

2010 WILLOW FLYCATCHER SURVEYS AT
BLUEWATER CANYON, LOST VALLEY, SAN YSIDRO, AND WILSON CANYON,
NEW MEXICO



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EXECUTIVE SUMMARY

The Southwestern Willow Flycatcher (*Empidonax traillii extimus*) is a federally endangered migrant songbird which breeds locally in riparian areas of New Mexico. The Bureau of Land Management (BLM), Albuquerque Field Office, manages several sites containing potential Southwestern Willow Flycatcher habitat. From 1998-2007, Hawks Aloft, Inc. conducted annual surveys at three of these central New Mexico sites: Bluewater Canyon, Lost Valley, and San Ysidro. Hawks Aloft did not conduct surveys for Southwestern Willow Flycatchers at these sites from 2008-2009, but in 2010, surveys were reinitiated and a fourth site was added at Wilson Canyon. In 2010, we recorded four Willow Flycatchers at Lost Valley and two at San Ysidro. Detections at both sites occurred on both the first and second visits, between 27 May and 5 June. However, because none of the observations occurred during the third survey period, we cannot confirm the presence of territorial Southwestern Willow Flycatchers. Nevertheless, each site could offer important stopover habitat and resources for migrating Willow Flycatchers, including the endangered Southwestern subspecies. Because migrant Willow Flycatchers have been observed at each site, and territorial Southwestern Willow Flycatchers could occur in future years, BLM should continue to maintain and improve conditions at Bluewater Canyon, Lost Valley, San Ysidro, and Wilson Canyon. We recommend continued annual surveys at Bluewater Canyon, Lost Valley, and San Ysidro to document presence of Willow Flycatchers and temporal changes in habitat, conditions, or patterns of occupancy. Until habitat conditions at Wilson Canyon become more suitable, we feel that the continuation of breeding bird surveys, as opposed to formal Willow Flycatcher surveys, would be sufficient in detecting the occurrence of the species.

INTRODUCTION

Riparian corridors provide important habitat for breeding birds in arid regions of the western United States (Knopf and Samson 1994). Although western riparian areas occupy less than one percent of the landscape, many support more breeding bird species than surrounding upland habitats (Knopf et al. 1988, Gates and Giffen 1991, Powell and Steidl 2000). Because riparian areas are disproportionately important to a number of species, management decisions that maintain or improve their condition are imperative. This is especially true when riparian areas host rare or endangered species.

The Southwestern Willow Flycatcher (*Empidonax traillii extimus*) is a federally endangered migrant songbird which breeds locally in riparian areas of New Mexico (U.S. Fish and Wildlife Service 1995, Bureau of Reclamation 2006). Southwestern Willow Flycatchers inhabit dense riparian vegetation, including both native (e.g., cottonwood, *Populus* spp., and willow, *Salix*, spp.) and non-native (e.g., salt cedar, *Tamarix* spp.) woody plants (Sogge et al. 2003). Habitat for Southwestern Willow Flycatchers is usually in close proximity to water or saturated soils (Sedgwick 2000).

Because of morphological and vocal similarities, it is difficult to distinguish between Southwestern Willow Flycatchers and other subspecies of Willow Flycatcher. Despite this difficulty, the seasonal timing of an observation can help identify the endangered Southwestern subspecies. Multiple subspecies of Willow Flycatcher can be observed in New Mexico during the migration period, but only Southwestern Willow Flycatcher regularly remains in the state to breed (Sogge et al. 1997). Therefore, surveys documenting Willow Flycatchers throughout the breeding season can provide an indication of local Southwestern Willow Flycatcher presence.

The Bureau of Land Management (BLM), Albuquerque Field Office, manages several riparian sites in central New Mexico with potential Southwestern Willow Flycatcher habitat. BLM contracted Hawks Aloft, Inc. to conduct annual Willow Flycatcher surveys at three sites from 1998-2007: Bluewater Canyon, Lost Valley, and San Ysidro. Hawks Aloft did not conduct surveys in 2008-2009, but surveys at those three sites, along with a fourth site at Wilson Canyon, were reinitiated in 2010.

We have documented small numbers of Willow Flycatchers using one or more of the survey sites each year, but our consistent lack of observations late in the season indicates that these birds were probably migrant Willow Flycatchers (subspecies unknown) and not territorial Southwestern Willow Flycatchers. Continued surveys are important to document Southwestern Willow Flycatcher territories, if they occur, and further evaluate patterns of use by migrants. In this report, we provide information on methodology, site conditions, and Willow Flycatcher observations at Bluewater Canyon, Lost Valley, San Ysidro, and Wilson Canyon in 2010. We indicate potential Southwestern Willow Flycatcher presence based on the seasonal timing of observations.

STUDY AREA

Bluewater Canyon

The Bluewater Canyon survey area included approximately 4 km of Bluewater Creek in Cibola County, New Mexico (Figs. 1, 2). Bluewater Creek flows through a steep-walled canyon with linear patches of mostly native vegetation. Dominant vegetation included coyote willow (*Salix exigua*), juniper (*Juniperus* spp.), narrowleaf cottonwood (*Populus angustifolia*), cliffrose (*Cowania mexicana*), and rubber rabbitbrush

(*Chrysothamnus nauseosus*). Beaver (*Castor canadensis*) activity has reduced the number of mature cottonwoods to the point that, in 2010, only a few individuals over 2 m were present. Water flow in Bluewater Canyon is controlled by a dam located upstream from the site. Water is present in most years and high enough during some years to restrict access to narrow portions of the canyon. We encountered a fairly high water level in the canyon throughout the 2010 monitoring season.



Bluewater Canyon contained mostly native vegetation in a narrow riparian canyon. Beaver activity has resulted in a reduction of large cottonwoods in the riparian corridor.

Lost Valley

The Lost Valley survey area included two sections totaling approximately 1.5 km along the Rio Puerco near Cabezon Peak and San Luis, in Sandoval County, New Mexico (Figs. 1, 3). Habitat consisted of mostly exotic vegetation, including salt cedar and Russian olive (*Elaeagnus angustifolia*), as well as native Fremont cottonwood (*P.*

fremonti) and willow. Water levels in the Rio Puerco during the survey period often vary dramatically. The typical pattern of moderate water flow early in the survey season followed by a considerable reduction late in the survey season continued in 2010; virtually no surface water was present during the second half of the monitoring season.



