Southwestern Willow Flycatcher and Yellow-billed Cuckoo Surveys along Las Vegas Wash, Clark County, Nevada, 2024

SOUTHERN NEVADA WATER AUTHORITY

LVWCC

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Las Vegas Wash Project Coordination Team

Prepared for:

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Southern Nevada Field Office

and

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ABSTRACT

The Las Vegas Wash Coordination Committee has been working to stabilize and enhance the Las Vegas Wash since 1998, with the Southern Nevada Water Authority (SNWA) as the lead agency. During section 7 consultation under the Endangered Species Act (ESA), the U.S. Fish and Wildlife Service (USFWS) determined the project may affect but was unlikely to adversely affect the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) and the threatened yellow-billed cuckoo (*Coccyzus americanus*). Consequently, the USFWS recommended conducting annual breeding surveys for both species. USFWS changed their effects determinations for both species to no effect in 2019. In 2022, after field staff confirmed nesting by the southwestern willow flycatcher, SNWA and the Bureau of Reclamation worked with USFWS on new ESA compliance. USFWS issued a biological opinion in December 2023, and annual surveys for the flycatcher and cuckoo continue. This report describes 2024 survey results. Field personnel identified three southwestern willow flycatchers on two territories, including one pair that nested. The first nest attempt was successful, producing the second confirmed fledgling in project history. The female laid a second clutch, with a single egg, but that nest failed. The territories were in native-dominated habitat that established passively above Historic Lateral Weir, an erosion control structure that was reconstructed and expanded in 2018. In August, field crews detected one yellow-billed cuckoo at the same site. Habitat extent and quality remained consistent for both species. Annual surveys for both species should continue.

ACKNOWLEDGMENTS

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1.0 BACKGROUND

The Las Vegas Wash (Wash) is the primary drainage channel for the Las Vegas Valley in Clark County, Nevada, USA. It carries highly treated wastewater, urban runoff, shallow groundwater, and storm runoff into Lake Mead at Las Vegas Bay (Figure 1). Although once an ephemeral stream, the Wash began supporting perennial flows in the 1950s when the discharge of treated wastewater into the channel was initiated. At first, these perennial flows created a lush wetland along the channel. However, the volume of flows in the Wash continued to increase with the increasing urban population. Increased flows and storm events led to greater erosion, which began to drain the wetlands and carry thousands of tons of sediment to Lake Mead. By the late 1990s, headcutting had deeply incised the channel and reduced wetlands by approximately 90% from their peak extent, leaving less than 80 hectares.

Figure 1. Las Vegas Wash location and general study area map.

In 1998, the Las Vegas Wash Coordination Committee (LVWCC), a 28-member stakeholder group, was created to address the degradation of the Wash, with Southern Nevada Water Authority (SNWA) as the lead agency. The group developed and implemented the Las Vegas Wash Comprehensive Adaptive Management Plan (LVWCC 2000) to stabilize the Wash and restore its ecological functions. Stabilization and enhancement activities included the installation of 21 erosion control structures (i.e., weirs) and more than 245 hectares of revegetation to help deter

further erosion and reduce the amount of sediment being deposited in Lake Mead. The capital improvements phase of the project was completed in June 2022, and activities continue under the direction of the Las Vegas Wash Long-Term Operating Plan (LTOP; LVWCC 2020).

Weir construction has impacted habitat at the Wash. Vegetation was cleared from each site to allow for vehicle access and for the footprint of the weir itself. Especially in the early years of the project, much of the vegetation present at each site was non-native tamarisk (*Tamarix ramosissima*). Once construction was complete, revegetation with native wetland, riparian and upland plants occurred, with plant selection dictated by site conditions. The Wash flows through the Clark County Wetlands Park (Wetlands Park), and Clark County has also removed tamarisk and planted mesquite trees and riparian and wetland vegetation within the study area. These habitat changes may affect federally listed bird species.

