



Vermont Forest Health

Insect and Disease Observations—June 2014

Department of Forests, Parks & Recreation
June 2014

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Weather

June weather averaged nearly normal across most of Vermont with temperatures and rainfall just above or just below normal. The exceptions were in northwestern Vermont where temperatures and rainfall were above normal and in southeast Vermont where rainfall was above normal. A significant rain event occurred on June 25-26 across the state. Rainfall amounts from 3/4 " to over 2" were reported with the highest amounts in the northwest and southern counties.

Diseases

White Pine Needle Damage is widespread in northern New England again this year, including yellowing and needledrop of last year's foliage throughout Vermont. The damage is attributed to disease fungi, primarily brown spot needle blight, *Mycosphaerella dearnessii*, but also two needlecast fungi (*Canavirgella banfieldii* and *Bifusella linearis*). The major infection period for brown spot is June and July, so our current weather patterns will determine the level of damage we see in 2015.



This damage has been widespread since 2010, and the current epidemic has been building at least since 2005. Although the specific causes may vary, widespread episodes of needle blights of white pine have been reported throughout the past century, including in 1908 from Maine to Pennsylvania; in the mid-1950s into the 1960's causing "considerable concern"; and between 1983-89 from West Virginia to Maine.

The repeated recurrence of white pine needle damage is, once again, causing concern about its impact. There is substantial variability from tree to tree. Regional monitoring efforts have shown that the heaviest damage is occurring on the same trees from year to year. While most of them will be able to meet their needs for respiration (staying alive) and shoot elongation (growing taller), new wood production (a lower priority) will be limited. In pines, it is last year's foliage that feeds developing shoots in the spring, so repeated defoliations lead to stunted new growth, compounding the loss of photosynthetic capacity. Severely defoliated lower branches are likely to dry out and die, at least in part because of the limited transpiration through them. The impact will be to reduce crown length and live crown ratio.

White pine needle damage in monitoring plots in Plymouth, VT. Photo: B. Schultz

While we wait for results of the impact studies, research on pine false webworm may be helpful. This insect mostly feeds on old foliage, so also leaves just the current year's needles. According to Bud Mayfield, then at SUNY-ESF, and his co-authors, "The remarkable ability of pines to survive after 10 or more years of repeated annual defoliations is likely related to the preferential consumption of old foliage..., the annual production of new (although commonly stunted) foliage, and the lack of carbon allocation to radial growth in preference for sinks that are higher priority for survival and reproduction."

The usual recommendations for defoliated trees apply.

- Evaluate. Trees within a stand vary hugely in susceptibility. Be sure to check out the topmost branches; if they're okay, the tree probably will be too. Focus on the most disease-prone sites: low-lying or riparian areas and narrow valleys.
- Avoid disturbance that results in wounding. Red rot thrives in slow growing pines.
- The highest risk of mortality is where trees are already stressed by wet site conditions or other factors.
- Look for signs of bark beetles. The first to show up in white pine is often the turpentine beetle, which makes pitch tubes at the base of the tree. Although a sign of stress, trees may recover from light attacks by this insect. Other bark beetle species are more likely to indicate a tree near death.



Pitch tube caused by turpentine beetle.

Photo: P. Bolstad, Bugwood.org

For more information, see http://na.fs.fed.us/pubs/palerts/white_pine/eastern_white_pine.pdf



Symptoms of cedar apple rust on apple.

Photo: G. Hudler, Bugwood.org

Cedar apple rust spots are showing up on the leaves of apple trees where they are growing near juniper. (Earlier this spring, the jelly-like telial stage of this rust was reported on the juniper host.) The early symptoms on apple are orange spots with a yellow border on the upper surface. The border turns red, and black fruiting bodies develop on the underside of the spots.

Widespread, light damage by **Fir fern rust on Balsam fir** has been observed, and significant damage was reported in a Rutland County Christmas tree plantation. The fungus that causes the condition is currently fruiting. Needle drop comes next.

Fir fern rust fruiting structures ("aecia") emerging from needles. Photo: J. Lafountain



Occasional dead ornamental blue spruce have been observed that were killed by successive years of severe needlecast caused by the Rhizosphaera fungus.

Blue spruce mortality from repeated defoliations by Rhizosphaera Needlecast. Photo: B. Schultz

Dutch elm disease symptoms are common statewide. Sudden wilting of leaves in the upper reaches of the tree is the first sign. Leaves then change color from green to yellow to brown, then shrivel and die. In trees where Dutch elm disease was introduced at the top of the tree, signs of the disease are first seen in branches near the top of the tree. If the disease entered through the root system, signs of the disease show up first in the lower part of the tree, or the whole tree may decline.



Insects

Heavy mortality caused by Bronze Birch Borer was observed in a small stand of naturalized European White Birch in Chester. This species is considered to be highly susceptible to the borer, and the outbreak was probably initiated when the stand was thinned. Low vigor trees or those weakened by drought or by exposure after logging are most susceptible to attack. Larvae feed in the phloem and xylem, partially girdling the tree and interfering with the movement of sap and nutrients.



Mortality of European White Birch caused by bronze birch borer (left) and close up of gallery pattern associated with bronze birch borer (right).

Photos: B. Schultz

Hemlock woolly adelgid crawlers emerging from egg masses.

Photo: PA DCNR, Bugwood.org

Decline initiated by hemlock woolly adelgid is being observed in the southeastern towns of Windham County. The mobile stage of the insect (the so-called "crawler") is active through July. Several people have asked about moving the insect on clothing. Clothing treated with permethrin to repel ticks and biting insects should greatly reduce any risk.



Spiny Witchhazel Gall Aphids were found on river birch. They alternate between birch and witch hazel. On birch, "corrugations" are apparent on the upper leaf surface and the fluffy aphids are found on the undersides of birch leaves. On witch hazel, they form a [unique spiny gall](#).

Red Goldenrod Aphids are appropriately named. Most members of this large genus (93 Nearctic species) feed on plants in the aster family, with 22 species known to feed on goldenrod.

*Spiny witchhazel gall aphid on birch (top)
Red goldenrod aphids (below).*

Photos: J. Baker, NCSU, [Bugwood.org](#) and L. Curtis.



Individual larvae of [gypsy moth](#) and [forest tent caterpillar](#) have been reported. It's important to keep a lookout for these insects so we know when populations are building.



Gypsy moth caterpillar (left) and forest tent caterpillar (right). Photos: B. McNee, [Bugwood.org](#) and W. Ciesla, [Bugwood.org](#)

The larvae of the **Dusky Birch Sawfly** feed gregariously along the edges of leaves. Though wide areas are not usually affected, small saplings may be defoliated.

Dusky birch sawfly larvae. Photo: L. Hyche, [Bugwood.org](#)



Maple Eyespot Gall on red maple, caused by a gall midge, was observed in Woodstock. In the spring, larvae develop in leaves of maples. After a week in the leaf, during which time the gall is formed, the larva drops to the ground, burrows, and pupates. Adults emerge the following spring.

Maple eyespot gall. Photo: W. Ciesla, [Bugwood.org](#)



**For more information,
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