

Southwestern Willow
Flycatcher and Yellow-billed
Cuckoo Surveys along the
Las Vegas Wash,
Clark County, Nevada, 2018





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SOUTHERN NEVADA WATER AUTHORITY Las Vegas Wash Project Coordination Team

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U.S. Fish and Wildlife Service Southern Nevada Field Office

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 2018 survey results for both species.

Surveys were conducted using standard protocols. Survey effort for the flycatcher decreased in 2018 from the five-survey protocol for projects to the general three-survey protocol. Surveys for the flycatcher began May 23 and concluded June 28; one migrant willow flycatcher was detected during the second survey period. 2018 surveys for the cuckoo began June 25 and were completed August 9; no cuckoos were detected. For the flycatcher, this was the lowest number of detections since 2010 and represents the fourth consecutive year of declines. The decrease in the number of migrants detected may be related to survey timing and reduced survey effort. However, the decline may also be attributable at least in part to habitat losses that have occurred in recent years. For cuckoos, this was the second year since 2013 that there have been no detections, and the number of detections in Nevada is typically low. Habitat extent and quality declined for both species in the study area, but completion of the final weir projects should provide opportunities to reverse this trend.

Annual surveys for southwestern willow flycatchers and yellow-billed cuckoos should continue in order to comply with informal Section 7 consultation measures.

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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 200 acres.

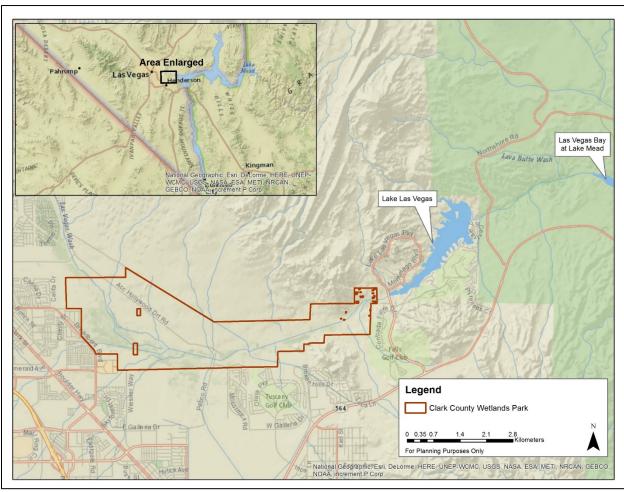


Figure 1. Las Vegas Wash location and general study area map.

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 2018, 20

permanent weirs and more than 200 hectares (>500 acres) of native vegetation were in place. After a delay of nearly two years, the final weir projects, construction of Sunrise Mountain Weir and a major expansion of Historic Lateral Weir, were initiated (Figure 2). The completion of these projects in the fall of 2018 brings the number of completed weirs to 21 and represents the end of capital construction. Revegetation of the final weir sites should be completed by 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, 2018).

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). 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 2018 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 rings constructed wetland ponds, which include the upper pond, three middle ponds, and Vern's Pond. It also lines the channels that run between them. Emergent vegetation – 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

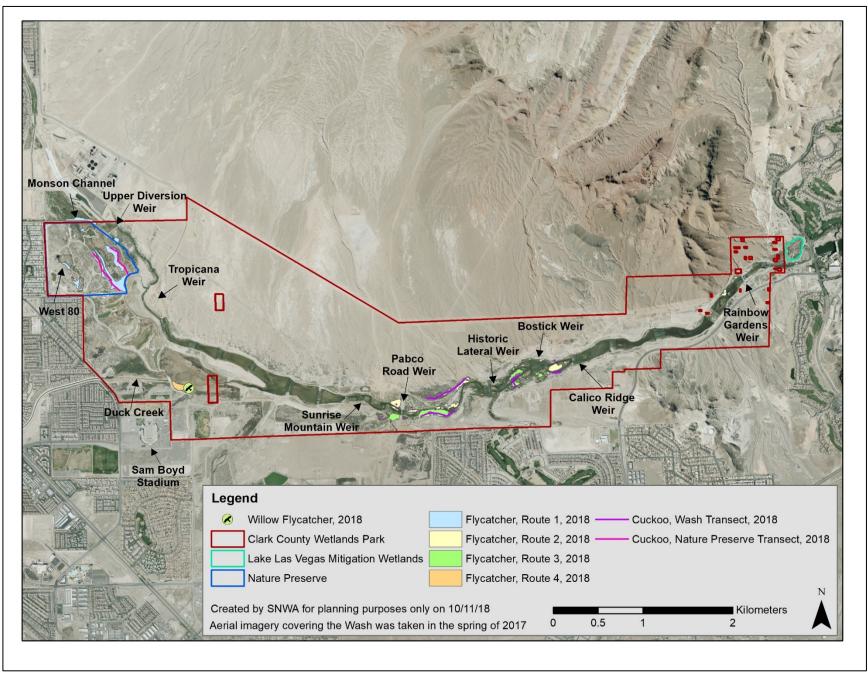


Figure 2. Willow flycatcher survey routes, yellow-billed cuckoo survey transects and 2018 willow flycatcher detection location.

the ponds themselves 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 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 2018, approximately eight hectares (~20 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).

In 2018, field crews surveyed just over nine hectares (~22 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 2018, 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 (TE148556-3), 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 2018 surveys were conducted May 23-24, June 5 and 7, and June 27-28. In prior years, 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 2018 surveys were conducted June 25-26, July 9-10, July 24-25, and August 9. Each survey was separated by 14-16 days (the draft protocol specifies a range of 12-15 days, but rain delayed one survey). 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 skip the next two calling stations 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

One migrant willow flycatcher was detected during the second survey period at the Duck Creek site (Route 4; Figure 2). The bird was in tamarisk. It responded to the broadcast and sang several times before falling quiet; it was not detected again. Survey datasheets are provided in Appendix A.

3.1.2 Yellow-billed Cuckoo

No cuckoos were detected. Survey datasheets are provided in Appendix B.

3.2 Habitat Observations

3.2.1 Southwestern Willow Flycatcher

3.2.1.1 Nature Preserve

Overall, habitat extent remained the same as in 2017 as small changes across the site increased the size of some patches while decreasing the size of or removing others. Habitat quality declined and is now just fair. Native riparian trees continued to show signs of stress and die-off, particularly around Vern's Pond and the middle ponds. Fire continued to impact the site, burning more than 10 acres in February. Most of the vegetation impacted was common reed; less than 0.5 hectares (~1 acre) of native and non-native riparian habitat was damaged. Riparian trees and shrubs in the few acres that burned in March 2014 continued their regrowth. The tamarisk experienced varying levels of defoliation by the northern tamarisk beetle (*Diorhabda carinulata*); the small stand adjacent to Vern's Pond was dry, brown and not included as habitat, while the stringer along Monson Channel was greener throughout than in 2017 and was surveyed. Conversely to the older areas of the Nature Preserve, riparian habitat in the West 80 appeared healthier this year than in the past few years.

3.2.1.2 Wash

Habitat extent declined from the prior year. Quality declined as well and was generally just fair across the site. Riparian vegetation originally cleared in 2015, was re-cleared for the construction of the Sunrise Mountain Weir and expansion of the Historic Lateral Weir (Figure 2), which was

ongoing over the course of the survey season. Habitat on the south bank upstream of Pabco Road Weir (previously part of Route 4, which is now confined to Duck Creek) was limited this year. The Upstream Pabco South Upper Plateau revegetation site was not surveyed for flycatcher in 2018. It is dominated by mesquites, offers little to no understory, and the few riparian trees showed further signs of mortality (the site was surveyed for cuckoo). This constricts habitat upstream of the weir to just one small patch on the north bank and one small patch on the south bank. A small fire burned some Goodding willows in the Historic Lateral North revegetation site. Riparian trees in some areas started to show signs of die-off. Potentially suitable nesting habitat downstream of Calico Ridge Weir (Figure 2) has been limited for several years now. The Lake Las Vegas mitigation wetlands, which largely dried out over the course of the 2016 season, had still not recovered and were not surveyed in 2018.

