

**Survey for Yuma Clapper Rails,  
Yellow-Billed Cuckoos, and  
Southwestern Willow Flycatchers  
Along Las Vegas Wash,  
Clark County, Nevada**

Prepared for  
**Southern Nevada Water Authority**

Prepared by  
**SWCA Environmental Consultants**

April 2005

**SURVEY FOR  
YUMA CLAPPER RAILS,  
YELLOW-BILLED CUCKOOS, AND  
SOUTHWESTERN WILLOW FLYCATCHERS  
ALONG LAS VEGAS WASH, CLARK COUNTY, NEVADA**

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**April 13, 2005**

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## EXECUTIVE SUMMARY

Systematic surveys for the presence of Yuma clapper rails (*Rallus longirostris yumanensis*), yellow-billed cuckoos (*Coccyzus americanus occidentalis*) and southwestern willow flycatchers (*Empidonax traillii extimus*) were conducted along Las Vegas Wash in Clark County, Nevada, between March and August 2004. The survey techniques used playback recordings of each species in accordance with its standardized survey protocol. Sixteen migrant willow flycatchers were observed during the surveys, however, no clapper rails or cuckoos were detected.

Previous survey reports (SWCA 1999, 2000, 2001, 2002, 2003) have identified losses of potentially suitable flycatcher habitat due to lateral erosion within the active floodplain of Las Vegas Wash. Habitat losses have continued into 2004 with impacts primarily associated with construction in the area. However, the ongoing construction of bank stabilization structures and erosion control weirs, and the continued development of the Nature Center, while causing additional, incremental losses of tamarisk, are likely to lead to long-term improvements in potentially suitable clapper rail, cuckoo and flycatcher habitat. Indeed, for rails, these improvements have already led to habitat improvements as evidenced by the increasing extent of cattail marsh habitat. Such improvements are most pronounced in areas in which the construction of erosion control structures has resulted in the creation of emergent marsh. For cuckoos and flycatchers, habitat improvements are likely to be most pronounced in areas that have been revegetated with native cottonwoods and willows.

### Recommended Citation:

SWCA Environmental Consultants. 2004. Survey for Yuma clapper rails, yellow-billed cuckoos and southwestern willow flycatchers along Las Vegas Wash, Clark County, Nevada. Final Report to the Southern Nevada Water Authority, Las Vegas, Nevada, prepared by SWCA Environmental Consultants, Salt Lake City, Utah.

## ACKNOWLEDGMENTS

This study was funded by the Southern Nevada Water Authority (SNWA). Zane Marshall contributed greatly to project administration and coordination and provided critical review of the draft report. Pablo Arroyave (U.S. Bureau of Reclamation), Robert McKernan (San Bernadino County Museum), Chris Tomlinson (Nevada Division of Wildlife), and Kevin Sloan (U.S. Fish and Wildlife Service) provided input into the initial study design devised in 1998. Seth Shanahan, Debbie Van Dooremolen, Ashley Kley and Jennifer Fuel (SNWA) assisted in the field surveys. These activities were conducted under the auspices of Endangered Species Permit No. TE040239-1 for Clark County, Nevada, as issued to Dr. Bryan T. Brown by the U.S. Fish and Wildlife Service, Portland, Oregon.

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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*), the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*; a candidate for federal listing), and the federally endangered 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 Yuma clapper rail, western yellow-billed cuckoo and southwestern willow flycatcher habitat existed along the Wash and could be affected by the installation of erosion control structures and 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 were conducted in 1999 (SWCA 1999), 2000 (SWCA 2000), 2001 (SWCA 2001), 2002 (SWCA 2002) and 2003 (SWCA 2003). Systematic surveys for the Yuma clapper rail and yellow-billed cuckoo were initiated in 2000 and undertaken by San Bernardino County Museum. These surveys were repeated in 2001 (McKernan and Braden 2001, 2002a) as well as 2002 and 2003 (SWCA 2002, 2003). The results of the 2004 survey effort for all three species are presented in this report.

The purpose of this report is twofold:

- 1) Document the results of the 2004 surveys with respect to the distribution and abundance of Yuma clapper rails, yellow-billed cuckoos and southwestern willow flycatchers in Las Vegas Wash, and
- 2) Qualitatively estimate the utility of existing and future potential habitat to nesting Yuma clapper rails, yellow-billed cuckoos and southwestern willow flycatchers.

## **2.0 STUDY AREA**

The general study area for this survey consisted of an approximately 405-hectare (1000 acre) portion of the Wash, dominated by tamarisk (*Tamarix* spp.; Bureau of Reclamation 1988) and contained within the boundaries of the Park (Figure 1). This area is spread along an 11-kilometer (7 mile) reach of the Wash and includes portions of the City of Henderson, as well as private, county, Bureau of Land Management, and Bureau of Reclamation lands. The study area was defined in consultation with Clark County, the Bureau of Reclamation, the Southern Nevada Water Authority, and the U.S. Fish and Wildlife Service. It includes areas that could be affected by future construction of, and have been affected by past construction of, erosion and grade control structures and other activities 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 (*Scirpus* 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 2002, 2003 and 2004 clapper rail surveys in the Wash. These areas include the large phragmites marsh downstream of the old D-14 Dike (Clark County Wetlands Park Nature Center), the slough area in which SWCA® Environmental Consultants (SWCA) detected a clapper rail in 1998, and other isolated patches of emergent marsh habitat occurring in the active floodplain of the Wash downstream of Pabco Road. During the 2004 pre-survey analysis of the Wash, it was determined that two new potential Yuma clapper rail habitat sites had developed to the point of warranting surveys.

The presence/absence of Yuma clapper rails was determined by conducting three censuses during the early breeding season (March 15 to May 15) from 30 minutes before sunrise to no later than 09:00 hours (McKinstry 1995; Harlow 2000). The actual dates of the surveys were March 16, April 6, and May 13. The census technique employed taped calls played along established transect routes by observers on foot.

