**Project NE1601 Annual Meeting 3/10/17 Notes**

**Attendees:**

**Universities**

Michigan State University: Katie Minnix, Monique Sakalidis (remotely)

University of Georgia: Tom Whitney

University of Maine: Savannah Haines, Kara Costanza, Shawn Fraver, William Livingston

University of Massachusetts: Tawny Simisky, Nick Brazee

University of New Hampshire: Cameron McIntire

**State Forest Health Agencies**

Maine Forest Service: Aaron Bergdahl, Dave Struble

Massachusetts Department of Conservation and Recreation: Ken Gooch, Felicia Andre, Nicole Keleher

New Hampshire Division of Forests and Lands: Kyle Lombard, Bill Davidson

Pennsylvania Department of Conservation and Natural Resources: Tim Tidel (?)

Vermont Department of Forests, Parks & Recreation: Josh Halman

**Federal Agencies:**

USDA Forest Service, State & Private Forestry: Isabel Munck (Durham Field Office), James Jacobs (St. Paul Field Office, remotely)

**Industry**

JD Irving Woodland: Greg Adams

**Experiment Stations**

University of Maine: Fred Servello (Project Advisor), John Dieffenbacher-Krall

**Business Meeting**

1. Remarks and question and answer session with Dr. Frederick A. Servello, Interim Dean and Director, College of Natural Sciences, Forestry, and Agriculture, Maine Agricultural and Forest Experiment Station, Project Advisor to NE1601
2. Review of Project Objectives:
3. Review, synthesize, and share information on white pine health issues.
4. Identify critical knowledge gaps that currently hamper efforts to improve white pine health.
5. Avoid unnecessary duplication of research effort.
6. Establish a collaborative information-exchange network to provide better detection and understanding of factors affecting white pine health.
7. Standardize field, laboratory, and analytical protocols across the regions.
8. Develop additional multi-institutional research proposals for national-level grants in order to bolster and build upon this initial work.
9. Develop silvicultural prescriptions and other management recommendations to help mitigate potential white pine threats.
10. Ensure that new findings are communicated with land managers.
11. Election of chair, chair-elect, and secretary
    1. Chair: Bill Livingston, Professor School of Forest Resources, University of Maine.

The chair of the committee is responsible for organizing the meeting agenda, conducting the meeting, and assuring that task assignments are completed. It is encouraged that the chair be elected for at least a two-year term to provide continuity. Prepares and submits the accomplishments report (i.e., the SAES-422). The Chairs are eligible for reelection.

* 1. Chair-elect: Kamal Gandhi, Professor Warnell School of Forestry and Natural Resources, University of Georgia.

The chair-elect normally succeeds the chair, and is expected to support the chair by carrying out duties assigned by the chair. The chair-elect serves as the chair in the absence of the elected chair. Normally the chair-elect is elected for at least two years. The chair-elect is eligible for reelection.

* 1. Secretary: Isabel Munck, Plant Pathologist USDA Forest Service.

The secretary is responsible for the distribution of documents prior to the meeting and is responsible for keeping records on decisions made at meetings (a.k.a. keeping the minutes). The secretary normally succeeds the chair-elect. Secretaries are eligible for reelection. The Secretary will provide a summary of the annual meeting minutes for the SAES-422 report.

* 1. Members: In addition to carrying out the agreed research collaboration, research coordination, information exchange, or advisory activities, project members are responsible for reporting progress, contributing to the ongoing progress of the activity, and communicating their accomplishments to the committee’s members and their respective employing institutions.

1. Propose and approve sub-committees
   1. Planning committee for 2018 annual meeting in Georgia (tentative):
      1. Chair: Kamal Gandhi (University of Georgia, Athens)
      2. Co-Chair: Bill Livingston (University of Maine, Orono)
      3. Program Advisory Board: Michelle Cram (USDA Forest Service, Athens), Tony D’Amato (University of Vermont, Burlington), Isabel Munck (USDA Forest Service, Durham)
      4. Local Arrangement Team: Brittany Barnes and Thomas Whitney (University of Georgia, Athens)
   2. Caliciopsis Canker Management Guidelines

* Kara will write up intro, symptoms and signs
* Isabel will describe conducive sites
* Bill and Kyle will work on management recommendations with help from Bob Seymour and Bill Leak
  1. Special journal issue for white pine health issues
* Kamal is looking into the possibility of doing this with Forests or Forest Ecology and Management (FEM)
* FEM preferred because of higher impact which would be most beneficial to students

d. Develop web space for group to deposit/access resources:

* Bill will look into establishing a Google Drive that all members can access.

