

Vermont Forest Health

Insect and Disease Observations— April 2019

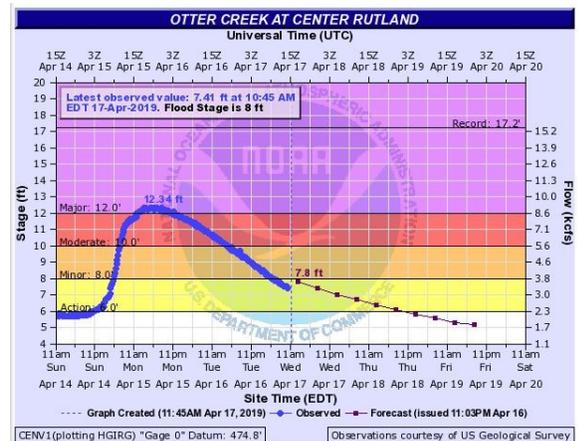
Department of Forests, Parks & Recreation
April 2019 vtforest.com

Superfluity—Super Fluidy

It may come as no surprise that the Northeast is once again free of drought and abnormal dryness based on the [U.S. Drought Monitor](#). In March, Vermont rivers were high during the initial snowmelt while in April, much of the flooding was caused by rainfall, with snowmelt a contributing factor in higher elevations. The winter/spring flood potential for open water flooding was much above normal for all of north central and northeast Vermont.

Several Vermont counties witnessed dramatic flooding this month. This hydrograph shows the first flood of Otter Creek, which has left lots and lots of water still sitting in low lying places.

You can view the hydrologic situation in many Vermont rivers and streams by visiting this link: https://water.weather.gov/ahps2/area.php?wfo=btv&hydro_type=0&hsa_type=1



Saturated April soils and windy days resulted in noticeable windthrow in some areas. Stems from trees whose trunk and root are dislodged intact deteriorate more slowly than broken stems. This can be especially important for white pine trees. Broken stems are highly attractive to the bluestain-carrying engraver beetles, which can infest trees within a week. Wind-thrown stems aren't as likely to be attacked.



Trees with broken stems tend to be more attractive to engraver beetles (and hence blue-stain fungi) than uprooted trees. Photos: T. Greaves; [David L. Clement, University of Maryland, Bugwood.org](#); [Ronald F. Billings, Texas A&M Forest Service, Bugwood.org](#)

Breaking Buds, Flushing Flowers

This time of year isn't called "the other foliage season" without good reason. The landscape is showing spectacular color and texture. Midway through April, there were reports of "plenty of flowers" on quaking aspen. Catkins on birches and cottonwoods are obvious, and there are "tons of sugar maple flowers" in some areas, which are greening up at the bases of hillsides and mountains. Red maples are in full bloom. (See Bryan Pfeiffer's [Red Alert](#) for lovely photos and a quick botany lesson.)

While lots of trees are in full flower, the most obvious plants pushing out leaves at present are Japanese barberry and the assorted shrub [honeysuckles](#).

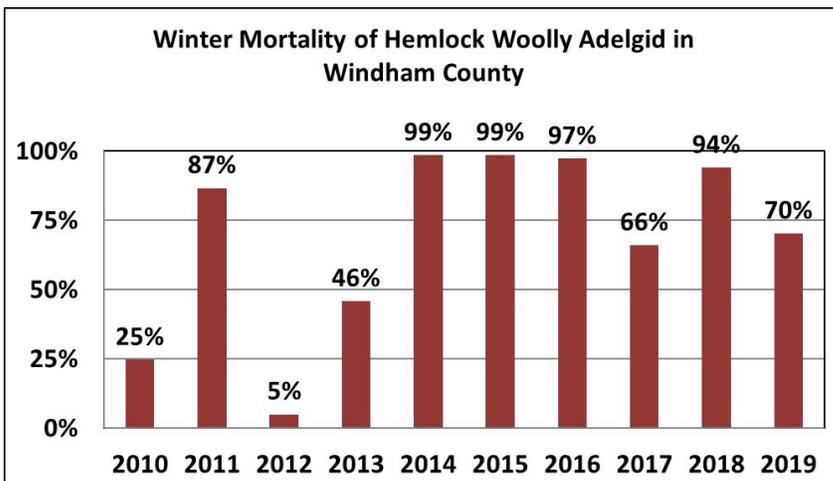


Sugar maple and red maple flowers are part of the lively palette of freshly emerged flowers. Photos: L. Lund, R. [Routledge](#), [Sault College](#), [Bugwood.org](#)

Hemlock Woolly Adelgid Overwintering Mortality

Seventy percent of the hemlock woolly adelgids (HWA) examined during the annual winter mortality survey were dead. Interestingly, our field personnel reported having trouble all winter finding HWA, especially in the numbers observed in the past. Regional colleagues in other states reported similar experiences, noticing lighter infestations and having difficulties finding new infestations.

