

Northeastern Wisconsin Forest Health Update

Wisconsin DNR – Division of Forestry

March 29, 2015

Topics covered this month:

Insects:

Columbian timber beetle
EAB new finds in WI
Eastern larch beetle damage showing up
Elm bark beetle
Gypsy moth
Velvet longhorn beetle

Other:

Crazy worms are now jumping worms
Pileated woodpecker damage
Porcupine damage
Silviculture trials
Spalting

Diseases:

Annosum treatment products
Diplodia and regenerating red pine

Of Historical Interest:

25 years ago - 1989 –
Forest tent caterpillar
60 years ago - 1954 –
Forest tent caterpillar

Insects

Columbian timber beetle – some silver maple from a recent harvest in the Navarino area were infested with Columbian timber beetle. This infestation was a current year infestation, with evidence of past year infestations as well. Although a few logs showed heavy staining, damage to the stand overall was light, with most logs showing no staining. The first report of severe Columbian timber beetle infestation in Wisconsin was in 2008.

This small ambrosia beetle bores directly into the tree, and introduces fungi,



Columbian timber beetle staining. Photo by Steve Kaufman.

which stain the wood column above and below gallery that they create. Columbian timber beetle attacks don't kill the tree, and they don't cause additional stress to the tree, but the stain that is introduced will not leave the wood over time. This wood is structurally sound but the value is degraded (unless you're looking for a specialty wood to work with). Columbian timber beetle does not infest seasoned wood.

If you work with silver maple along the lakeshore counties, or inland, and would like more information on Columbian timber beetle that you can share with landowners, let me know and I can send you a document that I've prepared with more info on this insect and the damage that it does.



Columbian timber beetle staining.

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:

- Dodge County – City of Beaver Dam
- Kenosha County - Town of Paris*
- Racine County - Villages of Mount Pleasant, Waterford and Rochester - Town of Waterford
- Rock County - City of Milton
- Sheboygan County - Town of Sherman
- Walworth County - Towns of Spring Prairie, Sugar Creek and La Grange

Emerald Ash Borer Quarantine



Quarantined County

Wisconsin Department of Agriculture, Trade and Consumer Protection
Map Updated 10/7/2014



*Kenosha County now becomes the first Wisconsin county in which every town, village, and city has an EAB detection.



Photos above show woodpecker damage from the Fish Creek (Door Co.) EAB infestation.

EAB additional reading:

- Minnesota black ash stands and EAB. Read what researchers are saying about EAB, climate change, and Minnesota's black ash swamps. [Link](#)

Eastern larch beetle damage showing up – damage from eastern larch beetle is becoming evident this winter due to the help of woodpeckers. Tamarack trees that were infested with eastern larch beetle this past year are now being stripped of their bark so that woodpeckers can access the tasty beetles underneath. These trees will stand out from a distance with a deep reddish color to the bole of the tree (photos below). Woodpecker damage typically starts at the top of the tree (as does attack by eastern larch beetle). So far I've noted scattered light damage in some stands in Vilas and Oneida Counties.

Eastern larch beetle attacks tamarack that are under stress. Last year we had significant defoliation over a large area by larch casebearer, which put the trees under stress. The trees re-foliated after the spring defoliation, but in some cases the trees were defoliated a second time in late summer by young larch casebearers, which hatch from eggs late in the summer and feed until winter sets in. Additionally, there were some tamarack that were stressed by other factors and after the defoliation last spring they were not able to send out many new needles. These stressed trees were fully attacked by eastern larch beetle. The woodpeckers are just showing us this mortality before spring hits. Unfortunately, once we see some mortality from eastern larch beetle we often continue to see tamarack mortality within that stand or that area. In my December update I mentioned some new research out of Minnesota that may be the reason that we see continued tamarack mortality. If you deleted the December issue you can find it [here](#).



Woodpeckers stripped the outer bark from these tamaracks to access the Eastern larch beetles underneath.

