

Northeastern Wisconsin Forest Health Update

Wisconsin DNR – Division of Forestry

March 18, 2016

Topics covered this month:

Insects:

Caterpillar to moth pictures
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EAB other news – new map
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Diseases:

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Annosum (HRD) spore trap results
Balsam fir twig tip mortality from Valsa
Oak wilt guidelines document available
Oak wilt and warm weather

Of Historical Interest

25 years ago - 1991 –
 Bronze birch borer
 Gypsy moth
50 years ago - 1966 –
 Pales weevil
 Pine root weevil

Insects

Caterpillar to moth pics – I stumbled on a page with some really interesting caterpillar photos, including some caterpillars native to Wisconsin, and if you click on the photo it will change to what the moth or butterfly looks like. [Check it out](#) but before you click, make a guess as to whether that caterpillar will turn into a moth or a butterfly. ☺ Some of the really dramatic caterpillars turn into really dramatic moths and butterflies, and some turn into sort of drab moths. Enjoy!



EAB new finds in WI - In the past month emerald ash borer has been identified in the following areas around the state:

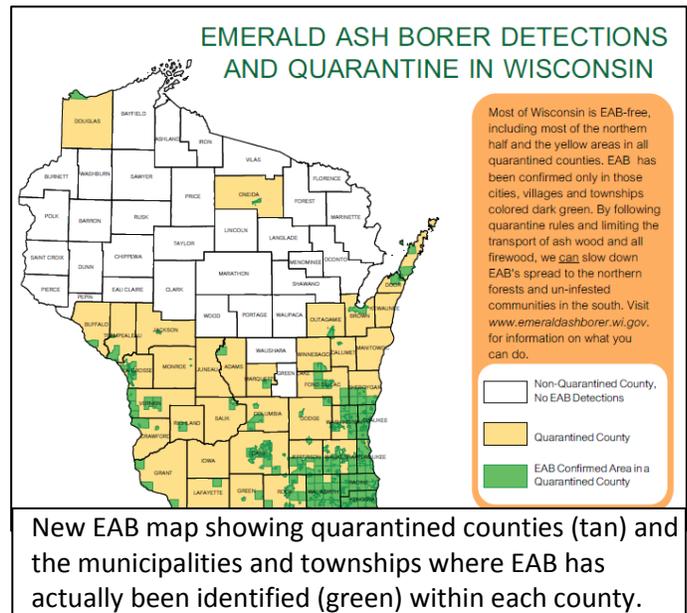
New County Quarantines:

- none

New finds in Counties already Quarantined:

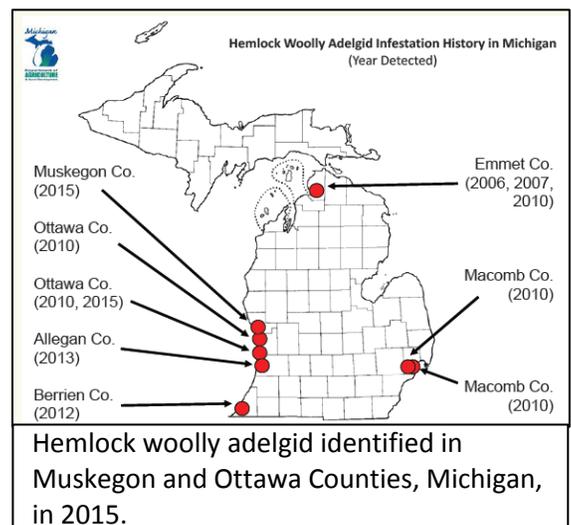
- Dane County – City of Stoughton, Towns of Burke and Dun, Village of McFarland
- Jefferson County - Town of Jefferson, Town of Oakland
- Rock County - Town of Milton
- Sheboygan County - Towns of Lyndon, Mitchell and Scott, Village of Cedar Grove
- Washington County - Towns of Barton, Kewaskum and West Bend
- Waukesha County - Town of Eagle, City of Pewaukee

Other EAB news – a new map (right) has been created in Wisconsin to better identify where in a county EAB has been identified. This new map shows the quarantined counties in tan, with the municipalities and townships where EAB has been identified shown in green. This map hopefully makes it more clear that in many counties EAB is still only known in a few areas. This map is [online](#) and will continue to be updated as new finds are announced. If you know of an area where EAB is present that is not shaded in green on the map, please let us know so that we can verify it.



