

West Central WI Forest Health Report

October 2011

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Insects

Gypsy Moth (By Bill McNee)

Now is the time for landowners and managers to look for gypsy moth egg masses to predict the pest's population size and potential damage to trees next year. We have had very few reports of high populations so far this fall.

Communities and woodlot owners should contact their county coordinator soon if they are considering participating in the 2012 Suppression Program. County coordinators must apply by Friday, December 2 of this year for aerial spraying in 2012. Information on the Suppression Program, egg mass survey instructions and a list of county coordinators are available at www.gypsymoth.wi.gov.

The Wisconsin Dept. of Agriculture, Trade and Consumer Protection (DATCP) has finished taking down its gypsy moth trapping grid, and has caught 213,451 male gypsy moths. Bayfield County led the way with 60,549 moths. Ashland, Clark and Jackson Counties helped to put the total above last year's 142,409 moths. Final numbers and maps should be available in November. Wisconsin's record catch was ~700,000 moths back in 2003. (Note: Catch numbers by are affected by the number of traps in a county, number of counties trapped and blow-in from other counties).

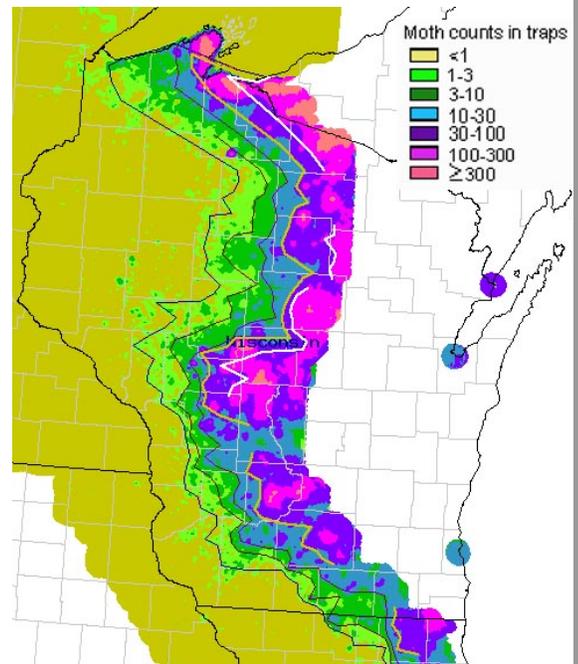


Figure 1. Preliminary 2011 gypsy moth trap catch map.

A preliminary map of gypsy moth distribution in western Wisconsin and adjacent states is shown here and also available online at: <http://da.ento.vt.edu/results3.html>. Eastern Wisconsin is not trapped due to the long-established gypsy moth populations.

Gypsy Moth Virus

Why do nucleopolyhedrosis virus (NPV) infected gypsy moth caterpillars climb into the tree canopy during the day when they are most susceptible to bird predation? This question has puzzled scientists for over 100 years because gypsy moth caterpillars normally only climb into the canopy to feed at night. The answer is that the NPV virus contains a gene that alters the gypsy moth caterpillar's behavior. The gene changes hormone levels in the caterpillars that cause them to stop molting and remain in feeding state. Infected caterpillars climb into the canopy, grab onto a leaf vein with their legs and die. The dead caterpillars liquefy and spread the virus to the leaves below where other caterpillars may feed and become infected. The researchers demonstrated that if the gene was removed the caterpillars would still die but their behavior was not altered. Other infections are known to cause behavioral changes (e.g., rabies) but this is one of the first times the mechanism has been identified. More details at: <http://www.npr.org/2011/09/12/140226986/how-a-clever-virus-kills-a-very-hungry-caterpillar>

Tree Biology

Fall color on conifers (By Linda Williams)



Photos 2, 3, 4, 5. Fall color on jack, white, and red pine and northern white cedar (below).

Conifers have fall color too! When conifers display their fall color it can prompt calls from landowners and homeowners concerned that their conifer is dying. Conifers drop needles each fall, but they only drop the oldest needles. Pines tend to retain 2 to 4 years of needles, with the exception being white pine which will drop 2-year old needles. Spruce retain needles for 5 to 7 years, and on cedar the older leaves tend to die and remain on the twig, to be worn off over time, or, entire twigs may die and be shed, with just the current year growth remaining green. UW Extension has a publication on this and I find the "control" section particularly amusing where it states: control is not possible, nor would it be beneficial. HA! Check it out at

<http://learningstore.uwex.edu/assets/pdfs/A2614.pdf>



Diseases

Spruce problems this year, an update (by Linda Williams)

There are a lot of spruce trees this year that look really bad, with needles dropping and branches dying! Recently I attended the North Central Forest Pest Workshop where a Michigan State researcher suggested some possibilities for what is causing this problem. Similar to what we're seeing in Wisconsin, Michigan has also been seeing spruce that are losing their needles, with severe needle loss on the lower branches, progressing upwards, and the lower branches eventually dying. Some things noticed in Michigan include:

1. many things were eliminated as problems, including aphids, adelgids, midges, cytophora, needle rust, SNEED, and diplodia
2. *Rhizosphaera* can be found on these trees but may not be the main cause of the dramatic needle loss and branch mortality
3. *Stigmina lautii* fruiting bodies were found on the needles (ITS matched the fungus to a *Mycosphaerella*). *Stigmina* fruiting bodies can look very similar to *Rhizosphaera* fruiting bodies until you put them under magnification, then you'll see that *Rhizosphaera* fruiting bodies are spherical eruptions from the needle stomata and *Stigmina* fruiting bodies look like small explosions or maybe an upside-down octopus.
4. although *Stigmina* was found on the needles it appears that many of the branches are perhaps being killed by multiple cankers of a *Phomopsis* species (unidentified as of yet)



Photo 1. Spruce impacted by disease in 2011. Photo by Linda Williams.

