

## WILLOW FLYCATCHER SURVEYS IN 2005

RIO GRANDE, HIGEL, HOT CREEK, AND SEGO SPRINGS STATE WILDLIFE AREAS, COLORADO



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## EXECUTIVE SUMMARY

The Southwestern Willow Flycatcher (*Empidonax traillii extimus*) is a federally endangered songbird that breeds locally in riparian areas in the southwestern United States, as far north as the San Luis Valley, Colorado. The Colorado Division of Wildlife manages several sites containing potential Southwestern Willow Flycatcher habitat. They funded Willow Flycatcher surveys at four sites in 2005: Rio Grande, Higel, Hot Creek, and Segó Springs State Wildlife Areas. We surveyed these sites to document the presence of Willow Flycatchers, estimate the number of territories, and examine changes in territory numbers relative to previous years.

We observed 86 Willow Flycatchers at Rio Grande, Higel, Hot Creek, and Segó Springs State Wildlife Areas, and we estimate 28 Willow Flycatcher territories, based on observations of singing males during the third survey period. Most of the observations (N=80, 93%) and all of the territories were recorded along the Rio Grande at Rio Grande and Higel State Wildlife Areas. We observed six Willow Flycatchers at Hot Creek, but none of the observations occurred during the third survey period. We did not observe Willow Flycatchers at Segó Springs in 2005. Relative to previous years, we observed fewer flycatchers at Rio Grande and more flycatchers at Higel; additional surveys are needed to determine if changes are indicative of meaningful trends.

The abundance of Brown-headed Cowbirds (*Molothrus ater*) at each site and the observation of a parasitized Willow Flycatcher nest at Higel indicate that cowbird parasitism could affect local populations. We recommend that Colorado Division of Wildlife collect baseline data to determine the extent of nest parasitism and potential effects on Willow Flycatcher populations at these sites.

## INTRODUCTION

Riparian areas provide important habitat for breeding birds in the western United States (Ellis 1995). Although western riparian areas occupy less than one percent of the landscape, many support more breeding bird species than surrounding upland habitats (Stauffer and Best 1980, Knopf et al. 1988, Gates and Giffen 1991, Powell and Steidl 2000). Because riparian areas provide breeding habitat for many bird species, it is important to maintain them. It is especially important to identify and maintain sites that host rare and endangered species.

The Southwestern Willow Flycatcher (*Empidonax traillii extimus*) is a federally endangered songbird that breeds locally in riparian areas in the southwestern United States, as far north as the San Luis Valley, Colorado (U.S. Fish and Wildlife Service 1995, 2002). Non-endangered subspecies of Willow Flycatcher breed further north and east, including *E. t. adastus*, *E. t. campestris*, and *E. t. traillii* (Sogge et al. 1997). Prime Southwestern Willow Flycatcher habitat includes areas with dense riparian vegetation greater than 10 m wide, and in close proximity to water or saturated soils (Sogge et al. 1997, Sedgwick 2000, U.S. Fish and Wildlife Service 2002).

The Colorado Division of Wildlife manages several sites in the San Luis Valley containing potential Southwestern Willow Flycatcher habitat. They contracted Hawks Aloft to conduct Willow Flycatcher surveys at four sites in 2005: Rio Grande, Higel, Hot Creek, and Segó Springs State Wildlife Areas. These sites are located along the edge of known Southwestern Willow Flycatcher distribution, and it is believed that at least some of the flycatchers at these sites probably belong to the endangered subspecies (Owen and Sogge 1997). By documenting Willow Flycatcher presence and abundance, surveys at

these sites provide an indication of Southwestern Willow Flycatcher status in the region. Rio Grande and Higel State Wildlife Areas were last surveyed by Hawks Aloft in 2003. Hot Creek and Segó Springs State Wildlife Areas were last surveyed by Hawks Aloft in 2002 and 2004, respectively. We observed Willow Flycatchers at each site during the last year that we surveyed, with most of our observations occurring along the Rio Grande at Rio Grande and Higel State Wildlife Areas. In this report, we present results of 2005 surveys; we document Willow Flycatcher presence, estimate the number of territories, and examine differences in territory numbers relative to previous years.

#### STUDY AREA

We conducted Willow Flycatcher surveys at four sites managed by the Colorado Division of Wildlife in Rio Grande, Alamosa, and Conejos Counties (Fig. 1, Appendix A): Rio Grande, Higel, Hot Creek, and Segó Springs State Wildlife Areas.

We surveyed Rio Grande State Wildlife Area in three sections, beginning near Sherman Lake, on the east edge of Monte Vista, and extending approximately 5 km east to the Rio Grande-Alamosa County border. We divided the site into three sections, because we considered that the amount of potential habitat required three survey mornings to ensure adequate coverage. We used the same section boundaries as in previous years. Section 1 (the western half of the site) included patches of willow habitat with a cottonwood overstory, on the south side of the Rio Grande. Sections 2 and 3 included habitat on the north and south side of the Rio Grande, respectively, and covered the eastern half of the site. Many habitat patches were flooded, especially during the first survey period.

At Higel State Wildlife Area, we surveyed almost 7 km of riparian and wetland habitat along the south edge of the Rio Grande, starting several kilometers east of the east boundary of Rio Grande State Wildlife Area. Willow Flycatcher habitat at Higel consisted of willow patches at varying heights. Cottonwood overstory was sparse. Many of the willow patches at Higel were flooded, especially during the first survey period.



Spring runoff from the Rio Grande flooded many adjacent willow patches in 2005.

Hot Creek State Wildlife Area was located near Highway 15 in Conejos County, approximately 10 km south of Monte Vista National Wildlife Refuge. We surveyed about 7 km of Hot Creek within the boundaries of the wildlife area. Habitat consisted of several linear patches of willow on the north side of the creek near the eastern end of the

area and widely scattered patches extending west. The creek was relatively narrow (i.e., several meters wide), but opened up into a marsh with beaver ponds, lined by Willow Flycatcher habitat.

Sego Springs State Wildlife Area included 1.4 km of the Conejos River, east of Manassa, Colorado in Conejos County. Dominant vegetation included coyote willow (*Salix exigua*) and narrowleaf cottonwood (*Populus angustifolia*). Part of the survey area bordered two small ponds surrounded by willows and numerous protruding snags. The site included patches of flooded willow between the ponds and the Conejos River.

## METHODS

Southwestern Willow Flycatcher surveys followed protocol developed by Sogge et al. (1997), in accordance with the Federal Endangered Species Act. We conducted three surveys per site in 2005, one in each of three survey periods: 15-31 May, 1-21 June, and 22 June – 10 July. One complete survey at Rio Grande State Wildlife Area required three mornings, resulting in a total of 18 survey mornings for all sites. We conducted consecutive surveys at a site (or a section for Rio Grande) at least five days apart. We made an effort to begin surveys by sunrise (usually about 5:30 am); departures from this were infrequent. Observers walked slowly through the site, either along a riparian corridor or in a zig-zag pattern to cover more extensive habitat patches. Observers stopped every 20 to 30 m and listened for flycatcher vocalizations. If none were heard, we played taped vocalizations of a Willow Flycatcher, followed by a few moments of silent observation. If flycatchers responded, we discontinued the tape and noted the location. We did not use the tape if flycatchers were singing when we approached habitat

patches. We recorded Universal Transverse Mercator coordinates (North American Datum 27, Zone 13S) for all Willow Flycatchers encountered.

