

# *Northeastern Wisconsin Forest Health Update*

*Wisconsin DNR – Division of Forestry*

*August 23, 2013*

## Topics covered this month:

### **Insects:**

Aspen blotchminer  
EAB emergence degree days map  
EAB new county quarantines  
EAB new locations in quarantined counties  
Eastern spruce gall adelgid  
Elm sawfly  
Fall webworm  
Gregarious oak leafminer  
Oak branch flagging and kermes scale  
Poplar vagabond aphid galls  
Saddled prominent

### **Diseases:**

Annosum guide feedback request  
Cedar – hawthorn rust  
Oak wilt  
Slime mold

### **Other:**

Branch mortality on Norway maples  
Early leaf yellow/red color and dropping leaves  
Storm damage August 2013



### **Of Historical Interest:**

1953-

- Biological control and the “Balance of Nature”
- Attitudes about forest health issues

1988-

- Early fall coloration and premature leaf drop
- Twolined chestnut borer

## Insects

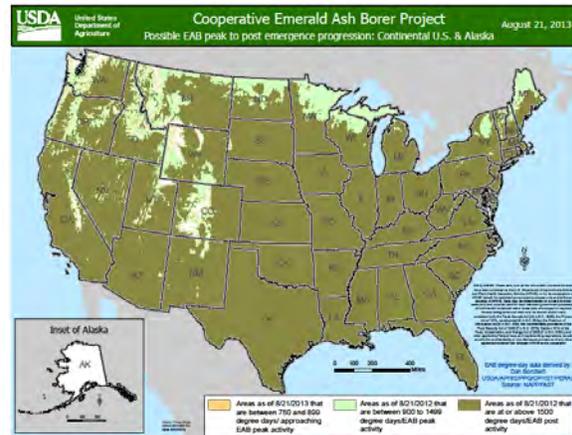
\*information and photos in this document from Linda Williams unless otherwise noted.

**Aspen blotchminer** – last month in the pest update I mentioned aspen leaf diseases causing some trees to have thin-looking crowns. Shortly after that aspen blotchminer damage started showing up on many aspens in Oconto and Marinette Counties. The damage makes the crowns a bit off-color, and the curling/cupping of the leaves gives the appearance of a thin crown. This is a late season defoliator so although it can look bad the effects on the overall health of the trees is negligible.



Numerous mines from aspen blotchminer on the underside of the leaf.

**EAB emergence degree day maps** – EAB is now past peak emergence in the Southern half of Wisconsin. Literature indicates that EAB adults can emerge from May thru September, but peak emergence usually begins around 1000GDD. The map below shows peak emergence (light green) and past peak emergence (olive green), as of August 21, 2013.



**EAB new county quarantines** – Dodge, Douglas, and Winnebago Counties are the latest to find their first EAB and be added to the list of quarantined counties. An EAB adult was found on a purple sticky trap in the City of Watertown, in Dodge County, in early August. Douglas County, in northwestern Wisconsin, was quarantined in mid-August after EAB was found by city forestry staff as they removed a tree. And in Winnebago County EAB was identified in both Black Wolf and Nekimi Townships, south of the city of Oshkosh (photos below). These latest additions bring Wisconsin up to 20 quarantined counties (map at right).

**Emerald Ash Borer Quarantined Counties August 2013**





Woodpecker flecking on the bark of a declining ash heavily infested with EAB. Right, a D-shaped exit hole where adult EAB emerged.

**EAB new locations in quarantined counties** – when emerald ash borer is first found in a county it often makes the news; but what about after that, when it is found for the 2<sup>nd</sup>, 3<sup>rd</sup>, or 4<sup>th</sup> time in a county? Well, quite frankly, it may or may not make the news.

In the past month emerald ash borer has been identified in the following areas around the state:

- Fond du Lac County – Town of Auburn (Mauthe Lake). Fond du Lac County had previously been quarantined due to its proximity to the first find in Newburg but until now had not actually found a beetle in the county. This one was collected from a purple sticky trap.
- Fond du Lac County – Town of Osceola (Long Lake) – adult beetle from purple sticky trap
- Kenosha County - Town of Somers
- Ozaukee County - Town of Belgium
- Racine County - City of Burlington
- Walworth County - Town of Lafayette
- Walworth County - Village of Darien
- Waukesha County - City of Oconomowoc

**Eastern Spruce Gall Adelgid** – Eastern Spruce Gall Adelgid (*Adelges abietis*) prefers to attack white spruce and Norway spruce. The lifecycle of an adelgid is somewhat complicated but they do complete one generation per year. They overwinter as wingless, immature females. When spring arrives they become mature, lay eggs, and tiny nymphs emerge from the eggs and begin feeding at the base of needles where the gall will eventually form. As fall arrives the gall will dry out, turn brown, and open to release the nymphs which mature into a winged female which lays eggs and the cycle starts over.



Eastern spruce gall adelgid forms galls at the base of new growth. New galls are green above (arrows pointing to galls), older galls are brown and remain on tree (below)

Spruce have a wide range of susceptibility to this insect, both between species and within species. Some spruce, such as Black, Red, or Engelmann Spruce are generally less susceptible to Eastern Spruce Gall Adelgid. Norway Spruce and White Spruce are considered susceptible to this insect but some cultivars are less susceptible and even certain trees within each species will be less susceptible than their neighboring tree may be.



**Cooley vs Eastern** ... what are the differences you need to know for easy identification?

	<b>Primary Host</b>	<b>Gall location / size</b>
<b>Cooley Spruce Gall Adelgid</b>	Blue spruce	At the tips of branches / 1-3 inches long
<b>Eastern Spruce Gall Adelgid</b>	White spruce, sometimes Norway spruce	At the base of new growth / ½ - 1 inch long

**Elm sawfly** - this insect was reported defoliating willow in Marinette County but is probably present in many other counties around NER. This large sawfly is the largest sawfly found in North America and has the disturbing habit of falling out of trees when you walk under the tree. Most people don't notice the damage until the larvae begin to migrate down and gather near the base of the tree.



Elm sawfly larvae are large but curl up when disturbed. Photo by Derek Nellis.

Larvae grow 1 ½ - 2 inches long and are a bright yellow color with a black strip down their back, although occasionally the pink form is found. Adults are a large dark brown sawfly that looks like a cross between a horse fly and a wasp. Usually defoliation is localized to a single tree or group of trees, with willow being a favored host, but they will also feed on elm, birch, maple, and poplar. Spraying a general insecticide or soapy water should kill these sawflies if you think control is warranted but these late season defoliators rarely do serious damage to the trees that they defoliate.

**Fall webworm** - webs are starting to appear in trees. Fall webworm does most of its damage late in the season, when the tree is preparing for fall, so people should not be too concerned about this defoliation. It can be an ugly messy web nest that the insects create but it's not something that will kill the tree. If it's just too ugly to look at I recommend tearing it down with a rake; there is no need to prune out portions of your tree just to get rid of the webs as this does more damage to the tree than the insects themselves would do, likewise, burning them out with a flamethrower is also overkill.



Fall webworm webs are large messy webs.

**Gregarious oak leafminer** – there is a solitary oak leafminer and a gregarious oak leafminer ... you might guess at the main difference between the two. The damage caused by the larvae feeding in the leaves can cause leaves to turn brown, cause cupping or twisting of the leaves, and premature leaf drop. The larvae overwinter in the leaves once they drop to the ground for the winter. Adults will emerge in the spring to start the life cycle over again. Homeowners with a single tree being affected can rake up the leaves in the fall and dispose of them, thus killing the larvae. In forested settings there are natural enemies that will help bring the population back under control.



Gregarious oak leafminer damage. Note that the lower portion of the leaf is completely damaged, while there are a number of blotchy mined areas in the top portion of the leaf. Photo by Bill Ruff.

**Oak branch flagging and Kermes scale** – I continue to see branch flagging of oaks in Marinette, Oconto, and Shawano Counties that is being caused by Kermes scale. Although *Botryosphaera* canker fruiting bodies are present on some of the flagged branches, the vast majority of the problem seems to be due to Kermes scale. Oak twigs with Kermes scale present will often be killed from the point where the scale feeds to the branch tip.



Congregations of Kermes scale at the base of leaves.