3.2.1.3 Duck Creek

Habitat extent declined, and quality continued to be poor. Fires in November 2017 and in May 2018 damaged habitat. The November fire burned dozens of acres, predominantly of common reed, adjacent to the tamarisk stand to the northeast of Sam Boyd Stadium (Figure 2). Additionally, while green and wet enough at the beginning of the season to merit surveying, habitat quality degraded throughout the season as the stand was defoliated by the northern tamarisk beetle. Despite these challenges, this was where the only willow flycatcher was detected. The May fire burned the large stand to the north of Sam Boyd stadium, including the few acres traditionally surveyed, leaving no habitat during the season.

3.2.2 Yellow-billed Cuckoo

3.2.2.1 Nature Preserve

Habitat extent and quality (fair) were similar to last year but as stated under Section 3.2.1.1 fire continued to impact the site and native riparian trees continued to show signs of stress and die-off. A Wash Team biologist identified *Phleospora prosopidis*, a fungal pathogen, as what has been causing stress and leaf curl in screwbean mesquites over the past few years (Jason Eckberg, pers. comm.), although the trees seemed less impacted than in prior years.

Potential prey items were not heard or seen in any abundance, 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, Apache cicada (*Diceroprocta apache*) activity increases as the morning progresses.

3.2.2.2 Wash

Habitat extent declined slightly, and quality declined to just fair. As stated in Section 3.2.1.2, habitat originally cleared in 2015 was re-cleared for weir construction, and this increased fragmentation of potentially suitable nesting habitat. Construction occurred for the duration of the survey season. The small fire that burned some Goodding willows in the Historic Lateral North site occurred in the footprint of the 2017 territory (Figure 2). Riparian trees in some areas started to show signs of stress. Mesquite-dominated revegetation sites continued to mature, improving their potential suitability for cuckoo.

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

4.0 DISCUSSION AND RECOMMENDATIONS

4.1 Southwestern Willow Flycatcher Discussion

Migrant willow flycatchers declined to just one in 2018. This is the lowest number of detections since 2010 (Figure 3). It also represents the fourth consecutive year of declines. As stated in Van Dooremolen (2018), this continued reduction in numbers relative to the 2011-2014 period may be timing related. SWCA (2009b) stated that fluctuations in numbers from one year to the next may be due in part to the timing of surveys relative to the timing of migration. Three of the four years in the 2011-2014 period detected migratory waves of willow flycatchers, resulting in detections that were substantially higher than any other period in the 20 years. Surveys in recent years may have missed these waves. However, it remains unknown whether such waves are an annual occurrence or are more rare and related to climatic events or other forces (SWCA 2009b). The reduction in survey effort from five to three surveys may also have caused fewer willow flycatchers to be detected in 2018.

While survey timing and effort may impact the number of willow flycatchers detected, the continued decline noted from 2015 onward may also be attributable at least in part to habitat losses that have occurred both within and adjacent to the study area in recent years (Van Dooremolen 2015, 2016). Habitat extent was just over 18 hectares (~45 acres), the lowest since surveys began. Looking ahead to the future, completion of the final weir projects should provide opportunities to reverse the trend of declining habitat and increase the extent and quality of native riparian habitat available along the Wash.

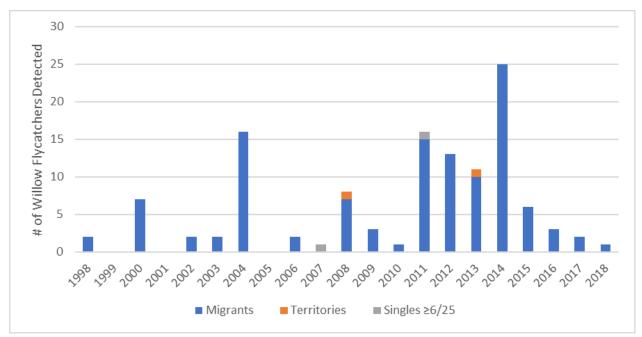


Figure 3. The number of willow flycatchers detected annually, 1998-2018. Birds on territory and single detections in the third survey period (≥ June 25) were assumed to be resident and thus confirmed to be of the endangered southwestern subspecies.

Although southwestern willow flycatchers nest in both tamarisk and native-dominated riparian habitats if the conditions are right, tamarisk-dominated habitat in the Colorado River watershed has been impacted by the spread of tamarisk leaf beetles (*Diorhabda* spp.). The northern tamarisk beetle has been present in the study area for several years now, causing varying levels of defoliation but given how little tamarisk remains, the beetle has not had a significant impact on potentially suitable nesting habitat. If beetle-caused habitat impacts continue in the Colorado River watershed, the Wash's status as native-dominated may increase its potential to host nesting birds, especially if gains can be made in habitat in upcoming years.

More than 20 years of surveys have shown that the Wash is mostly used by migrating willow flycatchers. Of the 121 individuals detected from 1998 through 2018, 117 (96.7%) 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 nest at the Wash, it is not surprising that they did not return. 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 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.).

Also, as in previous years, it should be noted that brown-headed cowbirds are among the most common birds in the study area during the breeding season. The species is a known brood parasite of the southwestern willow flycatcher and can negatively impact nest success, "especially at small and isolated breeding sites" (Sogge et al. 2010).

4.2 Yellow-billed Cuckoo Discussion

No yellow-billed cuckoos were detected in 2018, just the second year with no detections since surveys recommenced (Figure 4). As in prior years, context should be given to these results. Annually, few cuckoos are detected in the state. In the 2018 field season, in southern Nevada, an individual was detected once during protocol surveys at the Overton Wildlife Management Area (D. Van Dooremolen pers. obs.); a cuckoo was identified on three protocol surveys (representing a probable breeding territory) at the Warm Springs Natural Area (N. Rice pers. comm.); a cuckoo was detected once during protocol surveys on the Virgin River near Mesquite (A. Pellegrini pers. comm.); and an individual was detected during protocol surveys and incidentally at the Bunkerville/Electric Ave. Pond site (C. Klinger pers. comm.). One cuckoo was identified during protocol surveys in northern Nevada at the Lahontan State Recreation Area (C. Klinger pers. comm.), and an individual was incidentally detected at Rafter 7 Ranch (M. Enders 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. Breeding has been indicated for the species, with probable territories at the Nature Preserve in 2013 and at the Wash in 2017 (Figure 4).

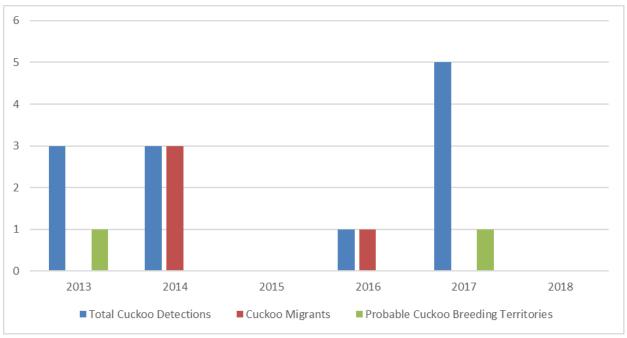


Figure 4. Yellow-billed cuckoo survey detections, 2013-2018.

4.3 Recommendations

Annual surveys for southwestern willow flycatchers and yellow-billed cuckoos should continue in order to determine the occurrence of these species within the study area and comply with informal Section 7 consultation measures.