Because several flycatcher 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. If we observed Willow Flycatchers during the third survey period, we considered the location to be a territory (see Sogge et al. 1997), because migrants are not expected during this time (i.e., 22 June – 10 July). Willow Flycatchers observed during the first or second survey periods, but not the third, might be territorial birds or migrants. Therefore, the number of territories we report is probably a minimum estimate of population size. In the third survey period, observers made a particular effort to locate flycatchers found earlier in the season. We provide coordinates for all Willow Flycatcher observations in Appendix B. In addition to recording the presence of Willow Flycatchers, we recorded other bird species seen or heard while conducting surveys (Appendix C). We photographed habitat where Willow Flycatchers were found, and we present photographs on a disk attached to the back of this report. On the disk, file names for photographs of occupied Willow Flycatcher habitat include location coordinates. We present copies of original data forms in Appendix D.

## RESULTS

We observed 86 Willow Flycatchers at Rio Grande, Higel, Hot Creek, and Sego Springs State Wildlife Areas, and we estimate 28 Willow Flycatcher territories, based on observations of singing males during the third survey period (Table 1). Most of the observations (N = 80, 93%) and all of the territories were recorded along the Rio Grande

at Rio Grande and Higel State Wildlife Areas. We observed 108 bird species (Appendix C), including Brown-headed Cowbirds (*Molothrus ater*), which were common at all sites.

Table 1. Number of adult Willow Flycatchers detected in southern Colorado during 2005 surveys at sites managed by the Colorado Division of Wildlife. The number of territories is based on the number of singing male Willow Flycatchers observed during survey 3.

Survey Area	Survey 1	Survey 2	Survey 3	Territories
Rio Grande State Wildlife Area Section 1	5	6	5	5
Rio Grande State Wildlife Area Section 2	6	8	8	8
Rio Grande State Wildlife Area Section 3	0	1	2	2
Higel State Wildlife Area	7	16	16	13
Hot Creek State Wildlife Area	2	4	0	0
Sego Springs State Wildlife Area	0	0	0	0

### Rio Grande State Wildlife Area

We recorded 41 Willow Flycatcher observations and estimated 15 territories at Rio Grande State Wildlife Area in 2005 (Fig. 2, 3, and 4). Willow Flycatchers were most numerous in section 2, particularly near the fish hatchery. In all sections, the number of observations and the locations of singing males were fairly consistent from survey to survey. In 2005, we estimated fewer territories (15) at Rio Grande than in previous years (26 in 2002 and 21 in 2003).

We observed evidence of pairing success and nesting at Rio Grande. Two males in section 2 were observed with apparent females; we found no females in sections 1 and 2. On 16 June, we observed one of the females building a nest on the edge of a flooded patch of willows. The nest appeared half complete. We returned on 5 July and found the nest destroyed with no flycatcher activity in the area.

### Higel State Wildlife Area

We recorded 39 Willow Flycatcher observations and estimated 13 territories at Higel State Wildlife Area in 2005 (Fig. 5). Most of the territories were concentrated in flooded patches of willows along the river and extending south of the river. The number of observations and the locations of singing males were fairly consistent in the second and third surveys. We observed fewer flycatchers during the first survey, despite the same observer conducting all three surveys. In 2005, we estimated more territories (13) at Higel than in previous years (one in 2002 and nine in 2003).

We observed evidence of pairing success and nesting at Higel. Four males were observed with apparent females. On 8 July, we found a Willow Flycatcher nest with one flycatcher and one cowbird egg. Both adults were near the nest, and we observed the female incubating as we left the territory. Because we were unable to return and monitor the nest, the fate is unknown.

### Hot Creek State Wildlife Area

We recorded six Willow Flycatcher observations at Hot Creek State Wildlife Area in 2005 (Fig. 6); because none of the observations occurred during the third survey period, we did not estimate any territories. The linear patch of willows near the east side of the site, bordered by the marsh, was occupied, whereas the western half of the site was unoccupied. We observed a similar number of Willow Flycatchers the last time we surveyed at Hot Creek, but we estimated more territories (two in 2002). Although there were few willows in the western half of the site, we observed a Yellow-billed Cuckoo

(*Coccyzus americanus*) in riparian habitat here during the first survey. We did not observe evidence of Willow Flycatcher pairing success or nesting at Hot Creek in 2005.

#### Sego Springs State Wildlife Area

We did not observe Willow Flycatchers at Sego Springs State Wildlife Area in 2005 (Fig. 7). Between zero and three Willow Flycatchers have been observed at Sego Springs since 2002; no more than one territory per year has been estimated at this site.



Parasitized Willow Flycatcher nest found at Higel State Wildlife Area on 8 July 2005.

## DISCUSSION

Our results indicate that there is a considerable population of Willow Flycatchers along the Rio Grande in areas managed by Colorado Division of Wildlife. It is unclear how many of the birds might be Southwestern Willow Flycatchers, the endangered subspecies. This region is near the limit of Southwestern Willow Flycatcher distribution, and the population is probably not entirely Southwestern or entirely another subspecies (Mark Sogge, personal communication). Because the endangered subspecies is likely represented to some extent (see Owen and Sogge 1997), Colorado Division of Wildlife should continue to prioritize management and protection of suitable habitat at these sites.

Relative to previous years, we found fewer flycatchers at Rio Grande and more at Higuel; continuation of standardized surveys will determine if these changes are indicative of meaningful trends. We found most suitable willow patches at Rio Grande to be occupied, but there might have been fewer birds occupying them. For example, we found one flycatcher singing and traveling throughout a large patch in section 1; two or three flycatchers had been documented in this same patch during previous years. During the third survey period, we redoubled our search effort in areas where we thought additional birds could occur, based on spatial patterns observed earlier in the season and maps of locations from previous years. Therefore, we probably missed few birds in 2005, and our estimate of territories probably represents an actual decrease. Future surveys should be conducted to determine if the decline from 2002 to 2005 persists.

The magnitude of the apparent increase in flycatchers at Higuel is unclear. We used the same site boundaries as in 2003, but the site appeared to be surveyed in more of a linear path in 2002, perhaps excluding some suitable patches south of the river. From

field notes in 2002 and photographs in 2003, it appears that water levels were probably higher in 2005. An increase in runoff from the Rio Grande into adjacent willow patches could have rendered habitat more suitable for Willow Flycatchers in 2005, resulting in more occupied territories. We did not find more occupied territories, however, in nearby Rio Grande State Wildlife Area, which experienced similar flooding. At Higel, we found that some willow patches were apparently unoccupied, particularly on the west side of the site; we also noted unoccupied willow patches along the river that should improve with continued growth. The availability of habitat in different growth stages, along with the sizable population currently present, indicate that the Higel population could expand, provided that water remains plentiful. Future surveys at Higel will determine if this expansion actually occurs.

