2006 Survey for Yuma Clapper Rails and Southwestern Willow Flycatchers Along Las Vegas Wash, Clark County, Nevada

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Southern Nevada Water Authority

Prepared by

SWCA Environmental Consultants

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2006 SURVEY FOR YUMA CLAPPER RAILS AND SOUTHWESTERN WILLOW FLYCATCHERS ALONG LAS VEGAS WASH, CLARK COUNTY, NEVADA

Submitted to

Southern Nevada Water Authority
Las Vegas Wash Project Coordination Team
1900 East Flamingo Road
Las Vegas, Nevada 89119
(702) 822-3300

Submitted by

SWCA Environmental Consultants
270 East 200 South, Suite 200
Salt Lake City, Utah 84111
(801) 322-4307
www.swca.com

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EXECUTIVE SUMMARY

Systematic surveys for Yuma clapper rails (*Rallus longirostris yumanensis*) were conducted within potential habitat along the Las Vegas Wash (Wash) in Clark County, Nevada, from April through May. The survey techniques included playback recordings of the Yuma clapper rail in accordance with standardized survey protocol (McKinstry 1995). No clapper rails were detected during the official 2006 surveys. However, one Yuma clapper rail was visually detected by Aaron Miller, with the San Bernardino County Museum, June 4, 2006 at 07:00 hours in the C-1 Channel while doing general bird surveys along the Wash. Subsequently, three additional Yuma clapper rail playback surveys were conducted at the C-1 Channel and on the third a Yuma clapper rail responded to the call.

Systematic surveys for southwestern willow flycatchers (*Empidonax traillii extimus*) were conducted along the Wash from May through July 2006. The survey techniques included playback recordings of the southwestern willow flycatcher in accordance with standardized survey protocol (Sogge et al. 1997). One willow flycatcher was detected within the boundaries of the Clark County Wetlands Park (Park), and one was detected approximately 100 m upstream of the Park. A third *Empidonax* individual was visually detected but did not respond to the playback recordings.

While no official surveys were conducted for the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), special care was taken to listen for the species and estimate potential habitat while conducting southwestern willow flycatcher surveys. No individuals were observed.

Previous survey reports (SWCA 2002, 2003, 2004) have identified both increases and losses of potential Yuma clapper rail habitat. Generally, construction of erosion control structures has continued to increase the quantity of emergent wetland habitat within the boundaries of the Park. However, some areas have become channelized, reducing the habitat quality within these areas, and presently, the Wash still provides only marginal habitat for nesting Yuma clapper rails.

Previous survey reports (SWCA 1999, 2000, 2001, 2002, 2003, 2004, 2005) have identified losses of potentially suitable southwestern willow flycatcher habitat. Habitat losses have continued into 2006 and were primarily associated with ongoing construction of erosion control and bank stabilization structures and large-scale revegetation efforts within the survey area. These activities, while causing additional losses of tamarisk, are likely to lead to long-term improvements in potentially suitable southwestern willow flycatcher habitat, as well as potentially suitable rail and western yellow-billed cuckoo habitats. Cottonwood and willow plantings continue to mature, thus improving riparian habitat structure and suitability for cuckoos and flycatchers.

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1.0 INTRODUCTION

This study was undertaken in order to further examine the breeding status of the federally endangered Yuma clapper rail (*Rallus longirostris yumanensis*) and southwestern willow flycatcher (*Empidonax traillii extimus*) along Las Vegas Wash (Wash) in Clark County, Nevada. In 1997, as part of the environmental permitting process associated with the proposed development of the Clark County Wetlands Park (Park), it was recognized that potentially suitable southwestern willow flycatcher habitat existed along the Wash and could be affected by the installation of erosion control structures and development of other Park facilities. At that time, agency biologists recommended that a systematic survey be undertaken to determine whether or not these species breed within the Park boundary. Initial surveys for the southwestern willow flycatcher were conducted in 1998 (SWCA 1998), and follow-up surveys have been conducted every year, beginning in 1999 (SWCA 1999, 2000, 2001, 2002, 2003, 2004, 2005). Systematic surveys for the Yuma clapper rail and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) were initiated in 2000 and undertaken by San Bernardino County Museum. These surveys were repeated by San Bernardino County Museum in 2001 (McKernan and Braden 2001, 2002) and then by SWCA in 2002, 2003, and 2004 (SWCA 2002, 2003, 2004).

The results of the 2006 survey effort for the southwestern willow flycatcher and Yuma clapper rail are presented in this report. Western yellow-billed cuckoo surveys were not conducted in 2006. However, any incidental detections of this species during the southwestern willow flycatcher surveys were recorded, as were any and all changes in their potential habitat since 2005.