In Vermont, we have not noticed any spread of HWA. We are now doing survey work in adjacent counties instead of adjacent towns, so the resolution of our search is a little more coarse. Vermont as well as nearby states continue to find HWA occasionally mixed with elongate hemlock scale.



Assessments of overwintering mortality in hemlock woolly adelgid conducted on March 20, 2019 indicated that 70% of the adelgids had died.

Emerald Ash Borer Update

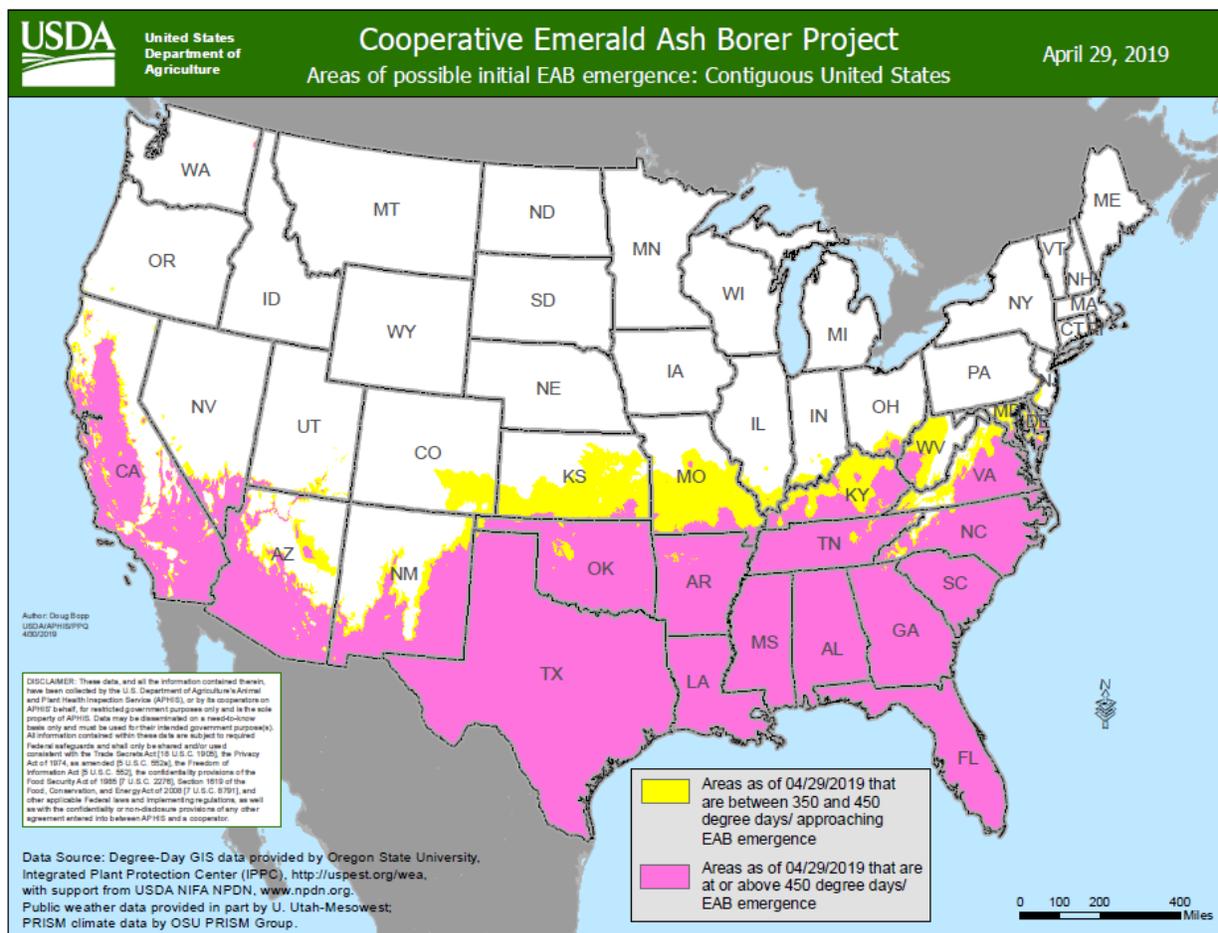
No new locations of emerald ash borer were reported over the winter, so there are still just seven towns where the insect has been confirmed to be present, and there are no changes to the [infested area](#) map.

