

Public Abstract

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Graduation Term:SP 2013

Department:Forestry

Degree:MS

Title:Site Quality Factors Affecting *Acer saccharum*, *Quercus rubra* and *Quercus alba* Abundance and Height Growth Rates in Young Even-Aged Stands Located in Central Missouri.

Sugar maple importance has been increasing in Missouri's forest for the previous several decades. Managers have little information to guide them with selecting silviculture treatments for managing this increasingly important species. I examined the effects that soil water, soil nutrients, and landscape position have upon the abundance and height growth rates of sugar maple, white oak, and northern red oak in young even-aged, 15-29-year-old, forests of central and east central Missouri in the Lower Missouri and Lower Osage River valleys. Relationships were examined in plots sampled in 44 stands through examination of the soil profile, individual tree characteristics and stand characteristics at 44 sites. The data and analysis showed that sugar maple abundance is positively correlated with soil base saturation and height growth rate is positively correlated with AWC. White oak abundance was negatively correlated to soil base saturation. Northern red oak abundance occurred over a range of sites and no trends were observed with the measured factors. White and northern red oak growth rates were each negatively correlated with soil pH. The data from this study suggested that sugar maple is most competitive with more shade intolerant oaks on fertile sites with a mesic moisture regime.