The purpose of this report is twofold:

1. Document the results of the 2006 surveys with respect to the distribution and abundance of Yuma clapper rails and southwestern willow flycatchers in the Wash, and
2. Qualitatively estimate the utility of existing and future potential habitat to nesting southwestern willow flycatchers and Yuma clapper rails and, to a lesser degree, western yellow-billed cuckoos.

2.0 STUDY AREA

The general study area for this survey consists of an approximately 405-ha (1,000-acre) portion of the Wash, dominated by tamarisk (*Tamarix ramosissima*; Bureau of Reclamation 1988) and contained within the boundaries of the Park (Figure 1). This area is spread along an 11-km (7-mile) reach of the Wash and includes portions of the City of Henderson, as well as private, county, and Bureau of Reclamation lands. The study area was defined in 1998 in consultation with Clark County, the Bureau of Reclamation, the Southern Nevada Water Authority (SNWA), and the U.S. Fish and Wildlife Service (USFWS). It includes areas that have been and will be revegetated with native species as well as areas that could be affected by future construction of, and have been affected by past construction of, erosion and grade control structures, roads, trails and other facilities associated with the development of the Park.

3.0 METHODS

3.1 YUMA CLAPPER RAIL

Yuma clapper rail habitat tends to consist primarily of freshwater or brackish marshlands and riparian areas (Grinnell and Miller 1944). The species generally requires a wet substrate, such as mud flats, sandbars, and drainage bottoms that are densely vegetated with herbs or woody vegetation at least 40 centimeters (15.8 inches) in mean canopy height. The presence of ponds and/or flowing water is also critical for the presence of Yuma clapper rails. "Large unbroken stands of vegetation in wet situations without emergent soils do not seem to be optimum habitat" (Todd 1986). The species apparently distributes its territories along the land-water interface where standing water in the marsh gives way to gently-sloping saturated soil (usually not steeply sloping). In large, deep-water marshes, rail territories may extend 50 meters (164 feet) or more from shore when dead, decadent, and lodged or floating vegetation from the previous year provides an above-water substrate for foraging and nesting (Todd 1986:43).

Yuma clapper rails primarily occupy marshes dominated by cattail (*Typha* spp.), bulrush (*Schoenoplectus* spp.), and/or reed (*Phragmites australis*) in all seasons, although they reach their greatest densities in cattail-bulrush marshes of moderate foliage density (Anderson and Ohmart 1985). Therefore these habitats were targeted during the 2006 clapper rail surveys in the Wash. These areas include isolated patches of emergent marsh habitat occurring in the active floodplain of the Wash.

The presence/absence of Yuma clapper rails was determined by conducting three censuses during the early breeding season (March 15 to May 30) from 30 minutes before sunrise to no later than 09:00 hours (McKinstry 1995; Harlow 2000). The actual dates of the surveys were April 14, May 5, and May 22. The census technique employed taped calls played along established transect routes by observers on foot.

3.2 SOUTHWESTERN WILLOW FLYCATCHER

Within the general study area, southwestern willow flycatcher survey efforts focused on areas containing tamarisk and other species such as Fremont cottonwood *(Populus fremontii)* and Goodding willow *(Salix gooddingii)*, which have the proper structure to be potentially suitable for use by southwestern willow flycatchers. For the purposes of the study, potentially suitable habitat was defined as dense woody riparian vegetation greater than 3.0 m (9.8 feet) in height with greater than 75% canopy cover. Areas dominated by desert scrub vegetation and other upland habitats known to be unsuitable for southwestern willow flycatchers were not surveyed as part of this effort.

Surveys for southwestern willow flycatchers were conducted from May through July 2006, using a tape-recorded playback of a southwestern willow flycatcher song and call notes (*fitz-bew* and *britt*) according to the standard protocol described by Sogge et al. (1997). The five-visit protocol described in McKernan and Braden (1998) and currently mandated by the USFWS was used. Trained observers conducted five surveys of the study area in the three established survey

periods: one survey each in the May 15-31 and June 1-21 periods, and three surveys within the June 22-July 17 period. Surveys in 2006 were conducted on the following dates: May 23-24, June 6-7, June 22-23, June 29-30 and July 6-7.

