

Work Task D3:	Farm Unit #1, Cibola National Wildlife Refuge (Cottonwood Genetics Study)
Partners:	Northern Arizona University U.S. Fish and Wildlife Service (FWS) Bureau of Reclamation
Point of Contact:	Gregg Garnett, LC-2455 (702) 293-8644
Purpose:	Research project to investigate the influence of genetic diversity in Fremont cottonwood on community diversity in the context of habitat restoration. One result of this study will be to determine the genetics of the existing stands of cottonwoods along the lower Colorado River (LCR). Concerns have been raised over the introduction of unknown or exotic genetic strains of cottonwoods.
Conservation Measures:	Develop techniques in support of all covered species habitat creation requirements and a potential site for creation of habitat.
Long-Term Goal:	Use the information gained from this study to select trees with genetically superior traits with respect to growth, reproduction, survival, and the habitat quality they influence. The experimental plot will supply stock of known genetic diversity and origin for future restoration efforts.
Location:	Two 20-acre active alfalfa fields within Arizona in Farm Unit #1 on Cibola National Wildlife Refuge (NWR). Cibola NWR is located just south of Blythe, CA.
FY04 Obligation:	\$110,004 for Northern Arizona University (NAU) through a cooperative agreement
FY04 Accomplishment:	Funding for the entire 5-year period was obligated in FY04. Two active farm fields in Farm Unit #1 have been selected as the location of the experimental plots.
Project Description:	Information is lacking regarding the relative levels of genetic diversity within the remaining cottonwoods along the lower Colorado River and the impact of this genetic diversity as it pertains to community structures and ultimately, wildlife diversity within restoration sites. In an effort to increase knowledge and success in creating functional wildlife habitat, Reclamation's restoration group solicited the scientific community for proposals to investigate these relationships. NAU was awarded a cooperative agreement and contributed matching funds to undertake these investigations. Their

project is twofold and includes: (1) the identification of genetic stocks of Fremont cottonwoods that possess traits including superior growth, reproduction, and survival in a typical restoration site, and (2) the identification of stocks of Fremont cottonwood trees that support diverse biological communities, including communities that sustain wildlife species especially LCR MSCP covered species.

The first part of the project includes genetic screening of tissues collected from stands of Fremont cottonwood trees across the southwestern U.S. The second involves creating an experimental plot to propagate representatives of the collected genetic stock and monitor the expressions of these different genotypes. Cibola NWR is providing approximately 40 acres (in two roughly 20-acre fields) of agricultural land with water and irrigation infrastructure for NAU to establish their experimental cottonwood plot.

Additional Tasks:

These tasks include tissue sampling and genetic screening of cottonwoods and planting of the experimental plot in the spring of 2005. Monitoring of growth, survivorship, and biological communities will commence after the plot is established and continue until 2009.