MISSISSIPPI STATE UNIVERSITY™
FOREST AND WILDLIFE RESEARCH CENTER

IMPROVED ESTIMATORS OF FOREST INVENTORY ATTRIBUTES FOR MISSISSIPPI AND THE SOUTHERN USA

A McIntire-Stennis Supported Project

Forest management and planning requires accurate estimates of past, present, and future forest conditions under different management scenarios and environmental conditions; however, it can be difficult to formulate accurate predictions based on current models. The component ratio method (CRM) — the current biomass estimation method for carbon inventories — underestimated aboveground forest biomass by 3.7 percent and 12.2 percent for species in the western and eastern U.S., respectively. With a generation of new data and improved research methods, it is possible to enhance the predictive ability of existing models and develop alternative approaches to meet the needs of resource managers and their evolving resource management objectives.

This project aims to develop tools for estimating forest inventory attributes such as volume, taper, biomass and carbon by fusing ground-based measurement, remotely-sensed data, and future projections of climate. On average, the methods developed in this project improved accuracy by 15.5 percent compared with the CRM approach. Outputs of this research will assist forest managers and policymakers in the region to make informed forest management decisions.

COLLABORATION

In addition to Mississippi State, this project includes researchers from Oregon State University, University of Montana, Northern Arizona University, University of Georgia, Michigan State University, Virginia Tech, University of Maine USDA Forest Service, and the USDA Forest Inventory and Analysis (FIA) program. Twelve individuals have been tied to this project as collaborators, participants, or project directors.

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

Mississippi's forests cover 19.9 million acres – more than 65 percent of the state's land area.

Mississippi's trees contain 37 billion cubic feet of wood volume and two billion tons of biomass, **storing 5.003×10^7 tons of carbon.**

On average, **Mississippi grew more than twice the growing stock volume** that it removed from 2012 to 2017, annually.