Surveys were initiated approximately 30 minutes before sunrise and were terminated by 10:00 a.m. (Pacific Daylight Time). Observers played the tape recordings at approximately 20-30-m (65-98-foot) intervals in potential nesting habitat. Excluded from the surveys were extensive areas of dense cattail, common reed, and quailbush (*Atriplex lentiformis*), stands of recently burned tamarisk, and large areas of tamarisk that exhibited low stature and less than 75% canopy cover. Survey routes primarily followed the edges of dense riparian patches and were designed to permit efficient and effective coverage of as large an area as feasible. Survey routes also followed the water's edge; this was not always possible, especially in the portion of the Park downstream of Pabco Road, where the steep, eroded, and high (ca. 10-15 m, or 30-50 feet) banks of the Wash prevent access to the water's edge in some places. Surveys were conducted in this area by walking the "rim" of the Wash and broadcasting the taped song and call notes to the habitat below.

It should be noted that construction activities, while removing potentially suitable habitat in some locations, have also provided access to the active floodplain and improved our ability to survey these areas. Vegetation clearing has also allowed us to survey areas that formerly had been inaccessible due to impenetrable stands of tamarisk, quailbush, or a combination thereof.

3.3 Western Yellow-billed Cuckoo

No systematic surveys were done for western yellow-billed cuckoos in 2006. However, special care was taken to listen and look for this species while surveying for southwestern willow flycatchers. Additionally, qualitative observations of the habitat conditions for western yellow-billed cuckoo were recorded.

4.0 Results and Discussion

4.1 Yuma Clapper Rail

4.1.1 Results

One Yuma clapper rail was detected during the 2006 surveys. Aaron Miller with San Bernardino County Museum visually detected a Yuma clapper rail on June 4, 2006 at 07:00 hours in the C-1 Channel (Figure 1). This observation occurred after the official Yuma clapper rail survey had already been completed. No detections had been made during the official surveys. Once news of the detection was received, three additional Yuma clapper rail playback surveys were conducted at the C-1 Channel, one at 10:00 on June 6 and two on June 7, the first at 05:45 and the second at 08:10. During the 08:10 tape playback, a Yuma clapper rail responded to the call. The lack of response to the previous taped playback call is most likely due to the fact that most rails do not respond to taped calls. Even at the peak of the early nesting season only 40% of Yuma clapper rail individuals may respond (Conway et al. 1993).

Information on the status of Yuma clapper rails along the Wash prior to 1998 is limited, however, Alcorn (1988:126) reports that eight clapper rails were observed in the Las Vegas Sewage disposal drainage ditch on September 6, 1959 and a single clapper rail was detected in the same location on September 19, 1959. This ditch drains in to the Wash, approximately 2.5 kilometers (1.5 miles) upstream of the Park boundary. No other historical records of clapper rail detections have been found. The 1998 southwestern willow flycatcher surveys resulted in Yuma clapper rail detections on May 28 and June 18, just upstream of Pabco Road (SWCA 1998). One Yuma clapper rail was detected during the 2005 southwestern willow flycatcher surveys. The Yuma clapper rail was detected May 23, 2005 at 09:23 hours. The call was emanating from the area referred to as the Big Marsh. Prior to 2006, these were the only Yuma clapper rail detections made within the boundaries of the Park, despite the systematic surveys for this species that were carried out in 2000 and 2001 by San Bernardino County Museum (McKernan and Braden 2001, 2002) and in 2002, 2003, and 2004 by SWCA (SWCA 2002, 2003, 2004).

4.1.2 OBSERVATIONS ON SUITABILITY OF EXISTING AND POTENTIAL FUTURE HABITAT

Our qualitative observations of habitat conditions in spring and summer 2006 indicate that the construction of erosion control structures has continued to increase the quantity of potential Yuma clapper rail habitat within the boundaries of the Park. However, the Big Marsh area has become channelized, which in turn has transitioned the marsh from cattail-dominated to reed-dominated, reducing the quality of habitat within this area. This channelization occurred because of a shift in the elevation of the Demonstration Weir, a temporary erosion control structure just downstream of the Big Marsh. Unlike the other weirs on the Wash, this structure was constructed as a temporary, un-confined rock riprap structure and was not engineered to withstand heavy flood waters. Consequently, portions of the temporary structure slumped when large flood flows shifted the rock riprap in the winter of 2005. The Wash then incised the marsh as it cut its way down to the new elevation. This lowered the water table in the impoundment and facilitated the transition to a reed-dominated community.

Channelization of emergent wetland habitats resulting from floods and also sedimentation in weir impoundments are proving to be continuing problems, limiting the extent and longevity of potentially suitable Yuma clapper rail habitat. As these areas become dryer and increasingly dominated by reed, their habitat value for rails declines. Yet, channelization should not be as problematic in the future as stabilization activities along the Wash progress. With continued construction of erosion control weirs and growth of emergent marsh vegetation upstream of these weirs, we anticipate that potential Yuma clapper rail habitat will continue to become established within different stretches of the Wash. Presently, though, the Wash still provides only marginal habitat for nesting Yuma clapper rails due to the small patch sizes (less than 3.50 ha [8.75 acres]) and continued channelization of the area.

