

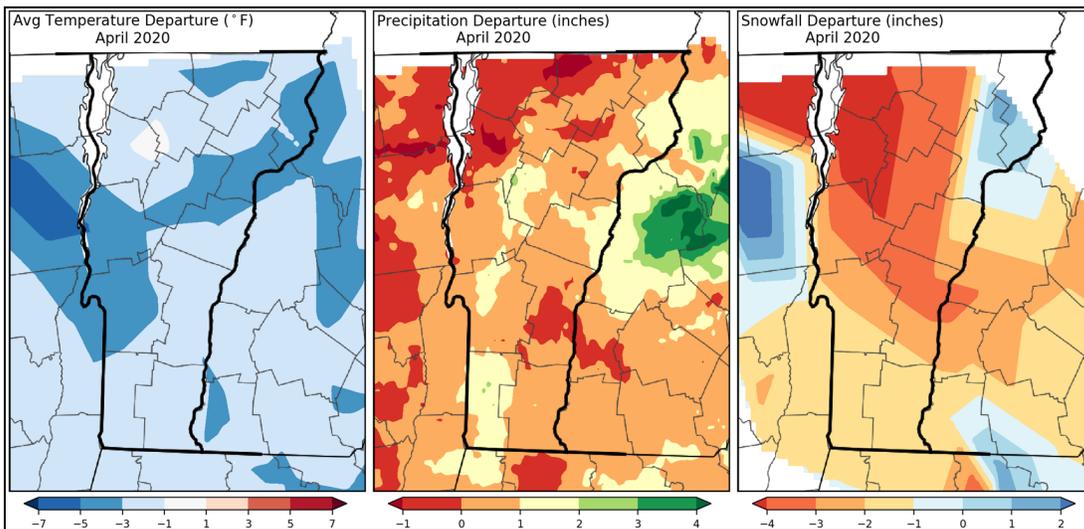
Vermont Forest Health

Insect and Disease Observations – April 2020

Department of Forests, Parks & Recreation
April 2020 vtforest.com

Weather Recap

Although it may not feel like it, the end of April marks the middle of spring. This month was colder and dryer than April of 2019. Statewide temperatures averaged 38.9°F, which was 2.2 degrees colder than April of last year. Statewide, precipitation averaged 3.97 inches, which is 1.62 inches less than April of last year. Even though we are still experiencing snow in most parts of the state, it is below-normal snowfall.



April snowfall ranged from 4 inches below normal (dark red) to 2 inches above normal (dark blue).

Temperature, precipitation and snowfall departure from normal. Maps and data: [North-east Regional Climate Center](#).

Sugar Season: Sweet Success

In most parts of the state, the beginning of April marked the end of Vermont’s sugaring season. An alternating pattern of freezing night temperatures and warm days of 40-45 degrees are needed for sap flow. Although a short season, many producers reported that ideal March temperatures made up for a short and disappointing April. For more information visit the [Vermont Maple Bulletin](#) and check out this [video](#) on the maple sugaring process in Vermont.

Cross section of a sugar maple with compartmentalized tap holes. Photo: R. Kelly.



Sure Signs of Spring

Mourning cloaks (*Nymphalis antiopa*) have a native range throughout the Americas and have been recently spotted in northern Vermont. During winter, these butterflies either migrate south to warmer temperatures, or overwinter as adults using cryopreservation (freezing for extended periods of time). Overwintering butterflies emerge with spring temperatures to find a mate, and to remind us that warmer temperatures are on the way.



Mourning cloak. Photo credit: M. Nendov.



