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Emerald Ash Borer—2012 DATCP Trapping Plan

The Wisconsin Dept. of Ag., Trade, and Consumer Protection (DATCP) is significantly altering their EAB trapping plan for 2012 from years past. You can see from the map below that Northern Wisconsin will be surveyed thoroughly for EAB. In contrast to previous year’s trapping plans, 2012’s is heavily influenced by ash locations and campground locations, among many other variables that the USFS incorporated into their EAB risk assessment (see their map on the next page).

Figure 1. Locations where DATCP and APHIS plan on trapping for EAB in 2012. Map courtesy of DATCP.
Figure 2. The EAB Risk Assessment output, modeled by the USFS's Forest Health Technology Enterprise Team (FHTET). Note that most of the extreme risk for Wisconsin posed by EAB is in northern Wisconsin. Thanks to FHTET for the map.
Juniper Defoliator on the Apostle Islands

Widespread juniper browning was reported in late summer 2011 by National Park Service staff on the Apostle Islands. Steve Katovich with the USFS identified tiny, non-native Pale Juniper Webworms (*Aethes rutilana*) as the responsible party for the browning. These caterpillars mine and web juniper foliage. They will start feeding anew in spring 2012.

Northern White Cedar Bark Splitting in Northern Wisconsin

In late 2011, I learned that National Park Service (NPS) staff reported basal trunk bark splits on numerous white cedars in and around the Apostle Islands National Lakeshore. Such observations have been made in the past dating back at least 20 years. A NPS employee informally surveyed many Midwestern and Northeastern ecologists and researchers to learn of any observations elsewhere of such a problem and to solicit any hypotheses of the cause. Results from that informal survey revealed few people had observed such a phenomenon, but the most common area of such observations centered around northwestern Wisconsin and the lakeshore and islands of Lake Superior (it has not been seen on Isle Royale). The NPS informal survey also revealed a plethora of hypotheses as to the cause of basal bark splitting, including freeze/thaw cycles, dead cambium (from fire, soil moisture stress, temperature extremes, physical damage from falling (Continued on page 5)
neighboring trees, or exposure from exfoliation of rocks on cliff faces), drought stress, CO₂ fertilization effect, and bear damage.

After learning about what the NPS was observing on the Apostle Islands, I distributed a survey to public foresters and forest health specialists working in northwestern Wisconsin that requested any observations on the northern white cedar bark splitting phenomenon. This request made it to northeastern Wisconsin foresters via my counterpart’s newsletter. See the table below for feedback I received from the survey.

Table 1. Feedback I received from a survey I sent out in December 2011 requesting forester observations on basal trunk bark stripping on northern white cedar.

<table>
<thead>
<tr>
<th>Location of Basal Trunk Bark Stripping on Northern White Cedars</th>
<th>Observed</th>
<th>Comments from Ground Observers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashland area—two sites</td>
<td>A few years ago</td>
<td>likely a physiological problem, perhaps caused by drought or severe cold coupled with lack of snow cover</td>
</tr>
<tr>
<td>Douglas County stand</td>
<td>December 2011</td>
<td>damage happened within the last year; stripped cedars present throughout stand</td>
</tr>
<tr>
<td>S.E. of Port Wing, Bayfield Co.—three sections</td>
<td>December 2011</td>
<td>&lt;5% of cedars with stripped bark in these sections; damaged trees generally on swamp edges; recent damage; scattered or in groups of 3 - 10 cedars</td>
</tr>
<tr>
<td>S.E. of Cable in northern Sawyer Co.</td>
<td>December 2011</td>
<td>damaged cedars were along swamp edge; recent damage</td>
</tr>
<tr>
<td>Flambeau River State Forest</td>
<td>n/a</td>
<td>associated with bear sign</td>
</tr>
<tr>
<td>Oneida Co.</td>
<td>Back through 1995</td>
<td>Scattered with occasional clumps of 2 - 3; not bear damaged;</td>
</tr>
<tr>
<td>Oconto Co. stand</td>
<td>1 - 3 years ago</td>
<td>Several cedars affected</td>
</tr>
<tr>
<td>Neenah (urban setting)</td>
<td>mid-2010</td>
<td>bark loosening occurred around the root flare and went up a couple feet and happened quickly (“overnight”)</td>
</tr>
<tr>
<td>North-central Marinette Co.</td>
<td>The past 2 - 3 years</td>
<td>bear claw marks associated with some but not all symptomatic cedars; recent damage; several dozen cedars scattered over a few acres and scattered in other areas</td>
</tr>
<tr>
<td>Ontonagon, MI</td>
<td>n/a</td>
<td>caused by lightning strikes</td>
</tr>
<tr>
<td>Gooseberry Falls State Park (north shore in MN)</td>
<td>A few years ago</td>
<td>none</td>
</tr>
</tbody>
</table>
The NPS plans to map 2 - 3 cedar populations this spring to get a better handle on the situation (e.g. whether or not the symptoms are increasing or decreasing). After reviewing survey responses, I tentatively conclude the frequency of cedar bark splitting has increased in recent years, particularly in Douglas, Bayfield, northern Sawyer, and Marinette Counties. It seems likely caused by environmental events coupled with various site factors. The observations made in the Flambeau River State Forest and in Ontonagon do not match those made elsewhere, so it seems various agents (e.g. bears, lightning) can cause similar bark splitting symptoms. Also, as one forester commented, “I did find large bear claw marks on several but not all of the trees, which led me to wonder if the bear peeled it or if it was shed and then the bears found the fresh wood to scratch their claws on.”

Thank you so much to all of you that provided your observations. This has turned out to be a very interesting subject and I look forward to learning more about the potential cause from the NPS.

**Forest Tent Caterpillar Population Predictions—Iron, Polk, & Burnett Counties**

My prediction surveys this winter in central Iron County for Forest Tent Caterpillar defoliation proved my fears for 2012 defoliation were unsubstantiated. Population levels indicate there will be very light feeding for a second year in a row around Pine Lake in central Iron County. There won’t be any widespread defoliation in the southern half of Iron County.

The situation may be different in May and June further west in Burnett and Polk counties. Last year Shane Weber reported light to moderate defoliation around Balsam Lake, and heavy defoliation in Wood River township east of Grantsburg. Though no formal surveys have been done, a UW-Madison grad student has been collecting Forest Tent Caterpillar egg masses for research in Wood River, and he reports numbers that possibly indicate heavy defoliation there. Please report any defoliation to me in 2012 so we can accurately map the damage and make smart forest management decisions.
Gypsy Moth Will be a Nuisance in Bayfield County in 2012

Some stands in northern Bayfield County will be heavily defoliated by gypsy moth caterpillars between June and the first half of July. A vigorous, stress-free oak stand won't have significant mortality after one (maybe even two) years of complete gypsy moth defoliation. If it undergoes three years of defoliation, the property manager should be looking into running a salvage sale. Alternatively, if they have a high value oak stand, they could look into protectively spraying the stand with Btk before the 2nd and/or 3rd year of defoliation.

Much mortality from gypsy moth defoliation can be avoided by delaying scheduled thinnings in oak stands (one important reason to track defoliation over time). On a quality site, allow a stand at least one year free of stresses to recover from defoliation. On a lower quality site, allow two or more years of recovery.
For forests where recreation or aesthetics are the primary objectives, the threshold for gypsy moth defoliation is lower than for stands managed for timber. Any municipality or campground should plan for how they will deal with gypsy moth defoliation. The first step is to go to http://gypsymoth.wi.gov/.

On a related note, *I fully anticipate DATCP will extend the gypsy moth quarantine to cover Ashland and Bayfield Counties.* This will impact the movement of wood products westward in 2012, but from my understanding, it is workable. Go to http://datcp.wi.gov/Environment/Gypsy_Moth/Quarantine_Regulations/ to learn how to continue to move wood products under the quarantine.

**Odds & Ends**

**Winter Cold Tolerance in Insects**

The recent return to winter weather, after a lengthy extended fall, spurred the following annual question to me right on schedule with the sub-zero temperatures: “So these cold temperatures are going to kill off all our insects, right?”