Seven distinct sites were surveyed as potential Yuma clapper rail habitat (Figure 1). There were a total of 11 calling stations at these seven sites. The areas surveyed were different than those surveyed in 2004 as the Wash and the potential Yuma clapper rail habitat have changed.

1. Border Marsh - This site is located just north and upstream of the Clark County Wetlands border. Although this site is technically outside of the Wetlands Park, it is directly

adjacent to the Park and has a rather large stand of emergent marsh. The future of this site is uncertain. People living in the surrounding neighborhood have been observed throwing trash into the Wash. There is one calling station at this site.

2. Scenic Drive - This site occurs along the newly constructed Scenic Drive area. There is a small creek and some emergent vegetation though overall it is dominated by common reed. The future of this site is uncertain though it likely will not grow into better Yuma clapper rail habitat. There is one calling station at this site
3. Pabco Road - The Pabco Road erosion control structure has created the potential for the development of future Yuma clapper rail habitat. The habitat here, which is made up of cattail, bulrush and reed, is rather patchy. This area has continued to improve over the last two years. Three calling stations were established at this site: two upstream of the weir and one downstream of it.
4. Historic Lateral - This site has filled in with cattail and reeds and is strongly associated with wading birds, ducks and red-winged blackbirds (*Agelaius phoeniceus*). However, the potential Yuma clapper rail habitat is small in size and structure. There is one calling station at this site.
5. C-1 Channel - This site has filled in over the last few years with a relatively thick marsh of emergent vegetation. The water source of this site is runoff from the golf course and other projects to the south of the Wash. The area is filled with cattail, bulrush and reeds and is quite active with bird life. The site does not have the ability to grow any larger and may begin to lose some of its value if it becomes channelized in the future and common reed begins to dominate the area. There is one calling station at this site.
6. Bostick Weir - Potentially suitable clapper rail habitat has been developing in the southwest corner of the large pool just upstream of the Bostick Weir. It has continued to fill in with tules and the potential for providing clapper rail habitat has improved enough over the last few years that in 2004 it warranted surveying. Additionally, marsh vegetation has become well developed on and just downstream of the weir. In 2006 three calling stations were established at this site: one upstream of the weir and two downstream.
7. Big Marsh - In 2004, this area appeared to contain the best quantity and quality of potential clapper rail habitat along the Wash. However, this site has continued to become more channelized and increasingly dominated by common reed, reducing the habitat quality for clapper rails. However, during the southwestern willow flycatcher surveys in 2005 a Yuma clapper rail was heard within this site. This site is very active with wading and water birds. There is one calling station at this site.

4.2 SOUTHWESTERN WILLOW FLYCATCHER

4.2.1 RESULTS

Two willow flycatchers, not necessarily southwestern willow flycatchers, were detected, both singing (*fitz-bew*), during the 2006 surveys. The first, detected at 09:55 on May 3, was singing spontaneously while the second, detected at 08:55 on June 7, was in response to a playback recording. Neither of the two individuals was visually confirmed. The first detected individual was located roughly 100 meters (328 ft) upstream of the northern border of the Park, as shown

on Figure 1. This individual was singing spontaneously when the surveyors approached the area to survey for Yuma clapper rails. The second willow flycatcher was detected just north of the Model Airplane airport (see Figure 1). We returned to the site of the detection just before 10:30 hours on the same morning and replayed the tape, but the willow flycatcher was not seen. Surveys on subsequent dates failed to detect any willow flycatchers at or near any of these locations. Therefore, the two willow flycatcher detections were assumed to be migrants, and since it is not known where they nested it remains unknown whether they were southwestern willow flycatchers or a different subspecies. Since no resident southwestern willow flycatchers were detected, the nest-searching protocol of Martin and Geupel (1993) was not initiated, and nest-monitoring activities were deemed unnecessary.

On June 6, 2006, there was also a visual detection of an *Empidonax* flycatcher on the north side of the Wash roughly 200 meters (656 ft) from the boundary of the Park (see Figure 1). The flycatcher was perched on roots that had been exposed through erosion, which now hung over the Wash. From this location the bird would sally out to grab insects, continually returning to the same perch. The surveyors felt relatively certain that this bird was a willow flycatcher. However, the *Empidonax* would not respond or react in any way to the playback recording. Therefore, the surveyors were not able to confirm the species.

