

Northeast Wisconsin Forest Pest Update

February 15, 2011

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Insects

*information and photos in this document are from Linda Williams unless otherwise noted.

Bees in nature – honey bee swarms are a natural part of population growth in a hive. When hives become over crowded, or a queen is getting old, the bees will swarm to search for another place to call home. These bees are not usually aggressive, although many homeowners are greatly alarmed at a massive ball of bees hanging on a branch that wasn't there the previous day. Usually these bees are just resting, waiting for their scouts to find a suitable location for a new hive (usually a cavity in a tree or other enclosed space). Homeowners who spot these resting swarms



should simply be patient and don't harass them, the bees will usually

move on quickly in their search for new lodging. The photos here were from a swarm that had taken up residence in an empty wood duck house and were clearly doing very well for themselves!



Honey comb on wood duck house. Photos by Jean Romback-Bartels.

Brown Marmorated Stink Bug – from Bill McNee. The Asian ladybeetles may be annoying in the fall, but they’re mild compared to a new pest that has been found in Michigan. The Brown Marmorated Stink Bug (BMSB) has a similar home-invading behavior, but has a much stronger odor. BMSB is also a serious pest of many fruit and vegetable crops, including tree fruits, soybeans and green beans. The pest was first found in Pennsylvania in the late 1990s and has since been found in a number of northeastern and west coast states. A breeding population of BMSB has not been detected in Wisconsin, although 2 specimens that were transported into Wisconsin from other states were identified by Phil Pellitteri in 2010.



Brown marmorated stink bug. Photo from www.forestryimages.org

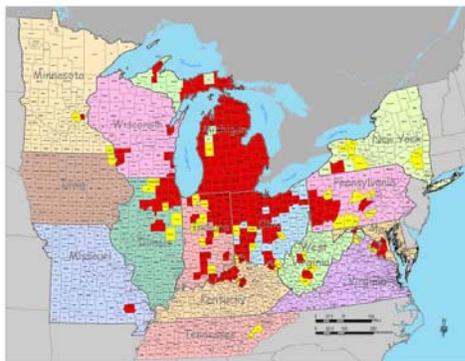
For more information on BMSB, read this story: http://www.mlive.com/business/west-michigan/index.ssf/2011/02/brown_marmorated_stink_bug_cou.html.

Emerald Ash Borer (EAB) – from Bill McNee. A new EAB survey technique was recently demonstrated in Green Bay by Dr. Krista Ryall of the Canadian Forest Service in Sault Ste. Marie, Ontario. The technique involves peeling mid-crown ash branches to look for EAB larvae and galleries, and has been shown to be an effective method of finding EAB before trees show symptoms of infestation. It is hoped that this survey method can be used by arborists and municipal forestry crews as part of their regular work to prune and remove trees. The methodology is available at http://www.oakville.ca/Media_Files/forestry/EABbranchsamplingRyall2010.pdf. For more information, contact one of the DNR Forest Health or Urban Forestry staff.



Samples of 2-3" diameter branches infested with EAB (branches are from Ontario, Canada, not Green Bay).

The Green Bay DNR office has a few of the EAB demo kits available for educational purposes. If you don’t already have one and would like a kit, email Bill McNee (bill.mcnee@wisconsin.gov). Kits are first come, first serve. They have vials of the adult and larva, as well as pieces of infested wood.



Counties with first EAB detections in 2010 shown in yellow.

If you missed the recent webinar, “Here Today – Gone Today: Mechanized Removal & Processing of Urban Trees,” you can watch it online at:

<https://umconnect.umn.edu/p78694155/>. This webinar

discussed a demonstration project conducted in Oak Creek last fall, using traditional logging equipment to harvest large numbers of urban trees. The equipment is



Processor removes an urban ash tree in Oak Creek, WI. November 2010.

