

Work Task D6: System Monitoring for Riparian Obligate Avian Species

FY13 Estimate	FY13 Actual Obligations	Cumulative Expenditures Through FY13	FY14 Approved Estimate	FY15 Proposed Estimate	FY16 Proposed Estimate	FY17 Proposed Estimate
\$400,000	\$204,049.07	\$1,610,736.34	\$400,000	\$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, MRM2 (Gila woodpecker, Vermilion flycatcher, Arizona Bell's vireo, yellow warbler, summer tanager)

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

Purpose: 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 work task will also be used in association with C24 to help define habitat requirements for riparian obligate bird species. Information obtained through this work task will be used in work tasks D2, D7 and D13 that monitor single avian species (southwestern willow flycatcher, yellow-billed cuckoo and elf owl).

Project Description: The LCR MSCP includes nine neo-tropical migratory bird species. It is inefficient to monitor every covered species individually throughout the entire LCR MSCP planning area. Many bird populations can be monitored effectively using multi-species survey protocols. The six LCR MSCP covered species are gilded flicker, Gila woodpecker, summer tanager, vermilion flycatcher, Sonoran yellow warbler, and Arizona Bell's vireo. Avian system monitoring protocols have been developed that can incorporate data into a coordinated bird monitoring network. Data from the LCR can be incorporated into a larger, regional database, which makes the data more powerful during analysis. Population trends can be derived over time, thus enabling Reclamation to monitor existing avian populations. The avian multi-species protocol described below is designed to monitor six LCR MSCP covered species as well as non-covered neo-tropical migratory bird species. The study area includes riparian habitat within the LCR MSCP

planning area and the Bill Williams River from the confluence of Lake Havasu east to Alamo Lake.

Single-species surveys for the elf owl are necessary due to the nocturnal nature of this species and its rarity along the LCR. Beginning in FY2013 elf owl system wide monitoring will be under a separate work task (D13).

Previous Activities:

Multi-Species Bird Surveys. In FY05-FY06, surveys were conducted utilizing random point-count transects. The monitoring protocol was improved in FY07 to a double sampling rapid/intensive area search protocol to provide density estimates of the six focal species and other common species within the study area. System-wide avian monitoring was conducted during the FY07-FY10 breeding seasons utilizing the double sampling technique. Products created were a study plan, a GIS layer with approximately 9000 plots delineated within the study area and associated user guide, final versions of the DS and power programs with user guides, and a report summarizing system wide monitoring from FY08-FY10.

In FY11 and FY12, monitoring on habitat conservation areas and system-wide sites continued according to the sampling plan and field protocol developed in 2010 with the following improvements: In FY12, a more extensive data management protocol was implemented to improve the management and quality of the data, allow the data to be directly uploaded to the MSCP database, automate data analysis, and transfer files to the DS program. Two weeks were added to the beginning on the field season to more accurately estimate the population of early-nesting species. Changes were also made to improve crew training and add additional management oversight.

A three year study was initiated to test the assumption of unbiased estimation during intensive area search surveys in FY11. The three goals of the study were: 1) evaluate the assumption that unbiased estimates are being obtained during intensive area search surveys; 2) estimated the average error rate being made during intensive area search surveys and determine if differences in error rate exist between species or habitats; and 3) suggest improvements to intensive area search survey methods to achieve higher accuracy, if any are needed.

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. Moderate populations of summer tanagers and Gila woodpeckers have been present within the study area. The vermilion flycatcher and gilded flicker have been rarely detected. The gilded flicker has only been detected breeding along the Bill Williams River east of Planet Ranch and has only used the riparian areas as foraging habitat.

Elf Owl Surveys. Twenty-one survey sites and 45 single call stations in suitable habitat in the LCR MSCP planning area were surveyed for elf owls in FY08-FY10. Suitable habitat was defined as historical locations, incidental sightings, and HMIII, CWI, and CWII habitat. Surveys were conducted from 27 March to 1 May of each year, and used a

tape-playback presence-absence survey protocol. One elf owl was detected near Blankenship Bend.

FY13 Accomplishments:

Multi-Species Bird Surveys. System wide surveys were conducted according to the field protocol used in FY11-FY12. In FY13, 80 plots were surveyed.

- System-wide rapid surveys — Approximately, 170 species were recorded either as territorial breeders, non-territorial breeders, or migrants or non-breeders. Many species were detected breeding at some survey plots but were non-breeders at other survey plots.
- System-wide intensive surveys — A total of 134 species were recorded. Of these, 28 species were territorial breeders, nine non-territorial species, and 97 were migrants or non-breeders. Over 400 pairs of territorial breeders were detected.

The population estimates for the number of territories of focal species in the study area from FY13 are shown in Table 1.

Table 1. Population estimates for focal species in 2013.

Focal Species	Population estimates
Sonoran yellow warbler	1,320
Arizona Bell's vireo	1,295
Gila woodpecker	567
summer tanager	181

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 it was foraging within the plot. Two pairs of vermilion flycatchers were detected within the study area. There were not enough pairs of the vermilion flycatcher and gilded flicker detected in FY13 to calculate population estimates. Territories of covered species detected during rapid and intensive surveys were delineated into GIS.

Field surveys for three-year study to test the assumption of unbiased estimation during intensive area search surveys were completed. Eight plots were surveyed. Data were analyzed. Natural history information and best practices for obtaining accurate bird counts on the intensive surveys were written up for each species.

Improvements were made to the data forms created in FY12 to improve efficiency and quality control during data entry. Additional queries were created for data analysis.

The first year of general bird surveys within occupied or previously occupied southwestern willow flycatcher habitat on the Virgin River, and at the Havasu and Bill Williams NWR was conducted in FY13. The purpose of these surveys was to determine what species of birds breed in southwestern willow flycatcher habitat and to document the effect the invasion of the salt cedar beetle has on the different species. Thirty plots at the Virgin River and 30 plots at the Havasu and the Bill Williams NWR were randomly selected. The selected plots will serve as permanent survey plots. Rapid surveys were conducted on all plots during the same time frame and using the same methods as described for the other system wide plots. At the Virgin River, 82 species were recorded. Of these, 26 were territorial breeders, and 60 were migrants or non-breeders. For the territorial breeders over 800 pairs were detected breeding. At the Havasu and Bill Williams NWR 184 species were recorded. Of these, 48 were territorial breeders and 136 were migrants or non-breeders. For the territorial breeders over 1500 pairs were detected breeding.

FY13 obligations were less than approved because funds were obligated in advance in FY12.

FY14 Activities:

Multi-Species Bird Surveys. The results from 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 completed and peer reviewed. Some minor improvements will be made to the data forms and queries. Naming conventions (area, site, and section) will be assigned to all (approximately 9000) bird survey plots in the 2010 GIS layer.

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.

The same 60 plots in the southwestern willow flycatcher habitat at the Virgin River and the Havasu and Bill William NWR selected in FY13 will be surveyed.

Proposed FY15 Activities: System-wide area search surveys for riparian obligate species including the six focal species will continue in FY15. Area searches will be conducted during the breeding season of FY15 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. Bird surveys in the southwestern flycatcher habitat will continue.

Funding increases will occur in FY15 and continue through FY17 to conduct surveys for riparian obligate avian species in southwestern willow flycatcher habitat and additional report writing and analysis that will go into the 5-year summary report.

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