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In reply refer to:

AESO/SE

02EAAZ00-2018-F-1014

August 23, 2018

Mr. Alessandro Amaglio
Environmental Officer, Federal Emergency Management Agency
1111 Broadway, Suite 1200
Oakland, California 94607-4052

RE: Biological and Conference Opinion for the Winkelman NRCD Pinal Rural Fuels Reduction Project

Dear Mr. Amaglio:

Thank you for your request for formal consultation/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 original request was dated November 27, 2017, with a subsequent confirmation of the final effects determinations provided to us on June 20, 2018. At issue are impacts that may result from the proposed Winkelman Natural Resources Conservation District (NRCD) Pinal Rural Fuels Reduction Project located in Pinal County, Arizona. You have determined that the proposed action may affect, and is likely to adversely affect, the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) and its designated critical habitat and the threatened yellow-billed cuckoo (*Coccyzus americanus*) and its proposed critical habitat. Because critical habitat is proposed for the cuckoo, this document represents a conference opinion that may be converted to a biological opinion if western yellow-billed cuckoo critical habitat is designated.

In your letter, you requested our concurrence that the proposed action is not likely to adversely affect the endangered ocelot (*Leopardus pardalis*) and the northern Mexican gartersnake (*Thamnophis eques megalops*). We concur with your determinations and include our rationale in Appendix A.

Additionally, you asked us to concur with your determination that the proposed action is not likely to adversely affect the endangered lesser long-nosed bat (*Leptonycteris yerbabuena*). We removed the lesser long-nosed bat from the list of endangered and threatened species under the Act on April 18, 2018 (83 FR 17093). Therefore, there is no longer the requirement to include

the lesser long-nosed bat in section 7 consultations under the Act. This species will not be addressed in this section 7 consultation.

This biological opinion and conference opinion (BCO) is based on information provided in the October 2017 biological assessment, emails, telephone conversations, field investigations, and other sources of information. Literature cited in this biological and conference opinion is not a complete bibliography of all literature available on the species of concern, fuels reduction projects and its effects, or on other subjects considered in this opinion. A complete record of this consultation is on file at this office.

Consultation History

- November 27, 2017: We received your initial request for consultation and associated biological assessment
- April, 2018 through May, 2018: We exchanged a number of emails and telephone calls providing updates and concerns related to the progress and determinations in your request for consultation
- June 20, 2018: We confirmed your request to change the determinations in your request for consultation and initiated formal consultation for the proposed action
- July 30, 2018: We sent the draft BCO to your agency
- August 14, 2018: We received comments from you on the draft BCO

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed action is designed to mechanically control invasive salt cedar (*Tamarix* sp.) in order to reduce fire fuel loads in riparian vegetation south and west of the Town of Kearny in Pinal County, Arizona. The Town of Kearny is located approximately 70 miles southeast of Phoenix, Arizona. The proposed project includes portions of six municipally-owned parcels totaling approximately 80 acres along the southwestern edge of the Town and both sides of the Gila River. The project setting is comprised riparian habitat dominated by salt cedar regrowth from recent fires. The overstory of Fremont cottonwoods (*Populus fremontii*) was mostly killed by the fires, with only a few individuals remaining along the river banks. A smaller amount of riparian habitat within the project area and which would not be treated is dominated by native trees and shrubs, primarily along the river banks and on the southwest side of the river.

The purpose of the proposed action is to reduce wildfire hazards to structures and critical infrastructure in the Town of Kearny. Work is planned to eliminate dense, highly flammable stands of salt cedar. Treatments will occur within the floodplain, but not adjacent to the existing stream or immediate area where soils are noticeable wet on the surface. Surviving native trees and shrubs that were spared by the recent fires or have regrown since the fires would be left in place to provide wildlife habitat and recreational amenities (e.g. shade).

Mechanical treatment would consist of grubbing done by a contractor operating a dozer, trackhoe, and loader to uproot, push, and stack burned and regrown salt cedar in piles for later burning. The burning of brush piles would require an open burn permit from the Pinal County Air Quality Control District. Brush pile burning would be conducted in coordination with the Kearny Volunteer Fire Department and would occur when weather and ground conditions are appropriate.

Work will be conducted between October and March and is expected to take up to two months total to complete.

Conservation Measures

The following avoidance and minimization measures for listed species and habitats will be implemented during project implementation:

- All ground-disturbing and vegetation removal activities will be conducted between October 1 and March 31 to avoid the breeding season for the southwestern willow flycatcher and the yellow-billed cuckoo, as well as other migratory birds.
- Native trees and shrubs will not be removed as part of the proposed action and care will be taken to avoid harming any native trees and shrubs.

Action Area

The action area is defined as all areas to be affected directly or indirectly by the Federal 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.

The action area of the proposed project includes portions of six municipally-owned parcels within the Gila River immediately adjacent to the Town of Kearny. Although located within six separate parcels, the individual areas within which the grubbing treatment would occur are generally contiguous or adjacent patches of salt cedar vegetation. Most of the areas to be treated lie along the north and east sides of the Gila River, with two areas across the river on the west side. The piling and burning of removed vegetation will occur in generally the same areas. Therefore, the action area for the proposed project includes all of the area of the six identified parcels that fall within the floodplain of the Gila River. No downstream effects exceeding existing baseline levels, such as sedimentation, are anticipated due to the existing conditions and uses of the project area. As a result, the action area does not expand beyond the description above.

STATUS OF THE SPECIES AND CRITICAL HABITAT

The information in this section summarizes the rangewide status of each species that is considered in this BO. Further information on the status of these species can be found in the administrative record for this project, documents on our web page ([Arizona Ecological Services Office Documents by Species](#)), and in other references cited in each summary below.

Southwestern Willow Flycatcher and Critical Habitat

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 1,227 stream miles. A recovery plan for the species was completed in 2002 (U.S. Fish and Wildlife Service [FWS] 2002), and a 5-year review was done in 2014 (FWS 2014 c). 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 feet 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 feet in elevation; and (2) willow (*Salix* spp.) thickets in broad, flat drainages above 7,000 feet. 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 salt cedar), 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, FWS 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 (FWS 2002). Recently, however, fire size and frequency have increased because of an increase in dry, fine fuels in riverbeds and riparian systems. Drying of riverbeds 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).

Critical habitat for this species has been designated within the action area and may be affected by the proposed action.

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:

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 Goodding's 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 meters (about 6 to 98 feet). Lower-stature thickets (2 to 4 meters or 6 to 13 feet tall) are found at higher elevation riparian forests and tall-stature thickets are found at middle and lower-elevation.
- (b) Areas of dense riparian foliage at least from the ground level up to approximately 4 meters (13 feet) 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 hectare (0.25 acre) or as large as 70 hectares (175 acres). n riparian forests;

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).

