

EFFECT OF STAND AGE AND SOILS ON FOREST COMPOSITION

AT SPOTSYLVANIA BATTLEFIELD, VIRGINIA

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Abstract: Woody vegetation was surveyed in 28 forest stands at the Spotsylvania Battlefield, Virginia to examine forest composition and structure in relation to stand age and edaphic features. Pioneer stands consisted primarily of *Pinus virginiana*, which represented 50% of the overstory importance value total, whereas mid-successional stands contained a mixture of pine and hardwood species including *Quercus alba*, *Liriodendron tulipifera*, and *Liquidambar styraciflua*. Late successional stands were dominated by *Quercus* and *Carya* species, as well as *Cornus florida* and *Nyssa sylvatica*. Although *Q. alba* was the leading dominant in presettlement forest data and in half of the surveyed stands, lack of oak reproduction in the oldest stands casts doubt as to the future dominance of the species, possibly due to fire exclusion. Pine stands were found on deep, well-drained eroded soils while hardwood stands were found on both well-drained and poorly-drained soils. Radial growth analysis indicated that all stands were initiated within the last 150 years. Many stands were even-aged and appeared to be in a prolonged stem exclusion stage, with little or no recruitment of species into the tree size category. Stand age, past land use, and edaphic characteristics were the primary factors in determining the present vegetative composition and structure within Spotsylvania Battlefield.

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