



# IDIP NOTE-2007

*Special One Year Anniversary Issue*



It has now been over one year since the creation of the new unit SRS-4552: Insects, Diseases and Invasive Plants (IDIP). Each month we summarize our tech transfer activities, publications and presentations. Here is a look at our activities during this first year of our existence.

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**Totals**

Refereed Publications	46
Total Publications	56
Presentations	85
Tours/International Activities/Other	21
<b>Total Tech Transfer Products</b>	<b>208</b>

# The Year in Review

## July 2006—First IDIP Note

## August 2006—First Threats Science Area Meeting

Many of us attended the first ever Threats to Forests Science Area Meeting in August, 2006 in Atlanta. The following were identified as some common themes:

1. Impacts of storms on forest ecosystems
2. Fragmentation and parcelization of forest land
3. Invasives Species
4. Restoration of ecosystem structures, processes, and function
5. Effects of global climate change and climate variability on eastern forests
6. Use of biomass reduction methods to lower risk of wildfire

## November 2006—First All IDIP Unit Meeting

We held our first all unit meeting November 7–8, 2006 in Pineville. Over 40 people attended. Among the issues we discussed:

- FY07 – The Year of Transition
- Admin and Technical Support Issues
- Shared Skills and Equipment
- Safety
- Common Areas of Research
  - » Environmental Fate/ Impacts of Pesticides
  - » Insect – Microbe Interactions
  - » Coarse Woody Debris
  - » Invasive Plants
  - » Invasive Insects, Monitoring/ Detection and Chemical Ecology
- Possible future intra-4552/ collaborations
  - » Forest Fragmentation
  - » Insect – Pathogen Symbiosis
  - » Invasive Plants Control/ Restoration/ Ecology
  - » Early Detection of Invasive Pests

## January 2007—First Realigned SRS All Scientist Meeting

The first Realigned SRS All Scientist Meeting was held Jan. 30–Feb. 1, 2007 near Atlanta and was well attended by IDIP scientists and technicians.

## Personnel News

December, 2006 – Charles Walkinshaw, emeritus forest pathologist joined IDIP.  
January, 2007 – Sarah Uharriet retired from the wood destroying insects team.  
April, 2007 – Lolette M. Welch joined the wood destroying insects team.

# IDIP Tech Transfer Activities by Scientist

## Steve Fraedrich

### Presentations

- Fraedrich, S.W. 2007. Redbay ambrosia beetle and laurel wilt. Training Session for Plum Creek Foresters, Athens, GA.
- Mayfield, A.E., III, S.W. Fraedrich, J. Johnson, L.S. Reid, and J.A. Smith. 2007. Laurel wilt: A new disease threatening redbay and other plants in the Lauraceae. Invasive Arthropod Workshop, Clemson University, SC.
- Fraedrich, S.W. 2007. Laurel wilt. Clemson University Extension Service Workshop: Nonnative Invasive Species Threats to Our Forests. Edisto Research Station, Blackville, SC.
- Fraedrich, S.W. 2007. Lecture on red bay wilt in Forest Pest Management course at the University of Georgia. Athens, GA.
- Fraedrich, S.W. Laurel wilt: Causal agent, disease development and potential impacts on other members of the Lauraceae. Redbay Wilt Symposium. Jekyll Island, GA. 18-19 January 2007 (Invited).
- Fraedrich, S.W. Laurel wilt: The pathogen, disease development and the risk to various species in the Lauraceae. Southern Forest Insect Work Conference. Jekyll Island, GA. July 23-27, 2007 (Invited).
- Fraedrich, S.W. An *Ophiostoma* species and *Xyleborus glabratus* threaten Redbay (*Persea borbonia*) and other members of the Lauraceae in the Southeastern USA. All Scientist Meeting. Lake Lanier, GA. January 30-31, 2007. (Poster).
- Mayfield III, A.E., S.W. Fraedrich, J. Johnson, L.S. Reid, and J.A. Smith. 2007. Laurel wilt: A new disease threatening Redbay and other plants in the Lauraceae. Invasive Arthropod Workshop, Clemson University. (Invited) (Poster).

### Publications

- Cram, M.M., S.A. Enebak, S.W. Fraedrich, L.D. Dwinell, and S.J. Zarnoch. 2007. Evaluation of fumigants, EPTC herbicide, and *Paenibacillus maceransin* in the production of loblolly pine seedlings. *For. Sci.* 53:73-83.
- Fraedrich, S.W., T.C. Harrington, R.J. Rabaglia, M.D. Ulyshen, A.E. Mayfield III, J.L. Hanula, J.M. Eickwort and D.R. Miller. 2007. A fungal symbiont of the redbay ambrosia beetle causes a lethal wilt in redbay and other Lauraceae in the southeastern USA. *Plant Disease*. In press.

- Fraedrich, S.W., T.C. Harrington, and R.J. Rabaglia. 2007. Laurel wilt: A new and devastating disease of redbay caused by a fungal symbiont of the exotic redbay ambrosia beetle. *Newsletter of the Michigan Entomological Society* 52:14-15.
- Johnson, J., L.S. Reid, A.E. Mayfield, III, D. Duerr, and S.W. Fraedrich. 2007. New disease epidemic threatens Redbay and other related species. *Georgia Forestry Today*. 3:35-36.
- Cram, M. M. and S. W. Fraedrich. 2007. Biology and management of *Longidorus americanus* in a southern USA nursery, Pp. 46–52 in: J. R. Sutherland and Z. Prochaszko (eds.), *Proceedings of Sixth Meeting of the IUFRO Working Party 7.03.04 (Diseases and Insects in Forest Nurseries)*. Uherske Hradiste, Czech Republic.

