Introduction:
The 1,044 ha Delta Experimental Forest (DEF; 33.4688 N lat., 90.9000 W long.), in Washington County, is owned by the State of Mississippi. In August 1, 1945, the Forest Service entered into a cooperative agreement, which is effective indefinitely, to conduct forestry research on the DEF. The DEF is three miles north of Stoneville, which is home to the Mississippi Agricultural and Forestry Experimental Station’s Delta Branch, the USDA Agricultural Research Service’s Jamie Whitten Delta States Research Center, and the USDA Forest Service, Southern Research Station’s, Center for Bottomland Hardwoods Research. Stoneville is 38.7 m above sea level. The DEF also serves as the state-run Stoneville Wildlife Management Area, which offers deer, turkey, and small game hunting in season. The forest is drained by a network of ditches established in the 1930s. It is surrounded by agricultural land. The forest was managed for research purposes and timber production until some time in the 1970s when management stopped. No cutting is allowed without the approval of Mississippi State University.

Research during the first 30 years or so involved thinning studies, development of silvicultural methods aimed at growing quality southern hardwoods, evaluation of progeny tests for improved Eastern cottonwood clones, heartrot progression studies, and studies of insect borer life cycles and damage to hardwood products. Studies in the 1980s and 1990s included determining the causes of oak decline and investigating red oak-sweetgum stand dynamics. Several ice storms occurred in the 1990s; the worst in February 1994 severely damaged the crowns of most canopy trees, which devalued the DEF for forest industry, state and federal agencies, and some foreign countries.

Climate:
The Delta Experimental Forest has a fairly long growing season that extends from mid to late March until late October or early November. Average annual precipitation is 1,354 mm, of which 45 percent occurs from April to September. Summers are warm and humid with July having the highest average temperature of 34° C. Winters are mild, January being the coldest month, with an average temperature of 0° C. Accumulation of snow is rare, ice storms occur occasionally.

Soils:
DEF soils are largely Sharkey clays interspersed with Dowling clays. Sharkey and Dowling soils are medium acid to neutral, dark-colored, poorly drained, clayey soils in depressions. They are very plastic when wet, are very hard when dry, and form cracks readily.

Vegetation types: Timber types are elm-ash-hackberry, overcup oak-bitter pecan, and sweetgum-wateroak. Understory vegetation is comprised of swamp privet, deciduous holly, swamp dogwood, poison ivy, greenbrier, blackberry, peppervine, grape vine, and the introduced Chinese privet and Japanese honeysuckle.

Long-Term Data Bases
A few long-term thinning studies.

Research, Past and Present
The Delta Experimental Forest has been and continues to be an important venue for forestry research. Past projects include studies of bottomland hardwood natural regeneration; bottomland hardwood plantation site-species suitability; progeny evaluations for selecting genetically improved hardwoods; thinning and intermediate stand management; disease and insect spread and control; hardwood insect borer life cycles; red oak-sweet gum stand dynamics; and bottomland hardwood growth and yield.

Currently, the compound, a pesticide-free area surrounded by forest, is used as a facility to rear woodboring insects. Studies include:
- determining the quantity and species composition of woodborers known to have been favored by Ivory-billed Woodpeckers; mass-rearing the hardwood stump borer (Mallopho dasystomus) for pheromone studies; and rearing potential competitors of the invasive, exotic woodwasp, Sirex noctilio.

Major Research Accomplishments and Effects on Management
- Research at the DEF provided much of what we know about species-site relationships on poorly drained, less fertile Mississippi River alluvial soils.
- Several Eastern cottonwood clones, selected during the 1960s and 1970s by geneticists at the Southern Hardwoods Laboratory and tested in the DEF, are still used throughout the southeastern United States by forest industry, state and federal agencies, and some foreign countries.
- The DEF is an important research site for evaluating and improving management techniques for the southern hardwood forest industry, state and federal agencies, and some foreign countries.
- The DEF has been and continues to be an important venue for forestry research. Past projects include studies of bottomland hardwood natural regeneration; bottomland hardwood plantation site-species suitability; progeny evaluations for selecting genetically improved hardwoods; thinning and intermediate stand management; disease and insect spread and control; hardwood insect borer life cycles; red oak-sweet gum stand dynamics; and bottomland hardwood growth and yield.

Collaborators
Mississippi State University, US Fish and Wildlife Service, Mississippi Forestry Commission, Yale University, forestry consultants and industrial foresters.

Research Opportunities
Much of the DEF was cut in the late 1990s to regenerate forest stands unmanaged for more than 30 years. Oak seedlings were planted to supplement natural oak regeneration. The Southern Hardwoods Laboratory in Stoneville has dormitory facilities for visiting scientists interested in conducting oak regeneration, hardwood stand dynamics, or other bottomland forest research on the Forest.

Facilities
The Delta Experimental Forest has a 2.2 ha fenced compound with warehouse and utilization buildings. The forest is accessible by blacktop roads at two locations and has about 8 km of all weather, gravel roads.

For more information
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