AUBURN UNIVERSITY- FOREST HEALTH COOPERATIVE

FY 2011 PROPOSED WORK PLAN

As presented to the Forest Health Cooperative Advisory Committee

Dr. Lori G Eckhardt - Director

11/17/2010

AUBURN UNIVERSITY - FOREST HEALTH COOPERATIVE

FY 2011 WORK PLAN

GOAL A: RESEARCH

Objective 1. Identify research projects

Proposed FY2011:

1. Hylastes population dynamics and forest health evaluation in association with thinning and fertilization on new RW19 in Louisiana – Funding through FHP and FHC – *Needs FHC Advisory Board approval*
2. Forest health evaluation of stand health in association with biomass removal and standard silvicultural practices between two land managers (extension for post-treatment data collection as treatments were delayed due to no market for chips so could not sell contract) – FHP, USFS for all travel, supplies and student worker $16,810 – *Decision pending from USFS*
3. Ecology of siricids and fungal associates in southeastern pine forests: potential for biological control and competition – APHIS for travel, supplies and graduate student $99,493 - *Decision pending dependent upon continuation of funds*
4. Exploring soil microbial communities as mediators of complex threats to southern conifers – Agriculture and Food Research Initiative Competitive Grant (3 years) $497,000 - *Not funded, will resubmit next cycle with modifications*

Newly Funded FY2011:

1. Using Fungus/Forest Dogs to find root fungi (*Leptographium, Grosmannia, Ophiostoma, Heterobasidium*) and help land managers make informed decisions – SFWS for travel and supplies $1,000
2. Sudden Oak Death (*Phytophthora ramorum*) Detection Survey (Stream Sampling) in AL and MS – FHM, USFS for all travel, supplies and laboratory technician $42,000
3. Delineating loblolly pine decline in the Southeast using FHM/FIA data – submitted to FHM, USFS for all travel and supplies associated with the project – $34,592

Funded FY2010:

1. Cogongrass and ecologically based weed management strategies: Impacts on insect diversity and pine decline in the southeastern United States – Funded through the Agriculture and Food Research Initiative Competitive Grant (3 years) $490,000

Proposed and Approved FY09:

1. Delineating loblolly pine decline in the Southeast using county survey and FHM/FIA data

2. *Hylastes* population dynamics and forest health evaluation in association with thinning and harvesting
3. Resistance of *Pinus taeda* families under artificial inoculations with native and non-native *Leptographium* species involved in premature mortality

Funded FY09:

1. Hylastes population dynamics and forest health evaluation in association with thinning and fertilization – Funded through the Nutrition Cooperative $16,230 and SFWS $54,300
2. Forest health evaluation of stand health in association with biomass removal and standard silvicultural practices between two land managers – Funded through USFS- NFS $10,000, USFS-FHP $5,000, SFWS $54,300.
3. Blue-stain fungi associated with feral hogs causing rooting damage in longleaf and loblolly pine stands – Funded through US Army $25,000, SFWS $10,000 and FABI $100,000.

Objective 2. Recruit graduate students

There were openings for 3 graduate students in the Coop: 1 provided by the Coop budget and 2 provided by SFWS for projects beginning FY09. All positions have been filled.

1. Matt Meyerpeter - Delineating loblolly pine decline in the Southeast using county survey and FHM/FIA data. (This project was originally being done by Bikash Bhandari but he transferred to another school due to personal reasons.)
2. Yuan Zeng - *Hylastes* population dynamics and forest health evaluation in association with thinning and harvesting
3. Amritpal Singh - Resistance of *Pinus taeda* families under artificial inoculations with native and non-native *Leptographium* species involved in premature mortality.

There was a graduate student opening for the AFRI project which has been filled.

1. Ben Brunson – Cogongrass: Does its presence or management affect bark beetle populations or tree susceptibility to pine decline.

Objective 3. Initiate research projects

Determine location, cooperators, and set up research plots dependent upon projects chosen by the membership.