### Tours

- Presentation/tour: Provided four brief lectures with “hands on” demonstration and information about Laurel wilt to students of the Georgia Plant Science Scholars Program. June 26, 2007, Athens, GA.

## Jim Hanula

### Presentations

- Hanula, J.L. 2006. Effects of fire on insects—What’s hot and what’s not? *Current Topics in Forest Entomology Symposium*, 54th Annual Meeting of the Entomol. Soc. Am., Indianapolis, IN.
- Fettig, C.J., J.L. Hanula, and J.L. Foltz. 2006. Bark beetle responses to burning and thinning treatments of the Fire and Fire Surrogate Study: a multi-site approach. *Third International Fire Ecology and Management Congress*, San Diego, CA.
- Hanula, J.L., M. Churchel, C. W. Berisford, and J. Vose. 2007. Immediate impact of imidacloprid treatment for control of hemlock woolly adelgid on aquatic macroinvertebrate communities. *Sustainable Forest Pest Management Symposium*, 233rd National Meeting of the Am. Chem. Soc., Chicago, IL.
- Hanula, J.L., B. Rabaglia, S. Fraedrich. 2007. The redbay ambrosia beetle and laurel wilt disease – an exotic end for a native tree? *Invasive Species Symposium*, 71st Georgia Entomological Society Annual Meeting, Athens, GA.
- Hanula, J.L. 2007. Redbay ambrosia beetle biology and host attraction. *Redbay Ambrosia Beetle and Laurel Wilt Workshop*, 2007 Southern Forest Insect Work Conf. Jekyll Island, GA.

- Hanula, J.L., J. Johnson, and D. Duerr. 2007. Organized and conducted the workshop, Redbay Ambrosia Beetle and Laurel Wilt, 2007 Southern Forest Insect Work Conf. Jekyll Island, GA.
- Braman, S. K., J. Hanula, S. V. Joseph. 2007. Influence of timing, product and rate for hemlock wooly adelgid control. Turf & Ornamental Entomology Symposium. SE Branch Meeting of the Ent. Soc. Am.
- Hanula, J.L., S. Horn, and J.W. Taylor. 2007. Ecological impact of Chinese privet and its control on bottomland hardwood forests of the Georgia Piedmont. Presented at the 9th Ann. SE Exotic Plant Pest Council Symposium, Athens, GA.
- Ulyshen, M. D. and J. L. Hanula. 2007. Vertical distribution patterns of beetles in a temperate deciduous forest. Annual Meeting of the Southeastern Branch of the Entomological Society of America, Knoxville, TN.
- Churchel, M., C.W. Berisford, J.L. Hanula, and J. Vose. 2007. Immediate impact of imidacloprid treatment for control of hemlock wooly adelgid on aquatic macroinvertebrate communities. N.A. Benthological Society Annual Meeting, Columbia, SC.

## Publications

- Hanula, J. L., S. Horn, and D. D. Wade. 2006. The role of dead wood in maintaining arthropod diversity on the forest floor. In. Grove, S.L. and J.L. Hanula (eds.). Insect biodiversity and dead wood: proceedings of a symposium for the 22nd International Congress of Entomology. Gen. Tech. Rep. SRS-93. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 109 p.
- Grove, S. J. and J. Hanula, eds. 2006. Insect biodiversity and dead wood: proceedings of a symposium for the 22nd International Congress of Entomology. Gen. Tech. Rep. SRS-93. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 109 p.
- Campbell, J.W., J.L. Hanula, and T. A. Waldrop. 2007. Effects of prescribed fire and fire surrogates on flower visiting insects of the Blue Ridge Province in North Carolina. Biological Conservation 134: 393-404.
- Horn, S. and J.L. Hanula. 2006. Burlap bands as a sampling technique for green anoles (*Anoles carolinensis*) and other reptiles commonly found on tree boles. Herp. Rev. 37:427-428.
- Moorman, C.E., L.T. Bowen, J.C. Kilgo, C.E. Sorenson, J.L. Hanula, S. Horn, and M.D. Ulyshen. 2007. Seasonal diets of insectivorous bird using canopy gaps in a bottomland hardwood forest. Journal of Field Ornithology 78(1): 11-20.

- Klepac, J., R. Rummer, J.L. Hanula, and S. Horn. 2007. Mechanical removal of Chinese privet. USDA Forest Service, So. Res. Sta. Res. Paper SRS-43. 5 pp.
- Campbell, J. W., J. L. Hanula, and T. A. Waldrop. 2007. Observations of *Speyeria diana* (Diana Fritillary) utilizing forested areas in North Carolina that have been mechanically thinned and burned. SE Naturalist 6: 179-182.
- Ulyshen, M. D., J. L. Hanula and S. Horn. 2007. Burying beetles (Coleoptera: Silphidae) in the forest canopy: the unusual case of *Nicrophorus pustulatus*. The Coleopterist Bulletin 61(1): 121-123.
- Campbell, J. W. and J. L. Hanula. In press. Efficiency of malaise traps and colored pan traps for collecting floral visiting insects in forested ecosystems. J. Insect Conservation.
- Ulyshen, M. D. and J. L. Hanula. In press. The vertical distribution of beetles (Coleoptera) in a temperate deciduous forest. Am. Midl. Nat.
- Campbell, J. W., J. L. Hanula and K. W. Outcalt. In press. Effects of prescribed fire and other plant community restoration treatments on tree mortality, bark beetles and saproxylic Coleoptera of longleaf pine, *Pinus palustris* Mill., on the coastal plain of Alabama. For. Ecol. and Manage.

