

Northeastern Wisconsin Forest Health Update

Wisconsin DNR – Division of Forestry

July 18, 2016

Topics covered this month:

Insects:

EAB new finds in WI
EAB other news – parasitoid releases
Lacebugs
Red turpentine beetle and pitch mass borer in white pine
Redheaded pine sawfly
Spruce budworm
Whitespotted sawyer
Yellowheaded spruce sawfly

Diseases:

Annosum/HRD in spruce
Oak wilt



Ladybug and pupal case.

Other:

Sapsucker
Squirrel damage showing up again
Storm damage

Of Historical Interest

25 years ago - 1991 –
Yellowheaded spruce sawfly
Butternut canker
50 years ago - 1966 –
Saratoga spittlebug

Insects

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

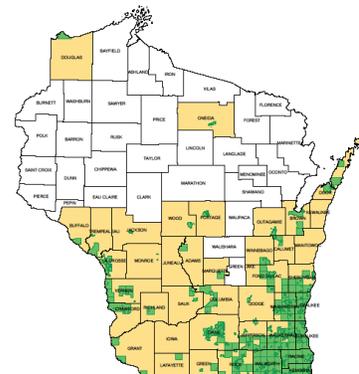
New County Quarantines:

- none

New finds in Counties already Quarantined:

- Adams County – Town of Jackson and Rome
- Jefferson County – City of Jefferson
- Juneau County – Town of Kildare*
- Vernon County – Village of Stoddard
- Waukesha County – Village of Butler

*although Juneau County was previously quarantined, this is the first finding of EAB in that county.



EAB quarantined counties shown in tan, municipalities and townships with known EAB infestations shown in green.

EAB other news – the first EAB parasitoid releases in Northeastern Wisconsin are occurring this year in Green Bay and Potawatomi State Park. Three parasitoids are being released this year: *Tetrastichus planipennisi*, *Oobius agrili*, and *Spathius galinae*. *Tetrastichus* arrives as parasitized EAB larvae in a small bolt of ash wood which is hung on an ash tree and the parasitoids are allowed to emerge naturally. *Oobius* arrives in an “oobinator” which is a container that holds EAB eggs that have been parasitized by *Oobius*, and the *Oobius* are allowed to naturally emerge from the eggs. The *Spathius* arrived as adults in a cup and were released by simply opening the cup.

The most common question I get is “how do you know the EAB larvae in the bolts of wood are parasitized?” The lab that produces these parasitoids knows how many EAB larvae are in each bolt, because they put the eggs on the bolts.

Then, at the right time, those bolts of wood are put in a chamber with hundreds of *Tetrastichus* adults, which then parasitize the EAB larvae that they detect in the small bolts of wood. Thus ... the few EAB larvae in those bolts of wood don't stand a chance, and all are heavily parasitized. Those bolts are then shipped to the sites that have been pre-approved for release and they're placed out in the environment for 6 weeks to allow the parasitoids to emerge.



Cole Motiff, with Green Bay City Forestry, hangs small bolts of ash wood on infested ash trees to allow *Tetrastichus* to emerge from the parasitized EAB larvae within the bolt.



Spathius arrived as adults in a cup (left). Brian Pelot, Assistant Forester for the City of Green Bay, releases the *Spathius* on ash trees that are infested with EAB.

Lacebugs on basswood – damage from lacebugs shows up on the upper surface of the leaf as stippling. Adults and nymphs feed on the underside of the leaf and suck the sap from the leaves, which causes the



Top of leaf showing stippling due to lacebug feeding.

stippling you see on the top of the leaf. Severe feeding damage can sometimes cause the leaves to drop early, but usually the damage isn't that severe. There are many species of lacebugs and they feed on a variety of hardwoods. In past



Lacebug nymphs (lower right), and an adult (upper left), on the underside of the leaf.

years I have reported on severe damage to black cherry leaves, causing them to turn yellow or reddish.

Red turpentine beetle and pitch mass borer on white pine – I recently visited a white pine plantation in Outagamie County where decline and mortality was occurring. The white pine was 8-16" in diameter. Some were dead and had already lost their bark, others were nearly dead, and others in the plantation still looked ok. But ... when I examined



Pitch mass borer causes blobs of pitch to form (yellow arrows) and pitch to run down the tree.

the "healthy" trees more closely, I found multiple red turpentine beetle attacks at the base of nearly every one.