#### 3.2 Yellow-billed Cuckoo

Western yellow-billed cuckoos are obligate riparian nesters, meaning they are restricted to more mesic habitat along rivers, streams, and other wetlands (Johnson et al. 1987). In California, nesting generally occurs in cottonwood-willow habitats below 1400 meters (4350 feet) in elevation (Laymon 1998), although apparently breeding pairs have been located as high as 1782 meters (5850 feet; Corman and Magill 2000). Other habitats used include mixed native associations (cottonwood, willow, ash, mesquite, sycamore, walnut), mixed native and introduced associations (any of the previous species with less than 75% tamarisk), mesquite bosque, associations with more than 75% tamarisk, and even fruit orchards adjacent to rivers (i.e., artificial riparian habitat) (Laymon and Halterman 1989; Corman and Magill 2000). Cottonwood/willow habitats appear to be "...greatly preferred..." in California (Laymon and Halterman 1989), and other habitats such as mesquite may be occupied only after cottonwood-



willow habitats are fully occupied. However, no empirical data exists to demonstrate preference for greater productivity in any particular habitat.

Patch size is also an important landscape feature associated with cuckoo nesting habitat. A significant trend correlates increased habitat occupancy with increased patch size: specifically, sites exhibiting both suitable habitat and a patch size of greater than 80 hectares (200 acres) were occupied 100% of the time in California away from the Colorado River. Nevertheless, sites as small as 4 hectares (10 acres) have been observed to be occupied on the lower Colorado River (Laymon and Halterman 1989).

Tamarisk has been identified as unsuitable nesting habitat for yellow-billed cuckoos in California and only marginally suitable along the Colorado River; yet, it is widely used in Arizona and New Mexico (Howe 1986, Corman and Magill 2000). For instance, Howe (1986) has attributed a substantial increase in the abundance and distribution of cuckoos along the Pecos River to the establishment of tamarisk. Reasons for different geographic use patterns of tamarisk are unclear but may be related to elevation, ambient temperature, or other environmental factors.

Canopy cover near a given nest also appears to be an important feature of habitat quality; canopy cover was significantly less and its standard deviation increased with increasing distance from the nest (Laymon 1998). The distance to water from cuckoo nests averaged 310 meters (1015 feet) along the South Fork Kern River in California with an overall range of 0 to 1500 meters (0 to 4920 feet). Distance to water averaged 41 meters (135 feet) along the Bill Williams River in Arizona with a range of 0 to 175 meters (0 to 575 feet) (Laymon 1998). Relatively high humidity near the nest has been suggested as an important habitat characteristic (Hamilton and Hamilton 1965; Laymon 1998), although no empirical data demonstrates that it is a requirement. In California, cuckoos appear to prefer dense cottonwood/willow stands (Rosenberg et al. 1991; Halterman 1991). In the desert Southwest, mesquite and tamarisk may be used as well (Hunter et al. 1987). Rosenberg et al. (1991) suggest that perhaps the extreme southwestern mid-summer temperatures, which could kill unprotected eggs, may influence the selection of nest sites, with more heavily shaded, understory habitats and woody riparian habitats containing standing water being preferred in this region.

A survey and monitoring protocol for the cuckoo in California was developed by Laymon (1998) and has been adopted by the Arizona Game and Fish Department (Corman and Magill 2000). This protocol was also accepted for use during a statewide survey of cuckoos in California (Halterman et al. 2000). The established protocol requires the use of playback recordings of cuckoo contact calls (*kowlp*) to elicit responses. Surveys occur between dawn and noon and never at temperatures above 100 degrees Fahrenheit. According to the protocol, surveys should not be conducted on rainy days or at times when winds exceed 11.3 kilometers/hours (7 miles/hour). Calling stations are located no more than 200 meters (656 feet) apart, and a high-quality, dual-speaker tape recorder capable of clearly projecting crisp calls out to a distance of at least 100 meters (328 feet) is used. The recorded call is played about 10 times at each calling station, with 30-60 second pauses between calls. Three surveys of the study area were conducted between June 15 and August 10 with surveys separated by 10-14 days. In the 2004 study, surveys along the Wash were carried out June 23, July 12 and August 3.

### 3.3 Southwestern Willow Flycatcher

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

Surveys for southwestern willow flycatchers were conducted between May and July 2004 using a tape-recorded playback of 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 Braden and McKernan (1998) and currently mandated by the U.S. Fish and Wildlife Service (USFWS) was also used. The year 2004 was the fourth time that the five-visit protocol was required. 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 were conducted on the following dates: May 18-19, June 2-3, June 24-25, July 8-9 and July 14-15.

Surveys were initiated approximately 30 minutes before sunrise and were terminated by 10:00 hours (Pacific Daylight Time). Observers played tape recordings of flycatcher song at approximately 20-30 meter (65 - 98 feet) intervals in potential flycatcher nesting habitat. Excluded from the surveys were extensive areas of dense cattail (*Typha* spp.), common reed, quailbush (*Atriplex lentiformis*), stands of recently burned tamarisk, and large areas of tamarisk that exhibited low stature and less than 75 percent canopy cover. Survey routes (Figure 2) 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 where possible; this was not always possible in the portion of the Park downstream of Pabco Road, where the steep, eroded, and high (ca. 10-15 meters, 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 taped flycatcher song and call notes to the habitat below. It should be noted that ongoing 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. In other areas, vegetation clearing has also allowed us to survey areas that had formerly been inaccessible due to impenetrable stands of tamarisk and/or quailbush.

## 4.0 RESULTS AND DISCUSSION

### 4.1 Yuma Clapper Rail

#### 4.1.1 Results

No migrant or resident Yuma clapper rails were detected during the 2004 surveys. Information on the status of Yuma clapper rails along the Wash prior to 1998 is lacking. The 1998 willow flycatcher surveys resulted in Yuma clapper rail detections on May 28 and June 18, just upstream

of Pabco Road (SWCA 1998). No clapper rails have been detected within the boundaries of the Park since this time, despite the systematic surveys for this species that were carried out in 2000 and 2001 by San Bernardino County Museum (McKernan and Braden 2001, 2002a) and those carried out by SWCA in 2002 and 2003 (SWCA 2002, 2003).

