Using Fire and Water to Restore a Wetland Forest
By: Charlie Houder, Deputy Executive Director, Suwannee River Water Management District

The area in southern Lafayette County known as Mallory Swamp, or to many locals the “Pocosin,” was historically a complex matrix of basin swamps, bogs, and flatwoods prairies. As in many areas of Florida, timber harvesting in the early 20th century began to alter the vegetative composition and hydrology of the area. These changes culminated in the 1970’s and 1980’s with the completion of a drainage system to improve slash pine (Pinus elliottii) production. The marginally drier sites that resulted were planted using typical mechanical reforestation techniques where possible and aerial seeding where the land was still too wet for equipment.

In addition, fire was assiduously excluded from the landscape both to protect the growing pines and to keep unwanted charcoal out of the high quality cellulose that was to be the ultimate product.

Several unintended consequences ensued. First, the change in hydrology and the exclusion of fire promoted the spread of the shrub titi (Cyrilla racemiflora) from its usual location in the wetland ecotone. Eventually, many bog and flatwoods communities were dominated by this species. This exacerbated the second consequence, a huge build-up of highly flammable vegetation, which exploded with a lightning strike in 2001 and contributed to one of the largest wildfires in Florida's history. Finally, based on the relatively scant information available, altered drainage appears to have had an impact on both the Steinhatchee River and Suwannee River basins as well as the underlying aquifer. The clearest indications come from a study conducted in the early 1990’s that documented increases in peak flows in the Steinhatchee River due to the disruption of natural water storage.

The Suwannee River Water Management purchased the majority of Mallory Swamp, about 29,463 acres, in 2003. Additions of 1,037 acres and 835 acres were added in 2005 and 2007, respectively. The three main vegetation types now under District management are 13,200 acres of basin swamp, 11,500 acres of bog, and 4,300 acres of flatwoods. Hydric hammock and other less common types make up the balance. At the time
the District took possession of the property, the 2001 fire had largely reset the ecological clock. It was then up to District staff to capitalize on the once-in-a century opportunity.

This was enabled by a agreement with the Natural Resource Conservation Service that provided a total of $3.2 million for what would become the most extensive Wetland Reserve project in the Nation. The project is nearing completion and to date has resulted in chopping or mowing of 13,000 acres and prescribed burning of 11,000 acres to control shrub encroachment, help restore natural community plant diversity, increase wildlife habitat, and lessen the chance of severe wildfires. Approximately 800 acres have been replanted with slash or longleaf pine.

Hydrologic restoration has been addressed with the installation of seven major water control structures (flashboard riser) and 59 earthen ditch blocks to hold back water and help restore natural hydroperiod. The District has installed 311 culverts to reconnect natural drains and wetlands bisected by roads. These actions have had a dramatic effect on the landscape which is now characterized by vast sweeps of open, herbaceous-dominated plant communities. Natural regeneration of pond cypress (Taxodium ascendens) in the basin swamps and slash and pond pine (Pinus serotina) in the flatwoods is occurring. Plans are to continue prescribed burning of 1,500 to 3,000 acres per year and to reforest another 1,000 to 2,000 in pine. An inventory and monitoring regime was established from the outset so that changes in the vegetation and the hydrology can be documented. If this year’s extended lay over by a group of migrating whooping cranes (Grus Americana) is any indication, the objectives of the project are well on their way toward being met.

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To learn more about the Suwannee River Water Management District go to www.mysuwanneeriver.com

Announcements

CFEOR Sponsored Workshop: Uneven-aged Management and the Proportional-B Method for Implementing Selection Silviculture ***Registration Ends June 19th***

Migrating sandhill and whooping cranes (Grus Americana) lay over at Mallory Swamp, Lafayette County. Photo by Charlie Houder.
Recent Research Findings

Competition dynamics in pure-versus mixed-family stands of loblolly and slash pine in the southeastern United States


Christine Staudhammer is an assistant professor in forest biometrics at the UF School of Forest Resources and Conservation and is a new CFEOR co-director.

Few studies within the native range of loblolly (Pinus taeda) and slash pine (Pinus elliottii var. elliottii) have compared yield and stand dynamics in pure-family block versus mixed-family block plantings under a range of silvicultural treatments. Understanding intergenotypic competitive interactions is important for predicting phenotypic performance, defining growth strategies and ideotypes, and deploying the correct mix of families that possess complementary characteristics for enhanced yield and pest resistance. In 2000, replicated experimental trials were installed in the southeastern United States, controlling for genotype (pure- and mixed-family plantings; consisting of seven full-sibling loblolly and six full-sibling slash pine families), planting density (1334 vs. 2990 trees/ha), and levels of silvicultural treatment intensity (operational vs. intensive). We measured four installations of these trials. There were numerous examples of differential family performance in mixed versus pure plots manifested as significant deployment family interactions for diameter at breast height, height, basal area, volume, survival, disease, and damage traits. Significant and consistent interactions of several families with mixed versus pure deployment led to the identification of putative crop and competition ideotypes in both loblolly and slash pine. Tree-level crown architectural traits and an index of growth efficiency for the identified families were consistent with the hypothesized ideotypes.

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Upcoming Events

- Forest Products Society 63rd International Convention
  June 21-23, 2009, Doubletree Hotel Boise-Riverside
  Boise, Idaho, USA. website www.forestprod.org

- Society of Wood Science and Technology International Convention
  June 24, 2009, Laurel Room at the Doubletree Hotel Boise-Riverside, Boise Idaho
  Topic: The Role of Wood in our Green Future
  Contact vicki@swst.org  Website www.forestprod.org

- Third National Conference on Ecosystem Restoration - The Spirit of Cooperation
  July 20 – 24, 2009, The Westin Bonaventure, Los Angeles, CA
  http://www.conference.ifas.ufl.edu/NCER2009/index.html

- NWCG Basic Certified Wildland Fire Training
  August 10-14, 2009, University of Florida (Newins-Ziegler Hall) Gainesville, FL & Ordway
  Swisher Biological Station (Melrose, FL)
  http://nata.snre.ufl.edu/registration.htm
  http://nata.snre.ufl.edu/NWCG%20Wildland%20Fire%20Course%20Offering_Registration.pdf

- Society of American Foresters National Convention “Opportunities in a Forested World”
  http://www.safnet.org/natcon-09/index.cfm

CFEOR Mission: To develop and disseminate knowledge needed to conserve and manage Florida’s forest as a healthy, working ecosystem that provides social, ecological and economic benefits on a sustainable basis.

CFEOR Administration
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