MISSISSIPPI STATE UNIVERSITY™
FOREST AND WILDLIFE RESEARCH CENTER

MIXED-SPECIES SILVICULTURE FOR INCREASING PRODUCTION AND RESILIENCE OF SOUTHEASTERN UNITED STATES FORESTS

A McIntire-Stennis Supported Project

Despite even-aged conifer monocultures long being valued for the forest products, careers and services they provide, increased risks from pests, pathogens and extreme weather events threaten the sustainability of these structural and genetically uniform systems. Additionally, nonindustrial private forest landowners, who currently own the majority of forest lands in the southeastern United States, have shown greater interest in mixed-species systems than in traditional monocultures.

This project aims to develop and evaluate mixed-species systems that will increase stand diversity and support the sustainability of forest products and services in the southeastern United States. Specifically, the project is identifying region-specific silvicultural techniques for promoting optimal mixed-species systems, comparing ecosystem level responses (i.e. abiotic and biotic responses) between mixed-species systems and traditionally managed monoculture systems, and developing quantitative models for evaluating the long-term productivity and sustainability of mixed-species systems. By selecting the best species in a mixed-species system, forest losses will be reduced while forest production, resiliency and sustainability will be improved.

COLLABORATION

This project is in collaboration with researchers from the Department of Forestry, Wildlife and Fisheries at the University of Tennessee and the Department of Forestry and the Department of Wildlife, Fisheries and Aquaculture at Mississippi State University.

ABOUT MCINTIRE-STENNIS

The McIntire-Stennis program, a unique federal-state partnership, cultivates and delivers forestry and natural resource innovations for a better future. By advancing research and education that increases the understanding of emerging challenges and fosters the development of relevant solutions, the McIntire-Stennis program has ensured healthy resilient forests and communities and an exceptional natural resources workforce since 1962.

USDA

IMPACTS

Over **70% of forest lands** in the southeastern U.S. are owned by nonindustrial private landowners.

Outside the U.S., mixed-species systems have been **shown to increase productivity** by as much as 20 50%.

19 Journal articles and conference presentations since 2019.