

## Work Task E7: Mass Transplanting Demonstration

FY06 Estimates	FY06 Actual	Cumulative Accomplishment Through FY06	FY07 Approved Estimate	FY08 Proposed Estimate	FY09 Proposed Estimate	FY10 Proposed Estimate
\$10,000	\$12,309	\$319,309	\$15,000	\$15,000	\$0	\$0

**Contact:** Gail Iglitz, (702) 293-8138, gigitz@lc.usbr.gov

**Start Date:** FY05

**Expected Duration:** FY09

**Long-term Goal:** Restoration Research

**Conservation Measures:** WIFL1, WRBA2, WYBA3, CRCR2, YHCR2, LEBI1, BLRA1, YBCU1, ELOW1, GIFL1, GIWO1, VEFL1, BEVI1, YWAR1, and SUTA1

**Location:** Reach 4, Cibola NWR, one-half mile east of River Mile 97, AZ

**Purpose:** This research project evaluates mass transplanting techniques for cottonwood and willow using commercially available mechanized transplanting equipment. To meet the requirement to create 5,940 acres of cottonwood-willow land cover type habitat, a significant number of native trees will need to be established each year. Mass transplanting is an approach used successfully by commercial growers. If mass transplanting of native species proves effective, it is expected to provide a useful cost-effective tool in the creation of future habitat.

**Connections with Other Work Tasks (past and future):** Beginning in FY09, operation and maintenance costs for this work task will be included in Cibola NWR Unit 1 (E24).

**Project Description:** Reclamation has entered into a 5-year land use agreement with the USFWS to conduct restoration research in Unit 1 at Cibola NWR. This work task demonstrates automated mass transplanting techniques using native riparian species. The intent is to investigate the feasibility and effectiveness of using this technique for creation of land cover types in existing agricultural fields. The cost benefit of this method will be evaluated along with its effectiveness and appropriateness in the creation of native habitat to meet LCR MSCP goals. The technique involves mechanized, rapid, dense planting of up to 4,500 seedlings per acre to inhibit growth of non-native plant species and to achieve dense growth of native tree species. Up to 36 acres of cottonwood-willow land cover type may be created as a result of the demonstration.

**Previous Activities:** See FY05 accomplishments.

**FY06 Accomplishments:** Due to the unusual amount of rain and early warming in spring 2005, the collection time (dormancy) was narrowed for the first contractor. This limited the amount of

plant material from cottonwood and willow collected in 2005; as a result, only 8.5 acres were planted, which left a remaining 11.5 acres to plant in 2006. Plant material was collected in December 2005 for propagation. In April 2006, the field was prepared by disking and pre-irrigation for mass planting. This field was planted predominately with willow and cottonwood trees in a 4-hour period. The trees were spaced at 6-foot inline spacing with rows 38 inches apart.

In November, the trees appeared to be at the same growth stage as the previous years' planting. As in the previous year, grasses have kept other invasive weeds out while somewhat limiting the trees' growth. It is anticipated that the trees will respond quickly in the spring of 2007 and achieve good growth during their second growing season.

The mass transplanting method has demonstrated a feasible option for planting trees at a high density over large acreage in a short period of time. Using 2006 cost comparison, mass transplanting significantly reduced the cost of plantings trees on active agricultural fields.

This technique can be appropriate for most agricultural conversions for the creation of habitat; however, the genetic diversity is minimal because of the current collection method of cuttings. A possible choice may be growing the plantings from seeds. Seed propagation for mass transplanting is not an option at this time. Mass transplanting is limited to level ground conversion. Mass transplanting on contoured fields has not yet been demonstrated.

**FY07 Activities:** We anticipate irrigating the mass transplanted trees until FY09, at which point operation and maintenance of the site will be included under E24.

**Proposed FY08 Activities:** We anticipate the same activities as FY07.

**Pertinent Reports:** The final report, *Work Task E7: Mass Transplanting Demonstration, Final Report, Cibola National Wildlife Refuge: 2005 & 2006* has been drafted and will be posted to the LCR MSCP Web site.