Northern Region Forest Health Report

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After more than a month at office arrangement and meetings, I managed to stop spinning my wheels and get out into the field. One part of my job is to keep northern Wisconsin's foresters up to date on the latest in forest health in the area, and this newsletter is an attempt at that task. In this newsletter, you will find Shane Weber's most recent forest pest observations for the 9 western NOR counties and mine for the eastern 9 NOR counties as well as some management recommendations. Eventually, I intend to write this newsletter monthly (eventually, as I am still spinning my wheels a bit). —*Brian Schwingle*

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Pests of Late in the Eastern NOR

Hemlock Worries

Location: Northeast of Phelps along the southeast shore of Long Lake, Vilas County

Problem: MANY! A long drought has caused these hemlocks to lose foliage. Their crowns are thin, and many of the upper canopy branches have tufted foliage, because they have retained their current year's growth and have lost last year's needles. Some of the upper branches are dying back as well. As we all know, drought conditions favor many insects. The tufted foliage on these hemlocks could also indicate hemlock looper feeding. Bark beetles feeding in the inner bark are further stressing the trees, and the hemlock borer, a formidable foe of hemlock, lurks in the surrounding vicinity.

What You Can Do: If you see the symptoms which I described above, please report them to me. Drought-stressed hemlock are susceptible to bark beetles, hemlock loopers, and hemlock borers, and I want to monitor for these insects in the springtime. If a small woodland owner wants to do something about this scenario, sanitation is a solid recommendation—remove or debark recently killed hemlocks to discourage population build-ups of hemlock borer.

Hemlock in Vilas County showing tufted foliage and dieback symptoms.

Declining Bitternut Hickories

Location: Northeastern Marathon County

Problem: Hickories are dying in this area in droves. The hickory bark beetle (*Scolytus* sp.) is chomping away in the phloem of these trees, and it possibly is vectoring a wilt-causing fungus to the trees (*Ceratocystis* sp.), thus speeding up the process of death. Recently attacked trees often grow epicormic branches. When diagnosing this problem, look for wilting leaves, bark beetle exit holes, characteristic beetle galleries lightly etched on the outer sapwood's surface, and diamond-shaped cankers (discolored cambium).

(Declining Bitternuts continued)

…Declining Bitternut Hickories

What You Can Do: Please report areas of dying hickories. Salvage harvesting or thinning a stand in the winter time and getting rid of the slash is a good practice for minimizing population build-ups of bark beetles. If trees wilted the previous growing season, remove them from the site before springtime.

Characteristic diamond-shaped discolored sapwood on a wilted bitternut hickory, indicative of Ceratocystis.

Jack Pine Budworm in Red Pine

Location: (1) West and southwest of Harshaw in Oneida County; (2) west of Kasomo Lake in Vilas County

Problem: As in other parts of the state, jack pine budworm is exploring the flavors of the red pine tree. In the above locations, the damage to the merchantable red pines is not severe yet—some of their crowns look thin. The budworms do seem to enjoy chomping on the understory red pine saplings though, and there is some worrisome defoliation on younger red pine plantations in the area (as reported by Linda Williams in her August newsletter—http://dnr.wi.gov/forestry/Fh/PDF/NER-pestsupdate-2007-08-15.pdf)

What You Can Do: One of these locations is adjacent to a site with wolf residual jack pines that were left after a harvest, and the other location is adjacent to a large area full of old, large jack pines. These situations create jack pines which attract budworms—that is, jack pines that produce an abundance of male cones. To avoid problems with the budworm, minimize the numbers of jack pines that are producing those male cones and shorten rotation ages.

(Budworm continued)

…Jack Pine Budworm in Red Pine

You can still see the jack pine budworms' pupal cases dangling from defoliated branches on jack and red pines.

Characteristic defoliation by jack pine budworm on understory red pine in Oneida County.

Pine Leaf Adelgid

Location: EVERYWHERE white pine and black spruce are growing close

Problem: The Pine Leaf Adelgid causes new white pine growth to droop. If you look closely at the drooping shoot, you'll see white-fringed black specks on the stem, which are the youthful forms (nymphs) that the pine leaf adelgids take. They may cause the new white pine shoots to die and turn brown, and this may be particularly noticeable next spring. In 2008, these adelgids will grow wings and fly to black spruce trees, inducing them to form galls on their shoot tips.

A drooping white pine shoot (left) caused by the pine leaf adelgid. Note the small flecks (right shoot immediately below thumb) on the drooping white pine stem (right). These are pine leaf adelgid nymphs. You may have to zoom in to see them better or tell me to send you a non-compressed picture.