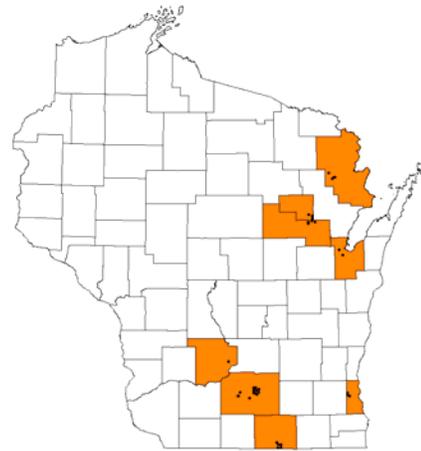
expensive to bring in and operate, but can cut and process trees very quickly. Economic analysis is in progress.

The USDA has recently released a map showing the counties where EAB was first detected in 2010. Of the 47 counties that had first detections, 27 were found by the purple traps and 19 were found through other surveys or investigations.

EAB DVD available - the Wisconsin Cooperative Emerald Ash Borer Program has recently put together a DVD with information on how to identify ash trees, EAB and ash trees infested with EAB. The DVD is just over 10 minutes long. If you would like a copy of this DVD please email Linda.Williams@wisconsin.gov

Gypsy moth – from Bill McNee. Maps of the proposed DNR suppression program treatment areas are now available online at www.gypsymoth.wi.gov. This year the program plans to spray approximately 3,000 acres in 8 counties. Public notification meetings have been completed, with very low attendance this year. For more information, visit www.gypsymoth.wi.gov.

We have continued to hear of landowner interest in hiring applicators to do aerial spraying for gypsy moth this spring, primarily in Marinette County. A list of for-hire aerial applicators is available on the state's gypsy moth website, www.gypsymoth.wi.gov. Callers interested in aerial spraying for gypsy moth or other defoliating insects can be referred to this website for the list and a guide to organizing private spraying. There are currently only two applicators licensed for aerial spraying in residential areas (defined as more than one residence per five acres being sprayed). It's too late to add any treatment areas to the DNR Suppression Program for spraying this spring. Applicators should be contacted as soon as is practical.



Counties with DNR gypsy moth program treatment areas are shown in orange.

Iowa will be doing its first slow-the-spread treatments this summer, with up to 70,000 acres proposed for mating disruption treatments in the far eastern counties. For more information visit: <http://www.desmoinesregister.com/article/20110128/NEWS/101280335/Tree-killing-gypsy-moth-spreads-at-rapid-pace>. Minnesota will also be doing slow-the-spread and eradication treatments in 2011.

Wisconsin's slow-the-spread treatment areas in western counties will be finalized next month.

Homeowners who are interested in reducing gypsy moth populations should consider oiling or removing egg masses well before they start hatching in April. Horticultural oils that suffocate the eggs are available at many garden centers and large retailers. In general, these are applied when temperatures are above 40° and freezing is not imminent. If removing egg masses, scrape them into a bucket of soapy water and then let them soak for a few days before discarding in the trash.



Female gypsy moth laying an egg mass.

Additional management options for homeowners and woodlot owners are available at www.gypsymoth.wi.gov.

Homeowners considering insecticide treatments this spring should contact an arborist or tree service soon. The Wisconsin Arborist Association has a list of certified arborists available at www.waa-isa.org. Additional businesses offering insecticide treatments may be found in the phone book under 'Tree Service.' Homeowners can also purchase insecticides (some applied as a soil drench) at garden centers and large retailers.

Hemlock Woolly Adelgid in Michigan – hemlock woolly adelgid (HWA) is an exotic insect from Asia that was first found in the US in 1924 and has spread through NJ, PA, MA, CT, southern NY, and is continuing to spread, killing hemlock wherever it goes. It was accidentally imported on nursery stock into Michigan and was first found on naturally growing hemlock in 2006. Michigan attempted to eradicate the insect whenever it was found, but in 2010 HWA was discovered on ornamental hemlocks in three new counties in Michigan's Lower Peninsula.