We continue to urge anyone who is moving ash from the mapped infested areas to follow [Slow the Spread recommendations](#). There has been one recent change to these recommendations, which is to redefine the EAB flight season as June 1st – September 30th. After looking at weather records from locations throughout the state, and considering growing degree day models, it has been determined that EAB beetle emergence will not actually begin until June in Vermont. The change was made to better reflect Vermont conditions and prevent undue constraints on ash management activities.



EAB adults may begin emerging from infested trees around June 1. Photo: [Dave Cappaert, Bugwood.org](#)

Because the flight season is approaching, now is a good time for landowners and managers who would like to do on-site monitoring to establish girdled trap trees. Instructions for this survey technique can be found [here](#). Please continue to be on the lookout for signs and symptoms and report any suspects through [vtinvasives](#).



This map shows the current EAB growing degree day (GDD) initial emergence map to assist with the timing of trap placement for emerald ash borer.

Forest Tent Caterpillar

We conducted 16 [forest tent caterpillar](#) (FTC) egg mass surveys for landowners this year, and none of properties surveyed was predicted to be at high risk of defoliation. In fact, only one property fell into the "moderate risk" category while the rest were in "low risk". As a result, no landowners that we worked with plan on treating their trees with an insecticide this year. Although this is a small number of surveys, we hope this bodes well for defoliation from FTC this season.

Even if there is minimal defoliation in 2019, hardwood stands that were defoliated recently will still be recovering. Delay timber harvesting for 2- 3 years to prevent additional stress and for the impacts of defoliation to become apparent so the healthiest trees can be identified.

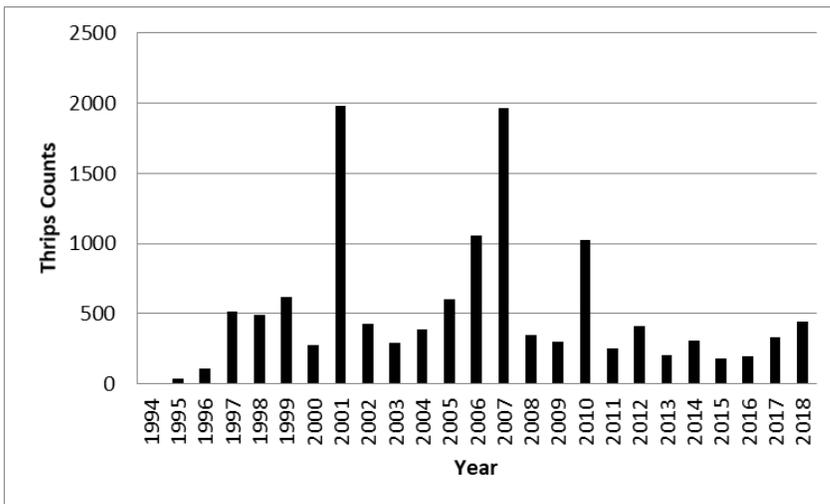
Egg surveys for forest tent caterpillar placed most areas examined at low risk for defoliation.

Photo: Ron Kelley



Pear Thrips and Beech Scale

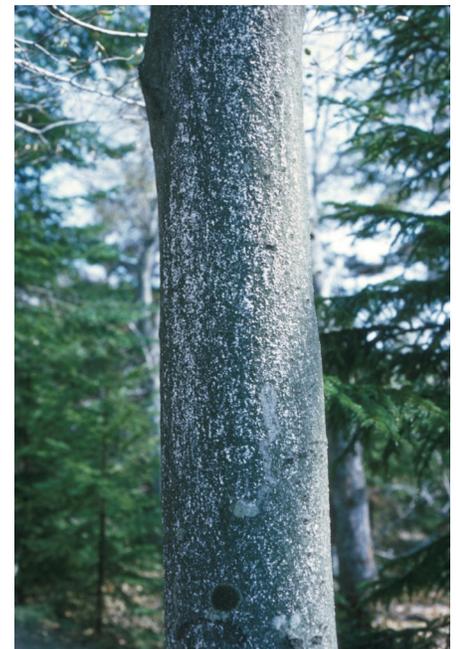
For over 25 year, we have been tallying [pear thrips](#) collected on yellow sticky traps at Proctor Maple Research Center in Underhill. At this point (weekly counts extend into early June) numbers of thrips are comparable to last year.



Though pear thrips counts on yellow sticky traps at Proctor Maple Research Center in Underhill were up in 2018 compared to the previous three years, populations and damage generally remain light.

Observations from the Hyde Park area indicate that **beech scale**, the insect associated with [beech bark disease](#), is more prevalent, possibly because of milder winter conditions with no prolonged cold snaps. The coldest temperature at this site was minus 15, and deep snow protected scales at the base of trees. One tree at this location is reported to have the heaviest scale seen in years.

Dieback from beech bark disease was mapped on 5,443 acres in 2018, an increase from the 2,807 acres mapped the year before. Dry conditions in 2018 allowed for greater beech scale crawler survival, more successful bark infection, and more tree vulnerability.



Federal Noxious Weed List Spotlight: *Solanum viarum*, Tropical Soda Apple

The state of Vermont has regulations on the importation, movement, and sale of non-native invasive plants, noxious weeds, known to adversely impact the economy, environment, or human or animal health. This "Noxious Weed" Quarantine includes [Class A species](#) (not native to Vermont, not known to occur in Vermont, and pose a serious threat), and [Class B species](#) (not native to Vermont, known to occur in Vermont and pose a serious threat).

The Vermont Quarantine also includes all species listed on the Federal Noxious Weed List. "[7 C.F.R. 360.200 – Designation of noxious weeds](#)" outlines dozens of aquatic and terrestrial noxious weeds with the intention of preventing or limiting their spread. While many of these species likely won't occur in Vermont, there are a few that have the potential. The objective of this series of articles is to draw attention to lesser known invasive species from the [Federal Noxious Weed List](#) that can be found in the Northeast, and are, in fact, part of Vermont's Noxious Weed Quarantine.

This month's highlighted species is Tropical Soda Apple (*Solanum viarum*). It is a member of the nightshade family, Solanaceae, and is native to South America. The species was accidentally introduced to Florida in the late 1980's, most likely through (though not confirmed) undigested Tropical Soda Apple seeds carried by cattle imported from Brazil. By the mid 1990's, the infestation had spread to almost 400,000 acres. Seeds spread by wildlife, livestock, and human activity have most likely led to the over 1 million acres now infested. It is also reported in Alabama, California, Georgia, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and in the Northeast in Pennsylvania. Current climate conditions in more temperate areas limit the distribution of this invasive.

The invasive Tropical Soda Apple is a moderate sized shrub, 3-6' tall, with stems, flower stalks, and leaves covered in broad, white to yellow thorns. The leaves are 4-8" long and 2-6" wide, divided into pointed lobes. Most notable are the globular fruits about 1" in diameter that start green and turn yellow when mature. Immature fruit have a white veining pattern like that of watermelon. There are 40,000-50,000 seeds per plant. While variable, the germination rate averages ~70%, and seeds can remain dormant for months to years.



Tropical Soda Apple flower and immature fruit. Note the white venation on the fruit, similar in appearance to a tiny watermelon.
Photo: [Charles T. Bryson, USDA Agricultural Research Service, Bugwood.org](#)

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Since its introduction, this plant has been noted to invade pastures, reducing the carrying capacity for livestock, as the foliage and stems are not palatable. It can grow in dense thorny thickets, displacing native vegetation. It is also a reservoir for six or more crop viruses, and a potato fungus, and is an alternate host for multiple crop pests like tomato hornworm.



Infestation of Tropical Soda Apple.

Photo: J. Jeffrey Mullahey, University of Florida, IMG 1299002, Bugwood.org

To learn more about Tropical Soda Apple, check out these resources: [USDA Invasive Species Info](#); [Gardening Know How](#); [CABI Invasive Species Compendium](#); and [University of Florida](#).

Bee Inventory

The Vermont Center for Ecostudies, the Vermont Department of Fish and Wildlife, and the UVM/Gund and Stone Environmental have begun to [inventory the native and introduced bees of Vermont](#). This project will build on the Vermont Bumble Bee Atlas project conducted 2012-2014, and will characterize the full suite of 250+ species of Vermont bees. Plans are to begin this project in just one region of the state, focusing the initial 1-2 year effort on an area of the Champlain Valley stretching from Lake Champlain east to the spine of the Green Mountains, including the alpine zones of the state's tallest peaks.

The so-called silky-striped sweat bee (Agapostemon-sericeus) visits flowers in several families.

Photo: K. McFarland



For more information, contact the Forest Biology Laboratory at 802-565-1585 or:

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