

FY 2007 Progress Report for the Cibola National Forest

Production of Riparian Plant Materials for Watershed and Ecosystem Restoration Projects

David R. Dreesen
Los Lunas Plant Materials Center
US Department of Agriculture – Natural Resources Conservation Service
Los Lunas, New Mexico

The purpose of this project is to establish a plant materials source for native riparian trees and shrubs at the USDA-NRCS Los Lunas Plant Materials Center (LLPMC). These plant materials are ecotypes indigenous to areas undergoing watershed and ecosystem restoration within the Cibola National Forest including the Canadian River Salt Cedar Eradication Project and the Tajiique Watershed Restoration Project.

The LLPMC is producing containerized plant materials of tree, shrub and wetland species from seed collected by US Forest Service personnel. Some of the seedlings that have been produced have been installed in pole production blocks at the LLPMC to provide a long-term source of dormant pole cuttings.

Seedling and Transplant Production

US Forest Service personnel collected seed from the Canadian River watershed (Perico Creek, Seneca Creek, and Mills Canyon) and shipped it to the LLPMC in late June of 2005. These seed included cottonwood, peachleaf willow, and coyote willow. These seedlings were transplanted into one-gallon treepots during the summer of 2006 (see Figures 1, 2, and 3).



Figure 1: Mills Canyon coyote willow, cottonwood, and peachleaf willow (left to right) in one-gallon treepots propagated from seed in 2005 (photo taken August 28, 2007). The largest plants have stem lengths of 5- to 6-feet.



Figure 2: Block of Mills Canyon cottonwood in one-gallon treepots propagated from seed in 2005, average stem length ~4 feet (photo taken August 28, 2007).



Figure 3: Block of Mills Canyon chokecherry in one-gallon treepots propagated from seed in 2005 and transplanted in 2006, average stem length ~3 feet (photo taken August 28, 2007).

Additional cottonwood and willow seed was collected around June 1, 2006, and a sufficient amount of Mills Canyon cottonwood seed was collected (including a collection labeled “short raceme variety”) to propagate approximately 500 seedlings in Super Cells. Because we did not receive any viable seed of coyote and peachleaf willows in 2006, and in order to increase the numbers of these species we took cuttings in the spring of 2007 from treepots started in 2005. In the summer of 2007, we transplanted approximately 320 cottonwood (see Figure 4), 200 coyote willow (see Figure 5), and 100 peachleaf willow into one-gallon treepots. In addition, we transplanted about 300 chokecherry that were started in 2005 (see Figure 6).



Figure 4: Block of Mills Canyon cottonwood in one-gallon treepots propagated from seed in 2006, average stem length ~3 feet (photo taken August 28, 2007).



Figure 5: Block of Mills Canyon coyote willow in one-gallon treepots propagated from cuttings in 2007, average stem length ~3 feet (photo taken August 28, 2007).



Figure 6: Block of Mills Canyon chokecherry in one-gallon treepots propagated from seed in 2005 and transplanted in 2007 (photo taken August 28, 2007).

Coyote and peachleaf willow seed received in the summer of 2007 had very poor viability but the seed numbers were sufficient to produce a few hundred seedlings of peachleaf willow and perhaps 50 seedling of coyote willow.

The following table lists the estimated inventory (as of August 2007) of willows and cottonwood in one-gallon treepots.

Species	Propagation Method	Year Propagated	Year Transplanted into Treepots	Estimated Quantity of Treepots
Cottonwood	seed	2005	2006	450
Cottonwood	seed	2006	2007	300
Coyote willow	seed	2005	2006	200
Coyote willow	cuttings	2007	2007	150
Peachleaf willow	seed	2005	2006	50
Peachleaf willow	cuttings	2007	2007	80
Chokecherry	seed	2005	2006	400
Chokecherry	seed	2005	2007	300
Total				1930

Waxflower (*Jamesia americana*) seed was collected from Red Canyon in the Manzano Mountains in the fall of 2005. The seed was cleaned and cold stratified. We propagated approximately 200 Super Cells in the spring of 2006. Most of the waxflower seedlings did not survive the winter of 2006-2007. In addition, some mortality was noted in the late spring of 2007 which necessitated moving the remaining plants under shade to try to ameliorate the growing environment for these shade tolerant montane shrubs.

Thus far, very few plants have succumbed since the move into shade. About 30 to 40 plants remain alive at the end of August 2007.

Some cottonwood and willow plants will be ready for outplanting based on root ball integrity by the fall of 2007 or spring of 2008. An additional growing season will be required to produce long-stem stock with stem lengths greater than six feet; ensuring a sufficient length to enable planting in holes four feet or deeper. This will allow the plant to reach the capillary fringe in areas with a deep water table.

Installation of Pole Production Blocks

In mid-July 2006, we transplanted Super Cell seedlings into flood irrigated fields for the eventual production of dormant pole cuttings. We installed a total of 14 rows, each 300-foot in length and containing approximately 150 plants per row.

The field was prepared using the following steps:

1. Discing
2. Laser-leveling
3. Ripping with a single shank ripper to breakup any hardpan in the planting row
4. Installing 3-foot wide ground cover fabric to serve as a weed barrier
5. Irrigating one day before planting
6. Auguring planting holes at least 12" deep
7. Applying 5 g of 17-6-12 controlled release fertilizer in each hole
8. Inserting the seedling, backfilling with sufficient soil to fill all voids, and irrigating again.

These fields were cultivated, hand weeded, sprayed for cottonwood leaf beetle, fertilized, and flood irrigated every three weeks during the 2007 growing season. The production fields for coyote willow, cottonwood, and peachleaf willow are shown in Figures 7, 8, and 9.



Figure 7: Coyote willow field planting for dormant whip cutting production (photo taken August 2007) in Field 6 at the LLPMC.



Figure 8: Cottonwood pole production for Mills Canyon in Field 33S at the LLPMC (August 2007). Some cottonwood stems are approaching 10 feet.



Figure 9: Peachleaf willow pole production for Mills Canyon in Field 33S at the LLPMC (August 2007). Mills Canyon cottonwoods in the background.

Some of the cottonwood stems had exceeded 10-feet in height by late summer 2007. Cottonwood poles (approximately 12- to 15-feet in length) should be available by winter 2008-2009. Peachleaf willow stems were at most 5- to 6-feet high in August 2007. Short pole and whip cuttings (6- to 10-feet) should be available with an additional growing season. Coyote willow dormant whip cuttings (approximately 5- to 8-feet) could be available by winter 2008–2009.