



Las Vegas Wash Coordination Committee

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Southwestern Willow Flycatcher Surveys along Las Vegas Wash, Clark County, Nevada, 2010



December 2010



**Southwestern Willow Flycatcher Surveys along Las Vegas
Wash, Clark County, Nevada, 2010**

**SOUTHERN NEVADA WATER AUTHORITY
Las Vegas Wash Project Coordination Team**

Prepared for:

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ABSTRACT

The Las Vegas Wash Coordination Committee, a 30-member stakeholder group, is working to stabilize and enhance the Las Vegas Wash (Wash), the channel that drains flows from the Las Vegas Valley to Lake Mead at Las Vegas Bay. The Wash also flows through the 2900-acre Clark County Wetlands Park. During Section 7 consultation on the project, the U.S. Fish and Wildlife Service recommended that annual surveys for southwestern willow flycatcher (*Empidonax traillii extimus*) be conducted during the breeding season to determine the occurrence of the species within the park. Annual surveys were conducted by permitted consultants from 1998 through 2009 (Southwest Wetlands Consortium 1998; SWCA 1999, 2000, 2001, 2002, 2003, 2005, 2006, 2007, 2008, 2009a, 2009b). 2010 represents the first year these surveys were performed by permitted Southern Nevada Water Authority staff. Surveys were conducted using the standard protocol recently updated by Sogge et al. (2010) in which surveyors broadcast the species' song to elicit a response from any nearby willow flycatchers. We followed the five-survey protocol recommended for projects. Surveys began May 25 and were completed July 6.

One willow flycatcher was detected during the entire survey season, in the first survey period. It was detected on May 26 in a riparian revegetation site located on the south bank approximately 0.3 miles downstream of Pabco Road Weir. The bird was not re-detected during subsequent surveys and was concluded to be a migrant. Habitat quality was variable among the survey routes with the highest quality habitat occurring in the Nature Preserve and along the Wash between Pabco Road and Calico Ridge Weirs. Fires and clearing of salt cedar for revegetation and weir construction sites have reduced the amount of potentially suitable nesting habitat, but revegetation should result in net habitat gains within the next five to ten years.

Willow flycatcher use of the Wash has been and continues to be largely limited to migration. Most years of monitoring have detected one to three migrant willow flycatchers. Only two years (2007 and 2008) out of 13 have resulted in detections that could be concluded to be residents and thus of the federally endangered southwestern subspecies. In 2008, a male actually set up a breeding territory for more than 30 days. The continued detections of migrants and the recent detections of residents indicate that the area has the potential to host breeding pairs in the future. Established nesting colonies occur within just 40 miles of the study area at Overton, Nevada (McCleod and Koronkiewicz 2010). For these reasons and to comply with requirements from the U.S. Fish and Wildlife Service, annual surveys for southwestern willow flycatchers should continue.

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1.0 BACKGROUND

The Las Vegas Wash (Wash) is the primary drainage channel for the Las Vegas Valley carrying urban flows, including highly treated wastewater, urban runoff, shallow groundwater, and storm runoff, into Lake Mead at Las Vegas Bay (Figure 1). Although originally an ephemeral stream, the Wash began supporting perennial flows in the 1950s when the discharge of treated wastewater into the channel was initiated. At first these perennial flows created a lush wetland along the channel. However, the volume of flows in the Wash continued to increase with the increasing urban population, and erosion began to drain the wetlands and carry thousands of tons of sediment to Lake Mead. By the late 1990s, headcutting had deeply incised the channel and reduced the wetlands by approximately 90% from their peak extent, leaving less than 200 acres.

