

## Work Task D2: Southwestern Willow Flycatcher Presence/Absence Surveys

FY09 Estimates	FY09 Actual	Cumulative Accomplishment Through FY09	FY10 Approved Estimate	FY11 Proposed Estimate	FY12 Proposed Estimate	FY13 Proposed Estimate
\$690,000	\$1,274,835.64	\$4,445,162.48	\$650,000	\$675,000	\$700,000	\$700,000

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**Start Date:** FY05

**Expected Duration:** FY55

**Long-term Goal:** System monitoring for southwestern willow flycatcher

**Conservation Measures:** MRM1, MRM2, MRM4 (WIFL)

**Location:** Reaches 1-7 along the LCR, the Virgin River between the Virgin River Gorge and Lake Mead, NPS lands in the Grand Canyon below Separation Canyon, and Pahranaagat NWR. Life history study sites are located at 1) Pahranaagat NWR in east-central Nevada, 2) along the Virgin River at Mesquite, Nevada, 3) along the Virgin River near Mormon Mesa, Nevada, and 4) Topock Marsh, Havasu NWR, Arizona.

**Connections with Other Work Tasks (past and future):** Information gathered under this work task, and under D3, provides data on SWFL population numbers and demographics along the LCR.

**Project Description:** Presence/absence surveys are conducted along the LCR from the Southerly International Boundary with Mexico to Separation Canyon in the Grand Canyon (excluding Hualapai tribal lands), including the lower Virgin River, lower Bill Williams River, and lower Gila River. Life history and cowbird control studies are conducted at four known breeding areas.

**Previous Activities:** Presence/absence surveys and life history studies for SWFL have been conducted along the LCR since 1996.

**FY09 Accomplishments:** Presence/absence surveys were conducted at 71 sites in 15 study areas along the LCR and its tributaries in 2009. Life history studies were conducted at the following sites: Pahranaagat NWR, Nevada; Mesquite, Nevada; Mormon Mesa, Nevada; Muddy River, Nevada; Littlefield, Arizona; Topock Marsh, Arizona; and Bill Williams River NWR, Arizona. Sites were not surveyed in the Grand Canyon in 2009 due to low water and inaccessibility.

Studies included banding, nest monitoring, extensive vegetation analysis, and microclimate analysis. Brown-headed cowbird trapping studies were discontinued after 2007, but information from life history studies was utilized to determine effectiveness of post-trapping.

Willow flycatchers were detected on at least one occasion at 41 sites. Resident, breeding SWFLs were detected at 19 sites within the following study areas: Pahrnagat NWR, Littlefield, Mesquite, Mormon Mesa, Muddy River, Topock Marsh, and Bill Williams River NWR. No flycatcher detections were recorded at any sites south of Bill Williams River NWR after 16 June 2009, and no breeding was confirmed south of Bill Williams River NWR.

During the summer of 2009, the breeding population of flycatchers at Topock Marsh severely declined with only one nesting pair, and one successful nest. Thus, a study and demonstration is being conducted to monitor the hydrology closely underneath the stand and to place additional water underneath a portion of the stand to determine the effects this would have on increasing nesting pairs and potentially successful nests. Pre-monitoring for this study was conducted in 2009.

A total of 25 adult flycatchers were captured in 2009; 17 were new captures, and 8 were banded in previous years and were recaptured at the four life history study areas and at Muddy River and Bill Williams River NWR. An additional 55 adults banded in previous years were resighted. A total of 44 nestlings from 21 nests were banded. Flycatchers were banded opportunistically at Key Pittman Wildlife Management Area and St. George, Utah. Six new adults and a recaptured returning nestling were color banded, and 12 nestlings were also banded at these two areas. A total of 75 territories were recorded with 50 territories consisting of paired flycatchers and 21 consisting of unpaired individuals. Of the 75 adult flycatchers identified in 2008, 41 (55%) were located in 2009. Of the 73 banded juveniles from 2008, 12 (16%) were recaptured and identified in 2009. Four individuals originally banded as nestlings in previous years were identified for the first time in 2009.

Nest success was calculated for 65 SWFL nests. Twenty-three (35%) nests were successful and fledged young, 40 (62%) failed, and 2 were unknown (3%). Depredation was the major cause of nest failure, accounting for 40% of all failed nests and 48% of nests that failed after flycatcher eggs were laid. Brown-headed cowbird brood parasitism was observed in 16 of 56 nests (17%). Overall, although there are additional threats to the breeding habitat along the Virgin River that may affect populations in the future, monitoring has shown that the populations continue to be stable during the 2009 breeding season.

Vegetation and microhabitat data were collected from the territories of the 56 territorial male flycatchers to further define habitat characteristics. Areas that were unoccupied in 2009 but that had been occupied in previous years between 2003 and 2007 were investigated for changes in vegetation or microclimate that may have contributed to

abandonment of some areas. The vegetation data showed a decrease in the proportion of live stems 2.5-8 cm DBH at Mormon Mesa and Topock.

Funding for the FY10 presence/absence studies was obligated in FY09 due to additional funds available.

**FY10 Activities:** Presence/absence SWFL surveys will be conducted at approximately 80-100 sites, in 16 study areas, along the Virgin River, Pahrnagat NWR, and the LCR to the Southerly International Boundary. Grand Canyon below Separation Canyon will be reviewed from the air to determine habitat status. If the habitat has improved, and there is access, this area will once again be surveyed.

Life history studies are being conducted at Pahrnagat NWR, Mesquite, Mormon Mesa, and Topock Marsh. Studies include banding, nest monitoring, vegetation analysis, and microclimate analysis. The brown-headed cowbird trapping study was completed in 2007, but post-trapping data will continue to be collected.

Water will be moved to a subset of formerly occupied SWFL sites at Topock Marsh, and monitoring of hydrology, presence of breeding pairs, and nest success will occur.

A study of the effects of tamarisk beetles on nesting willow flycatcher habitat in the areas of St. George, Utah, and Mormon Mesa, Nevada will be initiated. The tamarisk beetle has been detected defoliating plants in the St. George area, and may be moving south into Nevada. The defoliation caused by the beetle could have detrimental effects to willow flycatcher nesting success in areas where saltcedar is used as nesting habitat. The study will be used to evaluate the possible impact that southward expansion of the beetle's range may have on willow flycatcher populations along the LCR.

**Proposed FY11 Activities:** Reclamation will continue to conduct presence/absence SWFL surveys along the Virgin River, Pahrnagat NWR, and the LCR to the SIB. Grand Canyon below Separation Canyon will be reviewed from the air to determine habitat status. If the habitat has improved and there is access, this area will once again be surveyed.

Life history data will continue to be collected at four sites, including Pahrnagat NWR, Mesquite, Mormon Mesa, and Topock Marsh. Monitoring activities will concentrate on collecting demographic data including banding and nest monitoring, and habitat data including vegetation and microclimate, but at a reduced level from previous efforts. Existing brown-headed cowbird control has been discontinued and post-trap data will be collected and analyzed to determine trapping frequency.

**Pertinent Reports:** *Southwestern Willow Flycatcher Surveys, Demography, and Ecology along the Lower Colorado River and Tributaries, 2009. Annual Report* is posted on the LCR MSCP Web site.