

**U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM**

SCIENTIFIC NAME: *Coccyzus americanus*

COMMON NAME: Yellow-billed cuckoo

LEAD REGION: Southwest

DATE INFORMATION CURRENT AS OF: 9/10/2019

STATUS/ACTION

- Species assessment - determined the information on the threats does not support a proposal to delist the species
- Listed species petitioned for uplisting for which we have made a warranted-but-precluded finding for uplisting (this is part of the annual resubmitted petition finding)
- Candidate that received funding for a proposed listing determination; assessment not updated
- New candidate
- Continuing candidate
- Listing priority number change
Former LPN: ____
New LPN: ____
- Candidate removal: Former LPN: ____
- ____ A – Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.
- ____ U – Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.

- F – Range is no longer a U.S. territory.
- I – Insufficient information exists on taxonomy, or biological vulnerability and threats, to support listing.
- M – Taxon mistakenly included in past notice of review.
- N – Taxon does not meet the Act’s definition of “species.”
- X – Taxon believed to be extinct.

Date when the species first became a Candidate (as currently defined): N/A

Petition Information:

- Non-petitioned
- Petitioned; Date petition received: May 4, 2017
 - 90-day substantial finding FR publication date: June 27, 2018
 - 12-month warranted but precluded finding FR publication date: N/A

FOR PETITIONED CANDIDATE SPECIES:

- a. Is listing warranted (if yes, see summary of threats below)? N/A
- b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? N/A
- c. Why is listing precluded? N/A

PREVIOUS FEDERAL ACTIONS:

On October 3, 2014, we published a final rule listing the western distinct population segment (DPS) of the yellow-billed cuckoo (western yellow-billed cuckoo) as a threatened species (79 FR 59992–60038).

On May 4, 2017, we received a petition from the American Stewards of Liberty, Arizona Cattlemen’s Association, Arizona Mining Association, Hereford Natural Resource Conservation District, Jim Chilton, National Cattlemen’s Beef Association, Public Lands Council, WestLand Resources, Inc., and Winkelman Natural Resource Conservation District, requesting that the western DPS of the yellow-billed cuckoo be removed from the List due to an error in our DPS analysis. They also provided information in their petition indicating the species should be delisted as a result of its utilization of additional habitat. The petition clearly identified itself as such and included the requisite information for the petitioner, required at 50 CFR 424.14(a).

On June 27, 2018, we published a substantial 90-day finding on the petition indicating that delisting the western DPS of the yellow-billed cuckoo may be warranted due to information on

additional habitat being used by the species (83 FR 30091). While we did not find the petition provided substantial information indicating the entity may warrant delisting due to an error in our DPS analysis, because the petitioners did provide substantial information regarding additional habitat use by the species, we indicated we would review the DPS as part of our status review of the species. We requested further information from the public on the yellow-billed cuckoo.

In response to our information request, we received 33,026 comments including 49 individual letters. A large proportion of the comments (32,979) were associated with two form letters in opposition to the western yellow-billed cuckoo's delisting.

This notice constitutes our 12-month finding on the May 4, 2017, petition to delist the western yellow-billed cuckoo.

ANIMAL/PLANT GROUP AND FAMILY: Bird, Cuculidae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF BREEDING RANGE: All or portions of Arizona, California, Colorado (western), Idaho, Montana (western), Nevada, New Mexico (western), Oregon, Texas (western), Utah, Washington, Wyoming (western), Canada (British Columbia (southwestern)), Mexico (Baja California, Baja California Sur, Chihuahua, Durango (western), Sinaloa, Sonora).

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF BREEDING RANGE: All or portions of Arizona, California, Colorado (western), Idaho, Nevada, New Mexico (western), Texas (western), Utah, Wyoming (western), Mexico (Baja California, Baja California Sur, Chihuahua, Durango (western), Sinaloa, Sonora).

LAND OWNERSHIP: The current breeding range of the western yellow-billed cuckoo spans across twelve States across a wide range of land ownerships including Federal, State, and privately managed land.

LEAD REGION CONTACT: Shawn Sartorius, Classification Branch Chief, 505-248-6419, shawn_sartorius@fws.gov

LEAD FIELD OFFICE CONTACT: Jeff Humphrey, Field Supervisor, 602-242-0210, jeff_humphrey@fws.gov; Susan Millsap, Field Supervisor, 505-761-4781, susan_millsap@fws.gov

BIOLOGICAL INFORMATION

The updated population status and threats to the western yellow-billed cuckoo is the summary of the information assembled and reviewed by the U.S. Fish and Wildlife Service (Service) and

incorporates the best scientific and commercial information available for the DPS. Excerpts from the summary are provided in the sections below. For more detailed information, please refer to the summary.

Additional background information on the western yellow-billed cuckoo can be found in the 2013 proposed listing rule (78 FR 61621) and the 2014 final listing rule (79 FR 59991).

Species Description

Adult yellow-billed cuckoos have a fairly stout and slightly down-curved bill; a slender, elongated body with a long-tailed look; and a narrow yellow ring of colored, bare skin around the eye (see Figure 1). The plumage is loose and grayish-brown above and white below, with reddish primary flight feathers. The tail feathers are boldly patterned with black and white below. They are a medium-sized bird about 12 inches (in) (30 centimeters (cm)) in length, and about 2 ounces (oz) (60 grams (g)) in weight. The bill is blue-black with yellow on the basal half of the lower mandible. The legs are short and bluish-gray. Males and females differ slightly and are indistinguishable in the field (Hughes 1999, pp. 2–3).



Figure 1. Yellow-billed cuckoo (Photo credit: Jim Rorabaugh)

Taxonomy

The yellow-billed cuckoo is a member of the avian family Cuculidae. The yellow-billed cuckoo is recognized as a species, *Coccyzus americanus* (Linnaeus, 1758) by the American Ornithologists' Union (Chesser et al. 2019, unpaginated). We accept this taxonomy.

Habitat/Life History

The yellow-billed cuckoo is a neotropical migrant bird that winters in South America and breeds in North America. 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, pp. 129–130; AOU 1998, p. 247; Johnson et al. 2008b, pp. 18–29). 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 (AOU 1957, pp. 269–270; AOU 1983, p. 284; AOU 1998, p. 247).

The western yellow-billed cuckoo’s breeding range is known from 12 States in the United States and 6 States in Mexico. A summary of life history information is presented in Table 1.

Table 1. Summary of western yellow-billed cuckoo life history information by life stage based on best available information (compiled from Laymon 1980; Potter 1980, 1981; Laymon and Halterman 1985; Halterman 2009; Laymon 1998; McNeil et al. 2013a; Griffin 2015; and Hughes 2015).

