

Southwestern Willow
Flycatcher and Yellow-billed
Cuckoo Surveys along the
Las Vegas Wash,
Clark County, Nevada, 2019





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SOUTHERN NEVADA WATER AUTHORITY Las Vegas Wash Project Coordination Team

Prepared for:

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and

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ABSTRACT

The Las Vegas Wash Coordination Committee (LVWCC), a 28-member stakeholder group, is working to stabilize and enhance the Las Vegas Wash (Wash), the channel that drains flows from the Las Vegas Valley to Lake Mead at Las Vegas Bay. The Wash also flows through the 2,900-acre Clark County Wetlands Park (Wetlands Park). As part of informal Section 7 consultation for the project with the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service (USFWS) recommended conducting annual surveys to determine the occurrence of the federally endangered southwestern willow flycatcher (*Empidonax traillii extimus*) within the Wetlands Park. These surveys have been conducted since 1998. Following the listing of the yellow-billed cuckoo (*Coccyzus americanus*) as threatened and reinitiation of consultation, USFWS recommended conducting annual surveys for that species, as well. Cuckoo surveys have been conducted annually since 2013. This report describes 2019 survey results for both species.

Flycatcher surveys were conducted from May 20 to June 26; 11 migrant willow flycatchers were detected, all in the first survey period. 2019 surveys for the cuckoo began June 24 and were completed August 6; three cuckoo detections were made, representing one possible breeding territory and one likely migrant. Habitat extent and quality were roughly the same as the prior year for both species. For the flycatcher, this was the highest number of detections since 2014, reversing several years of declines. For the cuckoo, while typically only a few are detected in the entire state each year, 2019 was exceptional, with field crews making more than 35 detections of more than 20 individuals in southern Nevada alone.

Informal Section 7 consultations have been concluded for both species, but annual surveys for southwestern willow flycatchers and yellow-billed cuckoos should continue in order to help project activities avoid take of listed species.

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1.0 BACKGROUND

The Las Vegas Wash (Wash) is the primary drainage channel for the Las Vegas Valley carrying highly treated wastewater, urban runoff, shallow groundwater, and storm runoff into Lake Mead at Las Vegas Bay (Figure 1). Although originally 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, and erosion from the increased flow and from storm events 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 the wetlands by approximately 90% from their peak extent, leaving less than 80 hectares (200 acres).

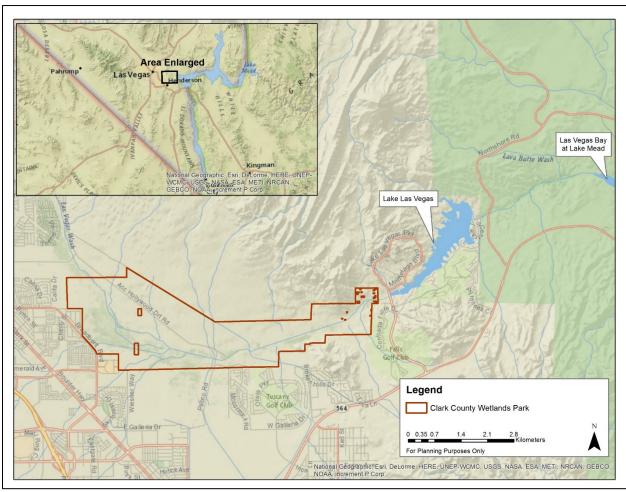


Figure 1. Las Vegas Wash location and general study area map.

In 1998, the Las Vegas Wash Coordination Committee (LVWCC), a 28-member stakeholder group, was created to address the degradation of the Wash. The group developed and is implementing the Las Vegas Wash Comprehensive Adaptive Management Plan to stabilize the Wash and restore its ecological functions. Stabilization and enhancement activities, which include the construction of 21 erosion control structures (weirs) and extensive revegetation, help deter erosion and reduce the amount of sediment being deposited in Lake Mead. As of May 2019, all

21 planned permanent weirs and more than 200 hectares (>500 acres) of native vegetation were in place. Revegetation of the final weir sites should be completed by the end of 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 2,900-acre Clark County Wetlands Park (Wetlands Park), and Clark County is also removing tamarisk and planting mesquite trees and riparian and wetland vegetation within the study area as it develops park facilities.

The southwestern willow flycatcher (*Empidonax traillii extimus*) is a small songbird that breeds in riparian habitat in the Southwest and is a federally endangered subspecies of the willow flycatcher. It historically preferred dense willow (*Salix* spp.) habitat throughout its range, but as this habitat declined in the twentieth century, the southwestern willow flycatcher adapted to the non-native tamarisk that had largely replaced its preferred habitat.

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 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 flycatcher and recommended that annual surveys continue to be conducted to determine its occurrence in the project area. These surveys were conducted by permitted consultants from 1998 through 2009, first contracted by Clark County and then by the Southern Nevada Water Authority (SNWA), the lead agency of the LVWCC (Southwest Wetlands Consortium 1998; SWCA 1999, 2000, 2001, 2002, 2003, 2005, 2006, 2007, 2008, 2009a, 2009b). Permitted staff from the Las Vegas Wash Project Coordination Team (Wash Team; the implementation arm of the LVWCC) have performed the surveys since 2010 (Van Dooremolen 2010, 2011, 2012, 2014a, 2014b, 2015a, 2016a, 2018a, 2018b).

The yellow-billed cuckoo (*Coccyzus americanus*) is a neotropical migrant that breeds extensively throughout eastern North America, from Mexico north to Canada, but has a much more limited breeding distribution in the western portion of the continent. The USFWS listed the western Distinct Population Segment as threatened under the ESA on November 3, 2014. In the Southwest, the cuckoo prefers expansive riparian woodlands with cottonwood, willow, and mesquite for nesting. Thus, the cuckoo may benefit from revegetation efforts associated with the Wash project and Wetlands Park.

A yellow-billed cuckoo was detected during the 1998 southwestern willow flycatcher surveys (Southwest Wetlands Consortium 1998). San Bernardino County Museum examined potential cuckoo habitat in the study area in 2000 and 2001, found it lacking, and did not conduct surveys for the species (McKernan and Braden 2001, McKernan and Carter 2002). From 2002 through 2004, surveys for the cuckoo were conducted; none were found and since habitat was still suboptimal, surveys were discontinued (SWCA 2002, 2003, 2005). In 2013, the Wash Team began conducting annual cuckoo surveys again (Van Dooremolen 2014c, 2014d, 2015b, 2016b, 2017,

2018b). Following the listing of the species, the U.S. Bureau of Reclamation reinitiated informal Section 7 consultation. The USFWS concurred that the project may affect but was unlikely to adversely affect the yellow-billed cuckoo and recommended that annual surveys continue to be conducted to determine its occurrence in the project area.

This document reports the results from the 2019 surveys for southwestern willow flycatchers and yellow-billed cuckoos in potentially suitable nesting habitat along the Wash.

2.0 METHODS

2.1 Potentially Suitable Nesting Habitat

2.1.1 Southwestern Willow Flycatcher

Potentially suitable nesting habitat for the southwestern willow flycatcher is defined as areas with dense to moderately dense riparian vegetation, either bordering or containing surface water or saturated soils. Native riparian species include Goodding willow (*S. gooddingii*), sandbar willow (a.k.a. coyote willow; *S. exigua*), cottonwood (*Populus fremontii*), seep willow (*Baccharis salicifolia*) and willow baccharis (*B. salicina*). Tamarisk is the dominant non-native species, although little remains along the Wash. Small patch sizes, less than a hectare (2.5 acres), are included.

2.1.2 Yellow-billed Cuckoo

Potentially suitable nesting habitat for the yellow-billed cuckoo is defined as patches of native riparian vegetation with at least some large overstory trees, such as cottonwood and Goodding willow, and an understory layer, typically with sandbar willow, seep willow, and/or willow baccharis. Screwbean and honey mesquite (*Prosopis pubescens* and *P. glandulosa*) thickets of suitable stature are also included. No monotypic stands of tamarisk were surveyed as the species typically does not nest in them (Halterman et al. 2016). Patch size is also important. Halterman et al. (2016) recommend a minimum patch size for surveying of five hectares (12 acres) but state that yellow-billed cuckoos rarely nest in patches smaller than 20 hectares (~50 acres).

2.2 Study Area

The general study area consists of the Wetlands Park and an approximately six-mile reach of the Wash contained within its boundaries. Three survey sites were identified in the study area: the Wetlands Park Nature Preserve (Nature Preserve), the Wash and Duck Creek.