5.0 LITERATURE CITED

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Appendix A

Southwestern Willow Flycatcher Survey Datasheets

	V	Villow 1	Elycatch	er (WIFI	L) Surve	ey and Detection Form (revis	ed Apri	l, 201 0))	
Site Name:	Las Vega	s Wash, I	Route 1 (N	Nature Pres	serve)	State: NV	County:	Clark		
USGS Quad N							Elevation:	496	(meter	rs)
Creek, River,			Las Vega						2091	
		_			nd WIFL	sightings attached (as required)?	Yes	X	. No	_
Survey Coord	linates:	Start:		678148	N		Datum:	NAI)83 (See ins	structions)
		Stop:		677734	N		Zone:			
If:	survey coor	dinates c				ordinates for each survey in commer		on back	of this page	v
			Fill i	n additioi	nal site i	information on back of this po	age			
					Nest(s)					
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	a individuale
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 marviduais,
(Full Name)		WILLS	rais	Tennones	number of	USFWS and State WIFL coordinator.	each survey).	Include ac	lditional sheets if r	recessary.
C	Date:				nests		# B: 1			T
Survey # 1 Observer(s):							# Birds	Sex	UTM E	UTM N
Ouserver(s).	5/24/2018 Start:									1
Timothy Ricks &	4:48									
Victoria Wuest	Stop:	0	0	0	N					
	9:00									
	Total hrs:									
	4.2						00/220 10			
Survey # 2	Date:						# Birds	Sex	UTME	UTM N
Observer(s):	6/7/2018 Start:									
Timothy Ricks &	4:35									
Victoria Wuest	Stop:	0	0	0	N					
	8:03									
	Total hrs:									
	3.5									
Survey # 3 Observer(s):	Date:						# Birds	Sex	UTM E	UTM N
Observer(s).	6/28/2018 Start:									1
Timothy Ricks &	4:26									
Victoria Wuest	Stop:	0	0	0	N					
	7:27									
	Total hrs:									
1	3.0									
Survey # 4	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	A. 10									
N/A	Start:									_
2300	Stop:									
	1									
	Total hrs:									
0	Deter									
Survey # 5	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	Start:									
N/A	Diam't.									
	Stop:									
	Total hrs:									
0 11 67 2										
Overall Site Sur Totals do not equal the		Total Adult		my v-1						
column. Include only r	esident adults.	Residents	Total Pairs	Total Territories	Total Nests	Were any WIFLs color-banded	? Yes	6	No	Unknown
Do not include migrant fledglings.	s, nestlings, and					l sales and sales are sales are sales and sales are sale	1.03		230	Janatonii
Be careful not to double individuals.	e count	379	-	Sex	-	If yes, report color co	mbination(s)	in the cor	nments	_
Total survey hr	s: 10.7	0	0	0	0	section on back of				
Reporting Individ			Deboi	ah Van Door	emolen	Date Report Complet	ed:		10/15/201	8
US Fish & Wildli		rmit #:	2.000	TE148		State Wildlife Agency Pe			n/a	****

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

Reporting Individua	Deborah Van Dooremolen	Phone # 702-822-3370									
Affiliation	Southern Nevada Water Authority	E-mail <u>debbie.vandooremolen@snwa.com</u>									
Site Name	Las Vegas Wash, Route 1 Date report (Completed 10/15/2018									
	ed in a previous year? Yes_X_ No Unknown										
	s site name is consistent with that used in previous yrs? Yes <u>x</u> No	o Not Applicable									
If name is different, w	nat name(s) was used in the past?										
If site was surveyed la	st year, did you survey the same general area this year? Yes x No	o If no, summarize below.									
Did you survey the same general area during each visit to this site this year? Yes x No If no, summarize below.											
Management Authorit	for Survey Area: Federal Municipal/County x State	eTribalPrivate									
Name of Management	Entity or Owner (e.g., Tonto National Forest)	ark County									
Length of area survey											
Vegetation Characteri	tics: Check (only one) category that best describes the predominant tree/shrub foliar layer	at this site:									
N	tive broadleaf plants (entirely or almost entirely, > 90% native)										
xM	xed native and exotic plants (mostly native, 50 - 90% native)										
M	xed native and exotic plants (mostly exotic, 50 - 90% exotic)										
E	otic/introduced plants (entirely or almost entirely, > 90% exotic)										
Identify the 2-3 predo	ninant tree/shrub species in order of dominance. Use scientific name.										
	Salix spp. (gooddingii & exigua), Populus fremontii										
Average height of can	ppy (Do not include a range): 5	_(meters)									
Attach the following:	1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey s	site and location of WIFL detections;									
2) sketch or aerial pho	to showing site location, patch shape, survey route, location of any detected WIFLs or their	r nests;									
3) photos of the interior	r of the patch, exterior of the patch, and overall site. Describe any unique habitat features	in Comments.									
Comments (such as st Attach additional shee	rt and end coordinates of survey area if changed among surveys, supplemental visits to site	es, unique habitat features.									
2 studen additional SHCC	as it inconstity.										

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

	v	Villow 1	Flycatch	er (WIFI	.) Surve	ey and Detection Form (revis	sed Apri	l, 201 0))	
		s Wash, l	Route 2 (N	North Bank)	State: NV	_ County:			8
USGS Quad I				000000			Elevation:	467	(meter	s)
Creek, River,			Las Vega		72222					
		_				sightings attached (as required)?	Yes	_X	No	_
Survey Coord	linates:	Start:		681269	. N		Datum:			tructions)
***		Stop:		685051	. N		Zone:			
11 :	survey coor	dinates c				ordinates for each survey in commer information on back of this p		on back	of this page	a .
			rui	n aaautoi		injormation on vack of this p	age			
					Nest(s) Found?	Comments (e.g., bird behavior, evidence of pairs o	r GPS Coordin	nates for W	III 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,			nn for documentin	g individuals,
(Full Name)	Survey Time	WIFLs	Pairs	Territories	If Yes,	Diorhabda spp.]). If Diorhabda found, contact USFWS and State WIFL coordinator.	pairs, or grou		found on dditional sheets if n	ecessary
					number of nests	osi vis and state visits coordinates.	cuen survey)	. merade u	actional birectors	
Survey # 1	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	5/23/2018									
	Start:									
Nicholas Rice & Julia Mueller	4:25 Stop:	0	0	0	N			-		<u> </u>
	8:00							1		1
	Total hrs:									
	3.6									
Survey # 2	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	6/5/2018									
Dahamah Man	Start:									
Deborah Van Dooremolen &	5:35 Stop:	0	0	0	N			1		
Timothy Ricks	9:35							1		
	Total hrs:									
	4.0									
Survey # 3	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	6/27/2018									
m;	Start:							ļ		
Timothy Ricks & Julia Mueller	5:03 Stop:	0	0	0	N		-	<u> </u>		-
	7:42							1		
	Total hrs:									
	2.7									
Survey # 4	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	Start:									
N/A	Start:							1		
	Stop:							i e		
	Total hrs:									
Curvos # 5	Deter						451	0	TIME CT	1107.53
Survey # 5 Observer(s):	Date:						# Birds	Sex	UTME	UTM N
0000110(0).	Start:									
N/A										
	Stop:									
	Total hrs:									
Overall Site Su	mmary									
Totals do not equal the	sum of each	Total Adult	m-4-1 m	Total	m-4-137					
column. Include only r Do not include migrant	esident adults.	Residents	Total Pairs	Territories	Total Nests	Were any WIFLs color-banded	l? Yes	i	No	Unknown
fledglings.						1				-
Be careful not to double individuals.	e count	0	0	0	0	If yes, report color co				
Total survey hr	s: 10.3					section on back of	form and rep	ort to USI	FWS.	
Reporting Individ	dual:		Deboi	ah Van Door	emolen	Date Report Comple	ted:	n	10/15/201	8
US Fish & Wildli	ife Service Pe	rmit #:		TE148	556-3	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 Individual	orting Individual Deborah Van Dooremolen Phone #									
Affiliation	Southern Nevada Water Autho	ority	***	E-mail debbie.vandooremolen@snw	va.com					
Site Name	Las Vegas Wash, Route 2		Date report Co	mpleted 10/15/2018						
	a previous year? Yes_X_ No Unknown	n								
-entricing visits of epidelitis and statement heatened the statement of th	name is consistent with that used in previous yrs?	Yes	x No_	Not Applicable						
If name is different, what na	me(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 same gen	If no, summarize below.									
Management Authority for S	turvey Area: Federal x Municip	al/County	x State	Tribal Private						
Name of Management Entity	or Owner (e.g., Tonto National Forest)	B	Sureau of Reclama	tion and Clark County						
Length of area surveyed:	4.1	(km)								
Vegetation Characteristics:	Check (only one) category that best describes the pre	dominant tree/	shrub foliar layer at	this site:						
Native b	roadleaf plants (entirely or almost entirely, > 90% na	itive)								
Mixed n	ative and exotic plants (mostly native, 50 - 90% native	ve)								
Mixed n	ative and exotic plants (mostly exotic, 50 - 90% exot	ic)								
Exotic/ii	ntroduced plants (entirely or almost entirely, > 90% e	exotic)								
Identify the 2-3 predominant	tree/shrub species in order of dominance. Use scient									
	Salix spp. (gooddingii & ex	igua), Populus	fremontii							
Average height of canopy (D	00 not include a range):	6	(meters)						
0 / 1	y of USGS quad/topographical map (REQUIRED) c									
÷	wing site location, patch shape, survey route, location									
3) photos of the interior of the	ne patch, exterior of the patch, and overall site. Desc	ribe any unique	e habitat features in	Comments.						
Comments (such as start and Attach additional sheets if no	end coordinates of survey area if changed among su	rveys, supplem	ental visits to sites,	unique habitat features.						
	ion wetlands were not surveyed this year and have be	en dropped fro	m the route due to la	ack of suitable habitat.						

