

FOREST STRUCTURE AND UAV-BASED REMOTE SENSING

A McIntire-Stennis supported project



COLORADO STATE UNIVERSITY

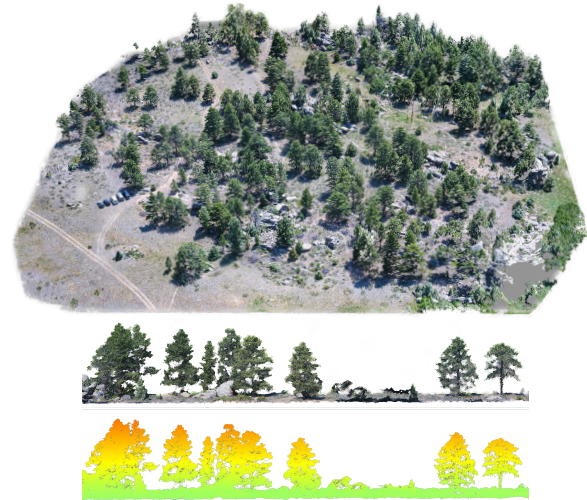
WARNER COLLEGE
OF NATURAL RESOURCES

FOREST AND RANGELAND
STEWARDSHIP

Twenty-first century forest inventory and monitoring techniques require new technologies that can capture more accurate observations of forest structure, from individual trees to entire landscapes.

This project utilizes unmanned aerial vehicles (UAV), or drones, to develop the next generation of forest monitoring methods. Processed images from these instruments provide high-resolution information about forest structure that can inform a wide range of management concerns. This fine resolution can unlock deeper linkages about the controls over forest stand dynamics and ultimately improve management decisions.

The primary goal of this research is to identify cost-effective remote sensing strategies for monitoring forest structure. These mapping techniques will directly translate to other natural resource issues of concern such as wildland fire behavior, wildlife habitat, carbon sequestration and ecosystem restoration.



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

Colorado State University is working in conjunction with the university's Drone Center, the USDA Forest Service Rocky Mountain Research Station, and private and non-profit organizations that manage forests and woodlands.

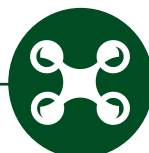


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Different UAV platforms
are being tested

IMPACT

Developing low-cost UAV-based forest inventory techniques will enable tens of millions of acres of land to be managed more effectively.



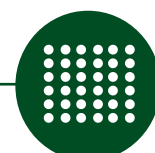
100

Drone flights
completed



12,000

Trees mapped
across 225 acres



600,000,000

Points gathered to describe
tree structural parameters