Lost Valley water flow during the first survey (left) and the final survey (right) in 2007; water levels in 2010 were very similar to those documented in the photograph.

San Ysidro

The survey site at San Ysidro included approximately 800 m of riparian vegetation adjacent to the Rio Salado and the Perea Nature Trail near San Ysidro, in Sandoval County, New Mexico (Figs. 1, 4). This site contained dense, closed-canopy forest and scrub, as well as marsh habitat. Dominant vegetation included Russian olive, salt cedar, and bulrush (*Scirpus* spp.). Cattle grazing has likely limited vegetation growth in this part of the creek. Water flow in the Rio Salado varies annually and usually decreases as the survey season progresses. After a wet year in 2005, subsequent survey seasons, including 2010, have been relatively dry.

In April 2010, Hawks Aloft and BLM personnel visited the site to investigate reports of impediments to water flow into the marsh. The team determined that an illegal

containment dam was restricting the flow of water into the marsh and redirecting it into an adjacent pasture. BLM staff later returned to San Ysidro and cut a small channel in the dam in an attempt to restore water to the marsh. Hawks Aloft personnel visited the site after a high water flow episode in mid-August, and although the small channel was allowing some water to enter the marsh, a large percentage of the flow blocked by the dam was continuing to drain into the adjacent pasture. We recommend that BLM continue their efforts to remove the dam prior to the onset of the 2011 breeding season, and continue their investigation of the legal water rights and usage of upstream neighbors. The return of water flow to the marsh at San Ysidro would benefit many riparian species, and should be one of the higher priorities of BLM Albuquerque.

Wilson Canyon

The Wilson Canyon survey area includes approximately 1.2 km of the Rio Puerco, about 10 km south of Cuba, New Mexico (Figs. 1, 5). Wilson Canyon is dominated by herbaceous vegetation and shrubs (average canopy height for the canyon is approximately 1 m), and trees taller than 3 m, primarily cottonwood and Russian olive, make up only approximately one percent of the canopy within the riparian area. A large percentage of the vegetation in the canyon is comprised of upland species such as sage (*Artemisia* spp.), greasewood (*Sarcobatus vermiculatus*), and rabbitbrush which have encroached into the riparian corridor. The two most common riparian shrubs present in the canyon, willow and salt cedar (most of the salt cedar appears to have been killed by treatment), each make up about 5% of the vegetation, but both species average less than 2 m in height. Exclosures were erected in the past to allow vegetation to regenerate along the riverbank, but the planted cottonwoods, which average about 3 m in height and have

canopy diameters of approximately 1.5 m, currently provide little benefit to riparian avifauna. At present, Wilson Canyon appears to hold no habitat suitable for breeding Willow Flycatchers. However, it is possible that migratory flycatchers could utilize the site, and with proper management, the likelihood of occupancy could increase. Water flow at Wilson Canyon was high during the first visit, but low on subsequent visits.

METHODS

Southwestern Willow Flycatcher surveys followed the standardized protocol developed by Sogge et al. (1997). All lead observers were trained to follow this protocol and certified to conduct Willow Flycatcher surveys under Hawks Aloft's Federal Fish and Wildlife permit (TE835139-0).

We conducted surveys during three survey periods: 15-31 May, 1-21 June, and 22 June-10 July. From 1998-2004, we conducted one survey per site in each of the three survey periods. Based on protocol revision by the U.S. Fish and Wildlife Service (2000), prescribing at least five visits for project-related surveys, BLM requested an additional two surveys per site during the third survey period. Therefore, a total of five surveys per year were conducted at each site from 2005-2007, and in 2010 (one in each of the first two survey periods and three in the third survey period). We conducted consecutive surveys at a site at least five days apart, beginning each survey within 30 minutes of sunrise and concluding within four hours.

During surveys, observers walked slowly through the site, stopping every 20-30 meters, or as necessary to adequately cover habitat patches. At each stop, surveyors listened for flycatcher vocalizations. If none were heard, taped vocalizations of a

Southwestern Willow Flycatcher were played for 15-30 seconds, followed by one or two minutes of observation. The process was repeated if no flycatchers responded. Coordinates were recorded for each Willow Flycatcher observed. Because several species appear similar to Willow Flycatchers (e.g., Dusky Flycatcher, *E. oberholseri*), positive identification of a Willow Flycatcher required that the observer hear the distinctive “fitz-bew” song (Sogge et al. 1997). Willow Flycatchers detected during the first two survey periods could constitute individuals of both the *E. t. extimus* or migratory *adustus* subspecies; only those individuals observed during the third survey period can readily be identified as Southwestern Willow Flycatchers because other migrant subspecies are not expected during that time (Sogge et al. 1997). We report the number and locations of Willow Flycatchers observed at each site and indicate probable Southwestern Willow Flycatchers, based on the seasonal timing of observations. We also present a list of other avian species seen or heard while conducting surveys (Appendix 1) and copies of U.S. Fish and Wildlife data summary forms (Appendix 2).

RESULTS

We recorded six Willow Flycatchers in 2010; four observations occurred at Lost Valley and two occurred at San Ysidro (Table 1). Because these observations occurred during the first and second survey periods, we could not confirm the presence of territorial Southwestern Willow Flycatchers at any of the sites, consistent with surveys in previous years. Because no detections occurred during the third survey period, the birds observed at Lost Valley and San Ysidro were likely migrant Willow Flycatchers, subspecies unknown.

The four Willow Flycatcher observations recorded at Lost Valley in 2010 and the six recorded in 2007 account for 83% of the observations during the past two survey years (Table 1). Of the four observations in 2010, one occurred on 27 May and the other three occurred on 5 June (Table 2). We completed five surveys during 2010 in a cumulative 13:32 (hr:min) of survey time. No birds were observed during the final three visits, suggesting that the earlier detections were likely of migratory individuals.



Locations of Willow Flycatcher detections at Lost Valley in 2010. The photo at the top-left shows the site of a Willow Flycatcher observation on 27 May; the other three photos show the sites of the 3 June detections.