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:		s Wash, l	Route 3 (S	South Bank)	State: NV	County:			
USGS Quad							Elevation:	440	(meter	rs)
Creek, River,			Las Vega				20.00	150	2000	
		_			nd WIFL	sightings attached (as required)?	Yes	X	No	_
Survey Coord	linates:	Start:		683246	. N		Datum:	NAD		tructions)
		Stop:		681232	N		Zone:			
If	survey coo	rdinates c				ordinates for each survey in commen		on back	of this page	v
-			**Fill i	n additio	nal site i	information on back of this po	ıge**			
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 pairs or breeding-potential threats [livestock, cowbirds, Diorhabda spp.]). If Diorhabda found, contact USFWS and State WIFL coordinator.	(this is an opt pairs, or grou	ional colum ps of birds	FL Detections nn for documentin found on kitional sheets if r	
Survey # 1	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	5/24/2018									-
Deborah Van	Start: 5:00									-
Dooremolen &	Stop:	0	0	0	N					_
Timothy Ricks	7:55									
	Total hrs:	1								
	2.9									
Survey # 2	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	6/7/2018 Start:									-
Deborah Van	4:37									
Dooremolen &	Stop:	0	0	0	N					
Julia Mueller	7:22									
	Total hrs:									
	2.8									
Survey # 3 Observer(s):	Date:						# Birds	Sex	UTM E	UTM N
Coserver(s).	6/28/2018 Start:									1
Nicholas Rice &	4:21			0	NT.					
Julia Mueller	Stop:	0	0	0	N					
	6:55									
	Total hrs:									
Survey # 4	Date:						# Birds	Sex	UTME	UTM N
Observer(s):	Dute.						# Dil us	GCA	OTME	Olwin
	Start:	1								
N/A										
	Stop:									_
	Total hrs:									+
Survey # 5	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	Gtt-									
N/A	Start:									
23000	Stop:									
	Total hrs:									
Overell Cite Co.	Immo r									
Overall Site Su Totals do not equal the		Total Adult		Total						
column. Include only:	resident adults	Residents	Total Pairs	Territories	Total Nests	Were any WIFLs color-banded?	Yes		No	Unknown
Do not include migran fledglings.									ó t-	_
Be careful not to doub individuals.	le count	0	0	0	0	If yes, report color cor	nbination(s)	in the con	nments	
Total survey h	(8) 8.3	0	:0	U	.0	section on back of f	form and rep	ort to USF	WS.	
Reporting Indivi	dual:		Deboi	ah Van Door	emolen	Date Report Complete	ed:		10/15/201	8
US Fish & Wildl	life Service Pe	rmit #:		TE148	556-3	State Wildlife Agency Per	mit #:		n/a	

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

Reporting Individ	lual	Debora	h Van Dooremol	en		Phone #	7	02-822-3370				
Affiliation		Southern Nevada	a Water Authori	ty		E-mail	debbie.va	ndooremolen@snwa.com				
Site Name	Las Ve	gas Wash, Route	Dec.)		Date report C	completed		10/15/2018				
Was this site surv	eyed in a previous ye	ar? Yes_X_ No	Unknown_	=	1							
Did you verify that	this site name is consist	ent with that used in	previous yrs?	Yes x	_ No		N	ot Applicable				
If name is different	, what name(s) was used	in the past?		81			7	6				
If site was surveyed	l last year, did you surve	y the same general a	rea this year?	Yes x	No		If no, summ	arize below.				
Did you survey the	same general area durin	g each visit to this sit	e this year?	Yes x	_ No		If no, summ	arize below.				
				-	=-							
Management Author	ority for Survey Area:	Federal_	x Municipal/	County x	State		Tribal	Private				
Name of Managem	ent Entity or Owner (e.g	., Tonto National Fo	rest)	Bur	eau of Reclam	ation and	Clark Cou	nty				
Length of area surv	eyed:	2.1		_(km)								
Vegetation Charact	eristics: Check (only or	e) category that best	describes the predo	minant tree/sh	ub foliar layer	at this site:						
X	Native broadleaf plants	(entirely or almost e	ntirely, > 90% nativ	re)								
	Mixed native and exotic plants (mostly native, 50 - 90% native)											
	Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)											
 ,	Exotic/introduced plant	s (entirely or almost	entirely, > 90% exc	tic)								
Identify the 2-3 pre	dominant tree/shrub spe	cies in order of domi	nance. Use scientifi	c name.								
· · · · · · · · · · · · · · · · · · ·	1000	Salix spp.	(gooddingii & exigi	ıa), Populus fr	emontii							
Average height of c	anopy (Do not include a	range):		6		(meters)						
Attach the followin	g: 1) copy of USGS qua	d/tanagraphical mar	(DEOLUDED) of a	umiou oroo out	lining august ai	ita and laca	tion of W/IE	I datastions:				
							uton or wir	L detections,				
	photo showing site locati											
3) photos of the inte	erior of the patch, exteri-	or of the patch, and c	veran sne. Descho	e any umque n	aditat features i	in Commen	its.					
	start and end coordinate	es of survey area if cl	nanged among surve	ys, supplemen	tal visits to sites	s, unique ha	abitat featur	es				
Attach additional sl			a: a a	D 4 1771	TT (D.1	G (1.1	T Di	J. Tr				
	o South revegetation sit n on Route 4, was not su					oco South U	pper Platea	u revegetation site,				
which had also been	ii oli Route 4, was not st	i veyed and has been	dropped due to face	. Of Surfacie Ha	ortat.							
Territory Summary	Table. Provide the follo	wing information for	each verified territ	ory at your site	e e							
						Descr	ription of H	ow You Confirmed				
			5000 000	Pair	Nest Found?			Breeding Status				
Territory Number	All Dates Detected	UTM E	UTM N	Confirmed?	Y or N			ype, pair interactions,				
				Y or N	17 11101111111			npts, behavior)				

