

Vermont Forest Health

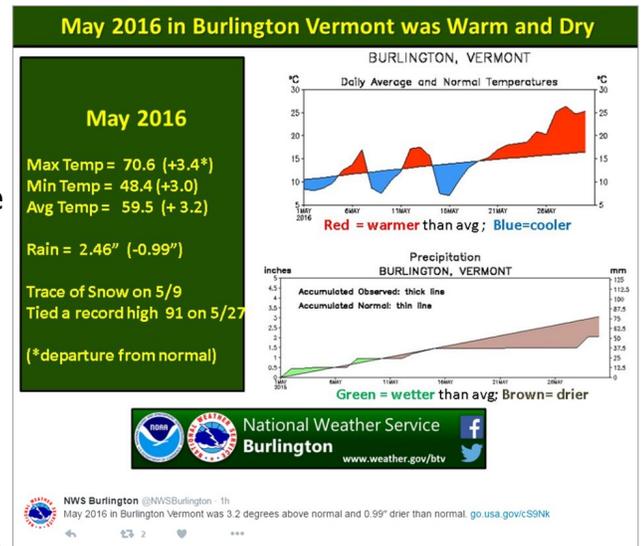
Insect and Disease Observations—May 2016

Department of Forests, Parks & Recreation
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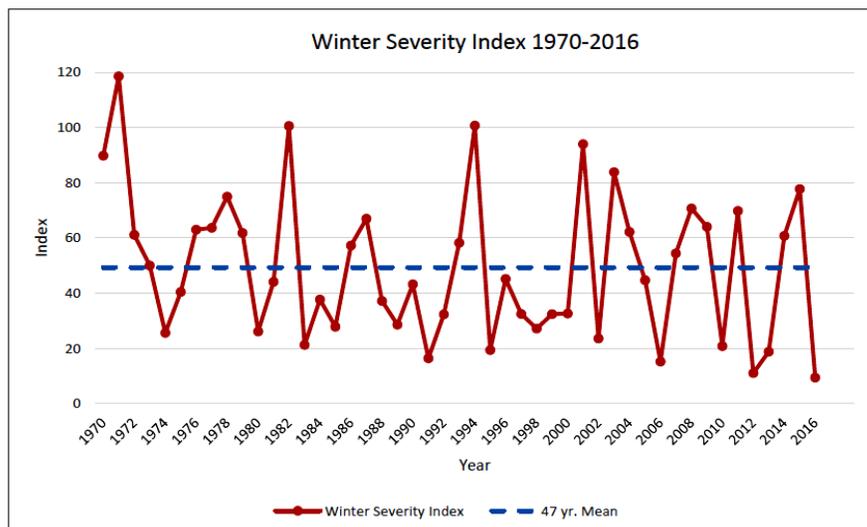
May Weather: It All Evened Out

Even though much of May had below normal temperatures, when it ended, the statewide average for the month was above normal by about 2 degrees. Average precipitation was 2 inches below normal. As of May 31, Franklin, Orleans, Windsor and Windham counties were classified as abnormally dry.

On May 9, there were snow flurries, and on May 10th, early morning temps were in the 20's and 30's with reports of frost damage. On the morning of May 16, snow covered the ground, with a trace in Burlington, 4" in Hyde Park and amounts in between across northern Vermont and the southern mountains. By afternoon it was gone. Burlington hit a record for the month of May of 9 consecutive days with 80+ temps, including 2 days with 90 or above. On May 29, a heavy thunderstorm in the St. Albans/Swanton/Sheldon area brought .65" of rain, hail, and wind damage.



Although the weather has turned to summer, echoes from the past winter are still affecting tree health. Tim Appleton, from Vermont's Fish and Wildlife Department, tracks winter conditions and provided the graph below, depicting winter severity based on snow depth and temperature.



Volunteers throughout the state record the number of days when the minimum temperature is 0° F or less, and when snow depth is 18" or more. Details from each physiographic region are then averaged to create a statewide total for the year.

