

Work Task G1: Data Management

FY13 Estimates	FY13 Actual Obligations	Cumulative Expenditures Through FY13	FY14 Approved Estimate	FY15 Proposed Estimate	FY16 Proposed Estimate	FY17 Proposed Estimate
\$950,000	\$735,993.97	\$3,018,635.08	\$800,000	\$850,000	\$850,000	\$850,000

Contact: Sonja Kokos, (702) 293-8033, skokos@usbr.gov

Start Date: FY07

Expected Duration: FY55

Long-term Goal: Data management will be an ongoing task for species research, system monitoring, habitat creation, post-development monitoring, and habitat maintenance programs.

Conservation Measures: All.

Location: Program-wide.

Purpose: Develop and maintain an accessible, multi-disciplinary, spatially referenced, relational database to consolidate, organize, document, store, and distribute scientific information related to the LCR MSCP.

Connections with Other Work Tasks (past and future): Database management is integral in the successful completion of work tasks undertaken for Fish Augmentation (Section B), Species Research (Section C), System Monitoring (Section D), Habitat Creation (Section E), Post-Development Monitoring (Section F), Adaptive Management (Section G), and Habitat Maintenance (Section H).

Project Description: This project provides data management and GIS staff support to manage all aspects of the program related to the database, data collection, applications development, and software management. To fully implement the LCR MSCP, a database management system is being developed to manage data collected through the species research, system monitoring, habitat creation, post-development monitoring, adaptive management, and habitat maintenance programs. Database design, initial implementation, and maintenance are funded through this work task.

Previous Activities: Hardware was purchased to increase data storage for the implementation of the centralized database. The intranet/document/calendar (SharePoint) management system was maintained and modified, for future needs of the LCR MSCP. Implementation of remote data collection from field data loggers began at Beal Lake for the fish program. The automatic collection of remote data into a centralized database allows for the secure transmission of data with integrated quality control to support mission critical projects. The native fish augmentation database was maintained.

Database design and implementation of a centralized Database Management System (DBMS) was completed. The planning and acquisition of data modules for the LCR MSCP centralized database have been completed. All data modules will be phased in according to priority for the implementation of the HCP. Data modules consist of an application for input of data (data entry) that is standardized for input into the centralized LCR MSCP Database. On an annual phased approach all standardized projects will be incorporated into the database.

The Minckley Library project was completed in March of FY12. The library is now available as searchable database housing over 11,000 total documents. Documents include a variety of literature types and were digitized and organized using bibliographic software. Error checking was performed to ensure consistency and accuracy when accessing the database, and individual electronic copies of all documents have been received and serve as a backup to the database.

The new LCR MSCP website was completed. The native fish database continued to be maintained. The intranet/document/calendar management system (SharePoint 2010) was upgraded. The LCR MSCP data management requirements document was drafted to provide standards for metadata to contractors.

It was determined in FY12 that the entire planning area needed to be delineated in terms of standardizing locations where data collection would be conducted using past and present site naming conventions. This delineation was completed in June of 2012, and will be updated as needed throughout the Program term. Developed and deployed data structures and MS Access forms for Bird Monitoring for 2012 collection protocols. The data structures and MS Access forms for the 2011 and 2012 Vegetation Monitoring data collection protocols were revised.

Revised master LCR MSCP Database to reflect current schema environment and built collection data import process. Developed and maintained Developer program and project documentation. Developed and deployed FTP protocols for LCR MSCP form deployment and contractor data retrieval. Assisted Contractors and Project Managers in the development of quality assurance queries and reporting.

Mobile data loggers and software for collection of data in the field was acquired. These units standardize all data collection across LCR MSCP projects and programs. Development of mobile electronic field forms/data dictionaries to collect data while in the field were implemented. The development of remote sensing data collection from field data loggers will continue.

FY13 Accomplishments: Limited funds were expended under this work task due to budget constraints and contracting delays of several projects that were targeted for mapping the data collection process and development of mobile electronic field forms (MEFF). The native fish augmentation database continued to be maintained. Update and maintenance of the LCR MSCP website continued. The development of specific data modules continued. Incorporation of completed data modules, and quality assured and quality controlled data continued. Continued to support current MS Access forms, queries

and reports as needed. Purchase of MEFFs GPS devices, and supporting software were completed. Two training sessions were conducted for MSCP staff on GIS and MEFF GPS devices.

