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January 27, 2019

To Whom It May Concern,

On behalf of the National Audubon Society and our 1,000,000 members and supporters, we are writing to provide information concerning the status of, and threats to, the Yellow-billed Cuckoo (*Coccyzus americanus*) and its habitat, and specifically the western Distinct Population Segment (DPS). We also wish to express our opposition to the current effort to remove the western DPS of the Yellow-billed Cuckoo from the protections it currently has under the Endangered Species Act. The western DPS of the Yellow-billed Cuckoo (Western Yellow-billed Cuckoo) should retain its listing as a Threatened Species under the Endangered Species Act. We urge the U.S. Fish and Wildlife Service (the "Service") to reject the delisting petition and issue a negative 12-month finding.

The species is listed as endangered in California, critically imperiled in Nevada, sensitive in Utah, and of concern or of greatest conservation need in seven additional western states. Based on a summary of recent surveys coordinated by various state and federal agencies, less than 2,000 breeding pairs of the Western Yellow-billed Cuckoo exist throughout its range. Furthermore, regional populations of the Western Yellow-billed Cuckoo have estimated median declines of more than 2% each year since the 1960s (Sauer et al. 2017, Wilsey et al. 2017). Declines in the West due to habitat loss and other factors continue, and, having only been listed as a Threatened Species for a little more than four years, it is not enough time to prove the population has recovered or warrant delisting. Furthermore, data gaps in the population suggest that more information is needed in order to make an informed decision on the status of this species.

Over the last century, riparian habitats in the West and the birds that rely on them have experienced tremendous change. Water development, including damming, flow regulation, surface water diversion, and lake and groundwater extraction, have been the primary causes of the decline of native riparian trees and shrubs, which depend on high water tables for persistence and periodic flooding for regeneration. Changes in hydrology, specifically

documented in the Colorado River Basin, have facilitated the spread of non-native plants in marginal habitats throughout the basin, resulting in a net gain in vegetation, but a loss in habitat quality. Human water needs surpass what the river can supply, and birds are at risk of losing the river flows that create the riparian and freshwater habitats on which they depend.(Wilsey et al. 2017).

One overarching concern is what appears to be continued petitions to delist subspecies by organizations working to undermine the Endangered Species Act. This delisting petition was filed by the American Stewards of Liberty and other private property rights groups which claim to be “leading a movement to remove species that do not warrant protection from the Federal Endangered List.” (per website <https://www.americanstewards.us/delisting/>) The Endangered Species Act has resulted in significant protection of critical habitats for this and other priority birds and wildlife from human development.

In their letter, the petitioner’s claim that the original listing of the western DPS of the Yellow-billed Cuckoo 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.”

Audubon is providing information for consideration in the Service’s status review on the species’ range and population trends, including:

- 1) Historical and current population levels and current and projected trends, with discussion on priority habitats; and
- 2) Continued threats, including the potential effects of climate change on the species and its habitat.

Populations and Priority Habitats

Evidence from both broad-scale national surveys and local site surveys document declining populations of the Western Yellow-billed Cuckoo. Furthermore, community science records show no evidence of range expansion. Below, we provide information on Western Yellow-billed Cuckoo population levels and overall-range along with anecdotal accounts from local surveys in Arizona, California, and New Mexico (additional detail in Appendix A).

Populations of Western Yellow-billed Cuckoos are in decline based on trend estimates from the North American Breeding Bird Survey (Table 1. Sauer et al. 2017). Declining median trends were estimated for both the long-term (1966-2015) and short-term (2005-2015) in both individual states (Arizona, New Mexico, and Texas), regions including Mexico (Sierra Madre Occidental and Chihuahuan Desert) and western U.S. The 95% confidence limits for these median trend estimates overlap with zero, suggesting that at best the trend may be stable. However, these estimates provide no evidence that populations of Western Yellow-billed Cuckoo have recovered over the short- or long-term.

Table 1. Long-term and short-term relative abundance trends for Yellow-billed Cuckoo from the North American Breeding Bird Survey.