Female Kermes scales are fairly large, light brown and round. They are immobile, tend to cluster near buds of a twig or branch, and are often tended and protected by ants. These scales feed on sap causing a loss of plant vigor and growth, as well as twig dieback. While a heavy infestation may cause young trees to be stunted or deformed, natural enemies are usually plentiful and control is not usually necessary.

**Poplar vagabond gall aphids** – reported from Shawano County, these galls form at the ends of the branches on aspen and cottonwood. The galls are caused by aphids feeding at the tips of twigs. This damage does not usually kill the tree but can reduce the vigor of the tree since the terminal buds are killed by this formation. The aphids feed during the spring and early summer within the gall then leave the gall to feed on an unknown second host plant. When the aphids leave the gall it will turn



Poplar vagabond aphid galls at the tips of branches. Aphids live inside the distorted blobs of plant material. Photos by Levi Koski.

brown and woody. Aphids return later in the fall and lay eggs on the woody gall or in crevices in the bark. Eggs will hatch the following spring and repeat the process. For control, prune the galls prior to egg hatch early in the spring. Because the aphids return to the same trees with the original galls it is common to see a single tree heavily infested while a nearby tree will have no galls at all.

**Saddled prominent** – defoliation of maple is occurring on Rock Island due to Saddled Prominent. The caterpillars typically feed on beech, maple, and birch, and populations can build suddenly, defoliate for 1-3 years, and then collapse just as suddenly. The brown markings on the back of the caterpillar is what gives them their name, looking like they have a saddle on their back. The adult moths are a fairly non-descript “little brown moth”. Saddled prominent is considered a late season defoliator, since most of the action occurs in late July thru the fall. Late season defoliation is less stressful to a tree than an early season defoliator like forest tent caterpillar or gypsy moth, although successive years of late season defoliation can still put trees under stress.

## Diseases

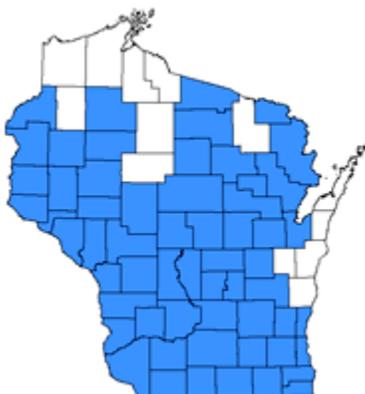
**Annosum guide feedback request** - the annosum guide was implemented on May 1, 2013. How is it working in the field? Please let us know if you have run into any issues or concerns related to using the guide. It's very important for us know what the issues are in the field, so we can make adjustments for improvement. And of course, if you have positive feedback about the

guide you're welcome to share that as well. ☺ The 25-mile buffer map was recently updated to reflect newly confirmed stands. Although buffers were slightly altered, townships that are within the buffers are unchanged. The updated map is posted on the WI DNR annosum page at <http://dnr.wi.gov/topic/ForestHealth/AnnosumRootRot.html> just select the link on the right side of the page in the Annosum Root Rot Guides box.

**Cedar-Hawthorn rust** – hawthorn can be spotted from a distance in Brown, Manitowoc, Outagamie, and Winnebago Counties (among others) by their current orange color, due to heavy infection by cedar-hawthorn rust. Cedar-hawthorn rust (*Gymnosporangium globosum*) alternates between two tree species to complete its lifecycle. This disease occurs on eastern red cedar, common juniper and prostrate junipers in Wisconsin, with the other host being apple, crabapple, hawthorns, and sometimes pear, quince and serviceberry. The fungus causes a leaf spot on the upper surface and tubes (aecia) grow from the lower surface of the leaf directly under the leaf spot. Severe infection can cause premature leaf drop. There is also a Cedar-Quince rust that will infect the hawthorn fruit, producing fungal tentacles when the disease is ready to sporulate.



**Oak wilt** – oak trees infected with the oak wilt fungus are still wilting and dropping their leaves. The leaves that fall will often have browning on the outer portion of the leaf and a water-soaked green color near the petiole. You can cut a wilting branch to check for the vascular staining, to help you determine if oak wilt is causing the leaves to drop. The map below shows counties where oak wilt has been confirmed (in blue). If you think you have identified oak wilt in a county not shaded in blue please contact your



Above, tree currently wilting from oak wilt. Left, leaves of tree dying from oak wilt showing typical pattern of browning tip with water-soaked green base.

forest health specialist as we want to verify this.