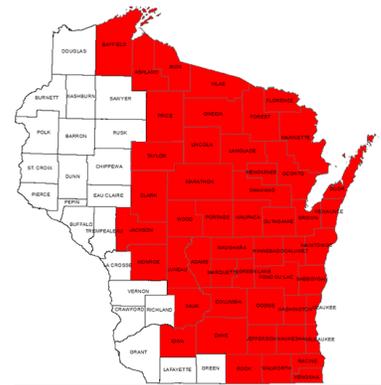
Elm bark beetle – Dutch elm disease is spread by bark beetles. There are three bark beetles that attack elm, including a native bark beetle, and two exotic bark beetles, the smaller European Elm Bark Beetle, and the Banded Elm Bark Beetle. Woodpecker activity which removes the outer layers of bark on elms is an indication of bark beetle infestation. I peeled the bark on one of those trees with significant woodpecker damage, and found these lovely galleries. The largest “line” in the galleries is the egg gallery, where the adults mate and the females lay their eggs. The smaller squiggly lines are the larval galleries. Our native bark beetle egg galleries are usually oriented horizontally, whereas the exotic bark beetles usually have vertically oriented egg galleries. Trees can be infested by both, although in the photo at right, all of the galleries are from the exotic species.



Exotic elm bark beetle galleries.

Gypsy moth – Taylor County has been added to the gypsy moth quarantine. For those in the eastern ½ of the state you’ve probably been dealing with gypsy moth for quite some time now, but there are counties in Western Wisconsin that don’t have gypsy moth yet, although it continues to march slowly westward.

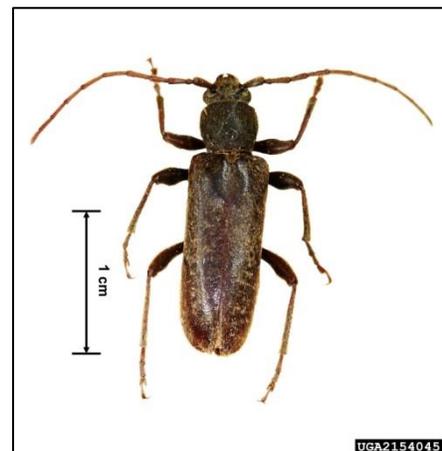
The gypsy moth quarantine requires that Christmas trees, logs, and nursery stock be inspected and certified as gypsy moth free before leaving the quarantine. People who are going camping, road tripping, or moving should also be on the lookout for gypsy moth on their belongings. Check out this [site](#) for tips (or at least check it out for the cool caterpillar graphics that roam the top of the screen!)



Gypsy moth quarantine counties in red.

Velvet longhorn beetle – this new exotic beetle has been detected repeatedly in several counties in northeast Illinois. Velvet longhorn beetle (*Trichoferus campestris*), sometimes called Chinese longhorn beetle, is a somewhat drab brown beetle, ½ to 1” in size, with antennae nearly as long as its body. Larvae can be ~1” long. It attacks a number of species, but it’s reported that it can do well in apple and cherry orchards. Other hosts listed include maple, birch, beech, ash, among others, and cut wood of spruce and pine.

Velvet longhorn beetle (*Trichoferus campestris*) is native to Japan, Korea, China, and central Asia. According to various websites, this beetle has been trapped in MN (2010), IL (2009-2010), UT (2010-2014), Ontario Canada (2013?), Quebec Canada (2002, 2006).



Velvet longhorn beetle. Photo from bugwood.org

This beetle has not been detected in Wisconsin at this time. For more info check out Minnesota’s [info page](#). If you think you have found this beetle please report it.

