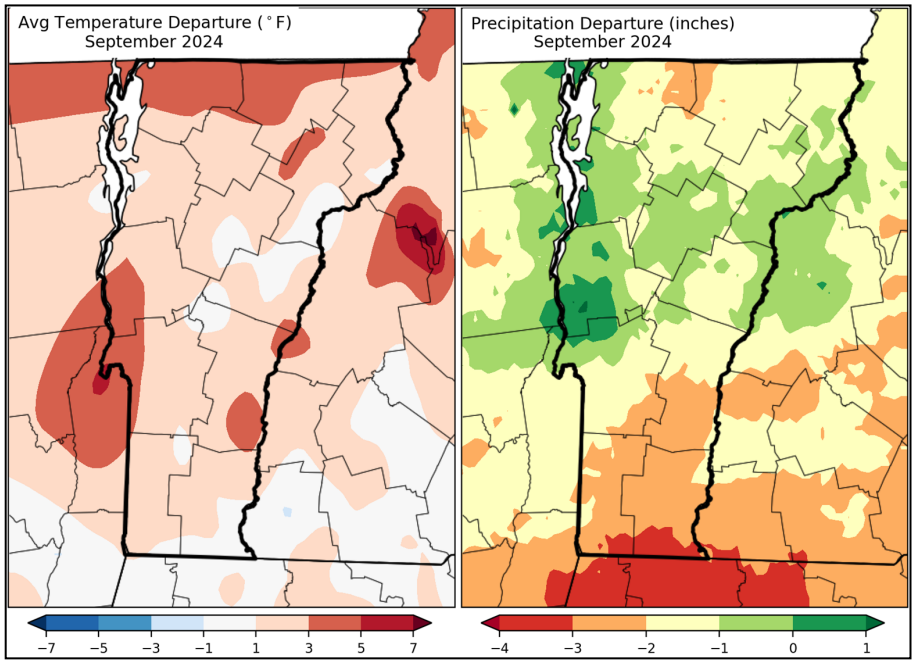
# Vermont Forest Health

## Insect and Disease Observations

September 2024 | Department of Forests, Parks, and Recreation

### Weather

On average, this month was slightly cooler and wetter than last September. Statewide temperatures averaged 59.33°F, which was 1.67 degrees cooler than September of last year. Statewide precipitation averaged 3.33in., which was 0.12in. more than last year.




Average temperature and precipitation departure from normal. Maps and data: Northeast Regional Climate Center, and Weather Spark.

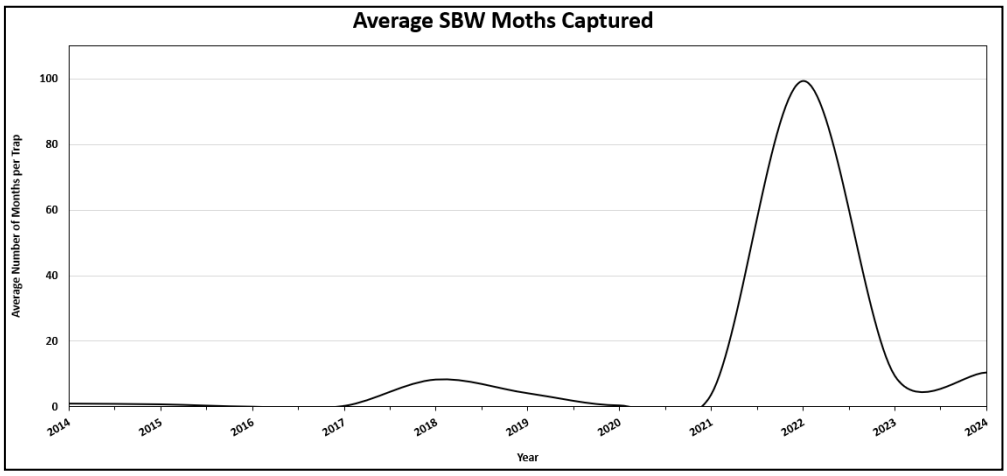
### Fall Color Update

Leaves start to change colors in the fall due to shorter days, a reduction in photosynthesis as well as environmental conditions including, but not limited to, temperature and rainfall. Leaves that are normally pigmented green due to the chlorophyll inside the leaf tissue also have other pigments including carotenoids that are responsible for yellow and orange pigments, tannins that are responsible for brown pigments, and sometimes anthocyanins that are responsible for both red and purple pigments. These pigments vary by tree species, causing VT's northern hardwood forest type to be a kaleidoscope of color. For more information on the process of fall color and to see estimates of peak fall foliage in the state, visit the Foliage Forecaster.

