Forest Landscape Ecology Lab

SCAN ME

Lab website

@JefferyBCannon

What is landscape ecology?

Landscape ecology aims to unravel the relationships between spatial patterns and ecological processes. Our lab studies how hurricanes, fire, management, and restoration change forest pattern, structure, and function.

Our vision is to promote thriving forests in a thriving region, and our research emphasizes practical conservation strategies. We work closely with partners to improve management and large-scale restoration.

Our People

The lab trains and prepares students and researchers to apply landscape ecology techniques to conservation issues in southeastern forests.

Dr. Jeffery Cannon

Landscape Ecologist

Dr. Seth Younger

Postdoctoral Research Associate

Scott Taylor

Research Associate

Tanner Warren

Research Technician

Suzie Henderson

Graduate Student Univ. of Georgia

Hunter Scully

Graduate Student Univ. of Georgia

Andrew Arko

Seasonal Technician

Hurricane risk to forest resources

Variability of hurricane damage following 2018 Hurricane Michael.

Tree winching studies and lidar scans of tree crowns provide information on susceptibility of trees to wind damage.

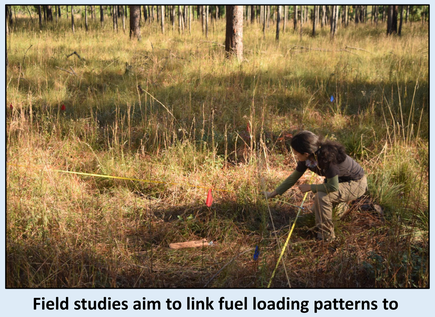
Pine forests are a vastly important ecological and economic force, especially in the southeastern U.S. Hurricanes pose a risk to forest resources, but the complexity of hurricanes makes this risk difficult to measure.

Our lab combines experimental tree winching studies, lidar scanning, wind modeling, and remote sensing to improve understanding of hurricane risk.

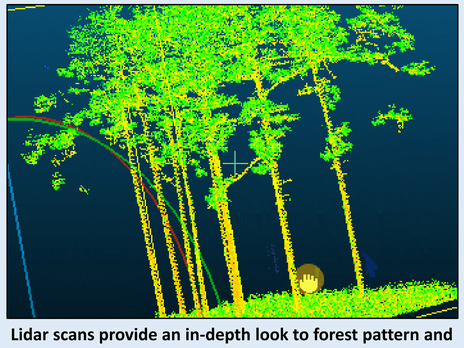
Ecological forestry

Frequent fire is largely responsible for maintaining open and diverse longleaf pine forests. In turn, fire behavior and effects are driven by local changes in overstory. Given the strong feedbacks between forests and fire, how do natural disturbances and management practices impact fire behavior and forest development?

Our lab investigates how overstory density and pattern drive fuel accumulation, fire behavior, and fire effects. Using lidar scanning, we hope to better understand how complex patterns in longleaf forests alters forest growth and development.



Field studies aim to link fuel loading patterns to mortality in longleaf seedlings.



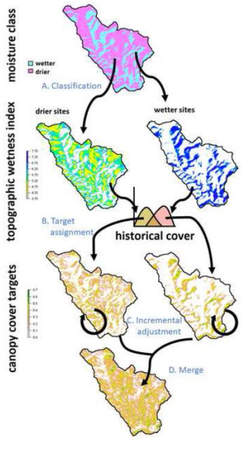
Lidar scans provide an in-depth look to forest pattern and development.

Scaling up forest restoration

Changes in land use and interruption of fire regimes have degraded many forest types in the U.S. Large-scale programs to restore both longleaf pine and ponderosa pine forests are in place as they provide habitat for wildlife and improve water quality.

Long-term longleaf pine restoration project at Ichauway.

We use ecological process modeling to prioritize investments in large-scale forest restoration. In collaboration with the Ecohydrology lab, we are developing tools to prioritize restoration to improve water quantity in longleaf pine forests, and we are also modeling restoration effects on habitat for wildlife in ponderosa pine forests.

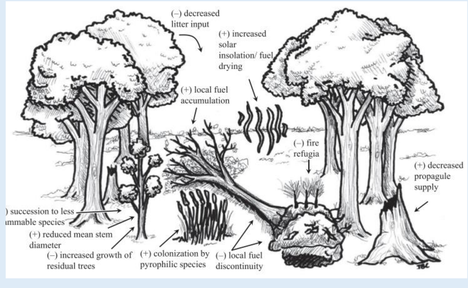


Modeling large-scale restoration in ponderosa pine forests of Colorado.

Forest disturbance interactions

Pine forests of the southeastern U.S. are famously maintained by frequent fire. Severe hurricanes also influence coastal forests, leading to sudden changes in forest structure and composition, but little is known about how wind and fire interactively shape forests.

Our research examines interactions between wind damage and fire to better understand how they shape ecological processes in forests. How does wind damage effect forest fuels and recovery from fire? How do previous fires change forest susceptibility to wind?



Potential interaction pathways among wind damage and fire.

Our Partners

Our work benefits greatly from interdisciplinary partnerships and contributions from many partners:

UGA Plant Biology
UGA Warnell School of Forestry
U of Missouri, School of Natural Resources
U of FL, School of Forest Resources and Cons.
School of Forestry and Wildlife, Auburn U.
College of Forest Resources, Miss. St. U.
Tall Timbers Research Station
USFS Southern Research Station
Rocky Mountain Bird Conservancy
Colorado Forest Restoration Institute
Nat. Resources Conservation Service
USFS Rocky Mtn. Res. Station