HWA is a tiny insect that produces a white fluffy wool-like covering to protect itself. It inserts its mouthpart into the base of a hemlock needle and sucks the sap of the tree. The population of HWA on a tree will become so numerous that they will cause stunting, early needle loss, and tree death within a few years. They attack all ages of hemlocks anywhere that the tree can be found, from pure stands to yard trees. It has not been found yet in Wisconsin, so if you spot the white fluffy masses on hemlock twigs please report it.



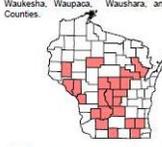
White fluffy wool covering adult hemlock woolly adelgids and their eggs.

Diseases

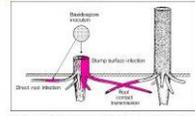
Annosum handouts updated and available – the multipage document that compares Annosum Root Rot with Red Pine Pocket Mortality has been updated. If this is something that you use when talking to landowners about managing their property, or include it with MFL plans that you prepare, and you need a small supply, please email Linda.Williams@wisconsin.gov. Many of you prefer to use the one-page color Annosum document (right) which has also been updated and I can email you the latest version.

ANNOSUM ROOT ROT
BIOLOGY, SYMPTOMS AND PREVENTION
Wisconsin Dept of Natural Resources, Forest Health Protection - January 2011

Locations: First observed in Wisconsin in 1963, Annosum root rot is now known to occur in 22 counties, including Adams, Buffalo, Columbia, Dunn, Green, Iowa, Jefferson, Juneau, La Crosse, Marquette, Oconto, Portage, Richland, Sauk, Shawano, Taylor, Trempealeau, Walworth, Waushara, and Wood Counties.



Impact: Although over 200 woody species have been reported as hosts, Annosum root rot has been most commonly observed on red and white pine plantations in Wisconsin. Infected trees will have reduced height, shoot and diameter growth and thin foliage. These symptoms typically appear 2-3 years after a thinning. Air decay advances through the root system and into the lower stem, the tree will become more susceptible to wind throw and eventually die. Red, jack and white pine seedlings and saplings in close proximity to infected overstory may also become infected. The number of infection centers in a stand can vary widely. Infection centers create gaps in the forest canopy.



Biology: The disease is caused by the fungus, *Heterobasidion irregulare* (formerly *H. annosum*). Infection most often occurs when basidiospores, produced by the fruit body, land and germinate on the surface of a freshly cut stump. This infection process proves a strong relationship between Annosum root disease and thinned stands. Basidiospores are most often produced when the temperature is between 5° - 32° C (41° - 90° F) and can be carried in the wind over hundreds of miles. However, most spores are deposited within 90 meters (300 feet). The fungus colonizes the stump, moves into the root tissue and progresses from tree to tree via root contact at the rate of approximately 1-2m/yr (3.2- 6.6 ft/yr). Infection through root and lower stem wounds can also occur. *Heterobasidion* Annosum degrades both the lignin and the cellulose and causes a stringy yellow decay in the roots and lower stem.

Identification: Annosum fruit bodies or conks can be found at the base of fading and dead trees as well as stumps. These fruit bodies may be buried among soil and duff layer. Fruit bodies are most commonly observed in the fall, but can be found any time of the year. Young fruit bodies look like popcorn, and under favorable environmental conditions, they become bracket-shape or shelf-like. They are perennial, but can disintegrate quickly. Fruit bodies vary in color but are usually light to dark brown above and white to tan below.

Annosum mortality of understory species – the Forest Health 2010 Annual Report has a lot of great information in it, including some information on a study that looked at the effects of annosum on understory regeneration. The first sentence in the results paragraph says: only about 33% of all seedlings and about 50% of the saplings are white pine but this species is disproportionately affected by Annosum root disease. The Annual Report should be available online soon, check it out for the complete story related to mortality of understory due to Annosum.



Sapling killed by Annosum. White structure is the fruiting body of annosum.