In 2000, the U.S. Army Corps of Engineers initiated informal section 7 consultation with the U.S. Fish and Wildlife Service (USFWS) on the proposed development of the Wetlands Park and associated erosion control structures to ensure compliance with the Endangered Species Act (ESA). The USFWS concurred that the project may affect but was unlikely to adversely affect the southwestern willow flycatcher (*Empidonax traillii extimus*), a federally endangered songbird, and recommended that annual surveys continue to be conducted. These surveys have been carried out since 1998, first by permitted consultants (Southwest Wetlands Consortium 1998; SWCA Environmental Consultants [SWCA] 1999, 2000, 2001, 2002, 2003, 2005, 2006, 2007, 2008, 2009a, 2009b) and then by permitted staff from the Las Vegas Wash Project Coordination Team (Wash Team), the implementation arm of the LVWCC (Van Dooremolen 2010, 2011, 2012, 2014a, 2014b, 2015a, 2016a, 2018a, 2018b, 2019, 2021; Van Dooremolen et al. 2022, 2023, 2024).

The southwestern willow flycatcher is a small neotropical migrant that typically breeds in riparian habitat either bordering or containing surface water or saturated soils in the Southwest and is an endangered subspecies of the willow flycatcher. It historically preferred dense willow (*Salix* spp.) habitat throughout its range, but as this habitat declined in the 20th century, the southwestern willow flycatcher adapted to the non-native tamarisk that had largely replaced its preferred habitat. The flycatcher was listed under the ESA in 1995.

A yellow-billed cuckoo (*Coccyzus americanus*) was detected during the 1998 southwestern willow flycatcher surveys (Southwest Wetlands Consortium 1998). The yellow-billed cuckoo is a neotropical migrant that breeds extensively throughout eastern North America. However, the western distinct population segment (DPS) has a much more limited breeding distribution and prefers expansive riparian woodlands and mesquite, including Fremont's cottonwood (*Populus fremontii*), Goodding's willow (*S. gooddingii*), honey mesquite (*Neltuma glandulosa*, formerly *Prosopis glandulosa*) and screwbean mesquite (*Strombocarpa odorata*, formerly *P. pubescens*). The USFWS determined that the western DPS was a candidate for listing under the ESA in 2001 and listed the DPS as threatened in 2014.

From 2002 through 2004, contractors conducted annual cuckoo surveys in the Wetlands Park; none were found, and they were discontinued due to limited habitat availability (SWCA 2002, 2003, 2005). In 2013, following a substantial increase in potentially suitable nesting habitat, the Wash Team began conducting the surveys (Van Dooremolen 2014c, 2014d, 2015b, 2016b, 2017, 2018b,

2019, 2021; Van Dooremolen et al. 2022, 2023, 2024). Following the listing of the DPS, the Bureau of Reclamation (BOR) reinitiated informal section 7 consultation with the USFWS, who concurred that the weir project may affect but was unlikely to adversely affect the yellow-billed cuckoo and recommended that annual surveys continue to be conducted.

USFWS changed the effects determinations for the two species from may affect, not likely to adversely affect to no effect in 2019. Annual surveys continued in support of the Las Vegas Wash Wildlife Management Plan (WMP; Shanahan et al. 2008). When nesting of the flycatcher was confirmed in the project area for the first time in 2022, SNWA and BOR worked with USFWS on new ESA compliance for the LTOP. USFWS issued a biological opinion (BO) authorizing limited incidental take of the southwestern willow flycatcher and western yellow-billed cuckoo for select LTOP activities. Annual surveys for the two species are now conducted under the BO and WMP. This document reports the results from the 2024 surveys.

2.0 METHODS

2.1 Study Area

Surveys for the southwestern willow flycatcher and yellow-billed cuckoo were conducted in Clark County, Nevada (Figure 1). The general study area consists of the Wetlands Park and an approximately nine-kilometer reach of the Wash contained within its boundaries. Two survey sites were identified: the Wetlands Park Nature Preserve (Nature Preserve) and the Wash.

