UF IFAS UNIVERSITY of FLORIDA

SUPPORT FOR

SCHOOL OF FOREST, FISHERIES, AND GEOMATICS SCIENCES

SCIENCE BASED MANAGEMENT

FOREST BIOLOGY RESEARCH COOPERATIVE

Our mission since 1996: To optimize productivity, health, and sustainability of intensively-managed forest ecosystems by investigating the interactions among genetics, silviculture, insects and disease, competition, nutrition, soils, weather and climate.

Benefits

Our approach helps your company:

Optimize Productivity & Efficiency: *Assess interactions between genetics, silviculture, & soils across region.*

Ensure Sustainability*: Trials to evaluate inter-rotational effects of silviculture on productivity.*

Reduce Risk: *Disease risk and productivity evaluation based on how genotypes interact with extreme weather and silviculture.*

Your membership instantly gives your company access to:

Genetics database: *Nearly thirty years of elite full-sib and clonal assessment for both loblolly and slash pine under a range of silvicultural treatments.*

Full- and multi-rotation trial data: *High-quality, long-term data on genetic X silviculture interactions for model development and testing, including trials with repeated high point-density LiDAR.*

Next trial planning*: Answer your questions using our collaborative model for choosing a scientific direction and new trials development.*

Individual site visits*: Our team is available to meet and discuss your company's needs and provide science-based feedback.*

Fungal pathogen and insect identification: *Send our team samples for analysis and we will get you results, included in membership.*

FBRC TEAM

Co-Directors

Tim Martin – *Tree Physiology*
Gary Peter *– Genetics, Wood Properties*
Jason Vogel – *Soils, Silviculture and Forest Ecology*

Analyst, Program Manager

Tania Quesada – *Genetics and Forest Pathology*

Cooperating Faculty and Staff

John Davis – *Genetics and Forest Pathology*
Bill Hammond – *Tree Physiology, Tree Stress and Mortality*
Jiri Hulcr – *Forest Entomology*
Dan Johnson – *Silviculture, Stand Dynamics, and Big Data*
Andrew Lassiter – *Lidar, Unmanned Aerial Systems*
Carlos Silva – *Remote sensing, Lidar*

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SCIENTIFIC LEADERSHIP

OUTCOME FOCUSED MULTIDISCIPLINARY TEAM	**Biological research from genes to landscapes** • The only SE US coop combining silviculture, genetics, and forest health expertise • Collaborative consensus-based trial design • PINEMAP project regional leadership • Interactions with Cooperative Forest Genetics Research Program and ProForest
INNOVATION	• First silviculture x full-sib family trial – PPINES • First multi-rotation carryover studies – IMPAC II and SSPS • First genetics x nutrition x soils – CCLONES, SSIGNS • Novel approaches for disease screening, incidence and risk monitoring
LEVERAGING COOPERATOR INVESTMENTS	• 2010-2025 federal, state and UF internal funding > $15 million • All faculty salaries paid by UF, no cost to cooperative members • Field trials on UF land

OUR MEMBERS

- F & W FORESTRY SERVICES, INC.
- RAYONIER, INC.
- RESOURCE MANAGEMENT SERVICE, LLC
- SUPERIOR PINE

MEMBERSHIP CATEGORIES

- Large landowner
- Medium landowner
- Large consulting firm
- Seedling companies
- Vendors

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FBRC
Forest Biology Research Cooperative

