

Vermont Forest Health

Insect and Disease Observations—July 2014

Department of Forests, Parks & Recreation
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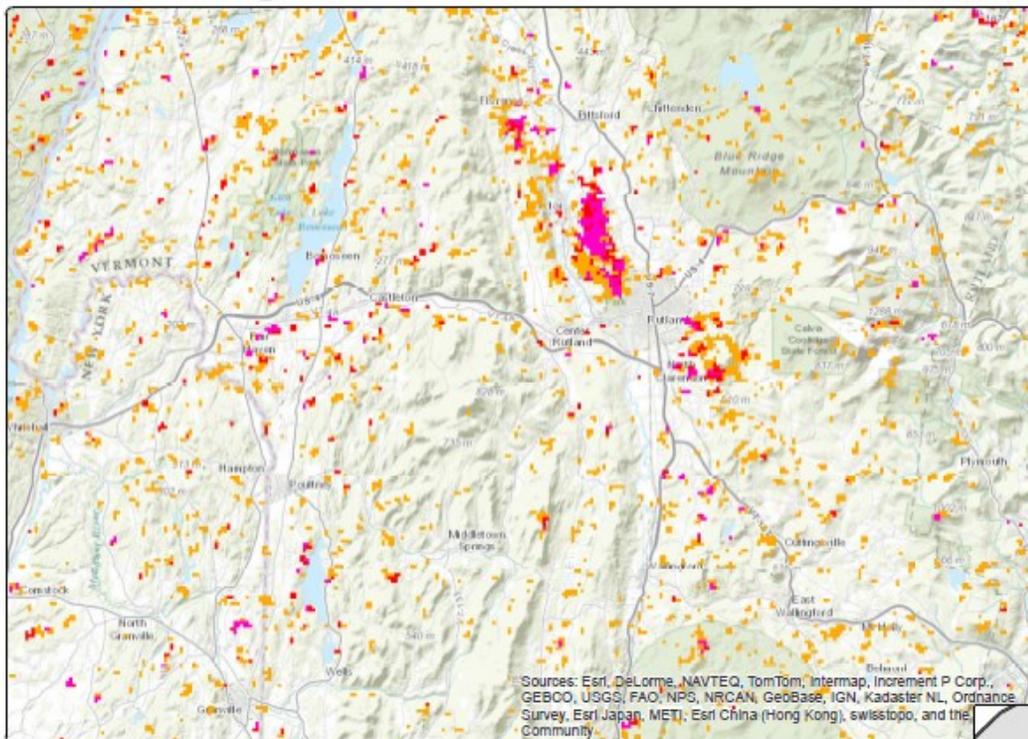
Weather

The "average" weather we described in June was followed by a series of stormy events, beginning with a second round of significant hail damage in Rutland County on July 3. (The first occurred on May 27, 2014.) In addition to first-hand reports, the damage was also picked up by the "[disturbance mapper](#)," which is a satellite imagery processor maintained by the US Forest Service. The disturbance mapper compares how green the forest is compared to an average of the past several years at the same time in the growing season. Notable differences were apparent in the hail-damaged area in this July 17 map.



Forest Disturbance Monitor Quick Print

Date: 7/17/2014



Legends

Forest Disturbance Persistence

- Severe Departure
- Moderate Departure
- Detectable Departure

USDA Data Source: FHTET-RSAC
Date Range: Jul 11 - Jun 09
Baseline: 3yr

Current Disturbance Composite

- Below Normal Phenology
- USDA Data Source: FHTET-RSAC
Date Range: Jul 11 - Jun 25
Baseline: 3yr
Threshold: 100 - 225

Forest Disturbance Polygons

- Forest Disturbance Polygons

IDS Damage

- Mortality
- Defoliation
- Other Damage
- Not Defined

Fire Perimeters

- 2007
- 2008
- 2009
- 2010
- 2011
- 2012

Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeBCo, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the Community

Forest Disturbance Persistence Categories

Persistence is defined as those cells whose Healthy Green Foliage (HGF) values are significantly below normal as compared to the baseline HGF and have remained substantially below normal for at least two of the last three compositing periods (32 total days). The Persistence categories are defined as: 1) Detectable Departure – Modest but detectable HGF departure and/or in two of the last three periods, 2) Moderate Departure – Medium HGF departure from normal HGF and/or remained in two or three of the last three periods and 3) Severe Departure – High level of HGF departure and has remained through all three compositing periods.