Life Stage	Resource and/or circumstance needs and related information
Eggs	<ul style="list-style-type: none"> ● Nesting likely occurs from mid-June through August (September for parts of AZ) ● Clutch size varies from 2 to 5 eggs (averaging 2-3) depending on food supply ● Eggs are laid in open cup nests and incubated for 9–11 days
Chicks	<ul style="list-style-type: none"> ● Chicks fledge in 5–9 days
Adults	<ul style="list-style-type: none"> ● Mature in 1 year ● Cicadas (<i>Cicadidae</i> sp.), katydids (<i>Tettigoniidae</i> sp.), caterpillars (<i>Lepidoptera</i> sp.), sphinx moths, grasshoppers, frogs, lizards, or other large prey items form the bulk of their diet

Currently, the western yellow-billed cuckoo primarily breeds in large tracts of dense riparian woodlands along low-gradient streams. Vegetation typically includes riparian tree species such as cottonwood (*Populus* spp.) and willow (*Salix* spp.). In parts of Arizona and southwest New Mexico, the cuckoo also currently breeds in more arid riparian woodlands (including mesquite bosques), desert scrub and desert grassland drainages with a tree component, and Madrean evergreen woodland drainages (oak and other tree species) in perennial, intermittent, and ephemeral drainages. In northwestern Mexico, western yellow-billed cuckoos not only breed in habitat similar to the southwestern U.S., but they also breed in thornscrub and tropical deciduous forest habitat (Russell and Monson 1988, p. 131). Much of the southwestern U.S. and Mexican breeding habitat is more water-limited, contains a greater proportion of xeroriparian and

nonriparian plant species, and is often narrower, more open, patchier, or sparser than elsewhere in the DPS and may persist only as narrow bands or scattered patches along the bankline or as small in-channel islands. The habitat contains a tree or large-shrub component with a variable overstory canopy and understory component. Riparian trees (including xeroriparian) in these ecosystems may be more sparsely distributed and less prevalent than nonriparian trees. Adjacent habitat may include managed (mowed) nonnative vegetation or terraces of mesquite or other drought tolerant species within the floodplain.

Historical and Current Range and Distribution

In the Pacific Northwest, including Oregon, Washington, and British Columbia, Canada, the western yellow-billed cuckoo was formerly fairly common locally in cottonwood and willow bottoms along the Willamette and lower Columbia Rivers in Oregon and Washington, and in the Puget Sound lowlands of Washington (Jewett et al. 1953, pp. 342–343; Gabrielson and Jewett 1970, pp. 329–330; Roberson 1980, pp. 225–226; Marshall 1996, pp. 1–2; Marshall et al. 2003, p. 306). They were also found locally in southwestern British Columbia (Hughes 1999, p. 4), but the available data are not adequate to determine historical abundance. The western yellow-billed cuckoo is considered an extirpated breeder in British Columbia and is still very rare based on reported observations (British Columbia Conservation Data Centre 2013). In Oregon, the last confirmed breeding records are from the 1940s. The available data suggest that if western yellow-billed cuckoos still breed in Oregon the numbers are extremely low, with pairs numbering in the single digits. In Washington, the last confirmed breeding record of western yellow-billed cuckoos was from Seattle in 1923 although there is inconclusive evidence that breeding may have continued into the 1930s. It is likely that western yellow-billed cuckoos have been extirpated as a breeder in the State, although recent observations indicate that the possibility of breeding in the state cannot be ruled out.

In Idaho, the western yellow-billed cuckoo is considered a rare visitor and local summer resident that occurs in scattered drainages, primarily in the southeastern portion of the State (Burleigh 1972, p. 159; Idaho Fish and Game 2005, pp. 222–223; Cavallaro 2011, entire). Recent records are primarily from the southeastern portion of the State along the South Fork of the Snake River (Stephens and Sturts 1997, p. 36; Taylor 2000, pp. 252–254; Reynolds and Hinckley 2005, p. 7; Cavallaro 2011, entire). Observations of western yellow-billed cuckoo were made in the Big Wood River and Little Wood River area in 2015, 2017, and during formal surveys in 2018 (Regan and Carlisle 2018, pp. 6–15). The most recent statewide assessment estimated the breeding population in Idaho is likely limited to no more than 10 to 20 breeding pairs in the Snake River Basin (Reynolds and Hinckley 2005, p. 7). Historically, yellow-billed cuckoos were rare and local in Wyoming. The available literature suggests that the breeding population of the western yellow-billed cuckoo within the State is extremely low, numbering in the single digits, and potential nesting habitat is very limited. Therefore, we conclude that the western

yellow-billed cuckoo occurs in very small numbers as a breeder in Wyoming, with likely fewer than five breeding pairs.

West of the Continental Divide in Colorado, the western yellow-billed cuckoo was probably never common (Bailey and Niedrach 1965, pp. 404–406), and it is now extremely rare (Kingery 1998, pp. 204–205). Survey results and the available literature indicate a small breeding population of western yellow-billed cuckoos in western Colorado. Historically western yellow-billed cuckoos were uncommon in Utah in woodlands along streams in the lower valleys, especially the Salt Lake Valley (Hayward et al. 1976, p. 107). Survey results and the available literature indicate an extremely small breeding population of western yellow-billed cuckoos (likely fewer than 10 breeding pairs) in Utah. The historical status of the western yellow-billed cuckoo in Nevada is poorly documented, although there is evidence the species nested in western Nevada along the lower Truckee and Carson Rivers and in southern Nevada along the Colorado and Virgin Rivers (Linsdale 1951, p. 235; Neel 1999, pp. 118–120). Current survey results and the available literature indicate a small breeding population of western yellow-billed cuckoos (fewer than 10 breeding pairs) in Nevada.

In California prior to the 1930s, the species was widely distributed in suitable river bottom habitats, and was locally common (Grinnell and Miller 1944, pp. 186–187; Small 1994, pp. 130–131). Western yellow-billed cuckoos historically were recorded from every county in the San Joaquin Valley region except Kings County, and were locally common as a breeding bird at least in San Joaquin, Kern, Fresno, and Stanislaus Counties (Gaines and Laymon 1984, p. 66). The species no longer breeds in the San Joaquin Valley. The last nesting record for this region was in 1974 on Lewis Creek near Lindsey, Tulare County (Laymon and Halterman 1987a, p. 24). Western yellow-billed cuckoo numbers in California have declined by more than 99 percent from historical levels and are estimated to be 18 percent of levels observed in the late 1970s. Current nesting populations (areas which have consistently supported numerous nesting pairs) in the State are found at only 3 locations (Sacramento River, Kern River, and the California side of the lower Colorado River). Declines in observed nesting numbers are continuing, especially along the Sacramento and Kern Rivers and at isolated sites that recently supported nesting, but are now not being used. Statewide numbers are most likely lower than 40 to 50 breeding pairs (excluding the lower Colorado River population, which is included in Arizona estimates), down from approximately 280 pairs as recently as 1977 and perhaps as many as 15,000 pairs prior to the increased human settlement in the 1850s.

The western yellow-billed cuckoo was historically widespread and locally common in Arizona (Phillips et al. 1964, p. 45; Groschupf 1987, p. 7). The available literature and surveys suggest that western yellow-billed cuckoo populations in Arizona have declined in many perennial riparian areas from historical levels as well as over the past 35 years, with recent declines at some of the largest populations (for example, Bill Williams River). However, data gathered

from surveys and incidental detections conducted since listing indicate western yellow-billed cuckoos are breeding in a broader range of habitats and geographic areas in Arizona than previously known, including intermittent and ephemeral drainages with a mix of xeroriparian and nonriparian trees. Fewer than 10 territories are present within most drainages, but with so many drainages containing cuckoos they make up a large amount of occupied habitat across the landscape. At present, the estimated number of known territories is a minimum of 350 territories (breeding pairs or single birds present during the breeding season) excluding the lower Colorado River and 450 territories including the lower Colorado River.

Within New Mexico, western yellow-billed cuckoos were historically common in riparian areas along the Rio Grande, as well as uncommon to common locally along portions of the Gila, San Francisco, and San Juan Rivers in western New Mexico (Bailey 1928, pp. 307–309; Hubbard 1978, p. 32). An estimated 190 to 235 western yellow-billed cuckoo pairs currently breed in western New Mexico. In western Texas, the western yellow-billed cuckoo historically was considered to be fairly common in riparian habitat at elevations of 3,000–7,500 ft (900–2,200 m) in El Paso, Hudspeth, Culberson, and Presidio Counties (Oberholser and Kincaid 1974, pp. 434–435; Rappole and Blacklock 1994, pp. 125–126).

