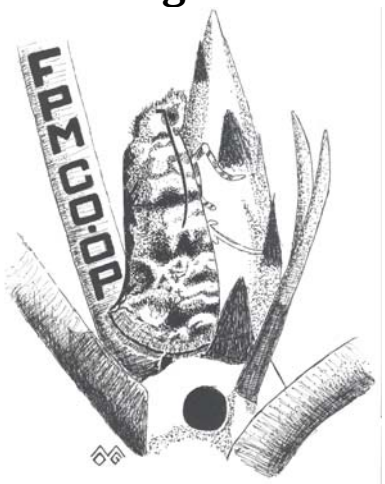
Progress Education Science Technology

June 2015

Quarterly Newsletter on Forest Pest Management Issues

Forest Pest Management Cooperative



Nantucket Pine Tip Moth, *Rhyacionia frustrana* (Comstock)

Texas A&M Forest Service
200 Technology Way, Suite 1281, College Station, Texas 77845

PEST is a quarterly newsletter that provides up-to-date information on existing forest pest problems, exotic pests, new pest management technology, and current pesticide registrations related to seed orchards and plantations. The newsletter focuses on, but is not limited to, issues occurring in the South (Texas to Florida to Virginia,).

****

Announcement:

Southern Forest Insect Work Conference

The 57th annual Southern Forest Insect Work Conference (SFIWC) will be held at the Chancellor Hotel in Fayetteville, AR, from July 21-24, 2015. Concurrent workshops on forest insect research and forest health issues are a major attraction at this conference. Graduate student presentations, a poster session, and an insect photo salon also are included. For more information, visit the webpage at http://www.sfiwc.org/2015/index.html.

****

Summary of 2014 FPMC Research Projects

In 2014, four primary research project areas – leaf-cutting ants, tip moths, nematodes and systemic injections - were continued from 2013. The FPMC also evaluated control options for conifer mites, walnut twig beetle (vector of the thousand cankers disease fungus) and hypoxylon canker. Results of black turpentine beetle and conifer mite research studies are summarized below. Other FPMC research results will be presented in the next two *PEST* newsletters (September and December, 2015).

Black Turpentine Beetle

A study to determine the efficacy and duration of TREE-äge (emamectin benozoate) for protecting loblolly pine from black turpentine beetle (Fig. 1) was conducted within the Fairchild State Forest, Rusk, TX from 2012 to 2014. The treatments included:

A. TREE-äge (5.0 ml / inch DBH) treatment applied at ground level
B. TREE-äge (2.5 ml / inch DBH) applied at ground level
C. TREE-äge (2.5 ml / inch DBH) applied at 36 inches above ground
D. Scimitar (lambda-cyhalothrin, Syngenta) spray applied from ground to 10 feet
E. Untreated control

Continued on Page 2

Each treatment was applied to 10 randomly-assigned trees in September 2012. Each systemic insecticide treatment (treatments 1, 2, & 3) was injected at the labeled rate after dilution in 1 part water with the Arborjet Tree IV™ microinfusion system (Arborjet, Inc. Woburn, MA) into evenly spaced points (number is calculated by DBH/2). In October 2012 (30 days post-injection), treatment 4 trees (up to 10 ft) were sprayed with scimitar to runoff using a backpack sprayer. Thirty days post treatment, each tree was baited with frontalin and endo-brevicomin lures and turpentine (in amber bottle and wick). The baits were replaced in March, May and July 2013.

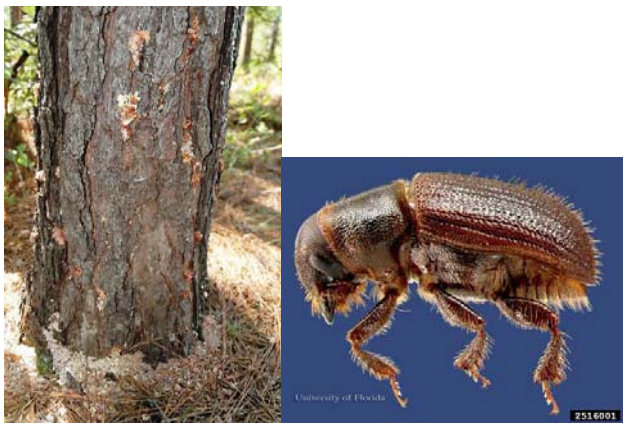


Figure 1: Black turpentine beetle pitch tubes (Photo by Ron Billings) and adult beetle (Photo by University of Florida)