Not hardly. Insects have several strategies to smoothly survive cold temperatures that can easily kill bundled-up humans. View the following table for a smattering of temperatures reported to kill a portion (*not all* of the population) of various insect species. Insect tolerance to cold greatly depends on microhabitat (e.g. in/under the litter like adult Pine Engravers), length of exposure to cold, stage of development (e.g. larva versus adult), period in the year (e.g. late fall versus late winter), and population origin (e.g. Eastern Fivespined Ips from Wisconsin versus Alabama).

*(Continued on page 9)*
Table 2. Examples of lethal lower temperatures for various insects. These temperatures are by no means precise for insect populations in Wisconsin. They only show the variation in cold tolerance and cold hardiness of some of our insects. Temperatures were gleaned from various published studies, and temperatures were not derived or reported in the same way, so cold hardiness between these insects should not be compared. Some of these temperatures are reported as ambient air temperatures (e.g. gypsy moth temperatures) while others are not (e.g. Ips pini temperatures).

<table>
<thead>
<tr>
<th>Insect</th>
<th>General Lethal Lower Temperature</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bagworms</td>
<td>-22°F</td>
<td></td>
</tr>
<tr>
<td>Emerald Ash Borer</td>
<td>below -22°F</td>
<td></td>
</tr>
<tr>
<td>Forest Tent Caterpillar Eggs</td>
<td>-40°F</td>
<td>One paper showed mortality ranged from 10 – 65% when winter minimum reached -40°F</td>
</tr>
<tr>
<td>Gypsy Moth Eggs</td>
<td>-112°F</td>
<td>Lethal temperature of eggs covered by snow</td>
</tr>
<tr>
<td>Gypsy Moth Eggs</td>
<td>-22°F</td>
<td>Lethal temperature of eggs not covered by snow for 2 days</td>
</tr>
<tr>
<td>Hemlock Woolly Adelgid</td>
<td>-5°F</td>
<td>10% survival at -5°F</td>
</tr>
<tr>
<td>Hemlock Woolly Adelgid</td>
<td>-31°F</td>
<td>0% survival at -31°F</td>
</tr>
<tr>
<td>Ips pini adults (pine engraver bark beetles)</td>
<td>0 - 2°F</td>
<td>Measured in two consecutive Novembers; beetles from a Wisconsin population</td>
</tr>
<tr>
<td>Ips pini adults (pine engraver bark beetles)</td>
<td>1 - 16°F</td>
<td>Measured in two consecutive Januarys; beetles from a Wisconsin population</td>
</tr>
<tr>
<td>Spruce Budworm larvae</td>
<td>below -40°F</td>
<td></td>
</tr>
</tbody>
</table>

Pesticide Applicator Certificate Training/DVD

—is one of your new year’s resolutions for 2012 to be certified as a pesticide applicator in the Forestry category? If so, consider signing up for a one-day training in Weston on 3/30. Registration for the training session is $25, plus a training manual ($45). A certification exam will be offered at the end of the training. Also, there is a new DVD available! You can watch recorded lectures comfortably at home. These lectures are very similar to what were presented at the training in 2011. The DVD is divided into 10 topics. You can start with any topic that you are interested in. Topics include pesticide laws and regulations, pesticide and personal safety, pesticide use/classification/formulations, equipment options and calibration, and more. The cost of the DVD is $10 plus handling (total $10.55). You can go online at http://ipcm.wisc.edu/pat/, contact the PAT office at 608-262-7588, or contact your county Extension office to register for the training, purchasing a DVD/training manual, or for more information.
Bur Oak Blight Update for Southern Wisconsin  
—by Kyoko Scanlon, December 2011

Since the 1990s, bur oak blight (BOB) has been reported in Midwestern States including Iowa, Kansas, Minnesota, Nebraska, and Wisconsin. The disease is believed to be caused by a new species of *Tubakia* fungus. *Tubakia dryina* has been known to be the causal agent of Tubakia leaf spot. However, BOB is considered a blight disease, not a leaf spot disease. In a severe case, all the leaves on a tree will die late in the season. Upon further investigation by Dr. Harrington of Iowa State University, *T. dryina* is now considered a species complex, and one species of *Tubakia*, currently called "BOB Tubakia" or "*Tubakia* sp. BOB" is associated with the disease.

