

Francis Marion National Forest

National forest lands in South Carolina are organized into one administrative unit, the Francis Marion and Sumter National Forests. The Francis Marion portion, which is the focus of this case, is situated along the coastal plains north of Charleston, SC. Loblolly pine forests dominate the lowland areas and longleaf pine has historically dominated the uplands. The primary emphasis has been on restoration of loblolly stands, frequently in monoculture plantations. A number of threatened and endangered species are also present that depend upon fire-adapted mature stands of loblolly and longleaf pine with savannah-like openings. The red-cockaded woodpecker in particular is a key species of concern.

The Francis Marion National Forest was chosen for the Joint Fire Science Program assessment because of its urban setting, unique wildlife management considerations, and challenges posed by rapidly growing forests in the coastal plains. In addition, extensive blow-down occurred in 1989 as a result of Hurricane Hugo leading to a significant amount of biomass on the ground and expanded emphasis on biomass utilization in the region. Many of the mature trees on the forest were uprooted during the hurricane including critical longleaf pine habitat for the woodpecker.

One of the keys to understanding the situation with biomass utilization on the Francis Marion National Forest is that wildfire, forest, and wildlife management goals are, in many ways synchronized. Management for one tends to enhance management for the others. The removal and subsequent utilization of undergrowth shrubs and young trees established since the blow-down in 1989 reduces fire risk, provides a marketable product regional wood chip markets, and enhances wildlife habitat for threatened and endangered species. Biomass removal is particularly important in areas where prescribed burning is not practical either because of high fuel loads or smoke inhalation in densely populated areas. The Francis Marion and Sumter National Forests jointly seek to reduce hazardous fuels on approximately 30,000-acres annually.

The existence of major paper mills in proximity to the Francis Marion National Forest creates significant demand for dirty chips used for co-generation in pulp processing, and clean chips used for pulp production. The International Paper facilities in Georgetown, SC and Eastover, SC compete with the MeadWestvaco facilities in Florence, SC and Charleston, SC. These companies in turn compete for biomass with the Santee Cooper power plant near Moncks Corner to the north of Charleston. Together they represent the primary challenge of biomass utilization in the coastal plains of South Carolina that procuring an adequate supply of clean and dirty chips is greatly influenced by competition. While there exists a significant volume of biomass in the aftermath of Hurricane Hugo and the regeneration of longleaf and loblolly pine forests produces abundant biomass, the market for wood chips is robust and drives up the costs to manufactures.



Dalia Abbas



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Biomass utilization at the Santee Cooper facility, which is a state-owned electric and water utility, was a casualty of competition. Santee Cooper expressed interest in using the blow down material from the hurricane and worked closely with agency staff to establish a long range contract for about 75,000 tons annually for dirty chips. But, when the time came Santee Cooper was outbid. They lost the contract and with it plans to co-fire the coal-burning boilers with woody biomass. Santee Cooper remains interested in co-firing and continues to explore opportunities to work with the Francis Marion National Forest. Forest biomass is also continuing to be offered but the majority of salvage-related projects will soon be completed. New sources of biomass will be needed, which may be accomplished by the combination of the following strategies employed by the USDA Forest Service, area companies, communities, and technical experts:

- Loggers interviewed for the study focused on the potential to create Stewardship Contracts with the Francis Marion National Forest as a way to procure a consistent supply of woody biomass over a defined period of time. The potential for frequent reentry into pine stands is considered feasible given the fast-growing nature longleaf and loblolly pine and access is generally not a problem.
- Biomass procurement is also a central strategy for national forest staff. In 2006, a Coordinated Resource Offering Protocol (CROP) analysis was conducted for the 18-county region surrounding the Francis Marion National Forest to project the volume of biomass to could be removed over time by species, size class, location, and land owner type. The analysis is an attempt by forest planners to offer a consistent and leveled supply of biomass to stimulate enterprise development.
- The South Carolina Forestry Association and South Carolina Forestry Commission work closely with the USDA Forest Service holding frequent meetings, working on shared projects and generally promoting the role of the forest products industry in forest restoration.
- There exist multiple partnerships among area universities, agencies, and the forest products industry to develop new biomass utilization technologies. For instance, Agri-Tech Producers and the North Carolina State University have secured funding from the USDA Forest Service for development of the torrefaction process for liquid biofuels production.
- The South Carolina Energy Office (www.energy.sc.gov) has taken steps to increase biomass utilization by promoting the production of forest feedstock to meet state demand for energy and transportation fuels. Along with the Energy Office, the South Carolina Biomass Council has been an active participant in crafting legislation to encourage the development of biomass energy and bio-products in the state that creates jobs and promotes rural development, stimulates the agriculture and forestry sectors, improves the environment, and helps the state become energy independent.

Regional estimates assume that the costs of delivered logging residues are about \$30/dry ton with a transportation distance of less than 100 km, compared to about \$50/dry ton for short rotation woody crops and \$30-50/dry ton for fuel treatment thinning. The resulting cost of electricity generation is significantly higher than that of coal-generated electricity so expanded production will rely on the coordination of strategies. However, as competition increases expanding capacity will be a challenge within the physical and economic limits of the resource.

For more information, contact:

Dennis Becker, University of Minnesota
Department of Forest Resources
drbecker@umn.edu; (612) 624-7286

Francis Marion and Sumter National Forests
4931 Broad River Road, Columbia, SC 29212
<http://www.fs.fed.us/r8/fms/>

Other researcher members include:

Dalia Abbas, University of Minnesota
Kathleen Halvorsen, Michigan Technological University
Cassandra Moseley, University of Oregon
Pamela Jakes, USDA Forest Service, Northern Research Station
Sarah McCaffrey, USDA Forest Service, Northern Research Station

<http://www.forestguild.org/biomass/>