This past winter had the mildest index recorded since the inception of the WSI in 1970, and surpassed the previous low of 11.1 recorded for the winter of 2011-12. Data analysis and graph: Tim Appleton.

Are Forest Tent Caterpillar Populations on the Rise?

This spring we've had reports that populations of the native **forest tent caterpillar** (FTC) are building in Windham, Windsor, Franklin, Lamoille, Orleans and Rutland Counties. The window of concern is May and June when the FTC larvae are actively feeding. Although caterpillar development seems ahead of normal this year, there should be several more weeks before they pupate, and defoliation will become more noticeable.

Trees that are particularly favored include sugar maple, ash and oak, but FTC feeds on most deciduous species. Check your trees in late June. If defoliated, they should re-foliate within several weeks. Most trees can survive several years of defoliation.

Overwintering egg mass surveys can predict FTC defoliation for the following year. We are available to conduct these fall and winter surveys for sugarmakers and timberland owners.

Egg hatch generally occurs as sugar maples break bud, but is staggered over several weeks so you may observe caterpillars of different sizes throughout the season. Half-grown larvae are sometimes seen congregating on tree boles or on man-made structures around homes. Once they reach about 2 ½ inches in length, they stop feeding, form a cocoon in leaves, bark, or other dark structures, and pupate.

When tree foliage is depleted, larvae migrate to other vegetation and become a nuisance to homeowners. Even vegetable gardens may be consumed by this native insect when populations are high. Caterpillars sometimes succumb to a malady known as Melt, Wilt, or Black Death. Caused by a nuclear polyhedrosis virus (NPV), this disease is common during outbreaks when the insects are in close proximity to one another.

Similar defoliation caused by other insects may complicate diagnosis. This year we've seen an increase in **eastern tent caterpillar** (ETC). This close relative of FTC feeds on cherry and apple, hatches a bit earlier, and can be easily misidentified as FTC. If the caterpillar is associated with a "tent" and has a solid white stripe down the back, it's an ETC. FTC larvae have white, keyhole markings down the back. Forest tent caterpillars do not make a tent!



FTC often congregate during the day on tree boles (left); An open grown maple with noticeable defoliation around the edge of its crown (center); A caterpillar that appears to have been infected with NPV. Photos: E. Schadler, L. Lund, and J. Esden.

Looking for Bruce Spanworm

Researchers at UMass are looking for outbreak populations of **Bruce spanworm**. Joe They are studying this native insect's close relative, the winter moth, an invasive defoliator which has not been found in Vermont, and have found a microsporidian parasite to be very prevalent in Bruce spanworm, but not in winter moth. This may explain why winter moth is in permanent outbreak phase in Eastern New England whereas Bruce spanworm rarely has outbreaks, and when they occur they are short-lived. Bruce spanworm caterpillars are bright green inchworms, 3/4 inch long, and leave behind Swiss-cheese-patterned holes in the leaves. Contact Joe Elkinton or Hannah Broadley if you see caterpillars and defoliation that meet this description. The defoliation occurs right after bud break, which leaves researchers very little time to collect the caterpillars before they drop down to pupate.

Off-Color Conifers

White pine needle damage showed up suddenly near roadsides in the middle of the month, with unusually heavy symptoms on individual trees. By the end of May, equally severe symptoms were developing on woodland pines. We predicted another bad year, based on wet conditions last June. Symptoms may be compounded by the unusual winter conditions, which we know affected other conifer species.

Although several disease fungi contribute to this region-wide problem, the most common is the brown spot needle blight fungus. We have been reporting a build-up of this disease on white pine since 2005, with widespread symptoms reported annually since 2010. Research on white pine needle damage is continuing at UNH and by the US Forest Service. Since 2009, there has been a 10 – 60% decline in annual wood growth on affected trees.