## Awards

- Jim received the USDA Forest Service 2007 Celebrating Wildflowers Award for Excellence in Pollinator Conservation. The citation read “The North American Pollinator Protection Campaign gratefully acknowledges the effort of James Hanula in creating a pollinator-friendly partnership.” Jim’s work was also recognized in a June issue of FS Today.

## Other Outreach

- Conducted a field tour of the Chinese privet study plots at the GA State Botanical Gardens as part of the 2006 GA Exotic Plant Pest Council invasive species management program.
- Conducted field trip to their Chinese privet study plots at the GA. State Botanical Gardens as part of the 2007 SE Exotic Plant Pest Council Symposium meeting.
- Welcomed and presented a brief history and background on the FS to the GA Plant Science Scholars to the Athens Lab. Also hosted the group in his lab.

## Kier Klepzig Presentations

- Klepzig, K.D., R.W. Hofstetter, M.P. Ayres, and D.L. Six. 2006. Interactions of fungi and tree killing bark beetles: Geographic variation and interspecific competition. Invited presentation. International Mycological Congress. Cairns, Australia.
- Klepzig, K.D. 2006. New perspectives on the southern pine beetle-microbial symbiosis. The Ophiostomatoid fungi: Expanding frontiers. Brisbane, Australia.
- Klepzig, K.D. 2006. Change at the Southern Research Station. Louisiana Extension Foresters, Pineville, LA.
- Klepzig, K.D. 2006. From attack to emergence: Interactions between southern pine beetle, mites, microbes and trees. Invited Seminar, Northern Arizona University. Flagstaff, AZ.
- Klepzig, K.D., B.L. Strom, and L.M. Roton. 2007. New and old methods of protection of trees against bark beetles: What works, what doesn’t, and why. American Chemical Society meeting, Chicago, IL.
- Xi, W., L. Wang, A.G. Birt, R.N. Coulson, D.M. Cairns, C.W. Lafon, M.D. Tchakerian, J.D. Waldron, and K.D. Klepzig. 2007. An integrated approach to map forest conditions in southern Appalachians. International Association of Landscape Ecology meeting.
- Klepzig, K.D., B. Slippers, and M.J. Wingfield. 2007. Competitive interactions among forest insect associated fungi: Implications to biology, population dynamics, and control. The Sirex Woodwasp: Expanding Frontiers meeting. Pretoria, South Africa.
- Klepzig, K.D. 2007. Musings of a mature scientist. (Invited) Plenary Session, Southern Forest Insect Work Conference, Jekyll Island, GA.

## Publications

- Fettig, C.J., K.D. Klepzig, R.F. Billings, A.S. Munson, T.E. Nebeker, J.F. Negrón, and J.T. Nowak. 2006. The effectiveness of vegetation management practices for mitigating the negative impacts of bark beetles on coniferous forests in the United States. For. Ecol. Manag. 238:24-53.
- Lafon, C.W., J.D. Waldron, D.M. Cairns, M.D. Tchakerian, R.N. Coulson, K.D. Klepzig. 2006. Modeling the effects of fire on the long-term dynamics and restoration of yellow pine and oak forests in the southern Appalachian Mountains. Restoration Ecol. 14:400-411.

- Waldron, J.D., C.W. Lafon, R.N. Coulson, D.M. Cairns, M.D. Tchakerian, A. Birt, and K.D. Klepzig. 2006. Simulating the impacts of southern pine beetle and fire on the dynamics of xerophytic pine landscapes in the southern Appalachian mountains. Applied Vegetation Science 10:53-64.
- Cardoza, Y.J., K.D. Klepzig, and K.F. Raffa. 2006. Endophytic insect deploys bacteria in oral secretions to defend against gallery-invading fungi. Ecol. Entomol. 31:000-000.
- Vasanthakumar, A., I. Delalibera, Jr., J. Handelsman, K.D. Klepzig, P.D. Schloss, and K.F. Raffa. 2006. Characterization of gut-associated bacteria in larvae and adults of the southern pine beetle, *Dendroctonus frontalis* Zimmermann. Env. Entomol. 35:1710-1717.
- Zhou, X., T. Burgess, Z.W. De Beer, F. Lieutier, A. Yart, K. Klepzig, A. Carnegie, J. Mena-Portales, B. Wingfield, and M. Wingfield. 2007. Southern Hemisphere introductions of the sapstain fungus, *Ophiostoma ips*, cannot be linked to the global movement of its bark beetle vectors. Molecular Ecology 16:89-99.
- Hofstetter, R.W., T.D. Dempsey, K.D. Klepzig, and M.P. Ayres. 2007. Temperature-dependent effects on mutualistic, antagonistic, and commensalistic interactions among insects, fungi and mites. Community Ecology 8(1):47-56.
- Delalibera, I., Jr., A. Vasanthakumar, B.J. Burwitz, P.D. Schloss, K.D. Klepzig, J. Handelsman and K.F. Raffa. 2007. Composition of the bacterial community in the gut of the pine engraver, *Ips pini* (Say) (Coleoptera) colonizing red pine. Symbiosis 42:000-000.