Observations of lone Willow Flycatchers occurred at San Ysidro on 28 May and 4 June (Table 2). As was the case at Lost Valley, no Willow Flycatchers were detected

during the third survey period; the individuals detected during the first two periods likely did not breed at San Ysidro. Although detection numbers have decreased in recent years, San Ysidro has been the site of the majority of Willow Flycatcher detections since surveys began in 1998 (Table 1). A cumulative 6:01 (hr:min) of survey time occurred at San Ysidro in 2010.



Locations of Willow Flycatcher detections at San Ysidro in 2010. The photo on the left was the site of the 28 May detection, and the photo on the right was the site of the 4 June detection.

For the sixth consecutive survey year, we observed no Willow Flycatchers at Bluewater Canyon (Table 1). We completed five surveys in a cumulative 10:56 (hr:min) of survey time. The only two Willow Flycatcher detections at this site in the last ten years of surveys occurred on 9 June 2000 and 29 May 2002. The loss of tall cottonwood trees due to beaver activity has likely decreased habitat quality for Willow Flycatchers.

The first year of surveying for Willow Flycatchers at Wilson Canyon resulted in no detections of the species. This site harbors little riparian vegetation and, at present, seems the least likely of the four survey sites to support Willow Flycatchers. A cumulative 3:39 (hr:min) of survey time occurred at Wilson Canyon in 2010.

DISCUSSION

Our surveys offer no evidence that Southwestern Willow Flycatchers breed at Bluewater Canyon, Lost Valley, San Ysidro, or Wilson Canyon. At central New Mexico riparian sites like these, the presence of singing Willow Flycatchers during the third survey period (i.e., 22 June through 10 July) strongly indicates that the individuals belong to the Southwestern subspecies (Sogge et al. 1997). Although we have recorded 39 Willow Flycatchers at the three sites that have been surveyed since 1998 (Table 1), none of the observations have occurred during a total of 57 third-period surveys. Therefore, Bluewater Canyon, Lost Valley, and San Ysidro are probably more valuable as migration stopover sites than breeding sites. The importance of Wilson Canyon to Willow Flycatchers cannot be predicted with only one year of survey data, but the current state of vegetation at the site leads us to speculate that the canyon is not currently utilized by breeding Willow Flycatchers, and the importance of the site to migrants is likely lower than the other survey locations.

Willow Flycatcher migration stopover habitat in New Mexico can be valuable because migrants might include the endangered Southwestern subspecies. The migration routes used by Southwestern Willow Flycatchers are not well known (U.S. Fish and Wildlife Service 2002), but Yong and Finch (1997) suggested that the Middle Rio Grande bosque provides important stopover habitat for Southwestern Willow Flycatchers to replenish energy stores. The proximity of our sites to the Middle Rio Grande, especially San Ysidro, makes them candidates for hosting migrant Southwestern Willow Flycatchers in some years. The U.S. Fish and Wildlife Service (2002) advised that even riparian patches unsuitable for breeding (e.g., too small or sparse) might be important

resources affecting flycatcher survival. Although we have not documented breeding Southwestern Willow Flycatchers, our observations of Willow Flycatchers during some years support the possibility that Bluewater Canyon, Lost Valley, and San Ysidro might be included among important stopover sites.

Before 2007, we considered that San Ysidro offered the greatest potential for hosting migrating or breeding Southwestern Willow Flycatchers. This belief was based on the high percentage (67%) and consistency (observations during six of nine years) of Willow Flycatcher detections that occurred at San Ysidro. Although San Ysidro may still be the site of greatest potential for the species, our six observations of Willow Flycatchers at Lost Valley in 2007 and the four observed in 2010 have greatly improved our perception of that site. Total detections since 1998 are now similar between the two sites (44% at Lost Valley, 51% at San Ysidro), and it seems likely that both are important to migratory Willow Flycatchers. These two sites, if properly managed, may even support breeding pairs in the future. Both contain extensive patches of dense riparian vegetation, and although much of the vegetation is non-native, it has been shown that non-native species such as salt cedar can provide adequate habitat for nesting Willow Flycatchers (Sedgewick 2000). More consistent water flow at Lost Valley and San Ysidro could improve the likelihood that Willow Flycatchers will stop and remain to breed.

Water flow is generally consistent at Bluewater Canyon, but riparian habitat is relatively narrow. Suitability for Willow Flycatchers at Bluewater Canyon might improve with further maturation of willow patches and the regeneration of cottonwoods that have been reduced by beaver activity, although the narrow width of the canyon might limit the spatial extent of habitat patches. Restoration efforts that began at Wilson Canyon over a

decade ago may eventually result in the creation of suitable habitat for Willow Flycatchers, but at present, the likelihood of utilization seems low.

Even if features and conditions at the survey sites become suitable, a Southwestern Willow Flycatcher population might be slow to establish since birds would need to disperse from a source population. Slightly greater than 400 Southwestern Willow Flycatcher territories have been identified in New Mexico (D. Hill, U.S. Fish and Wildlife Service, pers. comm.), most of which occur in the Gila River floodplain and the Rio Grande south of Socorro. Although recent data indicate that populations might be expanding (Bureau of Reclamation 2006), our sites are a considerable distance from most documented populations, perhaps limiting the probability of dispersal.

Because migratory flycatchers have been observed in some years, and territorial Southwestern Willow Flycatchers could occur in future years, BLM should continue to maintain and improve conditions at Bluewater Canyon, Lost Valley, San Ysidro, and Wilson Canyon. Lost Valley and San Ysidro should receive a high priority for management and restoration efforts, because we consistently find a small number of Willow Flycatchers at these sites early in the season. We recommend continued annual surveys at Bluewater Canyon, Lost Valley, and San Ysidro to document presence of Willow Flycatchers as well as temporal changes in habitat, conditions, or patterns of occupancy. Until habitat conditions at Wilson Canyon become more suitable, we feel that the continuation of annual breeding bird surveys, as opposed to formal Willow Flycatcher surveys, will be sufficient to detect the unlikely occurrence of the species at that site.