The number, height of attack, and success of BTB attacks were evaluated periodically (November, December 2012 and May, July and October 2013). Success was determined by the size and composition of the pitch tubes exuding from each BTB attack site. Large pitch tubes containing frass (phloem tissue and beetle waste) and brood emergence were used to indicate success of females alone or with males in colonizing the host. Small, crystalized pitch tubes with little or no frass and no brood emergence were used to indicate failure to successfully colonize host (or attacks by *Ips*). At the termination of the experiment in October 2013 (about 12 months after treatment), final crown ratings were made. An analysis of variance was used to test for differences among injection treatments.

All trees were alive by the end of the first year of this study. Most BTB attacks occurred on the lower bole, within 3 feet of the ground. Significantly fewer and smaller BTB attacks were observed on TREE-äge-treated trees compared to those treated with a bole spray or were left untreated (Fig. 2). The number of attacks did not differ between injection rate and application height. Only two control trees appeared to produce brood based on presence of emergence holes. No emergence holes were observed on any of the injected or sprayed trees.

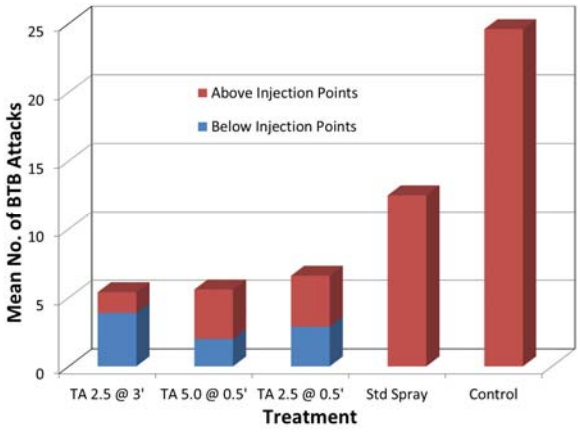


Figure 2: Mean number of black turpentine beetle attacks on loblolly pine within Fairchild State Forest, TX; October 2012 – October 2013. TA = TREE-age; Std = Scimitar.

All three injection treatments, regardless of application rate, were successful in protecting loblolly pine trees from BTB in the first year. The study was continued in 2014 to determine if TREE-äge (emamectin benzoate) would be effective in protecting loblolly pine from BTB for a second year following a single application.

To determine the duration of efficacy of injection treatments for BTB, the thirty loblolly pine trees injected with TREE-äge and the ten untreated check trees on the Fairchild State Forest were rebaited periodically in 2014 with BTB attractants and monitored for attacks for a second consecutive year. Trees were baited three times during the flight season, beginning in May. The number, height of attack, and success of BTB attacks were evaluated monthly. At the end of the experiment in October 2014, final crown ratings were made. An analysis of variance

followed by Tukey's HSD was used to test for differences among injection treatments.

BTB populations and attack levels were insufficient to cause tree mortality even on untreated controls, despite two years of baiting. All trees were alive by the end of the study in October 2014. Significantly more BTB attacks occurred on the lower bole, within 3 feet of the ground ($p < 0.0001$). Significantly fewer BTB attacks were observed on TREE-äge-treated trees compared to the untreated control trees ($p = 0.0074$, Fig. 2 and 3). The average number of attacks was not significantly different between injection rate and application height. No emergence holes were observed on any of the trees included in this study.

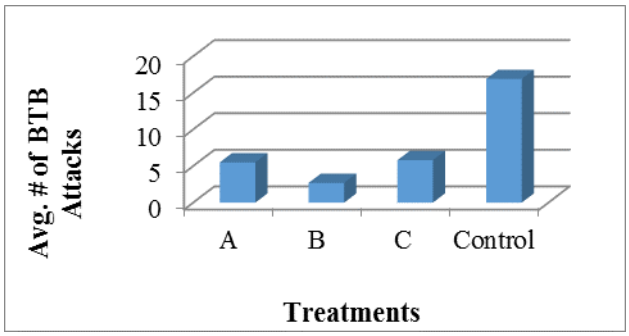


Figure 3: Mean number of black turpentine beetle (BTB) attacks on loblolly pine within Fairchild State Forest, TX; May 2014 – October 2014 (A = 2.5 ml/inch EB @ 3 feet; B = 2.5 ml/inch EB @ ground level; C = 5.0 ml/inch EB @ ground level; Control = untreated).

The injection treatments, regardless of application rate and height, were more effective than the spray treatment in limiting BTB attacks (Fig. 2). As in previous injection trials with emamectin benzoate/TREE-äge (Grosman and Upton 2006, Grosman et al. 2009, 2010), the attacking BTB adults quickly die upon contact with treated phloem tissue. This prevents the release of pheromones and host volatiles that attract additional beetles, thus reducing the overall numbers of attacks. These trial results indicate that TREE-äge (emamectin benzoate) applied to loblolly pine at as little as 2.5 ml/inch DBH is effective in protecting loblolly pine trees from BTB colonization for two full years.

Literature Cited:

Grosman, D.M., C.J. Fettig, C.L. Jorgensen, and A.S. Munson. 2010. Effectiveness of two systemic insecticides for protecting western conifers from mortality due to bark beetle attack. Western Journal of Applied Forestry 25: 181−185.

Grosman, D.M., S.R. Clarke, and W.W. Upton. 2009. Efficacy of two systemic insecticides injected into loblolly pine for protection against southern pine bark beetles (Coleoptera: Curculionidae). Journal of Economic Entomology 102: 1062-1069.

Grosman, D.M., and W.W. Upton. 2006. Efficacy of systemic insecticides for protection of loblolly pine against southern pine engraver beetles (Coleoptera: Curculionidae: Scolytinae) and wood borers (Coleoptera: Cerambycidae). Journal of Economic Entomology

Miticides for Control of Conifer Mites on Loblolly Pine

Conifer mites (family Tetranychidae), also commonly called spider mites, attack most species of conifer and hardwood trees and shrubs. Nursery seedlings and windbreak trees are particularly susceptible because they are often treated with insecticides that kill mite predators. Pine, hemlock, spruce, juniper, fir, and white-cedar are often heavily attacked. Some trees species are attacked by more than one species of mite. Heavy infestations of conifer mites cause foliage yellowing or browning and may reduce seedling and young tree growth. Although most spider mite attacks do not cause mortality, they may predispose trees to attack by insects and disease or to damage by adverse environmental conditions. Spider mite populations can explode after use of insecticides to control other insects when mite predators are killed as well.

Several miticides (insecticidal/miticidal oils and soaps, Dicofol™, Kelthane™, Avid™, Floramite™, Hexagon™, Sanmite™, and Forbid™) are available for control, but resistance can develop if the applicator relies too heavily on one product. Recently, Arborjet has developed a new formulation of botanical miticide called EcoMite Plus™.

The FPMC conducted a study to evaluate the potential efficacy of tree injection of TREE-

äge™ (emamectin benzoate) and spray applications of EcoMite Plus for control of secondary conifer mites at Campbell Global's Boyd Lake Seed Orchard at Jasper in 2014. Five-year-old loblolly pines representing several families were randomly selected for treatment. There were three treatments with ten replicates per treatment: 1) TREE-äge (emamectin benzoate) tree injection; 2) Arborjet EcoMite Plus spray; and 3) untreated check. The injection treatment (treatment 1) was injected at the labeled rate (2.5 ml TREE-äge per inch ground line diameter) after dilution in 1 part water with the Arborjet Tree IV™ microinfusion system. Injections were made at three points at staggered heights up to 6 inches above the ground. Injections occurred in mid-February 2014. Arborjet EcoMite Plus (treatment 2) was applied twice as a spray in late February and mid-March.

