

# *Northeastern Wisconsin Forest Health Update*

## *Wisconsin DNR – Division of Forestry*

*December 23, 2013*

### Topics covered this month:

#### **Insects:**

Christmas bugs  
EAB life cycle animated video  
EAB finds in WI per year  
EAB new finds  
EAB tax in Minneapolis, MN

#### **Diseases:**

Entomophagous fungi  
White pine blister rust

#### **Other:**

Lichens ... or ... What's Not to Lichen, by Mary Bartkowiak

#### **Of Historical Interest:**

1953 –

- Introduced Pine Sawfly
- Jack Pine Eucosma

1988 –

- Larch Needlecast

## Insects

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

**Christmas bugs** – well, I'm disappointed to say that the Christmas tree(s) in my house this year don't seem to have any significant bug problems. We cut our trees from the woods, and last year there was a great selection of Balsam Gall Midge on the tree. This year, even though we selected 3 thin trees and zip tied them together to make one really nice tree, none of the trees have significant problems. I know most folks would think that bugs (or signs of bugs) on the tree are not desirable, but I disagree, and as an entomologist I think I need to get some insect ornaments for these times when the tree doesn't come with its own. Hope you all have a great holiday!



Ladybug tree ornament.

**EAB life cycle animated video** – the link below is to a 30 second video from Minnesota Dept. of Ag. showing the life cycle of EAB. The animated larvae and adults are just fun to watch (ok, maybe not for your average person, but I enjoyed it). Check it out <http://www.youtube.com/watch?v=9G-0eG632OI>

**EAB finds in WI per year** - EAB locations confirmed each year in Wisconsin. Thanks to Olivia Witthun (WI DNR Urban Forestry) for compiling these:

- 2008 – 2
- 2009 – 9
- 2010 – 2
- 2011 – 2
- 2012 – 16
- 2013 – 42 and counting... wow!

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

New County Quarantines:

- Dane County – City of Madison (north side)

New finds in Counties already Quarantined:

- Fond du Lac County – Town of Fond du Lac
- La Crosse County – City of Onalaska
- Milwaukee County – City of Wauwatosa\*
- Rock County – Town of La Prairie

Emerald Ash Borer Quarantined Counties



WI EAB quarantined counties in red, December 2013.

\*Interesting note – in Wauwatosa a LIVE beetle was captured by an arborist in October. October is generally considered to be beyond the normal flight time of adults (May-Sept), but clearly the insects use those as guidelines and not rules.

**EAB tax in Minneapolis, MN** – a recent press release outlined a new tax for Minneapolis, MN, residents that will help the city pay for ash tree removal. <http://www.startribune.com/local/minneapolis/235329791.html>

## Diseases

**Entomophagous fungi** – I wasn't sure whether to put this article in the "insects" section or the "diseases" section of my update. The spikey growths on the scale insects, and the dead moth, are formed by an Entomophagous fungus ... which is a fungus that attacks insects. You might also hear the terms Entomogenous, or Entomopathogenic, which all mean roughly the same thing, that a fungus is attacking an



insect. The fungal spikes will eventually produce spores so the fungus can continue to spread. You might be more familiar with the fungus *Entomophaga maimaiga*, which is the fungus that attacks gypsy moth caterpillars, or you may have seen dead flies with grossly swollen abdomens, which have been infected with an entomophagous fungus. Fun stuff! Unless you're the insect.



The 2 photos above show Lecanium scales that have been killed by fungi (top pic has a non-infected scale as well). The spikey things are from the fungus, not what the scale usually looks like. Photos by Linda Williams.

Photos at right are of a large moth killed by fungi. Photos by Storme Nelson.

**White pine blister rust** – now is a good time to spot flagging branches that have blister rust cankers. White pine blister rust causes a canker on white pine which can girdle the branches or the main stem, depending on the location of the canker. This disease is specific to white pine but the disease cannot be transmitted directly from one tree to another. Spores that are produced in the spring on white pine can only infect *Ribes* (gooseberry) plants which will then produce spores later in the summer, those spores from the *Ribes* plants will then be able to infect a white pine tree, completing the life cycle.

If you have just a few blister rust cankers on branches of young trees you should prune off those branches. These branches can be spotted from a distance because they will be off-color or the foliage will have turned a rusty red color. Prune infected branches at the main stem. By doing so you've just saved your tree (at least from that particular canker). If the canker is located close to the main stem the fungus may have already grown into the main stem, in which case a canker will eventually form on the main stem. Cankers on the main stem will eventually girdle the tree, although in healthy trees with good growth rates this may take many years.



Rusty red needles on a branch that has a blister rust canker.