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Gypsy Moths and their Eggs

Have you noticed 1 to 2 inch long, beige-colored, fuzzy, oblong blobs stuck on tree trunks in the area? I have seen them on state land south of Florence, in the Rhinelander School Forest east of town, and in Bradley Park in Tomahawk. Each time I saw them, I was not looking for them, which says there are probably more out there than you or I think. If you have a sensitive area (e.g. campground; recently thinned oak stand), I recommend getting out there and doing an egg mass survey to see if eggs are at a level that predicts significant tree mortality. Applications to the DNR for federal cost-sharing of spraying gypsy moths are due December first.

Gypsy moth egg mass on the underside of a branch stub (USDA Forest Service-Region 8 Archive, Bugwood.org).

Pests of Late in the Western NOR

From Shane—Despite the substantial September rainfall across northwestern Wisconsin, several drought-induced problems had already taken a toll in pine, oak, and birch. The following diseases and insects are a summary of those drought-induced problems.

Armillaria Root Rot on White Pine

Location: All across northwestern Wisconsin

Problem: Armillaria root rot plagued sapling and seedling white pines producing sudden tree death from late July onwards. Young spruce trees growing near hardwoods were also affected. Symptoms of *Armillaria* root rot include the entire crown turning pale and dry and pitch flow within 6 inches of the ground. You know that your sick tree is being killed by *Armillaria* if you find white mycelial fans underneath the bark near the ground.

(Armillaria continued)

...Armillaria Root Rot on White Pine

White mycelial fans from Armillaria found underneath the bark at the ground line.

Bark Beetles in Red Pine

Location: Wascott Township, Douglas County

Problem: In early September, heavy mortality of young (~15 years) red pine appeared. The culprit was the native pine engraver beetle (*Ips pini*). Symptoms of bark beetle attack include a sudden fading of the entire crown and a trunk that looks as though it had been shot with many loads of #7.5 or 8 birdshot. The pine engraver beetles spent most of the summer mopping up old jack pine in Douglas and Bayfield Counties, which had been heavily damaged by jack pine budworm. Mortality from pine engraver beetles of red pine younger than 25 years is highly unusual, occurring only during severe drought.

Exit holes from Ips pini on a red pine trunk (Steven Katovich, USDA Forest Service, Bugwood.org).

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Diplodia Collar Rot & Stem Cankers

Location: Douglas County

Problem: Elevated levels of collar rot on jack pine and collar rot and stem cankers on red pine are present in Douglas County. The fungus *Diplodia* is causing these diseases. The symptoms of collar rot are sudden death of the entire tree and a ring of black discoloration under the bark at, and below, the ground line. Stem cankers are sunken areas of stem tissue, often with black staining underneath the bark, that produce branch flags and dead tops.

Staining under the bark on a red pine infected by Diplodia (Joseph O'Brien, USDA Forest Service, Bugwood.org).

Twolined Chestnut Borer

Location: Northwestern Washburn County, northern Burnett County, and southern Douglas County

Problem: Northern pin oak trees began to succumb to twolined chestnut borer in August after nearly a rainless July. This insect kills trees from the top down, and the dead red or brown leaves hang onto branches for more than a month. In contrast, oak wilt causes the trees to lose their leaves in a couple weeks. Exiting adult borers make d-shaped holes in the bark.

Bronze Birch Borer

Location: Polk, Burnett, Washburn, and Douglas Counties

Problem: Just like the drought-stressed northern pin oaks succumbing to twolined chestnut borer, so have the drought-stressed birch trees yielded to the bronze birch borer. The bronze birch borer causes similar symptoms in birch as does the twolined chestnut borer in oak—branch dieback from the top of the crown to the base of the crown. Also, d-shaped holes (5 mm wide) in the bark are adult borers' exit holes.

(Bronze Birch Borer continued)

…Bronze Birch Borer

Birch mortality from bronze birch borer. Note how the birch on the left is dying from the top down (MN DNR Archive, MN DNR, Bugwood.org).

Jack Pine Budworm Update

The jack pine budworm outbreak continues to subside. Defoliation dropped from 110,700 acres in 2006 to 49,000 acres this year, confined mostly to Highland township in Douglas County and Barnes Township in Bayfield County.

Odds & Ends

EAB Shenanigans

On November 1, the Associated Press reported another positive EAB infestation in Mackinac County. Currently there are three spots in the U.P. where they have located EAB. Luckily, they are all as far east as one can snowmobile in the U.P. Let's keep them there.

Interesting Websites

Deer Browse Control

Here's an article by a Wisconsin DNR employee with tips on controlling deer browse:
http://dnr.wi.gov/forestry/Publications/articles/ManagingDeerBrowse.pdf

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