Attach additional sheets if necessary

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

Site Name:	Las Vega:	s Wash, I	Route 4 (E	ouck Creek)	State: NV	County:	Clark		
USGS Quad 1							Elevation:	472	(meter	s)
Creek, River,			Las Vega		a uzer	sightings attached (as required)?	Yes	v	No	
Survey Coord		<i>ар тагке</i> Start:		vey area an 679006	a wif L N		Datum:	X NAI		tructions)
burvey coore	macs.	Start.		678823	. N		Zone:			u ucuons)
If	survev cooi			PRODUCTION CONTRACTOR		ordinates for each survey in commen				
	,					nformation on back of this pa			1 0	
					Nest(s)	1000	0,000			
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,			FL Detections on for documenting	rindividuale
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	ps of birds	found on	
Necessary and		0.10-0793600	120-200	100000000000000000000000000000000000000	number of nests	USFWS and State WIFL coordinator.	each survey).	Include ac	ditional sheets if n	ecessary.
Survey # 1	Date:				nesta		# Birds	Sex	UTM E	UTM N
Observer(s):	5/24/2018									
Deborah Van	Start: 8:27		-	100	14500					
Dooremolen &	Stop:	0	0	0	N					
Timothy Ricks	8:53 Total hrs:									
	0.4									
Survey # 2	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	6/7/2018 Start:						1	?	679006	3995837
Timothy Ricks,	8:44									
Julia Mueller & Victoria Wuest	Stop:	1	0	0	N	Responded during broadcast and sang several times before falling silent. Not detected again. Migrant.	-			
, , , , , , , , , , , , , , , , , , , ,	9:33									
	Total hrs:									
	0.8									
Survey # 3 Observer(s):	Date:						# Birds	Sex	UTME	UTM N
Ouserver(s).	6/28/2018 Start:									
Nicholas Rice &	7:08									
Julia Mueller	Stop:	0	0	0	N					
	7:30									
	Total hrs:									
	0.4									
Survey # 4	Date:						# Birds	Sex	UTM E	UTM N
Observer(s):	Start:									
N/A	Start.									
	Stop:									
	Total hrs:									
Survey # 5	Date:						# Birds	Sex	UTM E	UTM N
Observer(s)	Dute.						# Dilus	OCA	OTME	OTMIN
	Start:									
N/A										
	Stop:									
	Total hrs:									
Overall Site Su	mmary									
Totals do not equal the column. Include only r		Total Adult	Total Pairs	Total	Total Nests					
Do not include migrant		Residents		Territories		Were any WIFLs color-banded?	Yes		No	Unknown
fledglings. Be careful not to doubl	e count					If yes, report color cor	nhination(e)	in the cor	nments	=
individuals. Total survey hr	s: 1.6	0	0	0	0	section on back of f				
Reporting Individ			Debor	ah Van Doore	emolen	Date Report Complete	ed:	,-	10/15/201	8
US Fish & Wildl		mit #:		TE148:		State Wildlife Agency Per			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 Dooremol	en		Phone #	702-822-3370
Affiliation		Southern Neva	da Water Authori	ty		E-mail d	ebbie.vandooremolen@snwa.com
Site Name		gas Wash, Route			Date report Co	ompleted	10/15/2018
	eyed in a previous ye	an a					
	this site name is consiste		n previous yrs?	Yes x	No.		Not Applicable
If name is different	, what name(s) was used	in the past?					
If site was surveyed	l last year, did you surve	y the same general	area this year?	Yes	No_	x If n	o, summarize below.
Did you survey the	same general area durinș	g each visit to this s	ite this year?	Yes x	No	If n	o, summarize below.
Management Autho	ority for Survey Area:	Federal	x Municipal/	County x	State	Т	ribal Private
	ent Entity or Owner (e.g	A CONTROL OF THE PARTY OF THE P			eau of Reclama		
Length of area surv	reyed:	0.3	*	_(km)			
Vegetation Charact	eristics: Check (only on	e) category that he	st describes the predo	— minant tree/shri	ıh foliar laver a	t this site	
vogotation oranico			•		ao ichan layer a	c and bree.	
	Native broadleaf plants		(5)	c .			
	Mixed native and exotic	plants (mostly nat	ive, 50 - 90% native)				
	Mixed native and exotic	plants (mostly exc	otic, 50 - 90% exotic)				
X	Exotic/introduced plant	s (entirely or almos	t entirely, > 90% exo	tic)			
Identify the 2-3 pre	dominant tree/shrub spe	cies in order of don	ninance. Use scientific	c name.			
	1001.	T	amarix ramosissima.,	Prosopis spp.			
Average height of c	eanopy (Do not include a	range):	ş	4		(meters)	
Attach the followin	g: 1) copy of USGS qua	id/topographical ma	ap (REOUIRED) of s	urvev area, outl	ining survey sit	e and location	of WIFL detections:
	ohoto showing site locati		* 02 (5)				
8 -	erior of the patch, exterior	14 25 (24)	2 0	E			
2.5							
Attach additional sl	start and end coordinate	es of survey area if	changed among surve	ys, supplementa	al visits to sites,	unique habita	t teatures.
		Road Weir With:	a desire for logical or	der following h	abitat changes t	the route is no	w confined to the Duck Creek
	had one surveyable pate				northe crimingos,	and reduce is no	w commed to the Buck Creek
Territory Summary	Table. Provide the follo	wing information fo	or each verified territo	ory at your site.			
				Pair			on of How You Confirmed
Territory Number	All Dates Detected	UTM E	UTM N	Confirmed?	Nest Found?		ory and Breeding Status
				Y or N	Y or N		zation type, pair interactions,
				1		nesti	ng attempts, behavior)