Hot Creek and Segó Springs State Wildlife Areas contain small patches of potential habitat but relatively few Willow Flycatchers. Some Willow Flycatchers might stop at Hot Creek during migration and leave the site to breed elsewhere. Migrant status for at least some birds at Hot Creek is supported by the decline in observations for the third survey period in both 2002 and 2005. Nevertheless, the presence of two flycatchers during the third survey period in 2002 and the presence of four singing males on 15 June 2005 (i.e., late second period) indicate that some birds might breed at Hot Creek. The absence of Willow Flycatcher observations at Segó Springs is not unexpected, considering that no more than one territory has been estimated in any year since 2002. Colorado Division of Wildlife should expect that both Hot Creek and Segó Springs could be occupied by a small number of breeding or migrating Willow Flycatchers in some years.

Brown-headed Cowbirds were abundant at our sites, and nest parasitism could affect local Willow Flycatcher productivity. The only flycatcher nest we observed beyond the laying stage was parasitized. Although this is evidence that parasitism occurs at our sites, the rate of parasitism remains unknown. Researchers have documented high rates of parasitism, including at least 41% for a sample of Willow Flycatcher nests (N=27) in north-central Colorado (Sedgwick and Knopf 1988) and 63% for a sample of Southwestern Willow Flycatcher nests (N=116) in California (Whitfield and Sogge 1999). Kus and Whitfield (2005) maintain that cowbird control is a major focus of recovery-oriented management of Southwestern Willow Flycatchers. We do not necessarily recommend cowbird control; such a decision should be made by managers based on multiple factors, especially data indicating serious impacts of parasitism on flycatcher population size (Rothstein et al. 2003, Sferra et al. 2003, Rothstein and Peer 2005). We do recommend that Colorado Division of Wildlife collect baseline parasitism and productivity data necessary for evaluating this potential threat. Such information would help Colorado Division of Wildlife make the most informed management decisions, as well as fill a general data gap for the species (Sferra et al. 2003). Hawks Aloft has the proper certification, nest-monitoring experience, and knowledge of these sites to perform such a study.

#### SUMMARY OF RECOMMENDATIONS

1. Continue standardized surveys at Rio Grande, Higel, Hot Creek, and Segó Springs State Wildlife Areas, and possibly add Alamosa National Wildlife Refuge (Fig. 1), where surveys have been conducted in multiple years in the past. Territory

- estimates based on standard protocol employed by experienced observers will determine local trends and provide more information for evaluating the apparent increases and decreases reported here.
2. Because of the apparent abundance of cowbirds at these sites and prevailing concern over cowbird parasitism of Southwestern Willow Flycatcher nests, it is imperative that Colorado Division of Wildlife learn as much as possible about the extent and possible effects of cowbird parasitism on the lands they manage.
  3. Support research that identifies the distribution of the endangered Southwestern Willow Flycatcher subspecies in southern Colorado. Hawks Aloft could provide assistance for such studies in a cooperative effort with other researchers.

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Figure 1. Location of 2005 Willow Flycatcher survey sites (Rio Grande, Higel, Hot Creek, and Segó Springs State Wildlife Areas) in southern Colorado.

Figure 2. Willow Flycatcher survey area and locations of Willow Flycatchers at Rio Grande State Wildlife Area Section 1 in 2005. Area shown is an enlarged section of the Home Lake, Colorado USGS Quad Map. Willow Flycatcher territories (in red) are based on observations of Willow Flycatchers during survey 3. Willow Flycatchers located only during survey 1 and/or 2 are considered potential territories (in yellow).

Figure 3. Willow Flycatcher survey area and locations of Willow Flycatchers at Rio Grande State Wildlife Area Section 2 in 2005. Area shown is an enlarged section of the Home Lake, Colorado USGS Quad Map. Willow Flycatcher territories (in red) are based on observations of Willow Flycatchers during survey 3. Willow Flycatchers located only during survey 1 and/or 2 are considered potential territories (in yellow).

Figure 4. Willow Flycatcher survey area and locations of Willow Flycatchers at Rio Grande State Wildlife Area Section 3 in 2005. Area shown is an enlarged section of the Home Lake, Colorado USGS Quad Map. Willow Flycatcher territories (in red) are based on observations of Willow Flycatchers during survey 3.

Figure 5. Willow Flycatcher survey area and locations of Willow Flycatchers at Higel State Wildlife Area in 2005. Area shown is an enlarged section of the Home Lake and Mt. Pleasant School, Colorado USGS Quad Maps. Willow Flycatcher territories (in red) are based on observations of Willow Flycatchers during survey 3. Willow Flycatchers located only during survey 1 and/or 2 are considered potential territories (in yellow).

Figure 6. Willow Flycatcher survey route and locations of Willow Flycatchers at Hot Creek State Wildlife Area in 2005. Area shown is an enlarged section of the Terrace and Centro, Colorado USGS Quad Maps. We consider locations (in yellow) to be potential territories.

Figure 7. Willow Flycatcher survey area at Segó Springs State Wildlife Area in 2005. Area shown is an enlarged section of the Manassa, Colorado USGS Quad Map. We located no Willow Flycatchers at this site in 2005.

Appendix A. Universal Transverse Mercator (North American Datum 27, Zone 13S) coordinates for Willow Flycatcher survey routes in southern Colorado in 2005.

Survey Area	Boundary	Easting	Northing
Rio Grande State Wildlife Area Section 1	West	403453	4159830
Rio Grande State Wildlife Area Section 1	East	405282	4159199
Rio Grande State Wildlife Area Section 2	West	405483	4159571
Rio Grande State Wildlife Area Section 2	East	408290	4158771
Rio Grande State Wildlife Area Section 3	West	405776	4158638
Rio Grande State Wildlife Area Section 3	East	408137	4157998
Higel State Wildlife Area	West	411636	4157662
Higel State Wildlife Area	East	414161	4156529
Hot Creek State Wildlife Area	West	389100	4128261
Hot Creek State Wildlife Area	East	394855	4125837
Sego Springs State Wildlife Area	West	421309	4116226
Sego Springs State Wildlife Area	East	422000	4117221

Appendix B. Universal Transverse Mercator (North American Datum 27, Zone 13S) coordinates for Willow Flycatchers observed during 2005 surveys at State Wildlife Areas managed by Colorado Division of Wildlife in southern Colorado. We indicate an apparent pair of flycatchers by an asterisk (\*).