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

   b. All pre-treatment data has been collected which includes tree measurement and vigor, root infection, resin and insect.
   c. All treatments have been completed except for thinning at F&W and SS, and clearcut at SS. SS is currently completing their treatment. We have no timeline for the thinning at F&W.
   d. Post-treatment data is currently being collected.
2. Cogongrass and ecologically based weed management strategies: Impacts on insect diversity and pine decline in the southeastern United States.
   a. Plots were identified December 2009 on Westervelt property in south MS. Plots were installed in January 2010.
   b. Insect traps were installed end of February 2010 and insect data collection started March 2010.
   c. Plot data currently being collected: tree measurement and vigor, root infection, and resin.
3. Delineating loblolly pine decline in the Southeast using county survey and FHM/FIA data.
   a. 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.
   b. Travel and supplies for this project will shift to the funded FHM grant.
4. Resistance of *Pinus taeda* families under artificial inoculations with native and non-native *Leptographium* species involved in premature mortality.
   a. Families were chosen and hand sown at Rayoniers' nursery in Glenville GA. Seedlings will be lifted early January 2011 and transported to Auburn.
   b. Need to determine if nutrition portion of project should be implemented for FY11.
   c. Need to identify families for FY12 screening. Need to identify species to be screened: loblolly and slash or longleaf. Need to determine if nutrition portion of project should be implemented for FY12.
5. Hylastes population dynamics and forest health evaluation in association with thinning and fertilization.
   a. Data collection complete and working on manuscripts for publication
6. Forest health evaluation of stand health in association with biomass removal and standard silvicultural practices between two land managers.
   a. Two years of pre-treatment data collected. Treatments were delayed due USFS not being able to contract the cuts. Treatments will hopefully be completed this winter and post-treatment data collected. Put in proposal for extension.
7. Blue-stain fungi associated with feral hogs causing rooting damage in longleaf and loblolly pine stands.
   a. Data collection complete and working on manuscripts for publication.

GOAL B: TECHNOLOGY TRANSFER

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

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

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

Research Reports – We plan on producing Research Reports and Technical Notes in FY11 now that research projects are underway.

Newsletters – Newsletter distribution will be planned for April (Spring) and October (Fall) FY2010. Members are encouraged to submit articles.

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

Individual and Organized Contacts – Will be handled as individual situations and cases arise.

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 and if there is enough interest, a Short Course in Forest Health will be planned for August 2011.

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 FY12 Advisory Committee Meeting will be held the third week in November 2011. 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.

Forest Health Cooperative Membership – The Forest Health Cooperative staff should make an effort to recruit new members.

1. Two new members for FY10: The Westervelt Company and ArborGen Inc.
2. The Alabama Forestry Commission reduced their membership status due to state budgets, but will return to full status once state budgets are better.

Update the Coop Membership Directory – An on-going activity.

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.

FY10 Presentations:

1. Eckhardt, L.G., Menard, R.D., Matusick, G., and Zanzot, J.W. **2009.** Pine decline: the involvement of bark beetles and ophiostomatoid fungi. Society of American Foresters National Convention *in* New Trends in Management of Forest Insect and Diseases in the Southeast, Orlando, FL
2. Zanzot, J.W. and Eckhardt, L.G. **2009**. Seasonal changes in abundance of root-feeding curculionids and ophiostomatoid fungi at Fort Benning, Georgia. Forest Insects and Environmental Change: IUFRO Division 7 – Forest Health, Jackson Hole, WY.
3. Zanzot, J.W. and Eckhardt, L.G. **2009**. Assessment of longleaf pine on high-risk and low-risk loblolly pine decline sites at Fort Benning, Georgia. Expanding the Boundaries: 2009 APS Annual Meeting, Portland, OR.

Publications – Forest Health Cooperative staff are encouraged to publish research results in scientific journals.

FY11 Publications:

1. Matusick, G., Eckhardt, L.G., and Somers, G. **2010**. The pathogenicity of four *Leptographium* species to mature longleaf pine roots. For. Ecol. Mgmt. 260:2189-2195.

FY10 Publications:

1. Matusick, G. and Eckhardt, L.G. **2010**. Variation in virulence among four root-inhabiting ophiostomatoid fungi on *Pinus taeda* L., *P. palustris* Mill., and *P. elliottii* Englem. seedlings. Can. J. Plant Path. 32:361-367.
2. Zanzot, J.W., de Beer, Z.W., Eckhardt, L.G., and Wingfield, M.J. **2010**. A new *Ophiostoma* species from loblolly pine roots in the southeastern United States. Mycol. Progress. 9:447-457.
3. Matusick, G. and Eckhardt, L.G. **2010**. The pathogenicity and virulence of four ophiostomatoid fungi on young longleaf pine trees. Can. J. Plant Path. 32:170-176.
4. Zanzot, J.W., Matusick, G., and Eckhardt, L.G. **2010.** Activity of root-feeding insects and their associated fungi on longleaf pine in Georgia. J. Econ. Entomol. 39:415-423.
5. Eckhardt, L.G., Sword-Sayer, M.A., and Imm, D.W. **2010**. State of pine decline in the southern United States: A Technical Note. J. Appl. For. 34:138-141.
6. Eckhardt, L.G. and Menard, R.D. **2009.** Declining loblolly pine stands: symptoms, causes and management options. AL Treasured Forest Magazine Volume XXV111, No. 2, p. 10-12.
7. Eckhardt, L.G., Menard, R.D., and Gray, E. **2009**. Effects of oleoresins and terpenoids on the fungal growth associated with pine decline in the southeastern United States. For. Path. 39:157-167.