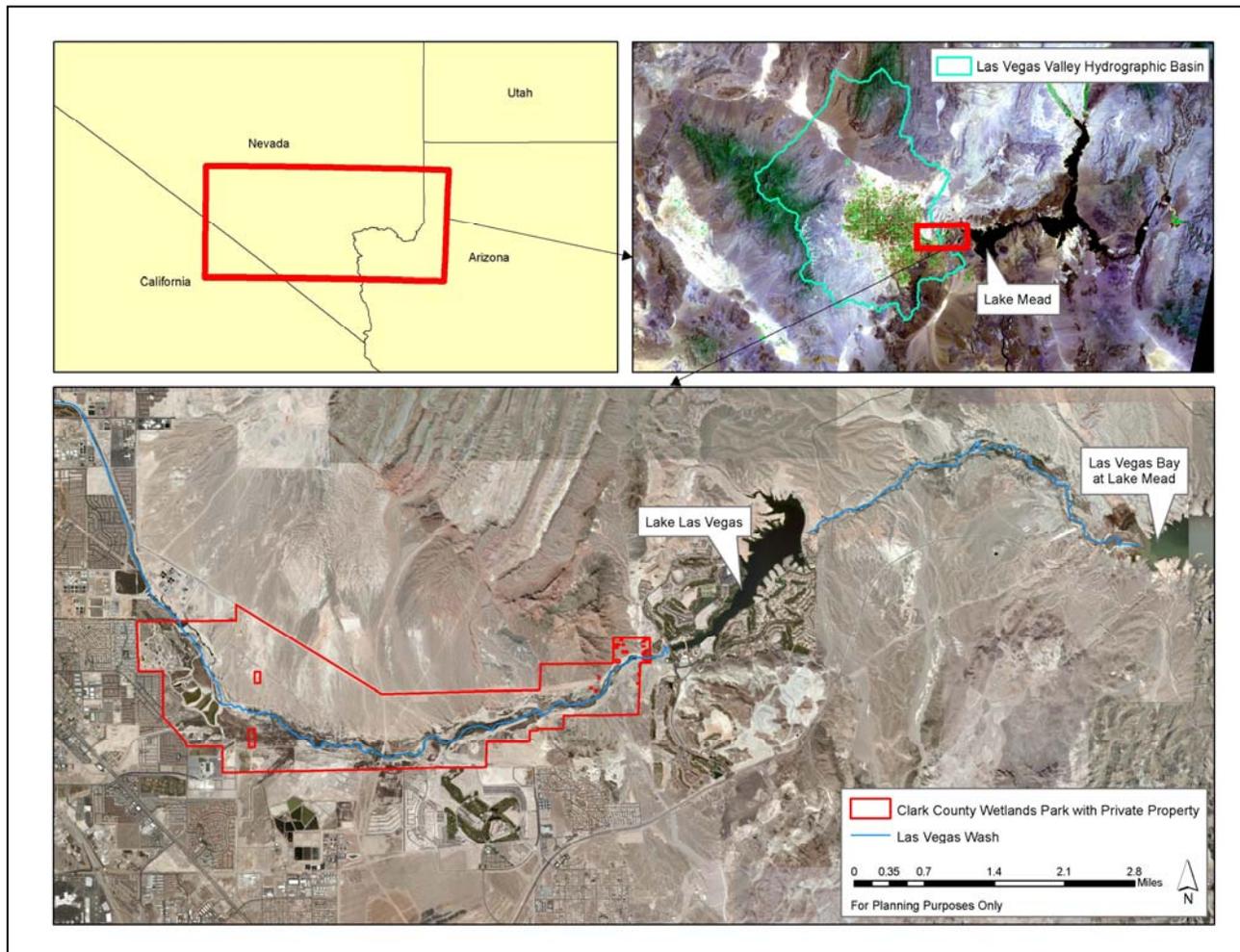


Figure 1: Las Vegas Wash location and general study area map.

In 1998, the Las Vegas Wash Coordination Committee (LVWCC), a now 30-member community stakeholder group, was created to address the degradation of the Wash. The group developed and is implementing the Las Vegas Wash Comprehensive Adaptive Management Plan to stabilize the Wash and restore its ecological functions. Stabilization and enhancement activities, which include the construction of 22 erosion control structures (weirs) and extensive

revegetation, will help deter further erosion and reduce the amount of sediment being deposited in Lake Mead; as of May 2010, 12 weirs were in place and two more were under construction.

