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

FY15 Estimate	FY15 Actual Obligations	Cumulative Expenditures Through FY15	FY16 Approved Estimate	FY17 Proposed Estimate	FY18 Proposed Estimate	FY19 Proposed Estimate
$380,000	$404,116.29	$1,670,233.47	$390,000	$140,000	$140,000	$140,000

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Start Date: FY04

Expected Duration: FY55

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

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

Location: System-wide along the lower Colorado River (LCR) below Hoover Dam

Purpose: To conduct system-wide 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-wide 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 used to detect the presence of covered and evaluation bat species. Acoustic surveys will be used to document their presence in existing riparian habitats. 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. Five permanent acoustic monitoring stations were placed along the river and were used to collect data on bat species presence at the monitoring sites (year round through FY14). In FY14, a foraging distance study was started that used radio tracking techniques to estimate how far California leaf-nosed and Townsend's big-eared bats would forage from their roosts to clarify the distances between roosts and conservation areas in Conservation Measures CLNB2 and PTBB2.

FY15 Accomplishments: The five permanent acoustic monitoring stations were operated from June – August to detect bat presence. In FY15, data collected at an acoustic monitoring station at the 'Ahakhav Tribal Preserve, previously reported under Work Task F4, was moved to Work Task D9 as a system-wide monitoring site, as it is not a LCR MSCP conservation area.

California leaf-nosed and Townsends big-eared bat roost outflight counts were conducted in winter and early summer at 10 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 continued in FY15. California leaf-nosed bats were radio tracked from a mine near Palo Verde, California, in February and August to determine how far they would forage from known roosts during winter and summer. Preliminary data suggest that California leaf-nosed bats have the ability to travel up to and possibly more than 10 miles to forage on a given night during the winter season. Data from the summer season is still being analyzed. In addition, bats were captured at conservation areas located near Blythe, California, in February and August to determine where their roosts were and how far those roosts were from the conservation areas during winter and summer. Preliminary data show that California leaf-nosed bats captured at the Palo Verde Ecological Reserve were tracked by air to an area within Colorado River Indian Tribe lands during February. California leaf-nosed bats captured at the Cibola Valley Conservation Area and the Cibola National Wildlife Refuge Unit #1 Conservation Area were radio tracked in February to areas of the Trigo Mountains and likely roosted at the Hart Mine, which is over 9 miles from the Cibola Valley Conservation Area. In August, they were tracked to a very rugged area of the Trigo Mountains and may be using natural cave features rather than mines. Determining the exact roost locations was difficult due to the rugged terrain.

Capture surveys were conducted at the 'Ahakhav Tribal Preserve once a month from May – September. A total of 181 bats of 9 species were captured, including 8 western yellow bats and 6 California leaf-nosed bats.

The project exceeded the estimated budget due to additional staff time involved in netting captures and tracking during the foraging distance study.

FY16 Activities: The five permanent acoustic monitoring stations will continue to operate. Data will be collected and analyzed for covered and evaluation species presence during the 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 bat roost outflight counts will be conducted during the winter season. It has been determined that there will be sufficient system-wide mine outflight baseline data after winter FY16 to inform conservation area analyses; therefore, roost outflight counts will no longer be necessary on an annual basis. This will complete the baseline data collection effort.

The foraging distance study of California leaf-nosed and Townsend's big-eared bats will continue. In February 2016, field work will be conducted to capture up to 12 California leaf-nosed bats at a known winter roost near Yuma, Arizona, and to radio track them for approximately 2 weeks. During that time, capture surveys will be conducted at Bureau of Land Management restoration sites near Mittry Lake and at Yuma East Wetlands. If California leaf-nosed bats are captured during these 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, field work will be conducted to capture up to 12 Townsend's big-eared bats at a known summer roost and to radio track them for 2 weeks. In summer, California leaf-nosed and/or Townsend's big-eared bats will be radio tracked opportunistically during bat monitoring activities at conservation areas (F4).

Standardization of data and development of mobile electronic field forms for bat monitoring activities will continue.

Proposed FY17 Activities: The five permanent acoustic monitoring stations will continue to operate, and data will be analyzed for covered and evaluation species presence during the summer peak activity periods. Data will also be analyzed using the nine habitat creation area stations. The foraging study will continue and will focus on tracking bats from foraging areas. Standardization and consolidation of data and development of mobile electronic field forms for bat monitoring activities will continue. System-wide monitoring objectives will be defined and a monitoring plan developed for FY18–28. Costs in FY17 are expected to decrease for this work task as efforts are shifted to monitoring additional conservation area acreage under post-development monitoring (Work Task F4).

Pertinent Reports: The report titled *Monitoring of LCR MSCP Bat Species as Determined by Acoustic Sampling, 2013 Summary Findings* has been posted on the LCR MSCP Web site. The report titled *Roost Surveys and Monitoring for Lower Colorado River Bat Species – 2013 Annual Report* has also been posted. The report titled *Monitoring of LCR MSCP Bat Species as Determined by Acoustic Sampling, 2014 Summary Findings* will be posted upon completion.