

# FY 2012 ACCOMPLISHMENTS

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As presented to the Forest Health Cooperative  
Advisory Committee

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# AUBURN UNIVERSITY - FOREST HEALTH COOPERATIVE

## FY 2012 WORK PLAN

### GOAL A: RESEARCH

#### **Objective 1. Identify research projects**

Forest health evaluation of stand health in association with biomass removal and standard silvicultural practices – FHP, USFS for all travel, supplies and student worker. (Eckhardt)

➤ *Accomplishments: Funded by USFS National Forest System.*

Sudden Oak Death (*Phytophthora ramorum*) Detection Survey (Stream Sampling) in AL and MS – FHM, USFS for all travel, supplies and laboratory technician

➤ *Accomplishments: Refunded by USFS Forest Health Monitoring grant.*

Field evaluation of a controlled vapor delivery method in an integrated pest management system for citrus and loblolly pine – AU-IGP in collaboration with AU Chemical Engineering

➤ *Accomplishments: Funded by AU OVPR.*

Root disease model to determine how pine decline and annosum root rot interact – SFWS for travel, supplies, graduate student stipend.

➤ *Accomplishments: Funded by SFWS.*

Mycorrhizal fungal colonization and disease resistance – SFWS and University of Mississippi for all travel, supplies and graduate student stipend.

➤ *Accomplishments: Funded by SFWS and University of Mississippi.*

#### **Objective 2. Recruit graduate students**

There are two openings for a graduate student in the Coop:

1. Open - Resistance of *Pinus taeda* families under artificial inoculations with native and non-native *Leptographium* species involved in premature mortality.

➤ *Accomplishments: Search underway*

2. Closed – Root disease model to determine how pine decline and annosum root rot interact.

➤ *Accomplishments: Student committed for Fall 2012 – Andy Gougherty*

**Objective 3. Initiate research projects: Determine location, cooperators, and set up research plots dependent upon projects chosen by the membership.**

*Hylastes* population dynamics and forest health evaluation in association with thinning and harvesting. Plots have been installed in Georgia on Rayonier and F&W properties, in Alabama on Weyerhaeuser, Westervelt and Sizemore & Sizemore properties.

➤ *Accomplishments: Project completed and Yuan Zeng graduated May 2012.*

Cogongrass and ecologically based weed management strategies: Impacts on insect diversity and pine decline in the southeastern United States. Data about possible research stands is currently being collected. Stands will be visited in December and plots installed in January. Current members with possible available stands are Rayonier, Delaney Development Inc, Sizemore & Sizemore, Forest Investment Associates, and Westervelt.

➤ *Accomplishments: Plots were identified December 2009 on Westervelt property in south MS. Plots were installed in January 2010. Insect traps were installed end of February 2010 and insect data collection started March 2010 and completed February 2012. Plot data currently being collected: tree measurement and vigor, root infection, and resin. Year one data is being analyzed for a FY12 Research Report.*

Delineating loblolly pine decline in the Southeast using county survey and FHM/FIA data. Data retrieval has recently been approved by FIA and an account set up to access all FHM data from FIA database for the southeastern states.

➤ *Accomplishments: Project completed and maps being delivered to USFS. Matt Meyerpeter graduating August 2012. He has been hired by International Paper.*

Resistance of *Pinus taeda* families under artificial inoculations with native and non-native *Leptographium* species involved in premature mortality. Working with the Tree Improvement Cooperative to determine families to be tested for tolerance/resistance.

- *Accomplishments: Year one screening is complete and paper being written. Data is currently being collected and analyzed from the year two screening. Families were chosen and sown at Plum Creek nursery in for FY13.*

Hylastes population dynamics and forest health evaluation in association with thinning and fertilization on new RW19 in Louisiana – Funding through FHP and FHC.

- *Accomplishments: Plots for the RW-19 study were identified in March of 2011, on land managed by Forest Health Partners in Leesville, Louisiana. Study plots and insect traps were installed in May of 2011, and an initial eight weeks of insect data was collected pre-study thinning treatments. The insect traps were reinstalled in December of 2011, after treatment application and insect data is being processed up to the current collection period. Insect collections will continue until October of 2012. In May of this year plot data was collected for tree measurements and vigor, root infection, and resin. Year one data is being analyzed for a FY12 Research Report.*

Evaluation of stand health in association with biomass removal and standard silvicultural practices – Funding through USFS National Forest System and Alabama Power.

- *Accomplishments: Plots identified. Awaiting completion of treatments to install insect traps February 2013.*

Field evaluation of a controlled vapor delivery method in an integrated pest management system for citrus and loblolly pine – Funded through AU-IGP in collaboration with AU Chemical Engineering.