Weir construction impacts habitat in the Wash. Vegetation must be cleared from each site to allow for vehicle access and for the footprint of the weir itself. Especially in the early years of the project, much of the vegetation present at each site was non-native salt cedar (*Tamarix ramosissima*). Once construction is over, a variety of wetland, riparian and upland revegetation occurs. The weirs create more favorable conditions for riparian and wetland vegetation along the Wash, so the short-term habitat loss created by construction generally leads to long-term gains. The Wash flows through the 2900-acre Clark County Wetlands Park (Wetlands Park), and so Clark County is also removing salt cedar and planting riparian and wetland vegetation within the study area as it develops park facilities.

The southwestern willow flycatcher (*Empidonax trailli extimus*) is a small songbird that breeds in riparian habitat in the Southwest, and is a federally endangered subspecies of the willow flycatcher. It historically preferred dense willow (*Salix* spp.) habitat throughout its range, but as this habitat declined in the 20th century, the southwestern willow flycatcher adapted to the non-native salt cedar that had largely replaced its preferred habitat.

Since salt cedar dominated the Wash and breeding colonies of the subspecies were established elsewhere in southern Nevada, the U.S. Fish and Wildlife Service required that the Southern Nevada Water Authority (SNWA), the lead agency of the LVWCC, conduct annual surveys to determine the breeding status of the subspecies within the Wetlands Park during informal Section 7 consultation on the proposed development of the park and associated erosion control structures. SNWA contracted with permitted consultants to conduct these surveys from 1998 through 2009 (Southwest Wetlands Consortium 1998; SWCA 1999, 2000, 2001, 2002, 2003, 2005, 2006, 2007, 2008, 2009a, 2009b). The first year these surveys were performed by permitted SNWA staff was 2010. This document reports the results from the 2010 surveys for southwestern willow flycatcher along the Wash.

2.0 METHODS

2.1 Study Area

The general study area consists of the Wetlands Park and an approximately seven-mile reach of the Wash contained within its boundaries. Select areas located immediately adjacent to the park's boundaries are also included if permission to survey is obtained from the landowner. Only potentially suitable nesting habitat is surveyed. For the purposes of this study, potentially suitable nesting habitat is defined as areas with dense to moderately dense riparian vegetation either bordering or containing surface water or with saturated soils. Riparian vegetation in the study area consists of both native and non-native species. Native species primarily include Goodding willow (*S. gooddingii*), sandbar willow (a.k.a. coyote willow; *S. exigua*), cottonwood (*Populus fremontii*) and seep willow (*Baccharis salicifolia*). Salt cedar is the dominant non-native species.

Four survey routes were established to cover all potentially suitable habitat within the Wash (Figure 2). Route 1 begins in the Nature Preserve and continues upstream along the west bank of the Wash to approximately one mile north of the Wetlands Park boundary, covering 40 acres. The Nature Preserve includes constructed wetland ponds and small streams lined with riparian vegetation. The area to the north has undergone little stabilization or revegetation. Route 2 is located on the north bank of the Wash, and begins just upstream of Pabco Road Weir and continues downstream to the Lake Las Vegas mitigation wetlands. It covers 21 acres of habitat. Route 3 is located on the south bank of the Wash, and begins at the eastern boundary of the Wetlands Park and continues upstream to Pabco Road Weir, covering 20 acres of habitat. Both Routes 2 and 3 are located in the largely stabilized portion of the Wash, where several weirs have been constructed and significant revegetation has occurred. Route 4 is also on the south bank and begins just above Pabco Road Weir. It includes the remaining habitat upstream along the Wash and the Duck Creek drainage and covers 48 acres. Although the route begins in a riparian revegetation site, the majority covers areas that have not undergone stabilization or revegetation.

