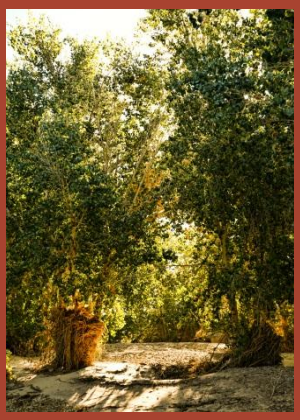

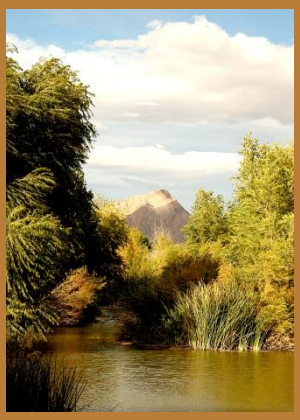

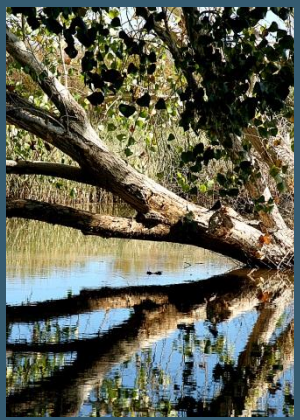

las vegas wash coordination committee

lvwash.org

Yellow-billed Cuckoo Surveys along the Las Vegas Wash, Clark County, Nevada, 2015

October 2015

SOUTHERN NEVADA WATER AUTHORITY

Las Vegas Wash Coordination Committee

Yellow-billed Cuckoo Surveys along the Las Vegas Wash, Clark County, Nevada, 2015

SOUTHERN NEVADA WATER AUTHORITY
Las Vegas Wash Project Coordination Team

Prepared for:

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

and

Las Vegas Wash Coordination Committee

Prepared by:

Deborah Van Dooremolen
Southern Nevada Water Authority
Las Vegas Wash Project Coordination Team
P.O. Box 99956
Las Vegas, Nevada 89193-9956

October 2015

ABSTRACT

The Las Vegas Wash Coordination Committee, a 29-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). Enhancements to riparian habitat associated with the Wash program and with other activities ongoing within the Wetlands Park may benefit the yellow-billed cuckoo, which was listed as threatened under the Endangered Species Act as of November 3, 2014. A cuckoo was detected along the Wash during surveys for the southwestern willow flycatcher in 1998. Protocol surveys were conducted for the yellow-billed cuckoo from 2002 through 2004; no cuckoos were detected (SWCA 2002, 2003, 2005). Surveys were discontinued due to lack of potentially suitable nesting habitat but recommenced in 2013. Following the listing of the species, the U.S. Bureau of Reclamation reinitiated informal Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS) on the development of the park and associated erosion control structures. 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 report summarizes data from the 2015 surveys.

Four protocol surveys were conducted at two sites from late June through mid-August. No cuckoos were detected. Potentially suitable nesting habitat quality and extent remained the same at the Nature Preserve. It declined at the Wash due to clearing for weir construction. Annual surveys for the yellow-billed cuckoo should continue in order to comply with informal Section 7 consultation measures.

ACKNOWLEDGEMENTS

I would like to thank the Bureau of Reclamation for providing partial funding to the Southern Nevada Water Authority for this project under assistance agreement number R09AP30017. I would also like to extend my thanks to Nicholas Rice, Timothy Ricks and Rachel Beckworth for assisting with surveys, as well as Murrelet Halterman for conducting a survey of one of our sites as part of her survey protocol training workshop on July 10, 2015, under permit no. TE-62708B-0. Finally, I would like to thank the Las Vegas Wash Coordination Committee for their continued support for wildlife monitoring and the implementation of the Las Vegas Wash Comprehensive Adaptive Management Plan and the Las Vegas Wash Wildlife Management Plan. These activities have been conducted by Deborah Van Dooremolen under permit no. TE-148556-3 (expires May 24, 2018).

Yellow-billed Cuckoo Surveys along the Las Vegas Wash, Clark County, Nevada, 2015

Table of Contents

Page No.

Page No.

Table

List of Figures

Appendix

1.0 BACKGROUND

The Las Vegas Wash (Wash) drains flows, including highly treated wastewater, urban runoff, shallow groundwater, and storm runoff from the Las Vegas Valley into Lake Mead at Las Vegas Bay (Figure 1). The Wash was once an ephemeral stream, but became perennial with the discharge of treated wastewater to the channel in the 1950s. This perennial water created a vast wetland over subsequent decades. However, as the population in the valley increased, so too did flows in the channel. Increased daily flows coupled with runoff from large storm events incised the channel and drained its wetlands. By the late 1990s, the Wash was separated from its former active floodplain by 9-12 meters (30-40 feet) in locations, and wetlands had declined from approximately 800 hectares (~2,000 acres) to less than 80 hectares (200 acres).