Red turpentine beetle bores into pines near the base and this activity creates a "pitch tube" or pitch blob that can be seen on the outside of the bark. Larvae develop under the bark, feeding in the cambium layer. When several attacks occur around the base of the tree it can put that tree under stress, which can allow other bark beetles to attack it.



Red turpentine beetle pitch tubes (old at edge of needle litter, newer one above that) with sunglasses for scale.

In this case, these white pine were also heavily attacked by pitch mass borer, and there was some evidence of bark beetles. Pitch mass borer can attack

anywhere along the trunk of the tree, but may focus attacks on pruning wounds (like in this situation) or spots of poor structure. These wounds are not large, but the irritation of the feeding larvae causes pitch to constantly flow and accumulate in these areas. If you only have a few attacks, you can use a knife or wire to penetrate the goeey glob and kill the larvae. In this case, there were often 8 or more attacks per tree, and some as high as 20 feet, so that control method was not an option.

Based on the age of some of the dead trees, I suspect that the problem started with the 2012 drought, and has continued since then with both red turpentine beetle and pitch mass borer putting additional stress on the trees. I expect additional mortality as many of the turpentine beetle pitch tubes and pitch mass borer attacks were fairly recent, indicating ongoing attacks.



If you peel off the goeey pitch blob, you may find a pitch mass borer larvae, like the one shown here.

Redheaded pine sawfly – I’ve seen a couple colonies of this native insect in Oconto County. They feed as a group with many sawfly larvae together on a single needle or single branch, and they can cause significant defoliation on young pines. Their favorite food is red pine needles but they can feed on other pine species as well. Interesting insect trivia: if the adult sawfly lays her eggs before she mates the larvae from those unfertilized eggs will all be male!



First instar redheaded pine sawfly larvae (freshly hatched). Photo taken 6/27/16.

If you don’t have very many colonies of this pest you can use the “clip & squish” method of control (simply clip off the branch, place on the ground, and squish the sawfly larvae, or, if you have lots of colonies it may warrant spraying a chemical pesticide. Redheaded pine sawfly starts feeding on old needles but can consume new needles later in the season.



Older larvae have a nice red head, with lines of black dots on their bodies.

Multiple years of severe defoliation on young red pine can seriously stunt the growth of your trees.

Spruce budworm – defoliation by spruce budworm was once again moderate to high in Marinette County, as well as areas of Vilas, Forest, and Florence Counties near the UP border, and small localized pockets of defoliation in Oconto and Oneida Counties. But, the defoliation is deceiving this year, because it doesn't really look that bad. Strong storms with driving wind and heavy rain, washed off much of the clipped needles and webbing that we so commonly look for to determine defoliation severity. Typically spruce budworm will clip needles which get stuck in webbing, and those needles later turn a nice rusty brown color, which shows up very well from a distance, or from the air. That didn't happen this year in most areas. Additionally, with the good rainfall this spring, growth rates in general were good, so there was more green on the trees. In areas that had significant defoliation last year, if you look at the new growth you'll see that often 50% of the new needles are missing. So although the defoliation isn't showing up as clearly as in past years, it's still present.



Balsam fir (right side of pic) were about 50% defoliated, but they don't look that bad until you really get close.

White spotted sawyer beetles – these adult longhorned beetles are out and you may be getting calls about it. This native beetle is often mistaken for Asian Longhorned Beetle (ALB). How can you tell the difference between our native beetle and ALB? ALB is a big burly beetle, while our native sawyer beetle looks slim in comparison, also, ALB has a very smooth shiny appearance with distinct white spots on black wing covers, whereas our native sawyer beetle will appear pitted or dusty, and the white spots may be less distinct or absent, and finally, our native beetle will have a nice white dot “between its shoulders” where the wing covers meet, and ALB does not have this.



White spotted sawyer adult.



Asian longhorned beetle. Photo from bugwood.org

Pine sawyer larvae develop in weakened or recently dead (or harvested) conifers. If you've ever stood by a deck of pine logs and heard chewing noises, pine sawyer is the culprit.