Region	1966-2015 Trend (95% CRI)	2005-2015 Trend (95% CRI)
Sierra Madre Occidental	-2.13 (-6.99, 3.52)	-1.82 (-10.83, 13.93)
Chihuahuan Desert	-0.69 (-3.09, 1.79)	-2.50(-10.66, 6.04)
Arizona	-2.13 (-6.99, 3.52)	-1.82 (-10.83, 13.93)
Colorado	-1.18 (-10.16, 8.98)	1.53 (-27.86, 46.08)
New Mexico	-4.77 (-7.40, -2.18)	-5.12 (-12.65, 0.62)
Texas	-1.73 (-2.20, -1.26)	-0.85 (-2.32, 0.64)
Western BBS Region	-0.76 (-3.10, 1.61)	-2.47 (-10.42, 5.90)

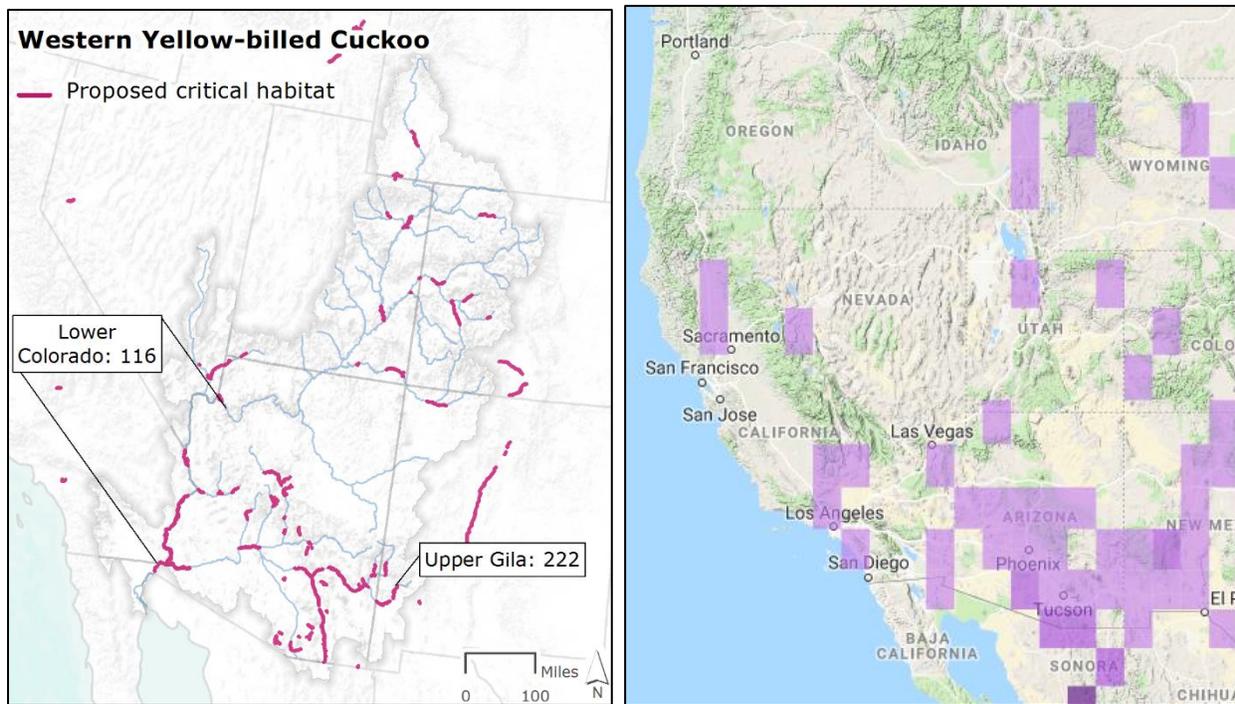


Figure 1. Proposed critical habitat for the Western Yellow-billed Cuckoo (USFWS 2015). Callout boxes provide abundance estimates along the Lower Colorado River (McNeil et al 2013) and upper Gila River (Shook 2016). Range map depicting the proportion of eBird checklists with Western Yellow-billed Cuckoo in 2018 (accessed 17 Dec 2018 from <https://ebird.org/map/>).

The distribution of proposed critical habitat for the Western Yellow-billed Cuckoo along with community science observations (eBird) identify that key habitats occur in Arizona (Colorado and Gila Rivers), New Mexico (Rio Grande), Utah, and Colorado. This distinct population segment is range restricted and concentrated primarily in Arizona and New Mexico. A restricted range, combined with a low population total of fewer than 2000 individuals makes this

population highly vulnerable to environmental stressors, such as habitat loss, invasive species, and drought.

The petition to delist cites records of birds collected by citizen scientists as evidence of the species' lack of merit for listing. However, incidental observations are not equivalent to breeding season surveys using a protocol designed specifically to detect the Western Yellow-billed Cuckoo. More extensive surveys and fieldwork is needed to determine if these additional habitats support reproduction. It has become apparent that using only cuckoo detection data to determine occupancy, abundance, and breeding status has its limitations. Cuckoos are extremely secretive and can go unnoticed when not vocalizing. Since cuckoos are most vocal during July, birds arriving in June can go undetected. Conversely, birds still present in August can go undetected. Because cuckoos key in on specific combinations of habitat features, it is rather difficult to determine whether birds seen over the course of a survey season are the same individuals or migrants making use of the same habitat patches. For this reason, determining breeding status and success is extremely difficult without tracking individual birds or nests. Some attempt at monitoring the individuals in additional habitats is needed before these habitats are determined to be viable for the species.

