

## Work Task D6: System Monitoring for Riparian Obligate Avian Species

FY07 Estimates	FY07 Actual	Cumulative Accomplishment Through FY07	FY08 Approved Estimate	FY09 Proposed Estimate	FY10 Proposed Estimate	FY11 Proposed Estimate
\$100,000	\$177,773	\$336,734	\$135,000	\$135,000	\$135,000	\$135,000

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**Start Date:** FY06

**Expected Duration:** FY55

**Long-term Goal:** System monitoring for avian covered species.

**Conservation Measures:** MRM1 and MRM2.

**Location:** System-wide.

**Purpose:** Monitor riparian obligate bird species covered under the LCR MSCP to document long-term population trend and habitat use.

**Connections with Other Work Tasks (past and future):** Sample transects, completed under C18, were used to design this monitoring program. Information obtained through this work task will be used in conjunction with data from D5 to conduct system monitoring for avian covered species. Data collected during post-development monitoring of habitat creation sites listed in Section E may also be used in this work task.

**Project Description:** The LCR MSCP includes conservation measures for 26 covered species and 5 evaluation species, including 9 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.

Avian system monitoring protocols have been developed that can incorporate data into a coordinated bird monitoring network with other entities, including GBBO, USGS, and other state and federal agencies. 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.

**Previous Activities:** In FY05-06, existing vegetation, characterized using the Anderson and Ohmart classification system, was stratified and random point-count transects were established and conducted.

**FY07 Accomplishments:** After reviewing data collected during the 2005-06 breeding seasons, a monitoring plan was finalized in 2007. A double sampling rapid/intensive area search protocol was utilized. One hundred and sixty rapid area search plots were randomly chosen using a stratified random sampling design. Strata were defined as region-class combinations using 6 classes and 13 regions. Eighty-eight rapid area search plots were surveyed once in May. Fifteen intensive survey plots were randomly selected from the rapid survey plots. All fifteen plots were surveyed once per week throughout June. Habitat measurements were taken in the intensive plots, with points being evenly distributed in a grid pattern throughout each plot. At each point, the substrate (including the herbaceous layer) and up to three 1-meter diameter vertical zones were described. Habitat data was collected at 650 points on 15 plots.

During rapid surveys, 4,720 individuals, comprising 137 species, were recorded. During intensive surveys, 697 individuals, from 49 species, were recorded. The overall detection rate was calculated at 1.03. Rates for individual species varied widely but statistical analysis indicated that differences could have been caused by sampling error alone. Population sizes were estimated for focal species and other common species in the LCR study area. Population densities were estimated for each covered species encountered, including Gila woodpecker (90 birds/km<sup>2</sup>) Bell's vireo (462 birds/km<sup>2</sup>), summer tanagers (73 birds/km<sup>2</sup>), and yellow warbler (432 birds/km<sup>2</sup>). A draft report was written for the 2007 system-wide riparian bird surveys.

In FY07, costs for this project exceeded anticipated costs due to increased costs associated with intensive surveys protocols and analysis. In FY08, an agreement has been signed with Great Basin Bird Observatory to combine system monitoring, post-development monitoring, and habitat suitability modeling to more efficiently manage avian monitoring programs.

**FY08 Activities:** The draft 2007 annual report for system-wide bird surveys along the LCR was finalized in February 2008. The second year of system monitoring for avian species will begin in May 2008. One hundred and sixty rapid area search plots have been selected using a stratified random design. Rapid area searches on all 160 plots will be completed in May. Each intensive area search plot will be surveyed 1-2 times per week in June. Habitat measurements within covered species territories will be collected and analyzed. Data will be entered in a database and analyzed, and a draft report completed.

**Proposed FY09 Activities:** Rapid and intensive area search surveys and habitat surveys will begin in May 2009. Data will be entered in a database, analyzed, and a draft report on 2009 system avian monitoring will be completed.

**Pertinent Reports:** The study design is available upon request from the LCR MSCP. The 2007 annual report will be posted on the LCR MSCP Web site.