## International Activities

- Collaboration with Bernard Slippers, Brett Hurley and Mike Wingfield (Forestry and Agriculture Biotechnology Institute, University of Pretoria, South Africa) on competitive interactions of Sirex woodwasp associated fungi. Presentation at international Sirex symposium and participation in Sirex working group meeting.

## Jolie Mahfouz Presentations

- Eberhardt, T.L., P.M. Sheridan, J.M. Mahfouz, and C.L. So. 2006. Old resinous turpentine stumps as an indicator of the range of longleaf pine in southeastern Virginia. 6th Longleaf Alliance Regional Conference. Tifton, GA.

## Jerry Michael

### Presentations

- Michael, J.L. 2006. Physical, chemical, and biological impacts of intensive forest management on streams draining watersheds in the coastal plain of Alabama. IUFRO Forest Plantations Meeting, Charleston, SC.
- Fischer, J., J.L. Michael, and H.L. Gibbs. 2007. Evaluation of water sampling and storage procedures used in herbicide dissipation studies. American Society of Agricultural and Biological Engineers, San Antonio, TX.
- Michael, J.L. 2007. Streamside management zones for protecting water quality: A critical review of current knowledge. American Chemical Society meeting, Chicago, IL.

### Publications

- Michael, J.L., Batzer, D.P., Fischer, J.B., Gibbs, H.L. 2006. Fate of the herbicide sulfometuron methyl (Oust®) and the effects on invertebrates in drainages of an intensively managed plantation. *Can. J. For. Res.* 6(10).

## Dan Miller

### Presentations

- Miller D.R. and C.M. Crowe. October 2006. Ethanol and (–)- $\alpha$ -pinene: attraction of ambrosia beetles (Scolytidae) in southeastern USA. Bark beetle technical working group meeting, Fairmont Hot Springs, MT.
- Miller D.R. and C.M. Crowe. December 2006. Attraction of ambrosia beetles (Scolytidae) to traps baited with ethanol and (–)- $\alpha$ -pinene in the South. Entomological Society of America annual meeting. Indianapolis, IN.
- Miller D.R. January 2007. SRS research collaborations: interests and opportunities. Southern Research Station All Scientists meeting. Lake Lanier, GA.
- Miller D.R. and C.M. Crowe. July 2007. Attraction of ambrosia beetles (Scolytidae) to traps baited with ethanol and (–)- $\alpha$ -pinene in the South. 50th Southern Forest Insect Work Conference, Jekyll Island, GA.
- Miller, D.R. July 2007. Everything new is old again: pheromones for southern pine engravers. 50th Southern Forest Insect Work Conference, Jekyll Island, GA.

### Publications

- Miller, D.R. 2007. Limonene: Attractant kairomone for white pine cone beetles in an eastern white pine seed orchard in western North Carolina. *J. Econ. Entomol.* 100: 815–822.

- Miller, D.R. and D.A. Duerr. In press. Comparison of arboreal beetle catches in wet and dry collection cups with Lindgren multiple funnel traps. *J. Econ. Entomol.*

### International Activities

- Collaboration with Dr. Jiang Hua Sun, Institute of Zoology, Chinese Academy of Sciences, Beijing. The manuscript “Cross-attraction between exotic and native pine bark beetles in China: A novel invasion mechanism?” on facilitation between *Dendroctonus valens* and *Hylastes paralellus* in China will be submitted to *Ecology Letters* in August 2007.
- Collaborations with Drs. David Langor, Peter de Groot and Jon Sweeney, Canadian Forest Service, Edmonton AL, Sault Ste. Marie ON and Fredericton NB, respectively, and Dr. Jiang Hua Sun, Institute of Zoology, Chinese Academy of Sciences, Beijing. In 2007, cooperators in Canada and China as well as six others in the USA, are conducting the same field test of host compounds and *Ips* pheromones for trapping *Monochamus* species which vector pinewood nematode, an important quarantine pest. Miller supplied experimental protocols, supplies and lures, and will be sorting, counting and analyzing all trap catches.

### Local Activities

- Prepared five sets of identified voucher specimens for Georgia Forest Commission for use in detecting the redbay ambrosia beetle in Georgia surveys.

## Jim Miller

### Presentations

- Miller, J.H. 2006. Invasive plants of Alabama: identification and range. SE Exotic Pest Plant Council and Alabama Invasive Plant Council's Regional Invasive Mapping Training. October 3. Montgomery, AL.
- Miller, J.H. 2006. The threats posed by invasive plants. The Birmingham Fern Society, Birmingham Botanical Gardens, October 18. Birmingham, AL.
- Miller, J.H. 2006. Invasive plants and their impacts to wildlife habitat. Guest lecture to Wildlife Management Course, Auburn University, October 25. Auburn, AL.
- Miller, J.H. 2006. Those invasive plants in Louisiana: identification, control, and strategies. LSU Continuing Education Workshop: Forest Herbicides, November 3. Alexandria, LA.
- Miller, J.H. 2007. Advances in invasive plant mapping, assessment, and targeting priority species. South Carolina Vegetation Management Association Annual Meeting, January 11. Columbia, SC.