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Table 1. Number of Willow Flycatchers detected at Bluewater Canyon (BC), Lost Valley (LV), and San Ysidro (SY), New Mexico from 1998-2007; surveys were not conducted by Hawks Aloft in 2008-2009, but were reinitiated in 2010 and a fourth site, Wilson Canyon (WC), was added. Detections are categorized by survey period: 1 (15-31 May), 2 (1-21 June) and 3 (22 June–10 July). Three surveys per site were conducted during the third survey period from 2005-2007, and 2010; one survey per site was conducted during the third survey period in all other years.

		Number of Willow Flycatchers detected										
		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2010
BC	Period 1	0	0	0	0	1	0	0	0	0	0	0
	Period 2	0	0	1	0	0	0	0	0	0	0	0
	Period 3	0	0	0	0	0	0	0	0	0	0	0
LV	Period 1	0	0	0	0	0	1	0	0	0	6	1
	Period 2	0	3	1	0	0	2	0	0	0	0	3
	Period 3	0	0	0	0	0	0	0	0	0	0	0
SY	Period 1	1	0	0	0	5	0	3	3	3	0	1
	Period 2	1	0	0	2	0	0	0	0	0	0	1
	Period 3	0	0	0	0	0	0	0	0	0	0	0
WC	Period 1	-	-	-	-	-	-	-	-	-	-	0
	Period 2	-	-	-	-	-	-	-	-	-	-	0
	Period 3	-	-	-	-	-	-	-	-	-	-	0

Table 2. Universal Transverse Mercator coordinates for Willow Flycatchers detected at Lost Valley and San Ysidro, New Mexico in 2010. Each row represents one Willow Flycatcher detection. We observed no Willow Flycatchers at Bluewater Canyon or Wilson Canyon in 2010.

Site	Date	Datum	Zone	Easting	Northing
Lost Valley	27 May 2010	NAD 27	13	313561	3948348
Lost Valley	5 June 2010	NAD 27	13	313498	3948237
Lost Valley	5 June 2010	NAD 27	13	310863	3946211
Lost Valley	5 June 2010	NAD 27	13	310967	3946333
San Ysidro	28 May 2010	NAD 27	13	337843	3935171
San Ysidro	4 June 2010	NAD 27	13	338394	3935035

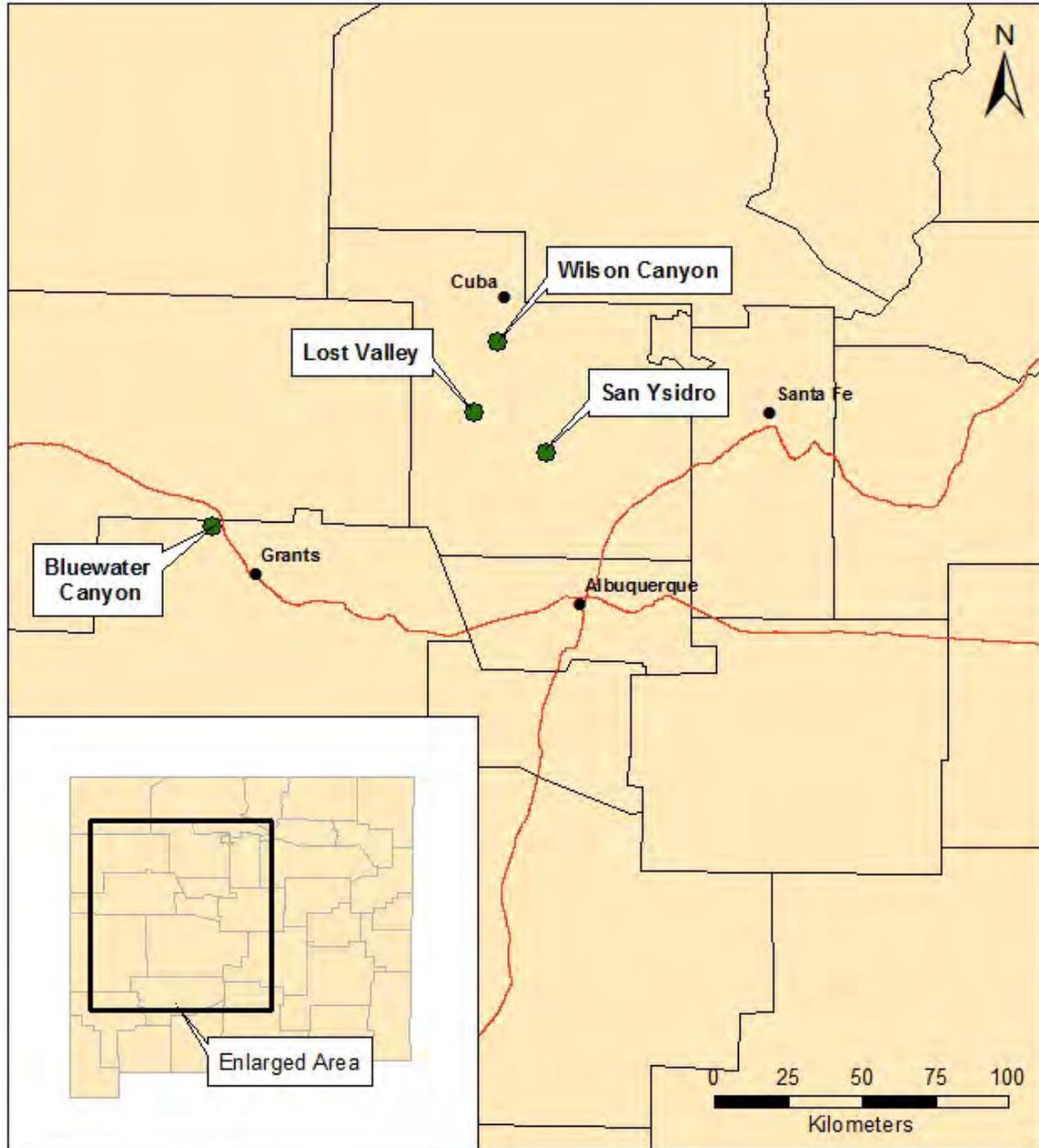


Figure 1. Location of Bluewater Canyon, Lost Valley, San Ysidro, and Wilson Canyon, New Mexico, where Hawks Aloft conducted Willow Flycatcher surveys in 2010.



Figure 2. Willow Flycatcher survey route in Bluewater Canyon, Cibola County, New Mexico.