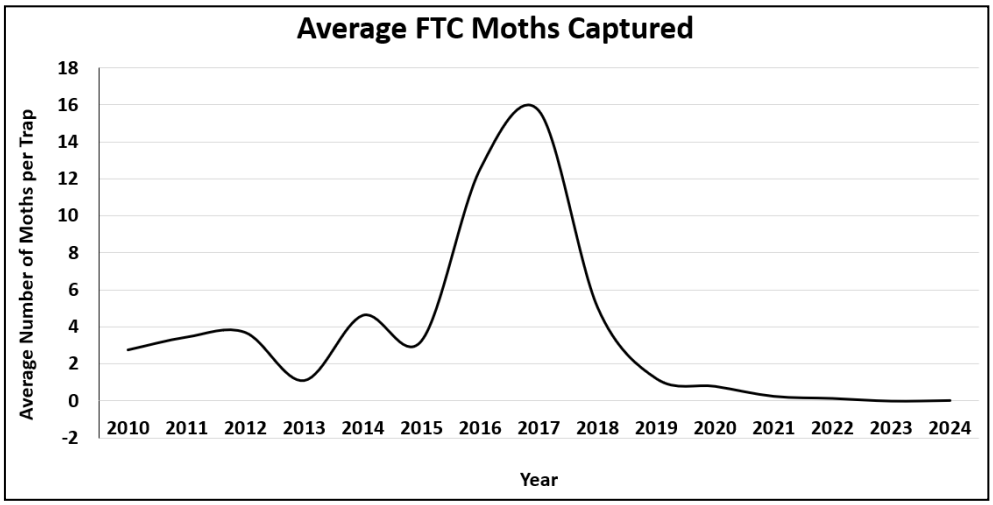
## Trap Results

**Spruce budworm** (SBW, *Choristoneura fumiferana*) are native softwood defoliators of balsam fir (*Abies balsamea*), spruce (*Picea* spp.) and occasionally of larch (*Larix laricina*), pine (*Pinus* spp.), and hemlocks (*Tsuga* spp.). In consecutive years of severe outbreaks, trees may experience complete defoliation which can lead to dieback and mortality of infested hosts. This pest has a 30 to 40 year outbreak cycle, with the last outbreak ending in 1984. To track population outbreaks, pheromone traps for SBW are deployed in northern VT annually. In 2022, SBW moth trap catches in Vermont increased to an average of 99.33 moths per trap, which was later determined to be from strong winds blowing moths into our traps from Canada's long-term SBW outbreak, and that moths did not mate and reproduce in Vermont. In 2024, this average was 10.48 moths per trap.

SBW larvae. Photo credit: Government of Canada.




**Forest tent caterpillar** (FTC, *Malacosoma disstria*) are native hardwood defoliators that are commonly found feeding on sugar maple (*Acer saccharum*) and ash (*Fraxinus* spp.) in mixed hardwood forests. In consecutive years of severe outbreaks, trees may experience complete defoliation which can lead to dieback and mortality of infested hosts. These pests typically have between a 6 and 16 year outbreak cycle. To track population outbreaks, pheromone traps for FTC are deployed statewide annually. In 2024, the number of moths per trap averaged 0.03, evidence that an outbreak in 2025 is unlikely.




FTC larvae. Photo credit: FPR Staff.

## Supplemental Sightings

**Beech leaf disease** (BLD, causal agent *Litylenchus crenatae mccannii*) was detected for the first time in the towns of Norwich, Reading, and Somerset. This invasive pest causes dark banding between leaf veins of beech (*Fagus* spp.), and eventually will lead to dieback and mortality of hosts. The current range of BLD in Vermont can be viewed on the Vermont Forest Invasive Pest Status Map.