Hemlock woolly adelgid in Michigan – Michigan’s Annual Forest Health report is now available [online](#), and in it is information on the newly identified infestation of Hemlock Woolly Adelgid (HWA) in the Lower Peninsula of Michigan. These latest finds appear to be more entrenched in native forests although they may have started with infested nursery stock. Michigan continues to survey and to treat and attempt eradication of these HWA infestations.

In Wisconsin we will conduct a formal survey of hemlock in eastern Wisconsin this year, and DATCP continues to enforce the external quarantine that is in place on hemlock from known HWA infested areas, as well as to survey hemlock nursery stock as part of their nursery inspections.



Spruce budworm document updated – I expect spruce budworm populations to remain high this year in many areas of northeastern and northern Wisconsin. Last year we produced a one page (front and back) document with information about spruce budworm and control options. This document has been updated. If you used the document last year to send to landowners and homeowners who had questions and concerns, please contact me and I'll send you the new version.

Spruce Budworm Management
Created February 2016 by WI DNR Forest Health Staff

Current Situation

Spruce budworm (*Pristiphora dimorpha*) is a native insect that feeds primarily on spruce and balsam fir trees. Outbreaks occur every 30-50 years and last 10 years on average. The last outbreak in Wisconsin occurred from 1976-1980. A new outbreak started in far northern Wisconsin in 2012 with damage observed from Ashland County east to Marinette County. Damage has become more widespread and severe each year and is expected to increase as the outbreak intensifies in coming years.

Biology

- Spruce budworm is an early season defoliant native to the Great Lakes States. Outbreaks occur on a 30-50 year cycle and typically last 10-15 years.
- Caterpillars are pale yellow to dark brown with cream-colored spots and a shiny black head.
- Caterpillars begin feeding on new needles in May or early June. Full-grown caterpillars are approximately 1 inch long by mid-June. Pupation occurs in mid-July to late July. Spruce budworm moths emerge around mid-July, mate, and lay eggs. They caterpillars hatch within 1-2 weeks and overwinter in cocoon-like structures on rings of balsam fir or spruce.
- Defoliated trees appear dull brown from a distance. These remained close up, partially consumed needles and/or webbed clusters of clipped-off needles protruding in all directions. In August, rain and wind may wash off web-suspended particles causing trees to appear greener.
- Repeated defoliation can cause top mortality of the tree and eventually whole tree mortality.
- Susceptible tree species: In Wisconsin, mature and over-mature balsam fir and white spruce are the preferred hosts of spruce budworm. Black spruce, tamarack, brambles, and pine species are occasionally defoliated if unattacked by insects dominated by balsam fir and white spruce.



Spruce budworm caterpillars feeding on balsam fir needles.
 Spruce budworm caterpillar feeding on balsam fir needles.
 Defoliation of over-mature spruce, showing how caterpillars web together needles that insect clipped-off during feeding.

Walkingstick outbreaks – after my February pest update, in which I included a historical bit about walkingstick defoliation, I was asked why we don't hear much about walkingstick defoliation anymore. Regular defoliation events used to occur in several areas of Wisconsin, and many areas defoliated by walkingstick in the past were also defoliated by Post Oak Locust (grasshoppers) in the same years as the walkingstick defoliation. Looking back at old forest health annual reports, from 1951 to 1987 we had fairly regular outbreaks of walkingstick every couple of years, but then it abruptly drops off. Why? Starting in the late 1980's, gypsy moth populations were starting to appear in Wisconsin, and steadily grew after that. Since walkingstick primarily defoliates oak in Wisconsin, it's possible that gypsy moth defoliation of oak just simply disrupted the pattern of walkingstick defoliation enough that we don't see such a regular outbreak of walkingstick. There may be other factors as well, that's just what stands out to me as a probable cause.



