Work Task D6: System Monitoring for Riparian Obligate Avian Species

FY12 Estimate	FY12 Actual Obligations	Cumulative Expenditures Through FY12	FY13 Approved Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate	FY16 Proposed Estimate
$280,000	$465,205.66	$1,338,781.77	$400,000	$400,000	$400,000	$400,000

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Start Date: FY06

Expected Duration: FY55

Long-term Goal: System monitoring for avian covered species

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

Location: System-wide

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 (SWFL, YBCU and ELOW).

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.

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.

Previous Activities:

Multi-Species Bird Surveys. In 2005-06, existing vegetation, characterized using the Anderson and Ohmart classification system, was stratified and random point-count transects were established and conducted. After reviewing data collected during the 2005-06 breeding seasons, the monitoring plan shifted to a double sampling technique in 2007. System-wide avian monitoring was conducted during the 2007-2011 breeding seasons utilizing a double sampling rapid/intensive area search protocol. This protocol was utilized to provide density estimates of the six focal species and other common species in the LCR MSCP planning area.

In 2010, a final project report was written for system wide monitoring from 2008-2010 during the study plan and field protocol development stage. In 2011, monitoring continued according to the final sampling plan and field protocol developed in 2010.

A three year study was initiated to test the assumption of unbiased estimation during intensive area search surveys in 2011. 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; 3) suggest improvements to intensive area search survey methods to achieve higher accuracy, if any are needed.

Elf Owl Surveys. Twenty-one survey sites and 45 single call stations in suitable habitat in the LCR MSCP planning area were selected to be surveyed for elf owls in 2008-2010. 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.

FY12 Accomplishments:

Multi-Species Bird Surveys. Funds were pre-obligated for work expected in FY13; thus, FY13 obligations should decrease. System wide surveys were conducted according to the final sampling plan and following the same sampling field protocol used in 2007-2011. In 2012, 80 plots were randomly selected, using the 2010 GIS plots layer. Each rapid area search plot was surveyed twice in 2011; one plot was surveyed between early-April and mid-May and the other plot was surveyed between mid-May and Mid-June. A random subsample of eight plots was surveyed intensively to determine actual numbers of breeding birds present in each plot. Each intensive area search plot was surveyed eight times between 1 April and 16 June 2011. Data from intensive surveys and rapid surveys were combined to provide detection ratios and density estimates for the six focal species and other common species in the LCR MSCP planning area for FY12. In 2012, the

season started one to two weeks earlier than the previous years but ended at the same time. This change was made to more accurately estimate the population of early-nesting species. Changes were made to improve crew training and add additional management oversight.

During system-wide rapid surveys in FY12, 161 species were recorded. Of these, 88 species were territorial breeders, 11 were non-territorial breeders and 126 were migrants or non-breeders. During system-wide intensive surveys, 141 species were recorded. Of these, 31 species were territorial breeders, 6 non-territorial species, and 44 were migrants or non-breeders. The population estimates for the number of territories of focal species in the LCR MSCP planning area from 2012 were: 1) Arizona Bell's vireo (1069), 2) Sonoran yellow warbler (717), 3) Gila woodpecker (402), 4) summer tanager (199), and 5) Vermilion flycatcher (0). There was one breeding gilded flicker detected near Alamo Lake, in 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.

In FY12, a more extensive data management protocol was implemented to improve the management and quality of the data. Data forms in Microsoft Access were created for data input for the project and tested during the field season. All FY12 data was entered into these forms. These data forms improved the quality of the data and allow the data to be directly uploaded to the MSCP data base. Queries were created within the data forms to automate data analysis and transfer files to the DS program.

The second year of a study to test the assumption of unbiased estimation during intensive area search surveys was completed. Eight plots were surveyed to contribute to a 3 year total sample size of 24 plots. The two years of data collected so far shows that estimation rates during intensive studies for the majority of riparian obligate birds are between 70 to 100%. The Gila woodpecker, Sonoran yellow warbler and Arizona Bell's vireo show rates that are between 83% and 98%.

Elf Owl Surveys. No system-wide surveys for elf owls were conducted in 2012 while protocols were developed under C36.

FY13 Activities:

Multi-Species Bird Surveys. 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 third year of the study to test the assumption of unbiased estimation during intensive area search surveys will be implemented and recommendations to improve survey methods will be made.

Bird surveys will be initiated in SWFL breeding habitat at sites such as Mormon Mesa, Overton WMA Topock Marsh and the Bill Williams in order to determine potential effects of beetles on breeding populations of LCR MSCP species before the beetles arrive in the lower river valley. The surveys would be conducted using the same methodology used for system-wide riparian surveys. In order to minimize excess disturbance of any breeding taking place at the sites we would limit surveys to rapid surveys within SWFL habitat so that only 2 surveys would be conducted. The rapid survey data from the SWFL sites could then be compared to the data collected as part of the system-wide effort to calculate a density estimate of the riparian bird species present at SWFL breeding sites. Sixty plots will be surveyed using rapid area searches; 30 plots will be selected from SWFL sites on the Virgin River and 30 plots will be selected from SWFL sites in Topock Marsh and the Bill Williams NWR.

Proposed FY14 Activities: System-wide area search surveys for riparian obligate species including the six focal species will continue in FY14. Area searches will be conducted during the breeding season of FY14 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 SWFL habitat will continue.

Pertinent Reports: *Report on the Lower Colorado River Riparian Bird Surveys 2011,* and *A Sampling Plan for Riparian Birds of the Lower Colorado River—Final Report* are posted on the LCR MSCP website.