BLD leaf. Photo credit: FPR Staff.

**Elm zigzag sawfly (**EZS, *Aproceros leucopoda*) was detected for the first time in the towns of Burke, Craftsbury, Danville, Concord, Kirby, Lyndon, Lunenberg, Moretown, St. Johnsbury, Waterford and Wardsboro, expanding the infestation into Essex, Caledonia and Orleans Counties. This invasive defoliator creates a zig-sag feeding pattern on elm trees (*Ulmus* spp.), eventually causing complete defoliation.

EZS feeding. Photo credit: FPR Staff.

**Emerald ash borer** (EAB, *Agrilus planipennis*) was detected for the first time in the towns of Georgia, and Wardsboro, this month. These new towns expanded the infestation severity into neighboring towns, and also increased the severity of already affected towns. The current range of EAB in VT can be viewed on the Vermont Forest Invasive Pest Status Map.

EAB galleries. Photo credit: FPR Staff.

**Butternut canker** (*Ophiognomonia clavigignenti-juglandacearum*) was observed on butternut (*Juglans cinerea*) in Windsor County. This fungus is thought to be introduced to the United States and was first reported in Wisconsin in 1967, killing approximately 80% of butternut trees in some regions. Infection occurs when spores enter wounds on the tree, causing the formation of black, sunken cankers that eventually girdle branches and the bole of the tree.

Butternut canker. Photo credit: University of Minnesota.

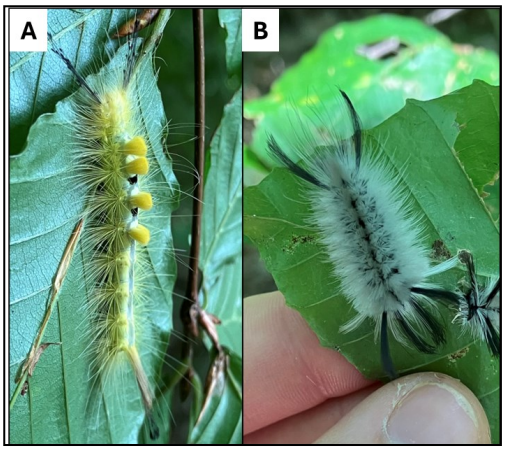
***Cameraria hamameliella*** larva was reported in Chittenden County. As larvae, this species mines the upper leaf surface of witch hazel (*Hamamelis viginiana*), forming a whitish, rounded blotch. There are two generations a year, with the second generation overwintering as larvae or pupae within the host leaf. Adult moths emerge in the spring following leaf out.

*Cameraria hamameliella*. Photo credit: FPR staff.

**Maple trumpet skeletonizer** (*Catastega aceriella*) was reported in Washington County. Larvae feed in trumpetlike tubes on the undersides of folded leaves, primarily sugar maple (*Acer saccharum)* and red maple (*A. rubrum*), from July through early October. Since the damage occurs later in the season, it usually does not impact the health of host trees. Once mature, larvae drop to the ground and pupate, emerging as adults in the spring.

Maple trumpet skeletonizer. Photo credit: FPR staff.

**Tussock moth** caterpillars (Subfamily Lymantriinae) have been reported statewide. Caterpillars are generally brightly colored and hairy, often with 2 to 3 longer tufts on each end. Hairs detach as a defense mechanism and can cause rashes when handled. Most species feed on trees and shrubs, some of which are major forest defoliators (i.e. spongy moth, *Lymantria dispar*).