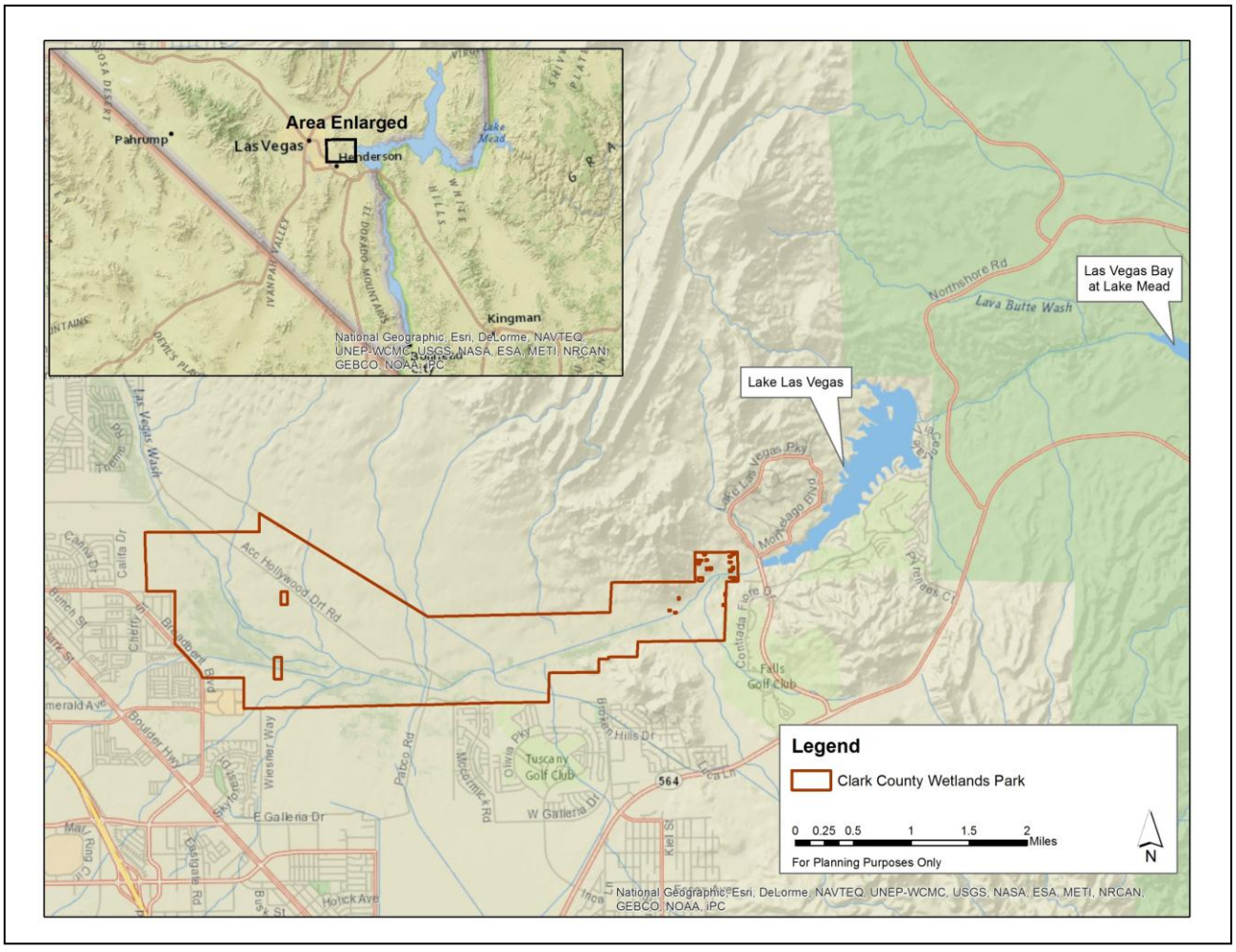

Figure 1. Las Vegas Wash location and general study area map.

The Las Vegas Wash Coordination Committee (LVWCC), a now 29-member stakeholder group, first convened in October 1998 to research the varied issues surrounding the channel and develop a long-term management plan that would stabilize the Wash and enhance its ecological functions. In January 2000, the LVWCC published the Las Vegas Wash Comprehensive Adaptive Management Plan (CAMP). The plan is a roadmap with 44 action items that guide

project implementation. Project activities include, among others, the planned installation of 21 weirs (i.e., erosion control structures) and extensive revegetation of native wetland, riparian, and upland habitats. As of June 2015, 18 permanent weirs and more than 160 hectares (~400 acres) of native vegetation were in place.

Construction of weirs alters the landscape and changes habitat. Vegetation is cleared before construction begins. The vegetation removed is typically tamarisk (*Tamarix ramosissima*), a non-native, invasive species that dominated the Wash before CAMP implementation began. After erosion control structures are completed, native wetland, riparian, and upland vegetation is planted in appropriate areas in compliance with various permits. Additional tamarisk clearing and native revegetation has been accomplished through grants. Clark County is also removing tamarisk and planting mesquite trees and riparian and wetland vegetation in the 2,900-acre Clark County Wetlands Park (Wetlands Park), through which the Wash flows (Figure 1).

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 U.S. Fish and Wildlife Service (USFWS) listed the western Distinct Population Segment as threatened under the Endangered Species Act 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.

During Wash surveys for the federally endangered southwestern willow flycatcher in 1998, consultants detected a yellow-billed cuckoo on July 7 (Southwest Wetlands Consortium 1998). In 2002, surveys for the species were initiated to determine its occurrence in the study area (SWCA 2002, 2003, 2005). These breeding season surveys continued through 2004. No birds were identified and habitat was considered suboptimal, so surveys were discontinued. In 2013, the Southern Nevada Water Authority, the lead agency of the LVWCC, reinitiated the surveys. Surveys are conducted by members of the Las Vegas Wash Project Coordination Team, the implementation arm of the LVWCC (Van Dooremolen 2014a, 2014b).

Following the listing of the species, the U.S. Bureau of Reclamation reinitiated informal Section 7 consultation with the USFWS on the development of the park and associated erosion control structures. 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 report documents the results of the 2015 surveys.