The physical and biological features of flycatcher critical habitat are the principal biological or physical elements essential to flycatcher conservation that may require special management considerations or protection (USFWS 2013a). We primarily identified the features and functions of rivers that generate flycatcher habitat and its food such as low gradient/broad floodplains, water, saturated soil, hydrologic regimes, elevated groundwater, and fine sediments, etc. (USFWS 2013a).

Previous Consultations

Since listing in 1995, at least 240 Federal agency actions have undergone (or are currently under) formal section 7 consultation throughout the flycatcher's range. This list of consultations can be found in the administrative record for this consultation. Since flycatcher critical habitat was finalized in 2005, at least 33 formal opinions have been completed in AZ (within and outside designated critical habitat). While many opinions were issued for the previous critical habitat designation, the stream reaches and constituent elements have changed.

Activities continue to adversely affect the distribution and extent of all stages of flycatcher habitat throughout its range (development, urbanization, grazing, recreation, native and non-native habitat removal, dam operations, river crossings, ground and surface water extraction, etc.). Introduced tamarisk-eating leaf beetles were not anticipated to persist within the range of the southwestern willow flycatcher. However, they were detected within the breeding habitat (and designated critical habitat) of the flycatcher in 2008 along the Virgin River near the Town of St. George, UT. In 2009, beetles were also known to have been detected defoliating habitat within the range of flycatcher habitat in southern Nevada, and along the Colorado River in the Grand Canyon and near Shiprock in AZ. As of 2017, leaf beetles had spread to the only known breeding sites along the lower Colorado River in AZ, along the Hassayampa River in Maricopa County, and at the largest flycatcher breeding population rangewide along the Middle Rio Grande at Elephant Butte, NM. Stochastic events also continue to change the distribution, quality, and extent of flycatcher habitat.

Conservation measures associated with some consultations and Habitat Conservation Plans have helped to acquire lands specifically for flycatchers on the San Pedro, Verde, and Gila rivers in AZ and the Kern River in CA. Additionally, along the lower Colorado River, the U.S. Bureau of Reclamation is currently attempting to establish riparian vegetation to expand and improve the distribution and abundance of nesting flycatchers. A variety of Tribal Management Plans in CA, AZ, and NM have been established to guide conservation of the flycatchers. Additionally, during the development of the critical habitat rule, management plans were developed for some private lands along the Owens River in CA and Gila River in NM. These conservation actions are just a portion of those that have been established across the subspecies' range.

Western Yellow-Billed Cuckoo and Proposed Critical Habitat

The western distinct population segment (DPS) of the yellow-billed cuckoo was listed as a threatened species under the ESA on October 3, 2014 (USFWS 2013b, 2014b; 78 FR 61622, 79 FR 59992). Within the DPS (see Figure 1 at 79 FR 59994, in the final listing rule (79 FR 59992; October 3, 2014)), the habitats areas used by the species for nesting are located from southern British Columbia, Canada, to southern Sinaloa, Mexico, and may occur from sea level to 7,000 feet (ft) (2,154 meters (m)) in elevation (or slightly higher in western Colorado, Utah, and Wyoming). Critical habitat for the yellow-billed cuckoo DPS was proposed on August 15, encompassing 546,335 acres across the western United States (USFWS 2014a; 79 FR 48548). The discussions of the status of this species in these documents are incorporated herein by reference. A revised proposed rule that may include additional proposed critical habitat is under development.

The yellow-billed cuckoo is a member of the avian family Cuculidae and is a Neotropical migrant bird that winters in South America and breeds in North America. The breeding range of the entire species formerly included most of North America from southeastern and western Canada (southern Ontario and Quebec and southwestern British Columbia) to the Greater Antilles and northern Mexico (American Ornithologists Union (AOU) 1983, 1998).

Based on historical accounts, the western yellow-billed cuckoo was 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 (AOU 1998, Hughes 1999). The species may be extirpated from British Columbia, Washington, and Oregon (Hughes 1999). The western yellow-billed cuckoo is now very rare in scattered drainages in western Colorado, Idaho, Nevada, and Utah, with single, nonbreeding birds most likely to occur (USFWS 2013b, 2014a, 2014b). The largest remaining breeding areas are in southern and central California, Arizona, along the Rio Grande in New Mexico, and in northwestern Mexico (USFWS 2014b).

Yellow-billed cuckoos spend the winter in South America, east of the Andes, primarily south of the Amazon Basin in southern Brazil, Paraguay, Uruguay, eastern Bolivia, and northern Argentina (Ehrlich et al. 1992, AOU 1998). Wintering yellow-billed cuckoos generally use woody lowland vegetation near fresh water. However, wintering habitat of the western yellow-billed cuckoo is poorly known.

Breeding Habitat

The western yellow-billed cuckoo breeds in riparian (hydro- and xero- riparian) woodlands, and in Madrean evergreen woodland drainages and mesquite woodlands of arid areas. Habitat conditions are typically cooler and more humid than in the surrounding environment (USFWS 2014a,b). The vegetation making up the breeding habitat of the western yellow-billed cuckoo varies across the species' range and includes native and nonnative -riparian and upland nonriparian species including cottonwood (*Populus* spp.), willow (*Salix* spp.), mesquite (*Prosopis* spp.), box elder (*Acer negundo*), sycamore (*Platanus* spp.), ash (*Fraxinus* spp.), walnut (*Juglans* spp.), alder (*Alnus* spp.), hackberry (*Celtis* spp.), soapberry (*Sapindus saponaria*), oak

(*Quercus* spp.), acacia (*Acacia* spp.), desert willow (*Chilopsis linearis*), elderberry (*Sambucus mexicanus*), juniper (*Juniperus* spp.), pine (*Pinus* spp.), Russian olive (*Elaeagnus angustifolia*), and tamarisk (*Tamarix* spp.) (Gaines 1974, pp. 7–9; Gaines and Laymon 1984, pp. 59–66; Laymon and Halterman 1989, pp. 274–275; Dettling and Howell 2011, p. 28).

