

Construction of the new bridge will involve heavy equipment operations in the work zone through the spring migration period, the breeding period, and fall migration period in 2017. In 2018, work on the bridge could be ongoing through about June, under the current construction schedule. This would result in noise and dust affecting flycatchers using habitats upstream and
downstream of the bridge for an unknown distance. Construction, noise, and dust during the time southwestern willow flycatchers are migrating through the action area or returning to the action area to nest, may affect how individuals choose to use the area for migrating, foraging, or nesting in 2017 and 2018.

We do anticipate that the close proximity of construction activities to nesting southwestern willow flycatchers during the 2017 and 2018 breeding periods, and the corresponding noise, dust, and overall change in activity will displace southwestern willow flycatchers and reduce survivorship and productivity of breeding southwestern willow flycatchers.

Even if flycatchers do not breed within the project limits, they may forage in the area during the breeding period and are likely to move through the area during dispersal and migration. Thus, noise levels and human activities may cause flycatchers to avoid using the area near the bridge during construction.

**Effects on Critical Habitat**

There are 2.9 ac of designated flycatcher critical habitat within the project limits, 1.2 ac of which will be removed prior to construction. The 2.9 acres include the existing bridge, parts of the highway, railroad, upland vegetation, and barren ground, areas that have no conservation value for the flycatcher. They are mapping artifacts, i.e., areas that could not be removed at the mapping scales used in the designation (78 CFR 344). The 1.2 ac of riparian vegetation that will be removed prior to construction also falls entirely within designated critical habitat. Thus, vegetation clearing and bridge construction would result in the loss of a PCE of flycatcher critical habitat, i.e., riparian woodland, within the immediate vicinity of the new bridge. In addition, removal of trees and vegetation in the construction zone would reduce habitat for flycatcher prey species in the same area, thereby directly affecting the PCE of adequate insect prey.

**Long-term Effects**

The long-term effects of vegetation removal will be mitigated by a planned re-vegetation program (only about one-third of vegetation removal will be permanent), and short term effects will be mitigated if displaced breeders nest elsewhere. Ultimately, the amount of habitat lost permanently is minimal compared to the amount of habitat available in the Gila segment of the Middle Gila/San Pedro River Critical Habitat Unit.

**Western Yellow-billed Cuckoo**

Direct effects to cuckoos from the proposed action would involve removal of 1.7 ac of suitable nesting, foraging, and migration habitat, including 0.6 ac of riparian vegetation that would be permanently removed for bridge piers, and 1.1 ac that would be removed temporarily for workspace and equipment access and would be restored after project completion. Direct effects also include disturbance and harassment of flycatchers that arrive in the project area during construction, including migrants and resident birds that may remain in the area to breed. Vegetation removal activities would be restricted to the period October 1-March 31, when
cuckoos are on the wintering grounds; thus, no direct impacts (injuries or fatalities) to adult cuckoos, their eggs, or young would be expected to occur as a result of vegetation removal operations.

**Effects of vegetation removal**

The removal of riparian vegetation may adversely affect nesting cuckoos by removing breeding and foraging habitat and altering overall breeding habitat quality. However, protocol surveys from 2012-2014 did not confirm breeding by cuckoos in or near the project limits. Nine of 14 confirmed detections in 2012 were within 0.5 mi of the existing Kelvin Bridge, and two of these were visual sightings that occurred no more than 200 ft upstream of the project limits. In 2013, the nearest detection was approximately 0.6 mi upstream of the bridge, and in 2014 the nearest detection was more than 2 mi from the bridge.

Given the lack of confirmed breeding, we cannot say if vegetation removal will displace or otherwise affect breeding cuckoos. Because the removal of 1.7 acres of habitat is a small fraction of the 23,399 ac of critical habitat in the Gila segment of the Lower San Pedro and Gila River Critical Habitat Unit, we do not anticipate significant impacts to occur to migrating cuckoos. Migrant cuckoos are able to take advantage of a broader range of riparian habitats than nesting cuckoos for shelter, cover, and food and will use areas briefly as they move from one location to another. Thus the relatively small amount of Gila River habitat temporarily affected by this project is not expected to substantially influence the overall quality of migration habitat or adversely affect migrating cuckoos. We expect cuckoos will utilize unaffected available habitat as needed.