- Miller, J.H. 2007. Invasive/Exotic Weeds: Control Strategies. North Carolina Cooperative Extension's Forest Herbicide Prescription Workshop, January 24. Pinehurst, NC.

- Miller, J.H. 2007. Invasive plant control, containment, and eradication. Georgia Herbicide Workshop for Consulting Foresters, April 19. Forsythe, GA.

- Miller, J.H. 2007. Advances in invasive plant distribution databases, mapping, and assessment. Alabama Invasive Plant Council Annual Conference, April 26. Auburn University, AL.

- Miller, J.H. 2007. Plant invasions across Alabama: how to cope. Alabama Cooperative Extension, Alabama Forest Commission, and Alabama NRCS Forest Health Conference, September 26. Moundville State Park, AL.

- Miller, J.H. 2007. What we are facing: The Bigger Invasion by plants, insects, diseases, and more. 9th Ann. SE Exotic Plant Pest Council Symposium, March 20-22. Athens, GA.

- Miller, J.H. 2007. Advances in an Alabama Strategy to target priority invasives using new web bases. 5th Ann. Alabama Invasive Plant Council Conference, April 26. Auburn, AL.

- Miller, J.H. 2007. Additions to the ALIPC invasive plant list. 5th Ann. Alabama Invasive Plant Council Conference, April 26. Auburn, AL.

- Miller, J.H. 2007. How forest landowners can defend their lands against plant invasions. The 66th Forest Landowner Association Conference, May 16. Charleston, SC.

- Miller, J.H. 2007. Invasive plant dilemma: holding the line in Kentucky and Tennessee.

- Miller, J.H. 2007. Society of American Foresters Kentucky and Tennessee Summer Meeting, June 8, Gatlinburg, TN.

- Miller, J.H. 2007. Invasive plants in the Gulf Coast. Alabama Chapter of Soil and Water Conservation Society Annual Meeting, June 22. Mobile, AL.

- Miller, J.H. 2007. Confronting the cogongrass crisis. Alabama Forest Landowners Conference, September 10. Orange Beach, AL.

- Miller, J.H. 2007. Forest health threats from invasive plants. Alabama Forest Health Conference, September 25-26. Moundville, AL.

- Miller, J.H. 2007. Invasive species distribution data, sub-regional invasive zone delineation, and species priority assessments by the U.S. Forest Service for you. SE Exotic Pest Plant Council's Annual Symposium, March 20. Athens, GA.

- Miller, J.H. 2007. The U.S. Forest Service Regional Invasive Plant Database is web accessible. 9th Ann. SE Exotic Plant Pest Council Symposium, March 20-22. Athens, GA.

### Publications

- Miller, J. H., H. L. Allen, B. R. Zutter, S. M. Zedaker, and R. A. Newbold. 2006. Soil and pine foliage nutrient responses 15 years after competing-vegetation control and their correlation with growth for 13 loblolly pine plants in the southern United States. *Can. J. For. Res.* 36:2412-2425.
- Miller, J. H., N. J. Loewenstein, C. J. Hansen. 2006. Alabama Invasive Plant Council's list of invasive plants by cultural use categories. *Wildland Weeds* 10(1):16-18.
- Miller, J. H. 2006. Non-native wisteria control with herbicides. *Wildland Weeds* 10(1): 19-21.
- South, D. B. and J. H. Miller. 2007. Growth response analysis after early control of woody competition for 14 loblolly pine plantations in the southern U.S. Forest. *Ecology and Management.* 242:560-577.
- Miller, J. H. and T. Albritton. 2007. Privet is a plague: you can help to stop it. *Forest Landowner* 66 (2):39-41.
- Miller, J. H. and T. Albritton. 2007. Privet: farmhouse shrub to forest plague. *Yell County Conservation Review*, AR 12 (3): 2-3.
- Allen, S. L., G. R. Hepp, J. H. Miller. 2007. Use of herbicides to control alligatorweed and restore native plants in managed marshes. *Wetlands* 27(3): 739-748.
- Miller, J.H. 2003 (Fifth Reprinting 2007). Nonnative invasive plants of southern forests: a field guide for identification and control. Revised. Gen. Tech. Rep. SRS-62. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station, 93 p. (55,000 more copies)

### Archived Data Bases

- Miller, J.H. and E.B. Chambliss. Long-term (24 yrs) regional study of the influence of woody and herbaceous competition on plantation development of loblolly pine—the COMProject. All stand components measured for 20 yr by species/genus at 13 locations in 7 states along with analyses of pine wood samples, pine foliage samples, and soil samples. Data commonly provided upon request.

### Electronic and Audiovisual Outputs

- Miller, J.H. Over 800 forest plant and forest operation images available on forestryimages.org, invasive.org, and PLANTS Database. Images regularly appear in publications, displays, and presentations throughout U.S.

- Miller, J.H. Assisted with editing, interviewed, location coordinator, and plant identification, Alabama Public Television’s Discovering Alabama series, Alien Invaders: Invasive Plants of Alabama, episode.