The 2006 southwestern willow flycatcher survey represents the ninth annual systematic survey for this species within the boundaries of the Park. During the 1998 survey, two willow flycatchers were detected during the first survey period at a point approximately 2.4 km (1.5 miles) downstream of Pabco Road. It was later concluded that these individuals were migrants due to the fact that they were detected only in the first of the three survey periods. In 1999, 2001 and 2005, no willow flycatchers were detected. Seven willow flycatchers were detected during the 2000 surveys. However, because no nesting behavior or activity was observed, and no willow flycatchers were detected on the third and final survey despite special care taken to search for the previously detected birds, all seven willow flycatcher detections were considered to be migrants. Two willow flycatchers were detected during both the 2002 and 2003 surveys. Again, these individuals were later concluded to be migrants. Eighteen willow flycatchers were detected in 2004 during the first survey period (May 18-19), and it was speculated that surveys had coincided with a migratory wave. Because no willow flycatchers were detected in the last four surveys, all eighteen detections were later concluded to be migrants.

4.2.2 OBSERVATIONS ON SUITABILITY OF EXISTING AND POTENTIAL FUTURE HABITAT

Our qualitative observations of habitat conditions in spring and summer of 2006 indicate that the construction of erosion control weirs and clearing of tamarisk associated with restoring native plant communities in the interval between the 2005 and 2006 survey periods has continued to substantially reduce the amount of potentially suitable southwestern willow flycatcher nesting habitat available along the Wash. Similar to previous years, the majority of the construction has occurred downstream in the lower one-third of the Wash, however construction has continued upstream of Pabco Road, specifically just upstream of Pabco Road on the south bank. The many areas that were burned between the 2001 and 2002 field seasons, eliminating nearly one-third of

the potential southwestern willow flycatcher nesting habitat in the northeastern portion of the study area, have still not regenerated to the point of being suitable habitat.

Lateral erosion, although likely still occurring within portions of the active floodplain, has been minimized by the construction of erosion control structures and was not observed to have had a major effect on southwestern willow flycatcher habitat in the last year. While lateral erosion will, in the short term, likely continue to result in the incremental loss of existing riparian habitat, the associated widening of the floodplain will tend to create more braided channels, abandoned meander loops, and isolated floodplain depressions over time. The creation of these habitat elements should eventually increase the extent of moist-soil and standing shallow-water habitats that are useful to southwestern willow flycatchers. It should be noted that development of this habitat tends to occur at the expense of the marginal southwestern willow flycatcher habitat associated with relict floodplains and old alluvial terraces located high above the active floodplain.

While lateral erosion of the floodplain can help to create substrate conditions favorable to the development of southwestern willow flycatcher habitat, this process is tempered by catastrophic flooding and vertical erosion (i.e., headcutting). To the extent that the existing erosion control structures dissipate floodwater energy (which, in turn, counters headcutting and lateral scour), future conditions should be more favorable for the development of suitable southwestern willow flycatcher habitat along this reach of the Wash.

Another aspect of southwestern willow flycatcher habitat suitability, somewhat independent of vegetative structure, involves factors associated with other members of the Wash's avian community. True colonization of the study area by the southwestern willow flycatcher would eventually require successful reproduction. But breeding within the study area may prove difficult for southwestern willow flycatchers due to their susceptibility to brood parasitism by the brown-headed cowbird, which has been shown to significantly reduce their nesting success (Brown 1994; Sogge et al. 1997; USFWS 1995). All nine southwestern willow flycatcher survey years have shown cowbirds to be abundant (more than 50 seen on a daily basis, see Appendix A), and one of the most common if not the most common bird found within the study area. In addition, the somewhat fragmented habitat, which presently is becoming more fragmented due to ongoing construction, fires and other activities, makes potential southwestern willow flycatcher nests more susceptible to this type of parasitism than they would be in habitats with more contiguous canopy coverage.

4.3 YELLOW-BILLED CUCKOO

No migrant or resident western yellow-billed cuckoos were detected during the 2006 southwestern willow flycatcher surveys. Information on the status of the western yellow-billed cuckoo along the Wash prior to 1998 is lacking. In 1998, a western yellow-billed cuckoo was detected within what is now the Nature Preserve area (SWCA 1998). The 2000 and 2001 surveys (McKernan and Braden 2001, 2002) were the first systematic surveys for this species within the boundaries of the Park. No migrant or resident western yellow-billed cuckoos were detected during either of these surveys. SWCA continued the systematic surveys in 2002, 2003 and 2004,

but no migrant or resident western yellow-billed cuckoos were detected in these years either (SWCA 2002, 2003, 2004).

