

Work Task C27: Small Mammal Population Studies

FY07 Estimates	FY07 Actual	Cumulative Accomplishment Through FY07	FY08 Approved Estimate	FY09 Proposed Estimate	FY10 Proposed Estimate	FY11 Proposed Estimate
\$0	\$0	\$0	\$65,000	\$65,000	\$65,000	\$0

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Start Date: FY08

Expected Duration: FY10

Long-term Goal: Species research to determine distribution, habitat requirements, and genetics of covered small mammal species.

Conservation Measures: MRM2, DPMO1, CRCR2, and YHCR2.

Location: System-wide along the Lower Colorado River below Hoover Dam.

Purpose: Implement distribution, habitat, and genetics studies for system monitoring of LCR MSCP covered small mammal species. These studies are being conducted to determine geographic range limits of the Yuma hispid cotton rat (*Sigmodon hispidus eremicus*) and the Colorado River cotton rat (*Sigmodon arizonae plenus*), and to determine habitat requirements for these species. Data will be used through the adaptive management process to coordinate surveys of habitat creation sites and design habitat for covered mammal species.

Connections with Other Work Tasks (past and future): Data collected as part of Small Mammal Colonization (F3) will also be analyzed as part of the effort to determine species distribution of the two cotton rat species found along the LCR. Previous presence/absence surveys on small mammal populations were conducted under D10.

Project Description: Studies will be designed to determine the habitat usage, population status, genetic differentiation, and distributional range of two covered small mammal species: the Colorado River cotton rat (*Sigmodon arizonae plenus*) and Yuma hispid cotton rat (*Sigmodon hispidus eremicus*). Small mammals will be trapped in various habitat types along the LCR to collect genetic samples. Samples will be sent to a genetics laboratory for DNA analysis. Genetic differentiation data for animals captured along the LCR will also be compared with data from animals of different sub-species located within Arizona, east of the LCR MSCP planning area, to obtain genetic markers. These data will be used to compare and contrast specific subspecies and determine the distributional range of each species of cotton rat within the LCR watershed.

Previous Activities: *Sigmodon* spp. were captured at the Pratt Agricultural and Cibola Nature Trail sites during presence/absence surveys conducted in previous years. After completion of species accounts (C3), data gaps were identified for *S. arizonae plenus* and *S. hispidus eremicus*.

Preliminary work was completed to design system monitoring and research studies to provide information on habitat use, population status, and distribution range of these covered species. Presence/absence surveys were conducted at several sites to gather data on distribution and to refine protocols.

FY07 Accomplishments: Previous work conducted on these studies was associated with presence/absence surveys completed under Work Task D10.

FY08 Activities: A study was initiated at the end of FY07 to determine genetic differentiation between covered small mammal species, distributional range for each species, and habitat usage along the LCR. In FY08, additional efforts will be made to identify cotton rat populations, including sampling known populations along the LCR. Genetic sequencing of collected samples will continue and data collected in 2007 and 2008 will be used to focus trapping efforts in 2009.

Proposed FY09 Activities: Trapping efforts will continue in 2009 and data will be compiled for a full genetic analysis in 2010.

Pertinent Reports: The study plan is available upon request from the LCR MSCP.