Survey Area	Date	Survey	Observer	Easting	Northing
Rio Grande Section 1	05/28/05	1	Mike Stake	404572	4159606
Rio Grande Section 1	05/28/05	1	Mike Stake	404691	4159525
Rio Grande Section 1	05/28/05	1	Mike Stake	405045	4159456
Rio Grande Section 1	05/28/05	1	Mike Stake	405290	4159234
Rio Grande Section 1	05/28/05	1	Mike Stake	404146	4159531
Rio Grande Section 1	06/15/05	2	Mike Stake	404199	4159481
Rio Grande Section 1	06/15/05	2	Mike Stake	404613	4159596
Rio Grande Section 1	06/15/05	2	Mike Stake	404720	4159563
Rio Grande Section 1	06/15/05	2	Mike Stake	404778	4159547
Rio Grande Section 1	06/15/05	2	Mike Stake	405018	4159463
Rio Grande Section 1	06/15/05	2	Mike Stake	405276	4159248
Rio Grande Section 1	07/06/05	3	Mike Stake	404587	4159638
Rio Grande Section 1	07/06/05	3	Mike Stake	404750	4159545
Rio Grande Section 1	07/06/05	3	Mike Stake	404809	4159527
Rio Grande Section 1	07/06/05	3	Mike Stake	405166	4159352
Rio Grande Section 1	07/06/05	3	Mike Stake	405287	4159247
Rio Grande Section 2	05/28/05	1	Jim Place	407030	4159036
Rio Grande Section 2	05/28/05	1	Jim Place	407030	4159000
Rio Grande Section 2	05/28/05	1	Jim Place	406000	4159230
Rio Grande Section 2	05/28/05	1	Jim Place	406274	4158675
Rio Grande Section 2	05/28/05	1	Jim Place	406040	4159070
Rio Grande Section 2	05/28/05	1	Jim Place	406516	4158693
Rio Grande Section 2	06/16/05	2	Mike Stake	406478	4158670
Rio Grande Section 2*	06/16/05	2	Mike Stake	406294	4158679
Rio Grande Section 2	06/16/05	2	Mike Stake	406030	4159107
Rio Grande Section 2	06/16/05	2	Mike Stake	405765	4159120
Rio Grande Section 2	06/16/05	2	Mike Stake	405928	4159008
Rio Grande Section 2*	06/16/05	2	Mike Stake	405801	4159265
Rio Grande Section 2	07/05/05	3	Mike Stake	406257	4158680
Rio Grande Section 2	07/05/05	3	Mike Stake	405820	4159124
Rio Grande Section 2	07/05/05	3	Mike Stake	405792	4159065
Rio Grande Section 2	07/05/05	3	Mike Stake	405842	4159180
Rio Grande Section 2	07/05/05	3	Mike Stake	405869	4159243
Rio Grande Section 2	07/05/05	3	Mike Stake	405678	4159313
Rio Grande Section 2	07/05/05	3	Mike Stake	406050	4159109
Rio Grande Section 2	07/05/05	3	Mike Stake	405984	4158973
Rio Grande Section 3	06/15/05	2	Gail Garber	406107	4158599
Rio Grande Section 3	07/09/05	3	Mike Stake	406094	4158697
Rio Grande Section 3	07/09/05	3	Mike Stake	405805	4158710
Higel	05/29/05	1	Mike Stake	413885	4157096

## Appendix B. Continued.

Survey Area	Date	Survey	Observer	Easting	Northing
Higel	05/29/05	1	Mike Stake	413934	4157223
Higel	05/29/05	1	Mike Stake	413700	4157225
Higel	05/29/05	1	Mike Stake	411994	4157416
Higel	05/29/05	1	Mike Stake	413290	4157530
Higel	05/29/05	1	Mike Stake	413385	4157670
Higel	05/29/05	1	Mike Stake	413748	4157405
Higel	06/17/05	2	Mike Stake	413815	4157051
Higel	06/17/05	2	Mike Stake	413935	4157225
Higel	06/17/05	2	Mike Stake	413975	4157240
Higel	06/17/05	2	Mike Stake	413990	4157200
Higel	06/17/05	2	Mike Stake	413721	4157186
Higel*	06/17/05	2	Mike Stake	413999	4157022
Higel	06/17/05	2	Mike Stake	413760	4157410
Higel	06/17/05	2	Mike Stake	413744	4157510
Higel	06/17/05	2	Mike Stake	413480	4157595
Higel	06/17/05	2	Mike Stake	413470	4157560
Higel	06/17/05	2	Mike Stake	413270	4157522
Higel	06/17/05	2	Mike Stake	413300	4157465
Higel	06/17/05	2	Mike Stake	412925	4157251
Higel	06/17/05	2	Mike Stake	412531	4157641
Higel	06/17/05	2	Mike Stake	412053	4157335
Higel	07/08/05	3	Mike Stake	413862	4157080
Higel	07/08/05	3	Mike Stake	413965	4157230
Higel	07/08/05	3	Mike Stake	413700	4157240
Higel	07/08/05	3	Mike Stake	414010	4157039
Higel	07/08/05	3	Mike Stake	413936	4157391
Higel*	07/08/05	3	Mike Stake	413753	4157412
Higel	07/08/05	3	Mike Stake	413719	4157478
Higel	07/08/05	3	Mike Stake	413483	4157419
Higel	07/08/05	3	Mike Stake	413560	4157601
Higel	07/08/05	3	Mike Stake	413240	4157540
Higel*	07/08/05	3	Mike Stake	413270	4157490
Higel	07/08/05	3	Mike Stake	412533	4157645
Higel*	07/08/05	3	Mike Stake	411884	4157449
Hot Creek	05/30/05	1	Mike Stake	394172	4125690
Hot Creek	05/30/05	1	Mike Stake	393525	4125851
Hot Creek	06/15/05	2	Gail Garber	392497	4126913
Hot Creek	06/15/05	2	Gail Garber	393506	4125902
Hot Creek	06/15/05	2	Gail Garber	394277	4125732
Hot Creek	06/15/05	2	Gail Garber	394056	4125739

Appendix C. Alphabetical list of 108 bird species observed during Willow Flycatcher surveys in southern Colorado in 2005. Sites include Sego Springs (SS), Rio Grande (RG, three sections), Higel (HI), and Hot Creek (HC) State Wildlife Areas.