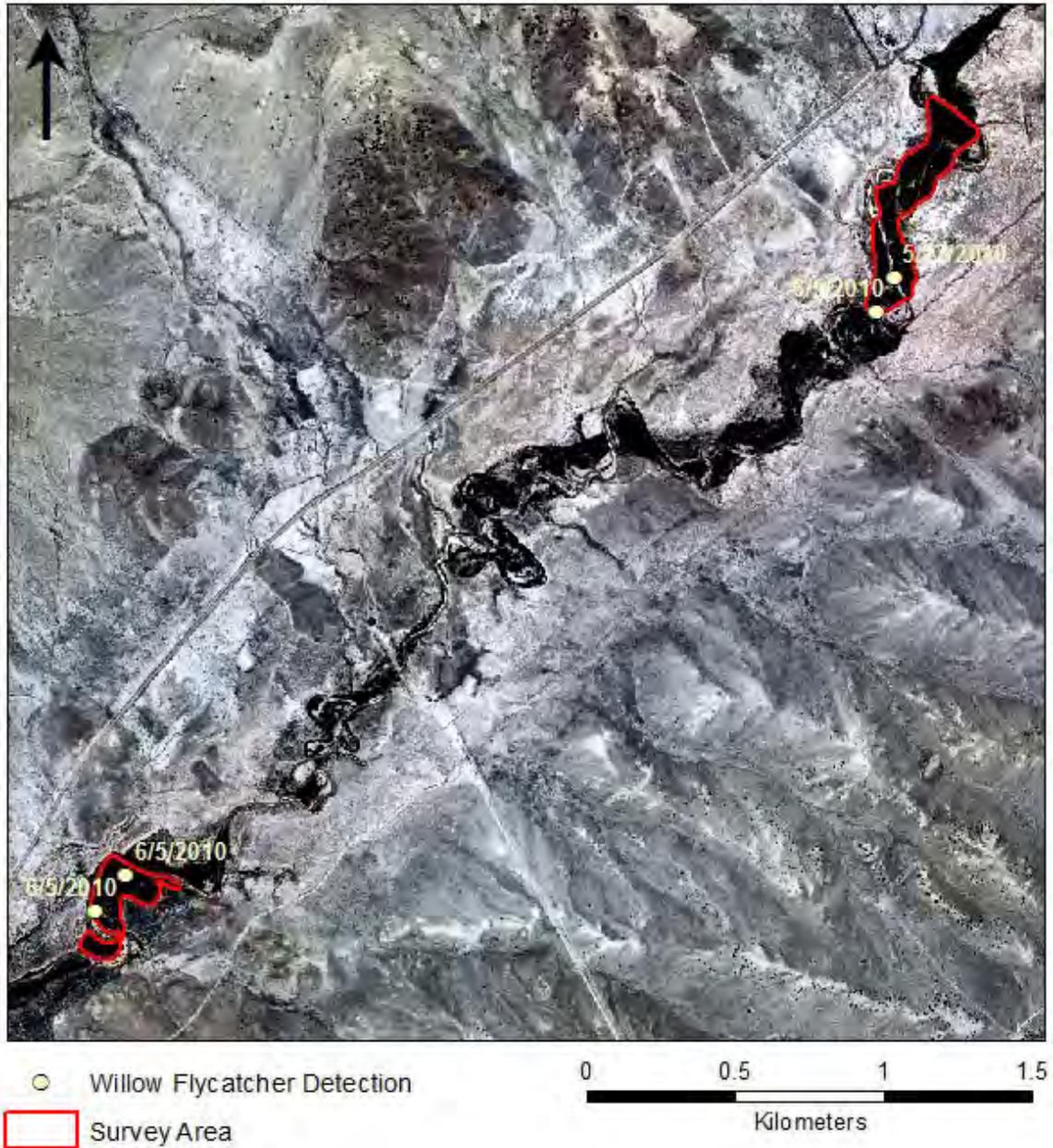


Figure 3. Willow Flycatcher survey area and 2010 Willow Flycatcher observations in Lost Valley, Sandoval County, New Mexico.