2.1.1 Nature Preserve

The Nature Preserve (Figure 2) is the developed heart of the Wetlands Park. Native-dominated riparian habitat surrounds wetland ponds constructed in the early 2000s–the upper pond, three middle ponds and Vern's Pond–and lines the channels that run between them. The densest and widest riparian patches occur along the channels; the density and width of the habitat ringing the ponds is generally thinner. A grove of cottonwoods just south of the middle ponds transitions to an overstory of Goodding's willows with a few cottonwoods interspersed and a dense understory of sandbar willows (*S. exigua*) and willow baccharis (*Baccharis salicina*). The patches of riparian habitat are connected by large areas of dry common reed (*Phragmites australis*) and by mature honey and screwbean mesquite, occurring either with quailbush (*Atriplex lentiformis*) and willow baccharis in the understory or in thickets. Mesquite trees of various maturity with a saltgrass (*Distichlis spicata*) understory cover much of the area between the original ponds and the West 80, which was constructed several years later. In the West 80, the riparian habitat surrounding the channels and ponds is narrower and more sporadic.

Although still the dominant non-native tree/shrub species, little monotypic tamarisk remains.

In 2024, field crews surveyed 5.6 hectares of potentially suitable habitat for the southwestern willow flycatcher and 15.9 hectares for the yellow-billed cuckoo at this site.