2.2 Survey Protocol

Surveys were conducted using the recently updated standard protocol developed by Sogge et al. (2010). Surveys began in the hour before sunrise and were completed by 10:30 a.m. Call-playback was used to elicit responses from any nearby willow flycatchers. Surveyors broadcast the species' song (fitz-bew) and calls with MP3 players attached to portable speakers. They walked through potentially suitable nesting habitat broadcasting the vocalizations approximately every 100-130 ft following a period of silent listening. Vocalizations were broadcast for approximately 20 seconds at each stop, followed by one to two minutes of listening for a response. Broadcasts were conducted from inside habitat patches where possible, but occasionally had to occur from the habitat edge due to concerns regarding safe access (e.g., adjacency to steep cliffs, inability to enter without damaging vegetation, vagrant camps).

It took two teams of two people two days to complete one full survey of all four routes. Routes 1 and 2 were surveyed on the first day, and Routes 3 and 4 were surveyed on the second day. Deborah Van Dooremolen (TE-148556-1) led one team and Seth Shanahan (TE-231424-0) led the other. We followed the revised five-survey protocol for projects (Sogge et al. 2010), which now includes two surveys in the second survey period and two surveys in the third survey period. Survey period one remained the same (May 15-31) with one survey required. The dates of survey periods two and three changed to June 1-24, and June 25-July 17, respectively. See Table 1 for actual survey dates.

The southwestern subspecies is the only willow flycatcher that nests in southern Nevada. However, other non-listed subspecies of the willow flycatcher may pass through the area during migration, and the different subspecies are virtually indistinguishable in the field. Birds

Survey Period	1st Survey	2nd Survey
First (May 15-30)	May 25/26	n/a
Second (June 1-24)	June 8/9	June 21/22
Third (June 25-July 17)	June 28/29	July 5/6

Table 1: Southwestern willow flycatcher survey dates for the study area.

discovered during the first and second survey periods may simply be migrating through the area and cannot be determined to be of the federally endangered subspecies. The third survey period begins after the known migration period, so any willow flycatchers detected during that time can



Figure 2: 2010 survey routes and willow flycatcher detection location.

2010 Southwestern Willow Flycatcher Survey

be considered residents, and thus of the southwestern subspecies.

3.0 RESULTS

3.1 Survey Results

On May 26, during the first survey period, one willow flycatcher was detected at 9:41 a.m. in a riparian revegetation site on Route 3 (Figure 2). The bird was in a stand of Goodding and sandbar willows located on a small backwater on the south bank approximately 0.3 miles downstream of Pabco Road Weir. It fitz-bewed for several minutes in response to the playback, with britts and a few twitters interspersed. We were unable to get a clear view of the bird, which remained in dense vegetation, and so were unable to determine whether the bird was banded. The bird was not re-detected during subsequent surveys despite extra effort spent in the area surrounding the original detection. Thus, it was concluded that the bird was a migrant.

3.2 Observations on Habitat Quality

3.2.1 Route 1

On Route 1, portions of the Nature Preserve offered the highest quality potentially suitable nesting habitat, with dense sandbar willows, other shrubs and emergents in the understory and Goodding willow and cottonwood above. The densest and widest patches occurred along the small channels that feed water to a series of constructed wetland ponds. Habitat quality should continue to improve, too, as dozens of small sandbar willows (less than three feet high) were sprouting up along these stretches. The density and width of the habitat ringing the ponds themselves was generally thinner. The remainder of the habitat along the route was of marginal quality. The area between the Wetlands Park boundary and AWT road (Figure 2) consists of thin stringers of salt cedar lining the Wash. The channel is somewhat incised here, separating the Wash from the trees by approximately ten feet, so that the ground in the stands is dry. North of the AWT road, a large but similarly dry stand of salt cedar borders the Wash until the channel opens up and is scattered with native and non-native trees and shrubs that are relatively sparse and of low stature.