Although no clapper rails were detected, it must be stated that most rails do not respond to taped calls, and even at the peak of the early nesting season only 40% of *Rallus longirostris yumanensis* individuals may respond (Conway et al. 1993). They exhibit a relatively wide variety of calls, the most typical year-round call being the "clatter" which apparently serves in communication and territorial defense (Todd 1986). They vocalize during the nesting, migration, and wintering seasons, during the day and at night; *Rallus longirostris yumanensis* may call all night long during the early breeding season (Todd 1986:70, 107).

#### **4.1.2 Observations on Suitability of Existing and Potential Future Habitat**

Our qualitative observations of habitat conditions in spring 2004 indicate that the construction of erosion control structures has continued to increase both the quantity and quality of potential Yuma clapper rail habitat within the boundaries of the Park. With continued construction of erosion control structures and growth of emergent marsh vegetation, we anticipate that the potential Yuma clapper rail habitat will continue to increase in both extent and quality, depending on the frequency and extent of large runoff events. The same seven sites that were surveyed in 2002 and 2003 were surveyed once again in 2004 (Figure 1). Additionally, during the 2004 pre-survey analysis of the Wash, it was determined that two new potential Yuma clapper rail habitat sites had developed to the point of warranting surveys. These two new sites have developed chiefly due to the erosion control construction that has taken place within the Wash. However, all nine of the 2004 surveyed sites are still likely marginal for nesting Yuma clapper rails due to the small patch sizes (less than 2 hectares, 5 acres). Yet, these sites are growing in size and suitability each year. The site names given below have been developed solely for Yuma clapper rail surveys and associated reports. They are not official place names and serve only as convenient references in discussing these survey areas.

- 1) Big Marsh - This is the best habitat in terms of both quality and quantity within the Park. It is dominated by cattail, bulrush, and reed. This site has become more channelized since 2002, perhaps slightly reducing the habitat quality for clapper rails. This site is very active with wading and water birds.
- 2) Barrel - This site is just upstream of Big Marsh. It has small but growing patches of *Phragmites* and cattail. Recent construction within this area has sectioned off isolated overflow ponding areas which are beginning to develop into suitable habitat. However, this area is still subordinate to Big Marsh in terms of quality or quantity.
- 2) 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 patchy and small in stature but has continued to improve over the last two years.
- 3) Old Slough - This is the site where two clapper rail detections were made in 1998. This site is not good Yuma clapper rail habitat and does not have much potential to become suitable habitat. It does not have the emergent vegetation with which the clapper rail is

associated, and it is surrounded with tamarisk. Unless this site changes radically in the near future, it will not need to be surveyed again.

- 4) Northwest Observation - This site, at the far north end of the Nature Center, has remained unchanged since the 2002 field season. Cattail and common reed are established, and the site has many wading birds.
- 5) Nature Center Ponds - This site has filled in with cattail and reeds and the potential for providing clapper rail habitat has improved since 2003. However, due to its overall design, it will probably always remain somewhat patchy and fragmented and therefore have limited potential to support Yuma clapper rail.
- 6) Sora South - The developing vegetation has created potential clapper rail habitat in this area that has slightly improved since the 2003 field season. For the second year in a row, a sora (*Porzana carolina*) was observed while doing intensive surveys in this area. This site has the potential to become suitable clapper rail habitat in the future.
- 7) Coot Corner - This site has been developing in the southwest corner of the large pool in the middle of the Wash. It has continued to fill in with cattails and reeds and the potential for providing clapper rail habitat has improved enough over the last few years that in 2004 it was deemed worthy of surveying.
- 8) Heron Cove - This site has been developing rapidly since the weir was constructed at Pabco road. It has filled in with cattail and reeds and is strongly associated with wading birds, ducks and red-wing blackbirds (*Agelaius phoeniceus*). 2004 is the first year that this site was surveyed.

## **4.2 Yellow-billed Cuckoo**

### **4.2.1 Results**

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

### **4.2.2 Observations on Suitability of Existing and Potential Future Habitat**

Potentially suitable yellow-billed cuckoo habitat along Las Vegas Wash 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 yellow-billed cuckoo habitat was destroyed by wildfire before the cuckoo surveys began. The 2004 field season showed no real improvement to these habitats. Additionally, more tamarisk woodland, which was poor habitat to begin with, was destroyed during construction of erosion control weirs. The Park has good potential for developing suitable cuckoo habitat in the future, provided that revegetation efforts for cottonwood and willow are successful.



### 4.3 Southwestern Willow Flycatcher

#### 4.3.1 Results

Eighteen willow flycatcher detections were made during the first of the five 2004 surveys (see Figure 2). The first two were detected on May 18 on the north side of the Wash. The first of these was detected (#1 – see map) roughly one mile west of the eastern Clark County Wetland Park Boundary. The second (#2) was detected roughly 0.25 miles downstream of the first detection.

Sixteen willow flycatchers were detected on May 19, two of which were detected in the same exact locations as the individuals detected a day earlier on May 18. Going from west to east, the third willow flycatcher detection (#3) was discovered in a small riparian area, the hydrology of which appears to be supported by a small spring or runoff from the Sam Boyd Stadium grounds. It is situated roughly 100 meters east of the model airplane runway. This is the third time in the last five years in which a migrating willow flycatcher has been detected in this location, the first two times being in 2000 and 2002. The fourth (#4) was located roughly 0.3 miles west of Pabco Road along the Wash. The fifth (#5) was detected roughly 0.2 miles west of Pabco Road along the Wash. The sixth (#6) was detected less than 0.1 miles west of Pabco Road.