Forest Health Protection (FHP) and its partners strive to maintain an accurate Aerial Detection Survey (ADS) Dataset, but due to the conditions under which the data are collected, FHP and its partners shall not be held responsible for missing or inaccurate data. ADS are not intended to replace more specific information. An accuracy assessment has not been done for this dataset; however, ground checks are completed in accordance with local and national guidelines. Maps and data may be updated without notice. Please cite "USDA Forest Service, Forest Health Protection and its partners" as the source of this data in maps and publications.



Major defoliation was noted in areas hit by hail. We received first-hand details from retired FPR forester Gary Salmon who considered the event of great interest to witness, though he said his car looks like a golf ball. He reported that the Cold River Road near Rutland was covered by three inches of green leaves after the first storm, and that the foliage of hail-damaged trees looked very light. By the second hailstorm, some trees were already re-foliating from the previous barrage, and to have this happen twice is unusual.

On July 8, a long swath of [severe thunderstorms](#) with damaging winds brought down trees and powerlines leaving 30,000 people in northern Vermont without power during the height of the storm. Winds were estimated between 60 and 80 mph across many locations in Vermont, including the greater Burlington area. On July 9, additional severe storms brought down trees and produced heavy rain from Middlebury to Montpelier, Plainfield and Cabot.



Thunderstorms also developed early in the day on July 23, spreading northwest to southeast. Damage was reported in Washington, Berlin, Woodbury, Stowe, Berkshire, and Eden and in Rutland and Windsor counties.

Severe weather occurred once again during the afternoon and evening of July 27. Frequent lightning and high winds brought down trees and powerlines in scattered locations including Charlotte, Peacham, Danville, Walden, Cabot and St. Johnsbury. Hail damage was reported as well. Pea sized to golf ball sized hail was reported in South Burlington, Williston, Milton, Westford, North Ferrisburgh, Pittsford, Mendon and Andover. A tennis ball sized hailstone, 2.5 inches in diameter, took the prize in Charlotte.

To top off the month, torrential rain fell across most the state from late on July 27 through July 28. A nearly stationary thunderstorm caused isolated flash flooding in Southern Windsor County on July 28 during the afternoon. Hardest hit areas of Chester and Andover had over 4" of rain in a short period of time.

Trees damaged by recent hailstorms in the Rutland area show thin crowns and small branches that had been broken off by hail suspended in the understory. Photo: L. Lund

Defoliating Insects

Heavy defoliation by [saddled prominent caterpillars](#) in landscape trees has occurred in scattered locations. FPR staff conducting assessments in long-term North American Maple Project plots have also observed saddled prominent caterpillars and have witnessed the "frass rain" of these insects, but there have been no reports of notable defoliation caused by saddled prominent in these plots. Moth tallies from our saddled prominent pheromone traps will be included in our August update. In general, reports on the health of deciduous trees in forest and landscape settings have been very favorable this year.

Saddled prominent caterpillars vary in color and markings, but most have the descriptive "saddle."

Photo: R. Kelley



Conifer Health Issues

Compared with deciduous trees, the situation with some conifers has been less positive. Along with the white pine needle damage reported in the [June Forest Health Update](#), we have been observing continued widespread issues with red pine. Michael Simmons, from UNH, is working on a project to help elucidate the causes of this decline. To support this project, Vermont FPR staff are helping to identify study sites within the state. If you know of declining red pine stands greater than 1 acre that would be accessible for this research project, we will pass on the report. Sites will be examined for insects, pathogens, soil conditions, and other factors to determine if there is a pattern across the region, and to help clarify causal agents where diagnoses have been inconclusive.