The following website, from Iowa, shows pictures of the fruiting bodies of *Rhizosphaera* and *Stigmina* for comparison: <http://www.ipm.iastate.edu/ipm/hortnews/2008/2-6/Stigmina.html> *Stigmina lautii* was first reported in the US in 1999 in North Carolina, but had previously been described in Canada in 1972. In 2008 in Michigan *Stigmina* was found in a plantation and the following report indicates that regular fungicide applications to control *Rhizosphaera* did not seem to be effective on *Stigmina* :

<http://ipmnews.msu.edu/landscape/Landscape/tabid/92/articleType/ArticleView/articleId/1681/Stigmina-found-associated-with-needle-cast-on-blue-spruce-in-Michigan.aspx>

So, the problems with spruce seem to be varied and are still a bit of a mystery, but the problems are significant in many areas. Is it one disease causing the problem, or does the tree need to be weakened by one needle cast fungus to then be attacked by a fungus that kills the branches? If I get more information on this problem I'll pass it along because I know many of you are dealing with similar problems in spruce this year.

Training Opportunities

Pesticide Applicator Training

Reminder: check out the 2012 schedule for Pesticide Applicator Training at <http://ipcm.wisc.edu/LinkClick.aspx?fileticket=Hj%2beSkpJmcE%3d&tabid=69> . Information about registration, how to get the training manual, etc. can be found at <http://ipcm.wisc.edu/pat>. Unsure if you need to be certified? Anyone applying pesticides “for hire” (including applying fungicides for annosum prevention) must take this training and become certified.

Annosum Root Rot Workshop 9/22/11



An annosum root rot training workshop sponsored by FISTA and organized by DNR staff was held on September 22 near LaCrosse, WI. The session was an opportunity for loggers and foresters to learn about annosum biology and management. The workshop was well attended and provided an excellent opportunity to ask questions about the various treatment methods, the cost of treatment, how to become certified to treat, and to see first hand why preventative treatments are critical to annosum management.



Photos 6, 7, 8, 9. Forest health staff Kris Peterson, Todd Lanigan and Bob Murphy demonstrating manual stump treatment and how to identify annosum and a demonstration of mechanized stump treatment. Photos by Mark Guthmiller.

In the News

Wisconsin forests and the cost of non-native insects

Two recent articles highlight the importance of managing non-native forest insects in Wisconsin. We suspect most of you saw the results of a recent study by the American Forest and Paper Association that determined that Wisconsin is number one among states in forestry jobs employing 56,533 workers. Wisconsin is also number one in the economic value of wood and paper products shipped at a combined total of \$16,201,241,000. In addition to the results of this study, forest based tourism is also an important component of the Wisconsin economy.

Non-native forest insects have the potential to cost Wisconsin millions of dollars in damage. Estimating the economic impact of insects is extremely difficult but a recently published study found that the more than 450 established non-native forest insects in the U.S. cause approximately \$2.5 billion in damage annually. Borers (e.g., emerald ash borer) cause much larger losses than either foliage feeders (e.g., gypsy moth) or sap feeders (e.g., hemlock woolly adelgid). The researchers also calculated that there is a 32% chance of a new non-native insect at least as damaging as EAB being introduced into the U.S. in the next 10 years.

With more than 16 million acres of forest in WI (> 46% of total land area), 56,000+ forestry jobs, more than \$16 billion in wood in paper products shipped, and a tourism industry based largely on forests and water, non-native forest insects pests are and will continue to be a major forest management and economic concern in Wisconsin for the foreseeable future.

Read the Aukema et al. article at:

<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0024587>

For general forest health and municipal level urban forest health issues contact:



<http://new.dnr.wi.gov/Default.aspx?Page=4e114a1b-6bc4-4fd7-9e0b-755e7d11dd22>

West Central Region:

Mike Hillstrom
Forest Health Specialist
Wisconsin DNR
715-421-7825
Michael.hillstrom@wisconsin.gov

Todd Lanigan
Forest Health Specialist
Wisconsin DNR
715-839-1632
Todd.lanigan@wisconsin.gov

Statewide reporting systems:

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 dnrfgypsymoth@wisconsin.gov

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

For additional information visit the Forest Health web site: <http://dnr.wi.gov/forestry/fh>

Note: This report covers forest health issues occurring in the West Central Region of Wisconsin. The purpose is to provide up-to-date information on forest health issues to foresters, forest landowners, and anyone else interested. We welcome your comments/suggestions on this newsletter as well as reports on forest health problems in your area. If you would like to subscribe to this newsletter, please contact Mike Hillstrom at Michael.hillstrom@wisconsin.gov. Previous issues of this update and regional forest health updates from NER, NOR and SOR, are available from the WI DNR Forestry website at <http://dnr.wi.gov/forestry/FH/intheNews/>. Articles written by Mike Hillstrom unless otherwise noted.

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.