In most of the DPS, the western yellow-billed cuckoo primarily breeds in large riparian woodlands dominated by willow and cottonwood along low-gradient rivers and streams, and in open riverine valleys that provide wide floodplain conditions (USFWS 2014a,b). In the Southwest, however, cuckoos can also breed in higher gradient drainages, and narrower and drier reaches of riparian habitat (Corman and Magill 2000; WestLand Resources, Inc. 2013a, 2013b, 2015a, 2015b, 2015c; Arizona Game and Fish Department (AGFD) 2017; Cornell Lab of Ornithology 2017; MacFarland and Horst 2015, 2017; Tucson Audubon 2015). Large expanses of gallery riparian woodland habitat support greater densities of cuckoos than less dense reaches of scattered riparian trees or more xero-riparian woodlands. However, these less dense reaches of scattered riparian trees and more xero-riparian woodlands are also important to yellow-billed cuckoos as nesting substrate, foraging habitat, and as a buffer between more hydric sites and the adjacent, xeric uplands (USFWS 2014a, b; Griffin 2015; Groschupf 2015; McFarland and Horst 2015, 2017). To distinguish between the western yellow-billed cuckoo breeding habitat in riparian areas throughout the range and breeding habitat found in more arid areas of the Southwest, we use the terms “Rangewide” and “Southwestern” breeding habitat, respectively. We describe both the Rangewide and Southwestern breeding habitat below:

Southwestern breeding habitat

Southwestern breeding habitat is located in the Southwestern United States (particularly in Arizona) and is comprised of riparian woodlands, mesquite woodlands, or Madrean evergreen woodlands with a variable overstory canopy and understory component within drainages at least 200 ac (81 ha) in size. In addition to cottonwood, willow, and mesquite, occupied riparian habitat in Arizona may also contain a greater proportion of xero-riparian species than in the rest of the DPS. Oak, hackberry, sycamore, walnut, ash, acacia, tamarisk, and juniper are among the most common xero-riparian species in Southwestern breeding habitat (Corman and Magill 2000, Corman and Wise-Gervais 2005, USFWS unpubl. data). Tamarisk may be a component of breeding habitat, but there is usually a native riparian tree component within the occupied habitat (Gaines and Laymon 1984, Johnson et al. 2008, McNeil et al. 2013, Sechrist et al. 2013, Carstensen et al. 2015). Habitat patches in the arid Southwest contain a greater proportion of xero-riparian and nonriparian tree species than elsewhere in the DPS. Habitat patches are often interspersed with large openings and include narrow stands of trees, small groves of trees, or sparsely scattered trees. As such, the canopy closure is variable, and where trees are sparsely scattered, canopy closure may be dense only at the nest tree. Southwestern breeding habitat types are as follows:

- Riparian woodland is more water-limited, contains a greater proportion of xero-riparian species, and is often narrower, patchier, and sparser than where water is more abundant. This more arid riparian woodland occurs in perennial and intermittent drainages and floodplains throughout the Southwest.

- Mesquite-dominated woodland habitat occurs in floodplains, adjacent terraces, and adjacent uplands in perennial, intermittent, and ephemeral drainages throughout the Southwest.
- Madrean evergreen woodland (usually oak-dominated) habitat occurs in intermittent and ephemeral drainages and adjacent hillsides in the foothills and mountains of southeastern Arizona, up to 7000 ft in elevation. The amount of oak varies and may be interspersed with mesquite and other species in Madrean evergreen woodland.

Nest Site

A large majority of nests are placed in willow trees, but cottonwood, mesquite, walnut, box elder, sycamore, hackberry, oak, alder, soapberry (*Sapindus saponaria*), seepwillow (*Baccharis glutinosa*), acacia, pecan (*Carya* sp.), prune (*Prunus domestica*), almond (*Prunus dulcis*) and tamarisk are also used (Laymon 1980, pp. 7–8; Groschupf 1987; Kingsley 1989, p. 142; Laymon 1998, p. 7; Hughes 1999, p. 13; Corman and Magill 2000, p. 16; Launer et al. 1990, p. 22; Halterman 2001, p. 11; Halterman 2002, p. 12; Halterman 2003, p. 11; Halterman 2004, p. 13; Corman and Wise-Gervais 2005, p. 202; Halterman 2005, p. 10; Halterman, 2006; Halterman 2007, p. 5; Holmes et al. 2008, p. 21; McNeil et al. 2013, pp. I-1 – I-3; Tucson Audubon 2015, p. 44; Groschupf 2015, *in litt.*; MacFarland and Horst 2015, pp. 9–12)). Cuckoos may also nest at more than one location in a year (USFWS 2014a,b). On the upper San Pedro River, many cuckoos re-nested following both successful and unsuccessful nesting attempts (Halterman 2009). These subsequent nests are sometimes hundreds of meters away from previous nests. Yellow-billed cuckoos at this site appear to be regularly double-brooded, and occasionally triple brooded, based on behavior and timing of nests. On the upper San Pedro River, cuckoos were not regularly detected on surveys until late June, and breeding in some years did not begin until late July (Halterman 2006). The breeding season for cuckoos in southeastern Arizona appears to be prolonged, however, and in most years conditions are apparently right for producing multiple broods.

Hydrological Conditions

Habitat for the western yellow-billed cuckoo in much of its range is largely associated with perennial rivers and streams that support the expanse of vegetation characteristics needed by breeding western yellow-billed cuckoos. 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). Cuckoos often nest where young trees interface with more mature trees, such as along the scour zone of rivers or newly planted revegetation sites on the lower Colorado River (McNeil et al. 2013). Hydrologic conditions at western yellow-billed cuckoo breeding sites can vary widely between years and during low rainfall years, when water or saturated soil may not be present. Cuckoos may move from one area to another within and between years in response to hydrological conditions.

Humidity

Humid and cooler conditions created by surface and subsurface moisture and trapped by the multilayered canopy appear to be important habitat parameters for the western yellow-billed cuckoo. The western yellow-billed breeds in drainages where humidity is adequate for successful hatching and rearing of young (Hamilton and Hamilton 1965; Gaines and Laymon 1984; McFarland and Horst 2015, 2017; Rosenberg et al. 1991). The moist and humid conditions that support riparian plant communities typically exist in lower elevation, broad floodplains, as well as where rivers and streams enter impoundments. However, these conditions can also be found in some areas up to 7,000 feet (or slightly higher in western Colorado, Utah, and Wyoming) in elevation. In the foothills and mountain xero-riparian drainages of southeastern Arizona and Sonora Mexico, high humidity and the summer monsoon are important factors in cuckoo presence (USFWS 2014a,b; MacFarland and Horst 2015, 2017).