- Miller, J.H. and E.B. Chambliss. University of Georgia. Invasive plants of the thirteen southern states, updated database on [invasive.org](http://invasive.org) cataloging all listed invasive plant species by state.

- “Land without People” on the History Channel. Assisted in scouting filming locations.

## Demonstrations/Short Courses

- Miller, J.H. and E.B. Chambliss. Demonstrate safe and effective herbicide application techniques at Alabama Cooperative Extension workshops and Alabama Invasive Plant Council field days.

- Miller, J.H. Invasive plant identification refresher for State FIA surveyors of Alabama and Georgia. Auburn University School of Forestry and Wildlife Sciences, Auburn, AL, May 29, 2007.

- Miller, J.H. Invasive plant identification refresher for State FIA surveyors of Tennessee, Kentucky, North Carolina, and South Carolina. Bent Creek Experimental Forest, Asheville, NC, June 6, 2007.

## Awards

- An article he co-authored was selected for the prestigious Silvicultural Prize, which is awarded annually to the author(s) of the best paper published in Forestry on the subject of silviculture during the preceding three years. (<http://forestry.oxfordjournals.org/>). Balandier, C. Collet, J.H. Miller, P.E. Reynolds, and S.M. Zedaker. 2006. Designing forest vegetation management strategies based on the mechanisms and dynamics of crop tree competition by neighbouring vegetation. *Forestry* 79: 3-27.

## John Moser

### Presentations

- Moser, J.C. 2006. Excavating colonies of *Atta texana*: their architecture and next associates. Invited Seminar, Ohio State University. Columbus, OH.

- Moser, J.C. 2006. Do mites phoretic on elm bark beetles contribute to the transmission of Dutch elm disease?. Entomological Society of America annual meeting. Indianapolis, IN.

- Moser, J. C. 2007. Do mites phoretic on elm bark beetles contribute to the transmission of Dutch elm disease?. Western Forest Insect Work Conference.

- Moser, J. C. 2007. Excavating colonies of *Atta texana*: their architecture and next associates. Invited Seminar, Cornell University. Ithaca, N.Y.

### Publications

- Broce, A. B., L. Zurek, J. Kalisch, R. Brown, D. L. Keith, D. Gordon, J. Goedeke, C. Welbourn, J. Moser, R. Ochoa, E. Azziz-Baumgartner, F. Yit, and J. Weber. 2006. *Pyemotes herfsi* (Acari: Pyemotidae), a mite new to North America as the cause of bite outbreaks. *J. Med, Entomol.* 43:610-613.

- Aksit, T., I. Cakmak, and J. Moser. 2007. Attack by *Pyemotes johnmoseri* (Acari:Pyemotidae) on *Hypoborus ficus* (Coleoptera:Scolytidae) in fig trees in Turkey. *Exp. Appl. Acarol.* 41:251-254.

### International Activities

- At the invitation of John Moser, Stephan Wirth (Institute für Biologie/Zoologie, Freie Universität Berlin, Germany) came to study the phylogeny, biology, and character transformations of mites associated with ants and bark beetles at the Alexandria Research Center, Pineville, LA.

## Joe Mulrooney

### Presentations

- Mulrooney, J.E., T.L. Wagner, T.G. Shelton, C. J. Peterson, and P.D. Gerard. 2007. Termite attack at Forest Service test sites from 1971 to 2004. Entomological Society of America - Southeastern Branch Meeting, Knoxville, TN.

### Publications

- Mulrooney, J.E. and Gerard. 2007. Toxicity of Fipronil in Mississippi soil types against *Reticulitermes flavipes* (Isoptera: Rhinotermitidae). *Sociobiology*

- Mulrooney et al. 2007. Activity of *Reticulitermes flavipes* (Kollar) (Isoptera: Rhinotermitidae) exposed to nestmates treated with slow-acting nonrepellent termiticides. *Sociobiology*

- Mulrooney, J.E., T. L. Wagner, T. G. Shelton, C. J. Peterson, and P. D. Gerard. 2007. Historical review of termite activity at Forest Service test sites from 1971 to 2004. *J. Econ. Entomol.* 100: 488-494.

## Bill Otrrosina

### Presentations

- Otrrosina, W., P. Spaine, and C. Cook. 2007. Fire reintroduction in fire dependent conifer ecosystems-unintended pathological consequences. 2nd Fire Behavior and Fuels Conference, Destin, FL.

- Otrrosina, W. and P. Spaine. 2007. International forest ecosystems: Shared threats and responsibilities. IUFRO conference: Forest Research Management in an Era of Globalization. Arlington, VA.

- Otrrosina, W. and P. Spaine. 2007. Fire and slow decline in longleaf pine. 2nd Fire Behavior and Fuels Conference, Destin, FL.

- Otrrosina, W.J., J.T. Kliejunas, S. Smith, D.R. Cluck, S.S. Sung, and C. Cook. 2007. Black stain root disease studies on ponderosa pine—parameters and disturbance treatments affecting infection and mortality. IUFRO Foliage, Shoot and Stem Diseases, Sopron, Hungary

- Otrrosina, W.J. and P. Spaine. 2007. *Leptographium* species not detected in longleaf and slash pines 8 years after wildfire. American Phytopathological Society Annual Meeting, San Diego, CA.