2.0 METHODS

2.1 Study Area

The general study area consists of the Wetlands Park and the reach of the Wash contained within its boundaries (Figure 1). Potentially suitable nesting habitat, as described in the natural history summary and survey protocol by Halterman et al. (2015), was surveyed. For the purposes of this

study, potentially suitable habitat is defined as patches of native riparian vegetation with at least some large overstory trees, such as cottonwood (*Populus fremontii*) and Goodding willow (*Salix gooddingii*), and an understory layer, typically with sandbar willow (a.k.a. coyote willow; *S. exigua*), seep willow (*Baccharis salicifolia*), and/or willow baccharis (*B. salicina*). Screwbean and honey mesquite (*Prosopis pubescens* and *P. glandulosa*) thickets often abutted the riparian vegetation. Within surveyed areas, tamarisk comprised only a small portion of the vegetative cover.

Patch structure and species composition are not the only determinants of potentially suitable nesting habitat. Patch size is also an important variable. McNeil et al. (2013) documented an average breeding home range size of approximately 18 hectares (~44 acres) at sites along the lower Colorado River. Halterman et al. (2015) 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). A patch was further defined as being separated from adjacent patches of potential cuckoo habitat by 300 meters (984 feet).

Two survey sites were identified in the study area: the Wetlands Park Nature Preserve (Nature Preserve) and the Wash. Two transects were established at each site to cover all patches of potentially suitable nesting habitat (Figure 2). Transects in the Nature Preserve are located in the older eastern and southeastern portions of the preserve. Transects along the Wash begin upstream of Pabco Road Weir and continue downstream to the Upstream Calico Emergent revegetation site, just above Calico Ridge Weir. Patches along the Wash periodically violate the rules outlined in the protocol, being both smaller than five hectares and greater than 300 meters apart.

Broadcast points were established every 100 meters (328 feet) along each transect. Points on adjacent transects were likewise separated by a minimum of 100 meters (328 feet) to prevent double counting.

2.2 Survey Protocol

Presence/absence surveys were conducted using the protocol drafted by Halterman et al. (2015). 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, two surveys in the second, and one survey in the third (Table 1). Each survey was separated by 12-15 days. Each transect was typically surveyed by a team of 2-3 people, one of which was Deborah Van Dooremolen-TE-148556-3 (the sole exception was when Murrelet Halterman, TE-62708B-0, surveyed the Nature Preserve on July 10 as part of a survey protocol training workshop). The team surveyed the Nature Preserve on one morning and the Wash on a different morning.

Survey Period	1st Survey	2nd Survey
First (June 15-30)	June 24/25	n/a
Second (July 1-31)	July 9/10	July 22/23
Third (August 1-15)	August 5/6	n/a

Table 1. Yellow-billed cuckoo survey dates for the study area.

Surveys began at sunrise and were completed by 11:00 a.m. or when the temperature reached 40º C (104º F), whichever came first. Call-playback was used. Within each transect, broadcasts

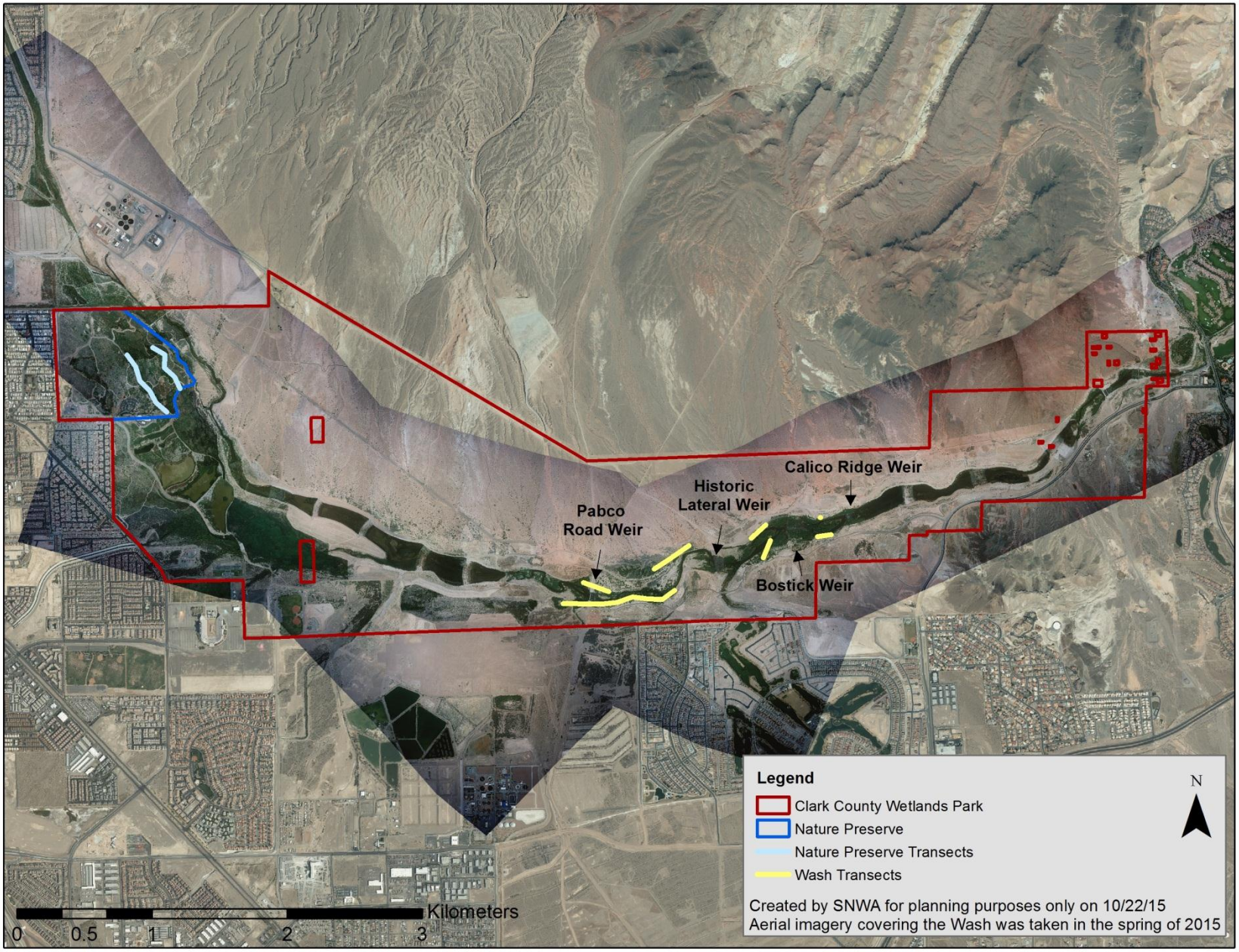

Figure 2. Survey transects for 2015.