Unhealthy pine trees (mostly Scots pine) along the I-91 corridor are being affected by several disease-causing fungi, including [Diplodia tip blight](#), which causes new needles to die before fully elongating and will cause new tips to die during the growing season. The needles are also host to another fungus which causes the disease [Brown Spot](#). This disease will cause individual needles to turn brown and drop prematurely. Brown spot can also affect white pine, and has been a major cause of the widespread white pine needle drop in recent years. (See [Brown Spot on White Pine](#).)

There are also numerous Scots pine along the interstate with galls on the branches and twigs. Caused by the western gall rust, they range in size from a blueberry up to golf ball size. A heavily affected tree makes a very knobby looking profile.

Western gall rust (or pine-pine gall rust), which affects many species of hard pine, is caused by an "autoecious fungus", meaning that it needs no alternate host. Photo: R. Kelley



We have received an unusually large number of diagnostic calls about **balsam fir problems** this year, including landscape and forest as well as Christmas trees. Every year we see some "red" balsam showing up during the year, and we capture that information during aerial surveys. The total area affected, and the percentage of trees affected within that area, have typically been low (5-10%). This year, the percentage of red trees is often higher than normal.

[Rhizosphaera needle blight](#) has been confirmed in scattered locations. Christmas tree specialist Ron Kelley reports this as the most prevalent needle disease this season and present in an ever increasing number of plantations. [Balsam woolly adelgid](#) and its symptoms have also been observed. Many balsam fir issues appear to be the result of a combination of balsam woolly adelgid and [Armillaria](#) root rot, with the stress caused by the adelgid making trees vulnerable to Armillaria attack. A fair number of these dying trees exhibit the characteristic white, leathery mycelial fans of Armillaria underneath the bark at the base of the tree.



(left) Armillaria Root Rot continues to be an increasing problem in Christmas tree plantations, especially with inter-planted trees and third or fourth generations of trees on the same site. It is also commonly found in recently dead fir in forest stands. Here you see exposed mycelial fans along with the mushroom fruiting bodies. (right) Gouting of buds or twig nodes and twig and branch dieback are symptoms of attack by balsam woolly adelgid. Photos: R. Kelley

Sapsucking Insects

Foresters working in southeastern Windham County are starting to report pockets of hemlock decline caused by **hemlock woolly adelgid**. We have known about hemlock woolly adelgid in Vermont since 2007, which means it has probably been here for about a decade. A similar lag time has been observed in other states between first detection and the onset of decline.

Feeding by hemlock woolly adelgid results in premature needle loss, and new shoots fail to develop. This leads to crown thinning and reduced growth. Once tree health declines, so do populations of HWA. When trees recover, HWA populations rebound, in a cycle that can repeat itself. Although many hemlocks have survived in other northeastern states, trees have been less likely to recover on dry slopes and shallow sites.



(left) Symptoms of hemlock woolly adelgid include premature needle loss and absence of new shoots. (right) Over time, hemlock woolly adelgid feeding leads to crown thinning and reduced growth. Photos: B. Schultz

Pine spittlebugs are more numerous than usual in some areas. After eggs hatch in the spring, the young nymphs use their piercing-sucking mouthparts to penetrate the bark and begin to feed, very soon covering themselves with a frothy mass of spittle that is made up of partially-digested sap and air bubbles. Though the damage from feeding is often inconsequential, it can result in twig death in some cases.

Frothy spittle mass formed by one of the pine spittlebugs. The spittle masses of some species, such as the Saratoga spittlebug, occur on groundcover plants. Photo: R. Kelley



For more information, contact the Forest Biology Laboratory at 802-879-5687 or:

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