

Work Task D2: Southwestern Willow Flycatcher Presence/Absence Surveys

FY16 Estimates	FY16 Actual Obligations	Cumulative Expenditures Through FY16	FY17 Approved Estimate	FY18 Proposed Estimate	FY19 Proposed Estimate	FY20 Proposed Estimate
\$750,000	\$748,047.05	\$8,382,003.83	\$750,000	\$650,000	\$200,000	\$200,000

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Start Date: FY05

Expected Duration: FY55

Long-Term Goal: System monitoring and post-development monitoring of southwestern willow flycatchers (*Empidonax traillii extimus*) (FY16–17) and system monitoring of southwestern willow flycatchers (FY18–55)

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

Location: Reaches 1–7 along the lower Colorado River (LCR), southern Nevada, lower Bill Williams River, lower Gila River, and the Virgin River between the Virgin River Gorge and Lake Mead. Life history study sites are located along (1) the Virgin River at Mesquite, Nevada, (2) the Virgin River, near Mormon Mesa, Nevada, (3) Topock Marsh on the Havasu National Wildlife Refuge, Arizona, and (4) the Bill Williams River watershed, Arizona.

Purpose: To monitor southwestern willow flycatcher populations along the LCR from the Grand Canyon to the Southerly International Boundary with Mexico, describe demographics, and identify riparian habitat characteristics in locations occupied by the species

Connections with Other Work Tasks (Past and Future): Closed Work Task D3 provided information on southwestern willow flycatcher population numbers and demographics along the LCR. Monitoring of southwestern willow flycatchers will be split into separate work tasks beginning in FY18, with system-wide monitoring continuing under Work Task D2 and post-development monitoring conducted under Work Task F9.

Project Description: Presence surveys are conducted along the LCR from the Southerly International Boundary with Mexico to southern Nevada, including the lower Virgin River, lower Bill Williams River, and the lower Gila River. Life history studies are conducted at known breeding areas.

Previous Activities: Presence surveys and life history studies for southwestern willow flycatchers have been conducted along the LCR since 1996.

FY16 Accomplishments: Presence surveys for southwestern willow flycatchers were conducted at 92 sites along the LCR and its tributaries in FY16, and life history studies were conducted at 42 sites. All LCR MSCP conservation areas were surveyed. System-wide surveys were conducted at Alamo Lake, the Bill Williams River National Wildlife Refuge (Bill Williams River NWR), Meadow Valley Wash, Muddy River, the Pahranaagat National Wildlife Refuge, and Topock Marsh. Surveys were not conducted on the Virgin River due to safety concerns, so efforts were for a third year redirected to Alamo Lake, Arizona, to increase the amount of demographic data collected. Life history study activities included banding, nest monitoring, habitat threat analyses, and microclimate analyses.

A total of 153 southwestern willow flycatchers were detected at 69 of the 92 sites during presence surveys, and 97 territories were documented (table 1). Surveyors confirmed that southwestern willow flycatchers were resident or breeding at 42 of the sites (within 10 study areas): Alamo Lake, the Bill Williams River NWR, Key Pittman, Meadow Valley Wash, Muddy River, the Pahranaagat NWR, the Palo Verde Ecological Reserve, River Ranch, Topock Marsh, and Warm Springs (table 2).

Table 1.—Southwestern Willow Flycatcher Detections

Detection	Number
Total resident adults detected	153
New captures banded	30
Observed but not banded	76
Banded in previous year and recaptured in FY15	16
Banded in previous year and redetected but not recaptured	50
Bird band confirmed – bird identity known	96
Bird band not confirmed – bird identity unknown	19
Total territories	97
Number of confirmed breeding territories	71
Pair with no nest found	2
Unpaired individuals	24
Total nestlings banded	55

Table 2.—Study Areas Where Resident Adult Southwestern Willow Flycatchers were Observed

