GROWING HIGH QUALITY HARDWOODS: PLANTATION TRIALS OF MIXED HARDWOOD SPECIES IN TENNESSEE

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ABSTRACT

Hardwood plantations are becoming increasingly important in the United States. To date, many foresters have relied on a conifer plantation model as the basis of establishing and managing hardwood plantations. The monospecific approach suggested by the conifer plantation model does not appear to provide for the development of quality hardwood logs similar to those found in natural hardwood stands. Thus, there is interest in creating mixed species plantations to simulate natural hardwood stand development. The key assumption is that high quality logs can be better produced through following natural stand development patterns. Conceptual and quantitative models have been proposed to validate this assumption and help guide forest land managers planning hardwood plantations. However, robust experimental plantation trials for temperate hardwood species have yet to be developed. Here, we outline the rationale, conceptualization, and implementation of an experimental mixed hardwood species plantation in eastern Tennessee. Three two-species mixtures (1. yellow-poplar/cherrybark oak, 2. sweetgum/cherrybark oak, and 3. black cherry/cherrybark oak) were planted within three spacing patterns (6 x 6 ft, 8 x 8 ft and 10 x 10 ft). Each species mixture by spacing combination was replicated three times in 0.5-acre blocks and planted in early spring 2009. Early hypothetical development patterns and silvicultural prescriptions are explored. Modeling research suggests that mixed species hardwood plantations will provide for the development of a greater volume of clear, knot-free wood and therefore higher-quality logs. This plantation trial will be an important component in validating the assumptions and results of the models that have been developed.

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