Diseases

Annosum is now HRD – HRD stands for Heterobasidion Root Disease. The scientific name of the fungus that we have in our state was changed to *Heterobasidion irregulare*, thus the new common name of Heterobasidion Root Disease, or HRD. The fungus has previously been named *Heterobasidion annosum*, and before that *Fomes annosus*. Scientists believe the new name will stick, so the plan is to change the common name from Annosum to Heterobasidion Root Disease, or HRD. To make this transition as smooth as possible, WI DNR publications and websites will list both common names for awhile. If you know of any annosum sites (or suspect any) that are not shown on the [map](#), please let us know so that we can keep the map up to date. Thanks!



Annosum fruiting bodies at base of dead red pine with bark and needles mixed into the fungal fruiting body. Small hatchet for scale.

Annosum (HRD) spore trap results – from Kyoko Scanlon. This summer/fall, a spore trap wood disc study was conducted in Wisconsin by Dr. Glen Stanosz. The traps were placed in counties where HRD hadn't been confirmed, but within 25 miles of a confirmed stand. Some of these traps detected viable spores of HRD. Spore trap catch could mean either spores are floating in from an infested adjacent county, or there are local infestations that have just not yet been detected.

Balsam fir twig tip mortality from Valsa – for the past couple of years, in northern Wisconsin, I've seen balsam fir twig tips dying. The dead twigs are scattered throughout the crown, typically only 1-2" of the twig tip are killed, and the dead twigs and needles remain on the tree for at least a year. It can be found on balsam that are along edges of stands, deep inside a stand, on balsam in the understory, and on trees that are far from any road or other disturbance. All sizes of trees can be affected although pole and sapling sizes seem most affected. After numerous samples, from a number of locations around Vilas and

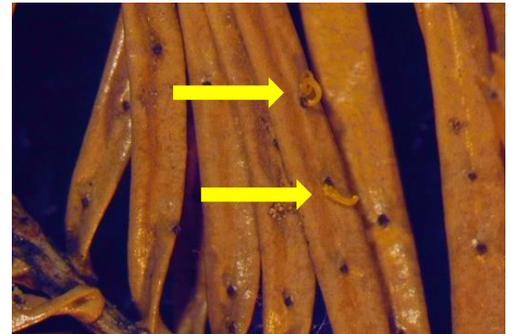


Branch tip mortality on balsam fir due to Valsa.

Oneida Counties, we have finally identified a fungus ... Valsa, which is in the genus Cytospora. In the book Tree Diseases of Eastern Canada, it says that Valsa has the potential to kill

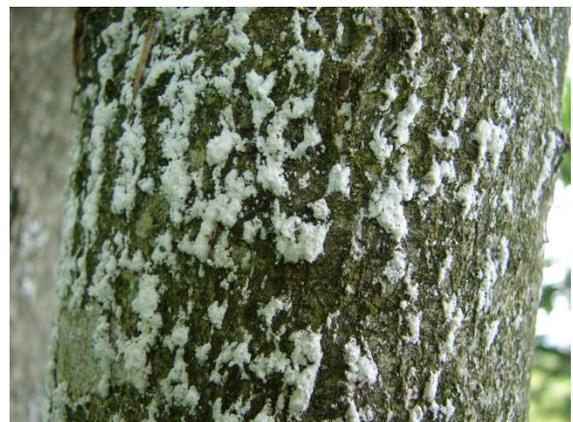
young shoots, and in some areas up to 25% of new shoots were killed. It goes on to say that this won't kill the tree, although it can deform small trees due to this branch tip mortality. In the book Field Guide to

Tree Diseases of Ontario, which calls it "Cytospora dieback of balsam fir", it says that control is not necessary other than on urban ornamentals, but cautions you to avoid pruning when it's wet out and to sterilize equipment after pruning. It's unclear what prompts the infection, whether it's a wet spring or fall when infection can occur, or whether it's in response to stress in the tree from stressful winters or droughty periods.



