

**SURVEY FOR SOUTHWESTERN WILLOW  
FLYCATCHERS ALONG LAS VEGAS WASH,  
CLARK COUNTY, NEVADA**



Submitted to:

**SOUTHERN NEVADA  
WATER AUTHORITY**



Submitted by:

**SWCA, INC.  
ENVIRONMENTAL CONSULTANTS**



**OCTOBER 1999**

**A SURVEY FOR  
SOUTHWESTERN WILLOW FLYCATCHERS  
ALONG LAS VEGAS WASH, CLARK COUNTY, NEVADA**

Submitted to:

**Southern Nevada Water Authority  
1001 South Valley View Boulevard  
Las Vegas, Nevada 89153  
(702) 258-3913**

Submitted by:

**SWCA, Inc., Environmental Consultants  
230 South 500 East, Suite 230  
Salt Lake City, Utah 84102  
(801) 322-4307**

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## EXECUTIVE SUMMARY

Systematic surveys for the presence of southwestern willow flycatchers (*Empidonax traillii extimus*) were conducted along Las Vegas Wash in Clark County, Nevada, between May and July 1999. The survey technique used playback recordings of flycatcher song in accordance with the standardized survey protocol of Sogge et al. (1997). No migrant or resident flycatchers were detected during the surveys.

The modest amount of apparently suitable flycatcher nesting habitat which we estimated to be present upstream of Pabco Road in 1998 and 1999 appears to have been somewhat reduced by subsequent flood events. In contrast, these same floods altered and widened the active floodplain below Pabco Road, alterations which could aid in the long-term development of suitable flycatcher nesting habitat along this reach of the Wash. Development of this habitat would occur at the expense of marginal flycatcher habitat associated with relict floodplains and old alluvial terraces now 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 installation of erosion control structures can dissipate floodwater energy and prevent headcutting, conditions should be favorable for the natural development of suitable flycatcher habitat along Las Vegas Wash in the future.

Given that the 1998 and 1999 surveys detected no resident willow flycatchers, and recent catastrophic flooding appears to have at least temporarily reduced the extent of potentially suitable nesting habitat, intensive annual surveys for flycatchers along Las Vegas Wash appear unjustified in the near future. Barring the recurrence of catastrophic flooding in the next three to five years, we recommend that intensive, systematic flycatcher surveys be resumed in 2002-2004 depending on riparian habitat conditions.

### Recommended Citation:

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## ACKNOWLEDGMENTS

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# A SURVEY FOR SOUTHWESTERN WILLOW FLYCATCHERS ALONG LAS VEGAS WASH, CLARK COUNTY, NEVADA

## 1.0 INTRODUCTION

This study was undertaken in order to further examine the status of the southwestern willow flycatcher along Las Vegas Wash in Clark County, Nevada. A Biological Assessment (SWCA 1997) prepared in conjunction with the Draft Programmatic Environmental Impact Statement for development of the Clark County Wetlands Park (Bureau of Reclamation 1997) reported that the endangered southwestern willow flycatcher is not known to occur in Las Vegas Wash. Agency biologists, however, recognized that potentially suitable flycatcher habitat existed within the Wash and recommended in 1997 that a systematic survey be undertaken to determine whether or not this subspecies breeds within the project area. Initial surveys were conducted in 1998 (SWCA 1998), and results of the continuing survey effort are presented in this report.

The purposes of this report are threefold:

1. Determine the abundance and distribution of willow flycatchers in Las Vegas Wash.
2. Qualitatively estimate the utility of existing and future potential riparian habitat to nesting flycatchers.
3. Make recommendations for future survey intervals.

## 2.0 STUDY AREA

The general study area for this survey consisted of an approximately 1000-acre portion of Las Vegas Wash dominated by tamarisk (*Tamarix* spp.; Bureau of Reclamation 1988) and contained within the boundaries of the proposed Wetlands Park (Figure 1). This area is spread along a seven-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 which could logically be affected by future construction of erosion and grade control structures and other activities associated with the development of the Clark County Wetlands Park.

Within the general study area, survey efforts focused on areas containing tamarisk and other species such as Fremont cottonwood (*Populus fremontii*) and Goodding willow (*Salix gooddingii*) having the proper structure to be potentially suitable for use by willow flycatchers. These vegetation types are described in more detail in the Methods section, below. Areas dominated by desert scrub vegetation and other upland habitats known to be unsuitable for willow flycatchers were not surveyed and are not considered part of the general study area.