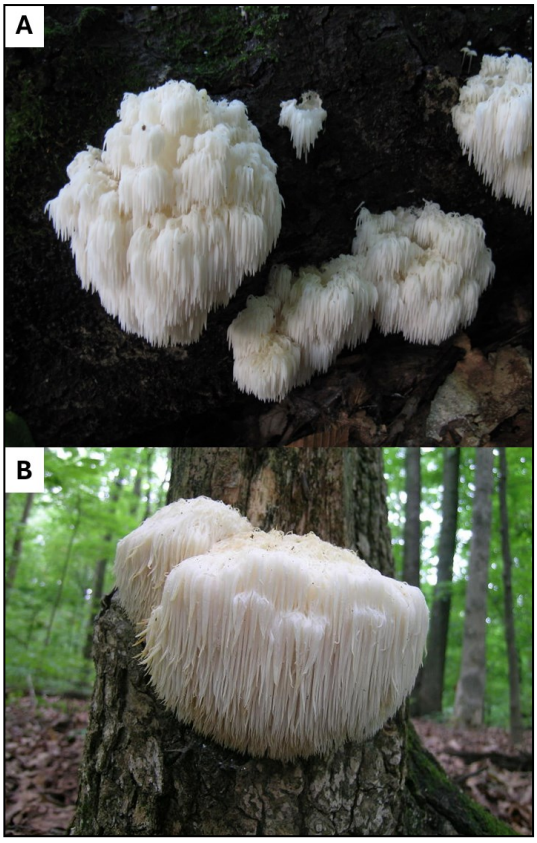

A. *Orgyia definita*, B. *Lophocampa caryae*. Photo credit: FPR Staff.

**Chaga** (*Inonotus obliquus*) was observed on a yellow birch (*Betula allegheniensis*) in Bennington County. Chaga most commonly infects yellow and paper birch (*B. papyrifera*), occasionally utilizing other hardwoods. Chaga infects live hosts, causing heart rot and forming a blackened, woody conk as the infection progresses. The conk will not produce spores until part or all of the tree has succumbed to the rot. Host mortality typically occurs between 10 and 80 years.

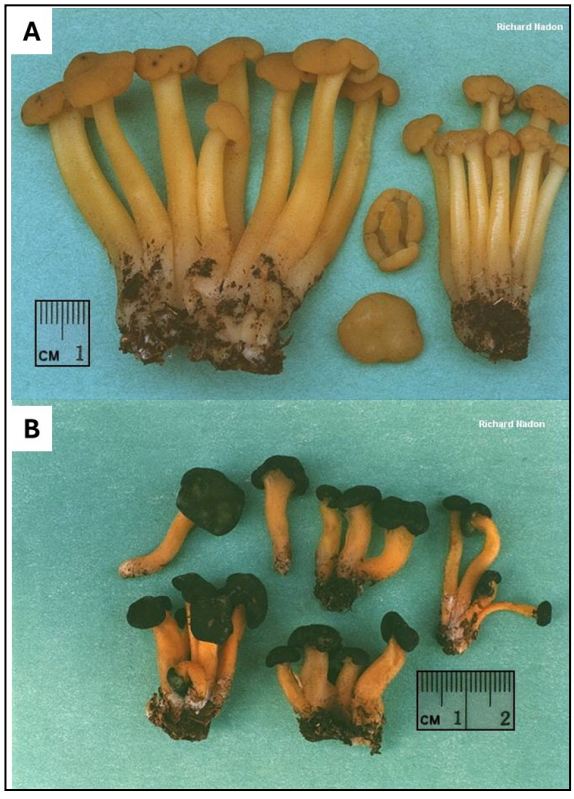
Chaga. Photo credit: FPR Staff.

## Foraging for Fungi

**Bear's head tooth** (*Hericium americanum*), also known as Vermont's Official State Mushroom, is an edible and saprotrophic fungus that can be found on hardwood trees in late summer through early fall. It has an irregularly shaped fruiting body comprised of a tightly branched structure with hanging spines that develops from a rooted base. The spines are white and hang 0.5-4cm down from the branches and gives off a white spore print. This fungus has an edible look-a-like, the **lion's mane** mushroom (*Hericium erinaceus*). Lion's mane is one, unbranched clump of mycelium, that is 8-16 cm wide with 1-5 cm long, with soft spines that hang down from a hidden base. It is also white with a white spore print.




**A:** Bear's head tooth. Photo credit: Ultimate Mushroom.
**B:** Lion's mane mushroom. Photo credit: Michael Kuo, MushroomExpert.