were conducted every 100 meters (328 feet). 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 in an effort to prevent the individual from following the broadcast and being counted more than once.

3.0 RESULTS

3.1 Surveys

There were no detections in 2015. See Appendix A for the survey datasheets.

3.2 Observations on Habitat

3.2.1 Nature Preserve

In 2013, when these surveys recommenced, the Nature Preserve offered possibly the best potentially suitable nesting habitat (although of just moderate quality) in the study area and hosted a yellow-billed cuckoo that was possibly breeding on the site (Van Dooremolen 2014a). In March 2014, a fire burned a few acres of native riparian and mesquite habitat in the area that had been occupied by that bird. As to be expected, this decreased habitat value within the site from moderate to fair. Despite this, the Nature Preserve hosted a migrant in 2014 (Van Dooremolen 2014b). In 2015, the burned areas showed signs of new growth. The riparian vegetation is rebounding fairly quickly and should be of suitable stature within the next year or two. The burned mesquite is resprouting but will take possibly a decade or more to fully recover.

Habitat quality was still fair in 2015. Native-dominated riparian habitat (cottonwood, Goodding and sandbar willows, and willow baccharis) rings the constructed wetland ponds, which include the upper pond, three middle ponds, and Vern's Pond. It also lines the small 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. A grove of cottonwoods just south of the middle ponds (partially burned in the fire) 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, which were also partially burned in the fire. The mesquite occurs either with quailbush (*Atriplex lentiformis*) and willow baccharis in the understory or in thickets. These areas combine to offer ~7-8 hectares (~17-20 acres) of habitat. In addition, there are some areas dominated by dry common reed, and there is one small patch of tamarisk off of Vern's Pond. Approximately a third of this 1-hectare (~2.5-acre) area was cleared prior to the onset of surveys and pole-planted with native species (sandbar willow, cottonwood, mesquite) that will require several years' of growth before they contribute to potential habitat. The remaining portion was defoliated by the tamarisk leaf beetle (*Diorhabda* spp.). Mesquite trees of various maturity with a saltgrass understory cover approximately eight hectares (~20 acres) west of the survey area.

3.2.2 Wash

Habitat extent declined for the species along the Wash in 2015. Approximately five hectares (~12 acres) of native habitat were cleared collectively from upstream of Pabco Road, Historic Lateral and Bostick weirs in preparation for the construction of Sunrise Mountain Weir and the expansion of Historic Lateral Weir. These projects are now on hold, potentially for the next few years. The habitat lost was some of the best quality potentially suitable nesting habitat in the site. Given the increased fragmentation following this loss, habitat quality declined, but still likely averaged fair overall. Stringers of native riparian habitat run along either side of the channel, typically 0.5-2 hectares (~1-5 acres) in size and separated from each other by a hundred meters or more. They consist 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 here as well. While the species composition is similar, structural diversity of riparian vegetation is lower at this site than at the Nature Preserve, with reduced cover of understory shrubs and trees (see datasheets in Appendix A). Patches of mesquite, both screwbean and honey also exist, often with quailbush or baccharis in the understory. Virtually no tamarisk remains. The majority of the habitat, approximately ten hectares (~25 acres), is concentrated from just upstream of Pabco Road Weir to upstream of Historic Lateral Weir (Figure 2). There are approximately four hectares (~10 acres) of mesquite adjacent to the current survey area along this reach that may be surveyed next year, if deemed of suitable structure. The reach from the toe of Historic Lateral Weir to just upstream of the Calico Ridge Weir (Figure 2) contains less than four hectares (~10 acres) of potentially suitable habitat.

4.0 DISCUSSION AND RECOMMENDATIONS

4.1 Discussion

No yellow-billed cuckoos were detected in 2015, a first since annual surveys recommenced in 2013. It is possible that the lack of detections is related to habitat loss along the Wash. Yet, there was little change to the habitat within the Nature Preserve, the best of the sites for the species, and host of the 2013 possible breeder and one of three migrants in 2014 (Van Dooremolen 2014a and 2014b), and no cuckoos were detected there either. Also, to put the lack of detections into context, at the time of the writing of this report, only three detections were known to have occurred in all of southern Nevada: one at the Overton Wildlife Management Area, one at Pahranagat National Wildlife Refuge and one at the Warm Springs Natural Area (B. Raulston pers. comm., A. Pellegrini pers. comm.). Also, when USFWS first proposed the species for listing as threatened, it stated that there were less than ten breeding pairs of yellow-billed cuckoos in the entire state, 78 Fed. Reg. 61636 (October 3, 2013).