- Otrrosina, W.J., J.T. Kliejunas, S.S. Sung, P. Maloney, and P.C. Spaine. 2007. Site conditions, fire, and root disease: *Leptographium spp.* and *Heterobasidion annosum* paradigms. IUFRO Conference on Root and Butt Rot, Berkeley, CA and Medford, OR.

- Otrrosina, W.J., S.S. Sung, J.T. Kliejunas, S. Smith, and D.R. Cluck. 2007. Studies on black stain root disease on ponderosa pine. IUFRO Conference on Root and Butt Rot, Berkeley, CA and Medford, OR.

## Chris Peterson

### Presentations

- Peterson, C.J. 2007. Initial soil penetration of aqueous termiticides. Recent Advances in Household, Residential and Structural Pest Management Symposium, American Chemical Society meeting, Chicago, IL.

### Publications

- Peterson, C.J. 2007. Imidacloprid mobility and longevity in soil columns at a termiticidal application rate. *Pest Management Science.*

- Peterson, C.J., T.L. Wagner, T.G. Shelton and J.E. Mulrooney. 2007. New termiticides necessitate changes in efficacy testing: a case study of Fipronil. pp. 179 – 193 In J.W. Lyga and G. Theodoridis (eds.) *Synthesis and Chemistry of Agrochemicals VII*, ACS Symposium Series #948, American Chemical Society, Washington, DC.

### International Activities

- Traveled to Mozambique for 2 weeks in April to assist the Chikweti Forests (Niassa province) who were experiencing termite problems in Eucalyptus.

## Will Shepherd

### Presentations

- Shepherd, W.P. and B.T. Sullivan. 2006. Antennal and behavioral responses to nonhost volatiles by the southern pine beetle, *Dendroctonus frontalis*. Annual Meeting of the Entomol. Soc. Am., Indianapolis, IN.

- Fettig, C.J., S.R. McKelvey, D.P.W. Huber, C.P. Dabney, W.P. Shepherd, and R.R. Borys. 2006. Development of semiochemical-based tools for preventing western pine beetle attack in the Sierra Nevada: are we getting any closer? Annual Meeting of the Entomol. Soc. Am., Indianapolis, IN.

- Huber, D.P.W., C.P. Dabney, S.R. McKelvey, W.P. Shepherd, S.J. Seybold, and C.J. Fettig. 2007. Western pine beetle, *Dendroctonus brevicomis*, responses to nonhost volatiles and verbenone: from antennal responses to semi-operational trials. Western Forest Insect Work Conference, Boise, ID.

### Publications

- Shepherd, W.P., D.P.W. Huber, S.J. Seybold, and C.J. Fettig. 2007. Antennal responses of the western pine beetle, *Dendroctonus brevicomis* (Coleoptera: Curculionidae), to stem volatiles of its primary host, *Pinus ponderosa*, and nine sympatric nonhost angiosperms and conifers. *Chemoecology.*

## Paula Spaine

### Presentations

- Spaine, P.C., W.J. Otrrosina and S. Zarnoch. 2007. Microclimate environmental parameters indexed for sudden oak death in Georgia and South Carolina. Third Sudden Oak Death Science Symposium, Santa Rosa, CA.

### Publications

- Baker, L.G., P.C. Spaine, and S.F. Covert. 2007. Effect of surface wettability on germination and gene expression in *Cronartium quercuum* f. sp. *fusiforme* basidiospores. *Physiol. Mol. Pl. Path.* 68:168-175.

## Brian Strom

### Presentations

- Smith, S. L. and B. L. Strom. 2007. Preserving native coral trees in Hawaii: efficacy of systemic insecticides against the erythrina gall wasp. Poster presentation. 18th USDA Interagency Research Forum on Invasive Species, 9-12 January 2007, Annapolis, MD.
- Strom, B. L., R. J. Karsky, S. L. Smith, J. R. Meeker, P. J. Shea, H. W. Thistle and J. Adams. 2007. Application of scolytid semiochemicals: improving releasers and information integration. Poster presentation. 58th Annual Western Forest Insect Work Conference, 5-9 March 2007, Boise, ID.
- Strom, B. L. and S. L. Smith. 2007. Options: formulations. In, *Systemic Insecticides: use, efficacy and options*. 58th Annual Western Forest Insect Work Conference, 5-9 March 2007, Boise, ID.
- Roberds, J. H., C. D. Nelson, B. L. Strom and L. H. Lott. 2007. Long-term selection for high and low oleoresin production in loblolly pine. Joint Meeting of the Southern Forest Tree Improvement Conference and the Western Forest Genetics Association. 19-22 June 2007, Galveston, TX.

### Publications

- Smith, S. L., B. L. Strom and J. R. Meeker. 2007. Early detection pest risk assessment: Erythrina gall wasp. R5-FHP-2007-01.
- Smith, S. L. and B. L. Strom. 2007. Identifying and managing the erythrina gall wasp. Early detection pest advisory 2007. U.S. Department of Agriculture, Forest Service, Forest Health Protection, R-5 and Southern Research Station Science Update SRS-012.