Species	SS			RG1			RG2			RG3			HI			HC		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
American Avocet													X					
American Bittern	X	X		X				X	X	X		X	X					
American Coot	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
American Crow										X								
American Goldfinch		X	X			X	X	X		X	X		X			X	X	X
American Kestrel	X	X	X		X	X			X	X	X	X		X				
American Robin	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
American Wigeon																		X
Ash-throated Flycatcher																		X
Bank Swallow	X	X	X							X								
Barn Swallow				X	X	X				X	X			X	X			
Belted Kingfisher		X		X	X													
Bewick's Wren				X														
Black Phoebe							X											
Black-billed Magpie	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Black-capped Chickadee			X	X	X	X	X	X	X									
Black-crowned Night-Heron			X	X	X	X		X	X	X	X			X	X	X	X	X
Black-headed Grosbeak		X		X	X	X	X	X	X	X	X	X	X	X	X			
Blue Grosbeak		X					X						X	X			X	X
Blue-winged Teal		X	X							X			X				X	
Broad-tailed Hummingbird																	X	X
Brown-headed Cowbird	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bullock's Oriole	X	X		X			X	X		X	X		X					
Canada Goose	X						X			X	X	X		X	X			
Cinnamon Teal	X		X	X	X	X	X	X		X	X	X	X	X		X		X
Cliff Swallow				X	X	X		X							X	X	X	X
Common Grackle		X		X									X			X		X
Common Merganser			X	X		X	X			X	X	X	X	X	X	X		X
Common Nighthawk			X	X														
Common Raven	X		X															X
Common Snipe		X								X	X		X			X		
Common Yellowthroat	X	X	X				X	X		X		X	X	X			X	X
Cordilleran Flycatcher																		X
Double-crested Cormorant				X			X					X						
Eastern Kingbird	X	X	X			X				X	X	X						
European Starling	X			X	X	X	X	X		X	X	X	X	X	X	X		
Gadwall	X	X	X	X	X		X			X	X		X	X		X	X	X
Gray Catbird																		X
Gray Flycatcher																		X

Appendix C. Continued.

Species	SS			RG1			RG2			RG3			HI			HC		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Great Blue Heron						X	X		X					X	X			X
Great Horned Owl	X	X	X	X		X	X	X	X		X		X	X	X			
Great-tailed Grackle	X			X														
Green-tailed Towhee	X	X	X							X	X					X	X	X
Green-winged Teal																X		X
Hairy Woodpecker		X						X						X				
Horned Lark	X		X										X					X
House Sparrow						X												
House Wren	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Killdeer	X	X	X	X		X	X		X		X		X	X	X	X	X	X
Lark Sparrow																	X	
Lesser Goldfinch							X		X									
Lesser Yellowlegs										X								
Loggerhead Shrike																	X	
MacGillivray's Warbler		X																
Mallard	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Marsh Wren		X		X	X	X	X	X	X	X						X	X	X
Mountain Bluebird				X	X	X	X	X	X		X		X					
Mountain Chickadee		X								X		X						
Mourning Dove	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Northern Flicker	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Northern Harrier															X			
Northern Pintail										X								
Northern Rough-winged Swallow	X	X	X	X	X		X	X	X	X	X		X			X	X	X
Northern Shoveler													X	X				
Olive-sided Flycatcher																	X	
Pied-billed Grebe				X	X	X			X									
Pinyon Jay																X		X
Plumbeous Vireo									X									
Prairie Falcon																	X	
Red-breasted Nuthatch							X		X									
Redhead			X	X			X		X		X		X					
Red-tailed Hawk				X	X	X	X					X	X	X				
Red-winged Blackbird	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rock Pigeon									X									
Rock Wren	X		X													X	X	X
Ruddy Duck	X			X														
Savannah Sparrow										X	X	X	X	X	X			
Snowy Egret				X	X	X	X	X	X	X	X	X	X	X				
Song Sparrow	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sora									X									
Spotted Sandpiper			X						X	X	X	X	X	X	X			

Appendix C. Continued.

Species	SS			RG1			RG2			RG3			HI			HC			
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
Spotted Towhee										X									
Swainson's Hawk	X			X				X	X	X	X								
Swamp Sparrow							X			X									
Tree Swallow	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	
Turkey Vulture	X				X	X													
Vesper Sparrow																	X	X	X
Violet-green Swallow	X	X	X		X		X	X		X	X	X	X	X		X	X	X	
Virginia Rail																X	X		
Virginia's Warbler									X										
Warbling Vireo							X	X		X							X		
Western Kingbird															X				
Western Meadowlark	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Western Tanager													X				X		
Western Wood-Pewee		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
White-breasted Nuthatch		X			X	X	X			X			X	X					
White-crowned Sparrow																	X		
White-faced Ibis	X				X		X	X		X	X	X	X	X	X				
Wild Turkey													X						
<b>Willow Flycatcher</b>				X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Wilson's Phalarope		X											X	X	X				
Wilson's Warbler	X	X						X		X			X				X		
Wood Duck													X						
Yellow Warbler	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Yellow-billed Cuckoo																	X		
Yellow-breasted Chat			X				X										X	X	
Yellow-headed Blackbird	X	X	X	X	X	X		X	X	X	X	X	X	X	X		X		
Yellow-rumped Warbler	X																X		

Appendix D. Data forms for 2005 Willow Flycatcher surveys at Rio Grande (Sections 1-3), Higel, Hot Creek, and Sejo Springs State Wildlife Areas, Colorado.

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

Site Name Rio Grande State Wildlife Area Section I State CO County Rio Grande  
 USGS Quad Name Home Lake Elevation 2321 feet (meters (circle one))

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

Site Coordinates: Start: N 4159830 E 403453 UTM Datum NAD 27 (NAD27 preferred)  
 Stop: N 4159199 E 405282 UTM Zone 13S

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

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N	Cowbirds Detected? Y or N	Presence of Livestock, Recent sign, If Yes, Describe Y or N	Comments about this survey (e.g., bird behavior, evidence of pairs or breeding, number of nests, nest contents or number of fledges seen; potential threats)
1 <u>Mike Stake</u>	Date <u>5/28/05</u> Start <u>0520</u> Stop <u>0945</u> Total hrs <u>4:30</u>	5	≥0	5	N	Y	N	A few apparently unoccupied patches standing water through most of survey area.
2 <u>Mike Stake</u>	Date <u>6/15/05</u> Start <u>0520</u> Stop <u>0850</u> Total hrs <u>3:30</u>	6	≥0	6	N	Y	Y cow dung	Five previous mates in approxi- mately the same places with one additional male observed.
3 <u>Mike Stake</u>	Date <u>7/6/05</u> Start <u>0530</u> Stop <u>0930</u> Total hrs <u>4:00</u>	5	≥0	5	N	Y	Y livestock grazing adjacent to east end.	Males observed in 5 of the 6 locations from 15 June. Considerable search in apparently unoccupied willows yielded no others
4 _____	Date _____ Start _____ Stop _____ Total hrs _____							
5 _____	Date _____ Start _____ Stop _____ Total hrs _____							
Overall Site Summary (Total resident WIFLs only)		Adults	Pairs	Territories	Nests	Were any WIFLs color-banded? Yes No <u>Unknown</u> If yes, report color combination(s) in the comments section on back of form		
Total survey hrs <u>12:00</u>		5	≥0	5	0			

Reporting Individual Mike Stake Date Report Completed 11 July 2005  
 US Fish and Wildlife Service Permit # TE835139-0 AZ Game and Fish Department (or other state) Permit # \_\_\_\_\_

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

2005 Willow Flycatcher Surveys in Southern Colorado

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

Reporting Individual Mike Stake Phone # (505) 828-9455  
 Affiliation Hawks Aloft, Inc. E-mail mstake@hawkaloft.org  
 Site Name Rio Grande State Wildlife Area Section 1 Date Report Completed 11 July 2005

Did you verify that this site name is consistent with that used in previous years?  Yes / No (circle one)  
 If name is different, what name(s) was used in the past? NA  
 If site was surveyed last year, did you survey the same general area this year? Yes / No If no, summarize in comments below, NA  
 Did you survey the same general area during each visit to this site this year?  Yes / No If no, summarize in comments below.