- *Accomplishments: Plots identified. Awaiting completion of vapor delivery system to install insect traps February 2013.*

## **GOAL B: TECHNOLOGY TRANSFER**

**Objective 1.        Serve as a clearinghouse of information related to forest health issues.**

### **Maintain and Update Forest Health Cooperative Web Site**

The Forest Health Cooperative Staff will continue to update the Forest Health Cooperative website for use by Forest Health Cooperative Members. (Eckhardt)

- *Accomplishments: The website is updated. Advisory Agenda's with each speaker's presentation available for Forest Health Cooperative Members. Research Reports and Technical Notes are updated. Changes in Forest Health Cooperative staff updated and current.*

**Objective 2.        Efficiently and regularly transfer the results of cooperative research to the membership.**

### **Research Reports (Staff)**

We plan on producing Research Reports and Technical Notes in FY12 now that research projects are underway.

- *Accomplishments: Research Report 2012-1 and 2012-2 will be out before the end of the year. Year one screening data and nutrition and disease data.*

### **Newletters (Staff)**

Newsletter distribution will be planned for September FY2012. Members are encouraged to submit articles.

- *Accomplishments: A Fall 2012 Newsletter will be sent to all Forest Health Cooperative Members in September 2012, approximately 20 on the mailing list.*

**Objective 3.        Provide a limited consultancy function to the membership in the area of forest health.**

### **Individual and Organized Contacts**

An on-going activity and is handled as individual situations and cases arise. (Staff)

	<b>Eckhardt</b>	<b>Anderson</b>
<b>Phone calls</b>	<b>35</b>	<b>0</b>
<b>Letters</b>	<b>2</b>	<b>8</b>
<b>Emails</b>	<b>54</b>	<b>10</b>
<b>Site Visits</b>	<b>2</b>	<b>3</b>
<b>Diagnosis</b>	<b>47</b>	<b>8</b>

### **Short Courses**

Forest Health Short Course will be offered in odd years starting with FY2009. Not enough members signed up for the course in FY2009 or FY2011 and if there is enough interest, a Short Course in Forest Health will be planned for August 2013. (Staff)

- *Accomplishments: We will be holding a short course June 2012 at the request of membership and enough participants. The next short course will be planned for 2014.*

## **GOAL C: COOP DEVELOPMENT**

**Objective 1.        Provide for the continual relevancy and efficiency of the Cooperative research and technology transfer programs.**

### **Advisory Committee Meeting**

The FY13 Advisory Committee Meeting will be held the third week in June 2012. A 2 day meeting will be planned. If there are any meetings that conflict with this time frame, let us know and we can try and accommodate Advisory Members. (Eckhardt/Anderson).

- *Forest Health Advisory Meeting held in Auburn on June 20-21, 2012*

### **Forest Health Cooperative Membership**

The Forest Health Cooperative staff should make an effort to recruit new members. (Staff)

- *Two new member joined the Forest Health Cooperative in FY2012 – Burgin Land, Inc. and Forestry and Land Resource Consultants.*

### **Update the Cooperative Membership Directory**

An on-going activity. (Bowersock/Eckhardt)

- *Accomplishments: Membership directory updated and loaded onto website.*

**Objective 2.        Increase the visibility and effectiveness of the Cooperative as a source of information on issues related to forest health.**

### **Presentations at Meetings**

Forest Health Cooperative staff will continue to be encouraged to participate as a speaker or attendee in regional and national meetings. (Staff)

- *Accomplishments: Forest Health Cooperative Staff gave 32 presentations and published 2 articles on the subject of Forest Health.*
- *Eckhardt, L.G. 2012. Pine root disease, root-feeding bark beetles and ophiostomatoid fungi in the United states and their impact on forest health. Institute for Commercial Forestry Research. Pietermaritzburg, South Africa.*
- *Eckhardt, L.G. 2012. The biology of pine decline in the southeastern US. Alabama Natural Resource Council Outreach Symposium. Auburn University, Auburn, AL*