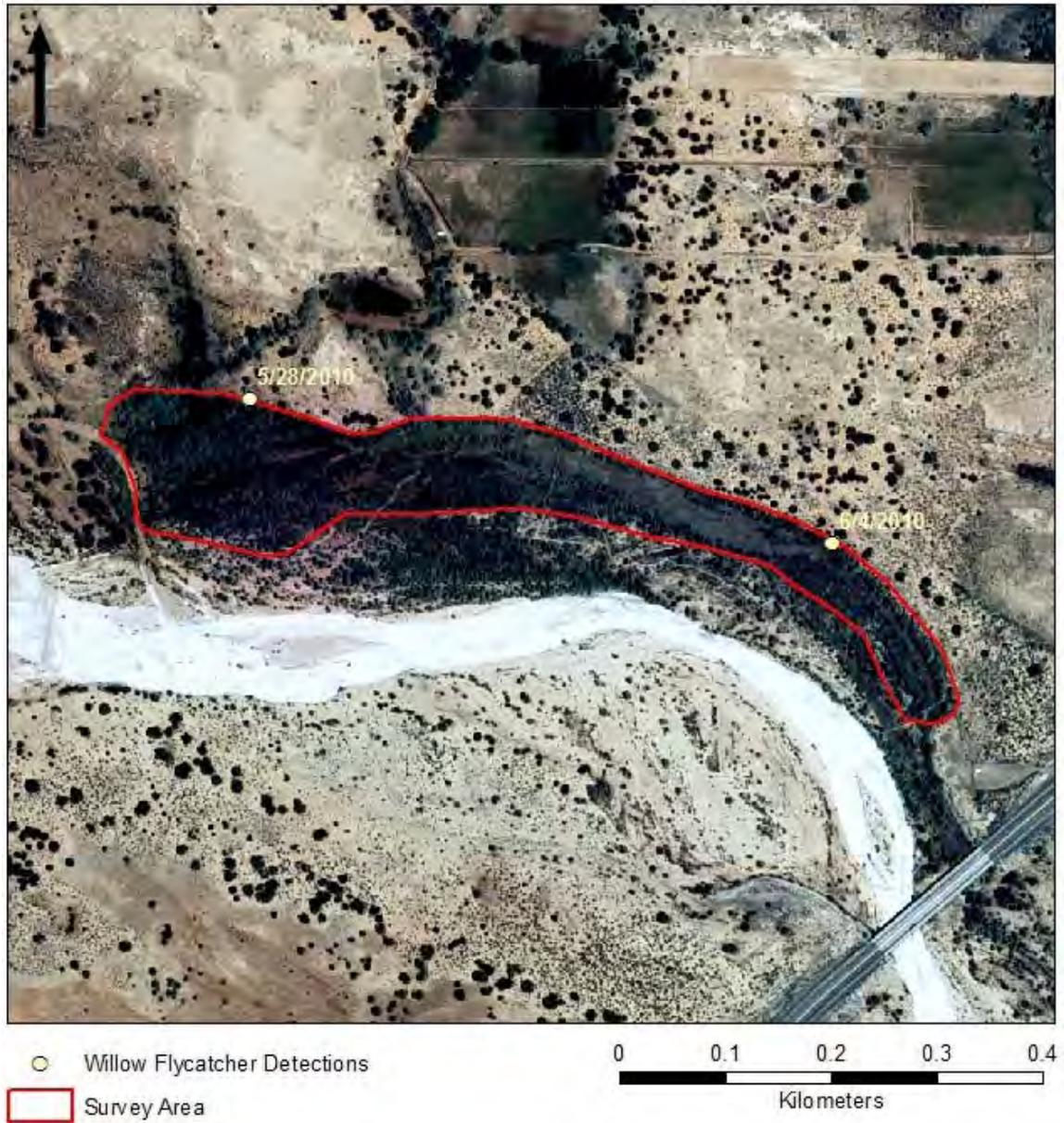


Figure 4. Willow Flycatcher survey area and 2010 Willow Flycatcher observations in San Ysidro, Sandoval County, New Mexico.



Figure 5. Willow Flycatcher survey area in Wilson Canyon, Sandoval County, New Mexico.

Appendix 1. List of 59 bird species observed during Willow Flycatcher surveys at Bluewater Canyon (BC), Lost Valley (LV), San Ysidro (SY), and Wilson Canyon (WC), New Mexico in 2010. Species are listed in taxonomic order, based on the American Birding Association, Checklist 6.7.

Species	Scientific Name	BC	LV	SY	WC
Mallard	<i>Anas Platyrhynchos</i>	X			
Turkey Vulture	<i>Cathartes aura</i>	X			
Red-tailed Hawk	<i>Buteo jamaicensis</i>	X			
White-winged Dove	<i>Zenaida asiatica</i>	X		X	
Mourning Dove	<i>Zenaida macroura</i>	X	X	X	X
Black-chinned Hummingbird	<i>Archilochus alexandri</i>		X	X	
Calliope Hummingbird	<i>Stellula calliope</i>			X	
Broad-tailed Hummingbird	<i>Selasphorus platycercus</i>	X	X		X
Downy Woodpecker	<i>Picoides pubescens</i>	X			
Northern Flicker	<i>Colaptes auratus</i>		X		
Western Wood-Pewee	<i>Contopus sordidulus</i>	X	X	X	X
Willow Flycatcher	<i>Empidonax traillii</i>		X	X	
Gray Flycatcher	<i>Empidonax wrightii</i>		X		
Black Phoebe	<i>Sayornis nigricans</i>	X			
Say's Phoebe	<i>Sayornis saya</i>	X			X
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	X	X	X	X
Cassin's Kingbird	<i>Tyrannus vociferans</i>	X			
Western Kingbird	<i>Tyrannus verticalis</i>		X		
Warbling Vireo	<i>Vireo gilvus</i>				X
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	X			
Common Raven	<i>Corvus corax</i>	X	X	X	X
Violet-green Swallow	<i>Tachycineta thalassina</i>	X			X
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	X		X	X
Mountain Chickadee	<i>Poecile gambeli</i>			X	
Juniper Titmouse	<i>Baeolophus ridgwayi</i>			X	
White-breasted Nuthatch	<i>Sitta carolinensis</i>	X			
Rock Wren	<i>Salpinctes obsoletus</i>	X	X		
Canyon Wren	<i>Catherpes mexicanus</i>	X			
Bewick's Wren	<i>Thryomanes bewickii</i>		X		X
Western Bluebird	<i>Sialia mexicana</i>	X			
Mountain Bluebird	<i>Sialia currucoides</i>	X			
American Robin	<i>Turdud migratorius</i>	X			

Species	Scientific Name	BC	LV	SY	WC
Gray Catbird	<i>Dumetella carolinensis</i>			X	
Northern Mockingbird	<i>Mimus polyglottos</i>	X	X	X	X
Curve-billed Thrasher	<i>Toxostoma curvirostre</i>			X	
Crissal Thrasher	<i>Toxostoma crissale</i>		X		
Virginia's Warbler	<i>Vermivora virginiae</i>	X			
Common Yellowthroat	<i>Geothlypis trichas</i>			X	
Yellow-breasted Chat	<i>Icteria virens</i>	X	X	X	X
Green-tailed Towhee	<i>Pipilo chlorurus</i>				X
Spotted Towhee	<i>Pipilo maculatus</i>	X	X	X	X
Rufous-crowned Sparrow	<i>Aimophila ruficeps</i>				X
Chipping Sparrow	<i>Spizella passerina</i>			X	
Brewer's Sparrow	<i>Spizella breweri</i>				X
Lark Sparrow	<i>Chondestes grammacus</i>			X	X
Black-throated Sparrow	<i>Amphispiza bilineata</i>		X		
Vesper Sparrow	<i>Poocetes gramineus</i>				X
Song Sparrow	<i>Melospiza melodia</i>				X
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>				X
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	X	X	X	
Blue Grosbeak	<i>Guiraca caerulea</i>	X	X	X	X
Lazuli Bunting	<i>Passerina amoena</i>			X	X
Red-winged Blackbird	<i>Agelaius phoeniceus</i>			X	X
Western Meadowlark	<i>Sturnella neglecta</i>			X	X
Brown-headed Cowbird	<i>Molothrus ater</i>	X	X	X	X
Bullock's Oriole	<i>Icterus bullockii</i>	X	X		X
House Finch	<i>Carpodacus mexicanus</i>	X		X	X
Pine Siskin	<i>Carduelis pinus</i>				X
Lesser Goldfinch	<i>Carduelis psaltria</i>	X		X	X

Appendix 2. Data forms from 2010 Willow Flycatcher surveys in Bluewater Canyon, Lost Valley, San Ysidro, and Wilson Canyon, New Mexico.