Management Authority for Survey Area (circle one): Federal Municipal/County  State Tribal Private  
 Name of Management Entity or Owner (e.g., Tonto National Forest) Colorado Division of Wildlife

Length of area surveyed: 2.0 km (specify units, e.g., miles = mi, kilometers = km, meters = m)

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

- Native broadleaf plants (entirely or almost entirely, includes high-elevation willow)
- Mixed native and exotic plants (mostly native)
- Mixed native and exotic plants (mostly exotic)
- Exotic/introduced plants (entirely or almost entirely)

Identify the 2-3 predominant tree/shrub species: Willow, Cottonwood

Average height of canopy (Do not put a range): 4m (specify units)

Was surface water or saturated soil present at or adjacent to site?  Yes / No (circle one)  
 Distance from the site to surface water or saturated soil: 0 m (specify units)

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

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

Comments (attach additional sheets if necessary)  
Site surveyed in 2002 and 2003 but not 2004. There appeared to be 6 different territories but only 5 were observed during the third survey. Water runoff from the Rio Grande was considerably reduced during the second and third surveys.

WIFL Detection Locations: see attached list of UTM coordinates

Date Detected	N UTM	E UTM	Date Detected	N UTM	E UTM

2005 Willow Flycatcher Surveys in Southern Colorado

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

Site Name Rio Grande State Wildlife Area Section 2 State CO County Rio Grande  
 USGS Quad Name Home Lake Elevation 2320 feet / meters (circle one)

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

Site Coordinates: Start: N 4158771 E 408290 UTM Datum NAD 27 (NAD27 preferred)  
 Stop: N 4159571 E 405483 UTM Zone 13S

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

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N	Cowbirds Detected? Y or N	Presence of Livestock, Recent sign, If Yes, Describe Y or N	Comments about this survey (e.g., bird behavior, evidence of pairs or breeding, number of nests, nest contents or number of fledges seen; potential threats)
1 <u>Jim Place</u>	Date <u>5/28/05</u> Start <u>0530</u> Stop <u>1000</u> Total hrs <u>4:30</u>	6	≥0	6	N	Y	N	All observations in the west half of the site.
2 <u>Mike Stake</u>	Date <u>6/16/05</u> Start <u>0520</u> Stop <u>1020</u> Total hrs <u>5:00</u>	8	≥2	6	Y	Y	N	Female building a nest at 406294- 4158679 with singing male also present.
3 <u>Mike Stake</u>	Date <u>7/5/05</u> Start <u>0530</u> Stop <u>0930</u> Total hrs <u>4:00</u>	8	≥0	8	N	Y	N	singing males found in 5 of the 8 places from previous surveys plus 3 new locations. Nest from 16 June failed.
4 _____	Date _____ Start _____ Stop _____ Total hrs _____							
5 _____	Date _____ Start _____ Stop _____ Total hrs _____							
Overall Site Summary (Total resident WIFLs only)		Adults	Pairs	Territories	Nests	Were any WIFLs color-banded? Yes No <u>Unknown</u> If yes, report color combination(s) in the comments section on back of form		
Total survey hrs <u>13:30</u>		10	≥2	8	1			

Reporting Individual Mike Stake Date Report Completed 11 July 2005  
 US Fish and Wildlife Service Permit # TE035139-O AZ Game and Fish Department (or other state) Permit # \_\_\_\_\_

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

2005 Willow Flycatcher Surveys in Southern Colorado

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

Reporting Individual Mike Stake Phone # (505) 828-9455  
 Affiliation Hawks Aloft, Inc. E-mail mstake@hawksaloft.org  
 Site Name Rio Grande State Wildlife Area Section 2 Date Report Completed 11 July 2005

Did you verify that this site name is consistent with that used in previous years?  Yes / No (circle one)  
 If name is different, what name(s) was used in the past? NA  
 If site was surveyed last year, did you survey the same general area this year? Yes / No If no, summarize in comments below. NA  
 Did you survey the same general area during each visit to this site this year?  Yes / No If no, summarize in comments below.

Management Authority for Survey Area (circle one): Federal Municipal/County  State Tribal Private  
 Name of Management Entity or Owner (e.g., Tonto National Forest) Colorado Division of Wildlife

Length of area surveyed: 3.0 km (specify units, e.g., miles = mi, kilometers = km, meters = m)

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

- Native broadleaf plants (entirely or almost entirely, includes high-elevation willow)
- Mixed native and exotic plants (mostly native)
- Mixed native and exotic plants (mostly exotic)
- Exotic/introduced plants (entirely or almost entirely)

Identify the 2-3 predominant tree/shrub species: Willow, Cottonwood

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

Was surface water or saturated soil present at or adjacent to site?  Yes / No (circle one)  
 Distance from the site to surface water or saturated soil: 0 m (specify units)

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

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

Comments (attach additional sheets if necessary)  
Site surveyed in 2002 and 2003 but not 2004. There appeared to be 11 different territories but only 8 observed during the third survey. Lower water levels during the third survey.

WIFL Detection Locations: see attached list of UTM coordinates

Date Detected	N UTM	E UTM	Date Detected	N UTM	E UTM

2005 Willow Flycatcher Surveys in Southern Colorado

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

Site Name Rio Grande State Wildlife Area Section 3 State CO County Rio Grande  
 USGS Quad Name Home Lake Elevation 2334 feet (meters)(circle one)

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

Site Coordinates: Start: N 4158638 E 405776 UTM Datum NAD27 (NAD27 preferred)  
 Stop: N 4157998 E 408137 UTM Zone 13S

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

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N	Cowbirds Detected? Y or N	Presence of Livestock, Recent sign, If Yes, Describe Y or N	Comments about this survey (e.g., bird behavior, evidence of pairs or breeding, number of nests, nest contents or number of fledges seen; potential threats)
1 <u>Jim Place</u>	Date <u>5/29/05</u> Start <u>0530</u> Stop <u>0930</u> Total hrs <u>4:00</u>	0	0	0	N	Y	N	Not as much willow on the south side of river where this site is located.
2 <u>Gail Garber</u>	Date <u>6/15/05</u> Start <u>0540</u> Stop <u>0830</u> Total hrs <u>2:45</u>	1	≥0	1	N	Y	Y cows and horses in adjacent pastures	11 cowbirds observed.
3 <u>Mike Stake</u>	Date <u>7/9/05</u> Start <u>0545</u> Stop <u>0830</u> Total hrs <u>2:45</u>	2	≥0	2	N	Y	N	Both males on south side of the river and not counted on section 2 survey.
4 _____	Date _____ Start _____ Stop _____ Total hrs _____							
5 _____	Date _____ Start _____ Stop _____ Total hrs _____							
Overall Site Summary (Total resident WIFLs only)		Adults	Pairs	Territories	Nests	Were any WIFLs color-banded? Yes No <u>Unknown</u> If yes, report color combination(s) in the comments section on back of form		
Total survey hrs <u>9:30</u>		2	≥0	2	0			