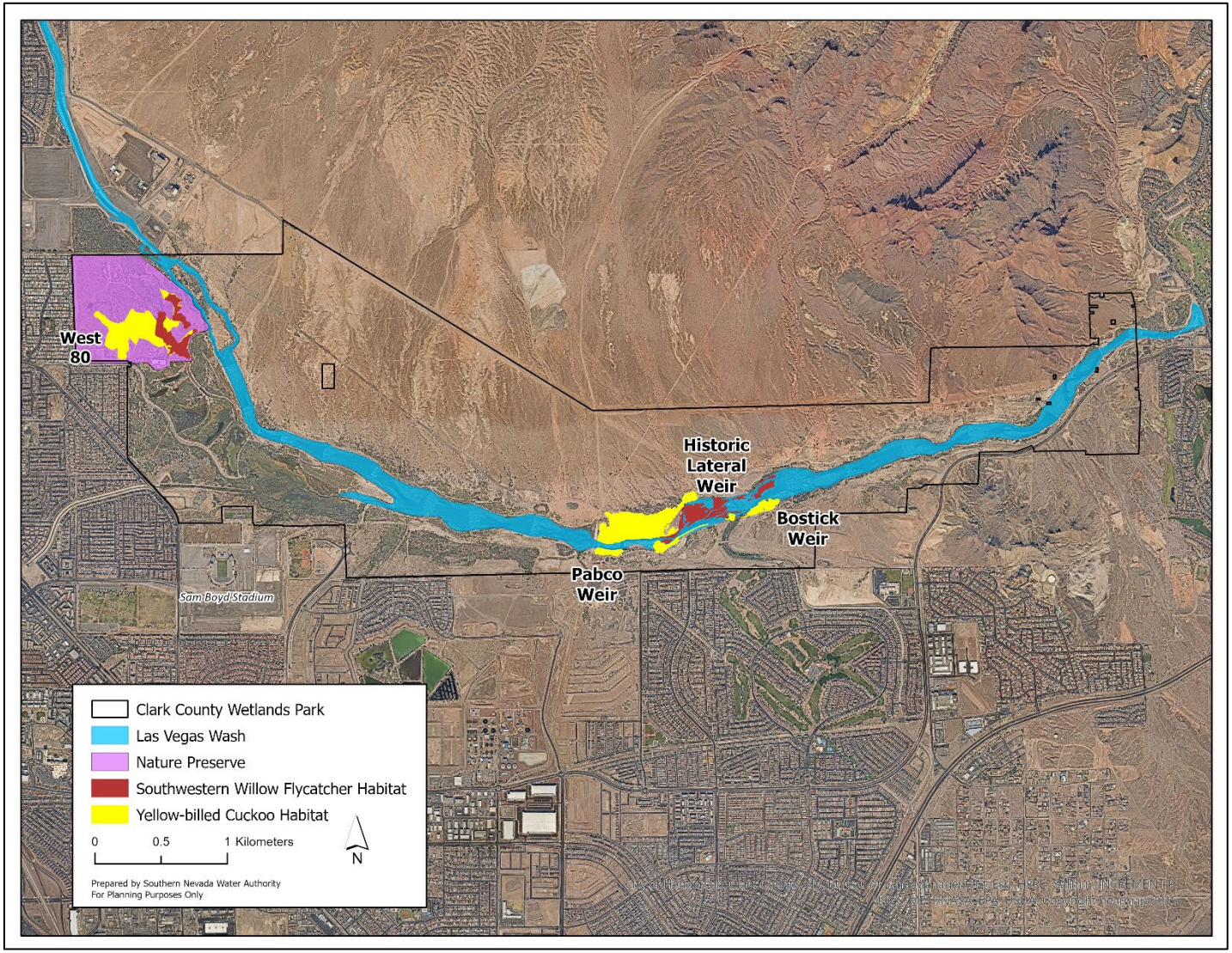

Figure 2. Southwestern willow flycatcher and yellow-billed cuckoo habitat surveyed in 2024.

2.1.2 Wash

Potentially suitable habitat along the Wash is concentrated in the area from Pabco Weir to Bostick Weir (Figure 2). Patches of native-dominated riparian habitat occur on the banks and islands, consisting of cottonwood, Goodding's willow, sandbar willow, some seep willow (*B. salicifolia*), willow baccharis and tamarisk. Patches of mesquite, both screwbean and honey (often with quailbush or baccharis in the understory) border and connect the riparian habitat. As with the Nature Preserve, tamarisk is the dominant non-native tree/shrub species, but little monotypic tamarisk remains.

In 2024, field crews surveyed 6.0 hectares of potentially suitable habitat for the southwestern willow flycatcher and 22.1 hectares for the yellow-billed cuckoo at this site.

2.2 Surveys

2.2.1 Southwestern Willow Flycatcher

Field crews conducted surveys in potentially suitable nesting habitat using the presence/absence protocol developed by Sogge et al. (2010). Small patches, less than one hectare, were included. A team of two people composed of a minimum of one of the following permitted individuals—Deborah Van Dooremolen, Nicholas Rice and/or Timothy Ricks—surveyed each route. Crews used the three-survey general protocol, which includes one survey in each of three survey periods (May 15–31, June 1–24 and June 25–July 17) with each survey at least five days apart, conducting the 2024 surveys on May 21–22, June 4–5 and June 26. Prior to 2018, surveys were conducted using the five-survey project-related protocol (except for 1998–2001 when the three-survey protocol was also used). USFWS approved the change in survey effort in April 2018 (File No. 08ENVS00-2018-I-0102 and 1-5-01-I-428.AMDI).

The southwestern subspecies is the only willow flycatcher that nests in southern Nevada. However, other non-listed subspecies of the willow flycatcher may pass through the area during migration, and the different subspecies are virtually indistinguishable in the field. Birds discovered during the first and second survey periods may simply be migrating through and cannot be determined to be of the federally endangered subspecies. The third survey period (June 25–July 17) begins after the known migration period, so any willow flycatchers detected then can be considered residents, and thus of the southwestern subspecies (Sogge et al. 2010). Additionally, if an adult willow flycatcher is detected at a site for a minimum of seven days, it is considered resident (SWCA 2024).

Field crews began surveys in the hour before sunrise and were typically finished by 10:30 a.m. Call playback of the species' song (fitz-bew) was used to elicit responses from any nearby willow flycatchers. Crews walked through potentially suitable nesting habitat broadcasting approximately every 20–30 meters following a period of silent listening. Vocalizations were broadcast for approximately 15 seconds at each stop, followed by 1–2 minutes of listening for a response. If a bird was detected, the surveyors would travel a minimum of 50 meters before calling again to prevent the individual from being double-counted. Broadcasts were conducted from inside habitat patches where possible but occasionally had to occur from the habitat edge due to concerns regarding access safety.

2.2.2 Yellow-billed Cuckoo

Field crews conducted presence/absence surveys in potentially suitable nesting habitat using the protocol drafted by Halterman et al. (2016), which recommends a minimum patch size for surveying of five hectares. The protocol identifies three survey periods from mid-June through mid-August and requires four surveys across those periods, with one survey in the first period (June 15–30), two surveys in the second (July 1–31), and one survey in the third (August 1–15). Each survey needs to be separated by 12–15 days. Observers conducted the 2024 surveys on June 24 and 27, July 9–10, July 23–24 and August 6–7. A team of 2–3 people surveyed each transect, and the team included at least one of the previously listed permitted individuals.