Blister rust spores must first infect a needle, and then grow into the branch. Since young white pine often have needles attached directly to the main stem this can allow the fungus an entry point directly into the main stem of the tree. Damage from a girdling canker may not be severe enough to cause tree decline and mortality for several to many years. Pruning out branch

cankers, before the fungus grows down towards the main stem, can save the tree from a girdling canker on the main stem.



**Above** - Cankered branch, pruned in November. Note the rusty red color beginning to show in the needles beyond the canker, and the nice green needles on twigs closer to the main stem. The canker was ~1ft from the main stem. Photo by Bill Kandler.  
**Left** - canker on main stem. Note the hourglass shape where the canker is (red arrow notes top edge of cankered area, and beginning of constriction. Photo by Linda Williams.

## Other/Misc.

**Lichens** – Mary Barkowiak was our Forest Health LTE working in the northwestern part of the state, covering our current vacancy. Interesting trivia about Mary ... she is a lichenologist! She gave an interesting presentation at one of our work planning meetings so I asked if she would be willing to write something for the newsletter. So sit back, and let’s learn a little about lichens!

### What’s not to Lichen? By Mary Bartkowiak

Just what are those obscure moss-like growths on the boles of trees? Are they causing any harm? Heck NO! Those are lichens, and they aren’t hurting the trees any more than you’re hurting the chair you’re sitting on. In fact, they are even useful, but we’ll get to that a little later. Lichens are a composite (not a composite like the sunflower family – Asteraceae), but rather, they are made up of more than one organism. The lichen is comprised of two major components: a fungus and an organism capable of photosynthesis (let’s think of algae for this). The fungus is responsible for protection or

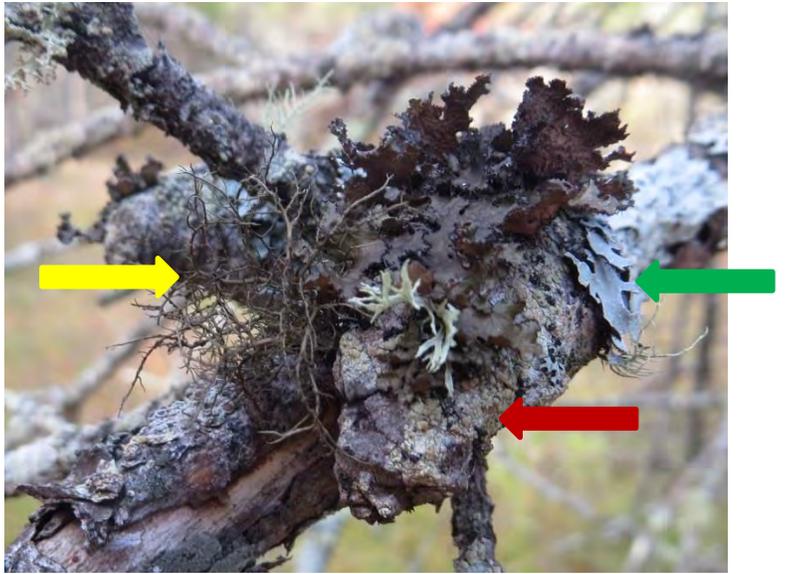


Various Cladonia species, growing on the ground. The lichens with red tops are British Soldiers. Photo by Mary Barkowiak.

shelter and the algae provide food for the partnership in the form of carbohydrates. You might have heard the ‘Freddie the fungus meets Alice the algae’ story and how they lived happily ever after in perfect harmony. Well, it may not be that harmonious of a relationship and it might not even be a partnership at all, but more of a semi or controlled parasitism. Since the fungus can’t make food for itself, it is completely dependent on the algae to survive. So the fungus absorbs the carbohydrates that the algae make, but it leaves enough for the algae to stay alive. A lichenologist (yes, they really do exist) once described lichens as a fungus that has discovered agriculture, since it is milking the algae for its food.

There are three major growth forms of lichens: crustose, foliose, and fruticose. The crusts are tiny and require close inspection to make sure that they aren’t a splash of spray paint. Foliose lichens are flattened, leaf-like, and are often readily found on the boles of trees. Fruticose lichens are those that appear 3-dimensional. They can look bushy, shrubby, erect, or pendant. If you’re lucky, you might even notice them draping from the branches of trees or growing in tufted cushions on sandy soils. One place you won’t find lichens is in areas of poor air quality.

The balance that is required for both the algae and the fungus to live together is rather delicate, so if something disrupts one of the partners, the entire union fails. Not all lichens are equally sensitive to air pollution. Some lichens even prefer areas with high nitrogen concentration while others are more delicate and are totally intolerant to the slightest amount of atmospheric impurities. So if you walk out your door and find a variety of lichens on the trunks of your trees (or even on your patio furniture), consider yourself lucky and breathe easy!



