

ADVANCING REMOTE SENSING APPLICATIONS FOR SUSTAINABLE FOREST MANAGEMENT IN INDIANA



A McIntire-Stennis supported project

Forestry and Natural Resources

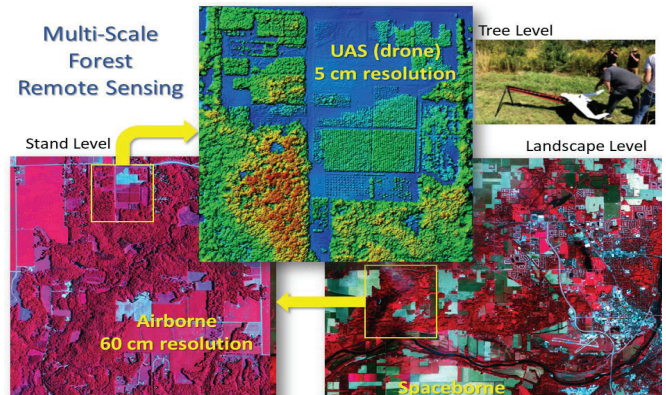
The overall quality of hardwood forests depends on management activities, which rely on explicit information about tree species composition and size.

This digital forestry project aims to develop a set of digital tools to assist in modernizing forest improvement, management and protection practices by providing precise forest information for landowners, improving day-to-day management activities.

In order to lessen the time and money needed to accurately measure and evaluate hardwood forests, this project uses remote sensors and overlapping digital photographs from both aircrafts and ground-based cameras to create 3D images of individual trees down to individual leaf and bark patterns to allow species differentiation.

The data and images are then run through an algorithm to create an accurate map of the forest, including key measurements such as height and diameter at breast height (DbH), eliminating the need for an individual to estimate or physically measure each tree.

The goal is to provide the mathematics, instrumentation and eventually an interface, where users can upload their data and be provided feedback and advice regarding their forest.



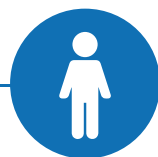
About McIntire-Stennis

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.



COLLABORATION

This project includes personnel representing seven different majors at five universities, as well as the USDA Forest Service and the Indiana Department of Natural Resources.



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Individuals have been tied to this project as collaborators, participants or project directors

IMPACT

Forest products manufacturing is a \$3 billion a year industry in Indiana, a figure which grows to \$17 billion using regional economic modeling.



95 percent

of the 4.7 million acres of forest land in Indiana are hardwoods



87 percent

of forest land in Indiana is privately owned (approximately 3.9 million acres in 2008)



3 percent

of family owners have the ability to hire professionals to prepare a forest management plan for them.