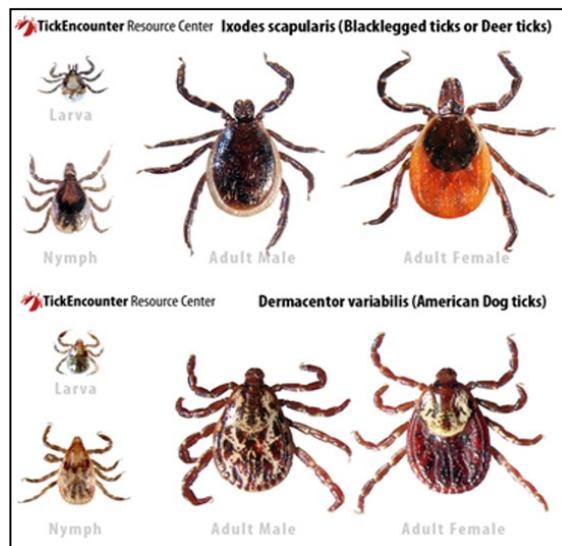
Ramps (*Allium tricoccum*) are a wild edible found throughout eastern North America. This bulb forming perennial is a spring meal time favorite for many Vermonters. When foraging, it is important to know its correct identification as well as identification of other imposters like lily of the valley. Ramps emerge from a bulb, with only one to two leaves that emerge separately. Lily of the valley have individual plants connected together by rhizomes, and have a centralized stem with multiple leaves whorled around it. Ramps grow well in moist shaded conditions while lily of the valley is more likely found in urban landscapes. For more information on ramps and how to sustainably harvest them, visit [How to Take a Leek in the Woods](#).

Ramp (left) and lily of the valley (right). Photo credit: Alicia Bayer.

Kick Off to Tick Season

When practicing social distancing outside, it is important to remember that tick season is upon us! In Vermont, [tick-borne diseases](#) are often transmitted from early spring to late fall. Although several tick species are present in the state, the most prevalent include black-legged (deer) ticks (*Ixodes scapularis*) and American dog ticks (*Dermacentor variabilis*).

The best way to prevent tick-borne diseases is to prevent tick bites from occurring. When outdoors, use an EPA-registered insect repellent, wear long sleeves and pants, and tuck your pants into your socks. After being outdoors, thoroughly check your body for ticks and take a shower to wash off unattached ticks. If you find a tick on your body, promptly remove it. Check out this [video](#) showing the right way to remove a tick. Clothing worn outside should be put in the dryer on high for 20 minutes to kill any hitchhikers. For more information about ticks in Vermont, check out the [VT Department of Health](#) and the [VT Agency of Agriculture, Food & Markets](#) websites.

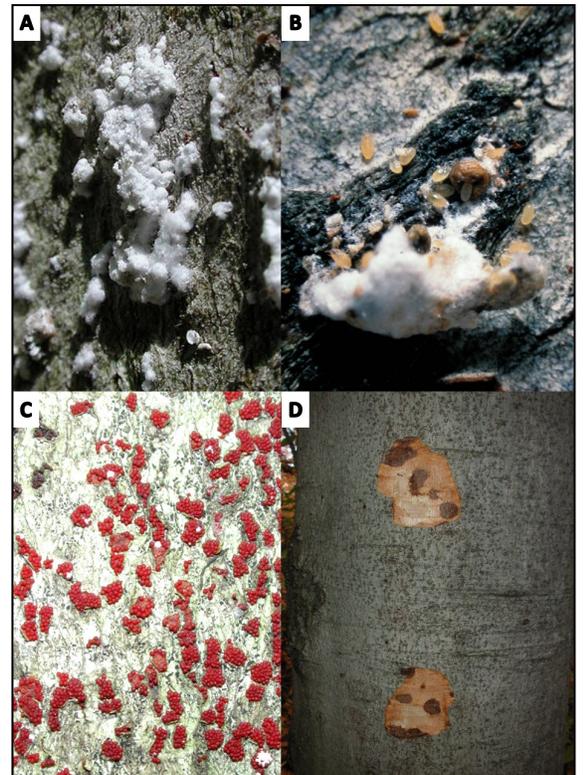


Life stages of black-legged ticks (top) and American dog ticks (bottom). Photo credit: Tick Encounter at the University of Rhode Island.