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Bluewater State NM County Cibola
 USGS Quad Name Prewitt Elevation 2110 (meters)
 Creek, River, Wetland, or Lake Name Bluewater Creek
 Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes No

Survey Coordinates: Start: E 0770479 N 3909199 UTM Datum NAD21 (See instructions)
 Stop: E 0768610 N 3909707 UTM Zone 12S

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

**** 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	Estimate d Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, <i>Diorhabda</i> spp.]). If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) R. Kellermueller	Date 5/27/10 Start 0650 Stop 0730 Total hrs 1:40	0	0	0	N	Multiple beaver ponds, high water flow. No BHCO detections.				
Survey # 2 Observer(s) R. Kellermueller	Date 6/10/10 Start 0624 Stop 0816 Total hrs 1:52	0	0	0	N	Water lower than during survey #1. 1 BHCO detected.				
Survey # 3 Observer(s) R. Kellermueller	Date 6/28/10 Start 0615 Stop 0915 Total hrs 3:00	0	0	0	N	Water flowing throughout. No BHCO detections.				
Survey # 4 Observer(s) R. Kellermueller	Date 7/7/10 Start 0607 Stop 0821 Total hrs 2:14	0	0	0	N	Water flow higher than previous survey. No BHCO detections.				
Survey # 5 Observer(s) R. Kellermueller	Date 7/13/10 Start 0601 Stop 0811 Total hrs 2:10	0	0	0	N	Water still high, continued beaver activity. No BHCO detections.				
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs 10:56		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any Willow Flycatchers 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 and report to USFWS.				
		0	0	0	0					

Reporting Individual Trevor Fetz Date Report Completed 8/14/10
 US Fish and Wildlife Service Permit # TE435139-0 State Wildlife Agency Permit # _____
 Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Reporting Individual Trevor Fetz Phone # 505-828-9455
 Affiliation Hawks Aloft, Inc. E-mail tfetz@hawksof.org
 Site Name Blucwater Date Report Completed 8/14/10

Was this site surveyed in a previous year? Yes No Unknown
 Did you verify that this site name is consistent with that used in previous years? Yes No Not Applicable
 If site name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes No If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes No If no, summarize below.

Management Authority for Survey Area: Federal Municipal/County State Tribal Private
 Name of Management Entity or Owner (e.g., Tonto National Forest) Bureau of Land Management

Length of area surveyed: 3.2 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
- Mixed native and exotic plants (mostly native, 50 - 90% native)
- Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
- Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific names.

Salix exigua, Populus Fremonti, Juniperus sp.

Average height of canopy (Do not include a range): 7 (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections; 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests; 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.)

Best potential WIFL habitat is at mouth of canyon.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTME	UTMN	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Lost Valley State NM County Sandoval
 USGS Quad Name San Luis Elevation 1878 (meters)
 Creek, River, Wetland, or Lake Name Rio Puerco
 Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes No

Survey Coordinates: Start: E 313663 N 3948911 UTM Datum NAD27 (See instructions)
 Stop: E 310832 N 3946074 UTM Zone 13S

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

**** 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	Estimate d Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats (livestock, cowbirds, <i>Diorhabda</i> spp.) If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) <u>G. Garber</u>	Date <u>5/27/10</u> Start <u>0624</u> Stop <u>0946</u> Total hrs <u>2:22</u>	1	0	0	N	WIFL calling from across river relative to provided UTM's. 4 BHCO detected.	1	U	313561	3948348
Survey # 2 Observer(s) <u>G. Garber</u>	Date <u>6/5/10</u> Start <u>0558</u> Stop <u>0834</u> Total hrs <u>2:34</u>	3	0	0	N	1 BHCO detected.	1	U	313498	3948237
							1	U	310863	3946211
							1	U	310967	3946333
Survey # 3 Observer(s) <u>G. Garber</u>	Date <u>6/23/10</u> Start <u>0601</u> Stop <u>0901</u> Total hrs <u>3</u>	0	0	0	N	1 BHCO detected.				
Survey # 4 Observer(s) <u>G. Garber</u>	Date <u>7/7/10</u> Start <u>0612</u> Stop <u>0912</u> Total hrs <u>3</u>	0	0	0	N	1 BHCO detected.				
Survey # 5 Observer(s) <u>G. Garber</u>	Date <u>7/15/10</u> Start <u>0636</u> Stop <u>0910</u> Total hrs <u>2:34</u>	0	0	0	N	2 BHCO detected.				
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs <u>13:32</u>		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any Willow Flycatchers 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 and report to USFWS.				
		0	0	0	0					

Reporting Individual Trevor Fetz Date Report Completed 8/14/10
 US Fish and Wildlife Service Permit # TE835139-0 State Wildlife Agency Permit # _____
 Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Reporting Individual Trevor Fetz Phone # 505-828-9455
 Affiliation Hawks Aloft, Inc. E-mail tfetz@hawksaloft.org
 Site Name Lost Valley Date Report Completed 8/14/10

Was this site surveyed in a previous year? Yes No Unknown
 Did you verify that this site name is consistent with that used in previous years? Yes No Not Applicable
 If site name is different, what name(s) was used in the past? N/A
 If site was surveyed last year, did you survey the same general area this year? Yes No If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes No If no, summarize below.

Management Authority for Survey Area: Federal Municipal/County State Tribal Private
 Name of Management Entity or Owner (e.g., Tonto National Forest) Bureau of Land Management

Length of area surveyed: 2 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
- Mixed native and exotic plants (mostly native, 50 - 90% native)
- Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
- Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific names.

Elaeagnus angustifolia, Tamarix chinensis, Populus fremonti

Average height of canopy (Do not include a range): 8 (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections; 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests; 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.