Attach additional sheets if necessary

Appendix B

Yellow-billed Cuckoo Survey Datasheets

1000	100 0 10		10. 10	TCHOW DI	ucu Cuck			1111	00.0	OCCUPATION OF				
Site Name:	Nature Pres	erve, Transe	ct 1			County: Clark			State:				1	
USGS Quad Na		-						:	Elevation:		496			
Creek, River, W	etland, or Lak	e Name		La	as Vegas Wash			_						
Site	Coordinates:	Start:	Е	678226	N	3	996929	{	UTM Zone:	1	11N	-		
		Stop:		677941			997350	-	Datum:		AD83	-		
	D11.					-	100	■1:		112	11703	-3		
Ownership:		Reclamation	NPS USI			Private Other								
Was site survey	ed in previous	year?		Yes No Unki	nown	If yes, wh	at site n	ame was used?	Same					
					37 70	DI11						C		
Survey #	Date (m/d/y)	Total	10750	Detect Type:	Voc. Type: CN=Contact	Playback #: Number of times	₽	Surveyo	r Detection	U		u	Cor	rected
Observer(s)	Survey,	Number of	Time	I=Incidental	CO=coo	'Kowlp' call	har		rdinates	SE.	Bearing	c	1.0000000000000000000000000000000000000	dinates
(Last Name,	Time, Total	YBCUs	Detected	P=Playback	AL=alarm	played before	vior	1	tuniates	Inc	2011	k	Cool	umates
First Initial)	Hours	detected.	(AM):	A=aural	OT=other	YBCU	Behavior code			Distance (m)	100	0		
rust mittat)	Hours	detected.		V=visual B=both	(describe)	responded	e e			ಲ		0		
					(desembe)	responded		UTM E	UTM N			#	UTM E	UTM N
Survey Period	Date:													
#1	6/25/2018	1									 	 	\vdash	\vdash
Observer(s):	Start:	0				1				-	_	 	 	_
Observer(s).	5:15 AM	- 0								-	₩	-	 	
Deborah Van		4								-		-		
Dooremolen,	Stop:									_				
Nicholas Rice	6:01 AM													
&Timothy Ricks	Total hrs:	Total:												
Tables	0.7													
Survey Period	Date:													
#2	7/9/2018	1										1		
Observer(s):	Start:										_	1		
Observer(s).	1000000000	200								-		-	_	
	5:23 AM	0												
Nicholas Rice	Stop:													
&Timothy Ricks	7:05 AM													
& Hillothy Ricks	Total hrs:	Total:												
	1.7*										1			
Survey Period	Date:									_	_		_	
#3	7/24/2018									_	_			
1,000,000	Comment of the second									_	ــــــ			
Observer(s):	Start:													
	5:40 AM	0												
Deborah Van	Stop:													
Dooremolen,	6:32 AM													
Timothy Ricks &	Total hrs:	Total:												
David Syzdek	0.9													
Survey Period	Date:					†					_	1	_	
#4	8/9/2018										-	-	-	
		100								_	—			
Observer(s):	Start:	0												
	5:58 AM													
Deborah Van	Stop:													
Dooremolen &	6:58 AM													
Julia Mueller	Total hrs:	Total:												
	1.0	110-110-1120-11						1						
Survey Period	Date:									t				
#5	Date.									\vdash	_			-
											—		\vdash	
Observer(s):	Start:													
N/A	Stop:													
	Total hrs:	Total:												
Survey Summa	ry:	# Det	#PO	#PR	#	CO	#N	Jests found	Tot	al Surv	ey Hour	s:	1	
Total YBCUs*	320	0			-				100	4.3*	, _10 di			
Notes (refer t	to I						_			1.0			1	
Cuckoo #	*Time w	as recorded c	ontinuously f	for the two transect	s at the Nature 1	Preserve on 7/9/2	2018, sc	total survey h	ours are overstate	d.			1	
associated wi	th												4	
individual	···												4	
detections)	-												1	
"Include justifi	cation for thes	e designation	IS.										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 = eats 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 comp	letely					
Name of Reporting IndividualDeborah Va	n Dooremolen		Date Report c	ompleted	10/15/18	
AffiliationSouthern Nevada V	Vater Authority	Phone #70	2-822-3370	Email_	_debbie.vandoo	oremolen@snwa.com
USFWS Permit #TE148556-3	State Permit	#n/a	<u> </u>	<u> </u>	2	
Site NameNature Preserve, Transec	rt 1					
Length of area surveyed0.5	(in kilom	eters = km)				
Did you survey the same general area during	each visit to this site this year?	Yes No	If no, summar	rize in comment	s below	<u> </u>
If site was surveyed last year, did you survey	the same general area this year?	Yes No	If no, summar	rize in comment	s below	
Overall Vegetation Characteristics: Overall, a	are the species in tree/shrub layer at thi	s site comprised	l predominantly	of (check one):		
Native broadleaf plants (>75% native)	х	Mixed native	and exotic plan	ts (mostly nativ	e 51-75%)	
Exotic/introduced plants (>75% exotic)		Mixed native	and exotic plan	ts (mostly exoti	c 51-75%)	
Estimated Canopy Cover (percent) 75% Overstory Vegetation: (provide percent estimates) 2 10% Cottonwood 2 Tamarisk Average height of understory canopy (m)	Goodding's Willow Russian Olive	(specify units) Use <1%; 10% 50% (specify units)	6, 25%, 50%, 75 Coyote Willow Other (specif	w	- -	Other (specify) Other (specify)
Understory Vegetation: (provide percent estin	nate of the following dominant species				i.	
Cottonwood	Goodding's Willow	50%	_Coyote Willow		e 	Other (specify)
Tamarisk 10% Baccharis	Russian Olive New Mexico Oli	25%	Other (specify	/) Quailbush		Other (specify)
Was surface water or saturated soil present at Was surface water or saturated soil present at Comments. Please provide comments regard but within one patch it is 60% cover - please Document these differences with photographs	or adjacent to all patches surveyed? ing differences between the survey pat note. Also, please note significant diff s whenever possible. Make sure to ref	ches within the ferences between erence comment	Yes No (site. For example n dominant over s to photo numb	story and under per whenever av	story vegetation ailable.	
Please provide USGS 7.5 minute quad (or sin	nilar)showing survey area to each surv	ey form				

j													
		Yellow-	billed Cuck	koo Surve	y and Det	ectio	n Form,	continued					
Name of Report	ing IndividualDeborah	Van Dooren	nolen			Phone	#702-822-3	370					
Affiliation	Southern Nevada Wat	er Authority_				Email	_debbie.vand	ooremolen@snw	a.com_				
Site Name_	Nature Preserve, Transc	ect 1						_					
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		or Detection rdinates	Distance (m)	Bearing	C u c k o		rected dinates
							UTM E	UTM N			#	UTM E	UTM N
No detections													
									+				
									\vdash				
									\vdash				
									\vdash				
									\vdash				
Notes - Cont. (r	efer to Cuckoo# associat	ed with indi	ridual detections)										

av. 37	** / **	-		1 CHOW DI	ucu Cuch	County: Clark	I OI		a					
Site Name:		erve, Transe	ct 2			County. Clark			State:		10.0		4	
USGS Quad Na		- 3.7						-1	Elevation:		498	-0		
Creek, River, W					is Vegas Wash							-0		
Site	Coordinates:	Start:	E	678125	N	3	997390	<u>.</u>	UTM Zone:	1	11N			
		Stop:	E	678327	N	3	997102		Datum:	N/	AD83	7/		
Ownership:	BLM I	Reclamation	NPS USI	WS USFS T	ribal State	Private Other	() funic	cipal/County)	Clark County			-8		
Was site survey	ed in previous	s year?	Actions Commission	Yes No Unki				ame was used?						
								Ÿ.				С		
C	Date	m / 1		Detect Type:	Voc. Type:	Playback #:	₩		D	н		u		20000000000
Survey # Observer(s)	(m/d/y)	Total Number of	Time	I=Incidental	CN=Contact CO=coo	Number of times 'Kowlp' call	eha		r Detection rdinates	ist	毋	С		rected dinates
(Last Name,	Survey,	YBCUs	Detected	P=Playback	AL=alarm	played before	vior	C00	rumates	ıncı	Bearing	k	Coor	imates
First Initial)	Time, Total	detected.	(AM):	A=aural	OT=other	YBCU	Behavior code			Distance (m)	ng ng	0		
I ii se iineiai)	Hours	detected.		V=visual B=both	(describe)	responded	ie.	UTM E	UTM N	1 =		0	UTM E	UTM N
								OIME	OIMIN			#	OTMLE	OIMIN
Survey Period	Date:													
#1	6/25/2018													
Observer(s):	Start:	0												
Deborah Van	6:08 AM													
Deboran Van Dooremolen,	Stop:													
Nicholas Rice	6:46 AM													
&Timothy Ricks	Total hrs:	Total:												
	0.6													
Survey Period	Date:													
#2	7/9/2018													
Observer(s):	Start:													
	5:23 AM	0												
	Stop:	1										1		
Nicholas Rice &Timothy Ricks	7:05 AM													
& Illionly Ricks	Total hrs:	Total:												
	1.7*													
Survey Period	Date:													
#3	7/24/2018													
Observer(s):	Start:													
	6:46 AM	0												
Deborah Van	Stop:										—			—
Dooremolen,	7:34 AM													
Timothy Ricks &	Total hrs:	Total:												
David Syzdek	0.8	10000												
Survey Period	Date:												_	
#4	8/9/2018										—			
Observer(s):	Start:	0									—			—
Observer(s).	7:11 AM	U												
										\vdash	_	 	_	
Deborah Van Dooremolen &	Stop: 7:51 AM													_
Julia Mueller	Total hrs:	Total:									\vdash			
	0.7	TOTAL.						1						
Survey Period	Date:													
#5	Date.										_	-		
Observer(s):	Stort.													—
JUSCIVEI(S).	Start:													—
N/A	Stop:													
IN/PA	ъюр.													
	Total hrs:	Total:												
	Total III o.	TOTAL.								\vdash	\vdash			
Survey Summa	ry:	# Det	#PO	#PR	#	CO	#N	Jests found	Tot	al Surv	ey Hour	s:		
Total YBCUs*		0			17,		11.2		100	3.8*	-, 110df			
Notes (refer t	.0				2000								1	
Cuckoo#	*Time w	as recorded c	ontinuously f	or the two transect	s at the Nature 1	Preserve on 7/9/2	2018, sc	total survey h	ours are overstate	d.				
associated wi	th												1	
individual											_		1	
detections)													1	
"Include justifi	cation for thes	se designation	IS.											