In February, 2014 (at the time of initial spray treatment) and at periodic intervals thereafter, two lower branches were shaken over a white sheet of paper. The conifer mites found on the paper were counted and then sent for identification to Alex Mangini of the USFS, FHP, Region 8. The most common mites encountered were the pine spider mite *Oligonychus milleri* (Suborder Prostigmata, family Tetranychidae) and the mite *Neoseiulus arenillus* (Order Mesostigmata, family Phytoseiidae).

During the six months following treatment, the numbers of mites found on the TREE-äge- and EcoMite Plus-treated trees were not statistically different from one another but were both statistically different from the check. Overall, significantly more mites were found on the check trees than on the TREE-äge- and EcoMite Plus-treated trees during the first six months following treatment. The effectiveness of both EcoMite Plus and TREE-äge treatments decreased over time. Numbers of mites had returned to pre-treatment levels in all treatments by early June (Fig. 4).

Another trial using different dosages of TREE-äge for controlling conifer mites is being conducted in 2015.

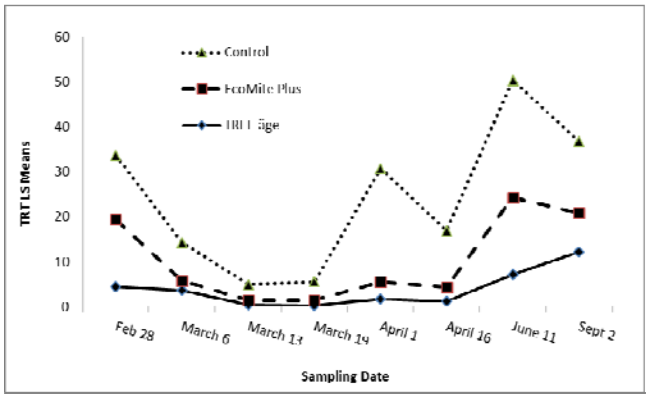


Figure 4. Treatment least square means following analysis (MANOVA) of the number of mites found per sampling date on trees treated with TREE-äge, EcoMite Plus, and untreated (control) trees at the Boyd Lake Seed Orchard in 2014.

Laurel Wilt Detected in Southeast Texas

Laurel wilt is a vascular disease caused by the fungus *Raffaelea lauricola*, which is transmitted by the invasive redbay ambrosia beetle, *Xyleborus glabratus*. The disease affects and kills members of the laurel family, including principally redbay, but also sassafras and avocado. The redbay ambrosia beetle was detected for the first time in Savannah, GA in spring 2002. The beetle likely entered the country in solid wood packing material with cargo that was imported at Port Wentworth. Laurel wilt has been found since then in South Carolina, North Carolina, Mississippi, Alabama, Georgia, and notably in Florida, where commercial avocado groves are threatened. Large numbers of redbay, and to a lesser extent sassafras trees, of all diameters have been killed as the insect and disease complex has spread.

This spring, dying redbay trees, infected with laurel wilt fungus, were detected by a U. S. Forest Service pathologist in Hardin County, Texas and the red bay ambrosia beetle was trapped in the same vicinity shortly thereafter. Currently, the disease has been found in southeast Texas only in Hardin and Jasper counties, but it may well be more widely spread.

Continued on page 5

Signs and symptoms of laurel wilt are easy to recognize and include discolored foliage and staining of the sapwood (see Fig. 5). Often, noodle-like exudations of sawdust are visible where the small ambrosia beetles penetrate the wood. Anyone observing dying or dead redbay or sassafras trees with these characteristics should notify the nearest Texas A&M Forest Service office or Regional Forest Health Specialist Allen Smith (lasmith@tfs.tamu.edu). Avoid transporting the disease over long distances by not moving redbay firewood that may be infected. The funicide propiconizole has shown some efficacy as a preventive measure for laurel wilt in redbay trees.