**Effects of the timing of bridge construction**

Vegetation removal will occur before cuckoos arrive on the Gila River, but construction activities will be well underway when they arrive. Construction will take approximately 18-21 months to complete and will affect suitability of the area for breeding cuckoos if they are present during the 2017 and 2018 breeding periods.

Construction of the new bridge will involve heavy equipment operations in the work zone through the spring migration period, the breeding period, and fall migration period in 2017. In 2018, work on the bridge could be ongoing through about June, under the current construction schedule. This would result in noise and dust affecting cuckoos using habitats upstream and downstream of the bridge for an unknown distance. Construction, noise, and dust during the time cuckoos are migrating through the action area or returning to the action area to nest, may affect how individuals use the area for migrating, foraging, or nesting in 2017 and 2018.

Even if cuckoos do not breed within the project limits, they are likely to move through the area during dispersal and migration. Thus, noise levels and human activities may cause flycatchers to avoid using the area near the bridge during construction.
Effects on Critical Habitat

There are 3.6 ac of proposed cuckoo critical habitat within the project limits, 1.7 ac of which will be removed prior to construction. The 3.6 acres include the existing bridge, parts of the highway, railroad, upland vegetation, and barren ground, areas that have no conservation value for the flycatcher. They are mapping artifacts, i.e., areas that could not be removed at the mapping scales used in the designation (79 FR 48548). The 1.7 ac of riparian vegetation that will be removed prior to construction also falls entirely within proposed critical habitat. Thus, vegetation clearing and bridge construction would result in the loss of a PCE of cuckoo critical habitat, i.e., riparian vegetation, within the immediate vicinity of the new bridge. In addition, removal of trees and vegetation in the construction zone would reduce habitat for cuckoo prey species in the same area, thereby directly affecting the PCE of adequate insect prey.

Long-term Effects

The long-term effects of vegetation removal will be mitigated by a planned re-vegetation program (only about one-third of vegetation removal will be permanent), and short term effects will be mitigated if displaced breeders nest elsewhere. Ultimately, the amount of habitat lost permanently is minimal compared to the amount of habitat available in the Gila segment of the Lower San Pedro and Gila River Critical Habitat Unit.

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 BE. 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. Approximately 30 percent of the lands within and adjacent to the project limits are managed by BLM, and any actions by BLM in or near the project limits that could potentially affect flycatchers and cuckoos would be subject to section 7 consultation.

Other lands within and adjacent to the project limits are owned or managed by Pinal County, Union Pacific Railroad, American Smelting and Refining Company, San Carlos Irrigation Project, and private individuals. The Florence-Kelvin Highway and existing Kelvin Bridge are managed by Pinal County and are located on ROW easements granted by BLM. However, other than the proposed bridge replacement, as described in this BO/CO, Pinal County has no additional plans for activities within this right-of-way. Use of the old bridge as part of a national trail system may increase non-motorized recreational use within and adjacent to the project limits and could increase access to critical habitat, habitat fragmentation, fire risk, spread of invasive species, trash deposition, and contamination of surface and groundwater. Livestock grazing, nearby mining activities (e.g., Ray Mine, Ripsey Wash Tailing Storage Project), operation of the Coolidge Dam, and other various unregulated activities on non-Federal lands in or near the project area could also affect endangered species.
CONCLUSIONS

After reviewing the current status of the southwestern willow flycatcher, western yellow-billed cuckoo, and their designated and proposed critical habitats, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the FWS's biological and conference opinion that the proposed action is not likely to jeopardize the continued existence of the flycatcher or cuckoo or destroy or adversely modify their critical habitats. We base this conclusion on the following reasons:

Southwestern Willow Flycatcher

- We anticipate permanent or temporary effects to designated PCEs 1 (riparian vegetation) and 2 (insect prey populations) within 1.2 ac of the project limits—or approximately 0.00009 percent of the 12,824.2 ac of the designated Middle Gila-San Pedro Critical Habitat Management Unit, and 0.000006 percent of the 208,973 ac of designated critical habitat range-wide. Thus, although there is a measurable amount of riparian vegetation affected and the amount of insect prey may decrease proportionately, the effect to proposed critical habitat in this unit and rangewide from the amount of vegetation and prey impacted at the new bridge location is so small that the proposed critical habitat would remain functional to serve the intended conservation role for the flycatcher.
- Vegetation clearing activities would occur outside the flycatcher breeding period (April 15-September 30).
- Bridge construction would occur during the breeding period, but would be ongoing when flycatchers arrive at their breeding areas. As a result, flycatchers may simply avoid the construction area and move into adjacent habitat. As we noted earlier, riparian vegetation in the action area is continuous for many miles upstream and downstream of the Kelvin Bridge.
- Of the 1.2 ac of flycatcher habitat that would be removed during the project, 0.8 ac would be restored after the project is complete.