It should be noted, though, that in addition to the clearing of select areas of native habitat, approximately eight hectares (~20 acres) of tamarisk were cleared within the project area and another 16 hectares (~40 acres) were cleared by the Clark County Water Reclamation District just upstream of the Wetlands Park boundary, on their property. These areas were considered unsuitable habitat as yellow-billed cuckoos do not typically nest in monotypic stands of tamarisk (Halterman et al. 2015), although the cuckoo has been shown to nest in tamarisk when it is a component of native or mixed habitat (McNeil et al. 2013). In addition, had the stands remained in place they likely would have been defoliated by the tamarisk leaf beetle (as they were in 2014), providing even less habitat value. The point is raised because, between the native habitat

and these stands of tamarisk, approximately 29 hectares (~72 acres) of treed habitat were cleared from within and immediately adjacent to the study area. It is unknown how the loss of forested habitat may have impacted the occurrence of the yellow-billed cuckoo, if at all. It is also unknown at this time how much of the cleared areas will be revegetated with riparian trees and shrubs and mesquite in the future.

As the extent of potentially suitable nesting habitat at each site is at most 16-18 hectares, the Nature Preserve and Wash can likely, at best, support a single pair of nesting cuckoos each. This may even be a stretch as Halterman et al. (2015) states that cuckoos rarely nest in areas smaller than 20 hectares (~50 acres). Regardless of their potential to host breeding pairs, the sites offer value as habitat to migrating cuckoos, and surveys should continue.

4.2 Recommendations

Annual surveys for the yellow-billed cuckoo should continue in order to comply with informal Section 7 consultation measures.

5.0 LITERATURE CITED

Halterman, M.D., M.J. Johnson, J.A. Holmes, and S.A. Laymon. 2015. A natural history summary and survey protocol for the western distinct population segment of the yellow-billed cuckoo: U.S. Fish and Wildlife Techniques and Methods, 45 p.

Hughes, Janice M. 1999. Yellow-billed Cuckoo (*Coccyzus americanus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/418

McNeil, S.E., D. Tracy, J.R. Stanek, and J.E. Stanek. 2013. Yellow-billed cuckoo distribution, abundance and habitat use on the lower Colorado River and tributaries, 2008-2012 summary report. Bureau of Reclamation, Lower Colorado River Multi-Species Conservation Program, Boulder City, NV, prepared by Southern Sierra Research Station, Weldon, CA.

Southwest Wetlands Consortium. 1998. A survey for southwestern willow flycatchers along Las Vegas Wash, Clark County Wetlands Park, Nevada. Prepared by SWCA Environmental Consultants, Salt Lake City. Final report prepared for the Clark County Department of Parks and Recreation, Las Vegas.

SWCA. 2002. Survey for Yuma clapper rails, yellow-billed cuckoos and southwestern willow flycatchers along Las Vegas Wash, Clark County, Nevada. Prepared by SWCA Environmental Consultants, Salt Lake City. Final report prepared for the Southern Nevada Water Authority, Las Vegas.

SWCA. 2003. Survey for Yuma clapper rails, yellow-billed cuckoos and southwestern willow flycatchers along Las Vegas Wash, Clark County, Nevada. Prepared by SWCA Environmental Consultants, Salt Lake City. Final report prepared for the Southern Nevada Water Authority, Las Vegas.

SWCA. 2005. [2004] Survey for Yuma clapper rails, yellow-billed cuckoos and southwestern willow flycatchers along Las Vegas Wash, Clark County, Nevada. Prepared by SWCA

Environmental Consultants, Salt Lake City. Final report prepared for the Southern Nevada Water Authority, Las Vegas.

Van Dooremolen, D. 2014a. Yellow-billed cuckoo surveys along the Las Vegas Wash, Clark County, Nevada, 2013. 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_cuckoo2013.pdf

Van Dooremolen, D. 2014b. Yellow-billed cuckoo surveys along the Las Vegas Wash, Clark County, Nevada, 2014. 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_cuckoo2014.pdf

Appendix A

Survey Datasheets

Yellow Billed Cuckoo Survey Form

Site Name: **Nature Preserve, Transect 1** County: **Clark** State: **NV**

USGS Quad Name: Elevation: **496**

Creek, River, Wetland, or Lake Name **Las Vegas Wash**

Site Coordinates: Start: **E** **678226** **N** **3996929** UTM Zone: **11N**

Stop: **E** **677941** **N** **3997350** Datum: **NAD83**

Ownership: BLM (Reclamation) NPS USFWS USFS Tribal State Private Other (Municipal/County) **Clark County**

Was site surveyed in previous year? (Yes) No Unknown If yes, what site name was used? **Same**

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total Number of YBCUs detected.	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	Cuckoo #	Corrected Coordinates	
								UTM E	UTM N				UTM E	UTM N
Survey Period #1	Date:													
	6/24/2015													
Observer(s):	Start:	0												
	5:25 AM													
Deborah Van Dooremolen, Nicholas Rice &Timothy Ricks	Stop:													
	6:20 AM													
	Total hrs:	Total:												
	0.90													
Survey Period #2	Date:													
	7/10/2015													
Observer(s):	Start:													
	6:00 AM	0												
	Stop:													
Murrelet Halterman	9:32 AM													
	Total hrs:	Total:												
	*3.5													
Survey Period #3	Date:													
	7/22/2015													
Observer(s):	Start:													
	5:43 AM	0												
Deborah Van Dooremolen & Rachel Beckworth	Stop:													
	6:41 AM													
	Total hrs:	Total:												
	1.00													
Survey Period #4	Date:													
	8/5/2015													
Observer(s):	Start:	0												
	5:40 AM													
Deborah Van Dooremolen, Nicholas Rice &Timothy Ricks	Stop:													
	7:18 AM													
	Total hrs:	Total:												
	1.60													
Survey Period #5	Date:													
Observer(s):	Start:													
	Stop:													
	Total hrs:	Total:												

Survey Summary:	# Det	#PO	#PR	#CO	#Nests found	Total Survey Hours:		
Total YBCUs*	0					*7		

Notes (refer to Cuckoo # associated with individual detections)

*Murrelet ran the two transects for the Nature Preserve as one long continuous transect on 7/10/15 and entered a single start and stop time for each.

