

Work Task D6: System Monitoring for Riparian Obligate Avian Species

FY15 Estimates	FY15 Actual Obligations	Cumulative Expenditures Through FY15	FY16 Approved Estimate	FY17 Proposed Estimate	FY18 Proposed Estimate	FY19 Proposed Estimate
\$480,000	\$368,062.30	\$2,316,765.90	\$150,000	\$ 480,000	\$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 and the Bill Williams River

Purpose: To monitor riparian obligate avian species covered under the LCR MSCP in order to document the current population abundance, long-term population trends, habitat use, and distribution within the LCR MSCP planning area and the Bill Williams River

Connections with Other Work Tasks (Past and Future): Data collected during post-development monitoring of habitat conservation areas (F2) may also be used under this work task. Information obtained through this work 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. Information obtained through Work Tasks C24, C36 (closed), and C52 will be used to monitor elf owl and gilded flicker breeding populations within the LCR MSCP area.

Project Description: Riparian habitat along the lower Colorado River and the 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 vireos, Gila woodpeckers, Sonoran yellow warblers, summer tanagers, and vermilion flycatchers will be monitored together using standard

breeding bird survey methods. Elf owls will be monitored using a species-specific call-playback method. The presence and breeding of the covered species will be documented and analyzed to estimate species' distribution and abundance throughout the lower Colorado and Bill Williams Rivers.

Previous Activities: In FY05–06, surveys for Arizona Bell's vireos, Gila woodpeckers, gilded flickers, Sonoran yellow warblers, summer tanagers, and vermilion flycatchers were conducted using random point-count transects. A new double sampling rapid/intensive area search protocol, which provided density estimates of the six focal species and other common species within the study area, was initiated in FY07. Surveys were conducted in the riparian habitat of the lower Colorado and Bill Williams Rivers. In 2013 and 2014, surveys were conducted in the Virgin River in areas occupied or previously occupied by southwestern willow flycatchers.

Of the six covered species surveyed under this protocol, Arizona Bell's vireos and Sonoran yellow warblers have had the largest population sizes within the study area. Summer tanagers and Gila woodpeckers have been present within the study area, and vermilion flycatchers and gilded flickers have been rarely detected. Gilded flickers have only been detected breeding along the Bill Williams River east of Planet Ranch and use the riparian areas as foraging habitat.

Elf owls were monitored during the breeding season from FY08 to FY10. 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 were evaluated in order to improve accuracy and reduce monitoring costs. 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 vireos, Gila woodpeckers, gilded flickers, Sonoran yellow warblers, summer tanagers, and vermilion flycatchers. Twenty-four plots were surveyed using intensive surveys and an enhanced intensive survey. Comparing the survey types across all species, on average, enhanced intensive sampling (complete count) produced 11.2, or 16.5 percent, 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. 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.

FY15 Accomplishments: Eighty system-wide plots were surveyed with the double sampling rapid/intensive area search protocol.

- Rapid surveys — A total of 192 species were recorded either as territorial breeders, non-territorial breeders, migrants, or non-breeders.
- Intensive surveys — A total of 112 species were recorded either as territorial breeders, non-territorial breeders, migrants, or non-breeders.

The estimated number of territories of LCR MSCP covered species in the program area from FY15 are shown in table 1.

Table 1.—Population Estimates for LCR MSCP Covered Species in 2015

Focal Species	Population Estimates
Sonoran yellow warbler	1,721
Arizona Bell's vireo	1,263
Gila woodpecker	829
Summer tanager	221

No vermilion flycatchers were detected in FY15 during surveys conducted under this work task. There were two breeding gilded flicker pairs detected near Lincoln Ranch along the Bill Williams River. The territories were mostly outside the plot in upland habitat. The birds were not nesting within the plot but foraging within it. There were not enough pairs of gilded flickers detected in FY15 to calculate population estimates.

Inconsistencies were found in the 2011–14 population estimates and confidence intervals calculated with the DS statistical software program. Equations were programmed into SAS, a commercial statistical program, and population estimates and confidence intervals for 2011–15 were recalculated for the summary report.

Plot-based vegetation measurements, to identify how habitat characteristics differ from where birds nest and where they do not nest, were not conducted in FY15. This reduced effort resulted in a cost savings in FY15. Light detection and

ranging (LiDAR) vegetation monitoring was found to be a more accurate and less expensive way to assess the differences among vegetation structures. Vegetation monitoring was conducted under Work Task F1.

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 reviews, and changes will be made, if necessary, to system-wide (Work Task D6) and post-development (Work Task F2) avian monitoring to improve the accuracy of monitoring methods and to clarify the monitoring questions the data will inform. A 10-year monitoring plan will be developed. System-wide surveys will resume in FY17.

Proposed FY17 Activities: System-wide surveys will resume in FY17. The protocols will be updated, as needed, following the evaluation in FY16.

Pertinent Reports: The report titled *Lower Colorado River Riparian Bird Surveys, 2013* is posted on the LCR MSCP Web site.