Potential cuckoo habitat has slightly improved since the 2004 season. Some of the cottonwoods established between Pabco Road and the Historic Lateral have grown to a sufficient size. However, potentially suitable western yellow-billed cuckoo habitat along the Wash still appears to be of, at best, marginal quality. Although the cuckoo is known to use tamarisk in Arizona and New Mexico (Howe 1986; Corman and Magill 2000), the patch size and stature of the tamarisk presently within the Park appear suboptimal. In addition, some of the best potential western yellow-billed cuckoo habitat was destroyed by wildfire between the 2001 and 2002 surveys and still has not regenerated. The Park has good potential for developing suitable cuckoo habitat in the future, provided that revegetation efforts for cottonwood and willow continue to be successful.

4.4 DISCUSSION

The detection of a Yuma clapper rail during each of the 2005 and 2006 survey seasons, along with the fact that potentially suitable clapper rail habitat along the Wash has continued to increase in size over the past few years, suggests that if colonization by Yuma clapper rails has not taken place already, it has the potential to occur in the near future. Additionally, the recently installed erosion control weirs have created and will continue to create microhabitats more favorable to Yuma clapper rails, possibly providing further impetus for this species to colonize the area. Also, as continued weir construction occurs channelization of wetland habitats should decrease. This along with active wetland revegetation efforts should continue to increase the quality and extent of potential Yuma clapper rail habitat in the Wash, with the main limiting factor being the width of the channel itself.

Nine consecutive years of intensive, systematic surveys for southwestern willow flycatchers along the Wash have not detected nesting southwestern willow flycatchers and, therefore, indicate an extremely low probability that the species is a regular breeding resident. However, there are three compelling reasons to suggest that colonization of the Wash by southwestern willow flycatchers may occur in the near future. First, the 1998, 2000, 2002, 2003 and 2004 surveys detected willow flycatchers within the study area. Although these detections could represent part of a normal willow flycatcher migration pattern, it may be that willow flycatchers are adjusting their migratory route to take advantage of the riparian habitat in the Wash. If so, there would be an increased probability of the Wash being colonized by a migrant, wandering, or dispersing pair of southwestern willow flycatchers. Second, the erosion control weirs that are presently being installed will make the habitat more favorable to southwestern willow flycatchers, possibly providing further impetus for this species to stay in the area and nest. Third, there are three known, active southwestern willow flycatcher nesting areas within close proximity of the Wash: Mesquite, Nevada, approximately 81 km (50 miles) northeast of Las Vegas; Pahranagat, Nevada, approximately 122 km (75 miles) north-northeast of Las Vegas; and Mormon Mesa on the Virgin River, approximately 97 km (60 miles) east of Las Vegas. In the summer of 2006, there were 28 total southwestern willow flycatchers and 21 active nests in Mesquite. There were 34 total southwestern willow flycatchers and 18 active nests in Pahranagat

and 21 southwestern willow flycatchers and 9 active nests in Mormon Mesa. Individuals from these populations have the potential to colonize the Wash.

The western yellow-billed cuckoo does not seem likely to colonize the Wash in the near future. Although there was a single detection of a western yellow-billed cuckoo in 1998 during the southwestern willow flycatcher surveys, existing habitat is still sparse and small in stature, compared to optimal cuckoo nesting habitat. Much of the Wash's best potential cuckoo habitat was destroyed by fire in 2002. However, enhancements presently being made at the Wash will eventually result in long-term cuckoo habitat improvements, as native cottonwoods and willows become established and mature. Thus, the likelihood that western yellow-billed cuckoos will colonize the area will increase over time but, at present, the habitat for such colonization does not exist. SWCA recommends that cuckoo surveys resume in three to five years, after cottonwood and Goodding willow-dominated riparian habitats have had a chance to fill in.