*Include justification for these designations.

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 completely

Name of Reporting Individual __Deborah Van Dooremolen_____ Date Report completed_____8/5/15_____

Affiliation _____Southern Nevada Water Authority_____ Phone #__702-822-3370___ Email ___debbie.vandooremolen@snwa.com_____

USFWS Permit #_____TE148556-3_____ State Permit #_____n/a_____

Site Name_____Nature Preserve, Transect 1_____

Length of area surveyed_____0.5_____ (in kilometers = 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)	X	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)_____6_____ (specify units)_____meters_____

Estimated Canopy Cover (percent)____75%_____

Overstory Vegetation: (provide percent estimate of the following dominant species). Use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

10%	Cottonwood	**25%**	Goodding's Willow		Coyote Willow		Other (specify)
	Tamarisk		Russian Olive	**50%**	Other (specify) **Mesquite**		Other (specify)

Average height of understory canopy (m)____3_____ (specify units)_____meters_____

Estimated Understory Cover (percent)_____75%_____

Understory Vegetation: (provide percent estimate of the following dominant species).Use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

	Cottonwood		Goodding's Willow	**50%**	Coyote Willow		Other (specify)
	Tamarisk		Russian Olive	**25%**	Other (specify) **Quailbush**		Other (specify)
10%	Baccharis		New Mexico Oli				

Was surface water or saturated soil present at or adjacent to site within 300 meters? (Yes) No (circle one)

Was surface water or saturated soil present at or adjacent to all patches surveyed? (Yes) No (circle one)

Comments. Please provide comments regarding differences between the survey patches within the site. For example, if the average canopy for this site is 30% cover, but within one patch it is 60% cover - please note. Also, please note significant differences between dominant overstory and understory vegetation among the patches. Document these differences with photographs whenever possible. Make sure to reference comments to photo number whenever available.

Please change percentages for dominant species to allow for more flexibility, or change to ranges of percentages (1-5, 5-25, 25-50, etc.).

Please provide USGS 7.5 minute quad (or similar)showing survey area to each survey form_____

Yellow-billed Cuckoo Survey and Detection Form, continued

Name of Reporting Individual ___Deborah Van Dooremolen_____ Phone #__702-822-3370_____

Affiliation_____Southern Nevada Water Authority_____ Email __debbie.vandooremolen@snwa.com_____

Site Name_____Nature Preserve, Transect 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	Surveyor Detection Coordinates		Distance (m)	Bearing	Cuckoo #	Corrected Coordinates	
							UTM E	UTM N				UTM E	UTM N
No detections													

Notes - Cont. (refer to Cuckoo # associated with individual detections)

Yellow Billed Cuckoo Survey Form

Site Name: **Nature Preserve, Transect 2** County: **Clark** State: **NV**

USGS Quad Name: Elevation: **498**

Creek, River, Wetland, or Lake Name: **Las Vegas Wash**

Site Coordinates: Start: **E 678125 N 3997390** UTM Zone: **11N**

Stop: **E 678327 N 3997102** Datum: **NAD83**

Ownership: BLM (Reclamation) NPS USFWS USFS Tribal State Private Other (Municipal/County) **Clark County**

Was site surveyed in previous year? (Yes) No Unknown If yes, what site name was used? **Same**

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total Number of YBCUs detected.	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	Cuckoo #	Corrected Coordinates	
								UTM E	UTM N				UTM E	UTM N
Survey Period #1	Date:													
	6/24/2015													
Observer(s):	Start:	0												
	6:43 AM													
Deborah Van Dooremolen, Nicholas Rice &Timothy Ricks	Stop:													
	7:40 AM													
	Total hrs:	Total:												
	1.00													
Survey Period #2	Date:													
	7/10/2015													
Observer(s):	Start:													
	6:00 AM	0												
	Stop:													
Murrelet Halterman	9:32 AM													
	Total hrs:	Total:												
	*3.5													
Survey Period #3	Date:													
	7/22/2015													
Observer(s):	Start:													
	6:47 AM	0												
Deborah Van Dooremolen & Rachel Beckworth	Stop:													
	7:40 AM													
	Total hrs:	Total:												
	0.90													
Survey Period #4	Date:													
	8/5/2015													
Observer(s):	Start:	0												
	7:50 AM													
Deborah Van Dooremolen, Nicholas Rice &Timothy Ricks	Stop:													
	8:48 AM													
	Total hrs:	Total:												
	1.00													
Survey Period #5	Date:													
Observer(s):	Start:													
	Stop:													
	Total hrs:	Total:												

Survey Summary:	# Det	#PO	#PR	#CO	#Nests found	Total Survey Hours:		
Total YBCUs*	0					*6.4		

Notes (refer to Cuckoo # associated with individual detections)

*Murrelet ran the two transects for the Nature Preserve as one long continuous transect on 7/10/15 and entered a single start and stop time for each.

*Include justification for these designations.

