2007 SFTIC Hardwood Specialist Report

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M.W. Cunningham

International Paper (Mike Cunningham reporting)

- International Paper's hardwood tree improvement program is working with sweetgum, cottonwood, hybrid poplar, and hybrid sweetgum. This year we made 30, 3rd cycle sweetgum selections from 8-yr-old open pollinated progeny tests. Micropropagules from these selections (generated by Arborgen) will be established in future clone tests.
- Hybrids of local sweetgum (*Liquidambar styraciflua*) and Formosan sweetgum (*Liquidambar formosana*) have been made using pollen from USFS formosana trees crossed to International Paper sweetgum trees. Immature embryos from the crosses are being propagated by the University of Georgia for future clone tests.
- Eastern cottonwood and a number of hybrid poplar clones are being screened for suitability on upland sites at several southeast and south central locations. Greenwood Resources is collaborating with International Paper on the project.

Southern Institute of Forest Genetics (Dana Nelson reporting)

- SIFG has a Formosa sweetgum progeny planted in the 1960s that has been a source of germplasm for many projects over the years. A collaborative effort between the USFS and International Paper was initiated this year to cleanup the test site after damage during Hurricane Katrina. The study consists of 282 trees in 49 OP families. All the big volunteer trees and brush has been cut and removed from the plot. We still need to bush-hog it good and will also label each tree and map their position. Larry Lott supervised the cleanup of this valuable study.
- SIFG collaborated with Randy Rousseau on preparing and submitting a SE Regional Sun Grant Proposal for sycamore genetics and breeding, requesting ~$300K over three years.
- Tom, Nurul and Dana continue to work with TACF on chestnut genetics and cytogenetics and we are collaborating with the NSF team (Sederoff et al.) on Fagaceae genomics.
- Nurul is collaborating with Jennifer Koch and Mary Mason (Northern Research Station) on ash cytogenetics to support their interspecies breeding research on emerald ash borer (EAB) resistance.
- Dana is collaborating with Jennifer Koch and Dave Carey (Northern Research Station) on genetic mapping American beech for beech bark disease (BBD) resistance QTL.
- Nurul and Dana are collaborating with International Poplar Consortium on poplar cytogenetics-- physical mapping using BAC-FISH.

Virginia Department of Forestry (Jerre Creighton reporting)

- Most of the VDOF hardwood seedlings come from unimproved sources.
- They are trying to breed a blight-resistant American chestnut (working on pollination this week and next, actually). They are following the hybrid backcross methods also being used by the American Chestnut Foundation.

North Carolina Division of Forest Resources (Ken Roeder reporting)

- We continue to have great support from the NC DFR Administration for Tree Improvement activities with many species including hardwoods. We are looking for ways to promote these genetically improved hardwood seedlings to better get them deployed. I have been teaching Tree Improvement to our foresters at every opportunity to stimulate these deployment efforts.
- We have improved Sycamore (Coastal and Piedmont) seed orchards in production, and clone banks of Sweetgum and Yellow Poplar. Last year we grafted more Sycamore clones to establish a new improved seed orchard in Morganton. We are also converting some old hardwood progeny tests (i.e., Northern Red Oak, Butternut) into tested seed production areas. I would like to do more progeny testing too with many hardwood species. We have a particular need to do more with Cherrybark Oak for instance.

Texas Forest Service, Western Gulf Forest Tree Improvement Program (Tom Byram reporting)

- Four progeny tests were established in 2006/07 to evaluate 43 cherrybark oak second-generation selections established in orchards. The remaining parents were collected in the fall of 2006 and are in the greenhouse now to be field planted this fall. This will complete test establishment for all of the cherrybark oak selections in the seed orchards managed by the Mississippi Forestry Commission, the Arkansas Forestry Commission and the Texas Forest Service. Progeny tests were planted by the Arkansas Forestry Commission and the Mississippi Forestry Commission. The TFS worked with Temple to plant one location while the Louisiana Department of Ag and Forestry worked with Louisiana Forest Seed Company to plant the fourth location.
- We plan to collect water oak acorns this fall to begin testing these orchards in 2008.
- Three of the five series of Nuttall Oak plantings are now age 10 or older. Based on this data, backwards selections are being established in seed orchards. The Arkansas Forestry Commission began grafting what will eventually be 17 acres of orchard in 2007. The states of Louisiana, Texas, and Mississippi and the Louisiana Forest Seed Company also have plans to establish orchards for this species.

Tennessee Division of Forestry (Russ Cox reporting)

TDF Hardwood Orchards

Orchard	**Cooperator**
Black Cherry	TVA
Black Walnut	TDF/TVA/Purdue U.
Nuttall Oak	TDF
Northern Red Oak	UT/TDF/USFS
White Oak	TDF/UT/USFS
Cherrybark Oak	TDF/UT
Sawtooth Oak	TDF
Yellow-Poplar	UT/TDF

TDF=Tennessee Division of Forestry
TVA=Tennessee Valley Authority
USFS = USDA Forest Service
UT = University of Tennessee

TDF active hardwood tests

Hardwood species	**Purpose**
American chestnut	Gene conservation
Butternut	Gene conservation
Cherrybark Oak	Genetic variation study
Northern Red Oak	Half-sib progeny test
Nuttall Oak	Genetic variation study
Southern Red oak	Genetic variation study
White oak	Genetic variation study
Yellow-Poplar	Half-sib progeny test, Full-sib progeny test