Western Yellow-billed Cuckoo

- We anticipate permanent or temporary effects to proposed PCEs 1 (riparian vegetation) and 2 (insect prey populations), and no effects to PCE 3 (dynamic riverine processes), within 1.7 ac of the project limits—or approximately 0.00007 percent of the 23,399 ac of the proposed Lower San Pedro and Gila River Critical Habitat Unit, and 0.000003 percent of the 546,335 ac of proposed critical habitat range-wide. Thus, although there is a measurable amount of riparian woodland affected and the amount of prey may decrease proportionately, the effect to proposed critical habitat in this unit and rangewide from the amount of vegetation and prey impacted at the new bridge site is so small that the proposed critical habitat would remain functional to serve the intended conservation role for the cuckoo.
- Vegetation clearing activities would occur outside the cuckoo breeding period (May 15-September 30).
- Bridge construction would occur during the breeding period, but would be ongoing when cuckoos arrive at their breeding areas, if cuckoos breed in or near the project limits. As a
result, cuckoos may simply avoid the construction area and move into adjacent habitat. As we noted earlier, riparian vegetation in the action area is continuous for many miles upstream and downstream of the Kelvin Bridge.

- Of the 1.7 ac of cuckoo habitat that would be removed during the project, 1.1 ac would be restored after the project is complete.

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 the 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 defined (50 CFR 17.3) and means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. "Harass" is defined (50 CFR 17.3) and means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral 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.

AMOUNT AND EXTENT OF TAKE

Southwestern Willow Flycatcher

The FWS anticipates take of southwestern willow flycatchers as a result of this proposed action. Although flycatchers are migratory and spend only part of the year at the construction site, the area is still considered to be occupied because flycatchers exhibit high site fidelity and are expected to return to the same areas to nest from one year to the next (U.S. Fish and Wildlife Service 2002). The incidental take is expected to be in the form of loss of habitat and harassment, causing displacement, reduced productivity, and reduced survivorship as a result of noise and increased activity from construction activities occurring adjacent to nesting southwestern willow flycatchers for up to two breeding periods. Based on the existence of one to two territories within and directly adjacent to the project limits, we estimate that four individuals will be taken from habitat loss and disturbance associated with construction activities each year of the project.
Take will be considered to be exceeded if any portion of the occupied habitat outside of the construction zone is physically damaged by equipment during construction of the new Kelvin Bridge.

**Western Yellow-billed Cuckoo**

Cuckoos have been detected in and near the project limits during three consecutive years (2012-2014), and there is a high degree of probability that cuckoos breed in the Kelvin Bridge area. Western yellow-billed cuckoos require large blocks of riparian habitat for breeding. Home ranges are large but vary in size depending on seasonal food abundance. Recent radio telemetry studies on the Rio Grande in New Mexico, the San Pedro River in Arizona, and the Colorado River in Arizona and California have shown that cuckoos use home ranges between 95 and 204 acres (USFWS 2013). Given the size of a cuckoo home range, and acreage within the project limits (7.1 ac), we anticipate that no more than 1 nesting territory, i.e., a single pair of cuckoos, would be affected by the project. Thus, we anticipate take in the form of loss of habitat and harassment, causing displacement, reduced productivity, and reduced survivorship as a result of noise and increased activity from construction activities occurring adjacent to one cuckoo nesting territory; thus, we estimate that two individuals will be taken during each year of the project.

Take will be considered to be exceeded if any portion of the occupied habitat outside of the construction zone is physically damaged by equipment during construction of the new Kelvin Bridge.

**EFFECT OF THE TAKE**

In this biological opinion, the FWS determines that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat for the reasons stated in the Conclusions section. Although the proposed action may adversely affect the southwestern willow flycatcher and yellow-billed cuckoo in the short-term through habitat loss and disturbance, the proposed action will not result in the permanent loss of either species in the action area.

**REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS**

No reasonable and prudent measures above and beyond the BMP’s and conservation measures outlined within this BO/CO are necessary or advisable to minimize the effects of incidental take.

**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.

- We recommend that FHWA, ADOT, BLM, and Pinal County work with us and AGFD to participate in recovery planning and implementation of conservation actions for the
southwestern willow flycatcher and western yellow-billed cuckoo and improve the abundance and quality of riparian woodland habitats.

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

REINITIATION NOTICE

This concludes formal consultation on the actions outlined in the request, and no further section 7 consultation is required for this project at this time. 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.

Certain project activities may also affect species protected under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. sec. 703-712) and/or bald and golden eagles protected under the Bald and Golden Eagle Protection Act (Eagle Act). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the FWS. The Eagle Act prohibits anyone, without a FWS permit, from taking (including disturbing) eagles, and including their parts, nests, or eggs. If you think migratory birds and/or eagles will be affected by this project, we recommend seeking our Technical Assistance to identify available conservation measures that you may be able to incorporate into your project.

For more information regarding the MBTA and Eagle Act, please visit the following websites. More information on the MBTA and available permits can be retrieved from http://www.fws.gov/migratorybirds and http://www.fws.gov/migratorybirds/mbpermits.html. For information on protections for bald eagles, please refer to the FWS's National Bald Eagle Management Guidelines (72 FR 31156) and regulatory definition of the term "disturb" (72 FR 31132) published in the Federal Register on June 5, 2007 (http://www.fws.gov/southwest/es/arizona/BaldEagle.htm), as well at the Conservation Assessment and Strategy for the Bald Eagle in Arizona (SWBEMC.org).

The FWS appreciates efforts by BLM, FHWA, and ADOT to identify and minimize effects to listed species from this project. We encourage you to coordinate the review of this project with AGFD. We also appreciate your ongoing coordination during implementation of this program. In keeping with our trust responsibilities to American Indian Tribes, we are providing copies of
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this biological and conference opinion to the Bureau of Indian Affairs and are notifying affected Tribes.

For further information please contact Robert Lehman at (602) 242-0210 or Brenda Smith at (928) 556-2157. In all future correspondence on this project, please refer to consultation number 02EAAZ00-2016-F-0222.

Sincerely,

Steven L. Spangle
Field Supervisor

cc (electronic)

Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ
Fish and Wildlife Biologist, Fish and Wildlife Service, Phoenix
  (Attn: Greg Beatty, Mary Richardson)
Fish and Wildlife Biologist, Fish and Wildlife Service, Tucson
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Supervisor, Region 5, Arizona Game and Fish Department, Tucson, AZ
Supervisor, Region 6, Arizona Game and Fish Department, Mesa, AZ
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
Arizona Department of Transportation, Phoenix, AZ
  (Attn: Kris Gade, Josh Fife, Justin White, Audrey Navarro)
Environmental Coordinators, Federal Highway Administration, Phoenix, AZ
  (Attn: Rebecca Yedlin, Tremaine Wilson)
Chairman, Ak Chin Indian Community, Maricopa, AZ
Chairman, White Mountain Apache Tribe, Whiteriver, AZ
Chairman, Fort McDowell Yavapai Nation, Fort McDowell, AZ
Chairman, Salt River Pima-Maricopa Indian Community, Scottsdale, AZ
Chairman, San Carlos Apache Tribe, San Carlos, AZ
Chairman, Gila River Indian Community, Sacaton, AZ
Chairman, Tohono O'odham Nation, Sells, AZ
Chairman, Pascua Yaqui Tribe, Tucson, AZ
Environmental Specialist, Environmental Services, Western Regional Office, Bureau of Indian Affairs, Phoenix, AZ
LITERATURE CITED

General


Southwestern Willow Flycatcher


Hubbard, J.P. 1987. The Status of the willow flycatcher in New Mexico. Endangered Species Program, New Mexico Department of Game and Fish, Sante Fe.


**Western Yellow-billed Cuckoo**


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Cornell Lab of Ornithology. 2015. E-bird web site. http://ebird.org/content/ebird/about/


APPENDIX A: CONCURRENCES

This appendix contains our concurrences with your “may affect, not likely to adversely affect” determinations for the endangered ocelot, endangered spikedace, and endangered loach minnow.