Yellowheaded spruce sawfly – feeding by Yellowheaded Spruce Sawfly should be wrapping up for the year. The larvae will drop to the ground and spin a cocoon where they will spend the remainder of the year and the winter. Adults will emerge next spring to start the life cycle over. If your trees were severely defoliated by Yellowheaded Spruce Sawfly this year, you may want to monitor the trees in early- to mid-June next year to determine if the population is high enough that you want to spray your trees to prevent defoliation. For more information check out the USFS document on [Yellowheaded Spruce Sawfly](#).



Yellowheaded spruce sawfly larvae and feeding damage.

Diseases

Annosum / HRD in spruce – annosum is now being referred to by the name *Heterobasidion* Root Disease (HRD). Mark Guthmiller wrote an interesting piece in his May pest update about finding HRD in a Norway spruce plantation on the Southern Unit of the Kettle Moraine, [check it out](#) if you didn't read it earlier. That Norway spruce stand isn't too far from a white spruce plantation that Mark also found HRD in; you can read about that one in his [February 2016 update](#). The new news regarding the Norway Spruce report is that samples were sent off for molecular analysis to identify the species of HRD that was infecting the Norway spruce and the results are back ... it is indeed *Heterobasidion irregulare*, which is the same species that we have infecting our pines here in Wisconsin. This is an important finding as this species of HRD is generally thought of as a pine pest.

Oak wilt – signs of oak wilt infections are becoming evident. Oaks that were infected with the fungus this spring can drop their leaves anytime between July and September. This wilting and dropping of the leaves happens fairly quickly, and a tree can go from looking nice and healthy to having lost most of its leaves within just a couple of weeks. This year I saw my first wilting oaks on June 24, which I thought was a bit early. Oak wilt is a non-curable fungal disease specific to oaks. Once the fungus infects a tree it will begin to spread outward from the roots of the infected tree through root grafts and into the roots of neighboring oaks. In this way pockets will be created as each year more oaks die. For more info on oak wilt biology, prevention, and control check out the [WI DNR's oak wilt page](#).



Oak leaf showing typical bronzing of the outer leaf portions and green near the base. These leaves will drop to the ground like this.

Other/Misc.

Sapsucker damage – lately I've gotten several questions about borer damage that turned out to be sapsucker damage. Sapsuckers are a bird that drills orderly holes into the bark of trees, causing the tree to bleed, which the sapsuckers then return to later that day or the next to feed on the sap. They sometimes return to trees multiple years, creating new rows of holes each year. Trees will attempt to heal over this damage, and in most cases are successful. Occasionally the damage is so extensive that mortality can occur from that point up. Federal regulations don't allow you to shoot sapsuckers, so control is usually some manner of deterrent, like wrapping the main stem with hardware cloth or burlap, or hanging scare tactics in the tree.



Both vertical rows of holes (upper right), and horizontal rows (lower stem) were created by sapsuckers.

Squirrel damage showing up again – the effect of squirrel damage that was done this past winter is showing up now, as damaged branched that managed to leaf out this spring are now wilting and dying. Sometimes squirrel damage doesn't completely girdle the branch, or the branch contains enough reserves to leaf out the spring following the damage, but with the latest warm snap the trees were unable to move enough water to those leaves and they are wilting and turning brown. Those leaves will probably remain on the tree for awhile before being weathered off.



Browning leaves on branches that were partially girdled by squirrels this past winter (yellow bracketed area).



Browning leaves on branches that were partially girdled by squirrels this past winter.

Storm damage – strong storms have damaged trees around the state this spring. Damage occurred during the high risk period for oak wilt transmission by beetles (April 15 – July 15 in the north, April 1 – July 15 in the south). If storms damaged oaks in your area prior to July 15, you may want to monitor those areas for oak wilt. In areas where oak wilt is not common (primarily in northern counties), if you see a new oak wilt infection point, and that township is not shaded pink on the map at right, please let us know so that we can update our maps to provide the best information for foresters and landowners to manage their lands.



Oak wilt is found throughout the red counties, although it may not be in every stand. White counties, with pink shading, indicates township level infestations where oak wilt is not common throughout the county.

