WHITE OAK INITIATIVE

University of Kentucky
Department of Forestry and Natural Resources

INFORMING WHITE OAK MANAGEMENT AND SUSTAINABILITY THROUGH THE STUDY OF GROWTH DYNAMICS

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PROJECT GOAL: To provide detailed assessment of individual tree and stand level growth responses necessary to accurately predict white oak growth and supply.

PROJECT DESCRIPTION: White oak trees do not grow in a vacuum, they are a part of upland oak stands, and sustainably managing for hiqh-quality white oak requires an understanding of how entire stands, from seedlings to sawtimber size, grow and develop. This project is focused on enhancing our knowledge of foundational stand yield relationships, the role stand-level thinning and individual tree release treatments can play in influencing oak growth, and the interaction of biotic and abiotic factors that drive growth trends overtime in white oak. Detailed individual tree and stand level assessments, including the use of sophisticated tree ring analysis, are being completed on a number of iconic upland oak management studies in the region to fully understand the long-term dynamics associated with treatments to improve white oak growth. This data is being used to develop accurate growth and yield models to aid in management. The work focuses on key phases of the oak stand lifecycle that will have the most immediate impact on the growth and drain of our oak resource that originated in the late 19th and early 20th centuries. This project will provide critical information that is needed to optimize and sustain the production of white oak for numerous forest products markets and the international cooperage and distilling industries dependent on this species.
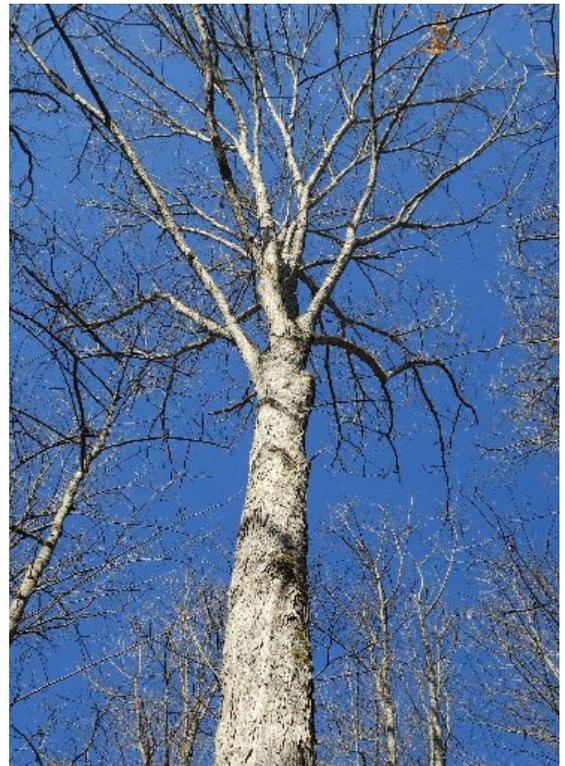
PROGRESS: Analysis of stand density and growth relationships using a network of fifty-year-old research plots within Kentucky and Ohio provide the most long-term evaluation of individual-tree and stand response of oak-dominated forests to silvicultural thinning within the Central Hardwood Forest Region. Growth and mortality models developed and their implications fill an information gap within the region, and modeling tools provided will help identify how the practices can improve forest sustainability and economic value of the region's most common forest type.

FUNDING AND RESOURCES:
- $105,000 from the University of Kentucky, Department of Forestry and Natural Resources and USDA NIFA McIntire-Stennis Program

NEEDS: The nature of the project requires sophisticated analysis at the post-doctoral scholar or PhD level, $150,000 over three years.