The remaining detections were east of Pabco Road. The seventh (#7) willow flycatcher was detected roughly 0.3 miles east of Pabco Road and the eighth (#8) and ninth (#9) roughly 0.6 miles east of Pabco Road. The tenth (#10) was detected on the south side of the Wash roughly one and a half miles west of the eastern Clark County Wetland Boundary. The eleventh (#11) was detected on the north side of the wash exactly where the first willow flycatcher was detected (#1) on the previous day (May 18), and was likely the same bird. The twelfth (#12) was detected roughly 1 mile west of the eastern Clark County Wetland Boundary. The thirteenth (#13), fourteenth (#14) and fifteenth (#15) were detected roughly a quarter mile downstream of the twelfth detection. The fourteenth (#14) willow flycatcher detection occurred in the same location as the second bird (#2) that was detected on the previous day (May 18) and therefore was thought likely to be the same bird. The sixteenth (#16), seventeenth (#17) and eighteenth (#18) were detected on the south side of the Wash at the eastern border of the Clark County Wetland.

Table 1. Las Vegas Wash Willow Flycatcher Detections ~~2005~~ 2004

Detection	Date	Side of Wash	Location
#1	May 18, 2004	North	Roughly one mile west of the eastern Clark County Wetland Park Boundary.
#2	May 18, 2004	North	Roughly 0.25 miles downstream of the first detection.
#3	May 19, 2004	South	A small riparian area situated roughly 100 meters east of the model airplane runway. *This is the third time in the last five years in which a migrating willow flycatcher has been detected in this location.
#4	May 19, 2004	South	Roughly 0.3 miles west of Pabco Road along the Wash.

**Table 1. Las Vegas Wash Willow Flycatcher Detections 2005**

Detection	Date	Side of Wash	Location
#5	May 19, 2004	South	Roughly 0.2 miles west of Pabco Road along the Wash.
#6	May 19, 2004	South	Less then 0.1 miles from Pabco Road.
#7	May 19, 2004	South	Roughly 0.3 miles east of Pabco Road
#8	May 19, 2004	South	Roughly 0.6 miles east of Pabco Road.
#9	May 19, 2004	South	Roughly 0.6 miles east of Pabco Road.
#10	May 19, 2004	South	Roughly one and a half miles west of the eastern Clark County Wetland Boundary.
#11	May 19, 2004	North	Roughly one mile west of the eastern Clark County Wetland Park Boundary. This willow flycatcher is thought to likely be the same bird as Detection #1, May 18, 2004.
#12	May 19, 2004	South	Roughly 1 mile west of the eastern Clark County Wetland Boundary.
#13	May 19, 2004	South	Roughly a quarter mile downstream of the twelfth detection.
#14	May 19, 2004	North	Roughly a quarter mile downstream of the twelfth detection. This willow flycatcher is thought to likely be the same bird as Detection #2, May 18, 2004.
#15	May 19, 2004	South	Roughly a quarter mile downstream of the twelfth detection.
#16	May 19, 2004	South	At the eastern border of the Clark County Wetland.
#17	May 19, 2004	South	At the eastern border of the Clark County Wetland.
#18	May 19, 2004	South	At the eastern border of the Clark County Wetland.

Surveys on subsequent dates failed to detect any flycatchers at or near these locales. Therefore, all eighteen-flycatcher detections were considered to be migrant birds. Since no resident flycatchers were detected, the nest-searching protocol of Martin and Geupel (1993) was not initiated and nest-monitoring activities were unnecessary.

The detection of such a relatively large number of non-nesting willow flycatchers during the May 18-19 survey period suggests the occurrence of a migratory "wave" (or flight) for the species at that time. A migratory wave occurs as the bulk of a migratory population or species (or in this case, probably subspecies) rises and recedes with the peak of their passage (Pettingill 1970:274). This theory is supported by the fact that a migratory wave of willow flycatchers had been detected along the Lower Colorado River south of the Wash a few days prior to the detections of willow flycatchers in the Wash (pers. comm., Mary Anne McLeod, 2004). Additionally, a similar wave, although smaller was detected in 2000 when six willow flycatchers were detected on a two-day survey on June 8-9. We speculate that the riparian areas of Las Vegas Wash and the Clark County Wetlands Park are apparently viewed as a useful stopover habitat by migrant flycatchers, which use it for 1-2 days or more (generalized stopover time for



many passerines; Lincoln 1979) before moving northward. If the unprecedented number of non-nesting flycatchers detected during May 18-19, 2004, represented a migratory wave, its annual occurrence could be expected to change by a few days to a week or more each year depending on weather patterns and other environmental factors. Therefore, events of this nature also may have occurred in 1998, 1999, 2001, 2002 and 2003 at times that fell in between our survey windows for those years.

Information on the occurrence of southwestern willow flycatchers along the Wash prior to 1998 is lacking (see Unitt 1987; Alcorn 1988). The 1998-2002 surveys (SWCA 1998, 1999, 2000, 2001, 2002, 2003) represent the first systematic surveys for this species within the boundaries of the Park. In 1998, two willow flycatchers were detected during the first survey period at a point approximately 2.4 kilometers (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 surveys. In 1999 and 2001 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 flycatcher detections were considered to be migrants. Two willow flycatchers were detected during both the 2002 and 2003 surveys. All of which were later concluded to be migrants.

#### ***4.3.2 Observations on Suitability of Existing and Potential Future Habitat***

Our qualitative observations of habitat conditions in spring of 2004 indicate that the construction of erosion control weirs in the interval between the 2003 and 2004 survey periods has substantially reduced the amount of potentially suitable flycatcher nesting habitat. Most of the construction has occurred downstream in the lower one-third of the Wash. Additionally, 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, have still not regenerated to the point of being suitable habitat.

Lateral erosion, although no doubt still occurring within the active floodplain, has been minimized by the construction of lateral erosion control structures and was not observed to have had a major effect on 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 flycatchers. It should be noted that development of this habitat tends to occur at the expense of marginal 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 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 (moderating headcutting and lateral scour), future conditions should be more favorable for the development of suitable flycatcher habitat along this reach of the Wash. Erosion control structures recently installed at and above Pabco Road, where some potentially

suitable habitat has begun to develop, will serve in the long term to increase the overall extent of these habitats and eventually attract nesting southwestern willow flycatchers.

Another aspect of 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. 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 nesting success in flycatchers (Brown 1994; Sogge et al. 1997; USFWS 1995). All seven flycatcher survey years have shown cowbirds to be abundant (more than 50 seen on a daily basis, 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, makes potential flycatcher nests more susceptible to this type of parasitism than they would be in habitats with more contiguous canopy coverage.

