

Work Task D9: System Monitoring and Research of Covered Bat Species

FY14 Estimate	FY14 Actual Obligations	Cumulative Expenditures Through FY14	FY15 Approved Estimate	FY16 Proposed Estimate	FY17 Proposed Estimate	FY18 Proposed Estimate
\$375,000	\$387,326.01	\$1,223,490.26	\$380,000	\$390,000	\$190,000	\$190,000

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Start Date: FY04

Expected Duration: FY55

Long-Term Goal: System monitoring and species research will be conducted for LCR MSCP bat species to monitor distribution and to evaluate habitat implementation success

Conservation Measures: MRM1 (WRBA, WYBA, CLNB, and PTBB), WRBA1, and WYBA1

Location: System-wide along the LCR below Hoover Dam

Purpose: To conduct system monitoring and research on the distribution of covered bat species utilizing roost surveys, acoustic survey techniques, and capture techniques

Connections with Other Work Tasks (Past and Future): System monitoring data will be used in conjunction with post-development monitoring (F4) to document habitat use of covered bat species.

Project Description: Several survey techniques will be utilized to detect the presence of covered and evaluation bat species. Acoustic surveys will be used to document the presence of covered and evaluation bat species in existing riparian habitat. Roost surveys will be conducted to track bat populations and to survey species such as the Townsend's big-eared bat and California leaf-nosed bat, which are not readily detected by acoustic technology. Individual bats will be captured using techniques such as mist netting to obtain reference calls for bat identification and to verify reproductive status.

Previous Activities: An LCR bat monitoring protocol was produced to assist in the development of a system-wide distribution and demography monitoring plan for covered bat species. A system-wide acoustic monitoring program was implemented that coordinated the collection and analyses of acoustic bat data

for system-wide monitoring of the LCR. Four permanent acoustic monitoring stations were placed along the river and are providing year-round data on bat species presence at the monitoring sites.

FY14 Accomplishments: The four permanent acoustic monitoring stations continued to operate year round recording presence data. A fifth station was added at the Havasu NWR. Acoustic monitoring and data analysis methods were reviewed, and it was recommended that: (1) data analyses be limited to only the two covered and two evaluation species, as collecting data on other species would not inform LCR MSCP species presence and habitat requirements, (2) a sampled approach be used during the winter and summer peak activity time periods instead of year-round data collection, as that data will be sufficient to document species presence, and (3) data analyses be focused on presence only, as the five sampling locations and acoustic methods do not provide enough information to monitor absence, population trends, or habitat characteristics.

California leaf-nosed and Townsends big-eared bat roost outflight counts were conducted in the winter and early summer at 17 mines along the LCR. Based on the roost outflight counts, populations at these roosts continue to appear stable.

A foraging distance study of California leaf-nosed and Townsend's big-eared bats along the LCR began in FY14. In August, a single session was conducted to capture and radio track both species. Neither species was captured. Equipment was tested, and radio tracking training was conducted using four bats of different species.

FY15 Activities: The five permanent acoustic monitoring stations will continue to operate. Data will be collected and analyzed for covered and evaluation species presence during winter and summer peak activity periods. Station data from the five non-LCR MSCP managed sites will be analyzed together with the nine habitat creation area stations (F4) as a single acoustic monitoring network to document trends in LCR MSCP species activity levels across the program area. Archived acoustic data will be organized, analyzed, and compiled so that it may be entered into a single database.

California leaf-nosed and Townsend's big-eared bat roost outflight counts will continue in the winter and early summer. California leaf-nosed bat banding data will be compiled and entered into a single database.

The foraging distance study of California leaf-nosed and Townsend's big-eared bats will continue. In February, up to 12 California leaf-nosed bats will be captured at a known winter roost and will be radio tracked for approximately 2 weeks. During that time, capture surveys will be conducted at three conservation areas. If California leaf-nosed bats are captured during these capture surveys, they will also be radio tracked to determine where their roost is as well as how far away they will forage from that roost. In August, 12 more bats

will be captured at a known summer roost, and they will be radio tracked for 2 weeks. Either Townsend's big-eared or California leaf-nosed bats (or both) will be tracked depending on which roost is selected for summer tracking. In the summer, California leaf-nosed bats will be radio tracked opportunistically during bat monitoring activities at conservation areas (F4).

Standardization of data and development of MEFFs for bat monitoring activities will continue.

Proposed FY16 Activities: The five permanent acoustic monitoring stations will continue to operate, and data will be analyzed for covered and evaluation species presence during winter and summer peak activity periods. Data will also be analyzed using the nine habitat creation area stations. California leaf-nosed and Townsend's big-eared bat roost outflight counts will continue in the winter and early summer. The foraging study will continue and will include tracking bats from roosts and foraging areas. Standardization and consolidation of data and development of MEFFs for bat monitoring activities will continue.

Pertinent Reports: The report titled *Monitoring of LCR MSCP Bat Species as Determined by Acoustic Sampling, 2013 Summary Findings* has been posted on the Web site. The report titled *Roost Surveys and Monitoring for Lower Colorado River Bat Species – 2013 Annual Report* is in the review queue and will be posted on the Web site once published.