

Work Task D6: System Monitoring for Riparian Obligate Avian Species

FY16 Estimates	FY16 Actual Obligations	Cumulative Expenditures Through FY16	FY17 Approved Estimate	FY18 Proposed Estimate	FY19 Proposed Estimate	FY20 Proposed Estimate
\$150,000	\$152,057.03	\$2,614,069.00	\$480,000	\$ 480,000	\$480,000	\$400,000

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Start Date: FY06

Expected Duration: FY55

Long-Term Goal: System monitoring for avian covered species

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

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 [*Empidonax traillii extimus*]) and D7 (yellow-billed cuckoo [*Coccyzus americanus occidentalis*]) that monitor single avian species. Information obtained through Work Tasks C24, C36 (closed), and C52 will be used to monitor elf owl (*Micrathene whitneyi*) and gilded flicker (*Colaptes chrysoides*) breeding populations within the LCR MSCP planning 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 (*Vireo bellii arizonae*), elf owl, Gila woodpecker (*Melanerpes uropygialis*), gilded flicker, Sonoran yellow warbler (*Dendroica petechia sonorana* = *Setophaga petechia sonorana*), summer tanager (*Piranga rubra*), and vermilion flycatcher (*Pyrocephalus rubinus*). 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 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 using this protocol were conducted in the riparian habitat of the lower Colorado and Bill Williams Rivers from FY07 to FY15.

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 they 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 3-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 Tasks C24 and C36 (closed). 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 entry and 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%, 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 renesting attempts, and a better understanding of territory sizes and partial territories.

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.

FY16 Accomplishments: Data and record management activities continued, and the 2011–15 summary report was drafted. No system-wide surveys were conducted in FY16. An evaluation of the monitoring protocol was initiated to clarify the monitoring questions the data will inform and to improve the accuracy of monitoring methods.

FY17 Activities: System-wide surveys will not be conducted in FY17. The 2011–15 summary report will be finalized, and data and record management activities will continue. The evaluation of the monitoring protocol for Work Tasks D6 and F2 will continue to ensure that monitoring methods and statistical analyses are meeting the LCR MSCP objectives and budgetary targets for the next 10 years. A 10-year monitoring plan will be developed.

FY17 expenditures are expected to be less than approved, as system-wide surveys will not be conducted.

Proposed FY18 Activities: The 10-year monitoring plan will be completed with updated protocols. A performance work statement for system-wide monitoring will be prepared, and data and record management activities will continue. System-wide monitoring will resume in FY19, and funding is expected to be obligated in FY18.

Pertinent Reports: The report titled *Lower Colorado River Riparian Bird Surveys, 2014* is posted on the LCR MSCP Web site. The 2105 annual report and 2011–2015 summary report will also be posted upon completion.