Balsam needles showing fruiting bodies (black spots erupting from needles) and spore horns (yellow arrows)

Beech bark disease – in Wisconsin, beech bark disease is present, and killing beech, in localized areas of Door County. In other counties where American beech is present we have found extremely low populations of the exotic scale that is part of the beech bark disease complex; often we're finding less than one scale per tree in counties other than Door County. If you know of any sites, besides Door County, where the population of scale is high and the beech appear to be covered in white fluff, please let us know. We continue to monitor and survey for beech scale and beech bark disease in Wisconsin.



Heavy infestation of beech scale looks like white fluff on the bark.

Oak wilt guidelines document available – a professionally designed version of the document Oak Harvest Guidelines to Reduce the Risk and Spread of Oak Wilt is now available online and in print. Two versions are available online: a [low-resolution \(1.5 MB\) version](#) for reading online and a [high-resolution \(25MB\) version](#) for printing. Maps will be updated yearly in this document so if you print a copy you may need to consult a new version in 2017 and beyond, or check the online map for the latest information. A small number of spiral bound copies have been printed; if you would like a printed, spiral bound copy, please contact Kyoko Scanlon. The interactive [online guide](#) and spreadsheet guide have also been updated and all of this info can be found on the WI DNR [oak wilt page](#). If you have questions about the guidelines please contact your local [forest health specialist](#).

Oak wilt and warm weather – because of the early warm weather should you implement oak wilt restrictions early? The new oak wilt guidelines retained the previous cutting restriction dates starting April 1 south of the tension zone, and starting April 15 north of the tension zone, but they also have exceptions and modifications which includes the situation where we have a warm spring. With the recent warm weather I got a number of questions asking if, or when, the forester should have the conversation with the logger about stopping cutting early due to the warm weather. In the new guidelines Chapter 3, Modification 3 is the one to note regarding early warm (or late cold) spring temps. The rule of thumb is that you need 7 days of 60 degrees or higher for the beetles that can spread the oak wilt fungus to emerge and start flying. Some areas of southern Wisconsin may have reached that already, but for most of the north I don't think anyone has had 7 consecutive days of 60+ temps yet, so if that's the case for your particular area then you're not yet in the high risk period and April 1 (south) or April 15 (north) will remain the start date for the oak wilt harvesting restricted period.

Other/Misc.

Tamarack seed tree site – a tamarack stand infested with Eastern Larch Beetle in Waupaca County was harvested in 2015 with seed trees left for regeneration. The trees chosen to be left as seed trees were healthy looking trees that appeared uninfested by Eastern Larch Beetle. I recently checked out this site with WI DNR foresters Mike Schuessler and Ben Baumgart. I was skeptical that many of the seed trees would still be alive, and was expecting Eastern Larch Beetle to have continued their attack on this stand. I was pleasantly surprised to find that only scattered trees had been killed by Eastern Larch Beetle. Although I suspect mortality of the seed trees will continue in future years, so far mortality is moving at a slower pace than I expected, and the seed trees may indeed be around long enough to produce seed for the site. I'm sure Mike or Ben would be happy to discuss this site if you have questions or are thinking of doing this on your own site.



Tamarack seed tree site.

Ticks are out –Ticks come out almost as soon as the snow melts, so they’ve been out for a while this year. If you would like some tick ID cards, let me know, I can send you some. If you need a large supply I can get you info on where to order them.



Of Historical Interest

25 years ago, in 1991 –

- **Bronze birch borer** - The populations of the bronze birch borer declined as most drought-damaged birch were already dead and rainfall helped relieve the drought stress on remaining birch. Birch mortality also declined dramatically with the onset of normal rainfall. Both recovery and continued decline was noted in Langlade, Lincoln, Oneida, Forest, Oconto, Marinette and Vilas counties.
- **Gypsy moth** - *Lymantria dispar* (L.) A spotty, very light infestation exists along the Lake Michigan shoreline in Kewaunee, Manitowoc, Sheboygan and Ozaukee counties; the infestation extends inland into Door and southern Marinette counties. Proof of the infestation was revealed by the presence of female moths, larvae, pupae, cast skins and egg masses in these areas. Trap catches occurred over a much larger area. Although the total numbers of male moths caught in pheromone traps decreased from 1990 levels, the trap catches revealed concentrations that probably represent infestation centers in Oconto and Brown counties. DNR continued to cooperate with Wisconsin Department of Agriculture (WDATCP), Trade and Consumer Protection, USDA Forest Service, USDA APHIS, and University of Wisconsin - Extension in a program to eradicate the infestation. Five locations in Door and Kewaunee counties totaling 5,875 acres were sprayed twice with undiluted applications of the bacterial insecticide, *Bacillus thuringiensis* at a rate of 20 BIU. Spot infestations associated with infested nursery stock are also known to occur in Dane and Jefferson counties.

