

Work Task D3: Southwestern Willow Flycatcher Habitat Monitoring

FY12 Estimates	FY12 Actual Obligations	Cumulative Expenditures Through FY12	FY13 Approved Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate	FY16 Proposed Estimate
\$90,000	\$111,833.44	\$647,595.21	\$90,000	\$0	\$0	\$0

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Start Date: FY05

Expected Duration: FY12

Long-term Goal: Monitor the effects of reduced flows and the associated reduction in groundwater table, specifically associated with the SIA, on southwestern willow flycatcher breeding habitat between Parker and Imperial dams.

Conservation Measures: MRM1, MRM2 (WIFL).

Location: Reaches 4 and 5, California and Arizona.

Purpose: Monitor SWFL habitat conditions until 5 years after implementation of all water transfers covered under the SIA.

Connections with Other Work Tasks (past and future): This work task, in conjunction with surveys conducted under D2, will provide information necessary for the Existing Habitat Maintenance (H1). Data collected may also be used in future habitat creation projects listed under Section E.

Project Description: In 2001, Reclamation received a BO on the SIA for the change in point of diversion of up to 400,000 acre-feet of water between Imperial and Parker dams. This work is being implemented through the LCR MSCP. Reduced river flows, created by the change in the point of diversion, may affect SWFL breeding habitat located between these two dams.

In 2005, Reclamation began monitoring 372 acres of SWFL breeding habitat to document changes in habitat conditions specifically attributable to covered SIA activities, and will continue to do so until 5 years after implementation of all water transfers covered under the SIA.

In FY12, Reclamation received a letter from the USFWS stating that its obligation under the SIA BO has been fulfilled and habitat below Parker Dam no longer needs to be monitored. This work task was closed FY12.

Previous Activities: In 2004, Reclamation identified 372 acres of SWFL habitat between Parker and Imperial dams to monitor for the SIA BO requirements. In each identified site, three to five temperature/humidity data loggers and one groundwater observation well were installed. Soil moisture measurements were collected at each data logger location during each flycatcher survey period. Vegetation data were also collected after the surveys were completed.

The previously identified 372 acres of SWFL occupied habitat at 11 sites, along with two control sites, were monitored between Parker and Imperial dams by collecting and analyzing microclimate data, groundwater monitoring, and vegetation monitoring, using similar protocols to those in place for the life history studies. Daily, weekly, and seasonal cycles in groundwater levels were apparent. Water levels drop during afternoon hours when evapotranspiration is high and on weekends when water releases from Parker Dam decline. Seasonal cycle in groundwater levels mirrors the seasonal fluctuations in river flow. Analysis of groundwater data indicates a strong correlation between piezometer water levels and releases from Parker Dam. Data did not show strong correlations between piezometer water level and soil moisture within the habitat monitoring sites.

Each site was monitored for temperature, relative humidity, soil moisture, vegetation, and groundwater. In 2011, data were compiled since 2005 and compared across this period. Results were similar to those found in 2010. Comparisons of microclimate characteristics among years in 2005-2011 at the habitat monitoring sites indicated hotter and more humid conditions in 2006, cooler conditions in 2009, less humid conditions in 2010, and declining further in 2011. These inter-annual changes were similar between test and control sites, suggesting that these changes were regional, rather than being influenced by local conditions. The inter-annual changes in soil moisture were not similar between test and control sites, with soil moisture declining more sharply at the control sites from 2005 to 2008 and then rising sharply after 2009. This suggests that local conditions, in addition to regional climate, may have influenced soil moisture. Mean daily temperature range and mean maximum diurnal temperature were higher at test sites but lower at control sites in 2008 versus 2007. These metrics decreased sharply in 2009 and then increased in 2010-2011 at both test and control sites, presumably in response to climate conditions during portions of each summer. Thus, there have not been any consistent patterns in the changes in microclimate characteristics at test versus control sites that could be attributed to changes in river flows.

FY12 Accomplishments: The 372 acres of SWFL breeding habitat between Parker and Imperial dams was monitored by collecting and analyzing microclimate data, groundwater monitoring, and vegetation monitoring utilizing similar protocols as those in place for the life history studies.

After discussions with the USFWS a report was written to demonstrate that further monitoring efforts of the 372 acres for vegetation, microclimate and hydrology are not needed. After consulting with the USFWS it was determined that the 372 acres no longer need to be monitored. These sites are not suitable for SWFL breeding and would not be impacted by reductions in flow due to further diversions as soil moisture at the sites is not currently affected by water levels in the river.

FY13 Activities: Closed in FY12.

Proposed FY14 Activities: Closed in FY12.

Pertinent Reports: *Southwestern Willow Flycatcher Surveys, Demography, and Ecology along the LCR and Tributaries, 2012* will be posted on the LCR MSCP website.