



# Lower Colorado River Multi-Species Conservation Program

*Balancing Resource Use and Conservation*

## Southwestern Willow Flycatcher (*Empidonax traillii extimus*) Surveys on the Pratt Agriculture and Cibola Nature Trail Restoration Sites-2005



September 2008

# Lower Colorado River Multi-Species Conservation Program Steering Committee Members

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Bureau of Reclamation  
U.S. Fish and Wildlife Service  
National Park Service  
Bureau of Land Management  
Bureau of Indian Affairs  
Western Area Power Administration

## **Arizona Participant Group**

Arizona Department of Water Resources  
Arizona Electric Power Cooperative, Inc.  
Arizona Game and Fish Department  
Arizona Power Authority  
Central Arizona Water Conservation District  
Cibola Valley Irrigation and Drainage District  
City of Bullhead City  
City of Lake Havasu City  
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Golden Shores Water Conservation District  
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Yuma County Water Users' Association  
Yuma Irrigation District  
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## **Other Interested Parties Participant Group**

QuadState County Government Coalition  
Desert Wildlife Unlimited

## **California Participant Group**

California Department of Fish and Game  
City of Needles  
Coachella Valley Water District  
Colorado River Board of California  
Bard Water District  
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## **Native American Participant Group**

Hualapai Tribe  
Colorado River Indian Tribes  
The Cocopah Indian Tribe

## **Conservation Participant Group**

Ducks Unlimited  
Lower Colorado River RC&D Area, Inc.



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Lower Colorado River  
Multi-Species Conservation Program  
Bureau of Reclamation  
Lower Colorado Region  
Boulder City, Nevada  
<http://www.lcrmscp.gov>

September 2008

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# Southwestern Willow Flycatcher (*Empidonax traillii extimus*) Surveys on the Pratt Agriculture and Cibola Nature Trail Restoration Sites-2005

**Abstract.** The southwestern willow flycatcher (*Empidonax traillii extimus*) is a federally endangered species, which breeds along the lower Colorado River. The Bureau of Reclamation initiated two restoration demonstration sites in response to a 1997 U. S. Fish & Wildlife Service Biological Opinion. The two sites were planted in 1997 with Goodding's willow (*Salix gooddingii*), coyote willow (*Salix exigua*), Fremont cottonwood (*Populus fremontii*), honey mesquite (*Prosopis glandulosa*), and screwbean mesquite (*P. pubescens*) in order to create breeding *extimus* habitat. In 2005, Reclamation performed 10 surveys for southwestern willow flycatchers throughout the breeding season, at both sites. Nineteen willow flycatchers were observed, with none confirmed to be *extimus*. The lack of standing water and/or saturated soils may inhibit southwestern willow flycatchers from breeding at the sites.

## Introduction

The southwestern willow flycatcher (*Empidonax traillii extimus*) is a federally listed endangered species (USFWS 1995) with a breeding range that includes Arizona, southern California, New Mexico, southern Nevada, southern Utah, southwestern Colorado, western Texas, and northern Mexico (Unitt 1987, Browning 1993, Sogge *et al.* 1997; Figure 1). Based on a data compilation done by Sogge *et al.* (1997), the majority of the current population occurs in Arizona, California, and New Mexico with most sites containing small flycatcher populations.

Historically, the southwestern willow flycatcher bred in riparian areas composed of dense stands of willow (*Salix gooddingii* and *Salix exigua*) and Fremont cottonwood (*Populus fremontii*; Grinnell and Miller 1944, Harris *et al.* 1987, Unitt 1987). Southwestern willow flycatchers have also been found to breed in exotics such as saltcedar (*Tamarix spp*; McKernan 1997, Sogge *et al.* 1997, Stoleson and Finch 2000). The presence of standing water or saturated soils may also be important to the breeding of southwestern willow flycatchers (McKernan 1997, Sogge *et al.* 1997, Koronkiewicz *et al.* 2004, McLeod *et al.* 2005). Willow flycatcher territories and nests are typically near open water or saturated soil