3.2.2 Routes 2 and 3

Routes 2 and 3 have similar habitat, as the two routes present opposite sides of the Wash channel. The potentially suitable habitat is dominated by natives since most of the reach has undergone stabilization and revegetation; little salt cedar remains. Habitat along these routes has been reduced in the past year due to the clearing of a salt cedar stand on the south bank at the Historic Lateral Weir (in advance of native revegetation) and construction of the Lower Narrows and Homestead Weirs. The majority of the current habitat is concentrated in the approximately 1.5-mile reach from Pabco Road Weir to the base of Calico Ridge Weir (Figure 2), and is of good to moderate quality. Along this stretch, patches of dense sandbar and Goodding willow, as well as some cottonwood and seep willow, occur along the banks and on islands below the weirs. Flooding occurred this past winter that created water-filled depressions and backwaters within select stands between Pabco Road Weir and Historic Lateral Weir, improving their potential suitability. On the islands below Bostick and Calico Ridge Weirs, the wet zone and much of the structure (provided by a mix of cattails [*Typha domingensis*], common reed [*Phragmites*

australis], seep willow, sandbar willow, and salt cedar) appear to be limited to the edges. The majority of the surface area is dominated by dry stands of Goodding willow with little to no live material (and often dead branches) in the understory. The islands below Bostick Weir were considered one of three Present/Future Hotspots (for detections) identified in the 2009 survey report (SWCA 2009b). However, unless hydrology and the amount of live vegetation in the understory improve, the habitat will continue to be less than ideal. Downstream of Calico Ridge Weir, habitat is limited and the quality is marginal. Construction of the Lower Narrows and Homestead Weirs (Figure 2) has removed a large amount of the habitat (although the majority of it was cleared prior to the 2009 surveys). This habitat yielded ten detections from 1998 through 2009, which is more than 20% of all detections to occur during that time period.

The furthest downstream point surveyed was the Lake Las Vegas mitigation wetlands (Figure 2), part of Route 2. The mitigation wetlands are located just to the east of the Wetlands Park and were also considered a Present/Future Hotspot in 2009 (SWCA 2009b), hosting willow flycatcher detections in both 2008 and 2009. However, habitat quality has declined. Hydrology appears to have changed. There was substantial die-off of Goodding willow resulting in thickets of standing dead trees and evidence of cleared dead trees. The live trees that remained were largely isolated with little understory (some cattails, mesquite, and a patch of sandbar willow).

3.2.3 Route 4

Habitat along Route 4 was of mixed quality. The route begins with the remaining 2009 Present/Future Hotspot (SWCA 2009b), which is the only native-dominated habitat on the route. In 2008, this site, located just upstream of Pabco Road Weir (Figure 2), played host to the only southwestern willow flycatcher breeding territory to have ever been established on the Wash (the bird was unsuccessful in attracting a mate and departed after 34 days, but was banded beforehand). At that time, the site consisted of a stand of large cottonwoods mixed with Goodding willows. Patches of sandbar willow occurred on the periphery as did dense common reed. The site flooded periodically, leaving saturated soils and depressions filled with water in the understory. In the intervening years, the site has changed. To improve floodwater conveyance in early 2009, the cottonwoods and willows were thinned. Cover still has not returned to its pre-thinning state, and site hydrology also appears altered. In 2009 and again in 2010, the site was dry for the entirety of the survey season.

The remainder of the habitat along Route 4, both along the Wash channel and throughout the Duck Creek drainage, is dominated by salt cedar and is of marginal quality. Flows are largely channelized or are isolated at the edge of the stands so that all but the trees bordering the water are dry, with no surface water or saturated soil in the stand interior. Also, some stands that were burned as recently as a few years prior to surveys have not yet returned to their full stature. The area northeast of Sam Boyd Stadium (Figure 2) that has hosted several detections over the years (SWCA 2008) continues to be dry and of marginal habitat value. The stand was once fed by runoff and generally wet during the survey season, but has now been dry for several years.