Foraging Habitat

In addition to the dense nesting grove or tree, often referred to as the core area, western yellow-billed cuckoos need adequate foraging areas near the nest. Foraging areas can be less dense or patchy with lower levels of canopy cover and may be a mix of shrubs, ground cover, and scattered trees (Sechrist et al. 2009, 2013; Carstensen et al. 2015; Griffin 2015; 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 (Rosenberg et al. 1991). In Arizona, adjacent habitat is usually more arid than occupied nesting habitat. This adjacent habitat can be used for foraging where large insects are produced. Foraging habitat includes Sonoran desertscrub, Mojave desertscrub, Chihuahuan desertscrub, chaparral, semidesert grassland, plains grassland, and Great Basin grasslands (Brown 1994, Brown et al. 2007, Brown and Lowe 1982).

Migration Habitat

Migration habitat needs are not well known, although they appear to include a relatively wide variety of conditions. Migrating yellow-billed 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 (USFWS 2014a).

Many drainages throughout Arizona have not been thoroughly surveyed and it is likely that additional yellow-billed cuckoo locations will be discovered as additional surveys are conducted. In a survey in 1999 that covered 265 mi (426 km) of river and creek bottoms (a subset of statewide cuckoo habitat), 172 yellow-billed cuckoo pairs and 81 single birds were located in Arizona (Corman and Magill 2000). Based on this study, site-specific studies, protocol cuckoo surveys, and incidental detections, we know that drainages with yellow-billed cuckoos during the breeding season include Bill Williams River, lower Colorado River, middle Gila River, Hassayampa River, San Pedro River, Santa Maria River, Verde River, Sonoita Creek, Santa Cruz River, Big Sandy River, Arivaca Cienega and Creek, Altar Valley, Agua Fria River, Roosevelt Lake complex, Upper Tonto Creek, Pinto Creek, Mineral Creek, Oak Creek, Cienega Creek, Babocomari River, Pinal Creek, Bonita Creek, San Bernardino National Wildlife Refuge,

Hooker Hot Springs, Big Sandy River, and many smaller drainages (American Birding Association 2014, USFWS 2014a, AGFD 2017, Cornell Lab of Ornithology 2017, USFWS unpubl. data).

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; USFWS 2014a,b). Habitat loss and degradation results from several interrelated factors, including alteration of flows in rivers and streams, mining, encroachment into suitable habitat from agricultural and other development activities on breeding and wintering grounds, 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, USFWS 2014b). Pesticide use is widespread in agricultural areas in the western yellow-billed cuckoo breeding range in the United States and northern Mexico. Yellow-billed cuckoos have also been exposed to the effects of pesticides on their wintering grounds, as evidenced by DDT found in their eggs and eggshell thinning in the United States (Grocki and Johnston 1974, Laymon and Halterman 1987a, Hughes 1999, Cantu-Soto et al. 2011). Because much of the species' habitat is in proximity to agriculture, the potential exists for direct and indirect effects to a large portion of the species in these areas through altered physiological functioning, prey availability, and, therefore, reproductive success, which ultimately results in lower population abundance and curtailment of the occupied range (Laymon 1980, Laymon 1998, Hughes 1999, Colyer 2001 *in litt.*, Hopwood et al. 2013, Mineau and Palmer 2013, Mineau and Whiteside 2013, USFWS 2014b).

The ongoing threats, including small isolated populations, cause the remaining populations to be increasingly susceptible to further declines and local extirpations through increased predation rates, barriers to dispersal by juvenile and adult yellow-billed cuckoos, 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 and change 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 to feed on this critical food source.

Habitat for the western yellow-billed cuckoo has been modified and reduced, resulting in 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, and restore additional, riparian habitat 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 threats resulting from the combined effects associated with small and widely separated habitat patches to continue to affect a large portion of the range of the western yellow-billed cuckoo.

Critical habitat for this species has been proposed within the action area and may be affected by the proposed action.

Proposed Critical Habitat

The primary constituent elements (PCEs) of the physical or biological features essential to the conservation of western yellow-billed cuckoo consist of three components:

- (i) Riparian woodlands—Riparian woodlands with mixed willow-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 feet (100 meters) in width and 200 acres (81 hectares) 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.
- (ii) 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.
- (iii) 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. These dynamic riverine processes are considered essential for developing and maintaining the primary constituent elements provided in paragraphs (2)(i) and (2)(ii) of this entry.

Previous Consultations

Since listing in 2014, at least 22 Federal agency actions have undergone (or are currently under) formal section 7 consultation throughout the yellow-billed cuckoo's range. Activities continue to adversely affect the distribution and extent of yellow-billed cuckoo habitat throughout its range (development, urbanization, grazing, recreation, native and non-native habitat removal, dam operations, river crossings, ground and surface water extraction, mines, utilities, etc.).

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 that are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

Description of the Action Area

The action area for the proposed Winkelman NRCD Rural Fuels Reduction Project includes the area within the Gila River floodplain that falls within the six municipally-owned parcels described and mapped in the October 2107 biological assessment (See page 4 and Figure 1 of the biological assessment). While the entire area of these parcels is not included in the proposed fuels treatment, areas within each parcel will be treated and most treated areas will be contiguous or adjacent areas of salt cedar vegetation. Given the area needed to maneuver the equipment that will be used for grubbing, it is reasonable to assume that much of the area within each of these parcels that occur within the river and the river banks will be affected by the grubbing activities. Areas outside of the floodplain of the river are not likely to be treated.

The riparian vegetation community within the action area is dominated by exotic salt cedar. A few Fremont cottonwood trees survived the recent fires, as well as some large Gooding's willows (*Salix goodingii*) immediately along the banks of the Gila River. Other native shrubs and small trees are scattered throughout the action area, including mule-fat (*Baccharis salicifolia*), tree tobacco (*Nicotiana glauca*), velvet mesquite (*Prosopis velutina*), and catclaw acacia (*Senegalia greggii*). There is also a large stand of primarily native species in the southwestern-most portion of the project area dominated by velvet mesquite.

Much of the action area, on both sides of the river, is crisscrossed by dirt roads and tracks used by recreationists and ranchers. Recreationists have developed a couple of picnic spots along the river with semi-permanent shade structures, built-in barbeques, and cable spool tables. Additionally, there is a heavily disturbed area in the central part of the action area that has been used as a dumping ground for broken concrete, excess fill dirt, tree clippings, and a fair amount of trash.

Status of the species and critical habitat within the action area

Southwestern Willow Flycatcher and Critical Habitat

Areas that meet the description of flycatcher breeding habitat occur in the action area. Most of these areas are dense salt cedar that has regrown following the fires of the past decade. As described, there are also occasional willows and cottonwoods in the action area. Other areas along the river provide foraging and migratory habitat. No assessment to determine condition and acres of flycatcher habitat has been completed.