(McKernan 1997, McKernan and Braden 1998, 1999, 2001a, 2001b, 2002, Koronkiewicz *et al.* 2004, McLeod *et al.* 2005). The *extimus* subspecies is recognized from other *Empidonax* flycatchers geographically (Unitt 1987) and possibly by coloration (Unitt 1987, Tom Koronkiewicz pers. comm.). Probable factors contributing to their decline are loss of riparian breeding habitat, loss of wintering habitat, nest predation, and brood parasitism by brown-headed cowbirds (Johnson *et al.* 1987, Unitt 1987, Whitfield and Strong 1995, Paradzick *et al.* 1999).

The Bureau of Reclamation (Reclamation) prepared a biological assessment (BA) in 1996 addressing the affects of routine operations and maintenance along the lower Colorado River on threatened and endangered species. That BA was conducted as part of Section 7 consultation for the Endangered Species Act. The U.S. Fish and Wildlife Service reviewed the BA and issued a Biological and Conference Opinion (BO) in 1997. As part of that BO, Reclamation received a reasonable and prudent alternative to conduct surveys for the southwestern willow flycatcher along the lower Colorado River.

In 1996, San Bernardino County Museum and Reclamation began focused surveys for the southwestern willow flycatcher along the lower Colorado River to determine the status and distribution of the population. Currently, SWCA Environmental Consultants is contracted to conduct the southwestern willow flycatcher monitoring and research. Reclamation Biologists monitored surveys in The Pratt Agricultural and Cibola Nature Trail Restoration Demonstration Sites completed under the 1997 BO, in 2005.

## Study Areas

### Cibola Nature Trail Restoration Site

Cibola Nature Trail is located on the Cibola National Wildlife Refuge, southwest of Blythe, California, in Cibola, Arizona. Established in 1964 to offset wildlife and habitat losses due to channelization of the Colorado River, the refuge attracts more than 200 bird species (USFWS 2006). Planted in 1999 utilizing potted plants, the former cornfield contains three distinct habitats: a 5.5-ha mixture of honey mesquite (*Prosopis glandulosa*) and screwbean mesquite (*P. pubescens*), 2.6 ha of Goodding's willow, and 1 ha of Fremont cottonwood. Currently the cottonwood trees are approximately 10 m tall and 9 cm DBH, and the mesquites are 4 m tall and 5 cm DBH (unpubl. data). Refuge personnel flood irrigate the site; however, records are not kept on timing and amounts.

## Pratt Agriculture Restoration Site

Pratt Agriculture restoration site is located upstream from Laguna Dam in Yuma County, Arizona, and managed by The Bureau of Land Management (BLM). The site is located on a 4.9 ha section of a BLM agricultural lease that has been cultivated for at least 50 years by a leaseholder. In 1999, Reclamation planted the restoration site with Fremont cottonwoods, Goodding's willows, and coyote willows using potted plants, seeds, and poles separated into five distinct areas. Potted plants and poles were planted densely, from 5 to 8 feet apart. Seeded areas were planted with cottonwood and willow seed collected locally and broadcast by hand over wet soils. *Baccharus* spp. independently became established in area one (Fig. 1) and *Tamarix* spp. became established in the seeded areas (Fig. 1, section 2). The coyote willow planted in section eight (Fig. 1) has substantially increased in numbers through natural regeneration. The BLM has harvested some plant material in random areas since spring 2000, in order to study how the vegetation re-sprouts. Local farmers flood irrigate the site however, records are not kept on timing and amounts.