- Singh, A. and Eckhardt, L.G. 2012. Variation in resistance of *Pinus taeda* families against *Leptographium* root infecting fungi. *The Southern Forest Insect Work Conference and South-wide Forest Disease Workshop Joint Meeting, Charlottesville, VA.*
- Brunson, B.A., Carter, E.A., and Eckhardt, L.G. 2012. Assessing the impacts of cogongrass (*Imperata cylindrica* (L.) Beauv) on root-feeding bark beetle populations associated with southern pine decline. *The Southern Forest Insect Work Conference and South-wide Forest Disease Workshop Joint Meeting, Charlottesville, VA*
- Meyerpeter, M.B. and Eckhardt, L.G. 2012. Mapping loblolly pine decline hazard and risk across the southeastern United States. *The Southern Forest Insect Work Conference and South-wide Forest Disease Workshop Joint Meeting, Charlottesville, VA.*
- Zeng, Y. and Eckhardt, L.G. 2012. Thinning effects on incidence of ophiostomatoid fungal species in decline impacted *Pinus taeda* stands. *Research and Creative Scholarship, Research Week, Graduate Student Forum, Auburn University, Auburn, AL.*
- Singh, A., Anderson, D.D., and Eckhardt, L.G. 2012. Variation in resistance of *Pinus taeda* and *P. elliotii* families against *Leptographium* root infecting fungi. *Graduate Research Forum, Auburn University, Auburn, AL.*
- Zeng, Y. and Eckhardt, L.G. 2012. Thinning effects on incidence of ophiostomatoid fungal species in decline impacted *Pinus taeda* stands. *Graduate Research Forum, Auburn University, Auburn, AL.*
- Steury, T.D., Eckhardt, L.G., Lowery, D., Hunter, S.A., Romagosa, C.M., Ditchkoff, S.s., Angle, C.T., and Tom, B.M. 2012. Success and failures of an ecological detection dog service. *Alabama Chapter of the Wildlife Society meeting, Decatur, AL*
- Brunson, B.A., Carter, E.A., and Eckhardt, L.G. 2012. Assessing the impacts of cogongrass (*Imperata cylindrica* (L.) Beauv) on root-feeding bark beetle populations associated with southern pine decline. *American Phytopathology Society Southern Division 2012 Meeting, Birmingham, AL.*
- Anderson, D.D., Oak, S.A., Enebak, S.A., and Eckhardt, L.G. 2012. Comparison of stream baiting protocols for recovering *Phytophthora ramorum* from streams and nursery discharge. *American Phytopathology Society Southern Division 2012 Meeting, Birmingham, AL.*
- Singh, A., Anderson, D.D., and Eckhardt, L.G. 2012. Variation in resistance of *Pinus taeda* and *P. elliotii* families against *Leptographium* root infecting fungi. *American Phytopathology Society Southern Division 2012 Meeting, Birmingham, AL.*
- Meyerpeter, M.B. and Eckhardt, L.G. 2012. Mapping the extent of loblolly pine decline in Alabama and Georgia. *American Phytopathology Society Southern Division 2012 Meeting, Birmingham, AL.*
- Zeng, Y. and Eckhardt, L.G. 2012. Thinning effects on incidence of ophiostomatoid fungal species in decline impacted *Pinus taeda* stands. *American Phytopathology Society Southern Division 2012 Meeting, Birmingham, AL.*



- Steury, T.D., Eckhardt, L.G., Lowery, D., Hunter, S.A., Romagosa, C.M., Ditchkoff, S.s., Angle, C.T., and Tom, B.M. 2011. Success and failures of an ecological detection dog service. 65th Annual Conference of the Southeastern Association of Fish and Wildlife Agencies, Nashville, TN
- Zeng, Y. and Eckhardt, L. 2012. Third row thinning effect on root-feeding beetle population dynamics and incidence of ophiostomatoid fungal species in decline-impacted loblolly pine stands. The Southern Forest Insect Work Conference and South-wide Forest Disease Workshop Joint Meeting, Charlottesville, VA.
- Brunson, B.A., Carter, E.A. and Eckhardt, L.G. 2012. Assessing the impacts of cogongrass (*Imperata cylindrica* (L.) Beauv) on root-feeding bark beetle populations associated with southern pine decline. Joint Meeting of the 14th Annual Southeast Exotic Pest Plant Council Conference and the 10th Annual Alabama Invasive Plant Council Conference, Auburn, AL.
- Meyerpeter, M. and Eckhardt, L. 2012. Mapping the extent of loblolly pine decline in the southeastern United States. Alabama Natural Resource Council Outreach Symposium. Auburn University, Auburn, AL.
- Brunson, B.A., Carter, E.A. and Eckhardt, L.G. 2012. Assessing the impacts of cogongrass (*Imperata cylindrica* (L.) Beauv) on root-feeding bark beetle populations associated with southern pine decline. Alabama Natural Resource Council Outreach Symposium. Auburn University, Auburn, AL.
- Zeng, Y. and Eckhardt, L. 2012. Third row thinning effect on root-feeding beetle population dynamics and incidence of ophiostomatoid fungal species in decline-impacted loblolly pine stands. Alabama Natural Resource Council Outreach Symposium. Auburn University, Auburn, AL.
- Singh, A. and Eckhardt, L. 2012. Variation in resistance of *Pinus taeda* and *Pinus elliotii* families against root infecting fungi. Alabama Natural Resource Council Outreach Symposium. Auburn University, Auburn, AL.
- Anderson, D., Oak, S., Enebak, S., and Eckhardt, L. 2012. Comparison of stream baiting protocols for recovering *Phytophthora ramorum* from streams and nursery discharge. Southeastern Society of American Foresters Annual Meeting, Jekyll Island, GA.
- Brunson, B.A., Carter, E.A. and Eckhardt, L.G. 2012. Assessing the impacts of cogongrass (*Imperata cylindrica* (L.) Beauv) on root-feeding bark beetle populations associated with southern pine decline. Southeastern Society of American Foresters Annual Meeting, Jekyll Island, GA.
- Zeng, Y. and Eckhardt, L. 2012. Thinning effects on the incidence of ophiostomatoid fungal species in decline-impacted *Pinus taeda* stands. Southeastern Society of American Foresters Annual Meeting, Jekyll Island, GA.
- Meyerpeter, M. and Eckhardt, L. 2012. Mapping the extent of loblolly pine decline in the southeastern United States. Southeastern Society of American Foresters Annual Meeting, Jekyll Island, GA.