This is a bottomland arroyo. Because of patch width, the length of habitat surveyed does not fully represent the area of habitat surveyed.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name San Ysidro State NM County Sandoval
 USGS Quad Name San Ysidro Elevation 1626 (meters)
 Creek, River, Wetland, or Lake Name Rio Salado
 Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes No

Survey Coordinates: Start: E 0338507 N 3934934 UTM Datum NAD27 (See instructions)
 Stop: E 0337714 N 3935182 UTM Zone 13S

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

**** 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	Estimate d Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior, evidence of pairs or breeding, potential threats (livestock, cowbirds, <i>Diorhhabda</i> spp.)) If <i>Diorhhabda</i> found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) <u>G. Garber</u>	Date <u>5/29/10</u> Start <u>0602</u> Stop <u>0722</u> Total hrs <u>1:20</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>N</u>	<u>Marsh wet.</u> <u>3 BHCO detected.</u> <u>Vocal response</u> <u>From WIFL.</u>	<u>1</u>	<u>U</u>	<u>0337843</u>	<u>3935171</u>
Survey # 2 Observer(s) <u>G. Garber</u>	Date <u>6/4/10</u> Start <u>0610</u> Stop <u>0724</u> Total hrs <u>1:14</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>N</u>	<u>Marsh wet.</u> <u>Vocal response</u> <u>From WIFL.</u> <u>8 BHCO</u> <u>detected.</u>	<u>1</u>	<u>U</u>	<u>0338394</u>	<u>3935035</u>
Survey # 3 Observer(s) <u>G. Garber</u>	Date <u>6/22/10</u> Start <u>0600</u> Stop <u>0710</u> Total hrs <u>1:10</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>	<u>Marsh dry.</u> <u>5 BHCO</u> <u>detected.</u>				
Survey # 4 Observer(s) <u>G. Garber</u>	Date <u>7/9/10</u> Start <u>0602</u> Stop <u>0709</u> Total hrs <u>1:06</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>	<u>Marsh dry.</u> <u>1 BHCO</u> <u>detected.</u>				
Survey # 5 Observer(s) <u>G. Garber</u>	Date <u>7/16/10</u> Start <u>0604</u> Stop <u>0715</u> Total hrs <u>1:11</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>N</u>	<u>Marsh dry.</u> <u>3 BHCO</u> <u>detected.</u>				
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs <u>6:01</u>		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any Willow Flycatchers 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 and report to USFWS.				
		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>					

Reporting Individual Trevor Fetz Date Report Completed 8/14/10
 US Fish and Wildlife Service Permit # TE835139-0 State Wildlife Agency Permit # _____

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Reporting Individual Trevor Fetz Phone # 505-828-9455
 Affiliation Hawks Aloft, Inc. E-mail tfetz@hawksaloft.org
 Site Name San Ysidro Date Report Completed 8/14/10
 Was this site surveyed in a previous year? Yes No Unknown
 Did you verify that this site name is consistent with that used in previous years? Yes No Not Applicable
 If site name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes No If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes No If no, summarize below.

Management Authority for Survey Area: Federal Municipal/County State Tribal Private
 Name of Management Entity or Owner (e.g., Tonto National Forest) Bureau of Land Management

Length of area surveyed: 1 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
- Mixed native and exotic plants (mostly native, 50 - 90% native)
- Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
- Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific names.

Elaeagnus angustifolia, Tamarix chinensis, Populus fremonti

Average height of canopy (Do not include a range): 6 (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections; 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests; 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.)

Visual observation of non-vocalizing EMPID during First survey (0338057, 3935058).

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Wilson Canyon State NM County Sandoval
 USGS Quad Name San Pablo Elevation 2012 (meters)
 Creek, River, Wetland, or Lake Name Rio Puerco
 Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes No

Survey Coordinates: Start: E 321916 N 3972337 UTM Datum NAD21 (See instructions)
 Stop: E 321706 N 3973305 UTM Zone 13S

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

**** 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	Estimate d Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior, evidence of pairs or breeding; potential threats [livestock, cowbirds, <i>Diorhabda</i> spp.]). If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) R. Kellermueller	Date 5/29/10 Start 0554 Stop 0637 Total hrs 0:43	0	0	0	N	2 BHCO detections.				
Survey # 2 Observer(s) R. Kellermueller	Date 6/9/10 Start 0625 Stop 0713 Total hrs 0:48	0	0	0	N	3 BHCO detections.				
Survey # 3 Observer(s) R. Kellermueller	Date 6/25/10 Start 0615 Stop 0650 Total hrs 0:35	0	0	0	N	1 BHCO detection.				
Survey # 4 Observer(s) R. Kellermueller	Date 7/6/10 Start 0625 Stop 0711 Total hrs 0:46	0	0	0	N	4 BHCO detections.				
Survey # 5 Observer(s) R. Kellermueller	Date 7/12/10 Start 0625 Stop 0712 Total hrs 0:47	0	0	0	N	2 BHCO detections.				
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs 3:39		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any Willow Flycatchers 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 and report to USFWS.				
		0	0	0	0					

Reporting Individual Trevor Fetz Date Report Completed 8/14/10
 US Fish and Wildlife Service Permit # TE 835139-0 State Wildlife Agency Permit # _____

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Reporting Individual Trevor Fetz Phone # 505-828-9455
 Affiliation Hawks Aloft, Inc. E-mail tfetz@hawksaloft.org
 Site Name Wilson Canyon Date Report Completed 8/14/10
 Was this site surveyed in a previous year? Yes ___ No Unknown ___
 Did you verify that this site name is consistent with that used in previous years? Yes ___ No ___ Not Applicable
 If site name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes ___ No ___ If no, summarize below. _____
 Did you survey the same general area during each visit to this site this year? Yes No ___ If no, summarize below. _____
 Management Authority for Survey Area: Federal Municipal/County ___ State ___ Tribal ___ Private ___
 Name of Management Entity or Owner (e.g., Tonto National Forest) Bureau of Land Management

Length of area surveyed: 1 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
- Mixed native and exotic plants (mostly native, 50 - 90% native)
- Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
- Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific names.

Salix exigua, Tamarix chinensis

Average height of canopy (Do not include a range): 1 (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections; 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests; 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.

No real WIFL habitat present. Predominant vegetation is herbaceous.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary