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Summer 2015

## Science and Program Highlights

### Natural enemies reduce emerald ash borer population growth

Findings from a seven-year life table study conducted by researchers from USDA ARS, University of Massachusetts and the Forest Service indicate that natural enemies significantly reduced emerald ash borer (*Agrilus planipennis*) population growth rates in Michigan study sites. Both native natural enemies and an introduced biocontrol agent (*Tetrastichus planipennis*) contributed to this decline, but the latter species may be more effective at low host densities. These results, currently in press in the Journal of Applied Ecology, highlight the important role natural enemies can play in reducing the growth rates of forest pest populations. For more information please contact Mike Ulyshen at [mulyshen@fs.fed.us](mailto:mulyshen@fs.fed.us).

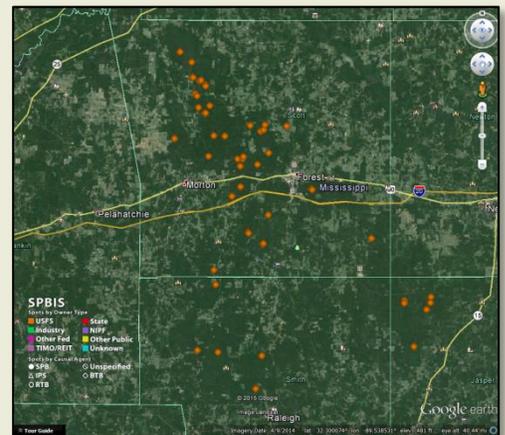


An emerald ash borer larva parasitized with numerous smaller larvae of *Tetrastichus planipennis*. Photo: M. Ulyshen.

### Southern Pine Beetle Erupts in Mississippi...Again

The National Forests in Mississippi are facing troublesome levels of southern pine beetle (SPB) activity for the fourth consecutive year. Although the spring pheromone trapping survey failed to forecast a problem, ground work on the Bienville National Forest this spring revealed multiple infestations of concern. A detection flight in mid-June identified 50 new spots throughout the District and on adjoining private lands. Follow up evaluations have revealed numerous infestations >1/4 ac in size and actively enlarging.

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SPB spot activity on the Bienville NF as of mid-June, reflected via output from the new and improved Southern Pine Beetle Information System (SPBIS).

## Southern Pine Beetle *(continued from page 1)*:

Aggressive suppression measures (i.e., cut & leave) are being implemented in an attempt to prevent the outbreak from worsening. Forest Service saw crews have treated more than 42 spots as of this writing, the largest being approx. 8 acres in size. A second detection flight in late July revealed over 167 additional spots, 133 of which are actively enlarging and requiring control. Over 220 multi-tree infestations (affecting over 200 acres) have been identified on the Bienville this year, which contains approximately 145,000 acres of susceptible host type (i.e., 1.5 spots/1000 ac of host type). The Homochitto also has recently identified over 40 spots, about ½ of which require control. For more information please contact Jim Meeker at [jrmeeker@fs.fed.us](mailto:jrmeeker@fs.fed.us).

## First release of new predator for biological control of hemlock woolly adelgid

In recent years, university and Forest Service scientists have been evaluating the potential of two species of silver flies (*Leucopis piniperda* and *L. argenticollis*) for biological control of hemlock woolly adelgid (HWA). In May and June 2015, the first releases of these flies in the eastern U.S. were made in Tennessee and New York. The released flies are biotypes native to the western U.S. where they are known to attack HWA on western hemlock. Sites will be monitored for long-term establishment and impact on adelgid populations. The project is funded by USFS Forest Health Protection, SRS and NRS through the Hemlock Woolly Adelgid Initiative and includes team members from Oregon State Univ., Univ. of Vermont, Cornell Univ., and USFS Northern and Southern Research Stations. For more information please contact Bud Mayfield at [amayfield02@fs.fed.us](mailto:amayfield02@fs.fed.us).



Researchers released silver flies for control of hemlock woolly adelgid in TN and NY. Photo: B. Mayfield.

## In the News

### Jim Hanula inducted as Fellow in Georgia Entomological Society



Jim Hanula (right) receives the Georgia Entomological Society Fellow award from Mike Ulyshen (left) and outgoing GES president Scott Horn (center).

Dr. Jim Hanula, Research Entomologist with SRS 4552, was honored with selection as Fellow by the Georgia Entomological Society (GES) in April 2015. The GES Fellows program “recognizes significant and selfless contributions to science” in the field of entomology. Dr. Hanula’s 24-year career with SRS has included groundbreaking research on functional roles of native forest insects (including pollinators) and the effects of forest management on them, as well as the biology and management of invasive species including the redbay ambrosia beetle, Chinese privet, and kudzu. Jim was presented the award by SRS 4552 scientists Mike Ulyshen and Scott Horn. Congratulations, Jim!

## SRS 4552 assists in the Kisatchie National Forest Quarter Launch



*SRS Employees Stacy Blomquist (left) and JoAnne Barrett (right) with Chief Tom Tidwell at the Kisatchie National Forest Quarter Launch.*

The Kisatchie National Forest was selected to be represented on a quarter in the America the Beautiful Quarter Program. Over 2,000 people attended the quarter launch at the Alexandria Riverfront Center on April 22, to commemorate this important event. On hand to help celebrate were Chief Tom Tidwell and Regional Forester Tony Tooke. SRS 4552 employee, Stacy Blomquist, served on the committee to help organize and plan the event. Stacy arranged for music entertainment to be provided by the band, orchestra, and choir of Pineville High School, the premier Performing Arts School of Central Louisiana.

## 8th Annual Kent House Bug Day Rocks Central Louisiana

The first Saturday of May saw over 1,000 people of all ages flock to the Kent Plantation House in Central Louisiana for the Annual Kent House Bug Day sponsored by the USFS Southern Research Station RWU 4552. Participants were enthralled to learn about bugs and their relatives as they visited over 20 stations. Eating a bug was a particular favorite with mealworm fried rice and cricket caramel popcorn on the menu. Attendees learned about invasive pests and received an Emerald Ash Borer tattoo from FHP entomologists. A local company provided two massive outdoor jumpers and Orkin Pest Control brought their own “Ms. Roach” who shook her tarsi with kids and posed with Smokey Bear. Staff from Kisatchie National Forest, Forest Health Protection, SRS, and Louisiana State University assisted with hosting the various stations.



*John Moser, 86-yr-old SRS Emeritus Scientist, discussed “Little Bugs” with the children and enjoyed meeting Orkin’s Ms. Roach. Photo: S. Blomquist.*

## Elementary Children learn Forest Biology at Summer Science Blast



What happens when kids and science collide? It’s called the Summer Science Blast, a 4-week science education program enjoyed by 240 children from the Caddo Parish School Board Homeless Education Program. The Blast, coordinated by Sci-Port, the Science Center of Louisiana, and the USDA Forest Service, brought children (grades 3 to 6) into week-long modules focusing on wetland biology, forestry and entomology. The kids learned about the ecological and economic values of forest resources by interactive learning, a Sci-Port specialty; they also explored future job opportunities in Louisiana’s large forest industry. The highlight was a field trip to the Longleaf Vista (Kisatchie National Forest), where the kids learned about forest

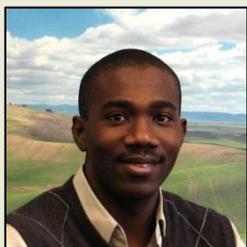
pests, the benefits of prescribed fire and use of forest plants by Native Americans from Southern Region, Forest Health Protection, Southern Research Station and Kisatchie National Forest volunteers.

## Staff Changes

### **Dr. Ryan Blaedow Joins Forest Health Protection**

Plant Pathologist Ryan Blaedow recently joined Forest Health Protection in Asheville, NC. Originally from Wisconsin, Ryan obtained a B.S. in forestry from the University of Wisconsin – Stevens Point, a M.S. in tree physiology from Purdue University, and a Ph.D. in forest pathology from the University of Minnesota. Ryan served as a Forest Health Specialist for both North Carolina and Minnesota before joining FHP in R6 (Wenatchee, WA). While he has extensive experience with a wide variety of forest insect and disease issues across much of the U.S., he is thrilled to return to R8 to continue his work on the most pressing forest health issues in the South.

### **Research Pathologist Dr. Rabi Olatinwo joins SRS 4552**



Dr. Rabi Olatinwo is a new Research Plant Pathologist with SRS 4552 in Pineville, LA. He holds a BS in botany from Ahmadu Bello University, Nigeria, an MS in crop protection from the University of Bristol, U.K., and a PhD in Agriculture/Plant Protection from the University of Reading, U.K. He has held several post-doctoral positions in the US and his career represents over 20 years of multidisciplinary research including work in plant pathology, molecular biology, biocontrol, effects of climate on disease systems, and insect fungal symbionts. Welcome, Rab!

### **Dr. Chris Asaro Joins Forest Health Protection**

The new Forest Health Monitoring Program Manager for the US Forest Service Southern Region is Dr. Chris Asaro. Chris has an exhaustive knowledge of forest health issues in the South and very strong relationships with a wide variety of forestry and forest health cooperators in this Region and throughout the nation. He has been the Forest Health Specialist with the Virginia Department of Forestry for the past 10 years. A native of New York City, Chris holds degrees from Cornell University (B.S.), State University of New York (M.S.), and University of Georgia (Ph.D.).

### **Forestry Technician Bryan Mudder joins SRS 4552**

Mr. Bryan Mudder is a new Forestry Technician with SRS 4552 in Asheville, NC. Prior to joining our unit, Bryan worked for eight years as a Biological Science Technician with SRS 4158 (Restoring Longleaf Pine Ecosystems) in Clemson, SC. Bryan holds a BS in Forestry from Stephen F. Austin State University and an MS in Forest Resources from Clemson University. Bryan works with Research Entomologist Bud Mayfield on several forest insect research projects. Welcome, Bryan!



### **Research Assistant Andrew Tait finishes with SRS 4552**

Mr. Andrew Tait, who has worked in Asheville, NC with SRS 4552 the past three years, has taken a job as a forester with a non-profit, environmentally-sensitive, consulting forestry company. Andy worked on hemlock woolly adelgid and other forest insect research in grant-funded Research Assistant positions with UNC Asheville and Camcore/North Carolina State Department of Forestry & Environmental Resources. Andy will be greatly missed and we wish him all the best!

# Technology Transfer

## Publications (in print/press):

1. Arsenault, A.L., N.P. Havill, A.E. Mayfield III, and K.F. Wallin. **Behavioral responses of *Laricobius* spp. and hybrids (Coleoptera: Derodontidae) to hemlock woolly adelgid and adelgid host tree odors in an olfactometer.** Environ. Entomol. (in press).
2. Audley, J, A.E. Mayfield III, S.W. Myers, A. Taylor, and W.E. Klingeman III. **Phytosanitation methods influence post-treatment colonization of *Juglans nigra* logs by *Pityophthorus juglandis* (Coleoptera: Curculionidae).** J. Econ. Entomol. (in press).
3. Coyle, D.R., K.D. Klepzig, F.H. Koch, L.A. Morris, J.T. Nowak, S.W. Oak, W.J. Otrrosina, W.D. Smith and K.J.K. Gandhi. 2015. **A review of southern pine decline in North America.** For. Ecol. and Man. 349:134–148.
4. Duan, J.J.; Bauer, L.S.; Abell, K.J.; Ulyshen, M.D.; Van Driesche, R. **Population dynamics of an invasive forest pest and its associated natural enemies in the aftermath of invasion: Potential for success in biological control of emerald ash borer.** Journal of Applied Ecology (in press).
5. Miller, D.R., C.M. Crowe, K.J. Dodds, L.D. Galligan, P. de Groot, E.R. Hoebeke, A.E. Mayfield III, T.M. Poland, K.F. Raffa and J. D. Sweeney. 2015. Ipsenol, ipsdienol, ethanol and  $\alpha$ -pinene: **Trap lure blend for Cerambycidae and Buprestidae (Coleoptera) in pine forests of eastern North America.** J. Econ. Entomol. (in press).
6. Miller, D.R., C. M. Crowe, P. D. Mayo, P. J. Silk and J. D. Sweeney. 2015. **Responses of Cerambycidae and Other Insects to Traps Baited with Ethanol, 2,3-Hexanediol and 3,2-Hydroxyketone Lures in North-Central Georgia.** J. Econ. Entomol. (in press).
7. Müller, J.; Thorn, S; Baier, R.; Sagheb-Talebi, K; Barimani, H.V.; Seibold, S.; Ulyshen, M.D., Gossner, M.M. **Protecting the forests while allowing removal of damaged trees may ecologically degrade the Hyrcanian beech forests of Iran.** Conservation Letters (in press).
8. Powers, Z., A. Mayfield, J. Frampton, and R. Jetton. 2015. **Comparison of suspended branch and direct infestation techniques for artificially infesting hemlock seedlings with hemlock woolly adelgid for resistance screening.** Forests 6: 2066-2081; doi: 10.3390/f6062066.
9. Seibold, S.; Brandl, R.; Gossner, M.M.; Thorn, S.; Ulyshen, M.D.; Müller, J. 2015. **Studying biodiversity in dead-wood experiments- A review to identify global knowledge gaps.** Biological Conservation 191: 139-149.
10. Shepherd, W.P., B.T. Sullivan, A.E. Mayfield III, and R.C. McDonald. 2015. **Olfactory responses of the hemlock woolly adelgid predator, *Laricobius nigrinus* (Coleoptera: Derodontidae), to natural and synthetic conifer volatiles.** Journal of Entomological Science (in press).

## Submitted Publications (in review):

1. Audley, J., A. Taylor, W.E. Klingeman, A.E. Mayfield III, and S.W. Myers. **Insecticide dip treatments to help prevent subsequent walnut twig beetle colonization of phytosanitized black walnut logs.** Forest Products Journal (in review).

## Presentations and Lectures:

1. Lucardi, R.D., C. Bates, K.S. Burgess, and T.D Marsico. **What is this seed? Increasing the efficacy of invasive species interceptions at our nation's borders.** Joint Meeting of the 17th Annual SE-EPPC and NC-IPC. NC Botanical Gardens. May 2015. Chapel Hill, NC.
2. Lucardi, R.D., G.E. MacDonald, N.J. Loewenstein, and S.F. Enloe. **Genetics and herbicide: the Diverging Tale of Cogongrass in the Southeast.** Joint Meeting of the 17th Annual SE-EPPC and NC-IPC. NC Botanical Gardens. May 2015. Chapel Hill, NC.
3. Lucardi, R.D. **Cogongrass: the South's most wanted weed.** Invited Lecture-Forest Health and Protection. Warnell School of Forestry and Natural Resources. University of Georgia. April 2015. Athens, GA.
4. Mayfield, A.E, III. **Insects, Diseases and Invasive Plants of Southern Forests: Taking Stock and Looking Ahead.** East Texas Forest Entomology Seminar (Spring), 23-24 April 2015, Nacogdoches, TX.
5. Olatinwo, R., S. Walters, J. Meeker, and B. Strom. **Evaluating the efficacy of entomopathogen, *Beauveria bassiana* (BotaniGard) against the bark beetle *Ips avulsus* (Eichhoff).** The East Texas Forest Entomology Seminar (Spring), Nacogdoches, TX, April 23-24, 2015.
6. Olatinwo, R. **Weather Research and Forecasting Models—Mitigation of Thrips and TSWV Management Options.** Enhancing Risk Index-Driven Decision Tools for Managing Insect Transmitted Plant Pathogens. AFRI NIFA Sponsored Workshop, University of California, Asilomar Conference Grounds, Pacific Grove, CA, May 14-16, 2015 (Invited talk).

## Other Tech Transfer:

1. Bud Mayfield taught the four-hour Forest Entomology and Pathology class for the USDA Forest Service, National Advanced Silviculture Program, Mountain Module, 11 May 2015, at Bent Creek Experimental Forest, Asheville, NC.
2. Bud Mayfield led the Hemlock Woolly Adelgid component of the Upland Hardwood Silviculture & Habitat Workshop field tour, 23 June 2015, Bent Creek Exper. Forest, Asheville, NC.

USDA Forest Service

Forest Health Protection, Southern Region:

<http://www.fs.usda.gov/main/r8/forest-grasslandhealth>

Southern Research Station

RWU 4552: Insects, Diseases and Invasive Plants of Southern Forests:

<http://www.srs.fs.usda.gov/idip/index.html>