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 completely

Name of Reporting Individual __Deborah Van Dooremolen_____ Date Report completed_____8/5/15_____

Affiliation _____Southern Nevada Water Authority_____ Phone #__702-822-3370___ Email ___debbie.vandooremolen@snwa.com_____

USFWS Permit #_____TE148556-3_____ State Permit #_____n/a_____

Site Name_____Nature Preserve, Transect 2_____

Length of area surveyed_____0.4_____ (in kilometers = 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)	X	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_____ (specify units)_____meters_____

Estimated Canopy Cover (percent)____75%_____

Overstory Vegetation: (provide percent estimate of the following dominant species). Use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

50%	Cottonwood	**50%**	Goodding's Willow		Coyote Willow		Other (specify)
	Tamarisk		Russian Olive		Other (specify)		Other (specify)

Average height of understory canopy (m)____3_____ (specify units)_____meters_____

Estimated Understory Cover (percent)_____75%_____

Understory Vegetation: (provide percent estimate of the following dominant species).Use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

	Cottonwood		Goodding's Willow	**75%**	Coyote Willow		Other (specify)
	Tamarisk		Russian Olive		Other (specify)		Other (specify)
10%	Baccharis		New Mexico Oli				

Was surface water or saturated soil present at or adjacent to site within 300 meters? (Yes) No (circle one)

Was surface water or saturated soil present at or adjacent to all patches surveyed? (Yes) No (circle one)

Comments. Please provide comments regarding differences between the survey patches within the site. For example, if the average canopy for this site is 30% cover, but within one patch it is 60% cover - please note. Also, please note significant differences between dominant overstory and understory vegetation among the patches. Document these differences with photographs whenever possible. Make sure to reference comments to photo number whenever available.

Please change percentages for dominant species to allow for more flexibility, or change to ranges of percentages (1-5, 5-25, 25-50, etc.).

Please provide USGS 7.5 minute quad (or similar)showing survey area to each survey form_____

Yellow-billed Cuckoo Survey and Detection Form, continued

Name of Reporting Individual ___Deborah Van Dooremolen_____ Phone #__702-822-3370_____

Affiliation_____Southern Nevada Water Authority_____ Email __debbie.vandooremolen@snwa.com_____

Site Name_____Nature Preserve, Transect 2_____

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	Cuckoo #	Corrected Coordinates	
							UTM E	UTM N				UTM E	UTM N
No detections													

Notes - Cont. (refer to Cuckoo # associated with individual detections)

Yellow Billed Cuckoo Survey Form

Site Name: **LV Wash (UP to UCE), Transect 1 (No. Bank)** Co: **Clark** State: **NV**

USGS Quad Name: Elevation: **467**

Creek, River, Wetland, or Lake Name **Las Vegas Wash**

Site Coordinates: Start: **E 681311 N 3995667** UTM Zone: **11N**

Stop: **E 683074 N 3996147** Datum: **NAD83**

Ownership: BLM (Reclamation) NPS USFWS USFS Tribal State Private Other (Municipal/County) **Clark County**

Was site surveyed in previous year? (Yes) No Unknown If yes, what site name was used? **Same**

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total Number of YBCUs detected.	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	Cuckoo #	Corrected Coordinates	
								UTM E	UTM N				UTM E	UTM N
Survey Period #1	Date:													
	6/25/2015													
Observer(s):	Start:	0												
	4:58 AM													
Deborah Van Dooremolen, Nicholas Rice &Timothy Ricks	Stop:													
	6:41 AM													
	Total hrs:	Total:												
	1.70													
Survey Period #2	Date:													
	7/9/2015													
Observer(s):	Start:													
	8:14 AM	0												
Deborah Van Dooremolen, Nicholas Rice &Timothy Ricks	Stop:													
	10:10 AM													
	Total hrs:	Total:												
	1.90													
Survey Period #3	Date:													
	7/23/2015													
Observer(s):	Start:													
	5:48 AM	0												
Deborah Van Dooremolen, Nicholas Rice &Timothy Ricks	Stop:													
	7:44 AM													
	Total hrs:	Total:												
	1.90													
Survey Period #4	Date:													
	8/6/2015													
Observer(s):	Start:	0												
	8:45 AM													
Deborah Van Dooremolen, Nicholas Rice &Timothy Ricks	Stop:													
	10:45 AM													
	Total hrs:	Total:												
	2.00													
Survey Period #5	Date:													
Observer(s):	Start:													
	Stop:													
	Total hrs:	Total:												

Survey Summary:	# Det	#PO	#PR	#CO	#Nests found	Total Survey Hours:		
Total YBCUs*	0					7.50		

Notes (refer to Cuckoo # associated with individual detections)

*Include justification for these designations.

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 completely

Name of Reporting Individual __Deborah Van Dooremolen_____ Date Report completed_____8/6/15_____

Affiliation _____Southern Nevada Water Authority_____ Phone #__702-822-3370___ Email ___debbie.vandooremolen@snwa.com_____

USFWS Permit #_____TE148556-3_____ State Permit #_____n/a_____

Site Name___Las Vegas Wash (Upstream Pabco to Upstream Calico Emergent), Transect 1 (North Bank)_____

Length of area surveyed_____2.1_____ (in kilometers = 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)	X	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)_____8_____ (specify units)_____meters_____

Estimated Canopy Cover (percent)____75%_____

Overstory Vegetation: (provide percent estimate of the following dominant species). Use <1%; 10%, 25%, 50%, 75%, 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 canopy (m)____3_____ (specify units)_____meters_____

Estimated Understory Cover (percent)_____25%_____

Understory Vegetation: (provide percent estimate of the following dominant species).Use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

	Cottonwood		Goodding's Willow	**10%**	Coyote Willow		Other (specify)
	Tamarisk		Russian Olive	**10%**	Other (specify) **Quailbush**		Other (specify)
10%	Baccharis		New Mexico Oli				

Was surface water or saturated soil present at or adjacent to site within 300 meters? (Yes) No (circle one)

Was surface water or saturated soil present at or adjacent to all patches surveyed? (Yes) No (circle one)

Comments. Please provide comments regarding differences between the survey patches within the site. For example, if the average canopy for this site is 30% cover, but within one patch it is 60% cover - please note. Also, please note significant differences between dominant overstory and understory vegetation among the patches. Document these differences with photographs whenever possible. Make sure to reference comments to photo number whenever available.