Appendix I. Survey Routes and Bird Locations

Legend

- Bird sightings
- Yuma Clapper Rail 5/28 and 6/18 1998.
  - Willow Flycatcher pair 5/29/98.
  - ⌂ Yellow-billed Cuckoo detection
- Survey Routes
- Wetland Park Boundary

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### 3.0 METHODS

Surveys for southwestern willow flycatchers were conducted between May and July 1999 using tape-recorded playback of flycatcher song (*fitz-bew* and *britt*) according to the standard protocol described in Sogge et al. (1997). Single or paired observers conducted surveys of the study area in each of three established survey periods: May 15-31, June 1-21, and June 22-July 10. Surveys were conducted on the following dates: May 18-20, June 9-10, and June 30-July 1. Other investigators have recommended other and/or more survey periods (Braden and McKernan 1998), but the currently recommended survey protocol was used herein.

Surveys were initiated approximately one hour before sunrise (as soon as it was light enough to safely walk) and were terminated at 10:00 a.m. (Pacific Daylight Savings Time). Observers played tape recordings of flycatcher song at approximately 30-50 meter intervals in potential flycatcher nesting habitat, which we defined as dense woody riparian vegetation greater than three meters in height and greater than 75% canopy cover. Excluded from the surveys were extensive areas of dense cattail (*Typha* spp.), common reed (*Phragmites australis*), or quail brush (*Atriplex lentiformis*), stands of recently burned tamarisk, and large areas of tamarisk which exhibited low stature and less than 75% canopy cover. Survey routes (Figure 1) primarily followed the edges of dense riparian patches and were designed to permit efficient and effective coverage of as large an area as feasible during the actual surveys. Survey routes also followed the water's edge where possible; this was not possible in that portion of the park downstream of Pabco Road where the steep, eroded, and high (ca. 10-15 meters) banks of Las Vegas Wash prevented access to the water's edge. Surveys were conducted in this area by walking the "rim" of the Wash and broadcasting taped recordings to habitat below.

### 4.0 RESULTS AND DISCUSSION

#### 4.1 Surveys for Southwestern Willow Flycatchers

No migrant or resident willow flycatchers were detected during the surveys. Since no flycatchers were detected, the nest-searching protocol of Martin and Geupel (1993) was not initiated and nest-monitoring activities were unnecessary.

Information on the status of willow flycatchers (*Empidonax traillii*) along Las Vegas Wash, prior to 1998 is lacking (see Unitt 1987, Alcorn 1988). The 1998 survey (SWCA 1998) and this study represent the first systematic surveys for this species within the boundaries of the Clark County Wetlands Park. In 1998, two willow flycatchers were detected during the first survey period at a point approximately 1.5 miles downstream of Pabco Road. It was later concluded that these individuals were migrants due to the fact that they were only detected in the first of the three surveys.

## 4.2 Observations on Suitability of Existing and Potential Future Habitat

Most riparian habitat within the study area, including proposed sites for erosion-control structures at and above Pabco Road, do not appear to represent high-quality flycatcher nesting habitat. Qualitative, visual analysis of riparian habitats associated with Las Vegas Wash suggests that a modest amount of potentially suitable nesting habitat for willow flycatchers is present along the lower Wash. Most potentially suitable nesting habitat occurs downstream of Pabco Road and immediately adjacent to flowing water as long, relatively narrow, linear patches dominated by tamarisk but containing an occasional Goodding willow and Fremont cottonwood. This habitat appears analogous to riparian habitat used by nesting willow flycatchers in nearby Arizona (Brown 1988). Structurally similar, though larger, patches of riparian habitat recently developed on the Colorado River delta at Lake Mead were colonized by nesting flycatchers in the mid-1990s (Robert McKernan, personal communication), and it is reasonable to assume that flycatchers could likewise colonize developing habitat along Las Vegas Wash.

Southwestern willow flycatchers generally prefer nesting habitats dominated by riparian vegetation of various heights with a dense to semi-dense shrub understory 3-4 m in height, either adjacent to standing or slow-moving water or with moist to saturated soil (U.S. Fish and Wildlife Service 1995). Riparian habitats of this nature are the product of successional forces which are dynamic in both time and space: potentially suitable flycatcher nesting habitat will probably not be in the same exact location each decade, but will naturally experience long-term changes in distribution and extent due to natural causes such as flood cycles, riparian successional pressures, and floodplain geomorphology. Long-term preservation of willow flycatcher nesting habitat, then, becomes a spatial and temporal "moving target" requiring both local adaptive management and regional watershed planning.

Our qualitative observations of habitat conditions in spring 1999 indicated that catastrophic flooding in the interval between the 1998 and 1999 survey periods reduced the amount of potentially suitable flycatcher nesting habitat. At the same time, flooding and erosion have dramatically altered and widened portions of the active floodplain below Pabco Road. Widening of the floodplain will tend to create more braided channels, abandoned meander loops, and isolated floodplain depressions, all of which should eventually increase the extent of moist-soil and standing shallow-water habitats which are useful to flycatchers. Development of this habitat tends to occur at the expense of marginal flycatcher habitat associated with relict floodplains and old alluvial terraces now 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 planned installation of erosion control structures can dissipate floodwater energy and prevent headcutting, future conditions should be favorable for the natural development of suitable flycatcher habitat along this reach of Las Vegas Wash. Erosion-control structures to be installed at and above Pabco Road, where we estimate little or no potentially suitable habitat currently exists, could likewise increase the extent of these useful habitats and attract nesting

flycatchers in the future.