Field staff began surveys just before sunrise and completed them by 11:00 a.m. or when the temperature reached 40ºC, whichever came first. Call playback was used. Within each transect, broadcasts were conducted every 100 meters; points on adjacent transects were likewise separated to prevent double counting. At each broadcast point, the survey team would listen quietly for approximately one minute, and then, if no cuckoos were heard, they would broadcast five of the species' contact calls (the kowlp call), with each call separated by one minute. If a bird was detected, the surveyors would move 300 meters along the transect before broadcasting again to prevent the individual from following the broadcast and being counted more than once.

The protocol established a method for determining the breeding implications of survey results. Two detections in an area in two different survey periods separated by at least 10 days is a possible breeding territory. Three detections in an area in three different survey periods, with each separated by at least 10 days, is a probable breeding territory. Field staff must observe copulation, stick carry to nest, carrying food (multiple observations), distraction display(s), the nest or fledgling(s) to confirm breeding.

3.0 RESULTS

Specific locations are withheld to protect the species.

3.1 Surveys

3.1.1 Southwestern Willow Flycatcher

Field personnel detected three resident southwestern willow flycatchers, comprising two territories and one pair, in the passively established, native-dominated habitat above Historic Lateral Weir (Figure 2). No migrants were reported. SWCA carried out nest searching and monitoring, as well as banding and resights of the flycatchers (S. Nichols, SWCA, pers. comm.).

3.1.1.1 Territory 1

This territory was located in the northern part of the patch, near the north bank of the Wash. It successfully produced one fledgling.

- May 21: Wash Team staff heard a presumed male give a few fitzbews, whitts and weeoos during a pre-survey site check.

- May 22: Wash Team staff thought they heard brief counter-singing with the Territory 2 (T2; see Section 3.1.1.2) male toward the center of the patch during presence/absence

surveys and thought the Territory 1 (T1) male may have gone to investigate or had possibly relocated his territory. The counter-singing was not heard again, however, and no flycatcher responded from that location again and the male was not heard in the northern part of the patch either, even with playback.

- June 5: Wash Team staff briefly heard the male singing during presence/absence surveys.

- June 17: Wash Team field staff heard whitts between two birds during territory monitoring, confirming a pair.

- June 26: Wash Team field staff again heard whitts between two birds in the territory, re-confirming the pair.

- June 28: SWCA field staff conducted territory monitoring and identified a nest with a nestling and one unhatched egg and banded the nestling. They resighted the female as the one that made three failed nest attempts last year. They target-netted the male and identified him as the male that had the only nest confirmed to fledge young (one) in 2023. Both birds were first caught and banded by SWCA on May 31, 2023.

- July 5: SWCA field staff visually confirmed one fledgling and observed the female taking spider webs to the nest, indicating that she was laying a second clutch.

- July 11: Wash Team field staff that could see into the nest without a mirror pole observed one egg.

- July 15: SWCA field staff poled the nest and there was still one egg. Both adults were detected about 15 meters to the northwest where there was still standing water, whitting until a large bird flew off and the area grew quiet. The nest was observed a little longer, but the female did not go to it.

- July 28: SWCA field staff poled the nest and there was still just one egg. An exploration of the area to the northwest where there was still standing water, as well as north of the nest along the edge of the water, yielded no willow flycatchers; even after trying playback, there was no response. Field staff concluded that the second nest had failed.

3.1.1.2 Territory 2 (T2)

- May 22: Wash Team staff heard the T2 male singing toward the center of the patch during presence/absence surveys. While originally they thought there may have been a second bird counter-singing briefly (see Section 3.1.1.1), it is also possible the T2 male was a fast flyer between perches. He covered a large area, moving south and east and was not particularly vocal.

- June 5: Wash Team staff briefly heard the male singing during presence/absence surveys. He still seemed to cover a large area.