Reporting Individual Mike Stake Date Report Completed 11 July 2005  
 US Fish and Wildlife Service Permit # TE835139-O AZ Game and Fish Department (or other state) Permit # \_\_\_\_\_

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

2005 Willow Flycatcher Surveys in Southern Colorado

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

Reporting Individual Mike Stake Phone # (505) 828-9455  
 Affiliation Hawks Aloft, Inc. E-mail mstake@hawkaloft.org  
 Site Name Rio Grande State Wildlife Area section 3 Date Report Completed 11 July 2005

Did you verify that this site name is consistent with that used in previous years? Yes/ No (circle one)  
 If name is different, what name(s) was used in the past? NA  
 If site was surveyed last year, did you survey the same general area this year? Yes / No If no, summarize in comments below. NA  
 Did you survey the same general area during each visit to this site this year? Yes/ No If no, summarize in comments below.

Management Authority for Survey Area (circle one): Federal Municipal/County State Tribal Private  
 Name of Management Entity or Owner (e.g., Tonto National Forest) Colorado Division of Wildlife

Length of area surveyed: 2.5 km (specify units, e.g., miles = mi, kilometers = km, meters = m)

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

- Native broadleaf plants (entirely or almost entirely, includes high-elevation willow)
- Mixed native and exotic plants (mostly native)
- Mixed native and exotic plants (mostly exotic)
- Exotic/introduced plants (entirely or almost entirely)

Identify the 2-3 predominant tree/shrub species: Cottonwood, Willow

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

Was surface water or saturated soil present at or adjacent to site? Yes/ No (circle one)  
 Distance from the site to surface water or saturated soil: 0 m (specify units)

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

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

Comments (attach additional sheets if necessary)  
Site surveyed in 2002 and 2003 but not 2004. Because 3 different  
individuals conducted surveys, change in hydrological conditions, if any,  
is not clear.

WIFL Detection Locations: see attached list of UTM coordinates

Date Detected	N UTM	E UTM	Date Detected	N UTM	E UTM

2005 Willow Flycatcher Surveys in Southern Colorado

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

Site Name Higel State Wildlife Area State CO County Alamosa  
 USGS Quad Name Home Lake / Mt. Pleasant School Elevation 2325 feet / meters (circle one)

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

Site Coordinates: Start: N 4156795 E 414422 UTM Datum NAD 27 (NAD27 preferred)  
 Stop: N 4157349 E 411549 UTM Zone 13S

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

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N	Cowbirds Detected? Y or N	Presence of Livestock, Recent sign, If Yes, Describe Y or N	Comments about this survey (e.g., bird behavior, evidence of pairs or breeding, number of nests, nest contents or number of fledges seen; potential threats)
1 <u>Mike Stake</u>	Date <u>5/29/05</u> Start <u>0530</u> Stop <u>1100</u> Total hrs <u>5:30</u>	7	≥ 0	7	N	Y	Y cow dung	Standing water almost throughout, usually hip deep. A few unoccupied willow patches.
2 <u>Mike Stake</u>	Date <u>6/17/05</u> Start <u>0530</u> Stop <u>1045</u> Total hrs <u>5:15</u>	16	≥ 1	15	N	Y	Y cow dung	Located singing males in all the locations from 29 May plus 8 more. Only 1 male found with the tape.
3 <u>Mike Stake</u>	Date <u>7/8/05</u> Start <u>0545</u> Stop <u>1030</u> Total hrs <u>4:45</u>	16	≥ 3	13	Y	Y	Y livestock grazing adjacent to east end.	Singing males in 13 of previous 15 places. 3 males with apparent females, one pair with nest. Nest with 1 cowbird and 1 flycatcher egg.
4 _____	Date _____ Start _____ Stop _____ Total hrs _____							
5 _____	Date _____ Start _____ Stop _____ Total hrs _____							
Overall Site Summary (Total resident WIFLs only)		Adults	Pairs	Territories	Nests	Were any WIFLs color-banded? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, report color combination(s) in the <u>comments</u> section on back of form		
Total survey hrs <u>15:30</u>		17	≥ 4	13	1			

Reporting Individual Mike Stake Date Report Completed 11 July 2005  
 US Fish and Wildlife Service Permit # TE835139-O AZ Game and Fish Department (or other state) Permit # \_\_\_\_\_

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

2005 Willow Flycatcher Surveys in Southern Colorado

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

Reporting Individual Mike Stake Phone # (505) 828-9455  
 Affiliation Hawks Aloft, Inc. E-mail mstake@hawksaloft.org  
 Site Name Higel State Wildlife Area Date Report Completed 11 July 2005

Did you verify that this site name is consistent with that used in previous years?  Yes / No (circle one)  
 If name is different, what name(s) was used in the past? NA  
 If site was surveyed last year, did you survey the same general area this year? Yes / No If no, summarize in comments below. NA  
 Did you survey the same general area during each visit to this site this year?  Yes / No If no, summarize in comments below.

Management Authority for Survey Area (circle one): Federal Municipal/County  State Tribal Private  
 Name of Management Entity or Owner (e.g., Tonto National Forest) Colorado Division of Wildlife

Length of area surveyed: 6.5 km (specify units, e.g., miles = mi, kilometers = km, meters = m)

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

- Native broadleaf plants (entirely or almost entirely, includes high-elevation willow)
- Mixed native and exotic plants (mostly native)
- Mixed native and exotic plants (mostly exotic)
- Exotic/introduced plants (entirely or almost entirely)

Identify the 2-3 predominant tree/shrub species: Willow, Cottonwood

Average height of canopy (Do not put a range): 6 m (specify units)

Was surface water or saturated soil present at or adjacent to site?  Yes / No (circle one)  
 Distance from the site to surface water or saturated soil: 0 m (specify units)

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

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

Comments (attach additional sheets if necessary)

Site surveyed in 2002 and 2003 but not 2004. There appeared to be 15 territories but only 13 males observed during the third survey. Male at 413753-4157412 had a band on right leg. Band seemed faded but might have been red. Fairly good look at left leg but no other bands seen. This pair with a parasitized nest 2.5' up in willow at 413763-4157399. Female incubated. Considerable runoff into habitat from Rio Grande during first survey. Less water during second and third survey  
 WIFL Detection Locations: see attached list of UTM coordinates

Date Detected	N UTM	E UTM	Date Detected	N UTM	E UTM

2005 Willow Flycatcher Surveys in Southern Colorado

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

Site Name Hof Creek State Wildlife Area State CO County Conejos  
 USGS Quad Name Terrace / Centro Elevation 2500 feet / (meters) (circle one)

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

Site Coordinates: Start: N 4125837 E 394855 UTM Datum NAD 27 (NAD27 preferred)  
 Stop: N 4128261 E 389100 UTM Zone 13S