4.0 DISCUSSION AND RECOMMENDATIONS

4.1 Discussion

Willow flycatcher use of the Wash has been and continues to be largely limited to migration (Table 2). Most years of monitoring have detected one to three migrant willow flycatchers, with just a few resulting in more detections and a few resulting in no detections at all. Only two years (2007 and 2008) out of 13 have resulted in detections that could be concluded to be residents and thus of the federally endangered southwestern subspecies. In 2007, the bird was detected only once, but in 2008, a male actually set up a breeding territory for more than 30 days. The continued detections of migrants and the recent detections of residents indicate that the area has the potential to host breeding pairs in the future. Established nesting colonies occur within just 40 miles of the study area at Overton, Nevada (McCleod and Koronkiewicz 2010). In fact, the Wash's 2008 southwestern willow flycatcher was re-sighted at Overton in 2009 showing the potential for birds to move to different sites from season to season (McCleod and Koronkiewicz 2010).

Fires and the clearing of salt cedar for revegetation and weir construction sites have reduced the amount of potentially suitable nesting habitat in the study area for the short-term, but revegetation of the latter should result in net habitat gains within the next five to ten years. The quality of the habitat at Wash revegetation sites and at the Nature Preserve has improved in the past several years even as the overall amount of available habitat has declined. In that time, we have gone five years without a zero-detection survey (Table 2) and also witnessed a southwestern willow flycatcher establish the first and only breeding territory in the study area in a riparian revegetation site.

As in previous years, it should be noted that although the Wash has the potential to host breeding pairs, it may also have the possibility of becoming a population sink due to the presence of brown-headed cowbirds (SWCA 1999, 2000, 2001, 2002, 2003, 2005, 2006, 2007, 2008, 2009a, 2009b). Brown-headed cowbirds are among the most abundant birds in the study area during the breeding season (Appendix A) and were detected on every survey. The species is a known brood parasite of the southwestern willow flycatcher. While brown-headed cowbirds are no longer considered to be a significant threat to the endangered subspecies, they can still negatively impact flycatcher nest success, "especially at small and isolated breeding sites" (Sogge et al. 2010), such as the Wash would likely be.

Year	Migrants	Residents
1998	2	0
1999	0	0
2000	7	0
2001	0	0
2002	2	0
2003	2	0
2004	18	0
2005	0	0
2006	2	0
2007	0	1
2008	7	1
2009	3	0
2010	1	0

Table 2. Summary of survey results, 1998-2010. Migrants (subspecies undetermined) were detected during the first and/or second survey period. Residents were detected during the third survey period and are considered to be of the endangered southwestern subspecies.

4.2 Recommendations

With the continued detections of migrants and recent detections of residents within the study area, along with the close proximity of established breeding colonies, annual surveys for southwestern willow flycatchers should continue. The surveys are also needed to comply with informal Section 7 consultation measures, and will enable SNWA to be proactive should nesting pairs be identified.

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Appendix A

List of All Bird Species Detected during 2010 Surveys
with Presumed Status and Relative Abundance

The following table includes all bird species identified in the study area during the 2010 southwestern willow flycatcher surveys. Presumed status comes from our field observations. Relative abundance categories are modified after Phillips et al. (1964); abundance of a given species is based on our field observations. Species names and taxonomic order follow the American Ornithologists' Union's *Check-list of North American Birds* (AOU 1998) and subsequent revisions.