The western yellow-billed cuckoo breeds locally in northwestern Mexico, and is a widespread transient during migration (Howell and Webb 1995, pp. 346–347). In northwestern Mexico, it has been recorded as a summer resident (presumably breeding), including the extreme northern and southern portions of the Baja California Peninsula, northwest Mexico from Sonora and Chihuahua south to western Durango and Sinaloa (Howell and Webb 1995, pp. 346–347), and irregularly and locally south to western Nayarit and western Zacatecas (World Bird Info 2012). The available literature indicates that knowledge about the status of the breeding population of the western yellow-billed cuckoo in Mexico is less certain than in the United States. No systematic State-level surveys for the species have been carried out in any of the Mexican States. However, cuckoo and general bird surveys in parts of Sonora and northern Sinaloa have found western yellow-billed cuckoos in similar habitats and abundances as in Arizona, as well as in thornscrub and tropical deciduous forest, which do not occur north of Mexico. The riparian habitat in Mexico appears to be more fragmented and heavily grazed than it is north of the international border, and the thornscrub habitat that the species is using in southern Sonora and Sinaloa is being converted to industrial agriculture at a high rate. We conclude that the western yellow-billed cuckoo in Mexico has a breeding population of approximately 500 pairs that is likely declining.

Population Estimate/Status

The available surveys and literature support the conclusion that the population of the western yellow-billed cuckoo has declined by several orders of magnitude over the past 100 years, and that this decline is continuing. The current breeding population is low, with an estimated 800

pairs north of the Mexican border and another 500 pairs in Mexico for a total of 1,300 breeding pairs. The core of the population is centered in Arizona, New Mexico, and northwestern Mexico. We conclude that the western yellow-billed cuckoo currently has a small and declining population.

Petition Response

On May 4, 2017, we received a petition from the American Stewards of Liberty, Arizona Cattlemen’s Association, Arizona Mining Association, Hereford Natural Resource Conservation District, Jim Chilton, National Cattlemen’s Beef Association, Public Lands Council, WestLand Resources, Inc., and Winkelman Natural Resource Conservation District, requesting that the western DPS of the yellow-billed cuckoo be delisted. Delisting may be warranted as a result of: (1) extinction; (2) the species not meeting the definition of an endangered or threatened species; or (3) the listed entity does not meet the statutory definition of a species (50 C.F.R. 424.11(e)).

The petition asserted that the original listing of the species was in error, because: (1) western populations of yellow-billed cuckoo do not constitute a discrete and significant DPS; and (2) threats to the purported DPS do not now and never have risen to the level that protection under the ESA is warranted (WestLand Resources 2017, p.1). Since the time of petition receipt, we have finalized regulation changes that revise our factors for delisting a species (84 FR 45020). However, these changes do not affect the ultimate decision of the Service regarding this petition, as we assessed the claims that the listing of the species was in error under two delisting criteria laid out in the regulations: the species does not meet the definition of an endangered species or a threatened species and the listed entity does not meet the statutory definition of a species. We respond to the petition’s assertions below.

Summary of Western Yellow-Billed Cuckoo Information and Evaluation of Petition Items Associated with the DPS Analysis

As we stated in our 90-day petition finding, we did not find that the petition presented substantial information that our DPS analysis presented in our final listing rule (see 79 FR 59993–59999) may be in error. However, we indicated that we would review the DPS as part of our status review. The petition asserted that a genetics study completed since the listing of the western yellow-billed cuckoo (McNeil 2015), along with previous cuckoo genetics studies, provided evidence that there are no genetic differences between the western and eastern populations of yellow-billed cuckoos and there is no evidence that morphological or behavior traits reflect differences in genetic characteristics (WestLand Resources 2017, p. 15). We reviewed the genetics papers (Fleisher 2001, Pruett et al. 2001, Farrell 2006, Farrell 2013, and McNeil 2015) cited by the petitioner. We also requested that the Service’s Genetics Community of Practice

review these papers and received a response from them. Based on our review of these papers and the feedback from the Service's Genetics Community of Practice, we conclude that the genetics information is inconclusive as to whether the eastern and western yellow-billed cuckoo populations are genetically differentiated. Much of the lack of clarity surrounding the genetics of these populations is related to small sample size and lack of geographic representation in genetics samples, which we discuss below.

The petition asserts that the "validity of Pruett et al.'s (2001) conclusion of genetic divergence between the western and eastern populations of YBCU have been strongly criticized due to small sample size, inadequate geographic sampling, and the possibility of changes to the DNA sequence due to poor sample storage conditions (Farrell 2006 and 2013)." The petition quotes Fleisher (2001, p.14) that his results "do not support the hypothesis that the Western U.S. populations of the Yellow-billed cuckoo are a separate subspecies of ESU from the Eastern U.S. populations." The petition asserts that McNeil 2015 provides further evidence that there is not genetic differentiation between eastern and western yellow-billed cuckoos. Overall, the petition asserts that the available genetic studies do not support the Service's conclusion that western yellow-billed cuckoos are genetically different than eastern yellow-billed cuckoos and that new information from McNeil provides evidence that there is not genetic differentiation between eastern and western yellow-billed cuckoos and, therefore, the petition asserts, western yellow-billed cuckoos are neither discrete nor significant.

Pruett et al (2001) has a very small sample size of both western and eastern birds and limited representation of individuals throughout the yellow-billed cuckoo range. The study observed four fixed base pair differences between eastern and western cuckoos; however, these results could not be replicated by Farrell 2006. With regards to McNeil 2015, based on the limited sample size, collection of samples over such a long time frame (13 years), low allelic diversity, presence of null alleles, and deviations from Hardy Weinberg, the ability to make conclusions of how genetic diversity is partitioned among collection sites or more broadly between eastern and western yellow-billed cuckoos is limited. Upon reviewing the available genetics information, we conclude that the available genetics evidence does not support or refute a genetic divide between eastern and western populations of yellow-billed cuckoos at this time.

The petition also asserts that morphological data presented in McNeil 2015 "strongly indicate that the purported western DPS of YBCU is not a valid taxonomic entity for listing under the ESA." The petition also asserts that a review of the data used in Banks 1988 provides evidence that wing length of cuckoos demonstrates clinal variation across North America, as opposed to variation between eastern and western yellow-billed cuckoos. We reference Banks 1988 in our discussion of significance in the final listing rule and found that it provided support of our conclusion that the western yellow-billed cuckoo differed morphologically from the eastern yellow-billed cuckoo, i.e., yellow-billed cuckoos in the west are larger than yellow-billed cuckoos in the east (79 FR 59997). Our review of the McNeil thesis indicates that the thesis

supports the claim that western yellow-billed cuckoos have longer wings than eastern yellow-billed cuckoos, but, as a caveat, it shows support that wing length increases across a latitudinal gradient as well, suggesting that both populations have variation in wing length. In order to measure the impact of morphological or behavior traits on genetic differences, different markers and additional characteristics related to the expression of those traits would need to be quantified beyond the single mitochondrial gene analyzed in McNeil 2015. If an additional genetic assessment of the yellow-billed cuckoo populations is going to be considered, a genome-wide analysis of genetic variation, such as by using SNPs (Single Nucleotide Polymorphisms) instead of microsatellites and mitochondrial markers, could provide the resolution necessary to differentiate regional population structuring; moreover, such data may also be used to correlate morphological traits to genetic differences. While we still conclude that there may be morphological differences between western and eastern yellow-billed cuckoos, we also acknowledge that the current genetic studies do not provide support that these differences are driven by genetic differences.