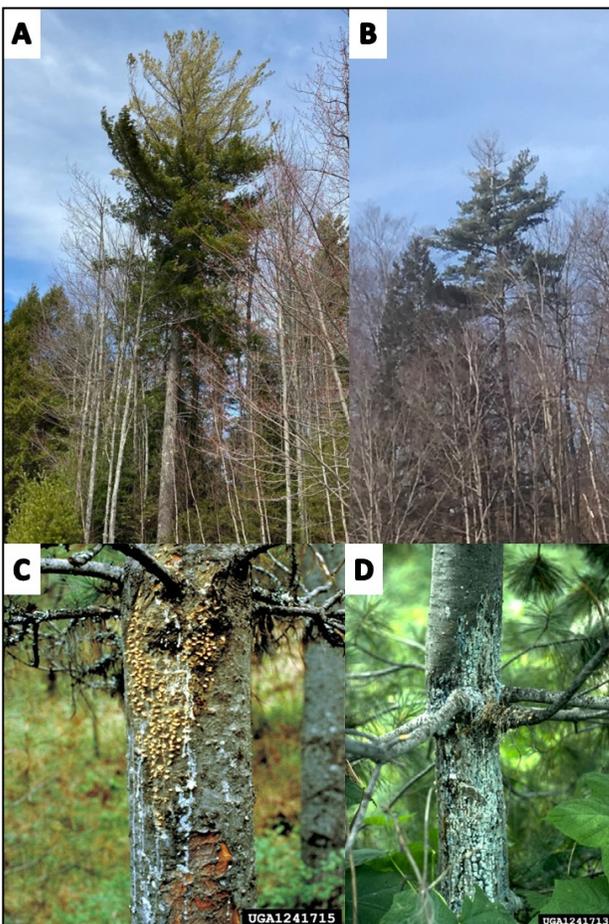
Beech Bark Disease

Observations from the Hunger Mountain area in Washington County indicate that beech bark disease may be more prevalent this year, possibly due to a warmer and dryer winter of 2019-2020. The lack of prolonged cold snaps may have allowed for increased survival of beech scale, the primary vector of the fungal pathogens *Neonectria faginata* and *Neonectria ditissima*. *Neonectria* spp. are the causal agents of beech bark disease and are responsible for the yellowing leaves, dieback and cankers on beech trees. Early infestations are noticeable when beech scale cover themselves in white wool, making infested trees appear white and fuzzy. This covering is a protective layer on the scale that shields them from predation and environmental conditions.

A: Beech scale covered in white wool. **B:** Beech scale without white wool. **C:** *Neonectria* fruiting bodies. **D:** *Neonectria* cankers. Photo credit: R Kelly.



White Pine Blister Rust



White Pine Blister Rust (WPBR) is caused by *Cronartium ribicola*, an introduced fungal pathogen from Asia. This pathogen requires two obligate (living) hosts to complete its lifecycle. Eastern white pine and *Ribes* spp. share this pathogen, and pass spores back and forth throughout the growing season. Infected *ribes* have leaf discoloration and slight necrosis but rarely have severe dieback or mortality. Eastern white pine trees have more severe symptoms including blister-like fruiting bodies and cankers, resin soaking, stem girdling around branch nodes, and dieback that can lead to tree mortality. This pathogen does not pass from one pine tree to another, and therefore infections can be observed sporadically. Areas favoring *ribes* growth including low lying areas, narrow valleys, and proximity to open water increase the likelihood of WPBR presence. For more information, visit VTinvasives.org.

A- B: Dieback caused by WPBR. Photo credit: FPR Staff. **C-D:** Fruiting bodies, resin soaking and stem girdling at branch nodes. Photo credit: USDA Forest Service.