Common Name	Scientific Name	Presumed Status	Relative Abundance
Mallard	<i>Anas platyrhynchos</i>	R	C
Ruddy duck	<i>Oxyura jamaicensis</i>	R	R
Gambel's quail	<i>Callipepla gambelii</i>	R	C
Pied-billed grebe	<i>Podilymbus podiceps</i>	R	U
Double-crested cormorant	<i>Phalacrocorax auritus</i>	R	U
Least bittern	<i>Ixobrychus exilis</i>	R	U
Great blue heron	<i>Ardea herodias</i>	R	FC
Great egret	<i>Ardea alba</i>	R	U
Snowy egret	<i>Egretta thula</i>	R	U
Green heron	<i>Butorides virescens</i>	R	FC
Black-crowned night-heron	<i>Nycticorax nycticorax</i>	R	U
White-faced ibis	<i>Plegadis chihi</i>	M	U
Turkey vulture	<i>Cathartes aura</i>	R	R
Osprey	<i>Pandion haliaetus</i>	R	U
Northern harrier	<i>Circus cyaneus</i>	R	U
Cooper's hawk	<i>Accipiter cooperii</i>	R	U
Red-tailed hawk	<i>Buteo jamaicensis</i>	R	R
Virginia rail	<i>Rallus limicola</i>	R	R
Common moorhen	<i>Gallinula chloropus</i>	R	FC
American coot	<i>Fulica americana</i>	R	FC
Killdeer	<i>Charadrius vociferous</i>	R	FC
Black-necked stilt	<i>Himantopus mexicanus</i>	R	R
American avocet	<i>Recurvirostra americana</i>	R	U
Spotted sandpiper	<i>Actitis macularius</i>	R	FC
White-winged dove	<i>Zenaida asiatica</i>	R	FC
Mourning dove	<i>Zenaida macroura</i>	R	C
Greater roadrunner	<i>Geococcyx californianus</i>	R	U
Barn owl	<i>Tyto alba</i>	R	R
Lesser nighthawk	<i>Chordeiles acutipennis</i>	R	U
White-throated swift	<i>Aeronautes saxatalis</i>	R	U

Common Name	Scientific Name	Presumed Status	Relative Abundance
Black-chinned hummingbird	<i>Archilochus alexandri</i>	R	FC
Anna's hummingbird	<i>Calypte anna</i>	R	U
Costa's hummingbird	<i>Calypte costae</i>	R	U
Western wood-pewee	<i>Contopus sordidulus</i>	M	C
Willow flycatcher	<i>Empidonax traillii</i>	M	R
Black phoebe	<i>Sayornis nigricans</i>	R	FC
Say's phoebe	<i>Sayornis saya</i>	R	FC
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>	R	U
Western kingbird	<i>Tyrannus verticalis</i>	R	U
Loggerhead shrike	<i>Lanius ludovicianus</i>	R	U
Bell's vireo	<i>Vireo bellii</i>	R	FC
Warbling vireo	<i>Vireo gilvus</i>	M	R
Common raven	<i>Corvus corax</i>	R	U
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	R	C
Cliff swallow	<i>Petrochelidon pyrrhonota</i>	R	FC
Barn swallow	<i>Hirundo rustica</i>	M	R
Verdin	<i>Auriparus flaviceps</i>	R	C
Bewick's wren	<i>Thryomanes bewickii</i>	R	C
Marsh wren	<i>Cistothorus palustris</i>	R	C
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>	R	R
Black-tailed gnatcatcher	<i>Polioptila melanura</i>	R	C
Northern mockingbird	<i>Mimus polyglottos</i>	R	U
Bendire's thrasher	<i>Toxostoma bendirei</i>	R	R
Crissal thrasher	<i>Toxostoma crissale</i>	R	FC
Lucy's warbler	<i>Vermivora luciae</i>	R	C
Yellow warbler	<i>Dendroica petechia</i>	R	C
Common yellowthroat	<i>Geothlypis trichas</i>	R	C
Wilson's warbler	<i>Wilsonia pusilla</i>	M	FC
Yellow-breasted chat	<i>Icteria virens</i>	R	C
Abert's towhee	<i>Pipilo aberti</i>	R	C
Song sparrow	<i>Melospiza melodia</i>	R	A
Summer tanager	<i>Piranga rubra</i>	R	R
Western tanager	<i>Piranga ludoviciana</i>	M	FC
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>	M	R
Blue grosbeak	<i>Passerina caerulea</i>	R	FC
Indigo bunting	<i>Passerina cyanea</i>	R	R

Common Name	Scientific Name	Presumed Status	Relative Abundance
Red-winged blackbird	<i>Agelaius phoeniceus</i>	R	A
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	R	U
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
Lesser goldfinch	<i>Carduelos psaltria</i>	R	R

Presumed Status

- Resident (R) Species is present in the area throughout the summer nesting season.
Migrant (M) Species passes through the area during migration.

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.