Bur oak blight has been confirmed in Dane, Green, Iowa, Kenosha, Rock, Sauk, Walworth, and Waukesha Cos. on bur oak. In 2011, leaf and twig samples were sent from Wisconsin to Iowa State University for the identification of "*Tubakia* sp. BOB". The samples were collected mainly from bur oak trees that were experiencing late season leaf necrosis. Laboratory analysis is in progress.

Bur oak blight symptoms usually start appearing in late July into early August. Infected leaves develop purple-brown lesions along the midvein and major lateral veins on the underside of leaves. Later, chlorosis and necrosis expand on leaves and affected leaves wilt and die. Severely affected trees may die after many years of infection together with other pest issues. Severe symptoms of BOB have been observed only on *Quercus macrocarpa var. oliviformis*, a variety of bur oak that produces smaller acorns.

What can we do if a tree is infected with BOB? Dr. Tom Harrington says “Don’t panic. BOB is not as bad as it looks”. Trees may be able to sustain repeated defoliation because it starts late in the season, though secondary pests may kill trees that are stressed by repeated infection with BOB. Practices to improve overall vigor of infected trees may help reduce the risk of attacks by secondary pests. The use of fungicides has been investigated as a management tool of high-value bur oak trees. In preliminary studies, injections of the fungicide propiconazole in the spring reduced symptom development in late summer/fall and the following year. Further fungicide studies are in progress.

For more information about BOB, a pest alert was recently developed by the USDA Forest Service and is at [http://na.fs.fed.us/pubs/palerts/bur_oak_blight/bob_print.pdf](http://na.fs.fed.us/pubs/palerts/bur_oak_blight/bob_print.pdf).
Forest Health Links

- EAB Resistance Breeding (POSITIVE NEWS)
- Ecosystem Level Dutch Elm Disease Tolerance—MN’s Special Elm Forest
- Hemlock Woolly Adelgid found in southeastern Ohio forest

Forest Health Websites and Phone Numbers

- EAB Reporting:
  (1) 1-800-462-2803
  (2) email DATCPEmeraldAshBorer@wisconsin.gov
  (3) online at http://emeraldashborer.wi.gov (click on Report EAB on the top menu)
- EAB Information: http://emeraldashborer.wi.gov
- Gypsy Moth Reporting:
  (1) 1-800-642-MOTH
  (2) email DNRFRGypsymoth@wisconsin.gov
- Gypsy Moth Information: http://gypsymoth.wi.gov/
- Forest Health Issues: http://dnr.wi.gov/forestry/Fh/
- Sick Tree Diagnostic Keys:
  http://www.extension.umn.edu/gardeninfo/diagnostics/index.html (FINISHED!)
  http://greenindustry.uwex.edu/diagnostics/index.cfm
- Forest Insect and Disease Handouts for Landowners:
  http://council.wisconsinforestry.org/invasives/pdf/Appendix-G.pdf
- Oak Wilt: http://dnr.wi.gov/forestry/Fh/oakWilt/
- Annosum Root Rot: http://dnr.wi.gov/forestry/Fh/annosum/

Acknowledgments

Thanks to Rebecca Gray with DATCP for keeping us informed of the EAB trapping plan. Thanks to Russ Aszmann and Bill McNee for articles in the Forest Health Links section. Thanks Steve Katovich and Suzanne Sanders for letting us know what was going on with the Apostle Islands junipers and cedars. Thanks to many of you who responded to the damaged white cedar survey.
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Note: This pest report is an informal newsletter and covers forest health issues in the northern 18 counties of Wisconsin. The purpose of this newsletter is to provide forest owners and managers in the Northern Region with regional up-to-date forest health information. We welcome your comments/suggestions on this newsletter and your reports on forest health problems you observe in your area. If you would like to subscribe to this newsletter, please contact Brian Schwingle at brian.schwingle@wisconsin.gov. Previous issues of this newsletter and regional forest health updates from other Wisconsin regions are available at http://dnr.wi.gov/forestry/FH/intheNews/.