For oak wilt control options (trenching), check out the document Lake States Woodlands Oak Wilt Management <http://learningstore.uwex.edu/assets/pdfs/G3590.pdf> or if you or a landowner are interested in trying to use herbicide to control oak wilt we do have some protocols that we can suggest, although this method of oak wilt control has not yet had the vigorous testing and trials that trenching has.

**Reading on butternut and DED tolerant elm** – the July 2013 issue of Nursery News went out to all DNR foresters, but, if you haven't taken the time to read it yet, check it out. There is a great article about butternut and another article about Dutch elm disease tolerant elm seeds. You can find the July newsletter here <http://dnr.wi.gov/topic/TreePlanting/>

**Slime mold** – in previous pest updates I've reviewed slime molds, those cool colorful blobs that can actually "climb" trees, so I won't go into a lot of detail here. Just wanted to share a couple more pics that came in to me. In the forest we tend to see slime molds on trees or stumps, but in landscape settings it's most common to find it on wood chips or mulch.



Slime mold growing on bark mulch. Photos by Brandon Schopf, Door County.

**Other/Misc.**

**Branch mortality on Norway maples** – have you been seeing this sudden branch mortality on Norway maple? The rest of the crown is often normal and healthy looking but one branch will suddenly wilt and die with the leaves remaining on it turning a rich rusty red color. So far I have seen this in Green Bay,



Howard, Allouez, Oconto Falls, and Lena. If you have seen this in your area please let me know as I would like to get an idea if this is a statewide problem or a localized issue.



Samples have been sent to Brian Hudelson (Plant Disease Diagnostic Clinic) for testing but have not turned up anything yet. I've sent some additional samples, so maybe something will still show up but at this time we're attributing it to drought stress and/or girdling root issues.

**Early leaf yellow/red color and dropping leaves** – what's going on, is it fall already? No. There are a variety of things occurring right now depending on the species of tree:

- Ash – trees with heavy seed crops are looking yellow as the seeds mature and turn yellow. Also, any older leaves that had ash plant bug damage are turning yellow and are being dropped by the tree.
- Basswood/Linden – a heavy seed crop that is maturing and dropping is causing these trees to look yellow. The seeds, and the samaras (wings) will turn yellow and drop, giving the appearance that the tree is dropping a massive amount of leaves.
- Elm – trees dying from Dutch elm disease will turn yellow and drop their leaves.
- Maple – moisture stress causing some to turn red early. Urban trees that have girdling roots may turn color or drop leaves from the top portions of the tree in response to moisture stress
- Oak – oak wilt causing trees to drop leaves suddenly.
- Poplar species and birch – moisture and heat stress are causing these trees to purge some of their oldest leaves, which are turning yellow and will drop off. Leaf diseases and aspen blotchminer are also making the crowns look poor.

- Willow – defoliation by willow leafminer is severe on some trees, causing the tree to drop those leaves that are most damaged and giving the remainder of the tree a brown/tan cast.

**Storm damage August 2013 –**

**\*August 6, 2013** - storm damage from straight line winds and 6 tornados occurred on the evening of August 6, 2013. Damage occurred from Waupaca, East through Outagamie and Brown Counties, and into Manitowoc County.

**\*August 21, 2013** – storm damage from straight line winds caused severe damage in Menominee and Shawano Counties, as well as damage to trees in Marinette, Brown, and Outagamie Counties.



Above: Storm map from August 6, 2013 storms. Tornados indicated by lines, W's represent straight line wind damage. From [www.noaa.gov](http://www.noaa.gov)  
 Left: storm damaged trees  
 Below: the old Maribel Caves Hotel, and surrounding forest, was severely damaged by the storms



**Of Historical Interest**

**60 years ago, in 1953 –**

- An excerpt from a section on Biological Control – “Balance in nature”. If we were to represent the moods of nature by a line graph, the line would be relatively level provided that it represented eons of time. But, in our economic way of life we do not think in terms of eons. At best, we may think of a period covering 50 to 100 years if we are being

farsighted. Therefore, only that part of the graph representing that period of time would be of interest to us. It immediately becomes magnified and it is anything but static. There are sharp fluctuations above and below the norm. Hence, it would be correct to say “A balance is continually being sought in nature”. The “balance” must be pictured as oscillating rather than being static.

