



Plantation Management
Research Cooperative

*Warnell School of Forestry
& Natural Resources*

UNIVERSITY OF GEORGIA

New Project

Throughfall reduction impacts on loblolly pine plantations pre- and post-thinning

Principal investigators:

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Presenter:

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Justification

- It is important to examine the possible impacts climate change will have on the productivity of pine plantations
- Loblolly pine is the most important commercial species in the U.S. South
- We need to examine the possible impacts of future climate change on the growth and resulting yield of loblolly pine
- We need to understand the resulting impacts on the structure of the wood and how it affects quality
- Thinning is a common mid-rotation management treatment and we need to understand how loblolly pine will respond under reduced moisture in conjunction with thinning



Hypotheses or Objectives

- The objective of this study is to examine the impact of fertilization and long-term throughfall exclusion on the growth of loblolly pine (*Pinus taeda*).
- It is hypothesized that:
 - 1) long-term throughfall exclusion will result in a decrease in growth in loblolly pine in terms of diameter, height, and stem volume
 - 2) fertilization will compensate for the throughfall reduction
 - 3) long-term throughfall exclusion will result in a change in wood properties



Methods

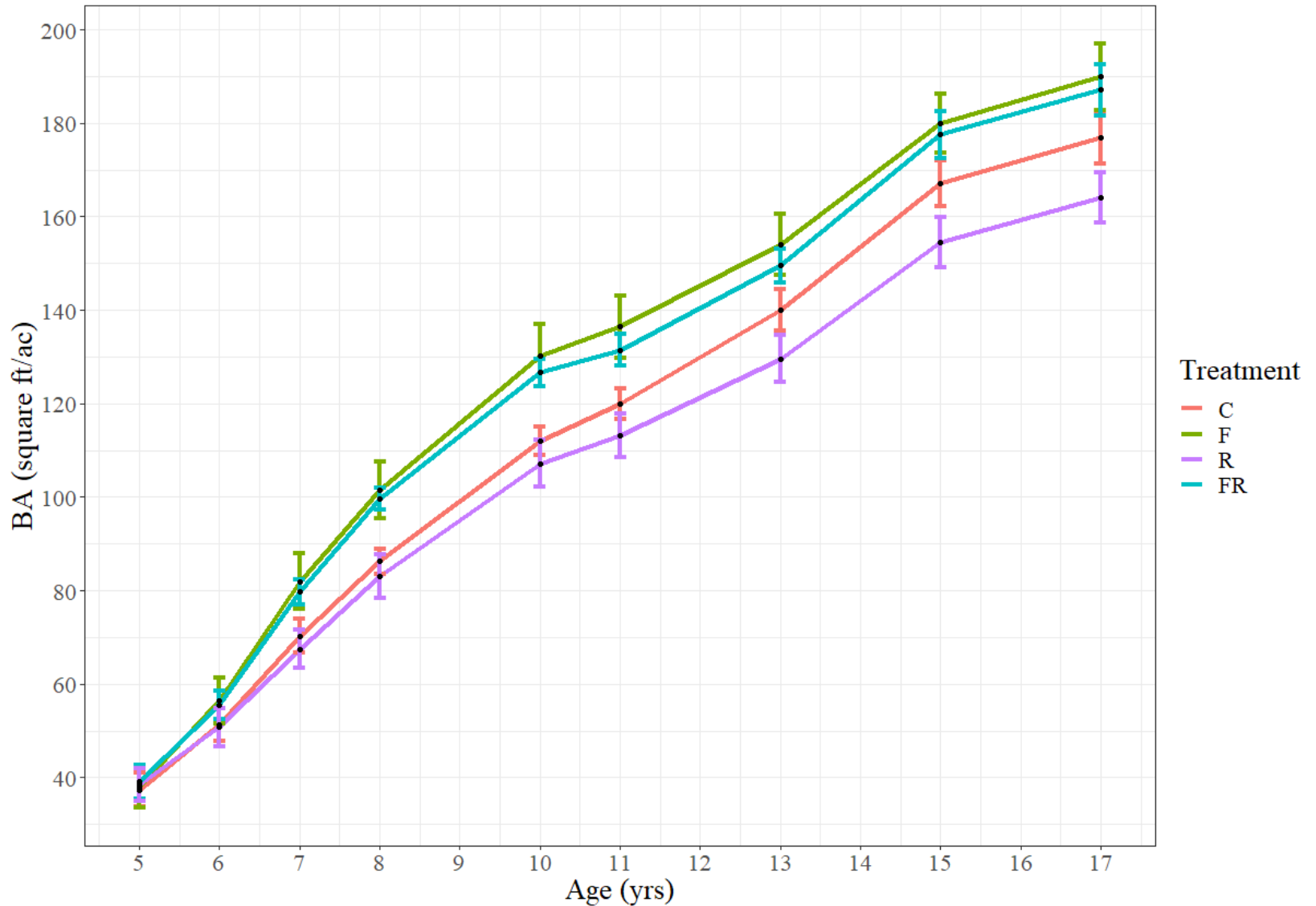
- Leverage the previous Pine Integrated Network: Education, Mitigation, and Adaption (PINEMAP) project which was established to evaluate the effects of climate, soils, and management approaches on carbon sequestration rates
- Nutrients and water were manipulated through a one-time fertilization and continual throughfall exclusion (also referred to as throughfall reduction)
- The study site is located in the Georgia Piedmont and was established in 2011 (planted 2006) in which 4 reps with four treatments were imposed: 1) control, 2) fertilizer, 3) throughfall exclusion via troughs carrying water offsite, 4) fertilization x throughfall exclusion combined treatment.
- Thinning design currently being developed



Throughfall reduction treatments



Major Findings



Deliverables

- Understanding the impact of reduced moisture and fertilization on loblolly pine production in thinned stands
- Two MS students will work on this project
- Student theses
- Peer-reviewed journal articles
- Presentations at regional and national conferences
- Presentations to forest industry members
- We are **looking for collaborators** at other CAFS sites who are interested in this project