Garlic Mustard (*Alliaria petiolata*)

Each spring as we transition away from “stick” season, there are bursts of green on the shrubs and trees, but also from beneath the melting snow. Common sights underfoot on our trails and paths might be the rosettes of native plants like [common evening-primrose](#) (*Oenothera biennis*), [partridge-berry](#) (*Mitchella repens*), and introduced species like [common mullein](#) (*Verbascum thapsus*). Another plant in the mix may also be the overwintering rosette of an introduced invasive plant called [garlic mustard](#) (*Alliaria petiolata*). Also known as “garlic root”, “penny hedge”, or “poor man’s mustard”, this biennial herbaceous plant is highly invasive in habitats like forests, forest edges, floodplains, fields and in disturbed habitats.

Garlic mustard originates from Europe and has spread as far as Africa, India, New Zealand, and North America. The first official record for garlic mustard growing in the United States is from New York in 1868.

This plant was a popular garden herb in the 1800s, and perhaps even by early European settlers. Since that time, it has spread to over 39 states. Being an obligate biennial, this plant produces a rosette of leaves in Year 1, overwinters, and the surviving rosettes bolt, flower, seed, and die in Year 2. If we learn how to identify these plants correctly in their rosette stage, we can effectively remove them without worrying about spreading seeds or dealing with large amounts of aboveground growth.



Garlic mustard infestation along a forest edge. Photo credit: L. Mehrhoff, University of Connecticut.



Year 1 rosette. Photo credit: Jil M. Swearingen, USDI National Park Service.

Year 1 Plants: A rosette of green basal leaves will grow, with leaves having a bean shape, scalloped edges, and petioles that are purple-tinged. This stage of growth is where it is easiest to confuse with other plants. Species like creeping Charlie (*Glechoma hederacea*) also have green, bean-shaped, scalloped-edged leaves, but are typically much smaller and the growth form of the plant is mat-like vs. the rosette of garlic mustard. If ever in doubt, crush some of the leaves between your fingers – if it is garlic mustard, there will be a garlicky odor!

Year 2 Plants: The basal rosette remains, and a bolt forms, with alternating triangular, scalloped to toothed leaves. These leaves also have a garlicky odor. Flowers turn into long slender seed pods that can be produced throughout late spring. The mode of spread is primarily through the dispersal of seeds by wildlife and humans, often getting stuck to our gear, equipment, and vehicles.



Year 2 flowers. Photo credit: David Cappaert, Michigan State University.

Garlic mustard is a shade-tolerant plant that can adapt and grow in a variety of conditions (pristine to disturbed) and exudes chemicals that inhibit the growth of nearby plants (allelopathy). The seeds remain viable for the better part of a decade. This plant can overtake the understory of a forest and provides little benefit to native fauna. There have been documented impacts to a species of special concern, the West Virginia white butterfly. The female butterflies are attracted to garlic mustard over their normal host plants, toothworts (*Cardamine diphylla* and *Cardamine concatenata*). The butterflies lay eggs, which hatch and are unable to complete their lifecycle on garlic mustard. The negative impact that this plant can have on New England’s natural resources has led to its listing as a Class B Noxious Weed in Vermont.



To learn more about the biology and control of garlic Mustard, check out [VTinvasives](#) and these additional resources:

- [Element Stewardship Abstract, The Nature Conservancy](#)
- [New York Invasive Species Information](#)
- [Pennsylvania Dept. Conservation and Natural Resources](#)
- [Michigan Dept. Natural Resources](#)
- [Government of Ontario Canada](#)
- [Vermont Center for Ecostudies](#)

An uncommon size and sight – garlic mustard rosettes that grew in the cleared space after Japanese knotweed was removed. Photo credit: FPR Staff.



<p>For more information, contact the Forest Biology Laboratory at 802-565-1585 or:</p>	<p>Windsor & Windham Counties..... Bennington & Rutland Counties..... Addison, Chittenden, Franklin & Grand Isle Counties..... Lamoille, Orange & Washington Counties..... Caledonia, Orleans & Essex Counties.....</p>	<p>Springfield (802) 289-0613 Rutland (802) 786-0060 Essex Junction (802) 879-6565 Barre (802) 476-0170 St. Johnsbury (802) 751-0110</p>
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