We reviewed our 2014 DPS analysis based on our review of the available scientific information, including genetics and morphological information, and provide a revised DPS analysis below. The DPS analysis in our proposed and final listing rules did not rely solely on genetics or morphological differences to support either discreteness or significance, nor are we required to use genetics or morphological differences to provide a justification for discreteness or significance under the 1996 Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act (61 FR 4722; DPS Policy).

Discreteness

Under our DPS Policy, a population segment of a vertebrate species may be considered discrete if it satisfies either of the following two conditions: (1) It is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors (quantitative measures of genetic or morphological discontinuity may provide evidence of this separation); or (2) it is delimited by international governmental boundaries within which significant differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant in light of section 4(a)(1)(D) of the Act. In determining whether the test for discreteness has been met under the DPS policy, we allow but do not require genetic evidence to be used.

The analysis of the population segment of the yellow-billed cuckoo in western North America is based on the first of those two conditions, the marked separation from other populations. From southwest British Columbia along the Canadian border to the southern end of the Sangre de Cristo Mountains in northern New Mexico, nesting yellow-billed cuckoos in western North America are separated from nesting yellow-billed cuckoos in eastern North America by the high-

elevation zone of the Rocky Mountains. Yellow-billed cuckoos breed both east and west of the crest of the Rocky Mountains, where suitable habitat occurs (Johnsgard 1986, p. 201). We generally define the crest of the Rocky Mountains and Continental Divide as the high-elevation zone between the drainages flowing west and east in the United States, Canada, and Mexico, although some areas such as near the Sangre de Cristo Range in southern Colorado and northern New Mexico is east of the east-flowing Rio Grande River. The division between the western and eastern population segments spans a distance of about 2,200 miles (mi) (3,540 kilometers (km)) from southwest British Columbia near the Canadian border along the crest of the Rocky Mountains based on watershed boundaries, south along the Rio Grande-Pecos Rivers watershed divide to the United States-Mexico border in the Big Bend area of Texas, then into Mexico along the eastern and southern boundaries of the State of Chihuahua south to the southern border of the State of Durango and to the Pacific Ocean along the southern border of the State of Sinaloa. With one exception, the distance of separation between breeding yellow-billed cuckoos in the east and west varies along this division from 160 mi (257 km) to more than 400 mi (644 km), and consists entirely of areas of unoccupied, unsuitable habitat for breeding yellow-billed cuckoos. The one exception to this distance of separation is along the Rio Grande in Brewster County, in southwestern Texas, where yellow-billed cuckoos exhibiting features suggesting that they are of the eastern population breed as far west as Rio Grande Village and yellow-billed cuckoos exhibiting features suggesting that they are of the western population are found upstream along the river less than 15 mi (24 km) to the west. Our 1996 DPS policy does not require absolute separation of a DPS from other members of its species, because this can rarely be demonstrated in nature for any population of organisms (61 FR 4724).

Yellow-billed cuckoos historically bred at the southern tip of Vancouver Island and in the Fraser River valley north to Kamloops in southwestern British Columbia, Canada (Bent 1940, p. 64; Campbell et al. 1990, p. 481). The species was apparently never common, with 23 records (18 specimen and 5 sight records) between 1881 and 1927. Two of these observations were of pairs believed to be nesting but not confirmed. Since the 1920s, the species has been recorded five times in British Columbia, with four of those records occurring since 1990 from the eastern half of the Province in areas not considered breeding habitat (Campbell et al. 1990, p. 481; Siddle 1992, p. 1169; Cornell Lab of Ornithology 2012). Today, the species is considered extirpated as a breeder from the Province, but adult, nonbreeding individuals still occur irregularly (British Columbia Conservation Data Centre 2013).

In the northern Rocky Mountains and northern Great Plains—from the Canada border south through Colorado—the yellow-billed cuckoo is “extremely rare and local” as a breeding bird both east and west of the Rocky Mountains (Hughes 1999, p. 3). While the species breeds locally in river valleys in southern Idaho, southwestern Wyoming, western Colorado, and in Utah

(Hughes 1999, pp. 1–3), it is quite rare or absent within the higher Rocky Mountains (Johnsgard 1986, p. 201). An examination of distributional records for the Rocky Mountain region indicates that the area has had few records of yellow-billed cuckoos and the species is even scarcer at elevations above approximately 6,000 feet (ft) (1,850 meters (m)), and almost never breeds above 7,000 ft (2,154 m) (Bailey 1928, pp. 307–309; Phillips et al. 1964, p. 45; Bailey and Niedrach 1965, pp. 404–406; Johnsgard 1986, p. 201; Corman and Magill 2000, pp. 10, 15; Howe and Hanberg 2000, p. 1–20). Exceptions to the elevational limit do occur and recent records of yellow-billed cuckoos have been confirmed above 6,000 ft (1,850 m) in the areas of Lower Green River Basin from the Seedskadee National Wildlife Refuge (NWR) to the Flaming Gorge Reservoir and west to the Bear River Drainage in Wyoming; along the Yampa River near Craig in northwest Colorado, and the Rio Grande River near Del Norte, and San Luis Valley of south-central Colorado; and the Henry’s Fork River in Utah and Wyoming. Nevertheless, most of the crest of the Rocky Mountains includes a wide region of higher elevation where habitat for the species does not occur. In Colorado and Wyoming, the region above 6,000 ft (1,850 m) is typically more than 150 mi (240 km) wide on an east-west axis (Oxford 1995, p. 82).

The separation of the western yellow-billed cuckoo population segment from eastern yellow-billed cuckoos continue south along the crest of the Rockies into southern Colorado and northern New Mexico, then the Rocky Mountains end and the separation is along the watershed boundary between the Rio Grande and the Pecos Rivers in central New Mexico (Sangre de Cristo Mountains), and southwest Texas, terminating at the Rio Grande in the Big Bend National Park. In this region, the eastern and western yellow-billed cuckoo populations are separated by arid basins and isolated mountain ranges that emerge from a high desert plateau. These mountain ranges from north to south include the Sangre de Cristo Mountains and Sacramento Mountains in central and southern New Mexico, the Guadalupe Mountains and Delaware Mountains on the Texas-New Mexico border, and the Davis Mountains, Del Norte Mountains, and Santiago Mountains in western Texas south to the Chisos Mountains in the Big Bend National Park on the border with Mexico.

In southern New Mexico and western Texas where western yellow-billed cuckoos nest along the Rio Grande and eastern yellow-billed cuckoos nest along the Pecos River, the geographical separation is as little as 160 mi (257 km) and even closer along the Rio Grande (15 mi; 24 km). The closer proximity of western and eastern yellow-billed cuckoos in this region may be caused in part by the lower height of the mountain range being a less effective barrier (Hubbard 1978, p. 32; Howe 1986, p. 2). Historically, this gap was wider, because the banks of the Pecos River did not have riparian woodland and the area was not used by the species. Today, riverine habitat along the Pecos River consists primarily of introduced tamarisk (*Tamarix* spp.), and it is thought that yellow-billed cuckoos from eastern North America have colonized the Pecos River system.