DESCRIPTION OF THE PROPOSED ACTION

The proposed action is described above in the Biological and Conference Opinion and is incorporated herein by reference. In summary, the proposed action is to replace the existing bridge over the Gila River on the Florence-Kelvin Highway just south of the town of Kelvin, Pinal County, Arizona. The bridge replacement would shift traffic from the existing two-lane bridge to a new bridge with two lanes located 50 feet (ft) east of the existing bridge. After the new bridge is built, the existing bridge would remain accessible to the public for non-motorized use as part of the Arizona National Scenic Trail.

Ocelot

No surveys for the endangered ocelot (*Leopardus pardalis*) were done for the purposes of this project. Prior to 2009, there were eight records of the species in Arizona (seven historical records and one fossil record) (AGFD, unpublished data, 2016). Since 2009, at least five ocelots have been detected in Arizona, including four detected by trail cameras and hunting dogs, and one dead ocelot that had been struck by a vehicle. Details of these detections follow:

- In November 2009, a live ocelot (sex unknown) was documented in the Whetstone Mountains in Cochise County, Arizona, with the use of camera-traps (Avila-Villegas and Lamberton-Moreno 2013).
- In April 2010, a second ocelot was found dead (struck by a vehicle) along State Route (SR) 60 between the Towns of Globe and Superior in Gila County.
- In February 2011, a third male ocelot was treed by a hunting dog and photographed in the Huachuca Mountains, Cochise County. He was subsequently detected multiple times by trail cameras, including one in the Patagonia Mountains, in Santa Cruz County, in May 2012 (Culver et al. 2016). After being detected in the Patagonia Mountains, he was treed again by hunting dogs in the Huachuca Mountains (Culver et al. 2016), a round trip distance of mi. He was most recently detected in May 2013.
- In May 2012, a fourth male ocelot was detected in the Huachuca Mountains via trail camera. He has been detected by trail cameras many times since then, most recently in October 2015, and was treed by hunting dogs once.
- A fifth ocelot was detected by a trail camera in the Santa Rita Mountains, Pima County, in December 2013.
- In April 2014, a male ocelot was detected in the Santa Rita Mountains via trail camera. He was photographed several times over a two-month period but has not been detected since. In April 2014, a male ocelot was detected in the Santa Rita Mountains via trail camera. This may have been the same ocelot detected in December 2013.
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There are no documented occurrences of ocelots within the project limits; however, the cat found dead on SR 60 in 2010 was less than 20 miles from the Kelvin Bridge. This ocelot represents the northernmost confirmed record for the species in Arizona; it was found over 65 mi north of the Santa Rita Mountains, where an ocelot or ocelots were photographed in 2013 and 2014, and is approximately 125 mi from the Huachuca and Patagonia Mountains.

**DETERMINATION**

We concur with your determination that the proposed action “may affect, but is not likely to adversely affect” the ocelot for the following reason:

- There is only one confirmed record of an ocelot this far north in Arizona; thus, the likelihood of an ocelot occurring within the project limits during construction of the Kelvin Bridge is discountable.

**Literature Cited**


**Spikedace**

No surveys for the endangered spikedace (*Meda fulgida*) were done for the purposes of this project; however, the Kelvin Bridge is outside of the known range of the species and no designated critical habitat occurs near the project limits. The nearest record of spikedace is from the Gila River, near the town of Cochran, Arizona, approximately 18 mi west of the bridge. This record of one adult spikedace is from 1991, and no spikedace have been detected there since that time (Jalde 1992). The nearest location where spikedace currently occur, and the nearest designated critical habitat, is Aravaipa Creek, approximately 25 miles upstream of the Kelvin Bridge (77 FR 10810, AGFD 2013). Aravaipa Creek is a tributary of the San Pedro River.

Although designated critical habitat does not occur near the Kelvin Bridge, the Middle Gila River, and specifically the reach of the river within the project limits, exhibits stream characteristics that may be favorable to spikedace. Spikedace are found in moderate to large perennial streams where they inhabit moderate to fast velocity waters over gravel and rubble substrates (Barber and Minckley 1966, Propst et al. 1986). The BE for this project indicates that the river within the project limits is broad and turbid with a cobbled streambed, and may be
suitable for spikedace. It is unlikely, but possible, that a flood event during construction could bring spikedace downstream from Aravaipa Creek into the project limits, as evidenced by the 1991 spikedace record further downstream. However, the Middle Gila River also supports crayfish and non-native fish species (AGFD 2013), and spikedace that entered this area would likely not survive for long.