#### **4.4 Wading and Marshland Birds**

Our qualitative observations of habitat conditions in spring 2004 indicate that the construction of erosion control structures has continued to increase both the quantity and quality of emergent marsh vegetation. This change has had a positive effect on the numbers of wading and marshland birds in the Wash, including red-winged and yellow-headed blackbirds (*Xanthocephalus xanthocephalus*), great blue herons (*Ardea herodias*), green herons (*Butorides virescens*), great egrets (*Ardea alba*), snowy egrets (*Egretta thula*) as well as ducks and grebes. Our qualitative observations have also suggested that three nesting species in particular, mallards (*Anas platyrhynchos*), coots (*Fulica Americana*) and moorhens (*Gallinula chloropus*), have become much more abundant than when we first began investigations in 1998.

#### **4.5 Recommendations**

Four consecutive years of intensive, systematic surveys for Yuma clapper rails and yellow-billed cuckoos along the Wash have not detected any clapper rails or cuckoos and therefore indicate an extremely low probability that either of these species is a regular breeding resident. However, there are two reasons to suggest that colonization of the Wash by Yuma clapper rails may occur in the near future. First, the two clapper rail detections in 1998, during intensive systematic surveys for southwestern willow flycatchers, demonstrated that the Wash has been inhabited or at least visited by clapper rails in the recent past. Second, the erosion control weirs that are presently being installed 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. SWCA recommends that SNWA continue conducting annual clapper rail surveys along the Wash. The purpose of the continued annual surveys would be to track when and where Yuma clapper rail colonization occurs and to help avoid or minimize impacts to this species if and when colonization does occur.

The yellow-billed cuckoo does not seem likely to colonize the Wash in the near future. Although there was one detection of a yellow-billed cuckoo in 1998 during southwestern willow flycatcher surveys, existing habitat is still relatively 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 lead to long term habitat improvements as native cottonwoods and willows become established. Thus, the likelihood that yellow-billed cuckoos will colonize the area will increase over time. SWCA recommends biannual surveys for cuckoos until such time as this species colonizes the Wash, with annual surveys recommended thereafter.

Seven consecutive years of intensive, systematic surveys for southwestern willow flycatchers along the Wash have not detected nesting 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 and 2003 surveys detected willow flycatchers within the study area. Although these detections could be part of a normal willow flycatcher migration pattern, it could be that migrant flycatchers are adjusting their migratory route to take advantage of the creation of new riparian habitat in the Wash. This suggests increased probability of the Wash being colonized by a migrant, wandering or dispersing pair. 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 southwestern willow flycatcher active nesting areas within close proximity of the Las Vegas Wash: Mesquite, Nevada, approximately 81 kilometers (50 miles) northeast of Las Vegas; Pahrnagat, Nevada, approximately 122 kilometers (75 miles) north northeast of Las Vegas; and Mormon Mesa on the Virgin River approximately 97 kilometers (60 miles) east of Las Vegas. In the summer of 2004, there were 31 total southwestern willow flycatchers and 11 active nests in Mesquite. There were 29 total southwestern willow flycatchers and 14 active nests in Pahrnagat and 16 southwestern willow flycatchers and 9 active nests in Mormon Mesa. These populations have the potential to act as a source from which flycatchers could colonize the Wash.

These three factors suggest a strong potential for southwestern willow flycatchers to become breeding residents of Las Vegas Wash in the future. Consequently, SWCA recommends that SNWA continue conducting annual flycatcher surveys along the Wash. The purpose of the continued annual surveys would be to track when and where willow flycatcher colonization occurs and to help minimize and avoid impacts to this species if and when colonization does occur.

