



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2005AZ83B

Title: Salt River Riparian Ecosystem Restoration

Project Type: Research

Focus Categories: Wetlands, Hydrology, Ecology

Keywords: Restoration, riparian, river, monitoring, ecosystem

Start Date: 03/01/2005

End Date: 02/28/2006

Federal Funds: \$8,869

Non-Federal Matching Funds: \$17,830

Congressional District: AZ 5

Principal Investigator:
Julie Stromberg

Abstract

Several large-scale riparian restoration projects are being implemented on rivers in the Southwest, without sufficient site-specific information to guide the restoration process and insure success. This project proposes to monitor the vegetation and surface water in several reaches of the Salt River in the Phoenix metropolitan area, before implementation of restoration actions, to provide information of value to restoration designers. By describing riparian vegetation structure and composition present at the sites, and determining the composition of plants in the soil seed banks, we will provide information on the abundance and types of species that are available to revegetate once flows of water are restored. Additionally, we will continue to monitor the vegetation and surface water hydrology at a site at which some restoration actions have been implemented (Phoenix Rio Salado area). Although the U.S. Army Corps of Engineers has contracted with the Arizona Game and Fish Department to monitor project success and develop an adaptive management plan for the Phoenix Rio Salado Project, monitoring will not commence until all site construction actions have ceased. Our monitoring will provide critical early-stage input on success or failure of the restoration measures, which include drip-irrigated tree plantings and release of water into an unplanted low-flow channel. Preliminary monitoring has revealed considerable natural colonization of the re-watered areas. By continuing to monitor the vegetation and hydrology of restored areas along the Salt River,

we will be able to provide feedback that will inform management and policy decisions regarding ecosystem restoration options, and in particular, the relative merits of 'passive' versus 'active' approaches to restoration. Our methods include establishing belt transects in seven reaches of the Salt River, and monitoring vegetation (composition, diversity, biomass structure) and surface water availability and soil moisture three times per year. To describe the soil seed banks, and thus the potential vegetation of the sites, we will monitor emergence of plant species in the greenhouse, from soil samples collected at a subset of the sites including several located at the outflows of urban storm drains (urban tributaries) that provide localized water sources to the Salt River riparian corridor.