Please change percentages for dominant species to allow for more flexibility, or change to ranges of percentages (1-5, 5-25, 25-50, etc.).

Please provide USGS 7.5 minute quad (or similar)showing survey area to each survey form_____

Yellow-billed Cuckoo Survey and Detection Form, continued

Name of Reporting Individual ___Deborah Van Dooremolen_____ Phone #__702-822-3370_____

Affiliation_____Southern Nevada Water Authority_____ Email __debbie.vandooremolen@snwa.com_____

Site Name_____Las Vegas Wash (Upstream Pabco to Upstream Calico Emergent), Transect 1 (North 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	Surveyor Detection Coordinates		Distance (m)	Bearing	Cuckoo #	Corrected Coordinates	
							UTM E	UTM N				UTM E	UTM N
No detections													

Notes - Cont. (refer to Cuckoo # associated with individual detections)

Yellow Billed Cuckoo Survey Form

Site Name: **LV Wash (UP to UCE), Transect 2 (So. Bank)** Co: **Clark** State: **NV**

USGS Quad Name: Elevation: **472**

Creek, River, Wetland, or Lake Name **Las Vegas Wash**

Site Coordinates: Start: **E 681135 N 3995508** UTM Zone: **11N**

Stop: **E 683150 N 3996020** Datum: **NAD83**

Ownership: BLM (Reclamation) NPS USFWS USFS Tribal State Private Other (Municipal/County) **Clark County**

Was site surveyed in previous year? (Yes) No Unknown If yes, what site name was used? **Same**

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total Number of YBCUs detected.	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	Cuckoo #	Corrected Coordinates	
								UTM E	UTM N				UTM E	UTM N
Survey Period #1	Date: 6/25/2015													
Observer(s): Deborah Van Dooremolen, Nicholas Rice &Timothy Ricks	Start: 7:20 AM	0												
	Stop: 9:33 AM													
	Total hrs: 2.20	Total:												
Survey Period #2	Date: 7/9/2015													
Observer(s): Deborah Van Dooremolen, Nicholas Rice &Timothy Ricks	Start: 5:31 AM	0												
	Stop: 7:48 AM													
	Total hrs: 2.30	Total:												
Survey Period #3	Date: 7/23/2015													
Observer(s): Deborah Van Dooremolen, Nicholas Rice &Timothy Ricks	Start: 8:18 AM	0												
	Stop: 10:45 AM													
	Total hrs: 2.50	Total:												
Survey Period #4	Date: 8/6/2015													
Observer(s): Deborah Van Dooremolen, Nicholas Rice &Timothy Ricks	Start: 5:45 AM	0												
	Stop: 8:10 AM													
	Total hrs: 2.40	Total:												
Survey Period #5	Date:													
Observer(s):	Start:													
	Stop:													
	Total hrs:	Total:												

Survey Summary:	# Det	#PO	#PR	#CO	#Nests found	Total Survey Hours:
Total YBCUs*	0					9.40

Notes (refer to Cuckoo # associated with individual detections)

*Include justification for these designations.

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 completely

Name of Reporting Individual __Deborah Van Dooremolen_____ Date Report completed_____8/6/15_____

Affiliation _____Southern Nevada Water Authority_____ Phone #__702-822-3370___ Email ___debbie.vandooremolen@snwa.com_____

USFWS Permit #_____TE148556-3_____ State Permit #_____n/a_____

Site Name___Las Vegas Wash (Upstream Pabco to Upstream Calico Emergent), Transect 2 (South Bank)_____

Length of area surveyed_____1.8_____ (in kilometers = 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)	X	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)_____8_____ (specify units)_____meters_____

Estimated Canopy Cover (percent)____75%_____

Overstory Vegetation: (provide percent estimate of the following dominant species). Use <1%; 10%, 25%, 50%, 75%, 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 canopy (m)____3_____ (specify units)_____meters_____

Estimated Understory Cover (percent)_____25%_____

Understory Vegetation: (provide percent estimate of the following dominant species).Use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

	Cottonwood		Goodding's Willow	**10%**	Coyote Willow		Other (specify)
	Tamarisk		Russian Olive	**10%**	Other (specify) **Quailbush**		Other (specify)
10%	Baccharis		New Mexico Oli				

Was surface water or saturated soil present at or adjacent to site within 300 meters? (Yes) No (circle one)

Was surface water or saturated soil present at or adjacent to all patches surveyed? (Yes) No (circle one)

Comments. Please provide comments regarding differences between the survey patches within the site. For example, if the average canopy for this site is 30% cover, but within one patch it is 60% cover - please note. Also, please note significant differences between dominant overstory and understory vegetation among the patches. Document these differences with photographs whenever possible. Make sure to reference comments to photo number whenever available.

Please change percentages for dominant species to allow for more flexibility, or change to ranges of percentages (1-5, 5-25, 25-50, etc.).

Please provide USGS 7.5 minute quad (or similar)showing survey area to each survey form_____

Yellow-billed Cuckoo Survey and Detection Form, continued

Name of Reporting Individual ___Deborah Van Dooremolen_____ Phone #__702-822-3370_____

Affiliation_____Southern Nevada Water Authority_____ Email __debbie.vandooremolen@snwa.com_____

Site Name_____Las Vegas Wash (Upstream Pabco to Upstream Calico Emergent), Transect 2 (South 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	Surveyor Detection Coordinates		Distance (m)	Bearing	Cuckoo #	Corrected Coordinates	
							UTM E	UTM N				UTM E	UTM N
No detections													

Notes - Cont. (refer to Cuckoo # associated with individual detections)