Arizona:

The state of Arizona is considered to be stronghold for the western population in the United States. This is due in large part because of intact riparian ecosystems, including extensive mesquite bosque woodlands, which are well represented on the Verde, San Pedro, and Bill Williams Rivers.

An observation of note (further verified by expanded survey efforts) is the presence of breeding Western Yellow-billed Cuckoos in the oak woodlands of southeastern Arizona. We wish to emphasize that birds using more xeric washes in association with desert uplands and grasslands is not a range expansion. The Yellow-billed Cuckoos in this part of Arizona are using habitats between 3500 and 6000 ft. elevations and are found along the lushest drainages with the added benefit of insect abundance driven by monsoon humidity and rains. Their primary habitat of low-elevation riparian areas continues to be threatened and face pressure into the future.

The occurrence of breeding Western Yellow-billed Cuckoos in southeastern Arizona uplands is unique from other habitats and is restricted to the monsoon humid conditions found in the Madrean woodlands of southeastern Arizona and northeastern Sonora Mexico.

Recent petitions to delist the bird are based on the existence of this breeding segment. The comments we offer here are to more accurately describe which habitats in Arizona the Western Yellow-billed Cuckoos select (see also Appendix A for site specific detail).

While central Arizona's riparian areas represent a stronghold for breeding Western Yellow-billed Cuckoos, less than half of Arizona's streams and rivers are suitable habitats. Habitat features found to encourage cuckoo occupancy include dense, multi-storied native broadleaf riparian

canopy, a relatively open understory, high humidity, high insect productivity, and adjacent mesquite bosque or oak/juniper woodland. Habitat features found to preclude cuckoo occupancy include a lack of dense riparian canopy, a dense understory, low humidity, low insect productivity, and canyon walls that restrict the width of the riparian corridor. Steep gradient to adjacent uplands prevent the formation of mesquite bosque or other dense adjacent habitats. Water usage that dewater streams, activities that prevent riparian forest recruitment, invasive species that result in a brushy understory, grazing within riparian areas and adjacent foraging habitat, and ongoing aridification can and do alter habitat in ways that preclude breeding Western Yellow-billed Cuckoos.

Just as it is for riparian areas, it is also misleading to claim that all Sonoran Savannah grasslands, encinal oak communities, and mesquite forests support breeding Western Yellow-billed Cuckoos. Their use of these habitat types as breeding habitat is restricted to southeastern Arizona where summer monsoon storms result in atypical robust versions of these habitat types that offer high relative humidity, high insect productivity, and habitat structure that is appealing to breeding cuckoos. Occupied sites tend to be tied to drainages that, as is found in productive riparian sites, support a dense, multi-storied canopy, have a relatively open understory, provide adjacent foraging habitat with high insect productivity, and offer high relative humidity. As is true in riparian areas, steep, canyon bound drainages preclude cuckoos in this portion of their range. The monsoon-influenced habitats of southeastern Arizona and northern Mexico are not the same as those found in the rest of the bird's range in the Western United States, and therefore, claims of additional habitat in that broader range based on southeastern Arizona data are unjustified.

California:

The Yellow-billed Cuckoo was listed as a state endangered species in California in 1971, with breeding locations primarily in the Sacramento Valley, Kern River, Lower Colorado River and a few other small locations in Owens Valley and southern California. Upon inquiry with our partners in the Central Valley, we are aware of no recent standardized effort to monitor/survey for Yellow-billed Cuckoos in the Sacramento or San Joaquin Valleys. In short, we could not find new available information on the cuckoo's status in these regions and the last review, 2013, may be the best current information for the Valley (Dettling et al. 2015).

At multiple sites in the Sacramento Valley and Kern River Valley, we have seen declines in the last 5 to 10 years (see Appendix A for site specific detail). It is clear that the Yellow-billed Cuckoo population on the South Fork Kern has experienced a dramatic decline. With only 1 to 2 estimated nesting territories, the long-term viability of the South Fork Kern breeding population is, without a doubt, imperiled and has possibly collapsed. This decline is not unique to the South Fork Kern but reflects the population losses on the Sacramento River system and other areas in the historic western range of this species.