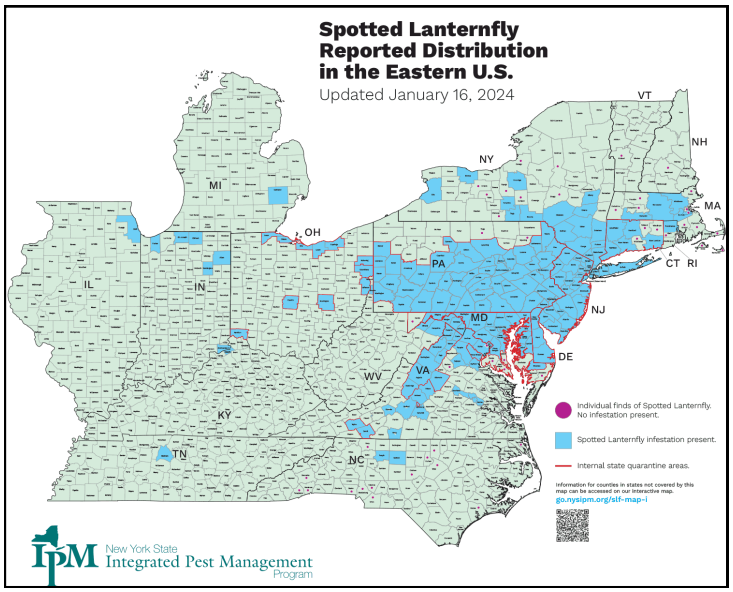



**A:** Jelly babies. **B:** Chicken lips. Photo credits: Richard Nadon, Mushroomexpert.

**Jelly babies** (*Leotia lubrica*), are a disputed edible, and are a saprotrophic fungi that can be found growing in clumps out of moss. This mushroom has an irregular shaped cap that is 1-4 cm wide and yellow to brown in color. The top of the cap is the spore producing surface and is therefor sticky and slimy when fresh. The stem is 2-8cm long and is slightly paler in color compared to the cap. The stem will bruise a dark green color when damaged, and can either be hollow or filled with a jelly-like material. These fungi can be confused with another disputed edible, **chicken lips** (*Leotia viscosa*). This mushroom is almost identical to the jelly babies, however has a dark green cap. Research is ongoing to try and determine if these are the same fungi with different morphological features. As with all wild mushrooms, there are risks to eating and misidentifying them which can be both dangerous and fatal. Always ensure you have the correct identification before consuming any wild edible. ***The State of Vermont accepts no liability or responsibility for the consumption and/or misidentification of any mushrooms mentioned in this publication.***

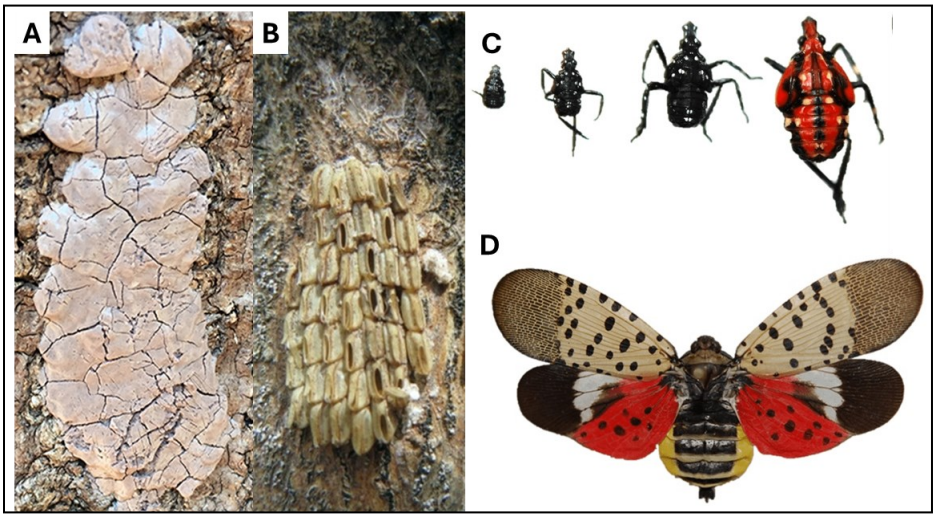
# Invasive Pest Spotlight: Spotted Lanternfly

Spotted lanternfly (SLF, *Lycorma delicatula*) is an invasive planthopper native to Asia that was first detected in the United States in Pennsylvania in 2014. Since then, this species has been reported as established with an infestation in 17 U.S. states and reported individually without infestation in two U.S. states, including Vermont.