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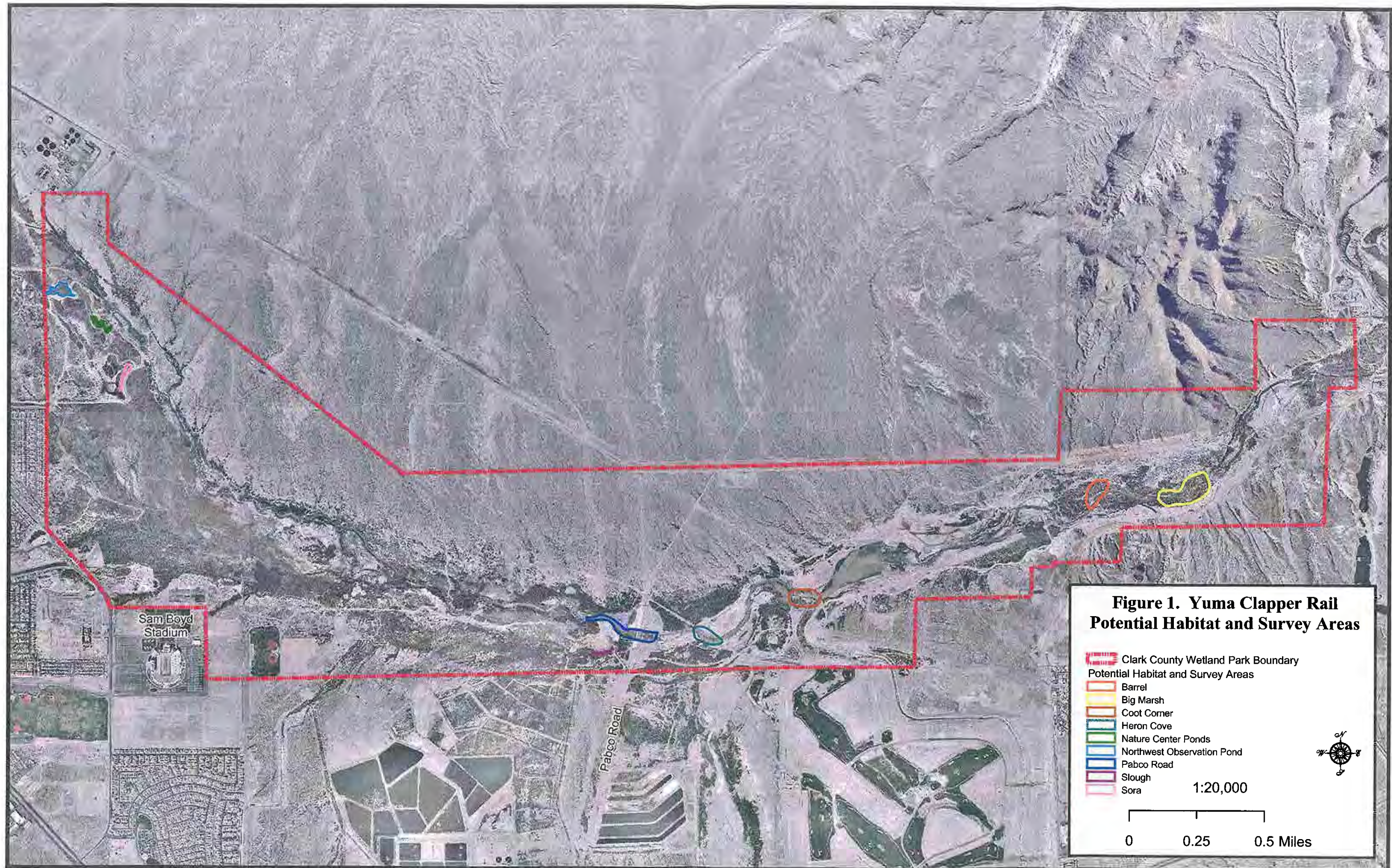
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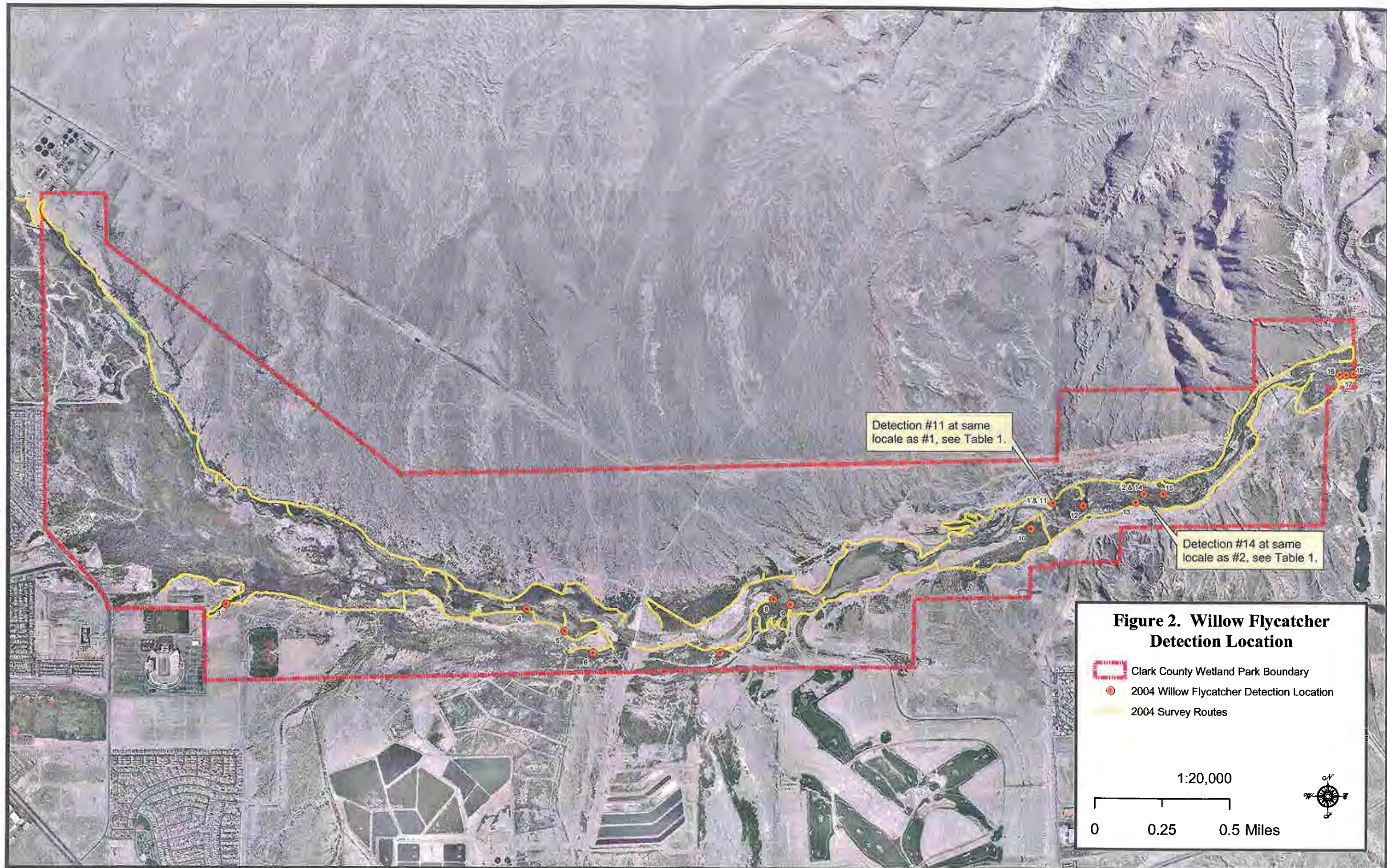
## FIGURES

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## **APPENDIX A**

### **Annotated Checklist of Bird Species Detected in Clark County Wetlands Park, March – August, 2004**

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## APPENDIX A

### ANNOTATED CHECKLIST OF BIRD SPECIES DETECTED IN CLARK COUNTY WETLANDS PARK, MARCH - AUGUST, 2004

This annotated checklist identifies the bird species that were detected along Las Vegas Wash in Clark County Wetland Park, Nevada, during surveys for Yuma clapper rails, yellow-billed cuckoos and southwestern willow flycatchers from late March through early August 2004. 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 (1998) and subsequent revisions.