1. Plan for drafting, submission of SAES-422 (Appendix D)

**Project Reports**.Participants reported on current work dealing with white pine health issues.

1. Nick Brazee, University of Massachusetts, White Pine Health in Massachusetts

* Nick Runs the plant diagnostic lab for UMass and receives samples from MA, CT, RI, and southern VT.
* In 2015, Nick received a lot of eastern white pine samples of necrotic needles with black fruiting bodies that turned out to be *Septorioides strobi* often also colonized by *Hendersonia pinicola*
* During 2016, widespread needle browning was observed after a warm winter.
* In 2017, crowns of trees very thin in pine plantations planted by the CCC surrounding watersheds
* Other issues affecting pine: *Phaeolus schweinitzii*, red ring rot/wind break, drought, *Armillaria mellea, Diplodia sapinea*

1. Cameron McIntire, University of New Hampshire, White Pine Needle Damage (WPND)

* Prior to WPND, 90% white pine litterfall was caused by natural senescence in October
* Now only 43% of littefall occurs in October and the majority occurs in June
* Defoliated trees are resorbing nitrogen and exhibit growth reductions
* Photosynthesis and stomatal conductance were reduced by the 2016 drought. White pine is isohydric because it responded to drought
* Exploring effect of thinning on trees damaged by WPND

1. Greg Adams, JD Irving Woodland, New Brunswick, Canada, White Pine Needle Endophytes as Biological Control Agents

* JD Irving is a family owned business that manages forests in Nova Scotia, New Brunswick, and northern Maine
* They own and manage 2.5 million acres of timberland and also manage millions of acres of crown land owned by the Provinces
* Starting in 1990s, JD Irving has been conducting white pine restoration
* Shelterwoods are conducted to remove fir and then sites are planted with genetically improved seed. Site preparation is achieved by dragging chains to scarify soil before planting. Genetically improved white pine and spruce are planted. Overstory removals are conducted after 10 years. Stands are managed for 50% white pine and 50% spruce. Spruce is removed for pulpwood whereas white pine is grown for lumber.
* Work with endophytes also began in the 1990s when survival of residual trees following budworm infestation was noted. Models were adapted from grass seed inoculated with endophytes for protection against pest. Dr. Miller isolated endophytes from trees not affected by spruce budworm infestation. Unlike grass endophytes that are vertically transmitted, tree endophytes are horizontally transmitted from older trees to seedlings. Seedlings are grown in green houses from seed and inoculated by endophytes with irrigation water. Dr. Miller developed efficient inoculation techniques and quantified persistence of inoculated endophytes as trees aged.
* Secondary metabolites produced by endophytes are isolated from liquid cultures. Rugulosin, which s antagonistic to budworm, was isolated from white spruce. Promising antifungal compounds were also isolated. Driseofulvin isolated from a *Xylleria* spp. is found in antifungal creams for humans and inhibits *Dothiostroma spp.* and white pine blister rust (WPBR) pathogen (*Cronartium ribicola*). Pyrenophorol produced by *Lophodermium nitens* is antagonistic to *C. ribicola.* Seedlings treated with endophytes are being panted in high WPBR hazard areas and artificially challenged.
* Seedlings are susceptible to endophyte inoculations before needles are elongated and waxy cuticle is fully developed.

1. Tom Whitney, University of Georgia, White Pine Bast Scale.

* Tom gave a tutorial of how to find eastern white pine bast scale, *Matsucocccus macrocicatrices*
* This scale has been associated with Caliciopsis pinea canker and white pine mortality
* The scale can be found on the bole of mature trees with smooth bark, whorls, nodes, and at the edge of *C. pinea* cankers
* Adults look like shiny black pearls, often with white breathing tubes on sides, and when popped, exude liquid. The best time to look for these is in the spring. Males form a cocoon and emerge as winged adults in the spring.
* Tom is looking at the genetics of the scale to see if it was always present in the South.

In addition, the previous day, the following presentations were delivered at the Eastern white pine health special session at the Northeast Pest Council and NE Society of American Foresters Annual Winter Meeting in Orono, Maine:

1. Current Health Status of Pinus strobus (Eastern White Pine) Across Eastern North America. Kara Costanza, University of Maine, and Thomas Whitney, University of Georgia.
2. Soil and Stocking Effects on Caliciopsis Canker of Pinus strobus L. Isabel Munck, USDA Forest Service, Durham, NH
3. Impacts of White Pine Needle Damage in New England and Response to Silvicultural Thinning Treatments. Cameron McIntire, University of New Hampshire.
4. History and Current Conditions of Pine Leaf Adelgid in Maine. Allison Kanoti, Maine Forest Service

**Future Direction**

* Ken Gooch would like to know what methods/level/equipment should be used to harvest stands affected by Caliciopsis canker. Are residual, wounded trees at rinsk of Caliciopsis damage? How should foresters that want to maintain white pine manage regeneration? Greg Adams suggested using careful logging with big equipment, creating access trails, big harvesting heads to remove tops used for hardwoods to minimize damage to regen.
* Kyle Lombard-continue to explore biology of bast scale and Caliciopsis pinea. This would be more of a research project.
* Isabel would like to explore how to manage white pine regen to avoid damage from Caliciopsis canker. Might be appropriate for Landscape Restoration Project.



Dr. Bill Livingston and graduate student’s looking at Caliciopsis canker symptoms in UMaine’s Demeritt Forest.