It has been hypothesized that there could be a variation of eastern and western yellow-billed cuckoos breeding along the Pecos River with the minority of the population being the western DPS. However, upon review of the study, we concluded that the measurements used were inconclusive to support or deny such claims (79 FR 59991). Much of the area between the Pecos River and the Rio Grande in New Mexico and Texas consists of internal ephemeral drainages or small springs that are not connected to any major river systems and have very limited, if any, riparian habitat. Considering these factors along with the information on physical factors, we have included Texas west of the Rio Grande-Pecos River watershed boundary within the range of the western population. This physical division coincides with behavioral differences between eastern and western yellow-billed cuckoos.

South of the United States-Mexico border, yellow-billed cuckoos are separated by extensive areas of desert that lack suitable nesting and foraging habitat. In Mexico, the Chihuahuan Desert widens to 350 mi (563 km), and includes nearly all of the States of Chihuahua and Coahuila. There are very few records of yellow-billed cuckoos for this region, and we are not aware of any nesting records for either State. Suitable breeding habitat or connective riparian corridors are also lacking. Published range maps for the species do not include the eastern three-quarters of Chihuahua or the western three-quarters of Coahuila as part of the species' breeding range (Howell and Webb 1995, p. 347; Hughes 1999, p. 1). There are only 12 records of yellow-billed cuckoos from Chihuahua: 11 specimens from the 1940s to 1960, and a sight observation in 2003. There are only nine records of the species from Coahuila: six specimen and three sight records (1958, 1988, and 2011).

From this information we concluded that the Chihuahua-Coahuila border was the most biologically supportable boundary for the population segment. The boundary then follows the southern border of Chihuahua west to the Continental Divide, then south along the divide through the State of Durango and west along the southern border of Durango and Sinaloa. There are no breeding season records for yellow-billed cuckoos from the State of Nayarit or Jalisco or farther south along the Pacific coast of Mexico. The species has occurred sporadically in the State of Zacatecas, but the records are from east of the Continental Divide.

Eastern and western yellow-billed cuckoos are highly migratory, and the two populations may spend winters in overlapping regions in South America. Although the Rocky Mountains and the Chihuahuan Desert may not wholly prevent movement of yellow-billed cuckoos between the east and west, especially in a migratory species that winters far to the south, and moves thousands of miles between its wintering and breeding grounds, we do not have information on whether or not interchange between the populations is occurring.

However, the available information indicates that this mountain range and desert substantially separates yellow-billed cuckoo populations during the breeding season, thereby effectively separating them into discrete populations. The separation between yellow-billed cuckoo population segments in the east and west is a physical one that coincides with behavioral differences, which we discuss below.

Behavioral Discreteness

Data collected from publications and other sources demonstrate the existence of behavioral differences between yellow-billed cuckoos in the east and west.

Yellow-billed cuckoo populations in the east and west differ in the timing of arrival on the breeding grounds in the spring. Yellow-billed cuckoos in western North America arrive on the breeding grounds 4 to 8 weeks later than eastern yellow-billed cuckoos at similar latitude (Franzreb and Laymon 1993, pp. 24–25; Hughes 1999, pp. 5–6, 12–13; Laymon 2000, in litt., pp. 15–16). Timing of spring migration and arrival on the breeding grounds is likely related to east-west climatic, habitat, and food availability differences (Cresswell et al. 2011, pp. 13–15; Pulido et al. 2001). The watershed boundary between the Rio Grande and the Pecos Rivers also appears to separate yellow-billed cuckoos in that cuckoos arrive in spring migration earlier on the Pecos River and later on the Rio Grande.

Information, including timing of migration, indicates that yellow-billed cuckoos from Texas west of the Pecos River (from the Rio Grande upstream of Big Bend) and from northwestern Mexico (Chihuahua, Sonora, Sinaloa, Durango, Baja California Sur) exhibit greater similarity to yellow-billed cuckoos in western North America, and those on the Pecos River in Texas and eastern Mexico (Coahuila, Nuevo Leon, Tamaulipas, San Luis Potosi) are more similar to yellow-billed cuckoos in the east (Wauer 1971, p. 96; Oberholser and Kincaid 1974, pp. 434–435; Franzreb and Laymon 1993, pp. 17–28; Hughes 2000, in litt. pp. 1–2, 26; Sproul 2000, in litt., pp. 1–5). Based on the best available science, the watershed boundary between the Rio Grande and Pecos Rivers is the optimum dividing line between eastern and western yellow-billed cuckoo in this area. Based on migration timing, yellow-billed cuckoos split into two populations.

Discreteness Conclusion

The available information indicates that the yellow-billed cuckoo population segment that occurs west of the Continental Divide (as defined above) in the United States, in southwestern Canada, and in northwestern Mexico is markedly separated from the eastern population segment of yellow-billed cuckoo, including those that nest in eastern North America, eastern Mexico, certain Caribbean Islands, and the Yucatan Peninsula. The distribution of the western populations are markedly separated physically (geographically) during the breeding season from the distribution

of other yellow-billed cuckoo populations by high mountains, extensive desert, or non-habitat areas with the shortest geographical separation occurring in Big Bend National Park and being only a few miles. Evidence that this geographical separation between populations has been consistent through time may be found in the differences in the two populations' biology.

Under our DPS policy, the standard for discreteness does not require absolute separation because this can rarely be demonstrated for any population of organism. For the yellow-billed cuckoo populations in western North America, we have met the discreteness standard in spite of the possibility that some interchange may occur, and, therefore, we consider the western population segment of the yellow-billed cuckoo from southern British Columbia, Canada south along the Continental Divide (including the Rio Grande basin) in the United States into Mexico, and ending at the coast in the State of Sinaloa, Mexico, to be discrete per our DPS policy. We conclude that the western population segment of the yellow-billed cuckoo is discrete from the remainder of the species because the yellow-billed cuckoo population segment that nests west of the Continental Divide (as defined above) and in northwestern Mexico is markedly separated geographically and behaviorally from all other populations of yellow-billed cuckoo, including those that nest in eastern North America.

Significance

Under our DPS policy, once we have determined that a population segment is discrete, we consider its biological and ecological significance to the larger taxon to which it belongs. Our DPS policy provides several potential considerations that may demonstrate the significance of a population segment to the remainder of its taxon, including: (1) Evidence of the persistence of the discrete population segment in an ecological setting unusual or unique for the taxon, (2) evidence that loss of the discrete population segment would result in a significant gap in the range of the taxon, (3) evidence that the population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historic range, or (4) evidence that the discrete population segment differs markedly from the remainder of the species in its genetic characteristics.

We have found substantial evidence that one of these four significance criteria (number 2) is met by the discrete population segment of yellow-billed cuckoos that occurs west of the Continental Divide (as defined above). We address this significance factor below as it relates to the population segment of western yellow-billed cuckoo. We focus on whether the loss of this population segment would result in a significant gap in the range of the taxon in demonstrating significance of the DPS.

Evidence That Loss of the Discrete Population Segment Would Result in a Significant Gap in the Range of the Taxon

Loss of the discrete population segment would result in a significant gap in the range of the taxon because an extensive area would be without yellow-billed cuckoos if the western population segment were lost. Seven entire States and substantial portions of five additional States in the United States, and six States in Mexico, that are currently occupied would have no breeding populations of the species. Bird migration experts divide the North American continent into four migratory flyways: The Atlantic, Mississippi, Central, and Pacific. The range of the yellow-billed cuckoo west of the Rocky Mountains covers the entire Pacific flyway and half of the Central flyway. Additionally, the range of the yellow-billed cuckoo west of the Rocky Mountains covers 1,350,000 square (sq) mi (3,496,500 sq km), or approximately 40 percent of the lower 48 States. Even though the actual area occupied by the species in western North America is less than the total area identified above, the potential loss of the western population of the yellow-billed cuckoo would constitute a significant gap in the range of the species in North America.