## Methods

To elicit responses from willow flycatchers, we broadcast conspecific vocalizations from previously recorded southwestern willow flycatchers. Surveys were performed according to established protocols from Sogge et al, (1997), and Braden and McKernan (1998). All surveyors attended the Arizona Game & Fish Department's southwestern willow flycatcher Training Workshop. Surveyors used a portable LifeSong Bird Call Recorder (Summit Doppler) similar to an MP3 player, with an external speaker. Biologists performed 10 surveys, at least 5 days apart, beginning one-half hour before sunrise and ending by 0900 hours. In 2005, biologists surveyed each habitat area from 17 May to 27 July. Biologists broadcasted willow flycatcher song (*fitz-bew*) and call (*breets*) for 40 seconds, listened 2 minutes for a response, and then moved 30 m to broadcast the vocalizations again. If a willow flycatcher was observed and did not respond to the initial song and call, other territorial calls (*breets*, *creets*, *wee-oos*, *whitts*,) were played. Surveyors recorded all willow flycatchers observed visually and audibly, behavioral activities, and location. If territories were established or pairs observed, nest searches were conducted. Biologists utilized standard detection forms to record observations. The presence of brown-headed cowbirds, livestock, water, and moist soils were noted during all surveys as they may affect the presence of willow flycatchers (McKernan 1997, McKernan and Braden 1998, 1999, 2001a, 2001b, 2002, USFWS 2002, Koronkiewicz *et al.* 2004, McLeod *et al.* 2005).

# Results

## Cibola Nature Trail Restoration Site

Wildlife biologists surveyed the Cibola Nature Trail for 21.43 hours between 18 May and 27 July 2004. Fourteen willow flycatchers were detected in the first five surveys. No willow flycatchers were detected after 18 June. Brown-headed cowbirds were detected during nine surveys. Moist soils were present on 6 June and 21 July; however, standing water was not present during any survey.

## Pratt Agriculture Restoration Site

Wildlife biologists surveyed Pratt for 19.25 hours between 17 May and 26 July 2004. Five willow flycatchers were observed during the first survey. No other willow flycatchers were detected after 18 May. Brown-headed cowbirds were detected during all 10 surveys. Moist soils were present on 22 May and 26 July; however, standing water was not present during any survey.

# Discussion

## Cibola Nature Trail Restoration Site

Willow flycatcher detections have varied since surveys began in 2002. In 2002 there were zero detections recorded, in 2003 there were 3 detections, in 2004 there were 32 detections, and in 2005 there were 14 willow flycatchers detected. In 2005, willow flycatchers were observed in mesquite habitat foraging for insects. Sogge *et al.* (1997) define 22 June as the time in which a singing male willow flycatcher in the Southwest can be identified as the subspecies *extimus*. The latest willow flycatcher detection in 2005 was 18 June, too early to be identified as *extimus* without positive breeding evidence. It is evident that willow flycatchers are utilizing the Nature Trail as a stopover during migration as was historically recognized (Phillips *et al.* 1964, Brown *et al.* 1987, McKernan 1997, McKernan and Braden 1998, 1999, 2001a, 2001b, 2002, Koronkiewicz *et al.* 2004, McLeod *et al.* 2005). However, it appears that the site lacks the necessary requirements for breeding. The use of a colorimeter may help in identifying willow flycatchers to subspecies, particularly because some willow flycatchers have been observed close to the 22 June positive identification date (Tom Koronkiewicz, pers. comm.). Maintaining standing water or at least moist soils must be addressed if breeding southwestern willow flycatchers are to utilize this site. The literature (McKernan 1997, McKernan and Braden 1999, 1998, 2001a, 2001b, 2002, Koronkiewicz *et al.* 2004, McLeod *et al.* 2005) strongly supports

the need for standing water and moist soils for breeding southwestern willow flycatchers. Although willow flycatcher subspecies breed in shrubby habitats away from water, *E. t. extimus* breeds only in dense riparian vegetation near surface water or saturated soil (Finch *et al.* 2000).

## **Pratt Agriculture Restoration Site**

Willow flycatcher detections have remained relatively consistent since 2003. In 2002, 21 flycatchers were observed. Subsequent years had lower numbers (6 in 2003, 6 in 2004, and 5 in 2005). In 2005, all of the willow flycatcher detections occurred during the 17 May survey, as subsequent surveys failed to detect any willow flycatchers present at Pratt. As with the Cibola site, the water issues must be resolved in order to establish breeding flycatchers.