2.2.1 Nature Preserve

The Nature Preserve (Figure 2) is the developed heart of the Wetlands Park, with paved and unpaved trails. Native-dominated riparian habitat surrounds constructed wetland ponds—the upper pond, three middle ponds, and Vern's Pond—and lines the channels that run between them. Emergent vegetation, including cattails (*Typha domingensis*), common reed (*Phragmites australis*), and bulrush (*Schoenoplectus* spp.), occurs in the wetter portions of the understory. 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 willows with a few cottonwoods interspersed and a dense understory of sandbar willow and willow baccharis. The patches of riparian habitat are connected

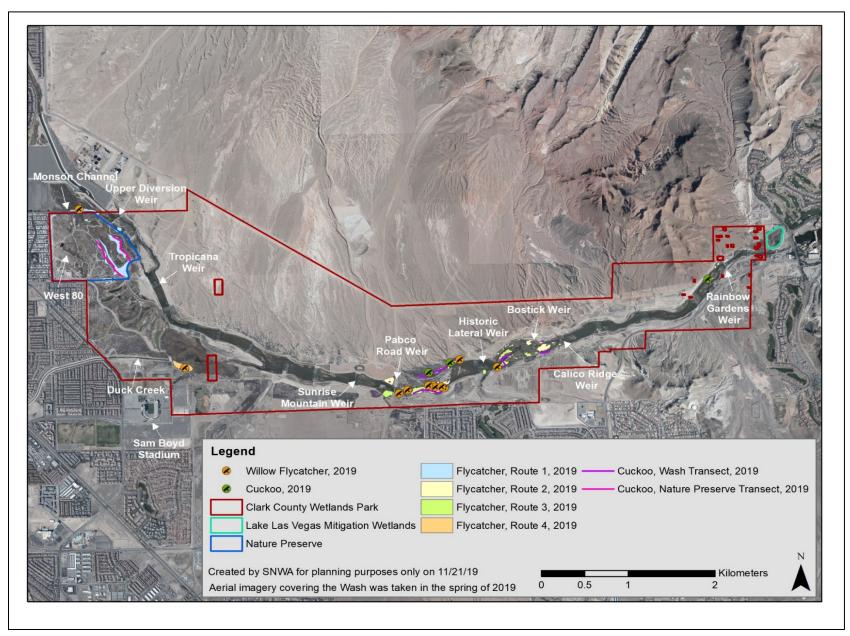


Figure 2. Willow flycatcher survey routes, yellow-billed cuckoo survey transects and 2019 detection locations.

by patches of honey and screwbean mesquite. Both species of mesquite occur 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 the site west of the main survey area to the West 80. In the West 80, which was constructed several years after the area to the east, the riparian zone along the feeder channels and ponds is generally much thinner than in the older portions of the Nature Preserve, limiting its potential suitability to southwestern willow flycatcher. A portion of Monson Channel bordering the preserve is also included in this site, as are small patches upstream and downstream of Upper Diversion Weir. Vegetation on Monson Channel is dominated by tamarisk, and there is one small patch of tamarisk adjacent to Vern's Pond. These areas are only potentially suitable for the flycatcher.

In 2019, seven hectares (~17 acres) of potentially suitable habitat were surveyed for the southwestern willow flycatcher and approximately 16 hectares (~40 acres) were surveyed for the yellow-billed cuckoo, with one route for the flycatcher (Route 1) and two transects for the cuckoo.

2.2.2 Wash

Potentially suitable habitat along the Wash begins just upstream of Pabco Road Weir and continues downstream to Calico Ridge Weir for the cuckoo and to Rainbow Gardens Weir for the flycatcher (Figure 2). The LVWCC has constructed several weirs along the Wash and significant revegetation has occurred and matured. Stringers of native riparian habitat run along either side of the channel, consisting of cottonwood, Goodding and sandbar willows, and some seep willow and willow baccharis. Cattails, common reed, and to a lesser extent bulrush occur in the wetter portions of the understory, and patches of mesquite, both screwbean and honey (often with quailbush or baccharis in the understory) connect the riparian habitat. Little tamarisk remains. The majority of the habitat is concentrated from just upstream of Pabco Road Weir to upstream of Calico Ridge Weir (Figure 2). Habitat further downstream is limited to a few small patches above Rainbow Gardens Weir that only have potential for flycatcher (Figure 2). The Lake Las Vegas mitigation wetlands are no longer surveyed due to poor habitat quality.

In 2019, field crews surveyed just over 10 hectares (~26 acres) of potentially suitable habitat for the southwestern willow flycatcher and approximately 19 hectares (~47 acres) for the yellow-billed cuckoo, with two routes for the flycatcher (Routes 2 and 3) and two transects for the cuckoo, covering both the north and south banks.

2.2.3 Duck Creek

This site includes patches of tamarisk along Duck Creek near Sam Boyd Stadium (Figure 2). In 2019, field crews surveyed less than 1.5 hectares (~3 acres) of potentially suitable habitat for southwestern willow flycatcher with a single route (Route 4).

2.3 Surveys

2.3.1 Southwestern Willow Flycatcher

Surveys for the flycatcher were conducted using the presence/absence protocol developed by Sogge et al. (2010). Each route was surveyed by a team of 2-3 people. Each team was composed of a minimum of one of the following permitted individuals: Deborah Van Dooremolen (TE148556-4), Nicholas Rice (TE64580A-2), or Timothy Ricks (TE67397A-2). The three-survey

general protocol was used, which includes one survey in each of three survey periods (May 15-31, June 1-24, and June 25-July 17). The 2019 surveys were conducted May 20-21, June 3-4, and June 25-26. Prior to 2018, surveys were conducted using the five-survey project-related protocol. USFWS approved the change in survey effort in April of 2018 (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).

Field crews began surveys in the hour before sunrise and were typically finished by 10:30 a.m. (Appendix A). Call-playback was used to elicit responses from any nearby willow flycatchers. Surveyors broadcast the species' song (fitz-bew) and calls with MP3 players attached to portable speakers. They walked through potentially suitable nesting habitat broadcasting the vocalizations approximately every 20-30 meters (~65-100 feet) 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 (~165 feet) 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 safe access.

2.3.2 Yellow-billed Cuckoo

Presence/absence surveys for the cuckoo were conducted using the protocol drafted by Halterman et al. (2016). 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). The 2019 surveys were conducted June 24, July 8-9, July 22-23, and August 5 -6. Each transect was surveyed by a team of 2-3 people, and the team had a minimum of one of the previously listed permitted individuals.

Surveys began at sunrise and were completed by 11:00 a.m. or when the temperature reached 40° C (104° F), whichever came first. Call-playback was used. Within each transect, broadcasts were conducted every 100 meters (328 feet); 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, using an MP3 player attached to a portable speaker. 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 ten days is a possible breeding territory. Three detections in an area in three different survey periods separated by at

least 10 days is a probable breeding territory. Field staff has to observe copulation, stick carry to nest, carrying food (multiple observations), distraction display(s), the nest, or fledgling(s) to confirm breeding.

3.0 RESULTS

3.1 Surveys

3.1.1 Southwestern Willow Flycatcher

Eleven migrant willow flycatchers were detected during the first survey, May 20-21: one on Monson Channel bordering the Nature Preserve, one at Duck Creek, and nine at the Wash, all but one of which occurred between Pabco Road and Historic Lateral weirs (Figure 2, Appendix A). The birds exhibited various levels of responsiveness, with most singing just a few times in response to the broadcast but a few counter-singing with the playback and other nearby willow flycatchers. The migrants detected along the Wash were identified in native habitat and the birds detected on Monson Channel and Duck Creek were in tamarisk.

3.1.2 Yellow-billed Cuckoo

Field crews made three cuckoo detections (Figure 2, Appendix B): one on the north bank of the Wash on June 24 in cottonwoods just upstream of Historic Lateral Weir, one during other surveys on July 2 in native riparian habitat upstream of Rainbow Gardens Weir, and one in the mesquites of Site 111 on August 6, only a few hundred meters from the location of the June 24 bird. Surveyors concluded the two detections represented a possible breeding territory per the protocol (Halterman et al. 2016). Although Rainbow Gardens is not typically surveyed for cuckoo given the small patch size, follow up efforts were conducted and failed to detect the bird, and it was concluded that the July 2 bird was a likely migrant.

3.2 Habitat Observations

3.2.1 Nature Preserve

Habitat extent declined by a few acres for the flycatcher as the West 80 appeared suboptimal and thus was not surveyed; it was unchanged for the cuckoo. Habitat quality remained fair for both species, although native riparian trees continued to show signs of stress and die-off, particularly around Vern's Pond and the middle ponds. Tamarisk in the site has experienced varying levels of defoliation by the northern tamarisk beetle (*Diorhabda carinulata*) over the years, but the stringer along Monson Channel was green throughout the season and was surveyed for flycatcher. Although the native habitat appeared to be of higher quality, the sole detection for the site occurred in this straggly tamarisk, a location that hosts a migrant most years. The fungal pathogen, *Phleospora prosopidis*, that has caused stress and leaf curl in screwbean mesquites in the past several years (Jason Eckberg, pers. comm.) seemed to have less impact, as in 2018.

Potential prey items for the cuckoo, such as the Apache cicada (*Diceroprocta apache*), were only occasionally heard or seen, but this may be related, at least in part, to survey timing. Surveys conclude earlier at the Nature Preserve site as less habitat is covered. At the Wash, cicada activity increases as the morning progresses.

3.2.2 Wash

Habitat extent was similar to 2018, with a slight increase for the flycatcher, and quality generally remained fair across the site for both species. Flooding scoured sites between Pabco Road and Historic Lateral weirs. This was the area with the most detections of migrant willow flycatchers, as well as the possible cuckoo breeding territory, although it is also where the majority of the potentially suitable nesting habitat is. Riparian trees in some locations continued to show signs of die-off. Mesquite-dominated revegetation sites continued to mature, improving their potential suitability for cuckoo. Potentially suitable nesting habitat downstream of Calico Ridge Weir (Figure 2) has been limited for the flycatcher for several years now and had been considered non-existent for the cuckoo. However, with the detection of the individual above Rainbow Gardens Weir, cuckoo surveys may be conducted there in 2020, despite the small size of the habitat patch.

Potential prey items for cuckoo were typically present in good numbers and included Apache cicadas, green bird grasshoppers (*Schistocerca shoshone*), field crickets (*Gryllus* spp.) and others.

3.2.3 Duck Creek

Habitat extent remained the same as in 2018, and quality continued to be poor for the flycatcher. Fires in recent years have reduced potentially suitable habitat significantly. While the remaining stand has suffered various levels of defoliation by the northern tamarisk beetle in the past several years, no tamarisk beetle activity was noted this year. Flooding from storms caused a portion of Duck Creek to flow along the border of the stand although it did not generally enter the stand itself; the flows carried refuse that ponded in depressions adjacent to the stand. Despite this, a migrant willow flycatcher was detected here, and so surveys should continue at the site in the future. The site does not offer potentially suitable habitat for the cuckoo.