- June 14: SWCA field staff heard a willow flycatcher singing in the area, but whenever they got close, the bird would fall silent. He still seemed to be covering a large area.

- June 17: Wash Team staff heard the male singing during territory monitoring.

- June 26: Wash Team field staff did not hear the male during the final presence/absence surveys of the season.

- June 28: SWCA field staff did not detect the bird, with or without playback.

- July 5: SWCA field staff did not detect the bird, with or without playback. Staff concluded the territory had been abandoned.

3.1.2 Yellow-billed Cuckoo

Field crews made one detection, on August 7, 2024, upstream of Historic Lateral Weir in the same riparian patch as the nesting willow flycatchers.

3.3 Habitat Observations

3.3.1 Nature Preserve

Habitat extent and quality were similar to 2023 for both species, with gains from fire recovery offset by continued degradation of mature habitat. For the flycatcher, field staff again deemed the West 80 and the thin stringer of tamarisk on Monson Channel bordering the preserve unsuitable. The West 80 is more suitable for the cuckoo than the flycatcher due to its mesquite cover; although, habitat quality appears marginal. Still, it had the only Nature Preserve cuckoo detection in 2023, so surveys continue there for the species.

Field crews continued to note extensive regrowth of riparian and mesquite trees in burn areas, and older native riparian trees continued to show signs of stress and die-off. This was again particularly notable in what had been some of the highest quality riparian habitat in the preserve, at the southern end of the riparian zone stretching south along the feeder channel from the middle ponds to Vern's Pond. This area hosted a southwestern willow flycatcher territory in 2013 (Van Dooremolen 2014a) when the location had a dense multi-layered willow canopy. The canopy has opened significantly, negatively impacting its suitability.

3.3.2 Wash

Habitat extent and quality remained about the same year over year. The riparian area that formed in the impoundment of Historic Lateral Weir following its reconstruction and expansion in 2018 continued to mature, offering high-quality habitat for both species. In the overstory, Goodding's willows and cottonwoods are dominant and have spread along adjacent banks, and there is sandbar willow and tamarisk, among others, in the understory. The site has hosted all known nesting southwestern willow flycatcher pairs in project history and several cuckoo detections, including the sole cuckoo identified in 2024. Riparian habitat on and immediately downstream of Historic Lateral Weir also expanded.

Habitat should continue to improve. Sites dominated by mesquite will mature, increasing their suitability for cuckoo. As stated in Van Dooremolen et al. (2023, 2024), the area downstream of Pabco Weir on the south bank is targeted for riparian restoration funded by a $900,500 BOR grant. The Goodding's willows at this site have degraded over the past several years and now provide little-to-no potentially suitable nesting habitat for the flycatcher or cuckoo. The exact reason for the declining health of the Goodding's willow is unknown, but it is likely a combination of insect infestation, disease and changing hydrology due to deposition of sediment on the site following storm events. This had been one of the best patches of riparian habitat on the Wash and the site of a probable cuckoo breeding territory in 2017 (Van Dooremolen 2017).

Also as stated in Van Dooremolen et al. (2023, 2024), about 25 hectares of riparian and marsh vegetation will be removed from on and around weirs every 2–4 years so they can function as designed. While reducing habitat in the short term, vegetation clearing for stabilization maintenance may lead to habitat improvement, resetting older riparian sites to earlier successional stages, which may offer higher quality habitat for the two bird species.

4.0 DISCUSSION AND RECOMMENDATIONS

4.1 Southwestern Willow Flycatcher

Field crews identified two territories, including a pair that nested and fledged the second confirmed southwestern willow flycatcher young in 27 years of surveys. In 2023, the Wash's first fledgling took six nest attempts by three pairs (Van Dooremolen et al. 2024). In 2024, a recombination of those same birds (see below) fledged one young from their first attempt.

The area of habitat surveyed for the flycatcher remained the same as in 2023, which was the lowest since surveys began in 1998. The passively established islands above Historic Lateral Weir now offer the highest quality habitat on the channel, as shown by the presence of territories in the past several years, including the first recorded resident pairs, nests and fledglings (Van Dooremolen et al. 2023, 2024).