Figure 5: Red foliage and epicormics shoots on red bay, coupled with stained sapwood, are characteristic symptoms of infection by laurel wilt (Photos by Ron Billings).

Emerald Ash Borer Detection Survey in Texas

In mid-February, 2015, entomologists with the U. S. Forest Service/Forest Health Protection, based in Pineville, came across ash trees infested with the emerald ash borer (EAB) in Webster Parish, Louisiana, on the Arkansas border. This was the first report of EAB in Louisiana. To date this invasive insect has not been detected in Texas.

The Texas A&M Forest Service (TFS), in conjunction with the USDA Animal and Plant Health Inspection Service (APHIS), Texas A&M AgriLife Extension Service, Sam Houston State University, and other collaborators have deployed several thousand detection traps in high risk counties throughout Texas in recent years with negative results (i.e., no EAB were found on the traps). The detection survey was repeated in 2015 with emphasis on East Texas. TFS crews installed 380 APHIS-provided detection traps in high risk areas while crews at Sam Houston State University deployed a similar number of detection traps in other counties. The traps will be revisited in late June and again in early September to see if any EAB are present.

Meanwhile, foresters, landowners, and others who frequent our East Texas forests are encouraged to keep their eyes peeled for declining ash trees. Signs and symptoms of EAB include ash trees dying back from the top, an abundance of basal sprouts (epicormic branches), evidence of woodpecker feeding on the trunk, winding trails (galleries) (Fig. 6) and/or white inch-long larvae beneath the bark, or "D"-shaped exit holes (Fig. 7) in dying or dead ash trees. Report any suspicious symptoms to your nearest TFS field office or contact TFS Regional Forest Health Specialists Allen Smith at lasmith@tfs.tamu.edu in East Texas or James Houser at jhouser@tfs.tamu.edu) in Central Texas.

Figure 6: Characteristic galleries made by emerald ash borer on infested ash (Photo courtesy Bugwood.org).

Figure 7: Emerald ash borer adults and "D"-shaped exit holes on ash. (Photo courtesy West Chester Tree Life, LLC.)

Southern Pine Beetle Predictions for 2015

Southern pine beetle (SPB) populations throughout the South are monitored each spring using pheromone-baited traps to predict pending outbreaks. Using a protocol developed by the Texas A&M Forest Service in the mid-1980s, typically three traps are placed in each county or National Forest ranger district to be monitored. Traps are deployed in the spring when dogwoods begin to blooms or loblolly pollen is released, physiological events that coincide with the long-range dispersal of SPB and the initiation of new infestations. Mean numbers of SPB per trap per day, plus the percentage of SPB in the total catch (SPB plus the clerid beetle *Thanasimus dubius)*, are used to forecast whether an SPB outbreak is to be expected in the coming months. Only when mean numbers of SPB exceed ca. 20/trap/day and more SPB adults than clerid beetles show up in the traps is an outbreak likely.

Results of the 2015 South-wide survey are now in and the news is good. Essentially no SPB were caught in traps located west of the Mississippi River, indicating another year without SPB outbreaks. In the remainder of the South, SPB populations are expected to remain low in 2015, with the exception of the Bienville and Holly Springs National Forests in Mississippi, the Oakmulgee Ranger District in Alabama, and certain counties along the coastal plain of Georgia, where increasing beetle activity may occur. The complete results of the 2015 SPB prediction survey are available on the TFS webpage at http://texasforestservice.tamu.edu.

When will the next SPB outbreak occur west of the Mississippi River? The next outbreak is difficult to predict well in advance of its occurrence. SPB populations have been extremely low or non-existent since the late-1990s in this region. It is interesting to note, however, that the largest outbreaks on record in East Texas (1976 and 1985) were preceded by abnormally high rainfall which flooded many pine forests in southeast Texas for extended periods. With the record rainfall this spring in southeast Texas, 2015 may provide conditions favorable for the eventual return of this destructive forest pest.

In recent years, SPB activity has moved into the northeastern U. S. While New Jersey has been combatting a SPB outbreak in the Pine Barrens since 2010, new infestations appeared for the first time last October in pitch pine forests on Long Island, New York. More recently, the beetle has been detected in Connecticut, Massachusetts and Rhode Island. Many blame a warming climate for the beetle's migration to non-traditional states.