Significance Conclusion

The best available information indicates that the discrete yellow-billed cuckoo population segment that nests west of the Continental Divide (as defined above) and in northwestern Mexico is important to the taxon to which it belongs because: (1) Loss of the population segment would leave a significant gap in the species' range (more than one third of the species' range would be vacant). Therefore, we conclude that the western population segment of the yellow-billed cuckoo is significant per our DPS Policy.

DPS Conclusion

Based on the best scientific and commercial data available on distribution as well as behavioral characteristics of the species, we have determined that the western population segment of the yellow-billed cuckoo is both discrete and significant per our DPS policy. Therefore, we conclude that the western distinct population segment of the yellow-billed cuckoo is a DPS, and thus a "species" under section 3(16) of the Act. Our determination of biological and ecological significance is appropriate because the population segment has a geographical distribution that is biologically meaningful. The term "distinct population segment" is not commonly used in scientific discourse. As such, and in contrast to taxonomically defined species and subspecies, there is no established name for the western distinct population segment of the yellow-billed cuckoo in the available literature; we will refer to this "species" (DPS) as the western yellow-billed cuckoo. The range of the western yellow-billed cuckoo in Canada includes the area of Vancouver Island and along the Fraser River system upstream to Kamloops to the Rocky

Mountains west of the Continental Divide. In the United States the DPS includes the area west of the Continental Divide, south through Montana, Wyoming, Colorado, and along the watershed divide between the upper and middle Rio Grande and Pecos Rivers in New Mexico and Texas, south to Big Bend in southwestern Texas, and extending to the States of the west coast. In Mexico, the DPS is the area west of the eastern and southern border of the State of Chihuahua, west of the Continental Divide in the State of Durango, and the southern border of the State of Sinaloa.

Summary of Western Yellow-Billed Cuckoo Information and Evaluation of Petition Items Associated with the Status Analysis

The petition provides survey and eBird data on the western yellow-billed cuckoo and states that these data indicate that the western yellow-billed cuckoo inhabits small ephemeral streams with limited riparian vegetation and is found along drainages throughout semi-desert grassland, Madrean evergreen woodland, Plains and Great Basin grasslands, and Sinoaloan thornscrub biotic communities in southern Arizona and northern Mexico (WestLand Resources 2017, p. 25). The petition asserts that the Service's "focus on threats to riparian vegetation along large river systems was inappropriate" and overstated threats to the western yellow-billed cuckoo (WestLand Resources 2017, p. 25). The petition contends that, based on this new information, the western yellow-billed cuckoo does not meet the definition of a threatened species under the Act.

Existing data and new surveys on the western yellow-billed cuckoo show that the species inhabits and breeds in habitats not originally identified in the proposed or final listing rules. In southern Arizona, ephemeral drainages contain breeding birds as well as transient birds moving through at the same time. These drainages are not as densely populated by cuckoos as some of the larger main stem perennial riparian habitat in that region. Thus, we conclude that large areas of riparian vegetation remain important breeding areas for the western yellow-billed cuckoo. Additionally, it is important to note that in our attempt to re-evaluate population numbers, we found it impossible to provide a complete census and instead were able to provide our best estimates from recent survey forms submitted by permitted biologists. A "detection" of a highly mobile, migratory bird does not necessarily equate to nesting or even territoriality. Furthermore, it is very hard to quantify western yellow-billed cuckoo breeding populations because more than two individuals could occur within a breeding territory, territories can overlap and are not aggressively defended, territories vary in size and can be quite large, and the elusive nature of the species can result in lack of detection of some individuals. In Arizona, additional surveys completed in these habitats since the 2014 listing rule have resulted in a state-wide population estimate of approximately 450 breeding pairs, an increase from an estimate of 250 breeding pairs in 2014 (78 FR 61621). An increased number of breeding pairs is also estimated from New Mexico; we estimate there are approximately 235 breeding pairs, which is an increase from an estimated 155 breeding pairs in 2014 (78 FR 61621). However, outside of southern Arizona and

southwestern New Mexico, the numbers of breeding pairs of western yellow-billed cuckoo have not changed. In California, the numbers have decreased based on recent survey efforts and information from land managers (Dettling et al. 2015, pp. 12–13; Frost 2018, entire). The estimated numbers of breeding birds in the remaining states (e.g., Utah, Idaho, Colorado, Wyoming, Montana, Oregon, and Washington) have not changed between the final listing rule and today. The number of breeding birds in Mexico is highly uncertain; we estimate there may be approximately 500 breeding pairs in Mexico.

THREATS

We define “threat” as any action or condition that is known to or is reasonably likely to negatively affect individuals of a species. This includes those actions or conditions that have a direct impact on individuals, as well as those that affect individuals through alteration of their habitat or required resources. The mere identification of “threats” is not sufficient to compel a finding that listing is warranted. Describing the negative effects of the action or condition (*i.e.*, “threats”) in light of the exposure, timing, and scale at the individual, population, and species levels provides a clear basis upon which to make our determination. In determining whether a species meets the definition of an “endangered species” or a “threatened species,” we have to consider the factors under section 4(a)(1) and assess the cumulative effect that the threats identified within the factors—as ameliorated or exacerbated by any existing regulatory mechanisms or conservation efforts—will have on the species now and in the foreseeable future.

In the final listing rule for the western yellow-billed cuckoo (79 FR 59992), we identified the primary threat to the species as the loss and degradation of its habitat from altered watercourse hydrology and natural stream processes, livestock overgrazing, encroachment from agriculture, and conversion of native habitat to predominantly nonnative vegetation. Additional threats to the species include the effects of climate change, pesticides, wildfire, and small and widely separated habitat patches. The cumulative impact from various threats is also a factor that will exacerbate multiple existing threats to the western yellow-billed cuckoo and its habitat. These threats continue to affect the cuckoo’s viability. Current yellow-billed cuckoo breeding populations are fragmented and geographically isolated.

Western yellow-billed cuckoos face similar threats in the additional habitat identified since the time of listing. In addition, minerals mining projects adversely affect occupied habitat in riparian habitat, desert scrub and desert grassland drainages with a tree component, and Madrean evergreen woodland habitat in drainages on the Coronado National Forest, Tonto National Forest, and along riparian habitat on BLM and private land in central and southern Arizona (U.S. Fish and Wildlife Service 2016, pp. 240-247). Road, building, and mine pit construction remove

suitable habitat in drainages on public and private lands. Noise, lights, and human disturbance from mine construction and operation can cause avoidance of suitable habitat within the action area, reducing the productivity of western yellow-billed cuckoos. Mining actions reduce storm-water runoff and regional groundwater levels. The combined result of the effects to regional groundwater, changes in the baseflow hydrology of streams, decreases in stream length, and increased temperature and riparian evapotranspiration is a likely decline in the quantity and quality of yellow-billed cuckoo habitat within the watershed.

Another potential threat is the tamarisk leaf beetle (*Diorhabda* spp.) defoliating nonnative vegetation in occupied habitat. Though the western yellow-billed cuckoo typically does not nest in tamarisk dominated habitat patches, tamarisk can be present to add to foliage cover which may protect nests from sun and heat, weather events, and add concealment from predators. In foraging habitat with tamarisk present, the food source available to western yellow-billed cuckoos may decline after a defoliation event.