Conservation Measures

- Heavy equipment would not be used in the flowing channel of the Gila River nor would the river itself be altered in any way by the proposed action.
- A Storm Water Pollution Prevention Plan and Spill Prevention and Pollution Prevention Plan would be prepared prior to construction to assure that the proposed action would not adversely impact soils or water quality.
- Waste Management and Containment Plans would be developed to address the safe handling, storage, transportation, and disposal of construction waste, trash, litter, garbage, and hazardous materials (e.g., fuels, lubricants).
- Erosion control BMPs would prevent soils exposed during construction from becoming sediment carried off the site and into the river. Hay bales, silt fences, and other methods of erosion control that may be used would not contain any netting due to entrapment hazards to wildlife.

DETERMINATION

We concur with your determination that the proposed action “may affect, but is not likely to adversely affect” the spikedace for the following reasons:

- The nearest confirmed population of the spikedace is at least 25 mi from the proposed Kelvin Bridge project site; therefore, we do not expect any spikedace to be affected by the proposed action.
- Conservation measures, especially those that prohibit heavy equipment to enter the Gila River or alteration of the river in any way, and those designed to prevent pollutants and sediments from reaching the Gila River, would assure that the river channel or water quality in the river would not be negatively affected by the proposed action in the unlikely event that spikedace appeared in the Middle Gila River during construction.

Literature Cited


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Loach Minnow

No surveys for the endangered loach minnow \((Tiaroga cobitis)\) were done for the purposes of this project; however, the Kelvin Bridge is outside of the known range of the species and no designated critical habitat occurs near the project limits. The nearest location where loach minnow are known to occur, and the nearest designated critical habitat, is Aravaipa Creek. Loach minnow have been detected at the lower end of Aravaipa Creek (above the existing fish barrier) as recently as April 2016 (M. Richardson, USFWS, personal communication, May 2016). However, this area is approximately 25 miles upstream of the Kelvin Bridge (77 FR 10810, AGFD 2013).

Although designated critical habitat does not occur near the Kelvin Bridge, the Middle Gila River, and specifically the reach of the river within the project limits, exhibits some stream characteristics that may be favorable to the loach minnow. Loach minnows are found in small to large perennial streams and use shallow, turbulent riffles with primarily cobble substrate and swift currents (Propst et al. 1988, Rinne 1989, Propst and Bestgen 1991). The BE for this project indicates that the river within the project limits is broad and turbid with a cobbled streambed, and may be suitable for the loach minnow. It is unlikely, but possible, that a flood event during construction could bring loach minnows downstream from Aravaipa Creek into the project limits. However, the Middle Gila River also supports crayfish and non-native fish species (AGFD 2013), and loach minnow that entered this area would likely not survive for long.

Conservation Measures

- Heavy equipment would not be used in the flowing channel of the Gila River nor would the river itself be altered in any way by the proposed action.
- A Storm Water Pollution Prevention Plan and Spill Prevention and Pollution Prevention Plan would be prepared prior to construction to assure that the proposed action would not adversely impact soils or water quality.
- Waste Management and Containment Plans would be developed to address the safe handling, storage, transportation, and disposal of construction waste, trash, litter, garbage, and hazardous materials (e.g., fuels, lubricants).
- Erosion control BMPs would prevent soils exposed during construction from becoming sediment carried off the site and into the river. Hay bales, silt fences, and other methods of erosion control that may be used would not contain any netting due to entrapment hazards to wildlife.
DETERMINATION

We concur with your determination that the proposed action “may affect, but is not likely to adversely affect” the spikedace for the following reasons:

- The nearest confirmed population of loach minnows is at least 25 mi from the proposed Kelvin Bridge project site; therefore, we do not expect any loach minnows to be affected by the proposed action.
- Conservation measures, especially those that prohibit heavy equipment to enter the Gila River or alteration of the river in any way, and those designed to prevent pollutants and sediments from reaching the Gila River, would assure that the river channel or water quality in the river would not be negatively affected by the proposed action in the unlikely event that loach minnows appeared in the Middle Gila River during construction.

Literature Cited