Just 12 of the 143 adult willow flycatchers detected in 27 years of surveys have been residents that established breeding territories, and 10 of those, including the first to pair and nest, were in the past four years (Figure 3). Reproductive success has a large influence on site fidelity with southwestern willow flycatchers. Individuals that successfully fledge young at a location are more likely to return there and unsuccessful birds that move to a new site the next year typically improve their success (Paxton et al. 2007). Interestingly, the 2024 pair was a recombination of flycatchers from 2023 territories that had mixed results: the male nested once with a female that had two failed nests with another male and successfully fledged the first confirmed young in project history, and the female had three failed nests with the other male. Despite failing to reproduce, the female returned to the Wash in 2024 and fledged one young on her first known attempt. In 2023, her first nest was parasitized by a brown-headed cowbird (*Molothrus ater*) and her second and third nests were depredated (S. Nichols, SWCA, pers. comm); in 2024, no parasitism or depredation was observed. The male has now successfully fledged young at the Wash for two consecutive years, and his two young are the only confirmed fledglings in project history.

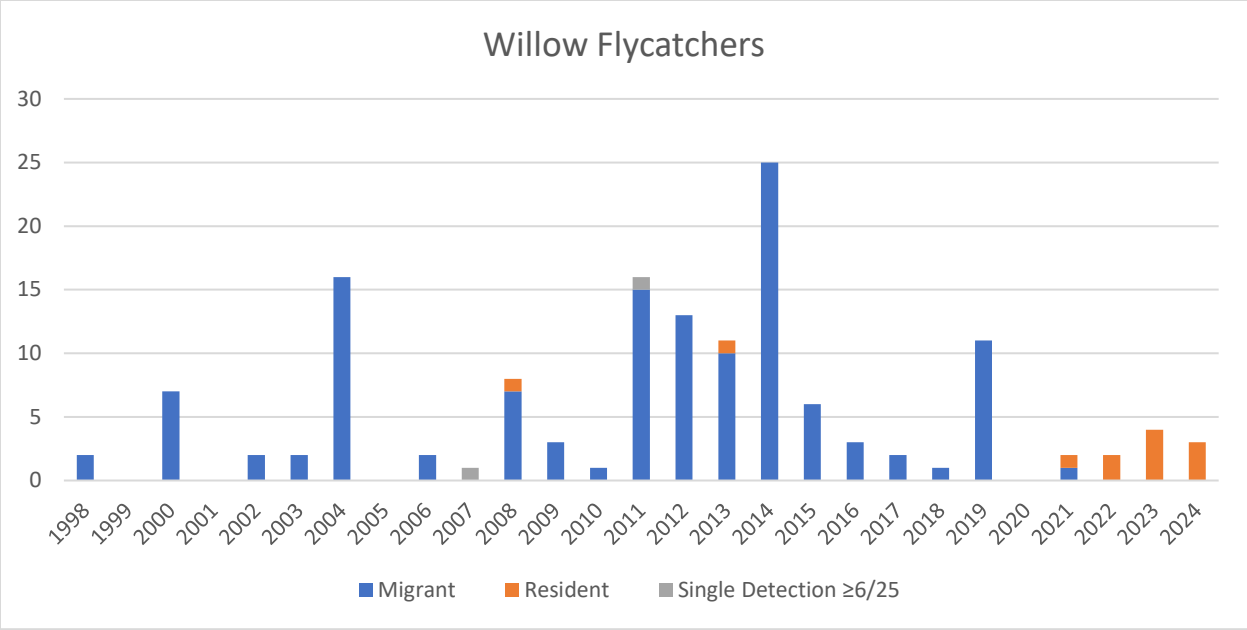

Figure 3. The number of willow flycatchers detected annually, 1998–2024. Birds on territory and single detections in the third survey period (≥ June 25) were assumed to be resident and thus of the endangered southwestern subspecies.