Study Area	Number of Residents
Alamo Lake	75
Bill Williams River NWR	13
Key Pittman	22
Meadow Valley Wash	7
Muddy River	4
Pahrnagat NWR	23
Palo Verde Ecological Reserve	1
River Ranch	2
Topock Marsh	6
Warm Springs	1
Total	153

One resident southwestern willow flycatcher was observed at LCR MSCP conservation areas in FY16. It was detected at Palo Verde Ecological Reserve Phase 2 in the same general area from June 5 to June 14. The resident was observed defending a territory and engaged in lengthy songs, which were not solicited by call-playback. This is the second year in a row a resident southwestern willow flycatcher has been detected at the Palo Verde Ecological Reserve. In FY15, the resident bird was in phase 4 and was a different individual than the resident bird in FY16.

One willow flycatcher was observed at the Beal Lake Conservation Area on June 28, but no breeding evidence or band was observed; therefore, it could not be confirmed as a southwestern willow flycatcher.

In FY16, life history studies were conducted at Key Pittman, the Pahrnagat NWR, Meadow Valley Wash, Muddy River, Warm Springs, Topock Marsh, the Bill Williams River NWR, and Alamo Lake. Attempts were made to identify, capture, and band all southwestern willow flycatcher adults and nestlings. A total of 30 adult southwestern willow flycatchers were banded, and 50 banded birds from previous years were detected (see table 1).

Nest success was calculated for 91 southwestern willow flycatcher nests that contained flycatcher eggs (table 3). Depredation was the major cause of nest failure (59%). Brown-headed cowbird (*Molothrus ater*) brood parasitism was observed in 1 (1%) of the 91 nests with eggs and nestlings.

Table 3.—Southwestern Willow Flycatcher Nest Success

Detection	Number of Adults
Nest successful and fledged young	35 (39%)
Nest failed	54 (59%)
Nest found empty (no indication of whether the young survived)	2 (2%)

Capture and redetections were compared between FY15 and FY16 at sites monitored in both years (table 4). The distance between yearly sightings for these southwestern willow flycatchers (adults and juveniles) ranged between 0.3 and 227 miles, with a median of 7.5 miles for adults and 0.8 mile for juveniles.

Table 4.—Southwestern Willow Flycatcher Captures and Redetections in FY16 of Birds from FY15 and Previous Years

Age	FY15	Detected Again in FY16	Detected in Different Study Area than Previous Year
Resident adults	88	49 (56%)	3 (6%)
Juveniles	71	11 (15%)	5 (45%)

In 2016, the Bureau of Reclamation continued to develop the southwestern flycatcher portion of the LCR MSCP database; an initial structure was created.

FY17 Activities: Presence surveys for southwestern willow flycatchers will be conducted along the LCR, lower Bill Williams River, and other riparian areas in southern Nevada. Life history studies will be conducted at the riparian areas in southern Nevada, the Bill Williams River NWR, Alamo Lake, and Topock Marsh. Activities will include banding, nest monitoring, and microclimate analyses. Surveys will not be conducted on the Virgin River in 2017. The database developed for the southwestern willow flycatcher studies will be tested using the 2016 dataset. After the data test, the data collected from 2017 field season will be entered into the database. Through this process, the database will be refined and finalized for use in future years. The system-wide and conservation area monitoring locations and the intensity of monitoring (presence surveys and life history studies such as nest monitoring, and microclimate analyses) will be determined for FY18–22.

Proposed FY18 Activities: Surveys for southwestern willow flycatchers will be conducted along the LCR and lower Bill Williams River. This will include surveys on the portion of the river below the Cibola National Wildlife Refuge to the Northerly International Border with Mexico, and they will be conducted once

every 3 years. Monitoring may include life history studies at the Bill Williams River NWR, Alamo Lake, and Topock Marsh, nest monitoring, and microclimate analyses.

Pertinent Reports: The *Southwestern Willow Flycatcher Surveys, Demography, and Ecology along the Lower Colorado River and Tributaries, 2015 Annual Report* is posted on the LCR MSCP Web site. The 2016 annual report will also be posted upon completion.