No surveys to specifically document breeding flycatchers or cuckoos for this project have been conducted. However, survey information from EcoPlan Associates provide to our office in 2015 indicated that the area of the fire supported eight flycatcher territories within the perimeter of the fire and an additional territory on the edge. However, the nesting status of these territories was unknown at the time. Given the regrown of vegetation in the action area, it is reasonable to conclude that the action area is being used by flycatchers. Additionally, based on the available habitat and survey information from the general area of the proposed action, we believe that there is additional support for the use of the action area, at least occasionally, by migrating flycatchers, and may potentially provide habitat for some breeding flycatchers. This is based on

the documented occurrence of southwestern willow flycatchers both within the action area historically and currently upstream and downstream of the proposed action.

Critical habitat for the southwestern willow flycatcher occurs in the action area. The proposed project falls within the Middle Gila/San Pedro Management Unit that consists of 23,949 acres (USFWS 2005). The fuels reduction treatments would affect approximately 80 acres or 0.334 percent of the Middle Gila/San Pedro Unit and less than 0.07 percent of the total designated critical habitat for the southwestern willow flycatcher. The riparian vegetation in the action area meets both PCE 1 (and its sub-elements) and PCE 2. However, the overall quality of the habitat within the action area has been altered due to recent fires, recreational use, and other habitat modifications as describe above.

Western Yellow-Billed Cuckoo and Proposed Critical Habitat

In Arizona, the species was a common resident in the (chiefly lower) Sonoran zones of southern, central, and western Arizona (Phillips et al. 1964). The yellow-billed cuckoo now nests primarily in the central and southern parts of the state, as well as at revegetation sites along the lower Colorado River (McFarland and Horst 2015; USFWS 2013b, 2014a, 2014b, McNeil et al. 2013). Yellow-billed cuckoo occurrence has been documented in areas upstream and downstream of the proposed action during surveys and monitoring and on eBird.

Given the amount of monotypic tamarisk within the action area, it is unlikely that much western yellow-billed cuckoo breeding habitat is currently present within the action area. However, small areas containing some native vegetation may occur, which may provide breeding opportunities. Small seeps, pools of open water, or moist soil may be hidden amid the vegetation along the Gila River and likely support native species. Other areas within the action area and along the river provide foraging and migratory habitat. No assessment to determine the condition and acres of cuckoo habitat has been completed within the action area. However, based on the available habitat and survey information, the project area is used by foraging and migrating cuckoos, and provides habitat for some breeding cuckoos where some native habitat is mixed in with tamarisk, although likely at low numbers (AGFD 2017, Cornell Lab of Ornithology 2017). Suitable and occupied habitat also exists upstream and downstream of the proposed project area.

Proposed critical habitat for the western yellow-billed cuckoo occurs in the action area. The action area falls within the Lower San Pedro and Gila Rivers Unit of proposed critical habitat that consists of approximately 23,399 acres (USFWS 2104a). The fuels reduction treatments would impact approximately 80 acres or 0.34 percent of the Lower San Pedro and Gila Rivers Unit of proposed critical habitat; less than 0.02 percent of the total proposed critical habitat for the western yellow-billed cuckoo. Although the vegetation within this portion of the unit is dominated by tamarisk, aerial photos reveal small pockets of mixed native and tamarisk habitat exist within the project area and suitability will continue to fluctuate over time in response to water availability. Cuckoos use mixed native and tamarisk habitat and will place their nests in tamarisk. An extensive survey of the condition of critical habitat within the action area has not been conducted.

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.

Tamarisk eradication can be detrimental to flycatchers and cuckoos, especially in or near occupied habitat or where restoration is unlikely to be successful. Risks to both of these species increase if the tamarisk control projects are implemented in absence of a plan to restore suitable native riparian plant species or if site conditions preclude the re-establishment of native plant species of equal or higher functional value. Native vegetation occupied by flycatchers and cuckoos that is suddenly exposed to the increased sun and heat when the surrounding tamarisk is removed may not survive, increasing the adverse effects to the species. Threats also increase if the eradication projects are large scale in nature (USFWS 2002). Additionally, removing this habitat also exposes the remaining habitat to increased nest predation along the edges.

Fuels reduction activities will remove a significant portion of flycatcher and cuckoo vegetation and habitat components within the action area. However, implementation of grubbing activities will occur on a relatively small scale (approximately 80 acres) when compared to the extent of adjacent habitat of similar or better condition. Nonetheless, the removal of 80 acres of salt cedar vegetation will contribute to fragmentation of flycatcher and cuckoo habitat and will result in a reduced amount of flycatcher breeding habitat and nest sites. Monotypic salt cedar stands usually do not provide cuckoo nest sites, although these areas can enhance small patches of native vegetation by ameliorating temperatures and providing foraging and roosting habitat, as well as cover. Edge effects and habitat fragmentation may reduce the suitability of flycatcher and cuckoo migration habitat, but these effects are not expected to reduce the occasional use of the project area by migrating flycatchers and migrating and foraging cuckoos that likely currently occurs. The removal of salt cedar in the action area, may temporally act as a fire-break and decrease the likelihood of larger fires occurring that may affect nesting flycatchers and cuckoos elsewhere along the Gila River. However, we note that, without regular maintenance of this action through time, there is a likelihood that salt cedar will reestablish within the action area along with the associated increase in fire risk.

No post-fire flycatcher or cuckoo nesting surveys have occurred in the action area to determine whether these species currently are using this habitat, nor are nesting surveys planned to occur prior to implementing the proposed action. Flycatcher breeding territories did occur within the action area prior to the 2015 fire (8 territories within the fire's perimeter and 1 at the perimeter). Because of the relative abundance of breeding flycatchers at the Gila-San Pedro River confluence area, site fidelity of breeding flycatchers, and rapid re-establishment of vegetation, breeding flycatchers may be relying on habitat within the action area. Similar reasoning applies to the cuckoo as well. However, the proposed action should not directly affect breeding flycatchers or cuckoos because actions will occur outside the breeding season.

We do anticipate that flycatchers and cuckoos will be indirectly affected through habitat removal. Studies have shown that southwestern willow flycatchers have high site fidelity and return to former breeding areas, although they can regularly move among sites within and between years. By removing breeding habitat, flycatchers may not establish territories, nest, or successfully reproduce. Those flycatchers that try to nest in or near the action area or other locations would do so in habitat of reduced quality, leading to increased predation, nest parasitism, and reduced success. Cuckoos may be less affected by habitat removal, as they may shift use areas within their large home ranges during a season, perhaps in response resource availability or nesting habitat.