4.0 DISCUSSION AND RECOMMENDATIONS

4.1 Southwestern Willow Flycatcher Discussion

Migrant willow flycatchers increased to 11 in 2019, reversing several years of declines (Figure 3). The increase lends support to the theory that at least some of the declines in recent years may have been related to survey timing (Van Dooremolen 2018b). All 11 migrant detections in 2019 occurred over a two-day period, indicating a migrant wave. While survey timing may impact the number of willow flycatchers detected, the decline noted from 2015 through 2018 may also have been attributable, at least in part, to habitat losses that occurred both within and adjacent to the study area (Van Dooremolen 2015, 2016). In 2018, habitat extent was just over 18 hectares (~45 acres), the lowest since surveys began. Habitat extent was basically the same in 2019, the first time in more than five years that it did not decrease. The completion of the final weir projects had offered hope that the Wash Team could begin increasing habitat. However, a recently completed engineering assessment indicates that additional patches of riparian vegetation need to be cleared so that the weirs and bank protection can function as designed. The Wash Team is working to identify opportunities for vegetation enhancement outside the footprint of these activities, as well as coordinating vegetation management inside the footprint, to help meet overall habitat goals.

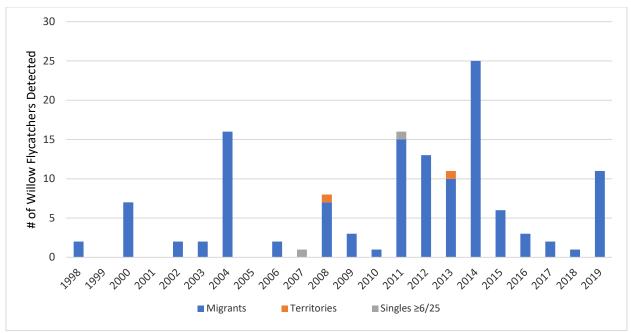


Figure 3. The number of willow flycatchers detected annually, 1998-2019. Birds on territory and single detections in the third survey period (≥ June 25) were assumed to be resident and thus of the endangered southwestern subspecies.

More than 20 years of surveys have shown that the Wash is mostly used by migrating willow flycatchers. Of the 132 individuals detected from 1998 through 2019, 128 (97.0%) were migrants. Just four were considered residents, only two of which established territories, and neither male was confirmed to pair or nest. Reproductive success has a large influence on site fidelity with 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). Since the males were unsuccessful in their attempts to reproduce at the Wash, it is not surprising that they have not been observed in the study area again. Also, the Wash is approximately 40 miles from the nearest nesting colony, at Overton, Nevada. This may be a larger barrier to colonization than previously thought, even though the Wash's 2008 resident southwestern willow flycatcher was re-sighted there in 2009 (McCleod and Koronkiewicz 2010). The colony there is small, with just a few territories identified in recent years. This makes it more difficult for colonization of the Wash to occur than if it was closer to a colony and that colony was large (M. McLeod pers. comm.). Interestingly, the 2008 male was re-sighted in 2019 for the first time since appearing at Overton 10 years ago. He was photographed by SWCA at Alamo Lake, Arizona, some 260 km (~160 miles) from his last known location (M. McLeod pers. comm.). The bird had been banded at the Wash by SWCA in 2008 and was identified by his color bands. The confirmation of his identity ties him for the willow flycatcher longevity record; he is in at least his 13th year. Such detections confirm the value of bird banding and re-sighting.

4.2 Yellow-billed Cuckoo Discussion

Three yellow-billed cuckoo detections were made in 2019 (Figure 4). These were determined to equal two birds, one a likely migrant and the other a possible breeding territory. While typically only a few cuckoos are detected in the entire state each year, 2019 was exceptional. Field crews made more than 35 detections of more than 20 individuals in southern Nevada alone, including several possible and probable breeding territories, as well as confirmed nesting and fledging at Mesquite West (J. Streit, S. Nichols, and C. Klinger pers. comm.).

Given the limited extent and quality of potentially suitable nesting habitat, the Nature Preserve and Wash can likely, at best, support just a few pairs of nesting cuckoos. However, the Wash appears to be an important site for the species in Nevada, lacking detections in only a few years since annual surveys commenced, with breeding indicated by probable territories at the Nature Preserve in 2013 and at the Wash in 2017 and the possible territory at the Wash in 2019 (Figure 4).

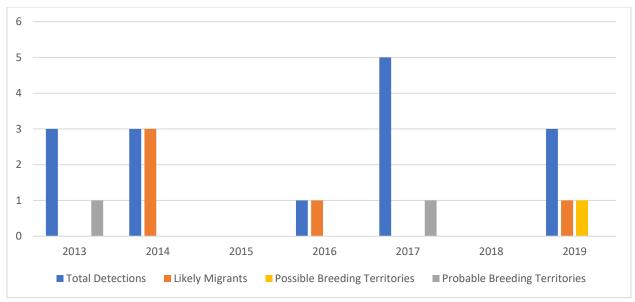


Figure 4. Yellow-billed cuckoo survey detections, 2013-2019.

4.3 Recommendations

Annual monitoring for the southwestern willow flycatcher and yellow-billed cuckoo were originally necessary to comply with informal Section 7 consultation measures. That consultation has been concluded, but continued monitoring is recommended. Wash Team staff are trained and permitted, and effort has been reduced. Field crews have identified two resident southwestern willow flycatchers since 2008 (Figure 3) and three potential breeding territories for the yellow-billed cuckoo since 2013 (Figure 4). While no consultation is in effect for these species any longer, that does not remove the requirement under the Endangered Species Act to avoid take of federally listed species. Continued monitoring will enhance the Wash Team's ability to detect these species and respond proactively, if needed.

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 - http://www.lvwash.org/assets/pdf/resources_wildlife_flycatcher_2013.pdf
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 - http://www.lvwash.org/assets/pdf/resources ecoresearch cuckoo2013.pdf
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 - http://www.lvwash.org/assets/pdf/resources ecoresearch cuckoo2014.pdf
- Van Dooremolen, D. 2015a. Southwestern willow flycatcher surveys along Las Vegas Wash, Clark County, Nevada, 2015. Prepared by the Southern Nevada Water Authority, Las Vegas, NV. Prepared for the U.S. Fish and Wildlife Service and the Las Vegas Wash Coordination Committee.
 - http://www.lvwash.org/assets/pdf/resources wildlife flycatcher 2015.pdf
- Van Dooremolen, D. 2015b. Yellow-billed cuckoo surveys along the Las Vegas Wash, Clark County, Nevada, 2015. Prepared by the Southern Nevada Water Authority, Las Vegas, NV. Prepared for the U.S. Fish and Wildlife Service and the Las Vegas Wash Coordination Committee.
 - http://www.lvwash.org/assets/pdf/resources ecoresearch cuckoo2015.pdf
- Van Dooremolen, D. 2016a. Southwestern willow flycatcher surveys along Las Vegas Wash, Clark County, Nevada, 2016. Prepared by the Southern Nevada Water Authority, Las Vegas, NV. Prepared for the U.S. Fish and Wildlife Service and the Las Vegas Wash Coordination Committee.
 - http://www.lvwash.org/assets/pdf/resources_wildlife_flycatcher_2016.pdf

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- Van Dooremolen, D. 2017. Yellow-billed cuckoo surveys along the Las Vegas Wash, Clark County, Nevada, 2017. Prepared by the Southern Nevada Water Authority, Las Vegas, NV. Prepared for the U.S. Fish and Wildlife Service and the Las Vegas Wash Coordination Committee.
 - http://www.lvwash.org/assets/pdf/resources_ecoresearch_cuckoo2017.pdf
- Van Dooremolen, D. 2018a. Southwestern willow flycatcher surveys along Las Vegas Wash, Clark County, Nevada, 1998-2017. Prepared by the Southern Nevada Water Authority, Las Vegas, NV. Prepared for the U.S. Fish and Wildlife Service and the Las Vegas Wash Coordination Committee.
 - http://www.lvwash.org/assets/pdf/resources_wildlife_flycatcher_2018.pdf
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 - http://www.lvwash.org/assets/pdf/resources wildlife flycatcher 2018.pdf

Appendix A

Southwestern Willow Flycatcher Survey Datasheets

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010) Site Name: Las Vegas Wash, Route 1 (Nature Preserve) State: NV County: Clark

USGS Quad 1		5 11 4511, 1	Route I (I	tature i res	ici ve j	State. 114	Elevation		(mete	rs)
Creek, River,		me:	Las Vega	s Wash			Dievation	420	(mete	13)
					nd WIFL	sightings attached (as required)	? Yes	X	No	
Survey Coord		Start:		678148	N		Datum	NAI)83 (See in	structions)
		Stop:		677734	N		Zone	11		
If	survey coo	dinates c	hanged be	tween visits	s, enter co	ordinates for each survey in comr	nents section	on back	of this page	l.
			Fill i	n additioi	nal site i	information on back of this	page			
Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior, evidence of pai breeding-potential threats [livestock, cowbirds Diorhabda spp.]). If Diorhabda found, contac USFWS and State WIFL coordinator.	this is an op pairs, or gro	tional colun ups of birds	n for documentin	
Survey # 1	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	5/21/2019						1	U	677741	3997769
Timothy Ricks &	Start: 4:49							-		-
Victoria Wuest	Stop:	1	0	0	N		-	1		+
	7:00									
	Total hrs:									
	2.2						200000000000000000000000000000000000000			
Survey # 2 Observer(s):	Date:						# Birds	Sex	UTM E	UTM N
Observer(s).	6/4/2019 Start:									1
Timothy Ricks &	4:52	0	0	0	N					
Jason Eckberg	Stop:	0	.0	0	IN					
	7:39 Total hrs:									
	2.8						_	4		1
Survey # 3	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	6/26/2019									
	Start:									
Timothy Ricks & Victoria Wuest	4:45 Stop:	0	0	0	N					1
	7:38							1		1
	Total hrs:						_			+
	2.9									1
Survey # 4	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	Gi i									
N/A	Start:						-			+
60 m 60 m 60 m	Stop:									1
	Total hrs:									
Survey # 5	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):									0.0017070	
	Start:									
N/A	Stone							_		1
	Stop:									1
	Total hrs:									
Overall Site Su Totals do not equal the		Tratal autor		my x-1						
column. Include only r	esident adults.	Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any WIFLs color-ban	ded? Ye	3	No	(Unknown)
Do not include migrant fledglings.	2 5 5									
Be careful not to doubl individuals.	e count	0	0	0	0	If yes, report colo	r combination(s	in the cor	nments	
Total survey hr	s: 7.9	U	U	U	U	section on back	of form and rep	ort to USF	WS.	
Reporting Indivi-			Deboi	ah Van Door		Date Report Com		1	10/16/201	19
US Fish & Wildl	ife Service Pe	rmit #:		TE148	556-4	State Wildlife Agency	Permit #:		n/a	

Fill in the following information completely. <u>Submit</u> form by September 1st. Retain a copy for your records.