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 = 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 Dooremolen	Date Report completed10/15/18
AffiliationSouthern Nevada Water Authority	Phone #702-822-3370 Emaildebbie.vandooremolen@snwa.com
USFWS Permit #TE148556-3State Permit #	i n/a
Site NameNature Preserve, Transect 2	
Length of area surveyed0.4(in kilomet	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
Tamarisk Russian Olive	Other (specify) 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 TamariskRussian Olive	(specify units)meters
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 diffe Document these differences with photographs whenever possible. Make sure to refer	rences between dominant overstory and understory vegetation among the patches.
Please change percentages for dominant species to allow for more flexibility, or chan Please provide USGS 7.5 minute quad (or similar) showing survey area to each survey	

	Yellow-billed Cuckoo Survey and Detection Form, continued												
Name of Reporti	ing IndividualDeborah						#702-822-3:						
Affiliation	Southern Nevada Wate							ooremolen@snw	a.com				
Site Name	Nature Preserve, Transe								_				
Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Time Detected (AM):	Detect Type I=Incidenta P=Playback A=aural V=visual B=b	CO=coo AL=alarm	Playback #: Number of times 'Kowlp' call played before YBCU responded	Behavior code	Coo	or Detection rdinates	Distance (m)	Bearing	C u c k o	Coord	ected linates
							UTM E	UTM N	\vdash		#	UTM E	UTM N
No detections													
									+-				
									-				
2						-			+				
Notes - Cont. (r	efer to Cuckoo # associate	ed with indiv	idual detectio	ms)									

Site Name:		JP to UCE), T	Transect 1 (N				Co:	Clark	State:					
USGS Quad N Creek, River, V		lea Nama						- h	Elevation:		467			
				681311	s Vegas Wash		995667					-0		
Site	Coordinates:	Start: Stop:		683074	N N		995667	- 12	UTM Zone: Datum:		AD83	-(:		
Ownership:	BI M	Reclamation	PS USI			Private Other		- 1		11/2	тоэ	- 8		
Was site surve			III CSI	Yes No Unkr				ame was used?						
Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total	Total Number of YBCUs detected.	Time Detected (AM):	Detect Type: I=Incidental P=Playback A=aural	Voc. Type: CN=Contact CO=coo AL=alarm OT=other	Playback #: Number of times 'Kowlp' call played before YBCU	Behavior code		or Detection rdinates	Distance (m)	Bearing	C u c k		rected dinates
First initial)	Hours	detected.	A) A.	V=visual B=both	(describe)	responded	e e	UTM E	UTM N	-e		o #	UTM E	UTM N
Survey Period	Date:							/	2.22.21			#		
#1	6/26/2018													
Observer(s):	Start:	0												
	5:11 AM													
Nicholas Rice	Stop:													
&Timothy	9:00 AM													
Ricks	Total hrs:	Total:											-	
Survey Period	3.8* Date:								-	-	-		_	_
#2	7/10/2018													
Observer(s):	Start:						—							
5	5:22 AM	0												
Nicholas Rice	Stop:	Ť												
&Timothy	8:44 AM													
Ricks	Total hrs:	Total:												
	3.4*													
Survey Period	Date:													
#3	7/25/2018			1										
Observer(s):	Start:													
Deborah Van	8:33 AM	0												
Dooremolen	Stop:									ļ				
&Timothy	10:05 AM Total hrs:	m . I												
Ricks	1 otal nrs:	Total:					-			-			_	-
Survey Period	Date:						-			1			_	_
#4	8/9/2018													1
Observer(s):	Start:	0								1				
	5:47 AM													
Nicholas Rice	Stop:													
&Timothy	7:18 AM													
Ricks	Total hrs:	Total:												
	1.5													
Survey Period #5	Date:													
		3												
Observer(s):	Start:													
N/A	Ston:													
IN/A	Stop:													
`	Total hrs:	Total:					-		-				1	1
		-												
Survey Summ	150	# Det	#PO	#PR	#	co	#N	Jests found	Tot		ey Hour	s:		
Total YBCUs*		0								10.2*				
Notes (refer	to *Time w	as recorded o	ontinuously f	or the two transect	s along the Was	h on 6/26/2018	and 7/1	0/2018, so tota	l survey hours are	overst	ated.			
Cuckoo# associated w	40000000000000							,	ut		metalls		1	
individual													1	
detections)													1	
"Include justif	ication for the	ese designatio	ns.										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 = eats 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 con	apletely				
Name of Reporting IndividualDeborah `	Van Dooremolen	_ .s	Date Report comple	ted10/15/18_	
AffiliationSouthern Nevada	a Water Authority	_Phone #70	2-822-3370	Emaildebbie.vand	ooremolen@snwa.com
USFWS Permit #TE148556-3	State Permit #	#n/a			
Site NameLas Vegas Wash (Upstream	Pabco to Upstream Calico Emergent), Tra	ansect 1 (North	Bank)		
Length of area surveyed2.1	(in kilomet	ters = km)			a
Did you survey the same general area during	ng each visit to this site this year?	Yes No	If no, summarize in	comments below	
If site was surveyed last year, did you surve	ey 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	s site comprise	d predominantly of (ch	neck one):	
Native broadleaf plants (>75% native)	х	Mixed native	and exotic plants (mo	stly native 51-75%)	
Exotic/introduced plants (>75% exotic)		Mixed native	and exotic plants (mo	stly exotic 51-75%)	
Average height of canopy (m) 8 Estimated Canopy Cover (percent) 759	Corp.	(specify units)meters		
Overstory Vegetation: (provide percent esti	imate of the following dominant species).	. Use <1%; 109	%, 25%, 50%, 75%, 90	0%, 100%.	
25% Cottonwood	25% Goodding's Willow		Coyote Willow		Other (specify)
Tamarisk	Russian Olive	25%	Other (specify) Mes	squite	Other (specify)
Average height of understory canopy (m)_ Estimated Understory Cover (percent) Understory Vegetation: (provide percent es	_25%	(specify units	· — — — — — — — — — — — — — — — — — — —	0%, 100%.	
Cottonwood	Goodding's Willow	10%	Coyote Willow	1=	Other (specify)
Tamarisk	Russian Olive	10%	Other (specify) Qu	ıailbush	Other (specify)
10% Baccharis	New Mexico Oli				,
Was surface water or saturated soil present Was surface water or saturated soil present			Yes No (circle Yes No (circle		
Comments. Please provide comments regated but within one patch it is 60% cover - please Document these differences with photograph please change percentages for dominant s	se note. Also, please note significant diff ohs whenever possible. Make sure to refe	ferences betwee erence commen	en dominant overstory ts to photo number wh	and understory vegetati nenever available.	
Please provide USGS 7.5 minute quad (or s	similar)showing survey area to each surve	ey form			