New Mexico:

Concerted management actions along the southern portion of the Rio Grande in New Mexico have likely had a positive influence on increases in population. In the Middle Rio Grande of New

Mexico, the population numbers appear to be holding steady. However, the Western Yellow-billed Cuckoo remains vulnerable in both these reaches due to degradation caused by a rapid changes in reservoir level, and drought impacts to habitat (see Appendix A for site specific detail).

Persistent Threats

The Service needs to consider the full range of ecological considerations and threats when evaluating this petition. Now is not the time to delist a species that clearly has not recovered and is subject to persistent threats including but not limited to the loss, degradation, and/or fragmentation of riparian habitat; the invasion of riparian habitat by nonnative plants; drought which impacts water levels and insect production; and climate change (Wilsey et al. 2017).

In July 2017, Audubon published [Water and Birds in the Arid West: Habitats in Decline](#), a report focused on the relationships and mechanisms that connect water, habitat health, and regional bird populations across the West. The report synthesizes the latest scientific research across disciplines to examine two critical habitats in the arid West: saline lakes and the Colorado River Basin. The experience of the Colorado River serves as a case study for the potential consequences of water development on riparian habitats used by Western Yellow-billed Cuckoos.

Key findings from this Audubon report include:

- Native riparian trees and shrubs such as cottonwood-willow ecosystems that provide productive habitat for birds and other wildlife are disappearing as a result of water development including damming, flow regulation, surface water diversion, and groundwater pumping.
- Hydrology changes have also spurred the spread of non-native plants, particularly saltcedar, throughout the Colorado River Basin reducing biodiversity and the number and variety of birds in many riparian habitats.
- Populations of the following breeding birds, once common along the Colorado River, have experienced significant regional declines: Western Yellow-billed Cuckoo, Southwestern Willow Flycatcher, Bell's Vireo, Yellow Warbler, Yellow-breasted Chat, and Summer Tanager.
- The cumulative effects of water development, drought, and climate change across the Intermountain West and Colorado River Basin are potentially devastating to birds.

Habitat Loss

The Yellow-billed Cuckoo remains under tremendous threat from habitat loss and drought, as it nests along the banks of rivers in the Southwest. Federal agencies have recognized the need to invest in collaborative solutions to conserve water and restore riparian habitats such as on the Colorado River Basin and the Rio Grande Basin, areas essential to the health of this bird.

Disruption of the hydrological regime needed to maintain healthy, native riparian forests combined with the potential additional stress of climate change comprise the greatest future

threats to Western Yellow-billed Cuckoo (Wilsey et al. 2017). The estimated 2000 individuals present in the Southwest are likely insufficient to persist without federal protection. In the Colorado River, the loss of cottonwood-willow gallery forests preferred by Western Yellow-billed Cuckoos is linked to the diversion of water and an altered hydrological regime. Less water, and fewer flood events reduces surface water important for tree recruitment and lowers the water table making it hard for adult trees to survive. Habitat loss due to riparian forest mortality is primary driver of Western Yellow-billed Cuckoo declines (Wilsey et al. 2017).

Non-native Plants

Many hydrologic changes have favored the spread of non-native species over natives. Saltcedar is a plant from Europe and Asia that was introduced to western North America over 100 years ago to control erosion, stabilize streambanks, create windbreaks, and serve as an ornamental (Jarnevich et al. 2011). Due to its deep roots, high water efficiency, opportunistic reproduction, and tolerance for high salinity, saltcedar has spread rapidly since its introduction, covering less than 1,000 acres in the 1920s to over 1,000,000 acres by the 1980s. It expanded most rapidly between the 1940s and the 1960s, when major dam construction in the Southwest created conditions that displaced natives and allowed this species to establish itself. (Jarnevich et al. 2011, Nagler et al. 2011). Other non-native plants of concern in the basin include Russian olive (*Elaeagnus angustifolia*, Katz and Shafroth 2003), tree of heaven (*Ailanthus* sp.), and giant reed (*Arundo donax*, USDA NRCS 2017). None of these non-native plants provide habitat for birds equivalent in quality to native vegetation. Birds thrive where native vegetation and perennial surface water are present (Brand et al. 2010).

Declines in Water

Declines in water availability may be a bigger threat to riparian birds than changes in vegetation composition (Hinojosa-Huerta 2006). At the Colorado River Delta, the presence of surface water was the most important condition determining bird richness, abundance, and diversity, and the value of both native and saltcedar-dominated sites was dependent on water availability (Hinojosa-Huerta 2006). Dry areas with reduced flows and groundwater drawdown no longer support cottonwood-willow forests and if they have any vegetation it is non-native saltcedar (Hinojosa-Huerta 2006, Stromberg et al. 2009, Merritt and Poff 2010).