Reporting Individual	Deborah Van Dooremolen	Phone # 702-822-3370
Affiliation	Southern Nevada Water Authority	E-mail debbie.vandooremolen@snwa.com
Site Name Was this site surveyed i	Las Vegas Wash, Route 1 Date report in a previous year? Yes X No Unknown	t Completed
	e name is consistent with that used in previous yrs? Yes x	No Not Applicable
If name is different, what i	name(s) was used in the past?	
If site was surveyed last ye	ear, did you survey the same general area this year? Yes x	No If no, summarize below.
Did you survey the same g	general area during each visit to this site this year? Yes x	No If no, summarize below.
Management Authority for	r Survey Area: Federal Municipal/County x S	tate Tribal Private
Name of Management Ent	ity or Owner (e.g., Tonto National Forest)	Clark County
Length of area surveyed:	(km)	
Vegetation Characteristics	s: Check (only one) category that best describes the predominant tree/shrub foliar lay	ver at this site:
Native	e broadleaf plants (entirely or almost entirely, > 90% native)	
x Mixed	l native and exotic plants (mostly native, 50 - 90% native)	
Mixed	l native and exotic plants (mostly exotic, 50 - 90% exotic)	
Exotic	/introduced plants (entirely or almost entirely, > 90% exotic)	
Identify the 2-3 predomina	ant tree/shrub species in order of dominance. Use scientific name. Salix spp. (gooddingii & exigua), Populus fremontii	
Average height of canopy	(Do not include a range): 5	(meters)
	copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey howing site location, patch shape, survey route, location of any detected WIFLs or the	*
	the patch, exterior of the patch, and overall site. Describe any unique habitat featur	
Comments (such as start a Attach additional sheets if	nd end coordinates of survey area if changed among surveys, supplemental visits to a necessary.	sites, unique habitat features.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010) Site Name: Las Vegas Wash, Route 2 (North Bank) State: NV County: Clark

USGS Quad 1		5 11 4511,	Route 2 (1	torur Dank	9	State. 111		Elevation:		(mete:	re)
Creek, River,		ame:	Las Vega	s Wash				Lievation.	407	(incl.	13)
					nd WIFL	sightings attached	(as required)?	Yes	X	No	
Survey Coord		Start:		681269	N		UTM	Datum:)83 (See in	= structions)
		Stop:		685051	N		UTM	Zone:			
If:	survey cooi		_		-	ordinates for each su					t.
	•					information on l					
Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes,	Comments (e.g., bird behav breeding;-potential threats [I Diorhabda spp.]). If Diorha	ivestock, cowbirds, abda found, contact	(this is an opt pairs, or grou	ional colum ps of birds		_
(Full Name)		WILLS	rais	Termones	number of nests	USFWS and State WIFL co	ordinator.	each survey).	Include ad	ditional sheets if i	necessary.
Survey # 1	Date:							# Birds	Sex	UTM E	UTM N
Observer(s):	5/20/2019							1	U	681523	3995558
Debbie Van	Start: 5:20							2	U	681822	3995615
Dooremolen,	Stop:	6	0	0	N			1	U	681912	3995610
Nicholas Rice & Timothy Ricks	9:25							1	U	682124 682526	3995924 3995965
Timouty Ricks	Total hrs:								Ŭ	002320	3993903
	4.1										
Survey # 2	Date:							# Birds	Sex	UTM E	UTM N
Observer(s):	6/5/2019										1
Deborah Van	Start: 5:02										1
Dooremolen &	Stop:	0	0	0	N						
Timothy Ricks	7:37										
	Total hrs:	1									
	2.6										
Survey # 3	Date:							# Birds	Sex	UTM E	UTM N
Observer(s):	6/25/2019 Start:										+
Debbie Van	5:06				599.65						
Dooremolen & Timothy Ricks	Stop:	0	0	0	N						
Timoliy Ricks	7:31										
	Total hrs: 2.4										
Survey # 4	Date:							# Birds	Sex	UTM E	UTM N
Observer(s):								# B# 45	GUA	O IIII E	O IIII I
	Start:	1									
N/A	CI.	,									
	Stop:										
	Total hrs:										
Survey # 5	Date:							# Birds	Sex	UTM E	UTM N
Observer(s):	Start:										
N/A	Start.										1
530000	Stop:										
	Ave										
	Total hrs:										
Overall Site Su	mmary										
Totals do not equal the	sum of each	Total Adult	m	Total							
column. Include only r Do not include migrant		Residents	Total Pairs	Territories	Total Nests	Were any V	WIFLs color-banded	? Yes		No	Unknown
fledglings.											
Be careful not to doubl individuals.	e count	0	0	0	0	I	f yes, report color co				
Total survey hr	s: 9.1						section on back of	torm and rep	ort to USF		
Reporting Individ			Deboi	ah Van Door			Date Report Complet			10/16/201	19
US Fish & Wildl	ife Service Pe	rmit#:		TE148	556-4	State	: Wildlife Agency Pe	rmit #:		n/a	

Fill in the following information completely. <u>Submit</u> form by September 1st. Retain a copy for your records.

Reporting Individ	ual Deborah Van Dooremolen	Phone #
Affiliation	Southern Nevada Water Authority	E-mail <u>debbie.vandooremolen@snwa.com</u>
Site Name Was this site surv	Las Vegas Wash, Route 2 Peyed in a previous year? Yes X No Unknown	ompleted
Did you verify that t	his site name is consistent with that used in previous yrs? Yes x No	Not Applicable
If name is different,	what name(s) was used in the past?	
If site was surveyed	last year, did you survey the same general area this year? Yes x No	If no, summarize below.
Did you survey the s	ame general area during each visit to this site this year? Yes x No	If no, summarize below.
Management Author	rity for Survey Area: Federal x Municipal/County x State	Tribal Private
Name of Manageme	nt Entity or Owner (e.g., Tonto National Forest) Bureau of Reclam	ation and Clark County
Length of area surve	yed: 4.1 (km)	
Vegetation Characte	ristics: Check (only one) category that best describes the predominant tree/shrub foliar layer a	at this site:
X	Native broadleaf plants (entirely or almost entirely, > 90% native)	
	Mixed native and exotic plants (mostly native, 50 - 90% native)	
	Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)	
	Exotic/introduced plants (entirely or almost entirely, > 90% exotic)	
Identify the 2-3 pred	lominant tree/shrub species in order of dominance. Use scientific name.	
	Salix spp. (gooddingii & exigua), Populus fremontii	
Average height of ca	anopy (Do not include a range):	(meters)
,	g: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey si hoto showing site location, patch shape, survey route, location of any detected WIFLs or their	
	rior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in	
Attach additional sh	start and end coordinates of survey area if changed among surveys, supplemental visits to sites eets if necessary. Initigation wetlands were not surveyed this year and have been dropped from the route due to	

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name:	Las Vega	s Wash, l	Route 3 (S	outh Bank)	State: NV	_ County:			
USGS Quad 1				0300973 000			Elevation	440	(mete	rs)
Creek, River,			Las Vega		1 11 77 777		**	37	3.7	
	•					sightings attached (as required)?	Yes	X	No	_
Survey Coord	iinates:	Start:		683246	. N		Datum:			structions)
TC		Stop:		681232	N		Zone			
11	survey cooi	camates c				ordinates for each survey in comme information on back of this p		on back	or this page	la .
			1 iii i	11 uuuu101	Nest(s)	T	uge T			
					Found?	Comments (e.g., bird behavior, evidence of pairs of	r GPS Coordi	nates for W	FL Detections	
Survey # Observer(s)	Date (m/d/y)	Number of Adult	Estimated Number of	Estimated Number of	Y or N	breeding;-potential threats [livestock, cowbirds,	(this is an op	tional colun	n for documentin	g individuals,
(Full Name)	Survey Time	WIFLs	Pairs	Territories	If Yes, number of	Diorhabda spp.]). If Diorhabda found, contact USFWS and State WIFL coordinator.	pairs, or grown each survey)		found on Iditional sheets if 1	necessary.
					nests		2000			8
Survey # 1	Date:			ĺ			# Birds	Sex	UTM E	UTM N
Observer(s):	5/21/2019						1	U	681912	3995594
Nicholas Rice &	Start: 4:52						1	U	681764 681423	3995610 3995515
Julia Mueller	Stop:	3	0	0	N			0	081423	3993313
	7:39									
	Total hrs:									
G	2.8								100_0	
Survey # 2 Observer(s):	Date: 6/4/2019						# Birds	Sex	UTM E	UTM N
Observer(s).	Start:									1
Deborah Van	4:50	0			NT.					
Dooremolen & Julia Mueller	Stop:	0	0	0	N					
3,300,000,000,000	7:44 Total hrs:									
	1 otal hrs:									
Survey # 3	Date:						# Birds	Sex	UTME	UTM N
Observer(s):	6/26/2019						" Dirds	COX	O IM E	O IIVI IV
	Start:									
Deborah Van Dooremolen &	5:01	0	0	0	N					
David Syzdek	Stop: 7:22				550					1
	Total hrs:							1		1
	2.3									
Survey # 4	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	Charles .									
N/A	Start:							1		1
Sent Control	Stop:							i e		1
	STO									
	Total hrs:								_	
Survey # 5	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	Date.						# Dilus	Sex	UTWE	UTWIN
	Start:									
N/A										
	Stop:							-		1
	Total hrs:									
Overall Site Su Totals do not equal the		Tracket 1 to 1		m. · ·						
column. Include only r	esident adults	Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any WIFLs color-banded	l? Yes	6	No	(Unknown)
Do not include migrant fledglings.	s, nestlings, and			1.74 (10001010101010101		Wil Da color-banded	10:		110	CHALLOWIT
Be careful not to double individuals.	e count	-				If yes, report color co	ombination(s)	in the cor	nments	_
Total survey hr	s: 8.0	0	0	0	0	section on back of				
Reporting Indivi			Deboi	ah Van Door	emolen	Date Report Comple	ted:		10/16/201	19
US Fish & Wildl	ife Service Pe	rmit #:		TE148	556-4	State Wildlife Agency Pe	ermit #:		n/a	