#### 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.                                   |



Common Name	Scientific Name	Presumed Status	Relative Abundance
pied-billed grebe	<i>Podilymbus podiceps</i>	R	R
eared grebe	<i>Podiceps nigricollis</i>	R	R
western grebe	<i>Aechmophorus occidentalis</i>	R	R
Clark's grebe	<i>Aechmophorus clarkii</i>	R	R
double-crested cormorant	<i>Phalacrocorax auritus</i>	R	U
great blue heron	<i>Ardea herodias</i>	R	FC
American white pelican	<i>Pelecanus erythrorhynchus</i>	M	R
great egret	<i>Ardea alba</i>	R	U
snowy egret	<i>Egretta thula</i>	M	FC
green heron	<i>Butorides virescens</i>	R	FC
black-crowned night-heron	<i>Nycticorax nycticorax</i>	R	FC
white-faced ibis	<i>Plegadis chihi</i>	M	U
mallard	<i>Anas platyrhynchos</i>	R	FC
cinnamon teal	<i>Anas cyanoptera</i>	R	R
ruddy duck	<i>Oxyura jamaicensis</i>	R	R
osprey	<i>Pandion haliaetus</i>	M	R
Cooper's hawk	<i>Accipiter cooperii</i>	R	R
red-tailed hawk	<i>Buteo jamaicensis</i>	R	R
American kestrel	<i>Falco sparverius</i>	R	R
peregrine falcon	<i>Falco peregrinus</i>	M	R
Gambel's quail	<i>Callipepla gambelii</i>	R	C
Virginia rail	<i>Rallus limicola</i>	R	R
sora	<i>Porzana carolina</i>	R	R
moorhen	<i>Gallinula chloropus</i>	R	U
American coot	<i>Fulica americana</i>	R	C
killdeer	<i>Charadrius vociferus</i>	R	FC
black-necked stilt	<i>Himantopus mexicanus</i>	M	R
spotted sandpiper	<i>Actitis macularia</i>	R	FC
white-winged dove	<i>Zenaida asiatica</i>	R	C
mourning dove	<i>Zenaida macroura</i>	R	A

Common Name	Scientific Name	Presumed Status	Relative Abundance
greater roadrunner	<i>Geococcyx californianus</i>	R	U
lesser nighthawk	<i>Chordeiles acutipennis</i>	R	FC
white-throated swift	<i>Aeronautes saxatalis</i>	R	FC
black-chinned hummingbird	<i>Archilochus alexandri</i>	R	C
belted kingfisher	<i>Ceryle alcyon</i>	M	R
western wood-pewee	<i>Contopus sordidulus</i>	M	U
willow flycatcher	<i>Empidonax traillii</i>	M	R
black phoebe	<i>Sayornis nigricans</i>	R	FC
Say's phoebe	<i>Sayornis saya</i>	R	U
ash-throated flycatcher	<i>Myiarchus cinerascens</i>	R	FC
western kingbird	<i>Tyrannus verticalis</i>	R	U
loggerhead shrike	<i>Lanius ludovicianus</i>	R	R
Bell's vireo	<i>Vireo bellii</i>	R	R
common raven	<i>Corvus corax</i>	R	U
tree swallow	<i>Tachycineta bicolor</i>	R	R
violet-green swallow	<i>Tachycineta thalassina</i>	M	R
northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	R	A
cliff swallow	<i>Petrochelidon pyrrhonota</i>	R	R
verdin	<i>Auriparus flaviceps</i>	R	C
bushtit	<i>Psaltiriparus minimus</i>	M	R
canyon wren	<i>Catherpes mexicanus</i>	R	R
Bewick's wren	<i>Thryomanes bewickii</i>	R	A
marsh wren	<i>Cistothorus palustris</i>	R	C
blue-gray gnatcatcher	<i>Polioptila caerulea</i>	R	U
black-tailed gnatcatcher	<i>Polioptila melanura</i>	R	C
northern mockingbird	<i>Mimus polyglottos</i>	R	U
crissal thrasher	<i>Toxostoma crissale</i>	R	R
LeConte's thrasher	<i>Toxostoma lecontei</i>	R	R
Bendire's thrasher	<i>Toxostoma bendirei</i>	R	R
Lucy's warbler	<i>Vermivora luciae</i>	R	C

Common Name	Scientific Name	Presumed Status	Relative Abundance
yellow warbler	<i>Dendroica petechia</i>	R	FC
MacGillivray's warbler	<i>Oporornis tolmiei</i>	M	R
common yellowthroat	<i>Geothlypis trichas</i>	R	C
Wilson's warbler	<i>Wilsonia pusilla</i>	M	R
yellow-breasted chat	<i>Icteria virens</i>	R	C
Abert's towhee	<i>Pipilo aberti</i>	R	C
black-throated sparrow	<i>Amphispiza bilineata</i>	R	R
song sparrow	<i>Melospiza melodia</i>	R	C
black-headed grosbeak	<i>Pheucticus melanocephalus</i>	R	R
blue grosbeak	<i>Passerina caerulea</i>	R	C
indigo bunting	<i>Passerina cyanea</i>	R	R
red-winged blackbird	<i>Agelaius phoeniceus</i>	R	C
yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	R	FC
great-tailed grackle	<i>Quiscalus mexicanus</i>	R	C
brown-headed cowbird	<i>Molothrus ater</i>	R	A
house finch	<i>Carpodacus mexicanus</i>	R	U
red crossbill	<i>Loxia curvirostra</i>	M	R
lesser goldfinch	<i>Carduelis psaltria</i>	R	R

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**APPENDIX B**

**Willow Flycatcher Survey and Detection Form  
Sent to  
Arizona Partners in Flight,  
Southwestern Willow Flycatchers Survey Coordinator**

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**Willow Flycatcher Survey and Detection Form (revised April, 2004)**

Site Name Las Vegas Wash, Nevada State NV County Clark Co.  
 USGS Quad Name Las Vegas SE; Henderson Elevation 1664-1460 feet meters (circle one)