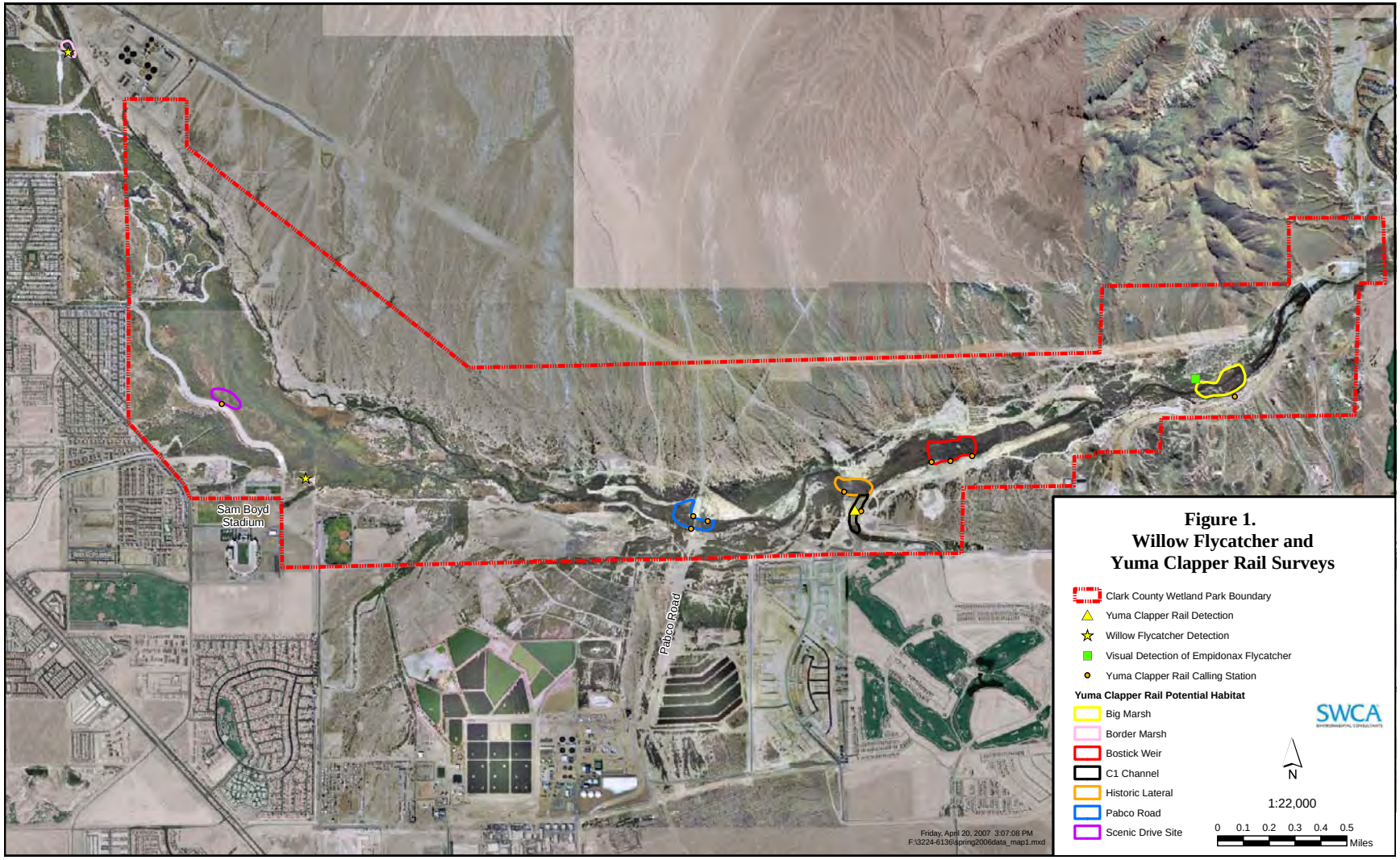

Figure 1. Willow Flycatcher and Yuma Clapper Rail surveys.

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APPENDIX A: ANNOTATED CHECKLIST OF BIRD SPECIES DETECTED IN CLARK COUNTY WETLANDS PARK, APRIL THROUGH JULY 2006

This annotated checklist identifies the bird species that were detected along the Las Vegas Wash in Clark County Wetlands Park, Nevada, during surveys for Yuma clapper rails and southwestern willow flycatchers from mid April through early July 2006. Presumed status is from Ryser (1985), Alcorn (1988), and/or our field observations. Relative abundance categories are modified after Phillips et al. (1964); abundance of a given species is based on our field observations. Common names and phylogenetic order conform to ornithological standards established by the American Ornithologists' Union (AOU 1998) and subsequent revisions.

Common Name	Scientific Name	Presumed Status	Relative Abundance
Pied-billed grebe	*Podilymbus podiceps*	R	R
Western grebe	*Aechmophorus occidentalis*	R	R
Double-crested cormorant	*Phalacrocorax auritus*	R	U
Least bittern	*Ixobrychus exilis*	R	R
Great blue heron	*Ardea herodias*	R	FC
Great egret	*Ardea alba*	R	U
Snowy egret	*Egretta thula*	M	FC
Green heron	*Butorides virescens*	R	FC
Black-crowned night-heron	*Nycticorax nycticorax*	R	FC
White-faced ibis	*Plegadis chihi*	M	U
Turkey vulture	*Cathartes aura*	R	R
Mallard	*Anas platyrhynchos*	R	FC
Cinnamon teal	*Anas cyanoptera*	R	R
Osprey	*Pandion haliaetus*	M	R
Northern harrier	*Circus cyaneus*	R	R
Cooper’s hawk	*Accipiter cooperii*	R	R
Red-tailed hawk	*Buteo jamaicensis*	R	R
American kestrel	*Falco sparverius*	R	R
Peregrine falcon	*Falco peregrinus*	R	R
Gambel's quail	*Callipepla gambelii*	R	C
Clapper rail	*Rallus longirostris*	U	R
Common moorhen	*Gallinula chloropus*	R	U
American coot	*Fulica americana*	R	C
Killdeer	*Charadrius vociferus*	R	FC
Black-necked stilt	*Himantopus mexicanus*	M	R