- Roberds, J. H., C. D. Nelson, B. L. Strom and L. H. Lott. 2007. Long-term selection for high and low oleoresin production in loblolly pine. Joint Meeting of the Southern Forest Tree Improvement Conference and the Western Forest Genetics Association. 19-22 June 2007, Galveston, TX. Abstract. available at 'http://tfsweb.tamu.edu/treeConference/default.aspx?id=2196'.

### International Activities

- Traveled to Guam as an advisor to Region 5, Forest Health Protection. Helped evaluate scientific aspects of invasives programs targeted at exotic pests of native cycads.

## Brian Sullivan

### Presentations

- Sullivan, B.T. 2006. Bark beetle semiochemistry: Do we know what we think we know? Symposium in honor of Wayne Berisford, Entomological Society of America annual meeting. Indianapolis, IN.
- Sullivan, B.T. and W. Shepherd. 2006. Antennal and behavioral responses to nonhost volatiles by the southern pine beetle, *Dendroctonus frontalis*. Entomological Society of America annual meeting. Indianapolis, IN.
- Ott, E.P., B.T. Sullivan, K.D. Klepzig, and T.D. Schowalter. Attraction of Asian ambrosia beetle *Xylosandrus crassiusculus* (Coleoptera: Curculionidae) to artificially stressed host trees. (Poster) 18th USDA Interagency Research Forum on Invasive Species. Jan. 9-12, 2007, Annapolis, MD.
- Sullivan, B.T., W.P. Shepherd, D.S. Pureswaran, and K. Mori. Evidence for a male-produced aggregation pheromone component in the southern pine beetle, *Dendroctonus frontalis*. (Poster) Western Forest Insect Work Conference, Mar. 5-9, 2007, Boise, ID.
- Sullivan, B.T., D.S. Pureswaran, and W.P. Shepherd. Interactions between host monoterpenes and the pheromone system of the southern pine beetle. Western Forest Insect Work Conference, Mar. 8, 2007, Boise, ID.
- Sullivan, B.T. *endo*-Brevicomine – a new semiochemical for southern pine beetle monitoring. Southern Forest Insect Work Conference. July 25, 2007, Jekyll Island, GA.
- Sullivan, B.T. and M.J. Dalusky. Research on SPB pheromones: the end of the beginning? Southern Forest Insect Work Conference. July 25, 2007, Jekyll Island, GA.

- Martinson S.J., T.Ylioja, B.T. Sullivan, R.F. Billings, and M.P. Ayres. Evidence and ecology of multiple equilibria in population dynamics of the southern pine beetle. (Poster) Southern Forest Insect Work Conference. July 23-25, 2007, Jekyll Island, GA.

### Publications

- Sullivan, B.T., M.J. Dalusky, D. Wakarchuk, and C.W. Berisford. 2007. Field evaluations of potential aggregation inhibitors for the southern pine beetle, *Dendroctonus frontalis* (Coleoptera: Curculionidae). *Journal of Entomological Science* 42: 139-49.
- Sullivan, B.T., W.P. Shepherd, D.S. Pureswaran, T. Tashiro, and K. Mori. 2007. Evidence that (+)-endo-brevicomine is a male-produced component of the southern pine beetle aggregation pheromone. *Journal of Chemical Ecology* 33: 1510-1527.
- Pureswaran, D.S., B.T. Sullivan, and M.P. Ayres. 2007. High individual variation in pheromone production by tree-killing bark beetles (Coleoptera: Curculionidae: Scolytinae). *Naturwissenschaften* 94: Online First.
- Slone, D.H., and B.T. Sullivan. 2007. An automated approach to detecting signals in electroantennogram data. *Journal of Chemical Ecology* 33: Online First.

### International Activities

- Trip to Tapachula, Chiapas, Mexico, October 2006. Set up a portable GC-EAD at El Colegio de la Frontera Sur (College of the Southern Border; ECOSUR) to aid in cooperative research on species of *Dendroctonus* bark beetles unique to Mexico. Served on graduate committee of ECOSUR masters' student (Alicia Niño) who completed her degree requirements this July.
- Trip to Montebello National Park and Tapachula, Chiapas, Mexico, May 2007. Performed field studies of chemical ecology and natural history of a newly-recognized species of *Dendroctonus* pine beetle, *D. woodii*. Added to graduate committee of masters' student (Benjamin Moreno) at ECOSUR and a PhD student (Claudia Cano) at Escuela Nacional de Ciencias Biológicas in Mexico City.

## Terry Wagner

### Presentations

- Wagner, T.L. 2007. U.S. Forest Service termiticide research: A changing view of structural protection? Southern Conference, National Pest Management Association.

### Publications

- Termites and Wood Destroying Insect Team. 2006. Revision of the popular publication, "Subterranean Termites – Their Prevention and Control in Buildings". Home and Garden Bulletin #64. This booklet continues to be the Termite Team's most-often requested publication. It used in Pesticide Applicator Training, on product labels and by pest management professionals, homeowners and contractors.
- Wagner, T.L., T.G. Shelton, C.J. Peterson, and J.E. Mulrooney. 2007. Annual Termiticide Report. *Pest Control*.

## Dan Slone

 (formerly of 4501)

### Publications

- Friedenberg, N.A, B.M. Whited, D.H. Slone, S.J. Martinson, and M.P. Ayres. 2007. The differential impact of a destructive forest pest on two species of *Pinus*. *Can. J. For. Res.*