- From the annual program summary section of the annual report:
  - Attitude of the Technicians. In the past there has been a distinct lack of cooperation between foresters and entomologists. It was felt that this was due largely to a lack of understanding of each other’s fields. It was also felt that a forest entomologist would be better qualified if he were basically a forester; in the Wisconsin Conservation Department a forest entomologist must have a degree in forestry. In addition, all personnel connected with forestry in the department are contributing to the program and there are no restrictions by division lines. To more fully utilize the man power, administrative lines are crossed wherever it is felt the program can be augmented.
  - Attitude of the Public. The public attitude has been, until recently, one of apathy and sometimes perverseness. There are signs of a change in this attitude even though it is reflected in only a relatively small number of people. It can be attributed to educational programs, subsidies, improved economic conditions, services of department personnel, etc. Interest in insects and disease has been largely in the spectacular rather than the destructive.

#### **25 years ago, in 1988 –**

- Early Fall Coloration and Premature Leaf Drop – Drought – Sugar maples in Chippewa and northern Clark counties, western Wisconsin, had abnormally early (mid-August) fall coloration and leaf drop. In northwestern Wisconsin, early leaf coloration and drop was scattered throughout Washburn, Burnett, Polk and Barron counties. Drought stress most likely triggered this response.
- Twolined Chestnut Borer – *Agrilus bilineatus* (Weber) – Oak mortality skyrocketed in many locations this year. Pockets of light to heavy mortality of red and white oak occurred in Sauk, Columbia, Adams, and Marquette counties in stands that had been heavily defoliated by fall cankerworm. Pockets of mortality of northern pin oaks occurred on dry sites in Menominee and Shawano 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>

Report EAB:

by phone 1-800-462-2803

by email

[DATCPEmeraldAshBorer@wisconsin.gov](mailto:DATCPEmeraldAshBorer@wisconsin.gov)

visit the website

<http://emeraldashborer.wi.gov/>

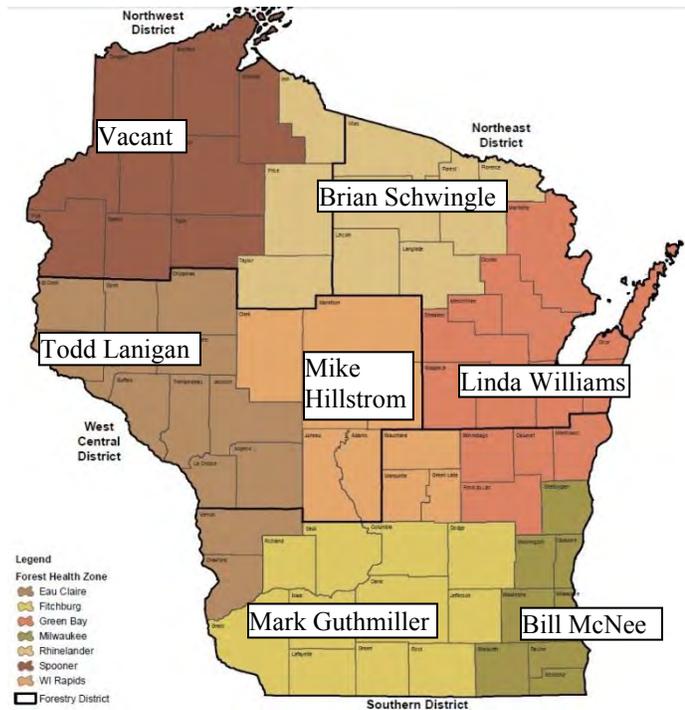
Report Gypsy Moth:

by phone at 1-800-642-6684

by email

[dnrfgypsymoth@wisconsin.gov](mailto:dnrfgypsymoth@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.