Climate Change

Climate change will worsen habitat loss by further decreasing water availability for human and environmental needs (Wilsey et al. 2017). Recent work suggests that increasing temperatures may impact flows more than precipitation rates. Between 2000 and 2014, one third of water loss was due to warming temperatures rather than decreased precipitation. Projected temperature changes alone could result in at least a 20% loss of flow by mid-century and as much as 50% or more loss by end of century (Udall and Overpeck 2017). Furthermore, across the western U.S., snowpack could decline 60% in the next 30 years (Fyfe et al. 2017). More precipitation falling as rain combined with earlier, slower snowmelts may actually reduce surface flows in snowmelt-dominated systems (Berghuijs et al. 2014, Barnhart et al. 2016). Less surface water translates into reduced recruitment of trees and a lower water table that may imperil existing riparian forests upon which the Western Yellow-billed Cuckoo depends. In light of these emergent

threats and the overall low abundance of Western Yellow-billed Cuckoo, delisting is not responsible.

Other Considerations

In addition, drought-associated increased frequency in fire and changes in phenology including timing of nesting and availability of food resources necessary for reproduction may impact the range-restricted, low abundance Western Yellow-billed Cuckoo (Wilsey et al. 2017).

Conclusion

It is premature to delist the bird now. The threats to this bird and the habitat it relies on continue and are significant. The future is daunting, with anticipated increases in demand from regional human population growth and climate change-induced reductions in river flows leading to further loss of native riparian habitats with negative impacts on birds.

The fact that the Yellow-billed Cuckoo is a distinct subspecies worthy of protection was confirmed by the U.S. Fish & Wildlife Service in 2001 when it was designated as a candidate species and then confirmed again in November 2014 at the time the bird was officially listed as threatened—there's nothing in this latest petition that casts doubt on that determination.

It is important to have a coordinated strategy and regional approach to studying and improving conditions for this bird. Audubon encourages efforts to fund a coordinated strategy for monitoring and the establishment of good indices for trends in bird populations. We also have interest in learning more from research underway such as a current study documenting Yellow-billed Cuckoo breeding in Madrean oak drainages in southeast Arizona mountain foothills.

Thank you for your consideration of our comments. Audubon is committed to continued engagement in the conservation of this species and to working with the Service and all partners towards a successful outcome for the western DPS of Yellow-billed Cuckoo.

Please note that additional comments may be submitted separately from Audubon members and other Audubon entities such as independent chapters.

Sincerely,

Dr. Chad Wilsey, Vice President of Conservation Science, National Audubon Society

Vashti "Tice" Supplee, Director of Bird Conservation, Audubon Arizona

Andrea Jones, Director of Bird Conservation, Audubon California

Paul Tashjian, Associate Director of Freshwater Conservation, Audubon New Mexico

Jennie MacFarland, Bird Conservator Biologist, Tucson Audubon

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APPENDIX A
Site Specific Information: Arizona, California, and New Mexico

Arizona:

Audubon in Arizona has been an active member of statewide survey for Yellow-billed Cuckoo dating back to 2004. The U.S. Fish and Wildlife Service has the results of annual Western Yellow-billed Cuckoo survey efforts by Audubon in Arizona (reference information for these annual reports is given below).

Site-specific observations:

- Agua Fria River:

Surveys on the Agua Fria River within and adjacent to the Agua Fria National Monument began in 2010 and have continued through 2018. On the Agua Fria River within and adjacent to the Agua Fria National Monument, cuckoos arrive in early June and leave in late August, but this can vary depending upon winter rain amounts and timing preceding the monsoon patterns during the summer. Dry winters and late monsoon storms can result in later arrival and departure, while wet winters and early monsoon storms can result in the birds arriving and departing earlier.

While improper grazing and off-road vehicle use are still major threats to Yellow-billed Cuckoo habitat on the Agua Fria River, these surveys have shown that management can be effective. For example, on the Upper Agua Fria route, winter-only grazing regimes and off-road vehicle exclusions have increased Yellow-billed Cuckoo occupancy. In 2011, this route yielded one detection and no occupied territories. In 2018, the route yielded 15 detections and three occupied territories. Just south of the Agua Fria National Monument, the Horseshoe Bend route provides another example of management success. On this route, off-road vehicle exclusions have increased productivity from zero detections in 2011 to eight detections and two occupied territories in 2018.

- Queen, Arnett, and Rancho Rio Creeks:

Surveys near Superior, Arizona began in 2015 and have continued through 2018. Arnett Creek was first surveyed in 2015 and last surveyed in 2017, Queen Creek has been surveyed all three years, and Rancho Rio Creek was first surveyed in 2018. These surveys have provided additional data describing which habitat features encourage or preclude cuckoos within central Arizona riparian areas.