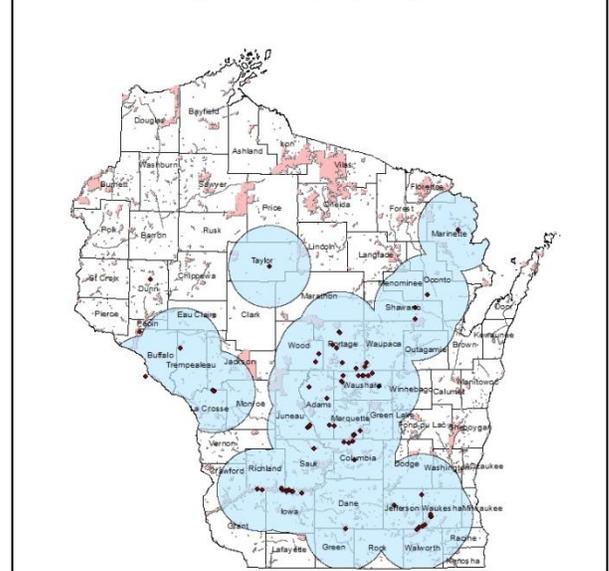
Diseases

Annosum treatment products - FSC®'s revised list of Highly Hazardous Pesticides (HHP) published. The Forest Stewardship Council (FSC) International has recently published a revised list of Highly Hazardous Pesticides (HHP). The documents are available on-line at the [FSC International website](http://www.fsc.org).

Although a specific variant of borax is on the revised HHP list, it is different from either of the borax products that are registered in Wisconsin (Sporax and Cellu-Treat), so Sporax and Cellu-Treat can still be used on FSC certified lands. To clarify which active ingredients are prohibited, the best way is to use CAS numbers of a pesticide because each CAS number is specific to an exact molecular formula. The CAS number for an active ingredient can usually be found on the pesticide labelling or Material Safety Data Sheet.

The revised standard will come into effect on March 10, 2015. After a six month transition period, the pesticides on the revised HHP list cannot be used on FSC certified lands.

Map of 25-mile buffers (light blue) based on the locations of known stands of annosum root rot (As of: March 3, 2015)



Diplodia and regenerating red pine under red pine – I've had a number of questions recently about the impact of diplodia on red pine seedlings/saplings that are growing under, or very near, a red pine overstory. Diplodia causes 3 main "types" of damage, including basal cankers on young trees, stem cankers on seedlings/saplings, and branch tip mortality on all ages of trees. Branch tip mortality can have severe impacts on seedlings and saplings if most, or all, of their branch tips are killed, or if infection occurs repeatedly over a number of years.

It only takes one year of severe infection to set the tree back significantly, or cause mortality. Seedlings/saplings growing under a red pine overstory are there for many years before the overstory is removed, which allows for many chances of a severe infection year. Mature red pine, even those with very little diplodia, will allow a constant rain of spores to fall on the understory pines throughout their life. In many years there may be no significant effect of this rain of spores. But all it takes is one bad year to set your regeneration back significantly.



Shoot tips killed by Diplodia.
Photo by Chrissy Carney.

Recently I heard a presentation about diplodia by Jana Albers with MN DNR. In one of her slides she showed data about seedlings that were set out under a red pine overstory. In just 8 weeks of exposure, they ended up with 54% of the seedlings having latent diplodia infections, and 6% shoot blight. A latent infection means that the fungus is present on the seedling and will just sit there, waiting for the tree to become stressed so that the fungus can more easily attack. Periodic droughty seasons can be the stress that activates the latent infection, causing all seedlings with latent infections to suffer damage from diplodia. This can occur several times throughout the life of the stand so that by the time the overstory is ready to be removed, there still may be no red pine regen that is suitable for the next stand. Thus, it can be very difficult to grow healthy red pine seedlings under a red pine overstory.

Many people think that the solution is to remove the overstory, or to cut the mature pine that borders a young red pine plantation, and that can be the answer if the young pine is more important than the mature pine. Each situation will have to be discussed with the landowner to find out what their goals are and what makes sense for management. And remember, if you're reacting to severe damage on young pines, the damage is already done, and those pines may not recover well.



Significant branch tip mortality in understory pines due to diplodia.



Numerous branch tips, including the terminal leader, killed by diplodia.

Additional disease reading:

- Fungus that causes Thousand Cankers Disease has 57 genetic races, a high genetic variability, is native to the US, and probably originated in CA. Read [more](#).

Other/Misc.

