

Santee Experimental Forest (SAN) [USFS]

The Santee Experimental Forest (SAN) was established in 1937 in the forested landscape of the southeastern Atlantic coastal plain (<http://www.srs.fs.usda.gov/charleston/>). Located in Berkley County, South Carolina, the SAN encompasses some of the oldest colonized lands in the US. Much of the uplands were cleared for agriculture, and the bottomlands were used for rice and indigo cultivation (Fig. A1-70). The SAN encompasses 2,469 ha, containing all the major forest types in the lower coastal plain occurring on three general land types: sandy ridges, broad flats, and floodplains. The dominant forest cover is mixed pine-hardwood and loblolly pine (*Pinus taeda*) stands with bottomland hardwoods occupying the riparian zones. Soils developed in marine sediments and fluvial deposits at elevations between 4 and 13 m above sea level. Climate is warm-temperate, and ca. 40% of rainfall occurs between June and August. Snowfall and ice storms are extremely rare. Tropical storms are a common hazard between August and October. Despite the long land use history, and repeat disturbance by hurricanes, the composition and productivity of the forest suggests dynamic and resilient ecosystems. Approximately 70% of the SAN is included in the Habitat Management Area for the red cockaded woodpecker, a federally-listed endangered species. While much of the southeastern coastal landscape is being fragmented and developed, the SAN serves as an important reference for understanding ecosystem processes in a suburbanizing landscape.



Fig. A1-70. Santee Experimental Forest (SAN USFS) in South Carolina was established in the forested landscape of the southeast Atlantic coastal plain. Photo: SAN photo gallery.

Research focus. Research traditionally focused on silviculture and prescribed fire effects. Studies encompassing many aspects of silviculture, including harvesting, regeneration, thinning and fertilization have been conducted. Studies have also been conducted to assess effects of prescribed fire on forest growth and composition, and soil properties. With the establishment of four gauged watersheds in the 1960's, the fire and silviculture research were conducted at a larger spatial scale. However, long-term silvicultural studies ended as a result of Hurricane Hugo. Ongoing research involves forest succession following hurricane disturbance, forest hydrology, carbon and nutrient cycling, and wildlife. The paired

first-order watersheds are being used to assess effects of fuel management treatments in stands characteristic of post-hurricane regeneration. The SAN also serves as a platform for evaluating biogeochemical and hydrologic models.

Long-term research example. Measurements of streamflow (outflow) from a weir show similar trends to patterns in rainfall (Fig. A1-71). The data gap in 1982-1990 is partly attributed to Hurricane Hugo in 1989.

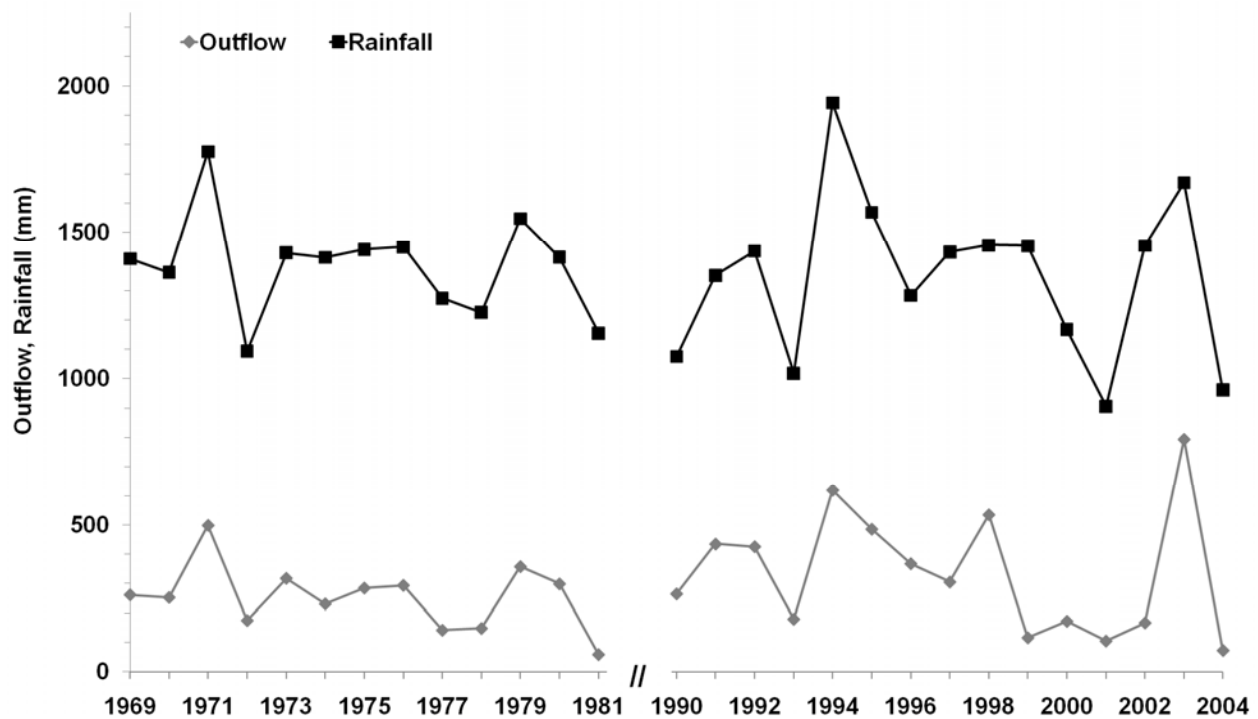


Fig. A1-71. Streamflow measured as outflow from a weir follows a similar pattern as rainfall at the SAN.

Data from <http://www.fsl.orst.edu/hydrodb/>.