SUMMARY OF THREATS

We evaluated all relevant threats for the western yellow-billed cuckoo, including any regulatory and nonregulatory actions that may be ameliorating those threats. We also considered any potential synergistic effects that may be affecting the species' viability. The primary stressors affecting the yellow-billed cuckoo's biological status include habitat loss and fragmentation from altered watercourse hydrology and natural stream processes, livestock overgrazing, encroachment from agriculture, conversion of native habitat to predominantly nonnative vegetation, sedimentation of riparian habitat; poor water quality, and, to a lesser extent, effects of invasive species and the effects of climate change. We found that the threats identified in the final listing rule are still acting on the species. In addition, minerals mining projects adversely affect recently identified occupied habitat in central and southern Arizona.

FINDING

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the definition of "endangered species" or "threatened species." The Act defines an "endangered species" as a species that is "in danger of extinction throughout all or a significant portion of its range," and a "threatened species" as a species that is "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." The Act requires that we determine whether a species meets the definition of "endangered species" or "threatened species" because of any of the following factors:

(A) The present or threatened destruction, modification, or curtailment of its habitat or range;

- (B) Overutilization for commercial, recreational, scientific, or educational purposes;
- (C) Disease or predation;
- (D) The inadequacy of existing regulatory mechanisms; or
- (E) Other natural or manmade factors affecting its continued existence.

Summary of Analysis

The biological information that serves as the basis for our finding is presented in detail in our proposed and final listing rules for the western yellow-billed cuckoo, as well as the supplementary Historical and Current Status and Threats document and is summarized above under the BIOLOGICAL INFORMATION section of this Species Assessment Form. In our listing rule, we evaluated threats to the western yellow-billed cuckoo, which fall under Factors A, C, and E of section 4(a)(1) of the Act and include the following: habitat destruction, modification, and degradation from dam construction and operations, water diversions, riverflow management (Factor A); stream channelization and stabilization (Factor A); conversion to agricultural uses, such as crops and livestock grazing (Factor A); urban and transportation infrastructure (Factor A); increased incidence of wildfire (Factor A); nest predators (Factor C) small and widely distributed habitat patches (Factor E); and effects of climate change (Factor E). We also evaluated existing regulatory mechanisms (Factor D) for the western yellow-billed cuckoo in the context of relevant threats and found that while there are some protections for the species and its habitat, these protections do not address or ameliorate the threats associated with the species and its habitat. We found no information indicating that the western yellow-billed cuckoo is overutilized for commercial, recreational, scientific, or educational purposes (Factor B).

To make the determination whether the western yellow-billed cuckoo warrants delisting from the List of Endangered and Threatened Wildlife under the Act, we evaluated the current factors and the species' potential future viability given projections of future factors (taking into account the risk factors and their effects on the western yellow-billed cuckoo). As described below, we first evaluated whether the western yellow-billed cuckoo is in danger of extinction throughout its entire range (an endangered species). Second, we evaluated whether the species is likely to become in danger of extinction throughout its entire range within the foreseeable future (a threatened species). Finally, we considered whether the western yellow-billed cuckoo is an endangered or threatened species in a significant portion of its range.

Determination of Endangered Throughout Its Range

Under the Act, an endangered species is any species that is "in danger of extinction throughout all or a significant portion of its range." We used the best available scientific and commercial information to evaluate the current viability (and thus risk of extinction) of the western yellow-billed cuckoo to determine if it meets the definition of an endangered species.

The geographic extent of the western yellow-billed cuckoo remains rather widespread through much of its historical range, conferring some measure of ecological and geographic redundancy and resilience. Although there is a general decline in the overall population trend and its breeding range has been reduced, the rate of the population decline and contraction of its breeding range is not so severe to indicate extinction is imminent for the western yellow-billed cuckoo. This current downward trend is slow and not expected to substantially accelerate in the near future. The majority of large-scale habitat losses and conversions through dam building and agricultural development have already occurred, and we are not aware of any large-scale projects that would affect the species to the extent that the current trend of decline would change. We expect declines due to ongoing water management, development, agriculture, and climate change to continue.

We find that threats acting on the western yellow-billed cuckoo have not substantially reduced the overall resiliency, redundancy, or representation of the species. Therefore, we conclude that the risk of extinction of the western yellow-billed cuckoo in the near term is sufficiently low such that the species does not meet the definition of an endangered species under the Act.

Determination of Threatened Throughout Its Range

Under the Act, a threatened species is any species that is “likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” The Act does not define the term “foreseeable future,” which appears in the statutory definition of “threatened species.” Our implementing regulations at 50 CFR 424.11(d) set forth a framework for evaluating the foreseeable future on a case-by-case basis. The term foreseeable future extends only so far into the future as the Services can reasonably determine that both the future threats and the species’ responses to those threats are likely. In other words, the foreseeable future is the period of time in which we can make reliable predictions. “Reliable” does not mean “certain”; it means sufficient to provide a reasonable degree of confidence in the prediction. Thus, a prediction is reliable if it is reasonable to depend on it when making decisions. A key statutory difference between a threatened species and an endangered species is the timing of when the relevant threats would begin acting upon a species such that it may be in danger of extinction, either now (endangered species) or in the foreseeable future (threatened species).

In 2014, we found that the western yellow-billed cuckoo meets the definition of a threatened species under the Act. Based on our review of the best available information, including any new information made available since the time of the final listing, we affirm that conclusion in this document.

Threats to the western yellow-billed cuckoo exist for two of five threat factors (Factors A and E).

Threats also occur in combination, resulting in synergistically greater effects.

Factor A threats result from habitat destruction, modification, and degradation from dam construction and operations, water diversions, riverflow management; stream channelization and stabilization; conversion to agricultural uses, such as crops and livestock grazing; urban and transportation infrastructure; and increased incidence of wildfire. Continuing ramifications of actions that caused habitat loss in the past have resulted in ongoing curtailment of the habitat of the western yellow-billed cuckoo throughout its range. These factors also contribute to fragmentation and promote conversion to nonnative plant species, particularly tamarisk. The threats affecting western yellow-billed cuckoo habitat are ongoing and significant and have resulted in curtailment of the range of the species. Loss of riparian habitat leads not only to a direct reduction in western yellow-billed cuckoo numbers but also leaves a highly fragmented landscape, which in combination with other threats (see below), can reduce breeding success through increased predation rates and barriers to dispersal by juvenile and adult western yellow-billed cuckoos.

Factor E threats, including habitat rarity and small and isolated population sizes, cause the remaining western yellow-billed cuckoo populations to be increasingly susceptible to further declines through lack of immigration, reduced populations of prey species (food items), pesticides, and collisions with tall vertical structures during migration. The serious and ongoing threat of small overall population size, which is the result of other threats in combination, leads to an increased chance of local extirpations. The threats that affect the western yellow-billed cuckoo are important on a threat-by-threat basis, but are even more significant in combination. Habitat loss has been extensive throughout the range of the western yellow-billed cuckoo. The remaining riparian habitat is fragmented into small patches, which the species does not normally select as breeding habitat. Additionally, western yellow-billed cuckoos are most often associated with structurally diverse riparian nesting habitat in a range of ages. This diversity of tree ages within the riparian vegetation is largely dependent on disturbances that affect some but not all of the vegetation within that habitat patch at one time. A number of threats, working in combination or individually, prevent such disturbance from happening now and will continue to do so in the future.