50 years ago, in 1966 –

- **Pales weevil** – *Hylobius pales* (Herbst). Populations in the East and West Central Areas were much reduced compared to those of 1964. Fall feeding on Scotch pine in 1964 resulted in extensive twig branch mortality in the spring of 1965. Generally lighter injury in 1966 may have been caused by reduced weevil activity due to late heavy rains in 1965, and dry summers in 1965 and 1966. Plantations treated with BHC for weevil control had

very little damage. Small patches of trees in two red pine plantations in Adams County were killed by pales weevils which had emerged from stumps of nearby pulpwood cuttings. Locations of the plantations were as follows: NWSW Section 28, T19N, R6E, and NESW Section 16, T17N, R7E.

- **Pine Root Weevil** - *Hyllobius rhizophagus* Millers. New infestations were not found in the Northwest area, and little tree mortality was noted in areas of known infestation. The root weevil continued to be the major forest insect pest in the West Central Area where it continued to destroy trees in several counties. The Black River State Forest, with over 2,000 acres of weevil-damaged plantations, has adjusted management practices to reduce weevil-inflicted losses. Approximately 150 acres of younger plantations were noncommercially thinned and 30 acres of older (29 years) plantations were commercially clearcut, yielding 4 to 5 cords per acre. An increasing number of trees showed symptoms of attack, particularly in Marquette and Waushara Counties in the East Central Area. Symptoms were frequently associated with drought conditions, competition, and increased demands by the trees on sites.

Contact Us

Forest Health Staff - contact info for each Forest Health Specialist can be found our webpage at <http://dnr.wi.gov/topic/ForestHealth/staff.html>

Vacancy area coverage:

Oneida, Vilas, Forest, Florence Co's – Linda Williams

Lincoln, Langlade Co's – Mike Hillstrom

Price, Taylor Co's – Todd Lanigan

Iron County – Paul Cigan

Report EAB:

by phone 1-800-462-2803

by email

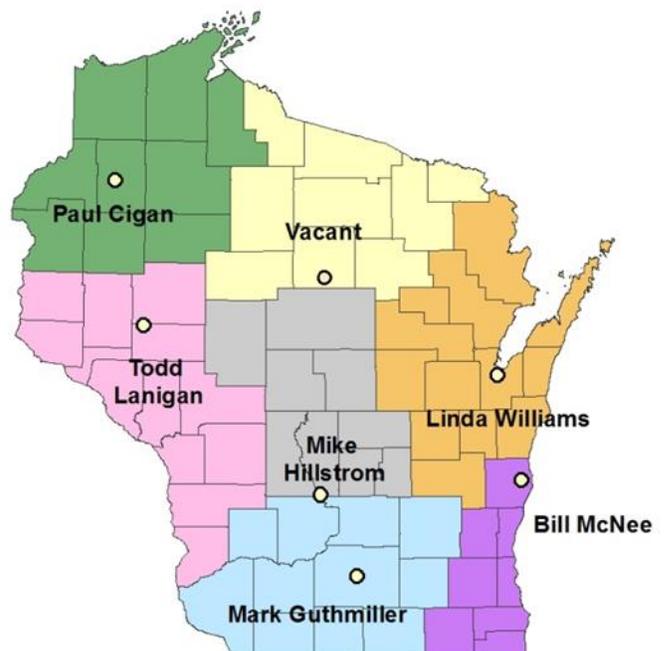
DATCPEmeraldAshBorer@wisconsin.gov

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.