Migrating flycatcher and cuckoo behavior may be slightly altered by the habitat removal, causing them to avoid the action area. However, because of the abundance of Gila River migration habitat immediately upstream and downstream of the action area and the broad habitat requirements for shelter and food fulfilled by these nearby areas, we expect any impact will be insignificant.

The resulting open areas created by the tamarisk removal is likely to result in creation and use of additional dirt roads and tracks crisscrossing the action area on both sides of the river unless barriers are created to prevent off-road travel. Remaining native trees are likely to receive increased use and damage by recreationists seeking shade.

The PCEs of southwestern willow flycatcher critical habitat, as described in the status of the species section, are those habitat elements that provide sufficient riparian habitat for breeding, non-breeding, territorial, dispersing and migrating flycatchers and to flycatchers throughout their range, and provide those habitat components essential for conservation of the subspecies. Short-term effects on PCEs are expected as a result of the fuels reduction project, between the time of removal of tamarisk and eventual regrowth of vegetation. The project is expected to have short-term adverse effects on the PCEs of designated critical habitat, but in the longer term, we anticipate that vegetation (some combination of salt cedar and native vegetation) will eventually reestablish. The project is likely to cause some temporary and some permanent adverse effects to southwestern willow flycatchers and their critical habitat due to the removal of approximately 80 acres of salt cedar vegetation community.

The PCEs of proposed western yellow-billed cuckoo critical habitat as described in the status of the species section are those habitat elements that provide sufficient riparian habitat for breeding, non-breeding, territorial, dispersing, and migrating cuckoos, and to cuckoos throughout their range, and provide those habitat components essential for conservation of the subspecies. Effects on PCEs 1 and 2 are expected due to the removal of approximately 80 acres of salt cedar vegetation community. Decreased cover due to clearing of tamarisk adjacent to patches of mixed native and tamarisk habitat may increase rates of nest predation, reducing the suitability of nesting habitat. Creating gaps in vegetation may increase temperatures and lower relative humidity in the habitat patches, reducing the productivity of insects and therefore the suitability of foraging habitat. Overall, however, the proposed fuel reduction project is expected to minimize the risk of large-scale fires within the action area, thereby also minimizing the risk of large-scale losses of western yellow-billed cuckoo proposed critical habitat.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Approximately 30 percent of the lands in the general vicinity of the action area 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 action area 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. 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. Many of these actions have a Federal nexus of some kind and would be subject to section 7 consultation under the Act. However, many of these action do not have a Federal nexus and affect the baseline for both the southwestern willow flycatcher and western yellow-billed cuckoo. We are not aware that any of these activities are occurring to an extent that would, when considered in conjunction with the proposed action, result in the proposed action jeopardizing either of these species or adversely modifying designated or proposed critical habitat.

JEOPARDY AND ADVERSE MODIFICATION ANALYSIS

Section 7(a)(2) of the ESA requires that federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat.

Jeopardy Analysis Framework

Our jeopardy analysis relies on the following:

“Jeopardize the continued existence of” means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR 402.02). The following analysis relies on four components: (1) Status of the Species, which evaluates the range-wide condition of the listed species addressed, the factors responsible for that condition, and the species’ survival and recovery needs; (2) Environmental Baseline, which evaluates the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) Effects of the Action (including those from conservation measures), which determines the direct and indirect impacts of the proposed federal action and the effects of any interrelated or interdependent activities on the species; and (4) Cumulative Effects, which evaluates the effects of future, non-federal activities in the action area on the species. The

jeopardy analysis in this biological opinion emphasizes the range-wide survival and recovery needs of the listed species and the role of the action area in providing for those needs. We evaluate the significance of the proposed Federal action within this context, taken together with cumulative effects, for the purpose of making the jeopardy determination.

Destruction/Adverse Modification Analysis Framework

Past designations of CH have used the terms PCEs, PBFs or “essential features” to characterize the key components of CH that provide for the conservation of the listed species. The new CH regulations (79 FR 27066) discontinue use of the terms “PCEs” or “essential features,” and rely exclusively on use of the term “PBFs” for that purpose because that term is contained in the statute. However, the shift in terminology does not change the approach used in conducting a destruction or adverse modification analysis, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. For those reasons, references to PCEs or essential features should be viewed as synonymous with PBFs. All of these terms characterize the key components of CH that provide for the conservation of the listed species.

The final rule revising the regulatory definition of “destruction or adverse modification of critical habitat” became effective on March 14, 2016 (81 FR 7214). The revised definition states: “Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features.”

Similar to our jeopardy analysis, our adverse modification analysis of critical habitat relies on the following four components: (1) the Status of Critical Habitat, which evaluates the range-wide condition of designated critical habitat in terms of [PCEs/PBFs], the factors responsible for that condition, and the intended recovery function of the critical habitat overall; (2) the Environmental Baseline, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) the Effects of the Action, which determine the direct and indirect impacts of the proposed federal action and the effects of any interrelated or interdependent activities on the [PCEs/PBFs] and how they will influence the recovery role of affected critical habitat units; and (4) Cumulative Effects, which evaluate the effects of future, non-federal activities in the action area on the [PCEs/PBFs] and how they will influence the recovery role of affected critical habitat units.

Conclusion

After reviewing the current status of the southwestern willow flycatcher and its critical habitat and the western yellow-billed cuckoo and its proposed critical habitat, the environmental baseline for the action area, the effects of the proposed Winkelman NRCD Pinal Fuels Reduction Project and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the southwestern willow flycatcher or the western yellow-billed cuckoo, and is not likely to destroy or adversely modify designated critical habitat

for southwestern willow flycatcher. In addition, it is our conference opinion that the proposed action is not likely to destroy or adversely modify proposed critical habitat for the western yellow-billed cuckoo. We base this conclusion on the following:

- Implementation of the proposed action will occur outside of the breeding and nesting season for both the southwestern willow flycatcher and the western yellow-billed cuckoo, thus minimizing direct and indirect effects to migrating, nesting, and dispersing birds.
- Implementation of the proposed action will avoid existing native trees and shrubs, which will continue to provide migratory habitat for both species and foraging habitat for cuckoos.
- Implementation of the proposed action should temporally reduce the extent of fire to flycatcher and cuckoo breeding and migration habitat outside the action area.
- We anticipate temporal effects to the PCEs of designated southwest willow flycatcher habitat and to the proposed PCEs of western yellow-billed cuckoo critical habitat. Without maintenance of the firebreak, we expect vegetation will reestablish over time. The time it takes for this to occur is dependent on climate, particularly the amount of precipitation, and land use in the action area. Thus, while there is a measurable impact, the overall effect, considering the status of the southwestern willow flycatcher and the western yellow-billed cuckoo in the action area and the amount of acreage in the designated and proposed critical habitat, does not approach a level of significance to impact the function of proposed critical habitat or affect its role in recovery of these species.