Of Historical Interest

25 years ago, in 1991 –

- **Yellowheaded Spruce Sawfly:** *Pikonema alaskensis* (Rohwer) A Washburn County population that had been heavy in 1990, collapsed in 1991. Elsewhere in the northwestern counties populations on open-grown white spruce were generally moderate. Populations increased somewhat in the northeastern counties where pockets of moderate to complete defoliation of ornamental white and blue spruce occurred in Langlade, Oneida, Forest and Vilas counties.
- **Butternut Canker** – *Sirococcus clavigignenti – juglandacearum* Nair, Kostichka and Kuntz. No new locations of butternut canker were observed in 1991 (Figure 6). A statewide survey of butternut to determine the distribution and severity of this disease is planned for 1992.

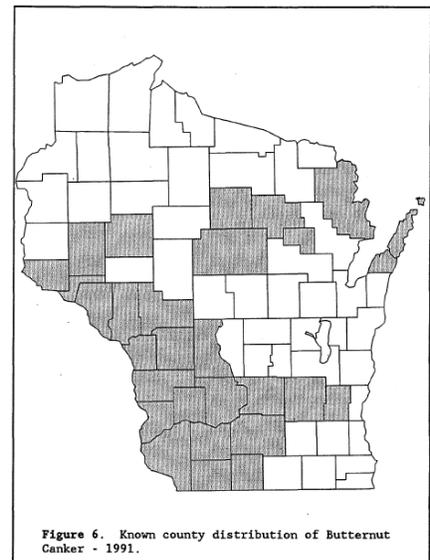


Figure 6. Known county distribution of Butternut Canker - 1991.
Known county distribution of butternut canker in 1991.

50 years ago, in 1966 -

- **Saratoga Spittlebug** - *Aphrophora saratogensis* (Fitch)
Flagging due to Saratoga spittlebug feeding was not observed anywhere in the Northwest Area during the year. A small area of scarred trees was found in Waupaca County (East Central Area) during a Scleroderris canker survey, but since the localized problem resulted

from poor growing conditions, and was not likely to be corrected by chemical control, none was recommended. Two thousand acres of susceptible pine plantings were checked in the Northeast Area during June and July for nymphs. Infestations requiring chemical control included 49 acres in Marinette County, 65 acres in Oneida County, and 15 acres in Vilas County. Malathion in oil, applied with a backpack mistblower at a rate of 1/2 pound per acre, was successful in controlling the adult insects. Lighter infestations, not requiring chemical treatment, were noted in Langlade, Oconto and Marinette Counties. Small areas of red pine plantings in Clark and Jackson Counties had high populations of the insect, and feeding scars indicated the same plantations had been infested in 1965. Thirty-five acres, in three Clark County forest plantations, were treated on July 21 with a Hurricane mistblower application of 3/4 pound per acre of malathion.

Phenological Notes:

June 14 - Most nymphs were in the 2nd instar in northeast counties,

July 12 - Both adults and nymphs were observed in Clark County.

July 18 - Approximately 70 percent of the spittlebugs were in the adult stage in northeast counties

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

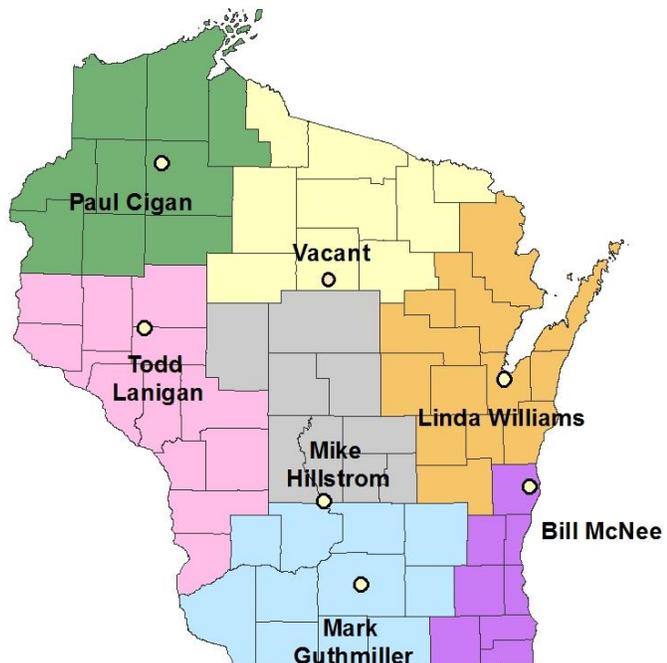
DATCPEmeraldAshBorer@wisconsin.gov

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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.