Queen and Arnett Creeks were found to be relatively dry. In addition, the drainages are extremely canyon bound. Cuckoos have been detected along these routes, but in specific areas that share several features. On Arnett Creek, a single cuckoo was detected along a portion of the stream where a side channel provides additional water and creates a wide area that allows for a wider riparian corridor and adjacent mesquite bosque.

In 2017, Queen Creek yielded detections just upstream from Whitlow Dam. This dam is downstream of the canyon bound portions of the creek and creates a large area of either standing water or wet soil that supports a wide stand of riparian forest and large amounts of mesquite and tamarisk. While on both creeks these single detections likely represent migratory birds rather than breeders, these observations support the conclusion that in central Arizona, habitat features that encourage cuckoo occupancy include dense, multi-storied native broadleaf riparian canopy, a relatively open understory, high humidity, high insect productivity, and adjacent mesquite bosque or oak/juniper woodland while habitat features that tend to preclude cuckoo occupancy include a lack of dense riparian canopy, a dense understory, low humidity, low insect productivity, and canyon walls that restrict the width of the riparian corridor.

- Verde River:

Surveys on the upper Verde River north of Chino Valley began in 2015 and have continued through 2018. The four routes surveyed along this reach of the river represent the classic riparian habitat known to be occupied by Western Yellow-billed Cuckoos. Each of these routes offers extensive, dense, multi-storied broadleaf riparian canopy dominated by Godding's willow, Fremont cottonwood, and Velvet ash, a relatively open understory, high humidity and adjacent oak/juniper woodland. As streams in rivers in central Arizona continued to be utilized, modified, and affected by ongoing aridification, areas like this are becoming less and less common, making areas like this one on the upper Verde River increasingly important to this species.

- Lower San Pedro River:

Surveys on the lower San Pedro River near Mammoth began in 2015 and have continued through 2018. While this site lacks the typical cottonwood/willow forest associated with Yellow-billed Cuckoo riparian habitat, it offers extensive mesquite bosque that offers many of the same features and has thusly proven to be an extremely productive site.

The mesquite bosque found along this reach of the San Pedro River is unique. Unlike mesquite stands found throughout much of Arizona that are short and brushy, those found along this reach offer multiple stories of canopy with some trees growing in excess of thirty feet. In terms of structure, the multiple ages of mesquite found along these reach resemble the multi-story canopy offered by cottonwood/willow forests. In addition, while this reach lacks surface water over much of its length, it does have significant subsurface flow and moist soil and also benefits from Southeastern Arizona's monsoon season. This creates extremely high relative humidity below the mesquite canopy, similar to what is found within riparian forests along flowing streams. This reach shows that cuckoos will use mesquite bosque without a significant riparian component during the breeding season in Central Arizona, but it does not support the conclusion that all mesquite bosque within their range constitutes viable breeding habitat.

- Appleton-Whittell Research Ranch:
Surveys on the Appleton-Whittell Research Ranch of the National Audubon Society began in 2016 and have continued through 2018. The habitat found on the ranch consists of Sonoran Savannah Grasslands, encinal oak communities, and riparian corridors dominated by Fremont cottonwood, Goodding's willow, and Arizona Sycamore.

Occupied territories observed on the ranch are associated with drainages running through the grasslands. Features common among occupied areas include drainages with multi-storied broadleaf riparian forest, adjacent tall grass supporting high insect productivity, and adjacent oak woodlands. While similarly structured communities can be found in other portions of this species' range, the extremely high relative humidity resulting from southeastern Arizona monsoon storms make these sites unique. It is likely that this humidity coupled with the native grasslands found on the ranch result in higher insect productivity than is seen in other Arizona grasslands, making it more attractive as foraging habitat for Western Yellow-billed Cuckoos.

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California:

Sacramento Valley:

A survey of approximately 10,000 acres of appropriate habitat along Sacramento and Feather rivers in 2012 and 2013 found a low number of detections (between 8 and 10 each year), compared to previous surveys going back to 1972. Another survey in 2010 of the Sacramento Valley similarly found low numbers and both authors believe there has been a decline in the region (Dettling and Howell 2011). The authors do not believe that habitat is the limiting factor in cuckoo decline in this region, because of habitat restoration projects. Therefore, the cause of decline of birds in the Sacramento Valley remains unknown. We recommend that the U.S. Fish and Wildlife service fund and facilitate a breeding season survey in this region to compare with the 2012/2013 surveys.