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? ☒ Yes ☐ No

Site Coordinates: Start: N 3998000 E 677500 UTM Datum NAD27 (NAD27 preferred)  
 Stop: N 3997000 E 685300 UTM Zone 11

**\*\* Fill in additional site information on back of this page \*\***

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N	Cowbirds Detected? Y or N	Presence of Livestock, Recent sign, If Yes, Describe Y or N	Comments about this survey (e.g., bird behavior, evidence of pairs or breeding, number of nests, nest contents or number fledges seen; potential threats)
1 <u>Bryan Brown</u> <u>Thomas Sharp</u> <u>Susan Hatch</u> <u>Ashley Kley</u> <u>Jen Fuel</u>	Date <u>5/18-19/04</u> Start <u>0515</u> Stop <u>0945</u> Total hrs <u>31.5</u>	<u>16</u>	<u>0</u>	<u>0</u>	<u>N</u>	<u>Y</u>	<u>Y</u> <u>some</u> <u>horseback</u> <u>riding</u>	<u>all birds appear</u> <u>to be migrant.</u>
2 <u>Bryan Brown</u> <u>Thomas Sharp</u> <u>Ashley Kley</u> <u>James McMillan</u> <u>Debbie van</u> <u>Dooremolen</u>	Date <u>6/2-3/04</u> Start <u>0510</u> Stop <u>0930</u> Total hrs <u>29.7</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>	<u>Y</u>	<u>N</u>	
3 <u>T. Sharp</u> <u>Spencer Martin</u> <u>Ashley Kley</u>	Date <u>6/24-25/04</u> Start <u>0500</u> Stop <u>0900</u> Total hrs <u>24.0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>	<u>Y</u>	<u>N</u>	
4 <u>T. Sharp</u> <u>J. McMillan</u> <u>Nick Block</u> <u>Ashley Kley</u>	Date <u>7/8-9/04</u> Start <u>0500</u> Stop <u>0900</u> Total hrs <u>32.0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>	<u>Y</u>	<u>N</u>	
5 <u>Bryan Brown</u> <u>Thomas Sharp</u> <u>Ashley Kley</u>	Date <u>7/14-14/04</u> Start <u>0500</u> Stop <u>0820</u> Total hrs <u>19.8</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>	<u>Y</u>	<u>N</u>	
Overall Site Summary (Total resident WIFLs only)		Adults <u>0</u>	Pairs <u>0</u>	Territories <u>0</u>	Nests <u>0</u>	Were any WIFLs color-banded? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, report color combination(s) in the comments section on back of form		
Total survey hrs <u>137.0</u>								

Reporting Individual Bryan Brown Date Report Completed 7/30/04  
 US Fish and Wildlife Service Permit # TE-040239-1 AZ Game and Fish Department (or other state) Permit #     

Submit original form by August 1<sup>st</sup>. Retain a copy for your records.

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

Reporting Individual Bryan Brown Phone # 801.322.4307  
Affiliation SWCA Environmental Consultants E-mail bbrown@swca.com  
Site Name Las Vegas Wash, Nevada Date Report Completed 7/30/04

Did you verify that this site name is consistent with that used in previous years? Yes No (circle one)

If name is different, what name(s) was used in the past? Clark Co. Wetlands Park

If site was surveyed last year, did you survey the same general area this year? Yes No If no, summarize in comments below.

Did you survey the same general area during each visit to this site this year? Yes No If no, summarize in comments below.

Management Authority for Survey Area (circle one): Federal Municipal County State Tribal Private  
Name of Management Entity or Owner (e.g., Tonto National Forest) Clark Co. Parks and Recreation Dept.

Length of area surveyed: 6 mi. (specify units, e.g. miles = mi, kilometers = km, meters = m)

Vegetation Characteristics: Overall, are the species in tree/shrub layer at this site comprised predominantly of (check one):

☐ Native broadleaf plants (entirely or almost entirely, includes high-elevation willow)

☐ Mixed native and exotic plants (mostly native)

☒ Mixed native and exotic plants (mostly exotic) revegetation and restoration activities occurring

☐ Exotic/introduced plants (entirely or almost entirely)

Identify the 2-3 predominant tree/shrub species: tamarisk, coyote willow,

Average height of canopy (Do not put a range): 5m (specify units)

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

Distance from the site to surface water or saturated soil: 0-100 m (specify units)

Did hydrological conditions change significantly among visits (did the site flood or dry out)? Yes No (circle one)  
If yes, describe in comments section below.

Remember to attach a copy of a USGS quad/topographical map (REQUIRED) of the survey area, outlining the survey site and location of WIFL detections. Also include a sketch or aerial photograph showing details of site location, patch shape, survey route in relation to patch, and location of any willow flycatchers or willow flycatcher nests detected. Such sketches or photographs are welcomed, but DO NOT substitute for the required USGS quad map. Please include photos of the interior of the patch, exterior of the patch, and overall site and describe any unique habitat features.

Comments (attach additional sheets if necessary)

Revegetation and restoration activities have increased extent of native habitat, primary coyote willow strands and cattail marshes.

WIFL Detection Locations:

Date Detected	N UTM	E UTM	Date Detected	N UTM	E UTM
5/19/04	2673 4722	824778	5/19/04	2673 6701	841592
5/19/04	2673 4635	830655	5/19/04	2673 6771	842608
5/19/04	2673 4201	831401	5/19/04	2673 6935	843155
5/19/04	2673 3776	831957	5/19/04	2673 9279	846601
5/19/04	2673 3793	834466	5/19/04	2673 9279	846723
5/19/04	2673 4835	835516	5/19/04	2673 9297	846870



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## **APPENDIX C**

### **SWCA Personnel Conducting the 2004 Study**

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## APPENDIX C

### SWCA PERSONNEL CONDUCTING THE 2004 STUDY

Project Manager ..... R. Spencer Martin  
Project Scientist ..... Bryan T. Brown, Ph.D.  
Field Coordinator ..... Thomas Sharp, M.S.  
Field Ornithologist ..... Nicholas Block  
Field Ornithologist ..... Susan Hatch  
Field Ornithologist ..... James McMillan, M.S.