Common Name	Scientific Name	Presumed Status	Relative Abundance
Spotted sandpiper	*Actitis macularia*	R	FC
American avocet	*Recurvirostra americana*	R	R
Rock pigeon	*Columba livia*	R	R
White-winged dove	*Zenaida asiatica*	R	C
Mourning dove	*Zenaida macroura*	R	A
Greater roadrunner	*Geococcyx californianus*	R	U
Barn owl	*Tyto alba*	R	R
Great horned owl	*Bubo virginianus*	R	R
Lesser nighthawk	*Chordeiles acutipennis*	R	FC
White-throated swift	*Aeronautes saxatalis*	R	FC
Black-chinned hummingbird	*Archilochus alexandri*	R	C
Anna's hummingbird	*Calypte anna*	R	R
Broad-tailed hummingbird	*Selasphorus platycercus*	R	R
Western wood-pewee	*Contopus sordidulus*	R	R
Willow flycatcher	*Empidonax traillii*	M	R
Black phoebe	*Sayornis nigricans*	R	FC
Say's phoebe	*Sayornis saya*	R	U
Ash-throated flycatcher	*Myiarchus cinerascens*	R	FC
Western kingbird	*Tyrannus verticalis*	R	U
Loggerhead shrike	*Lanius ludovicianus*	R	R
Bell's vireo	*Vireo bellii*	R	R
Common raven	*Corvus corax*	R	U
Northern rough-winged swallow	*Stelgidopteryx serripennis*	R	A
Cliff swallow	*Petrochelidon pyrrhonota*	R	R
Verdin	*Auriparus flaviceps*	R	C
Bushtit	*Psaltriparus minimus*	M	R
Rock wren	*Salpinctes obsoletus*	R	R
Bewick's wren	*Thryomanes bewickii*	R	A
Marsh wren	*Cistothorus palustris*	R	C
Blue-gray gnatcatcher	*Polioptila caerulea*	R	U
Black-tailed gnatcatcher	*Polioptila melanura*	R	C
Northern mockingbird	*Mimus polyglottos*	R	U
Crissal thrasher	*Toxostoma crissale*	R	R
Lucy's warbler	*Vermivora luciae*	R	C
Yellow warbler	*Dendroica petechia*	R	FC
Common yellowthroat	*Geothlypis trichas*	R	C

Common Name	Scientific Name	Presumed Status	Relative Abundance
Yellow-breasted chat	*Icteria virens*	R	C
Abert's towhee	*Pipilo aberti*	R	C
Song sparrow	*Melospiza melodia*	R	C
Blue grosbeak	*Passerina caerulea*	R	C
Red-winged blackbird	*Agelaius phoeniceus*	R	C
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	R	FC
Great-tailed grackle	*Quiscalus mexicanus*	R	C
Brown-headed cowbird	*Molothrus ater*	R	A
House finch	*Carpodacus mexicanus*	R	U

Presumed Status

Resident (R)	Species apparently occurs in the area throughout the spring and summer nesting season, probably nesting.
Migrant (M)	Species apparently passes through the area during migration, probably not nesting.
Unknown (U)	The presumed status is in question because insufficient information existed for evaluation of status.

Relative Abundance

Abundant (A)	Species is easily detected in large numbers (50<) on a daily basis.
Common (C)	Species is easily detected on a daily basis, but not in large numbers (5-50).
Fairly Common (FC)	Species regularly detected in small numbers (2-4) on a daily basis.
Uncommon (U)	Species regularly detected in very small numbers, although not necessarily every day.
Rare (R)	Species detected irregularly in very small numbers.

APPENDIX B: SWCA PERSONNEL CONDUCTING THE 2006 STUDY

Project Scientist .....R. Spencer Martin, M.E.M.
Project Manager/Field Coordinator .....Thomas Sharp, M.S.
Field Ornithologist.....Bryan Brown, Ph.D.
Field Ornithologist..... Amanda Christensen, B.S.
Field Ornithologist..... Robert Wilson, M.S.