Pine Catkin Sawfly: A Pollen Eater

Figure 7: Pine catkin sawfly larvae (Photo by Whitney Cranshaw)

Oddly enough, the insect world contains both pollinators and pollen eaters. The pine catkin sawfly (*Xyela* spp.) is one of the latter. Bumper crops of these sawflies were observed in Louisiana and Mississippi this spring, according to U. S. Forest Service entomologist Alex Mangini. Homeowners and seed orchard managers reported huge populations of larvae dropping from trees. The mature larvae, after feeding on pollen within developing male strobili of pines, drop to the ground and burrow into the soil. There they pupate. The adults emerge in the spring and feed on pollen from some of the early flowering plants, The females deposit eggs into the pine strobili as they swell. The reduction to pollen supplies caused by larval feeding is not considered a limiting factor for pollen production in seed orchards and seldom warrant control. The falling larvae are more of a concern to homeowners faced with thousands of sky-diving larvae.

To Bee or Not to Bee

Have changing forest conditions contributed to pollinator decline in the southeastern United States? This is a question explored in a recent USDA Forest Service study by James Hanula, Scott Horn and Joseph O'Brien of the Southern Research Station. These researchers surveyed bee populations in 5 stands in each of 7 forest types, comprised of cleared forest; dense young pines; thinned young pines; mature open pine with extensive shrub/sapling cover; mature open pine with extensive herbaceous cover and little shrub cover; mature upland hardwood forest; and mature riparian hardwood forest.

They found numbers of bee species (species richness) and numbers of bees (abundance) to be highest in cleared forest and in mature pine forests with an herbaceous plant understory. The best predictor for bee species density was total tree basal area, which was negatively correlated (i.e., the higher the basal area the fewer the number of bee species). In turn, the best model for predicting bee abundance included canopy openness, plant species density, (both positively correlated) and shrub cover (negatively correlated). These results, combined with many others show that the management practice of thinning forests combined with shrub control provides good bee habitat. Also, the resulting forests will be healthier and less susceptible to old (e.g., southern pine beetle, *Dendroctonus frontalis*) and new (European woodwasp, *Sirex noctilio*) threats. (see *Forest Ecology and Management* Vol. 348, pages 142-152 for the complete publication).

Sub-lethal Effects of Pesticides on Honey Bees

Are honey bees affected by sub-lethal effects of pyrethroid insecticides applied to fruit orchards? Managed honey bee (*Apis mellifera*) colonies are contracted annually to pollinate fruit and nut orchards, improving crop quality and yield. Colonies placed in orchards are potentially exposed to pyrethroid insecticides used for broad-spectrum pest control. Pyrethroids have been reported to pose minimal threat to bees due to their low application rates in the field and putative repellant properties.

A research team from the University of Nebraska used video-tracking software to quantify honey bee behavior over a 24-hour period following exposure to pyrethroid insecticides, including lambda-cyhalothrin, esfenvalerate, and permethrin. Although exposure to the pyrethroids did not kill the bees directly, pyrethroid-treated bees traveled 30-71% less than untreated bees. High sub-lethal doses of esfenvalerate and permethrin decreased social interaction time by 43% and 67%, respectively. Permethrin increased time in the food zone as much as 5 times, compared to untreated bees. (*PEST* editor's note: *Extrapolating these results to humans, one might conclude that exposure to pyrethroids at home may substantially reduce your teen-ager's time spent on Facebook™ and Twitter™, but expect your food bill to go up!)*

Although the authors admit this study did not correlate sub-lethal behavioral effects with colony-level impacts, it demonstrated that video tracking can be effectively used to quantify the behaviors of individual bees as affected by biotic and abiotic factors. (To view the complete publication, see Ingram, E.M., *et al*. 2015. Evaluating sub-lethal effects of orchard-applied pyrethroids using video-tracking software to quantify honey bee behaviors. *Chemoshere* Vol. 135, pages 272-277).