Annosum affects on mature white pine – I was recently asked if annosum root rot affects mature white pine in the same way that it affects mature red pine. The short answer is yes, and in fact annosum can infect and kill all of our conifer species in Wisconsin. I suspect that we're seeing annosum more commonly in red pine stands because proportionately there is more red pine stands compared to white pine that people are managing in areas where we know that we have annosum. I also suspect that people are more aware of pockets in red pine simply because there are other problems in red pine that cause pockets, like red pine pocket mortality, so they're already accustomed to identifying pockets in red pine. We do not have any common pocket diseases in white pine so landowners may not be looking as much in white pine stands or in other conifer stands. White pine is often a component of a stand, rather than a pure stand, and people need to be aware that annosum could still enter a stand on white pine stumps that are scattered across a stand and then begin to infect the other species surrounding that stump. It appears that it is easier for new infections to get started on conifer stumps than on hardwood stumps, but once it's present in a stand it can infect and kill conifers and an assortment of hardwoods. The current recommendations state "all conifer stumps" should be treated with a preventative stump treatment within 24 hours of harvest to prevent new annosum infections. For more info check out the Wisconsin DNR's annosum pages at <http://dnr.wi.gov/forestry/fh/annosum/>

Aspen decline in western states prompts increase in mouse populations – an article in Science News discusses a link between Sudden Aspen Decline (SAD) in western states and increasing populations of mice which can carry diseases that affect people. You can read the article at http://www.sciencenews.org/view/generic/id/68478/title/Aspens_bust%2C_disease SAD, which causes decline and mortality in aspen, is thought to be a combination of a multi-year drought and an assortment of insect and disease organisms that is occurring at a large landscape scale in western states. For more information google "sudden aspen decline".

Diplodia in red pine seedlings in state nurseries - 2010 Annual Report – by Kristin Peterson and Kyoko Scanlon – Since testing/screening of red pine seedlings began in 2006, the overall asymptomatic infection rate for Diplodia has been consistently lower than the 10 percent threshold level since 2007 and lower than 5% for 2009 and 2010 in all three state nurseries.

Over the last five years, the state nurseries have implemented an aggressive management plan to monitor and control Diplodia shoot blight and canker, caused by the fungus, *Diplodia pinea*. Some evidence suggests the presence of this fungus, coupled with increased seedling stress, could lead to seedling mortality. Recent research revealed that the fungus could persist in

or on the seedlings without showing symptoms, and become active once a tree is stressed, primarily from moisture deficit. To limit seedling exposure to the fungus and subsequent infection, nursery staff assisted by pathology staff devised a series of management actions: removal of all mature red pine found in and around the nurseries' properties, increased applications of fungicides, and annual testing of nursery stock. These measures have helped limit the exposure and subsequent infection of our red pine.

Since 2006, the state nurseries and Forest Health Protection have tested asymptomatic red pine seedlings for Diplodia infection (for the details of the test, please refer to the Forest Health Conditions of Wisconsin Annual Report 2007, p33). In 2010, the forest health lab processed 547 apparently healthy 2-0 and 3-0 red pine seedlings to detect the presence of the pathogen. Samples were collected from all of the 3 state nurseries (Table 1).

| Nursery | Total number of seedlings tested 2010 | Total positive for Diplodia infection 2010 | % positive for Diplodia infection 2010 | % positive for Diplodia infection 2009 |
|----------|---------------------------------------|--|--|--|
| Hayward | 198 | 6 | 3.03% | 1.77% |
| Griffith | 260 | 10 | 3.85% | 4.68% |
| Wilson | 89 | 0 | 0% | 1.90% |

Table 1. 2010 Diplodia asymptomatic seedling test of 2-0 and 3-0 red pine seedlings from State Nurseries

The infection rate was less than 5% in all nurseries for 2010. This is well below the 10 percent threshold tolerance level that has been used for management purposes. The overall asymptomatic infection rate has been consistently lower than the 10 percent threshold level since 2007 and lower than 5% for 2009 and 2010 in all of the three state nurseries. Plans to conduct the test in 2011 will be discussed with the DNR State Nursery Program this winter.

