Quantifying the impact of pine decline in the southeastern United States

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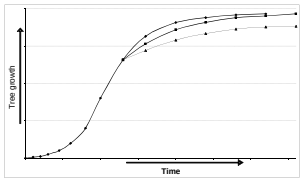
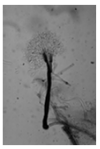
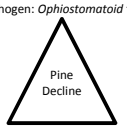
Introduction

- Southern pine decline
- *Leptographium terebrantis*
- Forest productivity





Pathogen: *Ophiostomatoid* fungi

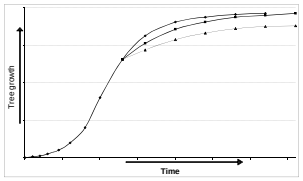


Host:
Loblolly pine

Environment

Long term goal

To quantify the impact of pine decline on forest productivity so as to enable forest managers to make accurate predictions and appropriate management decisions about commercial stands that are affected by certain pest and pathogens



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Objectives

1. Quantify the impact of fungal root infection on tree and plantation productivity and investigate the early detection potential of a subset of variables.
2. Determine the threshold level of fungal root infection required to cause growth reductions and mortality of plantation trees.
3. Examine the role of fungal root infection and its interaction with the water, nutrient, and carbon relations of plantation trees to determine the cause(s) of tree mortality and growth losses by the pine decline process.
4. Determine the impact of fungal root infection on the behaviour of bark beetles and other pests within affected stands.

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Experimental approach

- Site characteristics
- Tree and plot growth measurements
- Physiological measurements
- Insect population data
- Foliar and soil nutrition
- Inoculation methods
- Field and laboratory methods

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Site Characteristics

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Site Characteristics

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Tree and plot growth measurements

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Tree and plot growth measurements

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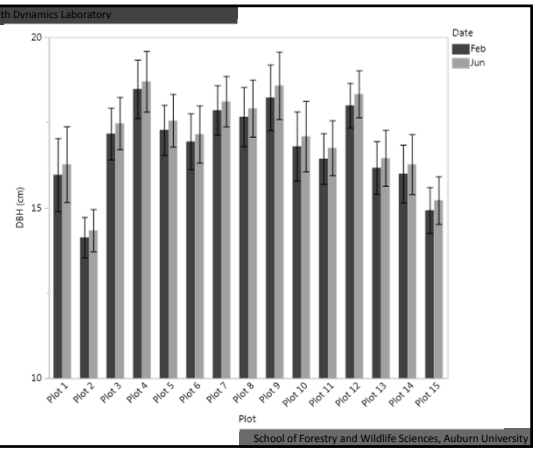

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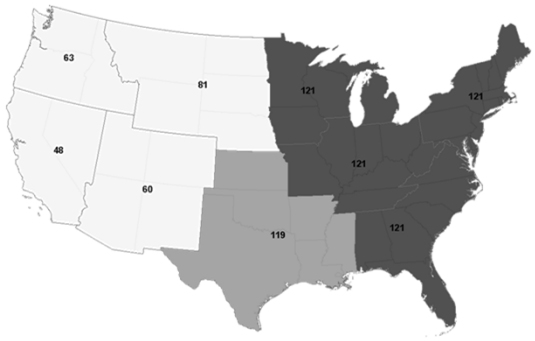
Hottest December on record



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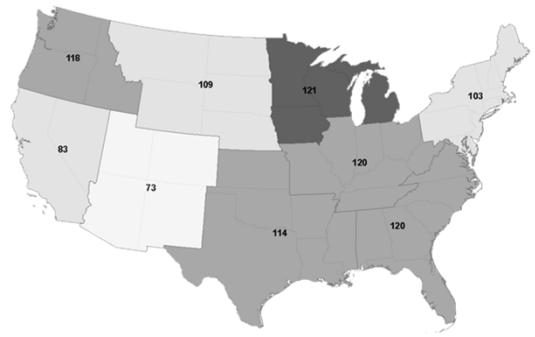
Wettest December



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Physiological measurements

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Insect population

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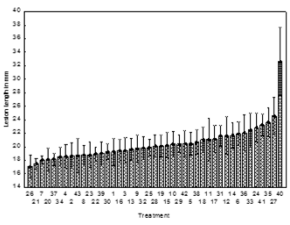
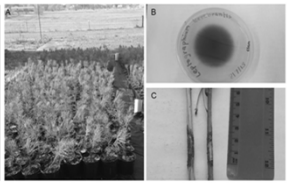
Results overview

- Site located, plots installed
- Baseline data collected and project in establishment phase
- Most virulent isolate determined





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Results overview

- Inoculation pilot study underway

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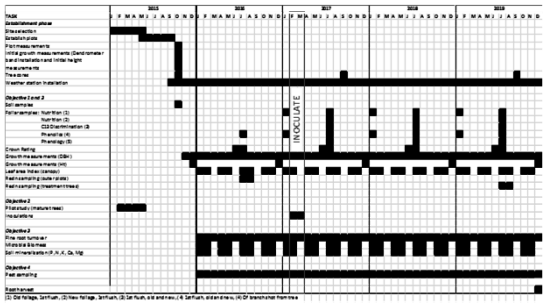
Timeline



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Acknowledgements

- Dalton Smith
- Sarah Peaden
- Robin Governo
- Adam Trautwig
- Andrea Cole
- Pratima Devkota
- Shrijana Duwadi
- John Mensah
- Ashton Newmar
- Nick Yashko

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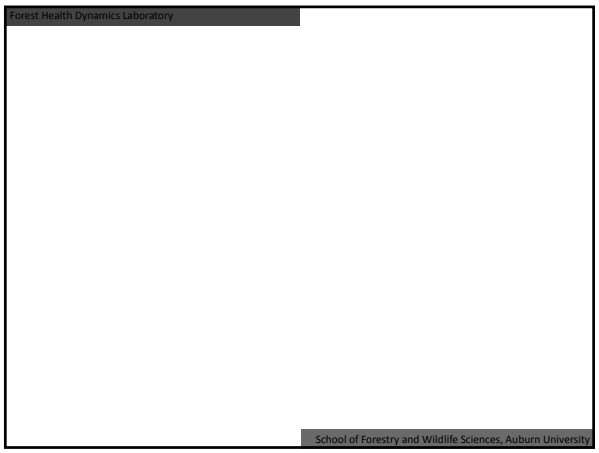
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