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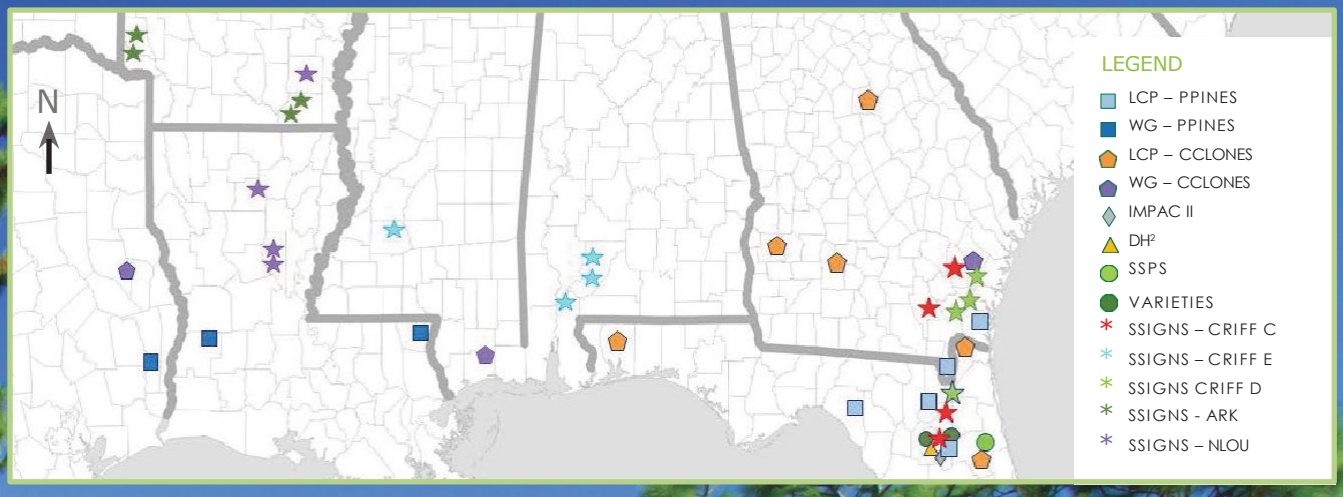
OUR STUDIES

Our loblolly and slash pine studies address **forest management, stand dynamics, productivity, and forest health.** Located on cooperator land and UF property throughout the southeast United States: Lower Coastal Plain (LCP) and Western Gulf (WG).

STUDY*	ESTABLISHED	# SITES	DESIGN	TREATMENTS	MAIN FOCUS	DATA
PPINES	2000 (LCP); 2003 (WG)	8	factorial full-sib family block plot	spacing, culture	genotype-by-environment (GXE) interactions, self-thinning	growth, crown traits, disease
CCLONES	Series 1-LCP (2002); Series 2-Slash (2002); Series 3 – WG (2006)	22	single-tree-plot clonal	culture, genetics, propagule type	clonal biology, quantitative genetics, genomics, GXE interactions, response to thinning	growth, crown traits, disease, shoot phenology, wood properties, SNP markers (> 67,000)
VARIETIES	2012	2	factorial clonal block plot	genetics, spacing, thinning	competition dynamics, thinning	growth, crown traits, disease
IMPAC II	2009, 2010	1	2 x 2 x 2 factorial	culture, weed control, thinning	multi-rotation carryover effects	growth, crown traits
SSPS	2009	1	randomized complete block	culture, weed control	multi-rotation carryover effects	growth, crown traits
DH2	2013	1	single-tree plot loblolly x slash hybrids	treatment, genetics, culture	identify beneficial introgressions for genetic improvement	growth, crown traits
SSIGNS	2013, 2014, 2016, 2017	20	single tree plot split-plot	soil type, culture, genetics, thinning	understand soil x nutrition x genetic interactions in elite full-sib families	growth, nutrient response, disease, thinning

***Study acronyms:** PPINES (Pine Productivity Interactions on Experimental Sites), CCLONES (Comparing Clonal Lines ON Experimental Sites), VARIETIES (Varietal Architecture Investigations Examining Tree Interactions on Experimental Sites), SSPS (Silvicultural Sustainable Productivity Study), DH2 (Double Hybrid backcross), SSIGNS (Site Specific Interactions of Genetics, Nutrition, and Soils).*

FBRC TRIAL SITES



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RESEARCH SUPPORT FOR

MANAGEMENT DECISION MAKING

- Forest sustainability & certification
- Increased volume production at minimal costs
- Increased final product value: CNS, ST
- Decreased loss from existing and new diseases
- Knowledgeable selection and deployment of advanced genetics
- G & Y lags genetic improvement and silviculture technology
- Potential for ecosystem service markets – carbon, water, …
- Inventory assessment with remote sensing
- Wood quality for existing and new markets
- Risk assessment and mitigation

WHAT ARE **YOUR NEEDS?**

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