All the forms of lichen! Crustose (red arrow), foliose (green arrow), and fruticose (yellow arrow)! Photo by Mary Bartkowiak.



*Lobaria pulmonaria* or Lungwort, very sensitive to air pollution. Photo by Mary Bartkowiak.



Example of crustose lichens (white part on bole of tree) small green ‘flecks’ are young foliose lichens. Photo by Mary Bartkowiak.

For more information on lichens you can check out UW lichen info at <http://hort.uwex.edu/articles/lichens> or the WI Mushrooms page <http://www.wisconsinmushrooms.com/Lichens.html>

## Of Historical Interest

### 60 years ago, in 1953 –

- **Introduced Pine Sawfly** (*Diprion similis*) – Although there was a slight increase in the range of this pest, there was an appreciable drop in population in practically all areas of infestation. This drop is attributed to several parasites. The infestation was confined to 17 western counties. Principal host is white pine.
- **Jack Pine Eucosma** (*Eucosma sonomana*) (2013 note – more recently called Jack Pine Shoot Borer) – This insect continues abundant over the state in young, pure, even-aged jack pine stands. The severity of the infestations has been observed to have decreased with age and closing of the stands.

### 25 years ago, in 1988 –

**Larch Needlecast** – *Meria laricis* Vuill. *Meria laricis* was first observed in Wisconsin in 1987 at the Hayward state forest tree nursery on 2-0 European larch. A survey was conducted in 1988 to determine the state wide distribution of *M. laricis* needlecast on European larch. Thirty-four samples from plantations and single trees were examined for the presence of the needlecast fungi. *M. laricis* was identified on three samples, all from the Flambeau River State Forest in northwestern Wisconsin. The plantations where *M. laricis* is present are seven, four, and three years old. These infected plantations will be surveyed in 1989 to determine the severity of needlecast, frost damage and insect defoliation.

In an attempt to determine the origin of *M. laricis* in Wisconsin, three European larch seed lots used at the Hayward Nursery were analyzed for the presence of the fungus. The project was a cooperative effort between Wisconsin Department of Natural Resources, University of Minnesota, Southeastern Forest Experiment Station of Olustee, Florida, and the Iowa State University Seed Laboratory. Four isolation techniques were used to determine if the European larch seed lots were infested with *M. laricis*. No *M. laricis* was isolated from any of the seed lots. Organisms isolated are listed in Table 2.

Table 2. Organisms isolated from European larch seedlots XLD-5-84, XLD-2-86, and XLD-5-87

Alternaria sp.	Phoma sp.
Aspergillus flavus	Phomopsis sp.
A. Niger	Phylactinia sp.
A. Terreus.	Rhizopus sp.
Chaetomium sp.	Scopulariopsis sp.
Fusarium sp.	Trichoderma sp.
Helminthosporium sp.	Trichothecium sp.

Mucor sp.  
Penicillium sp.

Unidentified bacteria and yeast

## 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

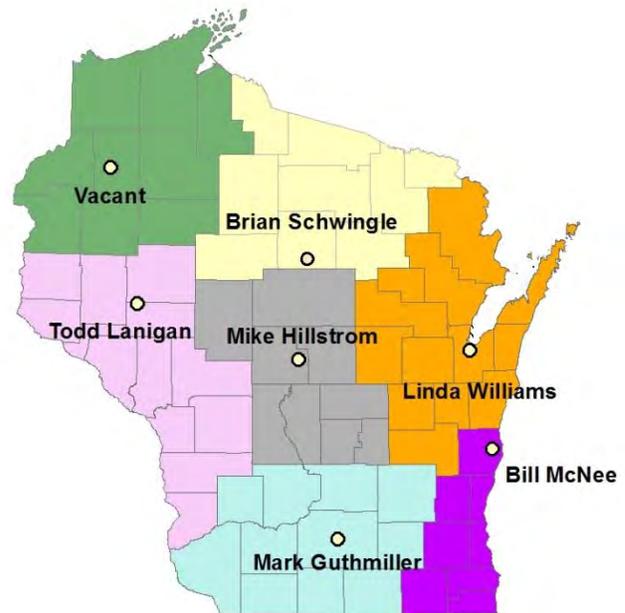
by email

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

visit the website

<http://www.gypsymoth.wi.gov/>

Forest Health Protection Regional Staff



**Northeast Region Pest Update produced by:**

Linda Williams

Forest Health Specialist

Wisconsin Department of Natural Resources - Northeast Region

[Linda.Williams@wi.gov](mailto:Linda.Williams@wi.gov)

<http://dnr.wi.gov/topic/ForestHealth/>

**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.