		Vellow-	hille	d Cucl	koo Surve	y and Det	ectic	n Form	continued					
Name of Repor	ting IndividualDebora			u Cuci	too surve			#702-822-3		•				
	Southern Nevada Wa									a com				
>1								dcoore.vard	ooi emolen@snw	a.com_				
Site Name	Las Vegas Wash (Upstr	eam Pabco to	Upstrea	m Calico I	Emergent), Tran	sect 1 (North Ba	nk)	l		T				
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		rected dinates
								UTM E	UTM N			#	UTM E	UTM N
No detections														
						1								
								7						
										1				
										4				
										1				
										1				
										1				
						-				+				
										1				
rotes - Colle (refer to Cuckoo # associa	ico will ino	, Troutai	actections										

Site Name:	LV Wash (U	JP to UCE),	Fransect 2 (S	So. Bank)		.00 /0 442 / 4-3/	Co:	Clark	State:	NV			П	
USGS Quad N								_h	Elevation:	- 2	472		1	
Creek, River, V	Wetland, or La		ñ-		ıs Vegas Wash			-						
Site	Coordinates:	Start:	E	681135	N		995508	-12	UTM Zone:	1	11N	40		
		Stop:		683150	N	The second secon	996020	- 1	Datum:	N/	AD83	•		
Ownership:		Reclamation	PS USI	WS USFS T Yes No Unki		Private Other		cipal/County) ame was used?						
Was site surve	yea in previoi	is year?		Yes No Unki	iown	II yes, who	it site n	arne was used?	Same			- 71	-	
***************************************	Date			Detect Type:	Voc. Type:	Playback #:	ы			l _H		C u		*****************************
Survey # Observer(s)	(m/d/y)	Total Number of	Time	I=Incidental	CN=Contact CO=coo	Number of times 'Kowlp' call	Behavior code		r Detection rdinates	Distance (m)	Be	c		rected dinates
(Last Name,	Survey,	YBCUs	Detected	P=Playback	AL=alarm	played before	vior	C00.	rumates	ınce	Bearing	k	Coor	imates
First Initial)	Time, Total Hours	detected.	(AM):	A=aural V=visual B=both	OT=other	YBCU	code			Ê	οία	0		
	riours			v-visual D-boul	(describe)	responded	40	UTM E	UTM N	_		0 #	UTM E	UTM N
Survey Period	Date:			THE STATE OF THE S				7						
#1	6/26/2018	1												$\overline{}$
Observer(s):	Start:	0												
	5:11 AM													
Nicholas Rice	Stop:													
&Timothy Ricks	9:00 AM												-	_
RICKS	Total hrs: 3.8*	Total:					_							┢
Survey Period	Date:						-			I	\vdash		 	
#2	7/10/2018					1			.	-				
Observer(s):	Start:	,				t	H							
	5:22 AM	0												
Nicholas Rice	Stop:													
&Timothy	8:44 AM													
Ricks	Total hrs:	Total:												
	3.4*													
Survey Period	Date:													
#3	7/25/2018	;					_							-
Observer(s):	Start: 5:41 AM	0					\vdash			ļ —	H			
Deborah Van	Stop:	0												┢
Dooremolen	8:17 AM	,				1								
&Timothy Ricks	Total hrs:	Total:												
Ideks	2.6													
Survey Period	Date:													
#4	8/9/2018													
Observer(s):	Start:	0												
Consister to a place	7:47 AM					-							<u> </u>	_
Nicholas Rice &Timothy	Stop: 9:06 AM												1	<u> </u>
Ricks	Total hrs:	Total:												
	1.3													
Survey Period	Date:													
#5														
Observer(s):	Start:													
141244	ALC: ON													
N/A	Stop:						H							-
	Total hrs:	Total:				-	\vdash			1			-	-
	Total III a.	1 Otal.					\vdash							
Survey Summ		# Det	#PO	#PR	#	co	#N	lests found	Tot	al Surv	ey Hour	s:		
Total YBCUs*		0								11.1*				
Notes (refer	to *Time w	as recorded c	ontinuously f	or the two transect	s along the Was	sh on 6/26/2018	and 7/1	0/2018, so tota	l survey hours are	overst	ated.			
Cuckoo# associated w	***************************************		an a								ecoEstillo		1	
individual													1	
detections)													1	
"Include justif	ication for the	ese designatio	ns.										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 = eats 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 informati	ion completely				
Name of Reporting IndividualD	eborah Van Dooremolen		Date Report co	mpleted10/15	5/18
AffiliationSouthern	n Nevada Water Authority	Phone #70	02-822-3370	Emaildebbie.	vandooremolen@snwa.com
USFWS Permit #TE14	48556-3 State	Permit #n/a	<u> </u>		
Site NameLas Vegas Wash (Up	ostream Pabco to Upstream Calico Emerg	gent), Transect 2 (South	h Bank)		
Length of area surveyed	1.8(in	kilometers = km)			
Did you survey the same general ar	rea during each visit to this site this year?	Yes No	If no, summariz	e in comments below_	
If site was surveyed last year, did y	ou survey the same general area this year	? Yes No	If no, summaria	e in comments below_	
Overall Vegetation Characteristics:	Overall, are the species in tree/shrub lay	er at this site comprise	ed predominantly	of (check one):	
Native broadleaf plants (>75% nati	ive) X	Mixed native	e and exotic plants	(mostly native 51-75%	6)
Exotic/introduced plants (>75% ex	otic)	Mixed native	e and exotic plants	(mostly exotic 51-75%	6)
Average height of canopy (m) Estimated Canopy Cover (percent) Overstory Vegetation: (provide per	x04x04 D 0m8	(specify unit		%, 90%, 100%.	
25% Cottonwood	25% Goodding's Willow		Coyote Willow		Other (specify)
Tamarisk	Russian Olive	25%	Other (specify)	Mesquite	Other (specify)
Average height of understory canop Estimated Understory Cover (perce Understory Vegetation: (provide pe		(specify unit t species).Use <1%; 10 10% 10%			Other (specify) Other (specify)
10% Baccharis	New Mexico Oli				(-1)
Was surface water or saturated soil Was surface water or saturated soil	present at or adjacent to site within 300 present at or adjacent to all patches surv	eyed?	Yes No (c	ircle one) ircle one)	
but within one patch it is 60% cove	ents regarding differences between the sur er - please note. Also, please note signifi- hotographs whenever possible. Make sur	cant differences betwe	en dominant overs	tory and understory veg	
Please change percentages for don	ninant species to allow for more flexibilit	y, or change to ranges	of percentages (1	-5, 5-25, 25-50, etc.).	
Please provide USGS 7.5 minute q	uad (or similar)showing survey area to ea	nch survey form			

		Yellow-	billed Cuc	koo Surve	y and Det	ectio	n Form,	continued					
Name of Repor	ting IndividualDebora	h Van Doorei	molen			Phone	#702-822-3	370					
Affiliation	Southern Nevada Wa	ter Authority				Email	debbie.vand	ooremolen@snw	a.com_				
Site Name	Las Vegas Wash (Ups	tream Pabco t	o Upstream Calic	o Emergent), Tra	insect 2 (South E	Bank)							
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		or Detection rdinates	Distance (m)	Bearing	C u c k o		ected linates
							UTM E	UTM N			#	UTM E	UTM N
No detections													
				1					20 1				
									-				
			1						-				
									1				
									1				
									1				
Notes - Cont. (refer to Cuckoo# associa	ted with indi	vidual detection	s)							3		