Thousand Cankers Disease of Walnut - Thousand cankers disease (TCD) is caused by the walnut twig beetle and a fungus carried by the beetle, *Geosmithia morbida*. The beetles tunnel into the bark of black walnut trees and spread the fungus. The fungus causes numerous cankers to develop which eventually coalesce; the foliage yellows, thins and eventually the walnut tree will die. Thousand cankers disease can spread by firewood, nursery stock and unfinished or untreated black walnut products. The Wisconsin Department of Agriculture Trade and Consumer Protection has enacted a temporary rule creating a quarantine to prevent potentially infested black walnut material from moving into Wisconsin from states known to be infected by TCD. TCD has not yet been identified in Wisconsin. The disease was first observed in New Mexico in the 1990's and is now found in eight western states and was confirmed in Tennessee in July, 2010. There are no known pesticides that will control this disease.

A workshop on TCD will be held March 31, 2011, in West Lafayette, Indiana. For more information, or to register to attend, go to <http://www.htirc.org/> and click on Events.

White Pine Blister Rust - this exotic disease affects white pine trees but cannot be transmitted directly from one tree to another. The spores that are produced on the tree will infect *Ribes* (gooseberry) plants which will produce spores during the summer; those spores from the *Ribes* plants will then be able to infect a white pine tree. Blister rust causes a sunken canker on white pine (right) which can girdle the branches and the main stem, and can kill the tree. If you have just a few blister rust cankers on branches of young trees you should prune off those branches. These branches can be spotted from a distance because they will be off-color or the foliage will have turned a rusty red color. By pruning out those cankered branches you've just saved your tree (at least from that particular canker). If the canker is located close to the main stem the fungus may have already grown into the main stem. Cankers on the main stem will eventually girdle the tree, although in healthy trees with good growth rates this may take many years.



Sunken canker on the main stem of a white pine sapling.

Other/Misc.

Animal Damage – squirrel damage has been showing up recently. Squirrels, as well as porcupines, chew the bark off branches in the crowns of trees, which can girdle and kill branches. New damage is



Callus tissue growing over a wound created by squirrels 2-3 years ago.

quite obvious right now because it shows up as very bright white wood in the crowns where the bark has been eaten (right). Branches that are not completely girdled will continue to grow and callus tissue will begin to grow over the wound created by the feeding (left). Crown decline, and branch mortality related to this damage may show up over the next growing season or two.



New damage shows up in the crown of these sugar maples.

Rabbits, mice, and voles can cause damage similar to that from squirrels and porcupines but the damage will be located near the base of the tree instead of in the crown.

Forest Health Highlights Report from Michigan – Michigan has posted their 2010 forest health highlights on the web. Topics include beech bark disease, the latest outbreaks of forest tent caterpillar and spruce budworm, and an assortment of tree declines, among other things. View the full report at http://www.michigan.gov/documents/dnr/FHH_344124_7.pdf

Forest Health Highlights Report from Wisconsin – the annual forest health highlights for 2010 are completed and will soon be available on the web. For those of you receiving this update via email the Highlights were attached to the original email. Check them out! Lots of great information can be found there on both hardwood and conifer issues from 2010, as well as exotic threats to Wisconsin's forests.

Report EAB:

by phone 1-800-462-2803

by email DATCPEmeraldAshBorer@wisconsin.gov

visit the website <http://emeraldashborer.wi.gov/>

Report Gypsy Moth:

by phone at 1-800-642-6684

by email dnrfrgypsymoth@wisconsin.gov

visit the website <http://www.gypsymoth.wi.gov/>

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Note: This pest update covers forest health issues occurring in Northeastern Wisconsin. This informal newsletter is created to provide up-to-date information to foresters, landowners, and others on forest health issues. If you have insect or disease issues to report in areas other than northeastern Wisconsin please report them to your local extension agent, state entomologist or pathologist, or area forest pest specialist.

Pesticide use: Pesticide recommendations contained in this newsletter are provided only as a guide. You, the applicator, are responsible for using pesticides according to the manufacturer's current label directions. Read and follow label directions and be aware of any state or local laws regarding pesticide use.