Fill in the following information completely. <u>Submit</u> form by September 1st. Retain a copy for your records.

Reporting Individ	lual	Debor	ah Van D	ooremoler	1			Phone #	7	02-822-3370	
Affiliation		Southern Neva	da Water .	Authority				E-mail	debbie.va	ndooremolen@snwa.com	
Site Name		gas Wash, Rout				I	Date report C	ompleted			
	eyed in a previous ye			ıknown	_						
	this site name is consist		n previous y	TS?	Yes_	X	- No		- N	ot Applicable	
1.0	, what name(s) was used	-		ā							
	l last year, did you surve		18.0		Yes_	X	-		If no, summ		
Did you survey the	same general area durin	g each visit to this	site this year	r?	Yes_	X	- No		If no, summ:	arize below.	
Management Author	rity for Survey Area:	Federal	<u>x</u> N	Municipal/Co	unty _	x	State		Tribal	Private	
Name of Manageme	ent Entity or Owner (e.g	., Tonto National F	orest)			Bure	au of Reclam	ation and	Clark Cou	nty	
Length of area surv	eyed:	2.1		(km)						
Vegetation Charact	eristics: Check (only or	ne) category that be	st describes	the predomi	inant tree	e/shru	ıb foliar layer :	at this site:			
x	Native broadleaf plants	s (entirely or almost	entirely, > 9	90% native)							
	Mixed native and exotic plants (mostly native, 50 - 90% native)										
	Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)										
	Exotic/introduced plants (entirely or almost entirely, > 90% exotic)										
Identify the 2-3 pre	dominant tree/shrub spe	cies in order of don	ninance Use	e scientific r	name						
racially are 2.5 pre	dorinana decesindo spe			gii & exigua,		ıs fre	montii				
Average height of c	anopy (Do not include a	a range):			6			(meters)			
			/B.D.O.V.	D T T							
	g: 1) copy of USGS qu		A 100 100						ition of WIF	L detections;	
	photo showing site locat										
3) photos of the inte	erior of the patch, exteri	or of the patch, and	overall site	. Describe a	any uniqi	ue ha	bitat features i	n Commer	its.		
	start and end coordinate	es of survey area if	changed am	ong surveys	s suppler	menta	al visits to sites	s, unique h	abitat featur	es	
Attach additional sl			A 1	4 4	D	mi	T	G .1 T	T TNL		
	o South revegetation sit n on Route 4, was not su							co South (Jpper Platea	u revegetation site,	
Willest flad disc occi	ron route 4, was not se	a veyed and mas occ	паторреа	ide to fack o	1 Surtuon	c mio	reac.				
Territory Summary	Table. Provide the follo	wing information f	or each veri	fied territory	y at your	site.					
					Pair		80			ow You Confirmed	
Territory Number	All Dates Detected	UTM E	UTN	4 N	Confirm		Nest Found?			Breeding Status	
					Y or l	N	Y or N			ype, pair interactions, npts, behavior)	
									roomig untor	apa, onitivity	
				+							

Attach additional sheets if necessary

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name:	Las Vegas	s Wash, I	Route 4 (D	ouck Creek)	State: NV	County:	Clark	,	
USGS Quad 1			ì				Elevation:		(mete	rs)
Creek, River,			Las Vega							
Is copy of	of USGS m	_				sightings attached (as required)?	Yes	X	No	
Survey Coord	inates:	Start:		679006			Datum:		O83 (See ins	structions)
		Stop:		678823	. N		Zone:		-	
If	survey coor	dinates c	hanged bet ** <i>Fill i</i>	tween visits <i>n additior</i>	, enter coo <i>tal site i</i>	ordinates for each survey in commer information on back of this pe	nts section age**	on back	of this page	v
					Nest(s)		5000			
Survey #	Date (m/d/y)	Number of	Estimated	Estimated	Found? Y or N	Comments (e.g., bird behavior; evidence of pairs or breeding;-potential threats [livestock, cowbirds,			IFL Detections nn for documentin	e in divi dual a
Observer(s) (Full Name)	Survey Time	Adult WIFLs	Number of Pairs	Number of Territories	If Yes,	Diorhabda spp.]). If Diorhabda found, contact	pairs, or grou			g murriduars,
(I dil I dille)		WILLS	Turis	Territories	number of	USFWS and State WIFL coordinator.	each survey).	Include ac	lditional sheets if i	necessary.
Survey # 1	Date:				nests		# Birds	Sex	UTM E	UTM N
Observer(s):	5/21/2019						1	U	678957	3995823
	Start:									
Nicholas Rice & Julia Mueller	8:15 Stop:	1	0	0	N					
	8:45									
	Total hrs:									
Survey # 2	Date:						# Birds	Sex	UTME	UTM N
Observer(s):	6/4/2019									
	Start:									
Deborah Van Dooremolen &	8:26	0	0	0	N					
Julia Mueller	Stop:		0,1	· ·						
	8:51									
	Total hrs:									
Survey # 3	Date:						# Birds	Sex	UTME	UTM N
Observer(s):	6/26/2019								OTHE	0.111.11
	Start:									
Deborah Van Dooremolen &	8:02									
David Syzdek	Stop:	0	0	0	N					
	8:19									
	Total hrs:									
	0.3									
Survey # 4	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	Start:									
N/A	Start.									
	Stop:									
	Total hrs:									
Curvov # #	Date:						# Diade	0	TITELE	TITE CAT
Survey # 5 Observer(s):	Date.						# Birds	Sex	UTM E	UTM N
good	Start:									
N/A										
	Stop:									
	Total hrs:									
Oronall Cita C-	mmorry									
Overall Site Su Totals do not equal the		Total Adult		Total						
column. Include only r Do not include migrant		Residents	Total Pairs	Territori es	Total Nests	Were any WIFLs color-banded	? Yes		No	Unknown
fledglings. Be careful not to doubl										
individuals.		0	0	0	0	If yes, report color co				
Total survey hr						section on back of		ort to USI		10
Reporting Individ	tual:		Dehor	ah Van Doore	emolen	Date Report Complet	ed:		10/16/201	19

State Wildlife Agency Permit #:

n/a

TE148556-4

US Fish & Wildlife Service Permit #:

$Fill \ in \ the \ following \ information \ completely. \ \underline{Submit} \ form \ by \ September \ 1^{st}. \ Retain \ a \ copy \ for \ your \ records.$

Reporting Individual	Deborah Van Do	oremolen	Phor	ne #
Affiliation	Southern Nevada Water A	Luthority	E-m	ail debbie.vandooremolen@snwa.com
Site Name	Las Vegas Wash, Route 4		Date report Comple	eted
	· · · · · · · · · · · · · · · · · · ·	nown		
	e is consistent with that used in previous yr	s? Yes <u>x</u>	No	Not Applicable
If name is different, what name	s) was used in the past?			
If site was surveyed last year, di	d you survey the same general area this yea	r? Yes	No x	If no, summarize below.
Did you survey the same genera	l area during each visit to this site this year	Yes x	No	If no, summarize below.
Management Authority for Surv	rey Area: Federal <u>x</u> M	funicipal/County x	State	Tribal Private
Name of Management Entity or	Owner (e.g., Tonto National Forest)	Bı	ureau of Reclamation	and Clark County
Length of area surveyed:	0.3	(km)		
Vegetation Characteristics: Characteristics: Characteristics:	eck (only one) category that best describes t	he predominant tree/sl	hrub foliar layer at this	site:
Native broa	dleaf plants (entirely or almost entirely, > 9	0% native)		
Mixed nativ	re and exotic plants (mostly native, 50 - 90%	6 native)		
Mixed nativ	re and exotic plants (mostly exotic, 50 - 90%	6 exotic)		
x Exotic/intro	duced plants (entirely or almost entirely, >	90% exotic)		
Identify the 2-3 predominant tre	e/shrub species in order of dominance. Use	scientific name.		
	Tamarix ramo	sissima., Prosopis spj	9.	
Average height of canopy (Do r	ot include a range):	4	(meter	s)
Attach the following: 1) copy of	f USGS quad/topographical map (REQUIR	ED) of survey area, or	utlining survey site and	location of WIFL detections;
2) sketch or aerial photo showir	ig site location, patch shape, survey route, lo	ocation of any detected	d WIFLs or their nests;	
3) photos of the interior of the p	atch, exterior of the patch, and overall site.	Describe any unique	habitat features in Com	ments.
Comments (such as start and en Attach additional sheets if neces	d coordinates of survey area if changed amo	ng surveys, suppleme	ntal visits to sites, uniqu	ue habitat features.
This route used to begin upstrea	ssary. m of Pabco Road Weir. With a desire for loveyable patch of tamarisk in 2018 due to a l		habitat changes, the ro	ute is now confined to the Duck Creek