Another aspect of flycatcher habitat suitability that is 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 the nesting success in flycatchers (Brown 1998, Sogge 1997, USFWS 1995). Both the 1998 and 1999 surveys show brown-headed cowbirds to be abundant (more than 50 seen on a daily basis, Appendix A) within the study area. In addition, the somewhat fragmented habitat makes flycatcher nests more susceptible to this type of parasitism than they would be in a less fragmented area.

#### **4.3 Recommendations for Future Survey Intervals**

Two consecutive years of intensive, systematic surveys for southwestern willow flycatchers along Las Vegas Wash have not detected any nesting flycatchers and therefore indicated an extremely low probability that the species is a regular breeding resident of the study area. Catastrophic flooding in early July 1999 likely modified or removed much of the potentially suitable habitat which was estimated present in the spring of 1999, further reducing the probability that resident flycatchers do now or will soon occupy the study area.

For the above reasons, intensive annual surveys for flycatchers along Las Vegas Wash appear unjustified in the near future. Riparian vegetation will quickly regenerate along the Wash, however, particularly in the deeply-incised "canyon" downstream of Pabco Road. Barring the annual recurrence of catastrophic flooding, we estimate that potentially suitable flycatcher nesting habitat could develop within three to five years. Consequently, we recommend that intensive, systematic surveys for nesting flycatchers be reinitiated in 2002-2004 depending upon riparian habitat development, budgetary constraints, and political considerations. Annual, non-systematic "spot-checks" of potentially suitable habitat patches along the Wash are also recommended. If apparently suitable habitat has developed but no flycatchers are detected during the next intensive, systematic survey, we recommend that surveys be conducted every two to three subsequent years to determine if flycatchers are colonizing the new habitat. We recommend that intensive, systematic surveys of Las Vegas Wash be initiated on an annual basis if and when resident, nesting flycatchers have been documented.

## LITERATURE CITED

- Alcorn, J.R. 1988. The birds of Nevada. Fairview West Publishing, Fallon, Nevada. 418 pp.
- American Ornithologists' Union. 1983. Check-list of North American Birds. Sixth Edition. American Ornithologists' Union, Washington, D.C. 877 pp.
- Braden, G.T., and R.L. McKernan. 1998. Observations on nest cycles, vocalization rates, the probability of detection, and survey protocols for the Southwestern Willow Flycatcher (*Empidonax traillii extimus*). Final Report to the U.S. Bureau of Reclamation, Lower Colorado River Office, Boulder City, Nevada. 38 pp.
- Brown, B.T. 1988. Breeding ecology of a Willow Flycatcher population in Grand Canyon, Arizona. *Western Birds* 19:25-33.
- Bureau of Reclamation. 1988. Plant-soil-water relationships in Las Vegas Wash. Special Report, Division of Planning, Environmental and Reports Branch, Bureau of Reclamation, Lower Colorado Region, Boulder City, Nevada. 44 pp.
- Bureau of Reclamation. 1997. Draft Program Environmental Impact Statement for the Clark County Wetlands Park. U.S. Department of the Interior Bureau of Reclamation and Clark County Departments of Comprehensive Planning and Parks and Recreation. July 1997.
- Martin, T.E., and G.R. Geupel. 1993. Protocols for nesting monitoring plots: locating nests, monitoring success, and measuring vegetation. *Journal of Field Ornithology* 64:507-519.
- Phillips, A.R., J. Marshall, and G. Monson. 1964. The birds of Arizona. University of Arizona Press, Tucson. 212 pp.
- Ryser, F.A., Jr. 1985. Birds of the Great Basin: a natural history. University of Nevada Press, Reno. 604 pp.
- Sogge, M.K., R.M. Marshall, S.J. Sferra, and T.J. Tibbitts. 1997. A Southwestern Willow Flycatcher natural history summary and survey protocol. Technical Report NPS/NAUCPRS/NRTR-97/12, Colorado Plateau Research Station, Northern Arizona University, Flagstaff. 39 pp
- SWCA, Inc., Environmental Consultants. 1997. Biological Assessment for the Clark County Wetlands Park.

SWCA, Inc., Environmental Consultants. 1998. A survey for Southwestern Willow Flycatchers along Las Vegas Wash, Clark County Wetlands Park, Nevada. Final Report to the Clark County Dept. of Parks and Recreation, Las Vegas, Nevada, prepared by SWCA, Inc. Environmental Consultants, Salt Lake City, Utah.

