

Work Task C27: Small Mammal Population Studies

FY08 Estimates	FY08 Actual	Cumulative Accomplishment Through FY08	FY09 Approved Estimate	FY10 Proposed Estimate	FY11 Proposed Estimate	FY12 Proposed Estimate
\$65,000	\$93,190.68	\$93,190.68	\$65,000	\$35,000	\$0	\$0

Contact: Chris Dodge, (702) 293-8115, cdodge@usbr.gov

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: CRCR1, YHCR1.

Location: Reaches 3 through 7 from Davis Dam to the Southerly International Boundary with Mexico.

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 subspecies 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.

FY08 Accomplishments: 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 were made to identify cotton rat populations, including sampling known populations along the LCR. One large population of *Sigmodon* was found at the Cibola Nature Trail site on Cibola National Wildlife Refuge and several small populations were found near Yuma, Arizona.

FY09 Activities: Genetic sequencing of collected samples will continue and data collected in 2007 and 2008 is being used to focus trapping efforts in 2009. Efforts will be made to survey vegetation at sites known to have self-sustaining populations of *Sigmodon*. This information will be used to provide recommendations for plant species to be used as ground cover at restoration sites.

Proposed FY10 Activities: Data will be compiled for a full genetic analysis in 2010. This data will be summarized and summarized in a final report.

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