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Appendix B

Yellow-billed Cuckoo Survey Datasheets

Gita Name:	Mature Pres	Trance	-4.4	у епом вп	aeu Cuck	County: Clark		111	State	NIX7	—	—		
Site Name: USGS Quad Na	Nature Prese	Arve, Transes	ct 1			County. Canal	1		State: Elevation:		496		1	
Creek, River, W		te Name		L	as Vegas Wash		—	#1	Lacvation.	_	796	•	1	
	e Coordinates:		т.	678226			3996929		UTM Zone:	. 1	11N	4 €	1	
5	Coordinate	Stop:		677941			3997350	-	Datum:		AD83	9	1	
Ownership:	BLM F					Private Other	The same of the sa	-			шос	58	1	
Was site survey				Yes No Unkr				ame was used?					1	
		ĺ '		T					,	\Box		С	$\overline{}$	
Survey #	Date (m/d/y)	Total		Detect Type:	Voc. Type: CN=Contact	Playback #: Number of times	В.	Surveyo	or Detection	U	'	u	Cor	rected
Observer(s)	Survey,	Number of	Time	I=Incidental	CO=coo	'Kowlp' call	Behavior		ordinates	Distance (m)	Beg	С		dinates
(Last Name,	Time, Total		Detected	P=Playback A=aural	AL=alarm	played before	ior	7	diffuee	nce	Bearing	k		III.
First Initial)	Hours	detected.	(AM):	A=aurai V=visual B=both	OT=other	YBCU	code			3	ū,o	0	└	
				A CONTRACTOR STATE	(describe)	responded		UTM E	UTM N	500.0	'	#	UTM E	UTM N
Survey Period	Date:													
#1	6/24/2019													
Observer(s):	Start:	0												
	5:33 AM													
Van	Stop:	, , , , , , , , , , , , , , , , , , ,												
Dooremolen, D	6:25 AM													
& Wuest, V	Total hrs:	Total:											<u> </u>	
	0.9									\vdash			<u> </u>	\vdash
Survey Period #2	Date:	-	$oxed{oxed}$				<u> </u>			\vdash		_	<u> </u>	_
	7/8/2019	· '					<u> </u>					_	<u> </u>	_
Observer(s):	Start:	0				4——	—			\vdash	\vdash		<u> </u>	
	6:28 AM	.0					—	lacksquare					<u> </u>	_
Rice, N; Ricks,	Stop: 7:25 AM					4——	—			\vdash	\vdash		<u> </u>	
T & Wuest, V	Total hrs:	Total:	\vdash			_	+-'			\vdash		\vdash	 '	\vdash
	1.0	TOTAL.	\vdash				\vdash			\vdash			-	
Survey Period	Date:	-					\vdash			\vdash	\vdash	\vdash	-	
#3	7/22/2019	· '												
Observer(s):	Start:	1												
8450	5:45 AM	0												
Van	Stop:													
Dooremolen, D	6:39 AM													
& Ricks, T	Total hrs:	Total:												
	0.9													
Survey Period	Date:													
#4	8/5/2019													
Observer(s):	Start:	0											<u> </u>	
100000	6:14 AM	4				_	<u> </u>						<u> </u>	
Van	Stop:						<u> </u>			-			-	_
Dooremolen, D & Ricks, T	7:26 AM Total hrs:	Tatel	\vdash			4	-			\vdash		_	+-	-
de Idening 2	100 ms.	Total:	\vdash			_	 '			\vdash				\vdash
Survey Period	Date:					_	\vdash			\vdash			-	
#5	Date.					_	\vdash			\vdash			\vdash	\vdash
Observer(s):	Start:	'				+	\vdash			\vdash			-	\vdash
	25.50													\vdash
N/A	Stop:	1												
	Total hrs:	Total:												
Survey Summa	ary:	# Det	#PO	#PR	#	CO .	#N	Nests found	Tot		ey Hours	s:		
Total YBCUs*		0								4.00			4	
Notes (refer t Cuckoo #	.0												1	
associated with	_{dh}												4	
individual							—						1	
detections)													1	
"Include justific	cation for thes	e designation	S										1	

Behavior Codes: AN = at nest, BI = brooding or incubating, CF = adult carrying food, CN = carrying nest material, COP = copulation, CP = catches prey, DD = distraction displays/defense of nesting area, EF = adult carrying a fecal sac, EF = catches prey, EF = cat

Fill in the following information completely						
Name of Reporting IndividualDeborah Van Dooremol	en	-	Date Report com	pleted1	0/17/2019	
AffiliationSouthern Nevada Water Author	rity	_Phone #70	2-822-3370	Emaildel	bbie.vandoorem	olen@snwa.com
USFWS Permit #TE148556-4	State Permit #	n/a	_	-21 - 23 - 25 - 25 - 25 - 25 - 25 - 25 - 25	5	
Site NameNature Preserve, Transect 1				2 2 2	_	
Length of area surveyed0.5	(in kilomet	ers = km)				
Did you survey the same general area during each visit to	this site this year?	Yes No	If no, summarize	in comments bel	ow	
If site was surveyed last year, did you survey the same get	neral area this year?	Yes No	If no, summarize	in comments bel	ow	
Overall Vegetation Characteristics: Overall, are the specie	1 1	()			750/)	
Native broadleaf plants (>75% native) Exotic/introduced plants (>75% exotic)	х		and exotic plants (and exotic plants (- COLOREST - COOVERED - PARK		
	lowing dominant species). I odding's Willow sian Olive	(specify units Use <1%; 10%	***************************************			Other (specify) Other (specify)
Average height of understory canopy (m) 3 Estimated Understory Cover (percent) 75% Understory Vegetation: (provide percent estimate of the fo		50%	6, 25%, 50%, 75%, Coyote Willow			Other (specify)
	sian Olive v Mexico Oli	25%	Other (specify) C	Quailbush		Other (specify)
Was surface water or saturated soil present at or adjacent Was surface water or saturated soil present at or adjacent			Yes No (cire Yes No (cire	cle one) cle one)		
Comments. Please provide comments regarding difference but within one patch it is 60% cover - please note. Also, Document these differences with photographs whenever provided the comment of the comment	please note significant diffe	rences between	dominant oversto	ry and understory	vegetation amo	
Please change percentages for dominant species to allow Please provide USGS 7.5 minute quad (or similar) showin			f percentages (1-5,	5-25, 25-50, etc.).	

	,	Yellow-l	billed	Cuck	.oo Survey	and Dete	ection	n Form, c	ontinued					
Name of Report	ing IndividualDeborah	Van Dooren	nolen				Phone	#702-822-33	370					
Affiliation	Southern Nevada Wat	er Authority_					Email	debbie.vand	ooremolen@snwa	a.com_				
Site Name	Nature Preserve, Transe	ect 1												
Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Time Detected (AM):	I=In P=P A=	ect Type: acidental Playback =aural aal B=both	Voc. Type: CN=Contact CO=coo AL=alarm OT=other (describe)	Playback #: Number of times 'Kowlp' call played before YBCU responded	Behavior code		r Detection rdinates	Distance (m)	Bearing	C u c k		ected linates
,					(31311121)			UTM E	UTM N			o #	UTM E	UTM N
No detections														
											-	_		
										\vdash				
										\vdash		-		_
A. C.														
											-			
Ĭ														
Notes - Cont. (r	efer to Cuckoo# associat	ed with indi	vidual d	etections)										

Site Name:	Nature Pres	erve, Transe	ct ?	1 chow Di	ueu Cuck	County: Clark	ron	111	State:	NV	—			
USGS Quad Na		erve, rranse	u 2			county. Charac			Elevation:		498		ł	
Creek, River, W		ce Name		Ls	ıs Vegas Wash			e)	Lacvacion.		-	**		
1000	Coordinates:	Start:	E	678125			997390		UTM Zone:	1	11N	-0		
	c cordinates.	Stop:		678327			997102		Datum:		AD83	•		
Ownership:	BIM F					Private Other		inal/County)			1000	- 58		
Was site survey			1415 051	Yes No Unkr				ame was used?						
						ľ		ý.				С		
Survey #	Date	Total	10700	Detect Type:	Voc. Type: CN=Contact	Playback #: Number of times	В	Surveyo	r Detection	U		u	Con	rected
Observer(s)	(m/d/y)	Number of	Time	I=Incidental	CO=coo	'Kowlp' call	Behavior		dinates	Distance (m)	Bearing	c		dinates
(Last Name,	Survey, Time, Total	YBCUs	Detected (AM):	P=Playback A=aural	AL=alarm	played before	ior c			псе	Į.	k		
First Initial)	Hours	detected.	(AIVI).	V=visual B=both	OT=other	YBCU	code			3	ijQ.	0		
	110415				(describe)	responded		UTM E	UTM N			#	UTM E	UTM N
Survey Period	Date:													
#1	6/24/2019													
Observer(s):	Start:	0												
	6:33 AM													
Van	Stop:													
Dooremolen, D	7:17 AM										ـــــ			
& Wuest, V	Total hrs:	Total:									╙			
Commun. To 1	0.7										_			
Survey Period #2	Date:										\vdash			
Observer(s):	7/8/2019										\vdash			
Observer(s).	Start:					-					├			-
	5:32 AM	0									⊢			—
Rice, N; Ricks,	Stop: 6:16 AM					ļ					\vdash			
T & Wuest, V	Total hrs:	Total:				-					\vdash			
	0.7	Total.									\vdash			
Survey Period	Date:										_			
#3	7/22/2019					1								
Observer(s):	Start:													
1000	6:49 AM	0												
Van	Stop:													
Dooremolen, D	7:40 AM													
& Ricks, T	Total hrs:	Total:												
	0.9													
Survey Period	Date:													
#4	8/5/2019										ـــــ			
Observer(s):	Start:	0									—			
224	7:40 AM										\vdash			
Van Doorsmolen D	Stop: 8:28 AM										\vdash			
Dooremolen, D & Ricks, T	Total hrs:	Total:									\vdash			
to runn, r	0.8	Total.									\vdash			
Survey Period	Date:													
#5														
Observer(s):	Start:													
N/A	Stop:													
	Total hrs:	Total:												
Survey Summa	ry:	# Det	#PO	#PR	#	CO	#N	ests found	Tot		ey Hours	S:		
Total YBCUs* Notes (refer t	0	0								3.10				
Cuckoo #	`													
associated wit	h ⊨										—		1	
individual													1	
detections)]	
l'Include justifie	cation for thes	e designation	S.										ı	