Developed and tested MEFFs for the following projects: southwestern willow flycatcher (D2, D3 and F2), Colorado River/Yuma hispid cotton rats (D10 and F3) and demographic studies (C27), bat surveys and research (C35, D9 and F4), and vegetation monitoring (F1). The pilot vegetation forms were developed and tested throughout FY13 and into FY14 for full implementation in fall 2014. Six draft MEFFs were developed for specific activities under the southwestern willow flycatcher projects. Support for purchase of mobile electronic field forms (MEFFs) GPS devices, and supporting software was completed for selected projects.

Continued maintenance of the LCR MSCP Database; location, species, project related reference tables and utility procedures to centralize processing of project data with emphasis on support of MEFFs needs (e.g. MEFF Locations Codes, etc.). Designed, built and tested database schemas and data/photo import/conversion code in support of the MEFFs for vegetation monitoring and bat monitoring. Continued support of MS Access data entry forms which includes form and code updates, data merging, internal quality queries and assistance in the design and creation of contractor required queries for vegetation monitoring and avian system-wide surveys. Development of quality assurance for the SQL database with full audit trail capabilities began.

The development and support of remote and continuous data collection from data loggers continued. An external SharePoint site for DOI internal and external users for use of contracts and data flow was developed. The LCR MSCP Data Management Plan was drafted.

FY14 Activities: The native fish augmentation database and LCR MSCP website continues to be maintained. The planning, acquisition, and data modules for the LCR MSCP centralized database is ongoing. Update and maintenance of the LCR MSCP website continues. The development of the LCR MSCP Data Management Plan will be finalized and implemented. LIDAR acquisition for selected conservation areas will occur in FY14.

Review of the remaining southwestern willow flycatcher data collection processes, and remaining MEFFs will be developed and tested with project coordinator and contractor. Develop, maintain, update and test existing MEFFs for the following projects: southwestern willow flycatcher (D2, D3 and F2), Colorado River/Yuma hispid cotton rats (D10 and F3) and demographic studies (C27), bat surveys and research (C35, D9 and F4), and vegetation monitoring (F1). Support for purchase of mobile electronic field forms (MEFFs) GPS devices, and supporting software will continue.

Develop, test, and implement MEFFs for the following monitoring projects for the following projects: yellow-billed cuckoo (D7 and F2), elf owl (C24), gilded flicker (C52), MacNeill's sootywing (F6), and Colorado River toad (C62 and D12), lowland leopard frog (C62 and D12).

Evaluation of fish projects for inclusion into the LCR MSCP data management process will begin in FY14. This includes development of program wide standards for data collection, documentation of data collection processes in the field, and automating data collection using mobile devices. This ensures collected data is consistent regardless of who is collecting the data. Maintenance of the fish augmentation database will continue with other fish project data modules being constructed following standardization of individual projects.

Proposed FY15 Activities: Continue to develop new MEFF for project and/or update existing MEFFs. Additionally search for and test more advanced methods of electronic field data collection methods. Continue maintenance of the LCR MSCP Database. LIDAR acquisition will continue in FY15.

Design and build database schemas and data import/conversion code in support of the MEFFs for the following monitoring projects: Colorado River/Yuma hispid cotton rats (D10 and F3) and demographic studies (C27), southwestern willow flycatcher (D2, D3 and F2), yellow-billed cuckoo (D7 and F2), elf owl (C24), gilded flicker (C52), MacNeill's sootywing (F6), Colorado River toad (C62 and D12), lowland leopard frog (C62 and D12), bat surveys and research (C35, D9 and F4), and if time allows, fish surveys (F5) and research.

Specific fish projects will be identified for development and testing of MEFFs in the field. Maintenance of the fish augmentation database will continue with other fish project data modules being constructed following standardization of individual projects.

Continue efforts to provision software to provide access of MSCP SQL Database tables to project coordinators. Continue efforts on the import/conversion process from raw data to be imported into the MSCP SQL Database. Design, build and test a quality assurance procedure that provides the necessary audit trails from raw field data to final production data.

Pertinent Reports: N/A