Crazy worms are now jumping worms – during recent meetings with partners to develop reasonable precautions for *Amyntas* spp., it was decided to use the common name “Jumping Worms”. So if you hear us refer to Jumping Worms, we’re still talking about *Amyntas* sp.,

those highly invasive worms that thrash around rapidly (very un-worm-like) and leave your soil looking like granola crumbs or coffee grounds, making it difficult for the soil to hold water. Other common names you might hear elsewhere include crazy worms, snake worms, Jersey wrigglers, or Alabama jumpers. It's all the same worm. If you see this worm please let us know, we're still trying to determine where it is in the state. Our factsheet will be updated soon I'm sure, but until then, check it out for identifying characteristics of [jumping worms](#).

Pileated woodpecker damage – pileated woodpeckers are large birds that can do a significant amount of damage to a tree if they want to. The good news is that they tend to target trees



Pileated woodpecker.

that are dead or have a lot of decay in them. That's not to say that they won't occasionally peck into a good healthy tree, but the insects that they like to feed on are more common in dead trees, or severely stressed and nearly dead trees, or trees with a lot of decay in them. These woodpeckers have a tongue with backward facing barbs that they can stick into an insect gallery and drag out the occupants for a meal. They can leave a pile of good sized



Pileated woodpecker damage with tape measure showing 15 inches of damage on this section of the tree. Photo by Chad Hoerth.

woodchips at the base of trees that they're working on. The photos here show some examples of the damage that they can do.



Above: Pileated woodpecker damage. Below: close-up of the lower portions of the tree in the photo above ... note the pile of woodchips at the base of the tree.



Porcupine damage - porcupine damage (and porcupines) are making an themselves known in some



Porcupine.

areas. On sunny days the pale wood where the bark has been stripped off really stands out in the woods. Porcupines chew the bark off branches in the crowns of trees, which can girdle and kill branches. Branches that are not completely girdled will continue to grow and callus tissue will begin to grow over the wound created by the feeding. Crown decline, and

branch mortality related to this damage may show up over the next growing season or two.

Since both porcupines and squirrels can feed on bark in the crowns of trees, how do you know which one is doing the damage? The size of the tooth marks left in the wood is the key. For a gray squirrel the incisor widths vary from 1.3 -1.7 mm, for a porcupine its nearly 3x's that, or about 3.6-4.8 mm.

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



Porcupine feeding removed the bark on much of the main stem of this tree.

Silviculture trials – if you've never checked out the DNR [silviculture trials](#) page, take a moment to check it out. There are a variety of trials, including a section on swamp hardwood trials and black ash regen, which could be useful for those of you dealing with lowland ash and the threat of EAB.

Spalting – spalting is the formation of zone lines due to decay fungi infecting the wood. The fungi will eventually cause a white rot decay if left for long enough within the tree. But, if cut early in the infection process you get the beautiful patterns caused by the fungi which is highly desired by some woodworkers. The tree in this photo showed no external signs of decay (no fruiting bodies), but did have a large old wound, which is probably how the decay fungi entered the tree. According to several websites you can apparently do your own spalting of wood, although it does take time (these fungi aren't super speedy).



Wood piece with spalting. Photo by Ryan Brown.

Tapholes and staining – ever wonder what a taphole looks like in cut lumber? Last year the Forest Health team had the opportunity to see a log with tapholes sawn into lumber. Fascinating! The stain columns radiated for some distance above and below the tapholes. If you had the right market, or a special project in mind, this would be a neat defect in the wood. Of course, if you're going for clear lumber then this probably isn't as desirable to you.



Tapholes and stain columns in a board.

Topping trees – this practice is not a good practice for several reasons. First, topping the trees creates large wounds that the tree may not be able to callus over, and allows insects and stain fungi to invade, as well as decay fungi. Additionally, the new branches that grow from the topped portions of the tree are not attached as firmly as a normal branch is. Normal branches are attached deep within the wood and new wood is added every year, whereas sucker sprouts, or epicormic branches, growing near the topped portions of the tree are growing from buds located just under the bark. These sucker sprouts / epicormic branches tend to grow very rapidly since they have the benefit of a full root system, and if you've ever tried to remove those branches you know that they are not always attached very firmly to the main stem.