Kern River Valley:

Yellow-billed Cuckoos are known to breed in the South Fork Kern River Valley, where Audubon California owns the Kern River Preserve. The Kern River Preserve, at approximately 3,000 acres, and environs, was one of the first ten sites in the U.S. to receive "Globally Important Bird Area" recognition. To date, 339 bird species have been recorded here. Most significantly, 200 species nest here including breeding populations of Yellow-billed Cuckoo, Summer Tanager, and Willow Flycatcher. Audubon-California is engaged in a habitat enhancement program to benefit the Preserve's nesting wetland and riparian species including Wood Duck and Yellow-

billed Cuckoo. Audubon partners with the Southern Sierra Research Station to survey and restore habitat for cuckoo's on the Preserve and throughout the Valley.

Below is a summary of the recent population in South Fork Kern River Valley. Additionally, the 2017 Annual Report on Yellow-billed Cuckoos in the South Fork Kern River Valley, prepared by Southern Sierra Research Station, is a valuable resource (SSRS 2017).

Yellow-billed Cuckoo Population Decline in the South Fork Kern River Valley, Kern County CA. Compiled by Reed Tollefson, Manager Kern River Preserve, August 14, 2018.

Research biologists monitoring the Yellow-billed Cuckoo population in the Kern River Valley (KRV) over the last 33 years have documented a dramatic decline in numbers of nesting territories and detections.

In the Kern River Valley between 1985 and 1996 there were an estimated average of 11.1 pairs or nesting territories, with a high of 24 pairs or nesting territories in 1994 (Laymon et al. 1997).

From 2012 – 2016, the estimated KRV cuckoo population has plummeted from eight estimated breeding territories down to 1 in 2016 (Stanek and Stanek 2012).

In 2017, 13 cuckoo detections were made in the 4 survey periods. This was down from total survey detections of 14, 17, 43, and 89 cuckoo detections respectively made in 2016, 2015, 2014, and 2012 (Stanek 2017).

Following the protocol territory designation guidelines based on the spatial distribution of cuckoo observations, Stanek estimated two Possible and one Probably Territory in the KRV in 2017. The observed detection pattern, suggests that these cuckoos (from the two possible territories) were moving through this section of the KRP, assessing the habitat for food and mates, but that they did not breed in this area (Stanek 2017). Thus probably just 1 breeding territory in 2017.

Results for cuckoo surveys conducted by the Southern Sierra Research Station in 2018 estimate one probable and one possible nesting territory with no direct evidence of nesting behavior such as carrying food items or nesting materials. Furthermore there were only 9 detections during the 2018 survey period which is the lowest of any year since 2012 (pers com J. Stanek 2018).

References for California site-specific information:

Detting, M. D., and C.A. Howell. 2011. Status of the Yellow-billed Cuckoo along the Sacramento River in 2010. Report to California Department of Fish and Game. PRBO Contribution #1794.

Laymon, S. A., P. L. Williams, and M. D. Halterman. 1997. Breeding status of the Yellow-billed Cuckoo in the South Fork Kern River Valley, Kern County, California: Summary report 1985-1996. Prepared for USDA Forest Service, Sequoia National Forest, Cannell Meadow Ranger District, California.

Southern Sierra Research Station (SSRS), prepared by J. R. Stanek. 2017. Yellow-billed Cuckoo South Fork Kern River Valley 2017 Annual Report.
http://www.southernsierraresearch.org/Information/ReportsAndPublications/SSRS_Reports/YBCU_Kern/SSRS_Kern_YBCU_2017_Report.pdf

Stanek, J. R. 2017. Yellow-billed Cuckoo Occupancy, Breeding, and Habitat Use in the South Fork Kern River Valley, 2017 Annual Report.

Stanek, J. R., and J. E. Stanek. 2012. Yellow-billed Cuckoo Occupancy, Breeding, and Habitat Use in the South Fork Kern River Valley, 2012 Annual Report. Report to the US Fish and Wildlife Service, Sacramento Office, Sacramento, CA.

Stanek and Tollefson phone conversation August 14, 2018 regarding 2018 Yellow-billed Cuckoo survey results in Kern River Valley conducted by Southern Sierra Research Station.

New Mexico:

Rio Grande:

Along the Rio Grande in New Mexico, the U.S. Bureau of Reclamation (USBOR) conducts Yellow-billed Cuckoo surveys in 2 distinct segments; the Middle Rio Grande (from Los Lunas to Elephant Butte Reservoir) and the Lower Rio Grande (from the outflow of Elephant Butte Reservoir to El Paso, Texas). During the 2017 Yellow-billed Cuckoo breeding season, 98 breeding territories and 412 detections were recorded in the Middle Rio Grande segment (USDOI April 2018) and 28 breeding territories and 110 detections were recorded in the Lower Rio Grande segment (USDOI March 2018). The Middle Rio Grande has been monitored by the USBOR since 2009 and the population appears to be stable. The Lower Rio Grande has been monitored by USBOR since 2014 and the population appears to be increasing.