Walnut Caterpillars Favored by Wet Weather

By Boone Holladay (Texas A&M Extension Service)

The record rains received this spring in East Texas have led to outbreaks of various defoliating insects. One common pest, particularly in commercial pecan orchards, is the walnut caterpillar, *Datana integerrima*. The larvae of this insect feed only on trees in the walnut family, which includes the pecans, hickories, and walnuts. Egg masses containing several hundred eggs are laid on the undersides of leaflets (Fig. 9).

Continued on page 8

Resembling bicycle reflectors, the white, dime-sized egg clusters are free of any covering and can be detected at night by growers using a spotlight. When the reddish larvae (Fig. 10) hatch, they feed on leaves, starting at the top of the canopy. As the caterpillars mature, they move down to the trunk to molt in clusters. These aggregations can be easily detected and treated if necessary. The safest product for full canopy spray are products containing the bacterium *Bacillus thuringiensis* (Bt or Btk), sold as Foray®, Dipel® or Thuricide®. For control of clusters of caterpillars found on trunks, wetable Sevin™ (carbaryl), oil sprays or soapy water can be used to completely saturate and kill the caterpillars. As with most defoliated trees, the loss of foliage is usually temporary and defoliating insects seldom warrant control on shade or forest trees.

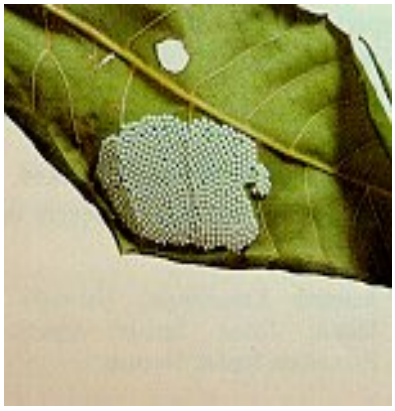


Figure 9: Egg mass of walnut caterpillar on underside of leaf (US Forest Service photo)

Figure 10: Cluster of walnut caterpillars (Texas A&M Extension Service photo).

Texas Timber Prices on Upswing

By Omkar Joshi and Ron Billings, Texas A&M Forest Service

According to the March/April *Texas Timber Price Trends*, U. S. housing starts for April were up 20% from a month earlier, the largest month-to-moth jump in 24 years. But lackluster oil prices coupled with record rainfall and flooding have negatively affected the Texas housing market. Wet ground conditions also have hampered access to logging sites in East Texas, leading to increased timber prices.

Statewide pine sawlog prices averaged $31.50 per ton, up 6% from the last reporting period and up 17% from the price a year ago. The statewide average pulpwood price was $9.46 per ton, an increase of 3% from last period and 13% from last year. Accordingly, for forest landowners who have access to mature or sawtimber stands or overcrowded pulpwood stands, this summer would be a good time to conduct regeneration cuts or thinnings. Limited federal cost-share funds are again available to private forest landowners for the first thinning of pulpwood stands in selected East Texas counties, as part of the Southern Pine Beetle Prevention Program, now in its 14th year.

Since the U. S. Forest Service first offered federal cost shares for SPB prevention in 2003, 126,000 acres of beetle-prone pine stands have been thinned and $5.9 million in cost shares have been delivered to 1,624 land owners in East Texas alone as part of this South-wide program. The 21 Texas counties eligible for federal SPB cost shares are: Angelina, Cass, Cherokee, Hardin, Harrison, Houston, Jasper, Marion, Montgomery, Nacogdoches, Newton, Panola, Polk, Rusk, Sabine, San Augustine, San Jacinto, Shelby, Trinity, Tyler and Walker. Cost shares amount to $50/acre, plus $5/acre for use of a consulting forester – up to a maximum of $5,000/landowner/year. Contact SPB Prevention Program Coordinator Shane Harrington (sharrington@tfs.tamu.edu) or your nearest Texas A&M Forest Service office for more information.

Thought You Might Be Interested to Know . . .

