

Socorro County Mitigation Planting for the Albuquerque Army Corps of Engineers

The Los Lunas Plant Materials Center (LLPMC) staff planted 1600 coyote willow (*Salix exigua*) whips and 120 Rio Grande cottonwood (*Populus deltoides*) poles on a two-acre site close to Socorro, New Mexico. The coyote willows were planted in February of 2002; the cottonwood poles were planted in 2004. The site is located on the east side of the Rio Grande adjacent to the central-east boundary of the city of Socorro (T3S R1W Sec7 SW 1/4), and it is owned by New Mexico Institute of Mining and Technology (NMT). This site is intended to serve as mitigation for the conveyance rehabilitation of La Joya Acequia in Socorro County where cottonwood trees, willows and other riparian species were cleared from the site. This project provided the LLPMC an opportunity to test both new plant materials and planting methods. The project was funded by the Army Corps of Engineers in Albuquerque, New Mexico.

Methods

Three weeks before the planting, vigorous coyote willow cuttings (approximately 2 years old and 6–8 feet in length) were harvested with chainsaws and hand loppers from the Bureau of Reclamation low-flow conveyance near the planting site. Once harvested, the willows were kept wet by soaking them in tanks of water at the LLPMC. They were then planted in a 50-foot strip on the east bank of the Rio Grande and on a 100-foot strip on the north bank of the arroyo. The plants were installed using a 10 amp electric rotary hammer drill. The willow cuttings were planted to a 30-inch depth on 10-inch centers.



Fig 1: Planting cottonwood poles on the Rio Grande in Socorro County, February 2004



The Rio Grande cottonwood cuttings were originally collected from Bosque del Apache Wildlife Refuge and established in a pole production plantation at the LLPMC. As directed, the harvested cottonwood pole cuttings (12–15 feet in length) were planted on 20-foot centers throughout the site with the exception of the inner arroyo area. At time of planting, the site had an approximate 5-foot water table. The soil seemed to be sandy. The cottonwood pole cuttings were planted with an 8-foot augur attached to a front-end loader on a 65 hp farm tractor (Fig. 1). The cuttings were placed in the

8-foot holes and back filled with hand shovels. To control beaver predation, poultry wire tree-guards (12-inches in diameter and 5-feet tall) were placed around the trunk base of each cottonwood pole.



arroyo (Fig. 3). The willows had begun spreading by root-sprouts.

Fig 3: Coyote willows were well established by June of 2004 with root-sprouts spreading across the arroyo.

when they evaluated by Ernie Janke, Patty Phillips and Greg Fenchel (Fig. 4). Five pole cuttings planted outside the enclosure and had broken trunks at the base due to cattle damage. However they did appear to be re-sprouting vigorously (Fig. 5).

Results

By June of 2002, the coyote willow cuttings had broken dormancy and had become rooted (Fig. 2). The survival rate was estimated at higher than 80 percent. Those cuttings that had died were located either at the base of the arroyo or river bank where they possibly were flooded more than their tolerance of time, or at the top of the arroyo or river bank where, even at a 30-inch depth, the soil was dry.

By 2004, the coyote willow stand was well established on the banks of the river and the

The cottonwood pole cuttings were growing vigorously and were well rooted by June of 2004 displaying a 94-percent survival rate

when they evaluated by Ernie Janke, Patty Phillips and Greg Fenchel (Fig. 4). Five pole cuttings planted outside the enclosure and had broken trunks at the base due to cattle damage. However they did appear to be re-sprouting

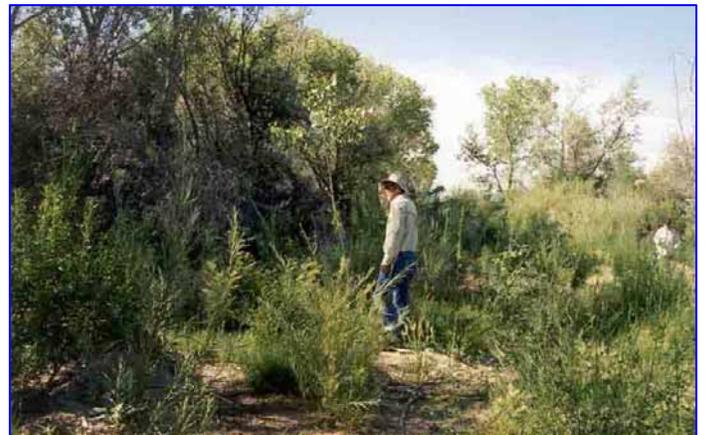


Fig 4: Cottonwood pole cuttings were growing vigorously by June of 2004



Fig 5: Cottonwood pole cutting that was damaged by cattle, but it has since re-sprouted.