4.2 Yellow-billed Cuckoo

It was a low-detection year for cuckoos, with only one. Still, only about 5–10 cuckoos are detected in the entire state each year (e.g., Van Dooremolen 2018b, Van Dooremolen et al. 2023), so the Wash study area continues to be important for the species in Nevada. The Wash has lacked detections in only a few years since annual surveys began (Figure 4). Breeding has been indicated by probable territories at the Nature Preserve in 2013 and at the Wash in 2017 and 2023, and possible territories at the Wash in 2019 and 2020 and Nature Preserve in 2021 (Van Dooremolen 2014c, 2017, 2019, 2021; Van Dooremolen at al. 2022, 2024).

Overall, habitat extent and quality were similar to 2023. Habitat for the cuckoo is enhanced by the extensive presence of mesquite, which continues to mature at several revegetation sites. Fires at the Nature Preserve have burned patches of mesquite and riparian trees, but these areas are resprouting. To reduce fire and its impacts, Wetlands Park staff work closely with federal, state and local partners to have fires controlled as quickly as possible and are working on a fire management plan.

4.3 Recommendations

Annual surveys for the southwestern willow flycatcher and yellow-billed cuckoo should continue in support of the BO and WMP. Additionally, Wash Team staff should continue to pursue grants and other opportunities to replace and/or enhance riparian vegetation in the study area and coordinate with engineers on planting locations.

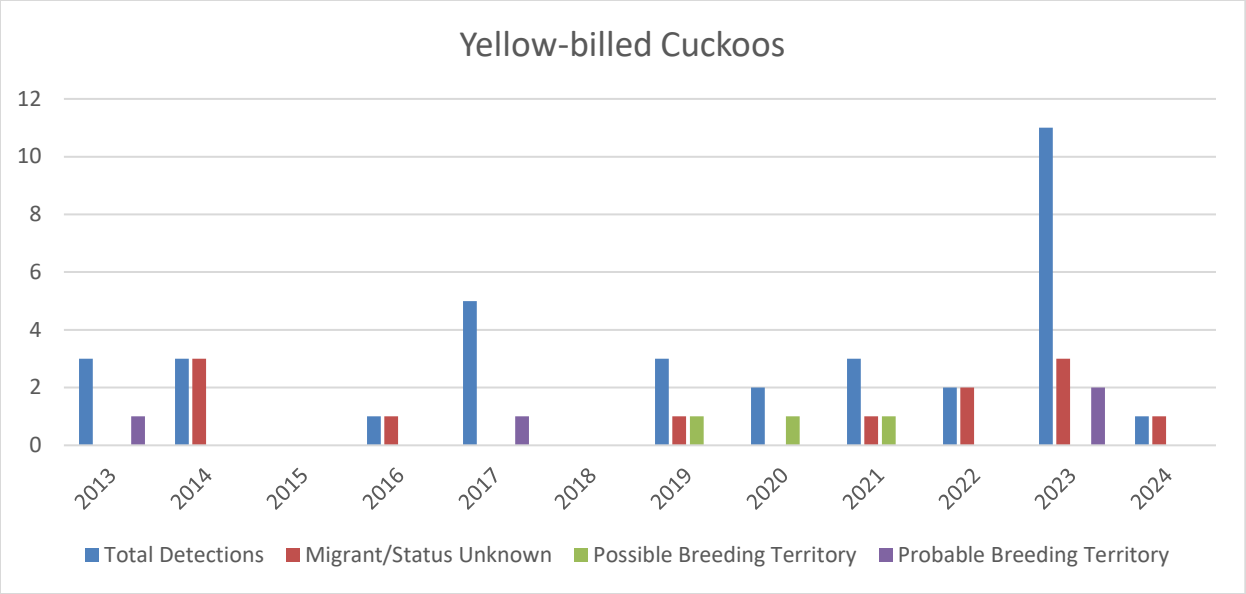

Figure 4. Yellow-billed cuckoo survey detections, 2013–2024.

5.0 CONCLUSION

The LVWCC is conducting a stabilization and enhancement program along the Wash. Wash Team staff conduct surveys annually for the southwestern willow flycatcher and yellow-billed cuckoo. 2024 monitoring identified two southwestern willow flycatcher territories, including one pair that nested and was confirmed to fledge one young. Field crews also completed protocol surveys for the cuckoo, making one detection. Habitat extent and quality were similar to 2023. Annual surveys should continue.

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