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

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N	Cowbirds Detected? Y or N	Presence of Livestock, Recent sign, If Yes, Describe Y or N	Comments about this survey (e.g., bird behavior, evidence of pairs or breeding, number of nests, nest contents or number of fledges seen; potential threats)
1 <u>Mike Stake</u>	Date <u>5/30/05</u> Start <u>0530</u> Stop <u>0945</u> Total hrs <u>4:15</u>	2	≥0	2	N	Y	N	Occupied linear patch on east end, might be more than 2 birds Not much habitat in west half.
2 <u>Gail Garber</u>	Date <u>6/15/05</u> Start <u>0615</u> Stop <u>1000</u> Total hrs <u>3:45</u>	4	≥0	4	N	Y	N	18 cowbirds observed Duelling mates
3 <u>Mike Stake</u>	Date <u>7/7/05</u> Start <u>0545</u> Stop <u>0930</u> Total hrs <u>3:45</u>	0	0	0	N	Y	N	No apparent WIFLs in previously occupied willow patches. Willow patches thin and linear.
4 _____	Date _____ Start _____ Stop _____ Total hrs _____							
5 _____	Date _____ Start _____ Stop _____ Total hrs _____							
Overall Site Summary (Total resident WIFLs only)		Adults	Pairs	Territories	Nests	Were any WIFLs color-banded? Yes No <u>Unknown</u> If yes, report color combination(s) in the comments section on back of form		
Total survey hrs <u>11:45</u>		0	0	0	0			

Reporting Individual Mike Stake Date Report Completed 11 July 2005  
 US Fish and Wildlife Service Permit # TE835139-0 AZ Game and Fish Department (or other state) Permit # \_\_\_\_\_

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

2005 Willow Flycatcher Surveys in Southern Colorado

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

Reporting Individual Mike Stake Phone # (505) 828-9455  
 Affiliation Hawks Aloft, Inc. E-mail mstake@hawksaloft.org  
 Site Name Hot Creek State Wildlife Area Date Report Completed 11 July 2005

Did you verify that this site name is consistent with that used in previous years?  Yes / No (circle one)  
 If name is different, what name(s) was used in the past? NA  
 If site was surveyed last year, did you survey the same general area this year? Yes / No If no, summarize in comments below. NA  
 Did you survey the same general area during each visit to this site this year?  Yes / No If no, summarize in comments below.

Management Authority for Survey Area (circle one): Federal Municipal/County  State Tribal Private  
 Name of Management Entity or Owner (e.g., Tonto National Forest) Colorado Division of Wildlife

Length of area surveyed: 7.5 km (specify units, e.g., miles = mi, kilometers = km, meters = m)

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

- Native broadleaf plants (entirely or almost entirely, includes high-elevation willow)
- Mixed native and exotic plants (mostly native)
- Mixed native and exotic plants (mostly exotic)
- Exotic/introduced plants (entirely or almost entirely)

Identify the 2-3 predominant tree/shrub species: Willow, Juniper

Average height of canopy (Do not put a range): 3 m (specify units)

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

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

Did hydrological conditions change significantly among visits (did the site flood or dry out)? Yes  No (circle one)

If yes, describe in comments section below.

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

Comments (attach additional sheets if necessary)

Site surveyed in 2002 but not in 2003 or 2004. There appeared to be four territories at the site, but no flycatchers were observed during the third survey.

WIFL Detection Locations: see attached list of UTM coordinates

Date Detected	N UTM	E UTM	Date Detected	N UTM	E UTM

2005 Willow Flycatcher Surveys in Southern Colorado

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

Site Name Sego Springs State Wildlife Area State CO County Conejos  
 USGS Quad Name Manassa Elevation 2344 feet (meters(circle one))

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

Site Coordinates: Start: N 4116226 E 421309 UTM Datum NAD 27 (NAD27 preferred)  
 Stop: N 4117221 E 422000 UTM Zone 13S

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

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N	Cowbirds Detected? Y or N	Presence of Livestock, Recent sign, If Yes, Describe Y or N	Comments about this survey (e.g., bird behavior, evidence of pairs or breeding, number of nests, nest contents or number of fledges seen; potential threats)
1 <u>Mike Stake</u>	Date <u>5/17/05</u> Start <u>0550</u> Stop <u>0830</u> Total hrs <u>2:40</u>	0	0	0	N	Y	N	Cowbirds numerous. Willows not completely leafed out.
2 <u>Gail Garber</u>	Date <u>6/14/05</u> Start <u>0550</u> Stop <u>0830</u> Total hrs <u>2:40</u>	0	0	0	N	Y	N	13 cowbirds observed
3 <u>Mike Stake</u>	Date <u>7/4/05</u> Start <u>0520</u> Stop <u>0820</u> Total hrs <u>3:00</u>	0	0	0	N	Y	N	A couple of willow patches offer potential habitat.
4 _____	Date _____ Start _____ Stop _____ Total hrs _____							
5 _____	Date _____ Start _____ Stop _____ Total hrs _____							
Overall Site Summary (Total resident WIFLs only)		Adults	Pairs	Territories	Nests	Were any WIFLs color-banded? Yes No <u>Unknown</u> If yes, report color combination(s) in the comments section on back of form		
Total survey hrs <u>8:20</u>		0	0	0	0			

Reporting Individual Mike Stake Date Report Completed 11 July 2005  
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2005 Willow Flycatcher Surveys in Southern Colorado

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

Reporting Individual Mike Stake Phone # (505) 828-9455  
 Affiliation Hawks Aloft, Inc. E-mail mstake@hawksaloft.org  
 Site Name Sejo Springs State Wildlife Area Date Report Completed 11 July 2005

Did you verify that this site name is consistent with that used in previous years?  Yes / No (circle one)  
 If name is different, what name(s) was used in the past? NA  
 If site was surveyed last year, did you survey the same general area this year?  Yes / No If no, summarize in comments below.  
 Did you survey the same general area during each visit to this site this year?  Yes / No If no, summarize in comments below.

Management Authority for Survey Area (circle one): Federal Municipal/County  State Tribal Private  
 Name of Management Entity or Owner (e.g., Tonto National Forest) Colorado Division of Wildlife

Length of area surveyed: 1.5 km (specify units, e.g., miles = mi, kilometers = km, meters = m)

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

- Native broadleaf plants (entirely or almost entirely, includes high-elevation willow)
- Mixed native and exotic plants (mostly native)
- Mixed native and exotic plants (mostly exotic)
- Exotic/introduced plants (entirely or almost entirely)

Identify the 2-3 predominant tree/shrub species: Willow, Cottonwood

Average height of canopy (Do not put a range): 4 m (specify units)

Was surface water or saturated soil present at or adjacent to site?  Yes / No (circle one)  
 Distance from the site to surface water or saturated soil: 0 m (specify units)

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

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

Comments (attach additional sheets if necessary)

WIFL Detection Locations: no WIFLs observed.

Date Detected	N UTM	E UTM	Date Detected	N UTM	E UTM