Behavior Codes: AN = at nest, BI = brooding or incubating, CF = adult carrying food, CN = carrying nest material, COP = copulation, CP = catches prey, DD = distraction displays/defense of nesting area, EF = adult carrying a fecal sac, EF = catches prey, EF = cat

Fill in the following information completely	
Name of Reporting IndividualDeborah Van Dooremolen	Date Report completed10/17/2019
AffiliationSouthern Nevada Water Authority	Phone #702-822-3370 Emaildebbie.vandooremolen@snwa.com
USFWS Permit #TE148556-4State Permit #	#n/a
Site NameNature Preserve, Transect 2	
Length of area surveyed0.4 (in kilome	ters = km)
Did you survey the same general area during each visit to this site this year?	Yes No If no, summarize in comments below
If site was surveyed last year, did you survey the same general area this year?	Yes No If no, summarize in comments below
Overall Vegetation Characteristics: Overall, are the species in tree/shrub layer at this	site comprised predominantly of (check one):
Native broadleaf plants (>75% native)	Mixed native and exotic plants (mostly native 51-75%)
Exotic/introduced plants (>75% exotic)	Mixed native and exotic plants (mostly exotic 51-75%)
Average height of canopy (m)9 Estimated Canopy Cover (percent)75% Overstory Vegetation: (provide percent estimate of the following dominant species). 50% Cottonwood 50% Goodding's Willow	(specify units)meters Use <1%; 10%, 25%, 50%, 75%, 90%, 100%. Coyote Willow Other (specify)
Tamarisk Russian Olive	Other (specify) Other (specify) Other (specify)
Tamarisk Russian Onve	Other (specify)
Average height of understory canopy (m)3 Estimated Understory Cover (percent)75% Understory Vegetation: (provide percent estimate of the following dominant species)CottonwoodGoodding's Willow Tamarisk	(specify units)meters .Use <1%; 10%, 25%, 50%, 75%, 90%, 100%.
10% Baccharis New Mexico Oli	
Was surface water or saturated soil present at or adjacent to site within 300 meters? Was surface water or saturated soil present at or adjacent to all patches surveyed?	Yes No (circle one) Yes No (circle one)
Comments. Please provide comments regarding differences between the survey patch but within one patch it is 60% cover - please note. Also, please note significant differences with photographs whenever possible. Make sure to refer the survey of the survey	erences between dominant overstory and understory vegetation among the patches.
Please change percentages for dominant species to allow for more flexibility, or change percentages for dominant species to allow for more flexibility, or change provide USGS 7.5 minute quad (or similar) showing survey area to each survey.	

	1	Yellow-	billed Cuck	coo Surve	y and Det	ectio	n Form,	continued					
Name of Report	ing IndividualDeborah	ı Van Dooren	nolen			Phone	#702-822-3	370			-		
Affiliation	Southern Nevada Wate	er Authority_				_Email	debbie.vand	ooremolen@snw	a.com_				
Site Name	Nature Preserve, Transe	ect 2						<u></u>					
Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Time Detected (AM):	Detect Type: I=Incidental P=Playback A=aural V=visual B=both	Voc. Type: CN=Contact CO=coo AL=alarm OT=other (describe)	Playback #: Number of times Kowlp' call played before YBCU responded COordinates Surveyor Detection Coordinates Coordinates								rected dinates
				V0000000000000000000000000000000000000	Polymen		UTM E	UTM N			o #	UTM E	UTM N
No detections													
		 				-			\vdash		-		
									T				
									⊢	_			—
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									\vdash				
									\vdash	\vdash		\vdash	
									\vdash	\vdash			
									1				
rotes - Cont. (t	refer to Cuckoo#associat	ed with mary	Adulai detections)										

Site Name: LV Wash (UP to UCE), Transect 1 (No. Bank) USGS Quad Name: Elevation: 467														
USGS Quad N Creek, River, V		ke Name		T.	ıs Vegas Wash			-	Elevation:		167			
	Coordinates:	Start:	F	681311	is vegas wasn N	3.	995667	8	UTM Zone:	1	1N	ili:		
	coordinates.	Stop:		683074	N		996147	- 32	Datum:		AD83	į.		
Ownership:	BLM	Reclamation		WS USFS T		Private Other	Munic	cipal/County)				. 8		
Was site surve	yed in previou	is year?		Yes No Unkı	nown	If yes, wha	it site n	ame was used?	Same					
Survey # Observer(s)	Date (m/d/y) Survey,	Total Number of	Time Detected	Detect Type: I=Incidental P=Playback	Voc. Type: CN=Contact CO=coo	Playback #: Number of times 'Kowlp' call	Behavior code		or Detection rdinates	Distance (m)	Bearing	C u c k	Corre Coord	
(Last Name, First Initial)	Time, Total	YBCUs	(AM):	A=aural	AL=alarm OT=other	played before YBCU	or co			ce (r	inge Tinge	0		
First Initial)	Hours	detected.	25 45	V=visual B=both	(describe)	responded	de	UTM E	UTM N	D		0	UTM E	UTM N
Survey Period	Date:		6:19 AM	P. A	CN	4	n/a	682011	3995884			#	682011	3995884
#1	6/24/2019		0.19 AM	P. A	CIN	4:	n/a	082011	3993004			1	082011	3993664
Observer(s):	Start:	1												
	5:24 AM													
Rice, N; Ricks,	Stop: 6:46 AM													
T & Syzdek, D	Total hrs:	Total:					\vdash							
	1.4	Total.												
Survey Period	Date:													
#2	7/9/2019													
Observer(s):	Start:													
	6:51 AM Stop:	0												
Rice, N; Ricks,	8:47 AM						\vdash							
T & Wuest, V	Total hrs:	Total:												
	1.9													
Survey Period #3	Date: 7/23/2019			-										
Observer(s):	Start:						\vdash			1				
	8:01 AM	0												
Ricks, T &	Stop:													
Wuest, V	10:06 AM	Charles in												
	Total hrs:	Total:												
Survey Period	Date:		7:01 AM	P: A	CN	4	n/a	681842	3995772			1	681767	3995766
#4	8/6/2019													
Observer(s):	Start:	1												
	6:02 AM													
Ricks, T &	Stop: 8:38 AM													
Wuest, V	Total hrs:	Total:												
	2.6													
Survey Period #5	Date:													
Observer(s):	Start:						H							
N/A	Stop:													
	m-t-11													
	Total hrs:	Total:		= =										
Survey Summ		# Det	#PO	#PR	#	CO	#N	Vests found	Tot		ey Hours	:		
Total YBCUs*		2	1							8.00				
Notes (refer Cuckoo#	to													
associated w	ith												1	
individual													1	
detections) "Include justif	ication for the	ese designatio	ns.										1	
		_												

Behavior Codes: AN = at nest, BI = broading or incubating, CF = adult carrying food, CN = carrying nest material, COP = copulation, CP = catches prey, DD = distraction displays/defense of nesting area, EF = cats food, FL = recently fledged young of species incapable of flight, FLY = flying, FO = foraging, FS = adult carrying a fecal sac, FY = adults feeding nestlings, JUV = juvenile, NB = nest building, NE = active nest with unbroken eggs in it, NY = nest with young seen or heard in it, ON = occupied nest, PR = preening, SI = sitting, US = used, inactive nest with blue-green eggshells.

Fill in the following information completely						
Name of Reporting IndividualDeborah Van Dooremol	en	7.0	Date Report comp	oleted	_11/6/2019	
AffiliationSouthern Nevada Water Author	rity	Phone #701	2-822-3370	Emailo	debbie.vandoorem	olen@snwa.com
USFWS Permit #TE148556-4	State Permit #	n/a	<u> </u>			
Site NameLas Vegas Wash (Upstream Pabco to Upstr	ream Calico Emergent), Tra	insect 1 (North	Bank)			
Length of area surveyed2.1	(in kilomete	ers = km)				
Did you survey the same general area during each visit to	this site this year?	Yes No	If no, summarize	in comments b	pelow	
If site was surveyed last year, did you survey the same get	neral area this year?	Yes No	If no, summarize	in comments b	pelow	
Overall Vegetation Characteristics: Overall, are the specie	es in tree/shrub layer at this	site comprised	l predominantly of	(check one):		
Native broadleaf plants (>75% native)	х	Mixed native	and exotic plants (r	nostly native	51-75%)	
Exotic/introduced plants (>75% exotic)		Mixed native	and exotic plants (r	nostly exotic	51-75%)	
Average height of canopy (m) 8		(specify units		000/ 1000/		-
Overstory Vegetation: (provide percent estimate of the followerstory Vegetation: (provide percent e		Use <1%; 10%		90%, 100%.		011 ();
	dding's Willow	25%	Coyote Willow		-	Other (specify)
Tamarisk Russ	sian Olive	25%0	Other (specify) M	1esquite	-	Other (specify)
Average height of understory canopy (m) 3 Estimated Understory Cover (percent) 25% Understory Vegetation: (provide percent estimate of the fo				, 90%, 100%.	_	
	dding's Willow	10%	Coyote Willow		4	_Other (specify)
	sian Olive	10%	Other (specify)	Quailbush		Other (specify)
Was surface water or saturated soil present at or adjacent Was surface water or saturated soil present at or adjacent	to all patches surveyed?		Yes No (circ Yes No (circ	le one)		
Comments. Please provide comments regarding different within one patch it is 60% cover - please note. Also, plea Document these differences with photographs whenever p	se note significant differen	ces between do	minant overstory a	nd understory	vegetation among	
Please change percentages for dominant species to allow	r for more flexibility, or char	nge to ranges o	of percentages (1-5,	. 5-25, 25-50, ε	etc.).	
Please provide USGS 7.5 minute quad (or similar)showin	ig survey area to each surve	y form				

