

Restoration guidelines for riparian areas using dormant stock “pole” cuttings

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Abstract.-The Open Space Division manages seven thousand acres of riparian areas comprising the Rio Grande Valley State Park. In 1988, Open Space began experimenting with dormant stock cuttings. This paper contains methods and procedures for establishing dormant stock cuttings. Dormant stock cuttings will be referred to as “poles” in this paper.

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CATEGORIES OF POLES

Category I — Young trees 2-4 years old found growing in Riparian areas.

Category II — Cuttings taken from older established trees (10 years and older.)

Category III — Young trees 2-4 years old grown by nurseries or private enterprises.

METHODS

One of our management goals is to restore the riparian areas that have been disturbed using dormant cuttings, pole plantings and re-vegetation techniques applicable to riparian areas.

During the early stages of our experimentation Category II poles showed extremely high mortality rates. Collection was labor intensive. It was very

difficult to locate straight stock in adequate lengths for planting.

Category I and III poles are recommended based on data collected and results derived from plantings of the above categories. Dormant stock cuttings from Black Willow (*Salix goodingii*) and Fremont Cottonwood (*Populus fremontii*) were used for the majority of our plantings. Lance leaf (*Populus acuminata*) and other hybrids as well as varieties occurring naturally in riparian areas were also planted and monitored.

DORMANT STOCK OR “POLE” COLLECTION PROCEDURES

Pole plantings have been used for several decades, however, these plantings are very popular today due to successful plantings.

Collection of poles (Category I) should be performed under direct supervision using trained personnel. Knowledge of species, ability to identify stock, and collection and storage procedures are necessary. Site selection should be made by qualified Resource Managers.

Category III poles offer many advantages for governmental agencies and their co-operators. Selection and collection are easily accommodated as options for pick-up and delivery are available. Contact local Soil Conservation Service Land Management Agencies or write to address on this publication for information.

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POLE STORAGE

Most times poles will require storage. Both Categories I and III should be stored soaked in water within 24 hours of collection in a shaded and cool area. Depending on planting schedules, poles should be rotated and the water monitored, re-freshed and changed weekly. Large barrels or water troughs are commonly used for storage.

Testing has shown no need for root stimulator or other agents. Soaking poles in fresh water and following the above procedures will yield excellent stock for planting. Poles can be stored up to ninety days, depending on conditions.

MONITORING WELLS

It is good practice to install a monitoring wells one year before the planting process begins. These wells can cover 1-5 acre sites depending on site variations in land elevations. During the one year period before the planting process, fluctuations in the water table are monitored and recorded along with other testing as deemed necessary by Project and/or Resource Managers.

POLE PLANTING PROCEDURES

Augers attached to a bobcat and backhoe respectively were used to drill to depths from seven and a half feet to fifteen feet for deeper pole installations. Optional tools and related planting equipment include axe, auger (hand bucket type), auger extensions, machete, measuring pole (20 ft), plastic tree guards, stakes, labels, wire (for caging), hammer, saw, pruners, and field notebook.

After mechanical drilling, poles are immediately installed with additional hand auguring often being required. The Butts or bottoms of poles are diagonally cut to a point. Scoring is performed 12" to 18" upwards from bottom of pole using axe or machete. When practical, poles should be installed 12" or more into the water table. Back filling of holes is recommended to eliminate air pockets.

PROTECTION OF POLE PLANTINGS

Beaver and other smaller animals should be considered when planting poles. Common methods of protection used by the Open Space Division range from "Vet Wrap," plastic "spiral" tree guards, and woven wire are used for young and established trees. The Project and/or Resource Manager should determine the proper devices to be used at each site location.

MONITORING

Monitoring must be conducted to facilitate high rates of survival. Because most riparian areas are remote with limited access, managers should develop a data base to monitor and study the progress. To plant and walk away is not a cost-effective management option. A monitoring program is recommended for all dormant stock "pole plantings."

RESULTS AND SURVIVAL RATES

After initial plantings, data collected has yielded the following survival rates after four years of monitoring:

- Cottonwood - **92%** survival rate
- Black Willow - 98% survival rate
- Overall survival rate was 9590

CONCLUSIONS AND COMMENTS

Dormant stock or pole plantings have proved to be the most cost-effective method to-date to restore riparian areas with Cottonwood and Black Willow trees. All protection devices worked excellently. Training is required for all personnel in collection, planting, and on-going monitoring. A monitoring program of a minimum of three years is recommended. Opportunity exists for further expansion and production within the private sector.