For example, dams and other flood control modifications to a watercourse may prevent floods from being severe enough to affect that habitat patch; channelization may restrict floodwaters to a narrow channel, allowing floodwaters to cause too much damage to habitat within the channel and not enough (or no) damage to habitat outside the channel; altered flood regimes may allow dead wood to accumulate, allowing fires, when they occur, to be severe and affect most of the patch; development and other human activities next to habitat patches may allow more wildfires to be ignited; and the reduction in patch size, through neighboring development, alteration of hydrology, or encroachment by nonnative plants, makes it more likely that a larger proportion of

that patch will be affected during any given disturbance event. Moreover, nearly all areas where riparian habitat could potentially grow are modified by dams or water withdrawal and disrupted by other activities, often in combination, that prevent the reestablishment of riparian habitat. Patch size, when coupled with habitat loss and Factor C and E threats, including proximity to incompatible land uses, which increases exposure to predators and pesticides, is a significant cumulative threat to the western yellow-billed cuckoo now and in the future.

Per section 4(b)(1)(A) of the Act, prior to making our determination, we must first “[take] into account those efforts, if any, being made by any State or foreign nation, or any political subdivision of a State or foreign nation, to protect such species, whether by predator control, protection of habitat and food supply, or other conservation practices, within any area under its jurisdiction, or on the high seas.” Restoration or enhancement of riparian habitat on the Colorado, Kern, and Sacramento Rivers and elsewhere will help reduce habitat fragmentation, small patch size, and overall lack of habitat. However, at present, habitat restoration or enhancement is being done on a relatively small scale in comparison to the need to reduce habitat fragmentation and increase the overall extent of suitable habitat. DDT has been banned in the United States for several decades, but use of DDT continues in Central and South America, thus potentially exposing western yellow-billed cuckoos during migration and winter. Thus, after assessing the best available information, we determine that the western yellow-billed cuckoo is not currently in danger of extinction, but is likely to become in danger of extinction within the foreseeable future, throughout all of its range.

Determination of Status Throughout a Significant Portion of Its Range

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so in the foreseeable future throughout all or a significant portion of its range. The court in *Center for Biological Diversity v. Everson*, 2020 WL 437289 (D.D.C. Jan. 28, 2020) (*Everson*), vacated the aspect of the 2014 Significant Portion of its Range Policy that provided that the Services do not undertake an analysis of significant portions of a species’ range if the species warrants listing as threatened throughout all of its range. Therefore, we proceed to evaluating whether the species is endangered in a significant portion of its range—that is, whether there is any portion of the species’ range for which both (1) the portion is significant; and, (2) the species is in danger of extinction in that portion. Depending on the case, it might be more efficient for us to address the “significance” question or the “status” question first. We can choose to address either question first. Regardless of which question we address first, if we reach a negative answer with respect to the first question that we address, we do not need to evaluate the other question for that portion of the species’ range.

Following the court’s holding in *Everson*, we now consider whether there are any significant portions of the species’ range where the species is in danger of extinction now (i.e.,

endangered). In undertaking this analysis for the western yellow-billed cuckoo, we choose to address the status question first—we consider information pertaining to the geographic distribution of both the species and the threats that the species faces to identify any portions of the range where the species is endangered.

For the western yellow billed-cuckoo, we considered whether the threats are geographically concentrated in any portion of the species' range at a biologically meaningful scale. We examined the following threats: habitat destruction, modification, and degradation from dam construction and operations, water diversions, riverflow management; stream channelization and stabilization; conversion to agricultural uses, such as crops and livestock grazing; urban and transportation infrastructure; increased incidence of wildfire; nest predators; small and widely distributed habitat patches; and effects of climate change, including cumulative effects. The threats acting on the western yellow-billed cuckoo may vary across the species' range in their timing, frequency, and intensity of effects due to variations in management, climate, hydrology, ecological setting, habitat quality, and other factors. However, we do not find any areas where the threats are geographically concentrated such that the status of the western yellow-billed cuckoo may be endangered in any particular area. We found no concentration of threats in any portion of the western yellow-billed cuckoo's range at a biologically meaningful scale. Thus, there are no portions of the species' range where the species has a different status from its rangewide status. Therefore, no portion of the species' range provides a basis for determining that the species is in danger of extinction in a significant portion of its range, and we determine that the species is likely to become in danger of extinction within the foreseeable future throughout all of its range. This is consistent with the courts' holdings in *Desert Survivors v. Department of the Interior*, No. 16-cv-01165-JCS, 2018 WL 4053447 (N.D. Cal. Aug. 24, 2018), and *Center for Biological Diversity v. Jewell*, 248 F. Supp. 3d , 946, 959 (D. Ariz. 2017).

Conclusion

Our review of the best available scientific and commercial information indicates that the western yellow-billed cuckoo is a valid DPS and meets the definition of a threatened species. Therefore, we find that delisting the western yellow-billed cuckoo is not warranted at this time.

ONGOING CONSERVATION MEASURES

- On the Lower Colorado River (Arizona), a multi-species conservation plan has created occupied western-yellow billed cuckoo habitat. Ongoing management of this area will be needed because revegetated habitat grows out of suitability for the western yellow-billed cuckoo after approximately ten years.

- The Virgin River (Nevada) has restored habitat and western yellow-billed cuckoos are using these areas.
- Within the Sacramento Valley, some habitat near the Sacramento National Wildlife Refuge has been restored; however, western yellow-billed cuckoos have not yet recolonized the area.
- The Bureau of Reclamation Albuquerque Area Office as well as the International Boundary Water Commission (IBWC) have both included western yellow-billed cuckoos within their management plans for species avoidance during construction and maintenance and for identifying locations for restoration and/or conservation measures.
- The Bureau of Reclamation Phoenix Area Office and Salt River Project, through Section 7 consultation and multi-species habitat conservation plans, have purchased and manage conservation properties along the Gila, San Pedro, and Verde rivers to benefit yellow-billed cuckoos. Salt River Project has also created occupied cuckoo habitat at Rock House Farm near Roosevelt Lake.
- Pima County, Arizona, includes yellow-billed cuckoos in its multi-species habitat conservation plan. The county has purchased and manages conservation properties to benefit yellow-billed cuckoos.

We request that you submit any new information concerning the status of, or threats to, the western yellow-billed cuckoo to our Arizona Ecological Services Field Office (see **ADDRESSES** section of the Federal Register Notice for the 12-month finding) whenever it becomes available. New information will help the Service monitor the western yellow-billed cuckoo and encourage its conservation and recovery.

DESCRIPTION OF MONITORING

State agencies and other non-governmental organizations conduct periodic surveys of suitable habitat within the range of the western yellow-billed cuckoo and note the presence of the cuckoo when observed.


COORDINATION WITH STATES

We have coordinated with the states within the DPS and have incorporated cuckoo data received from the states.

LITERATURE CITED

A complete list of references cited is available on the Internet at <http://www.regulations.gov> in Docket Number FWS-R2-ES-2020-0004 and upon request from the Arizona Ecological Services Office (see **ADDRESSES**).

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.

Approve:  _____ April 28, 2020
Regional Director, Fish and Wildlife Service Date

Concur: _____
Director, Fish and Wildlife Service Date

Do not concur: _____
Director, Fish and Wildlife Service Date

Director's Remarks:

Date of review: September 2019
Conducted by: Southwest Regional Office