Rhizosphaera needlecast continues to cause browning and needle loss on spruce. Winter injury has intensified the damage to some of the diseased trees. Other species of trees and shrubs also continue to show **winter injury** symptoms, including ornamentals like rhododendrons, whose flowers were winter-killed without a protective blanket of snow. Winter kill of some hardy perennials has also been reported.



White pine needle diseases result in thin crowns and weakened trees due to premature needle loss and reduced photosynthetic ability (left); Rhizosphaera needlecast appears to be particularly damaging in shaded, damp areas and to spruce trees that are under stress. Photos: B. Schultz and L. Lund.

Buckthorns make Bad Neighbors: A common plant in Vermont with an invasive nature

This month's featured invasive plant is common buckthorn (*Rhamnus cathartica*). Native to regions across Europe and Asia, common buckthorn was brought to North America in the 1800's, most likely for ornamental planting. Its popularity as an ornamental and in conservation plantings helped this plant spread across the United States and Canada, aided by its ease of propagation, hardiness, and tolerance of varied environment and soil conditions.

In the mid-20th century, it was noticed that common buckthorn served as an alternate host for oat crown rust (see our [May 2015 Update](#)). This curtailed plantings, but not before buckthorn had widely escaped cultivation. We now know that common buckthorn can form dense thickets in forested habitat, impeding native plant regeneration, and altering soil chemistry. Dispersed by wildlife, it can also lead to deleterious effects on the animals, as the plant (especially the berry) contains a laxative called emodin.

There are actually two invasive buckthorn species in Vermont. The second is called glossy buckthorn (*Frangula alnus*). This plant can also invade wet or moist habitat, making it a threat to riverbanks and wetlands, as well as forests.

Visit vtinvasives.org to learn more. Additional information about common buckthorn can be found through the [New England Wildflower Society](#), [USFS](#), [National Park Service](#), [Wisconsin DNR](#), and the [NH Department of Agriculture, Markets and Food](#). For more on glossy buckthorn, see the [New England Wildflower Society link](#), [Wisconsin DNR](#), and [NHAMF](#).



Glossy buckthorn leaves have a smooth margin, are oval to elliptical in shape, and have veins that run out to leaf edge from the mid-rib (left); Common buckthorn leaves have serrated margins, are oval in shape, and have parallel veins running towards the tip of the leaf (right). Photos: Rob Routledge, Sault College, Bugwood.org, and E. Spinney.

Beautiful Beetles and Pupating Parasitoids

At this time of year, we often get inquiries about the green six-spotted tiger beetle from members of the public concerned they might be emerald ash borers. Our most recent green suspect was not a tiger beetle but rather the ground beetle, Chlaenius sericeus, a predator with a distinctive odor of creosote. Other showy insects observed recently were the swamp milkweed leaf beetle (Lapidoderma clivicollis) and another leaf beetle Calligrapha rowena, whose host is dogwood. A less-familiar tiger beetle, commonly called the clay bank tiger beetle (Cicindela limbata), was also photographed.



Chlaenius sericeus, *Labidoderma clivicollis*, *Calligrapha rowena*, and *Cicindela limbata* were part of the lineup of beetle observations this month. Photos: A. Hogue (first two shots), T. Murray, and N. Patch.

Pupae of the so-called giant ichneumonids, a.k.a. Megarhyssa wasps, were found in the stump end of a dead tree. These wasps parasitize another wasp, a horntail known as the pigeon tremex that lives in wood of dying trees and branches. *Megashyssa* adults emerge between the months of June and September.

Pupae of Megarhyssa wasps have an extremely long ovipositor (arrow). The adults use this to deposit an egg, through the bark, into a tunnel bored by a similarly large species of horntail. Photo: C. Lamer.



Tick Tracker

The Vermont Health Department has announced that the Vermont Tick Tracker is up and running for the 2016 Tick Season. This tool helps VDH gather crowd-sourced data on tick encounters and serves as a tool for educating the public on tick-borne disease risks.



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

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