		Yellow	v-bill	ed Cu	ckoo Surv	ey and De	tecti	ion Form	, continue	d				
Name of Repor	ting IndividualDebora	h Van Doore	molen_				Phone	#702-822-3	370					
Affiliation	Southern Nevada Wa	ter Authority					Email	debbie.vand	ooremolen@snw	a.com_				
Site Name	Las Vegas Wash (Upstr	eam Pabco to	Upstrea	ım Calico	Emergent), Tran	sect 1 (North Ba	mk)							
Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Time Detected (AM):	I=In P=P A=	ct Type: cidental layback =aural al B=both	Voc. Type: CN=Contact CO=coo AL=alarm OT=other (describe)	Playback #: Number of times 'Kowlp' call played before 'YBCU responded	Behavior code		or Detection rdinates	Distance (m)	Bearing	C u c k o	Corre Coord	
								UTM E	UTM N			#	UTM E	UTM N
Rice, N; Ricks, T; Syzdek, D	6/24/2019; 5:24-6:46AM; 1.4	6:19 AM	Р	A	CN	4	n/a	682011	3995884			1	682011	399588
Ricks, T; Wuest, V	7/2/2019; incidental, not on official survey, miles downstream in riparian above Rainbow Gardens Weir	8:25 AM	I	A	CN	n/a	n/a	685074	3996882			2	684979	399689
Ricks, T; Wuest, V	8/6/2019; 6:02-8:38AM; 2.6	7:01 AM	P	A	CN	4	n√a	681842	3995772			1	681767	399576
ivotes - Cont. (refer to Cuckoo # associa	tea wiit iiia	ividusi (uetecuons)									

Site Name: LV Wash (UP to UCE), Transect 2 (So. Bank) Co: Clark State: NV														
USGS Quad N		i to celj, i	i ansece 2 (c	o. Dank)			CO.	Clark	Elevation:		172		1	
Creek, River, V		ke Name		La	ıs Vegas Wash			•	2301401011			-		
Site	Coordinates:	Start:	E	681135		31	995508		UTM Zone:	1	1N	•0		
		Stop:		683150			996020	■Ye	Datum:		D83	ŧ.		
Ownership:	BLMC	Reclamation	PS USI			Private Other		• 0				- 88		
Was site surve	yed in previou	is year?		Yes No Unki				ame was used?						
Survey # Observer(s) (Last Name,	Date (m/d/y) Survey,	Total Number of YBCUs	Time Detected	Detect Type: I=Incidental P=Playback	Voc. Type: CN=Contact CO=coo AL=alarm	Playback #: Number of times 'Kowlp' call played before	Behavior code		r Detection rdinates	Distance (m)	Bearing	C u c k		rected dinates
First Initial)	Time, Total Hours	detected.	(AM):	A=aural V=visual B=both	OT=other	YBCU	code			Ξ	()(c)	0		
	110015				(describe)	responded	35.0	UTM E	UTM N	22.9		o #	UTM E	UTM N
Survey Period	Date:							/		t.				
#1	6/24/2019													
Observer(s):	Start:	0												
	7:06 AM													
Rice, N; Ricks,	Stop:													
T & Syzdek, D	8:58 AM													
	Total hrs:	Total:						1						
	1.9													
Survey Period	Date:													
#2	7/9/2019													
Observer(s):	Start:													
	5:06 AM	0												
Rice, N; Ricks,	Stop:						_							
T & Wuest, V	6:41 AM						_						-	
	Total hrs: 1.6	Total:											_	
Survey Period	Date:						-						_	_
#3	7/23/2019	•					-						—	
Observer(s):	Start:	-					-							
Geberrer(s).	5:52 AM	0					-						—	
	Stop:	Ť								-				
Ricks, T &	7:44 AM													
Wuest, V	Total hrs:	Total:												
l l	1.9													
Survey Period	Date:													
#4	8/6/2019													
Observer(s):	Start:	0												
	9:02 AM													
Ricks, T &	Stop:													
Wuest, V	10:40 AM	30-000 A												
	Total hrs:	Total:					_							
Survey Period							-				-			
#5	Date:						-						-	_
Observer(s):	Start:										-			
Geberver(b).	Start.													
N/A	Stop:													
A-MACONIO														
	Total hrs:	Total:												
Survey Summ		# Det	#PO	#PR	#4	CO	#N	lests found	Tota		ey Hour	s:		
Total YBCUs*		0								7.00				
Notes (refer	to													
Cuckoo# associated w	ith													
individual													ł	
detections)													1	
"Include justif	ication for the	ese designation	ns.										1	

Behavior Codes: AN = at nest, BI = broading or incubating, CF = adult carrying food, CN = carrying nest material, COP = copulation, CP = catches prey, DD = distraction displays/defense of nesting area, EF = cats food, FL = recently fledged young of species incapable of flight, FLY = flying, FO = foraging, FS = adult carrying a fecal sac, FY = adults feeding nestlings, JUV = juvenile, NB = nest building, NE = active nest with unbroken eggs in it, NY = nest with young seen or heard in it, ON = occupied nest, PR = preening, SI = sitting, US = used, inactive nest with blue-green eggshells.

Fill in the following information	on completely				
Name of Reporting IndividualDe	eborah Van Dooremolen		Date Report complete	ed10/17/2019	
AffiliationSouthern	Nevada Water Authority	Phone #70	2-822-3370	Emaildebbie.vando	oremolen@snwa.com
USFWS Permit #TE14	.8556-4State	e Permit #n/a			
Site NameLas Vegas Wash (Up	stream Pabco to Upstream Calico Emer	rgent), Transect 2 (South	ı Bank)		
Length of area surveyed	1.8(i	in kilometers = km)			
Did you survey the same general ar	ea during each visit to this site this year	r? Yes No	If no, summarize in c	omments below	
If site was surveyed last year, did yo	ou survey the same general area this yea	ar? Yes No	If no, summarize in c	omments below	, , , , , , , , , , , , , , , , , , ,
Overall Vegetation Characteristics:	Overall, are the species in tree/shrub la	yer at this site comprise	d predominantly of (che	eck one):	
Native broadleaf plants (>75% nati	ve) X	Mixed native	and exotic plants (mos	tly native 51-75%)	
Exotic/introduced plants (>75% ex	otic)	Mixed native	and exotic plants (mos	tly exotic 51-75%)	
Average height of canopy (m) Estimated Canopy Cover (percent) Overstory Vegetation: (provide per	100000000000000000000000000000000000000	(specify units		26 100%	
25% Cottonwood	25% Goodding's Willow	(precies). Cae 170, 107	Coyote Willow	, , , , , , , , , , , , , , , , , , , ,	Other (specify)
Cottonwood	and the second s	25%	Other (specify) Meso		
Tamarisk	Russian Olive		- Outer (specify) Mess		Other (specify)
Average height of understory canop Estimated Understory Cover (perce Understory Vegetation: (provide pe	78 TAIL TO THE TOTAL THE TOTAL TO THE TOTAL THE TOTAL TO	(specify units		9%, 100%.	
Cottonwood	Goodding's Willow	10%	Coyote Willow		Other (specify)
Tamarisk	Russian Olive	10%	Other (specify) Qua	ailbush	Other (specify)
10% Baccharis	New Mexico Oli				-
Was surface water or saturated soil	present at or adjacent to site within 300 present at or adjacent to all patches sur	veyed?	Yes No (circle o	one)	
but within one patch it is 60% cove	nts regarding differences between the sur- r - please note. Also, please note signif notographs whenever possible. Make su	ficant differences betwee	en dominant overstory a	ınd understory vegetatio	
Please change percentages for dom	inant species to allow for more flexibili	ity, or change to ranges	of percentages (1-5, 5-2	25, 25-50, etc.).	
Please provide USGS 7.5 minute qu	uad (or similar)showing survey area to e	each survey form			

	i i	Yellow-	bille	d Cucl	coo Surve	y and Det	ectio	n Form,	continued	I				
Name of Reporting Individual Deborah Van Dooremolen							Phone #702-822-3370							
AffiliationSouthern Nevada Water Authority							Email debbie.vandooremolen@snwa.com							
Site Name	Las Vegas Wash (Upst	ream Pabco t	o Upstro	eam Calico	Emergent), Tra	nsect 2 (South E	Bank)			T	1		ī	
Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Time Detected (AM):	Detect Type: I=Incidental P=Playback A=aural V=visual B=both		Voc. Type: CN=Contact CO=coo AL=alarm OT=other (describe)	Playback #: Number of times 'Kowlp' call played before YBCU responded	Behavior code	Surveyor Detection Coordinates		Distance (m)	Bearing	C u c k o	Corrected Coordinates	
								UTM E	UTM N			#	UTM E	UTM N
No detections														
										-				
										1				
										+				
										1				
										-				
										1				
Notes - Cont. ((refer to Cuckoo # associa	ted with ind	vidual	detections)									