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

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined (50 CFR § 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Harass" is defined (50 CFR § 17.3) as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

AMOUNT OR EXTENT OF TAKE

Southwestern willow flycatcher

We anticipate take of southwestern willow flycatchers as a result of this proposed action. Suitable nesting habitat has historically existed within the action area and, with the regrowth of salt cedar following the fires, the action area potentially supports nesting habitat currently. Site-specific surveys for southwestern willow flycatchers have not been done but, based on historical and regional survey results, we consider this river reach to be occupied and the treatment sites may be near nesting territories when the project is implemented. The presence of historical territories in and around the action area, combined with the dynamic nature of riparian habitat growth, makes it likely that breeding flycatchers are relying on riparian vegetation within and adjacent to the action area. Although southwestern willow flycatchers are migratory and spend only part of the year in the action area, the area is still considered occupied because of their high site fidelity that causes them to return to the same areas to nest (USFWS 2002).

Vegetation patch size and shape that southwestern willow flycatchers use for nesting can vary from 0.25 ac to 175 ac (USFWS 2002). Mean reported size of breeding patches was 21.2 ac (USFWS 2002). Mean patch size of breeding sites supporting 10 or more southwestern willow flycatcher territories was 62.2 ac (USFWS 2002). Based upon the number of southwestern willow flycatcher territories reported in each patch, it required an average 2.7 ac for each territory in a patch (USFWS 2002). To clarify, these are generalizations across the subspecies range, and because breeding patches include areas that are not actively defended as territories, these numbers do not equate to average territory size (USFWS 2002). Additionally, southwestern willow flycatcher habitat modeling identified an 11 acre “neighborhood” of vegetation surrounding territories as important toward creating conditions to attract nesting southwestern willow flycatchers (USFWS 2002, SRP 2002).

These variations in the size of breeding patches used by southwestern willow flycatchers and the number of nesting southwestern willow flycatchers within a patch of habitat makes it impossible to predict exactly how many pairs of southwestern willow flycatchers will be nesting within the action area. The dynamic aspect of habitat conditions and the annual fluctuations in breeding bird numbers cause additional challenges. As a result, we cannot quantify exactly how many breeding southwestern willow flycatchers will be taken at the project location, however, based upon the typical density of territories and acreage used, we would expect between 6-8 territories to be affected.

In order to meet project objectives for controlling the spread of potential future wildfire, all 80 acres of southwestern willow flycatcher habitat within the action area will be significantly and permanently altered, rendering it unsuitable for southwestern willow flycatcher breeding into the foreseeable future. Therefore, due to the removal and alteration of flycatcher nesting habitat, we anticipate that the project will result in harm or harassment of all breeding flycatchers in the 80 acre project area. Removal, alteration, and fragmentation of flycatcher nesting habitat within the action area will harm and harass flycatchers by forcing them to relocate to areas of unknown status and condition, likely either preventing reproduction or resulting in reduced productivity. Flycatchers attempting to nest at affected sites within the action area are expected to be harmed

by reduced productivity from altered nesting habitat and/or increased levels of predation and brood parasitism.

Take will be considered to be exceeded if any portion of the occupied habitat outside of the action area is physically damaged by equipment or project activities during implementation of the proposed action.

Western yellow-billed cuckoo

We anticipate that the proposed action will result in incidental take of yellow-billed cuckoos in the form of harm through temporary loss of suitable and occupied habitat from removal of tamarisk. Although yellow-billed are migratory and spend only part of the year in the action area, the area is still considered occupied because yellow-billed cuckoos are detected throughout the action area and on nearby properties during the breeding season (Johnson and Calvo 2015). Because cuckoos have large home ranges averaging greater than 100 acres (Laymon and Halterman 1987, pp. 31–32; Halterman 2009, p. 93; Sechrist et al. 2009, p. 55; McNeil et al. 2010, p. 75; McNeil et al. 2011, p. 37; McNeil et al. 2012, p. 69; McNeil et al. 2013a, pp. 133–134; McNeil et al. 2013b, pp. 49–52) and are known to be present in the action area and are known to be breeding nearby, the vegetation treatment area may be within home ranges of nesting yellow-billed cuckoos. The existing tamarisk in the treatment area contributes toward suitable cuckoo habitat by producing insects and providing temperature amelioration and cover.

We recognize that providing a numerical estimate of incidental take is the preferred method of measuring take. However, in this consultation, we will use habitat as a surrogate for the amount or extent of take because the number of cuckoos in a given area cannot be determined with existing information and techniques. Counting cuckoos is difficult because males and females look and sound alike, they have large overlapping home ranges, they are behaviorally secretive, they have short breeding cycles, and they can move to different locations within and between breeding seasons (Halterman *et al.* 2016). These factors can lead to either underestimating or overestimating the number of yellow-billed cuckoos. Protocol surveys (Halterman *et al.* 2016) are designed only to determine presence/absence in a given reach rather than an accurate count of individual birds. Additional surveys and methods, including banding and possibly monitoring telemetered birds, would need to be employed to obtain an accurate count of individual birds and pairs throughout the breeding season.

It is reasonable to assume that the abundance of cuckoos is correlated with the extent of suitable riparian habitat. We therefore quantified the adverse effects of the proposed action as the number of acres of habitat that we anticipate will be degraded due to tamarisk removal. We anticipate that 80 acres of tamarisk habitat will be removed. Tamarisk will likely become re-established but quality and timing will depend on conditions for regeneration and growth. Some native tree that die from exposure and desiccation after tamarisk removal may never become re-established, thereby reducing the habitat suitability of the site even further. Recreational use that creates new roads and tracks in the removal area may prevent re-establishment of tamarisk in some areas. Recreation users seeking shade may congregate near and damage remaining native trees.

Therefore, due to the removal cuckoo habitat we anticipate that the project will result in harm or harassment of cuckoos using the 80 acre project area until such time as the equivalent or better habitat becomes re-established. Removal of cuckoo habitat within the treatment area will harm and harass cuckoos by reducing the quality and amount of suitable habitat, likely resulting in reduced productivity. Yellow-billed cuckoos attempting to nest within or near affected treatment area are expected to be harmed by reduced productivity from altered suitable habitat within their home range(s) and/or increased levels of predation.

Take will be considered to be exceeded if any portion of the occupied habitat outside of the action area is physically damaged by equipment or project activities during implementation of the proposed action.