Ambrosia Beetles May Attack Plastic Gas Cans

When gasoline is diluted with ethanol, the product may be attractive to certain species of ambrosia beetles. If the gasoline-ethanol mix is stored in plastic containers, the beetles may bore holes through the containers in response to the ethanol volatiles. In recent years, two Asian ambrosia beetles have been identified having this curious habit. In 2011, LSU entomologists Chris Carlton and Victoria Bayless reported that females of the introduced camphor shothole borer (*Cnestus mutilates*) were found boring into plastic gasoline containers in Louisiana. This beetle also has been detected in traps deployed in Mississippi (2004), Texas and Georgia (2009). Another Asian ambrosia beetle, *Xylosandrus crassiusculus*, has been observed causing similar damage. Accordingly, if your plastic gasoline containers begin to leak fluids through 1/16-inch round holes, exotic ambrosia beetles responding to ethanol vapors contained within the gas may be responsible.

NASA Tests Airplane Wings that Shrug Off Insect Guts

by Jon Fingas

You may not think of insects as a problem for aircraft (*Bambi Meets Godzilla* comes to mind), but they really are -- the residue from those splattered bugs slows aircraft down and hikes fuel consumption. NASA may soon have a way to keep those critters from causing so much trouble, however. It recently conducted flight testing for a promised non-stick wing coating that stops ex-bugs from inducing drag. The layer, which combines a lotus leaf-inspired ("microscopically-rough") repellant surface with anti-sticking chemicals, was good enough to cut back on the nasty organic residue by as much as 40 percent.

The real-world results support what researchers predicted in the lab, and they suggest that you could both improve the fuel use for existing aircraft and design smaller, more efficient flying machines. You could get away with a 17 percent tinier tail on an airliner like the trial run's Boeing 757, for a start. Although it'll take a while before you see these augmented wings at the local airport, they could eventually do a lot to help the environment... and save ground crews from rather disgusting clean-up jobs.

World's Worst Termites Mate, Produce Scary Hybrid

by Richard Farrell

Florida entomologists have observed two of the world's most destructive termite species swarming at the same time in South Florida, resulting in colonies of hybrid termites that grow fast and could spread beyond the sunshine state. The two species, Asian and Formosan subterranean termites, are the subjects of a new paper just published in the journal PLOS ONE by a team of University of Florida researchers.

Before 2013 and 2014, the study's authors say, the two species had never swarmed simultaneously in South Florida. But now, with their dispersal flight seasons overlapping, the termites have had a chance to mix and mingle. And, to make matters worse, the male Asian termite seems to actually prefer the Formosan female.

The result? A hybrid in a hurry. "This is worrisome, as the combination of genes between the two species results in highly vigorous hybridized colonies that can develop twice as fast as the two parental species," said Thomas Chouvenc, one of the team's researchers. On their own, the parent Asian and Formosan species are responsible for a big chunk of the world's $40 billion in annual termite damage. A hybrid could be even more destructive." “The establishment of hybrid termite populations is expected to result in dramatically increased damage to wooden structures in the near future," Chouvenc warned.

Forest Pest Management Cooperative's

P.E.S.T. Newsletter

Dr. Ronald F. Billings, FPMC Coordinator
L. Allen Smith, Research Supervisor
Mr. William W. Upton, Staff Forester II
Mr. Larry Spivey, Research Specialist I
Patricia Faries, Staff Assistant I

Texas A&M Forest Service
200 Technology Way, Suite 1281
College Station, TX 77845

FPMC Members

Anthony Forest Products Co.
ArborGen
Arborjet, Inc.
Campbell Global
Forest Investment Associates
Hancock Forest Management Inc.
International Forestry Co.
Plum Creek Timber Co.
Texas A&M Forest Service
Rayonier Inc.
U.S.D.A. Forest Service,
Forest Health Protection (R8)
Weyerhaeuser NR Co.

Texas A&M Forest Service
Forest Pest Management Cooperative
P.O. Box 310
Lufkin, TX 75902-0310

Non-Profit Organization
U.S. Postage
PAID
Lufkin, TX
75901
Permit No. 86