- Singh, A. and Eckhardt, L. 2012. Variation in resistance of *Pinus taeda* and *Pinus elliotii* families against root infecting fungi. Southeastern Society of American Foresters Annual Meeting, Jekyll Island, GA.
- Brunson, B.A., Carter, E.A. and Eckhardt, L.G. 2011. Impact of cogongrass on populations of bark beetles associated with pine decline. IUFRO Forest Protection Joint Meeting, Colonia del Sacramento, Uruguay.
- Zeng, Y. and Eckhardt, L.G. 2011. Third row thinning effect on root-feeding beetle population dynamics and incidence of ophiostomatoid fungal species in decline-impacted loblolly pine stands. IUFRO Forest Protection Joint Meeting. Colonia del Sacramento, Uruguay.
- Meyerpeter, M.B., and Eckhardt, L.G. 2011. Mapping pine decline hazard sites in Alabama and Georgia. IUFRO Forest Protection Joint Meeting, Colonia del Sacramento, Uruguay.
- Singh, A., Anderson, D.D., and Eckhardt, L.G. 2011. Resistance of *Pinus taeda* families against *Leptographium* root fungi and assessment of family morphological traits linked to *Leptographium* infections. Tree Improvement Cooperative Contact Meeting. Macon, GA.
- Eckhardt, L.G. 2011. Pine decline: new developments and management. Tree Improvement Cooperative Annual Contact Meeting, Macon, GA
- Eckhardt, L.G. and Matusick, G. 2011. Variation in pathogenicity and virulence of four ophiostomatoid fungi and *Heterobasidion irregulare* in healthy loblolly and slash pine roots. XIII Conference on Root and Butt Rot of Forest Trees, Firenze, Italy.

## Publications

Forest Health Cooperative staff are encouraged to publish research results in scientific journals. (Staff)

- Matusick, G., Somers, G., and Eckhardt, L.G. 2012. Root lesions in large loblolly pine (*Pinus taeda* L.) following inoculation with four root-inhabiting ophiostomatoid fungi. *For. Path.* (Published first online in 2011: DOI: 10.1111/j.1439-0329.2011.00719.x) *For. Path.* 42: 37-43.
- Eckhardt, L. and Steury, T. 2012. Root diseases and timber dogs. *Forestry Source*. May 2012 Vol. 17, No. 5, p. 13.

## Extramural Funding of Forest Health Cooperative Projects

Forest Health Cooperative staff will continue to be encouraged to locate and generate extramural funding opportunities directly related to forest health. (Staff)

➤ **Accomplishments:** *Forest Health Cooperative Staff were awarded the following grants*

***totaling \$456,818.***

- Eckhardt and Enebak. 2012. Sudden Oak Death – *Phytophthora ramorum* surveys - \$49,000.
- Eckhardt. 2012. Biomass thinning effects on *Hylastes* populations – USFS National Forest System and Alabama Power - \$16,810.
- Neuman and Eckhardt. 2012. Field trial of a controlled vapor delivery method in an IPM system – AU-IGP in collaboration with AU Chemical Engineering - \$97,000.
- Eckhardt. 2012. Root disease model – SFWS - \$64,500.
- Hoeksema and Eckhardt. 2012. Mycorrhizal fungal colonization and disease resistance – SFWS and University of Mississippi - \$25,000.
- Enloe, Loewenstein, Eckhardt and Held. 2009. Cogongrass and ecologically based weed management strategies: Impacts on insect diversity and pine decline in the southeastern United States. AFRI-NIFA. \$494,000 (FHC component: \$181,000). Additional funds from AU-SFWS \$18,100. *In final year of grant.*
- Via and Eckhardt. 2012. Wood chemistry and disease resistance. SFWS - \$5,000.