Unitt, P. 1987. *Empidonax traillii extimus*: an endangered subspecies. Western Birds 18:137-162.

U.S. Fish and Wildlife Service. 1995. Final rule determining endangered status for the southwestern willow flycatcher. Federal Register 60(38):10694-10714, Monday, February 27, 1995.

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**APPENDIX A**

**ANNOTATED CHECKLIST OF BIRD SPECIES DETECTED  
IN CLARK COUNTY WETLANDS PARK, MAY - JULY, 1999**

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**ANNOTATED CHECKLIST OF BIRD SPECIES DETECTED  
IN CLARK COUNTY WETLANDS PARK, MAY - JULY, 1999**

This annotated checklist identifies the bird species that were detected along Las Vegas Wash in Clark County Wetland Park, Nevada, during surveys for Southwestern Willow Flycatchers from late May through early July 1999. 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 (1983) 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
great blue heron	<i>Ardea herodias</i>	R	U
snowy egret	<i>Egretta thula</i>	M	U
green heron	<i>Butorides striatus</i>	R	U
black-crowned night-heron	<i>Nycticorax nycticorax</i>	R	FC

Common Name	Scientific Name	Presumed Status	Relative Abundance
white-faced ibis	<i>Plegadis chihi</i>	M	U
mallard	<i>Anas platyrhynchos</i>	M	FC
cinnamon teal	<i>Anas cyanoptera</i>	R	U
turkey vulture	<i>Cathartes aura</i>	R	U
sharp-shinned hawk	<i>Accipiter striatus</i>	R	R
red-tailed hawk	<i>Buteo jamaicensis</i>	R	U
American kestrel	<i>Falco sparverius</i>	R	FC
Gambel's quail	<i>Callipepla gambelii</i>	R	A
common moorhen	<i>Gallinula chloropus</i>	R	U
killdeer	<i>Charadrius vociferus</i>	R	C
spotted sandpiper	<i>Actitis macularia</i>	R	C
white-winged dove	<i>Zenaida asiatica</i>	R	A
mourning dove	<i>Zenaida macroura</i>	R	A
greater roadrunner	<i>Geococcyx californianus</i>	R	C
lesser nighthawk	<i>Chordeiles acutipennis</i>	R	C
white-throated swift	<i>Aeronautes saxatalis</i>	R	FC
black-chinned hummingbird	<i>Archilochus alexandri</i>	R	FC
olive-sided flycatcher	<i>Contopus borealis</i>	M	U
western wood-pewee	<i>Contopus sordidulus</i>	M	U
black phoebe	<i>Sayornis nigricans</i>	R	C
ash-throated flycatcher	<i>Marches cinerascens</i>	R	FC
Say's phoebe	<i>Sayornis saya</i>	R	U
northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	R	A
barn swallow	<i>Hirundo rustica</i>	M	A
common raven	<i>Corvus corax</i>	R	C
verdin	<i>Auriparus flaviceps</i>	R	C
Bewick's wren	<i>Thryomanes bewickii</i>	R	A

Common Name	Scientific Name	Presumed Status	Relative Abundance
marsh wren	<i>Cistothorus palustris</i>	R	C
black-tailed gnatcatcher	<i>Poliophtila millenary</i>	R	A
northern mockingbird	<i>Mimus polyglotktos</i>	R	FC
Crissal thrasher	<i>Toxostoma crispate</i>	R	FC
phainopepla	<i>Phainopepla nitens</i>	R	U
Lucy's warbler	<i>Vermivora luciae</i>	R	C
yellow warbler	<i>Dendroica petechia</i>	R	FC
MacGillivray's warbler	<i>Oporornis tolmiei</i>	M	U
common yellowthroat	<i>Geothlypis trichas</i>	R	A
Wilson's warbler	<i>Wilsonia pusilla</i>	M	U
yellow-breasted chat	<i>Icteria virens</i>	R	A
blue grosbeak	<i>Guiraca caerulea</i>	R	C
Abert's towhee	<i>Pipilo aberti</i>	R	C
song sparrow	<i>Melospiza melodia</i>	R	A
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	A
brown-headed cowbird	<i>Molothrus ater</i>	R	A
house finch	<i>Carpodacus mexicanus</i>	R	FC
lesser goldfinch	<i>Carduelis psaltria</i>	R	FC

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**APPENDIX B**

**SWCA PERSONNEL CONDUCTING THE 1999 STUDY**

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**SWCA PERSONNEL CONDUCTING THE 1999 STUDY**

Principal-in-Charge . . . . . Dr. Steven W. Carothers

Project Manager . . . . . R. Spencer Martin

Project Scientist . . . . . Dr. Bryan T. Brown

Field Ornithologist . . . . . Thomas Sharp