

AN EVALUATION OF BIOENGINEERING TECHNIQUES TO ESTABLISH WOODY VEGETATION ALONG THE MARGINS OF RESTORED WETLANDS ON PHOSPHATE MINELAND IN FLORIDA

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Bioengineering is a planting technique that uses whips or live stakes to stabilize the banks of streams and ditches with low to moderate flow velocities. Whips are long stem or trunk cuttings of easily rooted trees or shrubs with basal diameters of ¾ to 1½ inches. Bioengineering may be a cost effective method of incorporating woody plants for wildlife habitat on mineland restoration sites, but has not been tested under Florida conditions. The USDA, Natural Resources Conservation Service, Brooksville Plant Materials Center was asked by the Florida Department of Environmental Protection, Bureau of Mining and Mineral Regulation and Mosaic, LLC to test the effectiveness of bioengineering on constructed ponds at three Mosaic restoration sites. Two planting dates, January (dormant, dry season) and July (growing, wet season) were tested for two years (2008 and 2009). Single whips of seventeen species (varied between planting dates) were planted at three landscape positions (water's edge, 10 feet, and 20 feet upslope). Carolina willow (*Salix caroliniana*) and elderberry (*Sambucus nigra* ssp. *canadensis*) established at all sites and elevations. Coralbean (*Erythrina herbacea*), buttonbush (*Cephalanthus occidentalis*), and swamp dogwood (*Cornus foemina*) were also promising and success may be improved with the use of more consistent planting materials. Although rainfall was lower in the winter, establishment was better for the January plantings. Shoots that emerged on whips from the July plantings originated at or near the soil surface, indicating that desiccation of the whip due to high temperatures was a problem.

DESCRIPTION FOR PROGRAM: This presentation will address the potential of utilizing bioengineering to incorporate some easily rooted woody species on restored wetlands in Florida on sites that had previously been mined for phosphate ore. Species that hold promise for this use, as well as planting and site limitations encountered during this research project will be discussed.

KEY WORDS: PROPAGATION, WHIP, LIVE STAKE, HARDWOOD CUTTING, WILDLIFE HABITAT

SESSION TOPICS: Ecosystem and Habitat Restoration (Upland and Wetland)

FORMAT: Oral Presentation