There are significant habitat and hydrologic vulnerabilities associated with the locations of breeding Yellow-billed Cuckoo in each segment threatening the habitat suitability throughout the Rio Grande, detailed below. In each segment, Yellow-billed Cuckoo are nesting in locations where older cottonwood gallery forests are receiving flow inundation or near-inundation during river flooding (USDOI March 2018; April 2018). These locations are clustered in associated with the deltas of Elephant Butte and Caballo Reservoirs.

Within the Middle Rio Grande segment, breeding Yellow-billed Cuckoo pairs are located primarily within Elephant Butte and the San Marcial Reach. Both of these areas are in the southern portion of the segment and are prone to both hydrologic and geomorphic

vulnerabilities. Elephant Butte Reservoir has been at historic low levels for the past 15 years. The low lake levels have allowed for the infill of suitable habitat in areas that would be inundated during wetter hydrologic conditions. For instance, in 2017, 55% of nesting Yellow-billed Cuckoo within the Middle Rio Grande were detected in the delta of Elephant Butte, a location that is now dense riparian habitat but will be under water when the lake fills again. This situation creates a perilous situation for nesting Yellow-billed Cuckoo since the birds have a high site fidelity and may not find suitable nesting habitat during a high snow pack and rain year that could result in a rapid rise in reservoir level. In what would otherwise be a welcome snowpack, this scenario could result in a steep decline in suitable Yellow-billed Cuckoo habitat and nesting birds.

Yellow-billed Cuckoo restoration projects in the Rio Grande hold promise for dispersing Yellow-billed Cuckoo nests throughout the reaches north of the Reservoir, however these areas currently are in danger of drying and habitat degradation. In the San Marcial Reach, older cottonwood gallery forests are located on river banks close to the river channel. These areas are prone to potential die off through drought and geomorphic changes in the channel elevation. The USBOR addressed the drought vulnerability of the trees in the San Marcial Reach in their March 2018 report:

“Although prolonged drought conditions over the past several years have reduced the structure and density of younger age classes of vegetation within the San Marcial Reach, the more mature stands occupied by YBCUs do not appear to have been as heavily impacted. The roots from mature overstory trees have been able to reach groundwater in order to sustain themselves. However, if the drought persists and the depth to groundwater deepens, even the more mature canopy trees will likely suffer.”

This Reach has also been the location of head-cutting of the main channel due to the lower elevation of Elephant Butte Reservoir (Hoste et al. 2011). Head-cutting lowers the river head which likewise lowers the riparian groundwater elevation. This lowering of the riparian groundwater has killed older trees in the Tiffany area of this Reach in 2016, 2017 (Hamilton 2009).

Within the Lower Rio Grande segment, 57% of the 28 Yellow-billed Cuckoo nest detections in 2017 were located in the delta of Caballo Reservoir (USDOI April 2018). Like the delta in Elephant Butte Reservoir, the lower lake level has created suitable Yellow-billed Cuckoo habitat that is vulnerable to degradation caused by a rapid change in reservoir level. There are a few areas of suitable habitat and nesting Yellow-billed Cuckoo below Caballo Reservoir, primarily located within the Radium Springs Reach where habitat has been restored by the US Fish and Wildlife Service in the Selden Canyon area. This success holds promise for improving nesting success outside the Caballo Reservoir delta, but is unfortunately vulnerable to future drought impacts.

References for New Mexico site-specific information:

Hamilton, Sarah. 2009. Effect of Hydrologic, Geomorphic, and Vegetative Conditions on Avian

Communities in the Middle Rio Grande of New Mexico. Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Master of Science in the School of Renewable Natural Resources.

Hoste, N., J. Casuga, V. Ryan, and Y. Paroz. 2011. Bosque del Apache sediment plug management: alternative analysis. USDOI Bureau of Reclamation, Albuquerque Area Office, Albuquerque, New Mexico.

U.S. Department of the Interior (USDOI) Bureau of Reclamation (USBOR) Fisheries and Wildlife Resources Group. April 2018. Yellow-billed Cuckoo Study Results – 2017, Middle Rio Grande from Los Lunas to Elephant Butte Reservoir, New Mexico. USBOR Denver, Colorado.

U.S. Department of the Interior (USDOI) Bureau of Reclamation (USBOR) Fisheries and Wildlife Resources Group. March 2018. Lower Rio Grande Yellow-billed Cuckoo Survey Results-2017, New Mexico. USBOR Denver, Colorado.