Work Task E34: Groundwater and Soil Salinity Monitoring Network

FY11 Estimate	FY11 Actual Obligations	Cumulative Expenditures Through FY11	FY12 Approved Estimate	FY13 Proposed Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate
$0	$0	$0	$0	$250,000	$400,000	$400,000

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Start Date: FY13

Expected Duration: FY18

Long-term Goal: Restoration research

Conservation Measures: CLRA1, WIFL1, BONY2, RASU2, WRBA2, WYBA3 CRCR2, YHCR2, LEBI1, BLRA1, YBCU1, ELOW1, GIFL1, GIWO1, VEFL1, BEVI1, YWAR1, SUTA1, FLSU1, MNSW2, CLMB2, PTBB2

Location: Conservation Areas.

Purpose: Understand interactions of groundwater with planted riparian species in order to effectively manage long-term health and survival.

Connections with Other Work Tasks (past and future): This work task was initiated with funds from G3, E24, and E4.

Project Description: Monitoring soil and groundwater water conditions provides essential information about why some restoration sites establish and develop more successfully than others. Therefore, the soil and groundwater salinity monitoring network, established as research under Work Task G3: Adaptive Management Research Projects, is being expanded into a groundwater and soil salinity monitoring network. Eventually, all LCR MSCP conservation areas will be part of the monitoring network, but this effort will occur over a period of years. Monitoring soil and groundwater salinity at restoration sites allows us to track changes in salinity levels over time, and helps inform management actions that ensure the long term viability of LCR MSCP conservation areas.

Previous Activities: Research from previous studies funded by G3 has suggested that riparian obligate trees will utilize groundwater when they have reached sufficient maturity. Studies have also suggested that this water source may be more important than applied surface water for long-term health and survival of the trees.

Soil sampling and installation of groundwater monitoring wells was conducted at three Conservation Areas in FY10. An extensive review of the literature regarding the role that quality

and quantity of available groundwater can play with riparian tree health and survival was prepared in FY11 and is available on our website. In FY12, under Work Tasks E4 and E24, a salt balance model to evaluate salt accretion/loss in soils and groundwater was developed.

FY11 Accomplishments: This is a new start in FY13.

FY12 Activities: This is a new start in FY13

Proposed FY13 Activities: Soil and ground water will be monitored at three Conservation Areas with established networks. A fourth network will be established and monitored at the Cibola Valley Conservation Area. These collected data will be used to formulate preliminary management strategies for maintaining or reducing soil and groundwater salinity.

Pertinent Reports*: Cibola NWR Unit 1 Conservation Area 2010 Annual Report*
Review of Salinity and Sodicity, Monitoring, and Remediation for Riparian Restoration Areas, and, *Groundwater and Soil Salinity Monitoring Network in Support of Long-Term Irrigation* and *Salt Management of MSCP Restoration Areas: Well Installation and Preliminary Monitoring Data Report*, will be posted to the website.