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

EFFECT OF THE TAKE

In this biological opinion, the FWS 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.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species initial notification must be made to the FWS's Law Enforcement Office, 4901 Paseo del Norte NE, Suite D, Albuquerque, NM 87113; 505-248-7889) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve the biological material in the best possible state.

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.

1. We recommend that your agency participate in the implementation of the recovery plan for the southwestern willow flycatcher and in the development of a recovery plan for the western yellow-billed cuckoo.

2. We recommend that you coordinate with other landowners in the action area in fire and fuel management in order to benefit flycatchers, cuckoos, and other resources in the area.
3. We recommend that you conduct protocol surveys for flycatchers and cuckoos in and adjacent to the action area in order to improve the baseline information we have for these species in this area.
4. We recommend that you quantify habitat for flycatchers and cuckoos in the action area. For southwestern willow flycatchers this could include working with USGS to refine and implement the habitat model developed by Hatten (2016).
5. We recommend that you discourage off-road vehicle incursion in the river bottom and adjacent habitat that damages habitat and increases fire risk by placing physical barriers such as boulders, logs, and fencing. Without physical barriers, opening up the habitat may attract off-road vehicle use and increases the associated fire risk.
6. We recommend that you leave a buffer of tamarisk around native trees to reduce the risk of native tree mortality from sudden exposure to heat and sun and to reduce the risk of increased predation on flycatchers, cuckoos and their nests.

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 proposed Winkelman NRCD Pinal Fuels Reduction Project. 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.

This also concludes the conference for proposed critical habitat for the western yellow-billed cuckoo related to effects from the proposed Winkelman NRCD Pinal Rural Fuels Reduction Project. You may ask us to confirm the conference opinion as a biological opinion issued through formal consultation if critical habitat is designated. The request must be in writing. If we review the proposed action and find there have been no significant changes in the action as planned or in the information used during the conference, we will confirm the conference opinion as the biological opinion for the project and no further section 7 consultation will be necessary.

After the designation of final critical habitat and subsequent adoption of this conference opinion, the Federal Emergency Management Agency shall request reinitiation of consultation if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect the species in a manner or to an extent not considered in the conference opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the species that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

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 intentional 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 [FWS Migratory Bird Program web page](#) and [FWS Permits Application Forms](#). 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, as well as the Conservation Assessment and Strategy for the Bald Eagle in Arizona ([Southwestern Bald Eagle Management Committee website](#)).

In keeping with our trust responsibilities to American Indian Tribes, we encourage you to coordinate with the Bureau of Indian Affairs in the implementation of this consultation and, by copy of this BO, are notifying affected Tribes of its completion (Ak-Chin Indian Community, Gila River Indian Community, Hopi Tribe, Pascua Yaqui Tribe, Salt River Pima-Maricopa Indian Community, Tohono O'odham Nation, and Yavapai-Prescott Indian Tribe). We also encourage you to coordinate the review of this project with AGFD.

We appreciate the Federal Emergency Management Agency's efforts to identify and minimize effects to listed species from this project. Please refer to the consultation number, 02EAAZ00-2018-F-1014 in future correspondence concerning this project. Should you require further assistance or if you have any questions, please contact Scott Richardson at (520) 670-6150 (x242) or Julie McIntyre (x 223).

Sincerely,



Laurel Barnhill *for*
Acting Field Supervisor

cc (electronic):

Field Supervisor, Fish and Wildlife Service, Phoenix, AZ

Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ

Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ (pep@azgfd.gov)

Manager, Cultural Resources, Ak Chin Indian Community, Maricopa, AZ

Tribal Historic Preservation Officer, Gila River Indian Community, Sacaton, AZ

Director, Cultural Preservation Office, Hopi Tribe, Kykotsmovi, AZ

Chairman, Pascua Yaqui Tribe, Tucson, AZ

Director, Cultural Resources, Salt River Pima-Maricopa Indian Community, Scottsdale, AZ

Manager, Cultural Affairs, Tohono O'odham Nation, Sells, AZ

Director, Cultural Research Program, Yavapai-Prescott Indian Tribe, Prescott, AZ

Branch Chief, Environmental Quality Services, Western Regional Office, Bureau of Indian Affairs, Phoenix, AZ

Archaeologist, Western Regional Office, Bureau of Indian Affairs, Phoenix, AZ

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APPENDIX A: CONCURRENCES

This appendix contains our concurrences with your “may affect, not likely to adversely affect” determinations for the endangered ocelot (*Leopardus pardalis*) and the threatened northern Mexican gartersnake (*Thamnophis eques megalops*).

Ocelot

Ocelots have not been detected within 5 miles of the project area (AGFD 2010), and their extreme rarity in the state makes it highly unlikely that they would be encountered in the area. However, the project area does provide suitable habitat, and the discovery of the an ocelot on US 60 (approximately 20 miles to the north) indicates that on at least one occasion in recent history an individual has traveled into the general vicinity of the project area. Therefore, the ocelot is considered in this consultation.

We concur that the proposed action is not likely to adversely affect the ocelot for the following reasons:

- Ocelots are unlikely to occur in the action area during the relatively short two month work period. Therefore, effects to the ocelot in the form of disturbance are discountable.
- A total of 80 acres of salt cedar will be removed as part of the proposed action, while native trees and shrubs will be retained. Ocelots have been documented using riparian areas; however, we are unaware of their use of salt cedar. Therefore, effects to the ocelot in the form of habitat alteration are insignificant. Retention of native trees and shrubs has the potential to benefit ocelots.
- There is no proposed critical habitat in the action area therefore, none will be affected.

Northern Mexican Gartersnake

The northern Mexican gartersnake has not been detected within 5 miles of the project area (AGFD 2017b), and according to the AGFD (2015b) the project area lies well outside the documented current distribution. The results of the August 2017 field reconnaissance indicate that suitable habitat may be present in the project area and it is, therefore, considered in this consultation.

Proposed Critical Habitat (PCH) for the northern Mexican gartersnake was designated by the USFWS in 2013. The nearest unit of critical habitat to the project area is the riparian corridor along the San Pedro River up to its confluence with the Gila River, approximately 10 miles southeast of the project area.

We concur that the proposed action is not likely to adversely affect gartersnakes for the following reasons:

- Northern Mexican gartersnakes have not been previously documented to occur in the Gila River in Arizona or within proximity to the action area and, thus, are similarly unlikely to occur in the riparian and upland areas in which the proposed action will be conducted. Therefore, effects to the northern Mexican gartersnake are discountable.
- There is no proposed critical habitat in the action area therefore, none will be affected.