

Work Task D6: System Monitoring for Riparian Obligate Avian Species

FY14 Estimate	FY14 Actual Obligations	Cumulative Expenditures Through FY14	FY15 Approved Estimate	FY16 Proposed Estimate	FY17 Proposed Estimate	FY18 Proposed Estimate
\$400,000	\$366,627.83	\$2,058,551.10	\$480,000	\$150,000	\$480,000	\$480,000

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Start Date: FY06

Expected Duration: FY55

Long-Term Goal: System monitoring for avian covered species

Conservation Measures: MRM1 and MRM2 (ELOW, GIWO, VEFL, BEVI, YWAR, and SUTA)

Location: LCR MSCP planning area, Bill Williams River, and Virgin River

Purpose: To monitor riparian obligate avian species covered under the LCR MSCP to document long-term population trend and habitat use

Connections with Other Work Tasks (Past and Future): Information obtained through this work task will be used to conduct system monitoring for avian covered species. Data collected during post-development monitoring of habitat conservation areas (F2) may also be used in this work task. Information obtained through this task will also be used in association with Work Task C24 to help define habitat requirements for riparian obligate bird species and Work Tasks D2 (southwestern willow flycatcher) and D7 (yellow-billed cuckoo) that monitor single avian species.

Project Description: Avian habitat along the LCR and Bill Williams River below Alamo Dam will be monitored for Arizona Bell's vireo, elf owl, Gila woodpecker, gilded flicker, Sonoran yellow warbler, summer tanager, and vermilion flycatcher. It is inefficient to monitor all covered species individually throughout the entire LCR MSCP planning area. Many bird populations can be monitored effectively using multi-species survey protocols. Arizona Bell's vireo, Gila woodpecker, gilded flicker, Sonoran yellow warbler, summer tanager, and vermilion flycatcher will be monitored together using standard breeding bird surveys methods. Elf owls will be monitored using a species-specific call playback method. Presence and breeding of the covered species will be documented and analyzed to estimate species' abundance throughout the LCR.

Previous Activities: In FY05–06, surveys for Arizona Bell’s vireo, Gila woodpecker, gilded flicker, Sonoran yellow warbler, summer tanager, and vermilion flycatcher were conducted utilizing random point-count transects. The monitoring protocol was improved in FY07 and became a double sampling rapid/intensive area search protocol, which provided density estimates of the six focal species and other common species within the study area. The double sampling rapid/intensive area search protocol was followed in FY07–13.

Of the six covered species surveyed under this protocol, the Arizona Bell’s vireo and Sonoran yellow warbler have had the largest population sizes within the study area. Summer tanager and Gila woodpecker have been present within the study area, and vermilion flycatcher and gilded flicker have been rarely detected. Gilded flicker have only been detected breeding along the Bill Williams River east of Planet Ranch and have only used the riparian areas as foraging habitat.

Elf owls were monitored during the breeding season from FY08–10. Each year, surveys were conducted at 21 survey sites and 45 single call stations in suitable habitat within the LCR MSCP planning area. Only one elf owl was detected near Blankenship Bend during that 2-year period.

Monitoring methods to improve accuracy and reduce costs continue to be evaluated. Elf owl surveys were stopped after the FY10 season, and an evaluation of the protocol was initiated under Work Task C24. In FY12, the double sampling rapid/intensive area search protocol was improved: 2 weeks were added to the beginning of the field season to more accurately estimate the population of early-nesting species, field crew training was improved, and some processes, such as data analyses, were automated.

In addition, an analysis was conducted from FY11 to FY13 to test the assumption that estimation is unbiased during the intensive area search surveys used to monitor Arizona Bell’s vireo, Gila woodpecker, gilded flicker, Sonoran yellow warbler, summer tanager, and vermilion flycatcher. Twenty-four plots were surveyed using intensive surveys and an enhanced intensive survey. Through the intensive and enhanced intensive effort surveys, new life history information was acquired for many of the riparian species in the project area, including a better understanding of arrival and departure times for migrants, unique calls and songs not previously documented, second clutches and re-nesting attempts, and a better understanding of territory sizes and partial territories.

FY14 Accomplishments: Eighty system-wide plots were surveyed with the double sampling rapid/intensive area search protocol, and 30 plots were surveyed within occupied or previously occupied southwestern willow flycatcher habitat at the Havasu NWR and the Bill Williams River NWR to document riparian species population sizes in areas that may have future tree defoliation by the Tamarisk beetle (*Diorhabda* sp.).

- Rapid surveys — Approximately 184 species were recorded either as territorial breeders, non-territorial breeders, migrants, or non-breeders.
- Intensive surveys — A total of 122 species were recorded either as territorial breeders, non-territorial breeders, migrants, or non-breeders.
- Southwestern willow flycatcher plot surveys – A total of 117 species were recorded as territorial breeders, non-territorial breeders, migrants, or non-breeders. This was the last year the surveys would be conducted within the southwestern willow flycatcher habitat.

The estimated number of territories of focal species in the program area from FY14 are shown in table 1.

Table 1.—Population Estimates for Focal Species in 2014

Focal Species	Population Estimates
Sonoran yellow warbler	2,821
Arizona Bell’s vireo	898
Gila woodpecker	666
Summer tanager	356

There was one breeding gilded flicker detected near Lincoln Ranch along the Bill Williams River. The bird’s territory was mostly outside the plot in upland habitat. The bird was not nesting within the plot but foraging within it. One pair of vermilion flycatcher was detected within the study area within the Giers Basin area. There were not enough pairs of vermilion flycatcher and gilded flicker detected in FY14 to calculate population estimates. Territories of covered species detected during rapid and intensive surveys were digitized using GIS.

The 3-year study to test the assumption of unbiased estimation during intensive area search surveys was completed. Comparing the survey types across all species, on average, the enhanced intensive sampling (complete count) produced 11.2, or 16.5%, additional territories compared to standard intensive sampling. There are many biological reasons that could account for this, including onset of breeding, migration arrival time, detectability throughout the season, territory size, breeding habitat, behavior, and parental care.

FY15 Activities: The study to test the assumption of unbiased estimation during intensive area search surveys and the resulting natural history information and best survey practices will be peer reviewed.

Area searches will be conducted during the breeding season following the double sampling intensive/rapid area search protocol used in previous years. A new set of 80 rapid area search plots will be randomly chosen from the 2010 plots layer using a stratified random sampling design. Two rapid surveys will be conducted per plot during the breeding season. Eight of these plots will be surveyed intensively, with each plot being surveyed eight times during the breeding season.

Proposed FY16 Activities: System-wide surveys will not be conducted in FY16. The protocol will be reviewed in light of the results from study and peer review, and changes will be made, if necessary, to improve the accuracy of the monitoring methods. Surveys will resume in FY17.

Funding is reduced in FY16, as no bird surveys will be conducted.

Pertinent Reports: The report titled *Lower Colorado River Riparian Bird Surveys, 2012* is posted on the LCR MSCP Web site.