



## USDA-CSREES 2006 National Water Quality Conference

### Field Trial of *Cornus amomum* and *Physocarpus opulifolius* for Riparian Buffer Restoration

Several agencies and organizations are implementing natural stream channel design to restore stream function and habitat in Western North Carolina. While many agencies and designers suggest live staking as a method for riparian plant establishment, little relevant information exists on the survival rate of live staked species in Western North Carolina. This study addresses survivability among Silky Dogwood (*Cornus amomum*) and Ninebark (*Physocarpus opulifolius*) when live staked. The study site at Bent Creek in The North Carolina Arboretum experienced severe erosion and destabilization following Hurricanes Francis, Jean and Ivan in September 2004. Emergency stream stabilization, utilizing natural channel design techniques, was performed during December 2004 and January 2005. Silky Dogwood and Ninebark live stakes were installed on the restored streambanks during February 2005. The diameter of the live stake and the elevation at planting above stream baseflow were tested for their effect on the survivability of the two species. In November 2005, mean survival of all live stakes in the trial was 74.2%. Survivability was found to be affected by species and height above channel baseflow, but not by diameter, or any interactions. Ninebark had equal or greater survivability than Silky Dogwood at every baseflow height. When staked between 1 and 2.5 feet above baseflow, = 66% of both species survived. Conclusions can be used to base recommendations for stream restoration and stabilization replantings in alluvial valleys in Western North Carolina.

Author: Jason Zink

Coauthor(s): Jon Calabria, Rockie English, Anthony LeBude, Ted Bilderback, Jason Zink