## **Recommendations**

1. Water must be present at the sites during the entire breeding season in order to encourage breeding southwestern willow flycatchers.
2. Require the operator in charge of watering the sites to maintain a watering schedule to include date, time, amount of water released, and depth of water.
3. Modify the datasheets to include a section that requires a notation about soil conditions and standing water during each survey session.

Figure 1. Breeding range of southwestern willow flycatcher (*Empidonax traillii extimus*). Adapted from Unitt (1987).

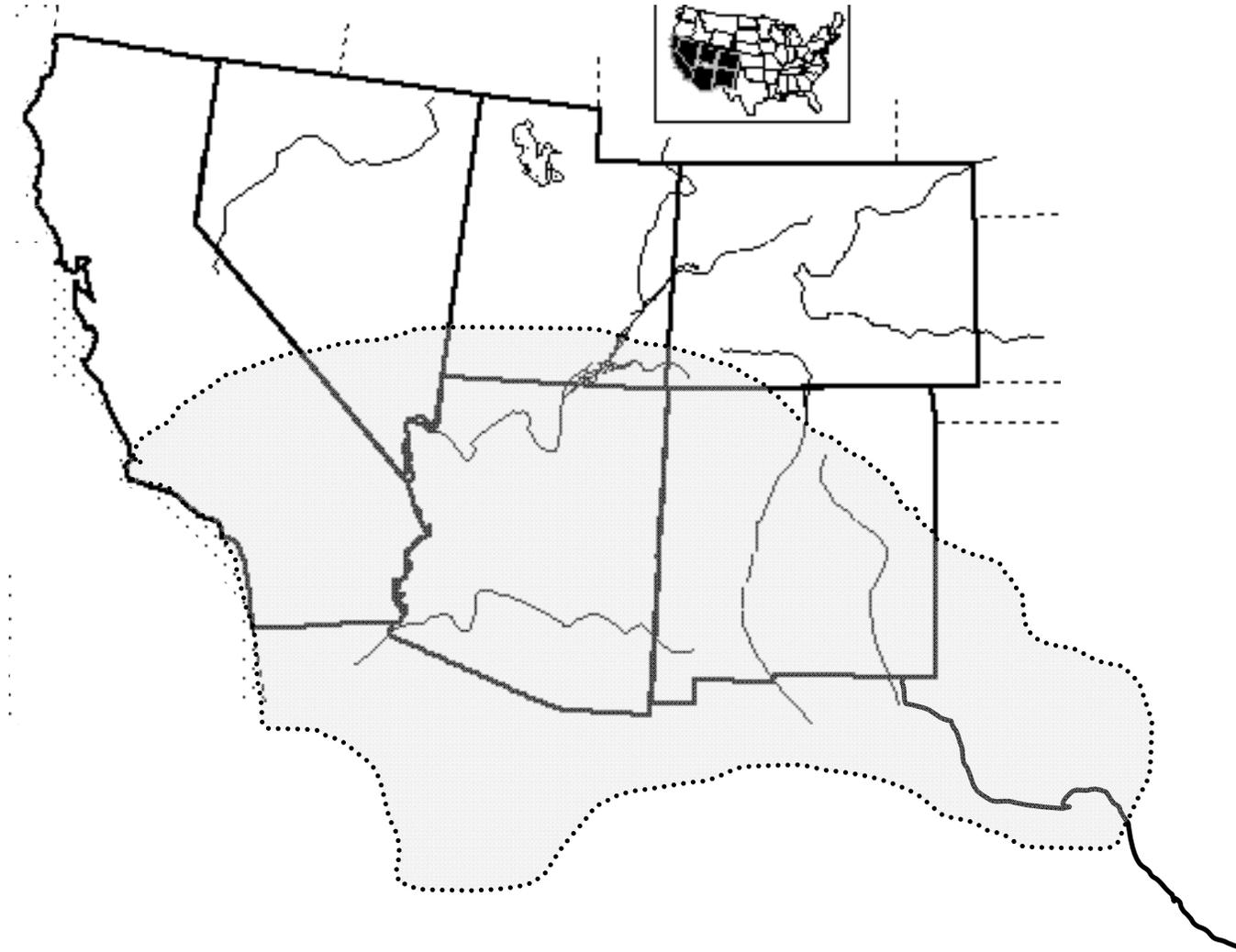


Figure 2. Aerial photo of Cibola Nature Trail Restoration site.

