

Forest studied at George Washington Birthplace

Marc D. Abrams, Professor of Forest Ecology and Tree Physiology in the School of Forest Resources at Penn State University, recently completed a study of the composition, structure, and dendroecology of a mature loblolly pine-mixed hardwood forest at the George Washington Birthplace National Monument, eastern Virginia. Loblolly pine, sweetgum, holly, blackgum, and several oak species dominate the forest. Blackgum trees dominated recruitment from 1840-1900, based on current age structure. All other tree species are less than 100 years old. A compilation of major and moderate radial growth releases revealed multiple disturbance events in most decades from 1870-1990. A dramatic increase in the radial growth of blackgum occurred in the late 1880s, probably in response to selective logging of pine and hardwood timber species. This disturbance stimulated the

recruitment of blackgum followed by loblolly pine and other hardwood species. A decline in blackgum recruitment occurred during the 20th century. The existing loblolly pine range in age from 64-105 years, and this species stopped recruiting in 1935. Seedlings and saplings of all species are scarce, with the exception of holly, a highly shade-tolerant, understory tree species. Loblolly pine trees in the overstory may exhibit future declines because of their relatively short longevity, insect attack, and windthrow. Given current conditions, the future stand composition most certainly will contain less loblolly pine and more hardwoods, including sweetgum, blackgum, and holly.