Topped trees.

Typically I see people topping hardwoods, although I recently saw a white pine in which half of the tree had been topped. It was unclear to me why only half was topped, although the topped half was the one leaning towards the road, so maybe that was the reason.

Snowload – buildup of snow on branches can add a significant amount of weight to the branches. Breakage can occur. This can occur with a single wet heavy snow or simply the long slow buildup of snow throughout the winter. You will see this on young trees as well as older trees. Conifers tend to retain more snow than hardwoods in the winter, but early snows in the fall can catch hardwoods with their leaves still on which allows for greater accumulation.



Branch breakage at the main stem due to heavy snowload.

Of Historical Interest

25 years ago, in 1990 –

- **Forest Tent Caterpillar** – *Malacosoma disstria* (Hubner). Widespread heavy defoliation of aspen and oak occurred in Marinette and Oconto counties. Menominee and Shawano counties suffered scattered pockets of light to heavy defoliation. Door County saw the first defoliation of the current outbreak. The parasitic fly, *Sarcophaga aldrichi*, was extremely abundant and caused many complaints by irritated tourists. In northwestern Wisconsin, the outbreak collapsed except for a narrow strip along the Lake Superior shoreline in Douglas and Bayfield counties where 96,000 acres of aspen was heavily defoliated. In Menominee County, 17,045 acres of high value red oak was sprayed with diflubenzuron (3oz in 1 gallon of water per acre) to prevent defoliation and subsequent attack by the two-lined chestnut borer. The treatment was a success.

60 years ago, in 1955 –

- **Forest Tent Caterpillar** – *Malacosoma disstria* Hbn. Based on a winter egg band survey made in early December of 1954, it appeared that the infestation had reached its peak the same year and was on the decline. However, observations made in the field indicated a sharp decline in the native parasitic fly, *Sarcophaga aldrichi* Park. This decline was attributed to a long period of wet weather which induced the growth of a parasitic fungus (*Empusa* sp.) on the flies. Due to the high mortality among the flies, parasitism of the cocoons was very spotty and varied greatly from area to area. The caterpillar remained a nuisance in the northwest area and portions of the north and northeast part of the state. Heavy infestations were reported in northwest Iron, eastern Vilas, and northern Lincoln. Most of the northwestern counties sustained heavy to complete defoliation of aspen, but other hardwoods were not as heavily defoliated as the previous year.

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:

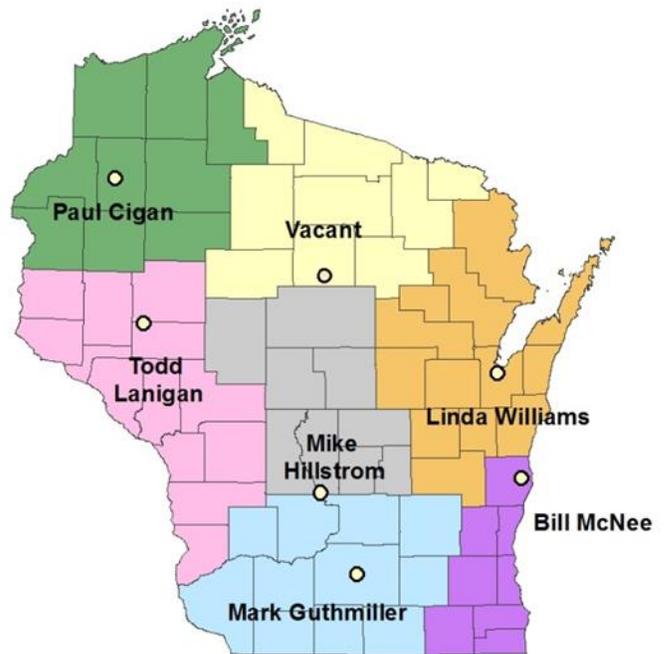
by phone at 1-800-642-6684

by email

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.