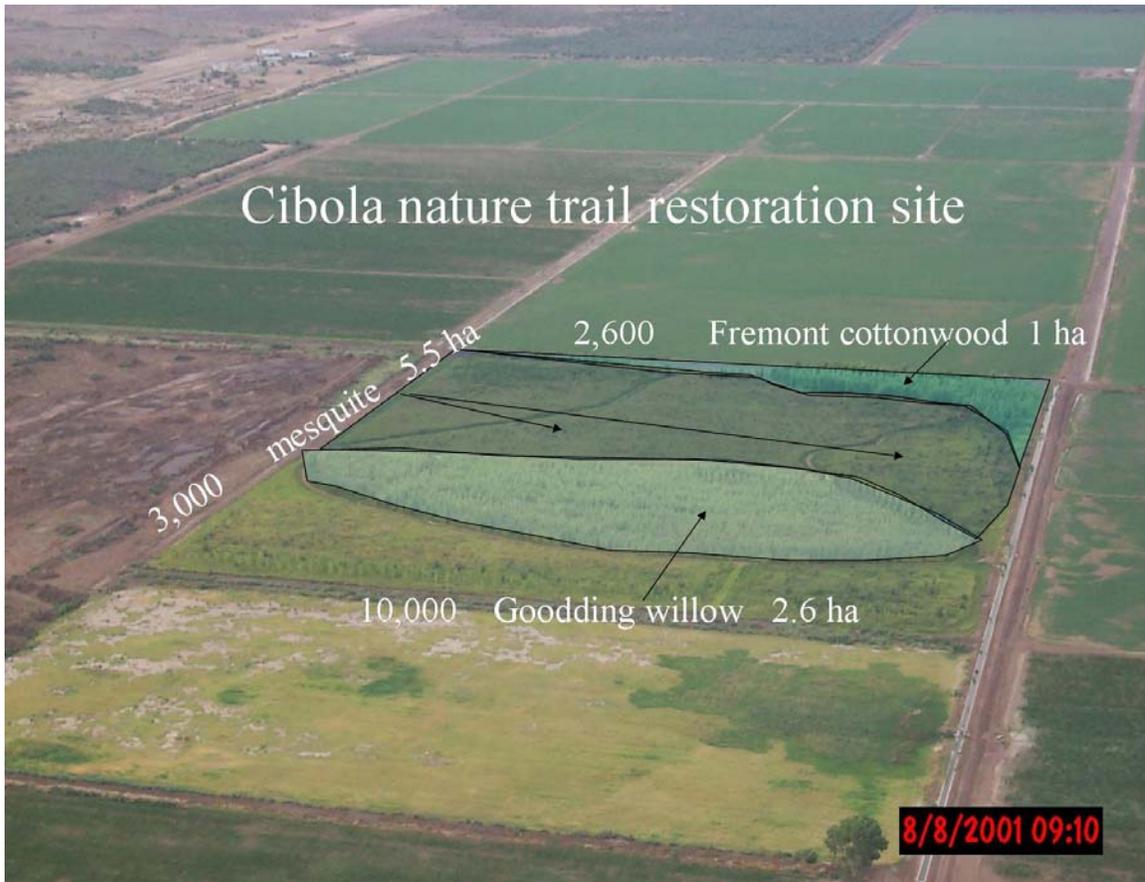


Figure 3. Aerial photo of Pratt Agricultural Restoration Site 1999, sectioned by planting regimes.



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