Current distribution of SLF in the United States. Map and data credit: NY State Integrated Pest Management Program.

Although this invasive planthopper is a poor flyer, it can travel long distances using humans, hitching rides on surfaces including but not limited to, vehicles, firewood, nursery stock, and stone shipments. This insect has one generation per year consisting of an egg stage, four nymph instars and an adult stage. Fresh egg masses are laid in September with a mud-like protective covering to aid in overwintering. Individual egg masses contain 50-60 eggs that are laid in neat parallel rows. This insect feeds in both the nymph and adult stage, which extends the damage period from April through December. SLF has been reported on more than 70 plant species and can therefore drastically alter our forested and agricultural landscapes. SLF uses their piercing and sucking mouthparts to consume phloem in plant tissue. Heavy feeding can cause oozing, wilting, reduced growth, dieback, and mortality in infested hosts. Oozing/weeping wounds on plants in conjunction with SLF honeydew secretions attract sooty mold to infested plants. This black-colored mold covers the plant and SLF secretions and can reduce photosynthesis as well as attract other nuisance insects, like wasps, with its strong odor. For more information, or to report a sighting, visit VTInvasives.




**A:** Unhatched egg mass. Photo credit**:** Emelie Swackhamer, Penn State University, Bugwood. **B:** Partially hatched egg mass. Photo credit: Kenneth R. Law, USDA APHIS PPQ, Bugwood. **C:**Adult SLF. **D**: 1st– 4th instar nymphs. Photo credits: Lawrence Barringer, Pennsylvania Department of Agriculture.

## Invasive Plant Spotlight: Wineberry (*Rubus phoenicolasius*)

Wineberry (Rubus phoenicolasius), also commonly known as wine raspberry, dewberry, and Japanese raspberry, is a perennial, deciduous shrub that is a member of the rose family (Rosaceae) and shares many characteristics with its close relatives in the genus *Rubus*, such as raspberries and blackberries. Like raspberry, wineberry has silvery underleaves, a fruit core that remains on the stem when the ripe fruit is picked, and thorns. It is differentiated from other similar species by the fine red hairs that grow densely on its stems and flowers, giving the plant a reddish hue. Its fruit is edible, sweet and somewhat tart, and is a sought-after ingredient in many baking and cocktail recipes.

Wineberry stems, leaves, and fruit. Photo credit: Wouter Hagens

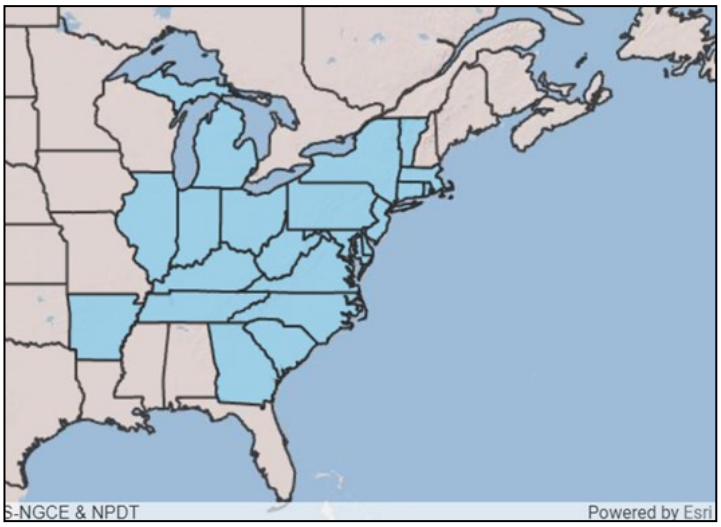
### Background

Wineberry is native to parts of Japan, Korea, and China, and was first introduced to the United States in the 1890s as breeding stock for raspberries. Because of this plant's highly desirable fruit, resistance to native pests, and high tolerance for varied site conditions, it is still used today by horticulturists, home gardeners, and berry breeders. However, the qualities that make this plant a highly competitive and hardy berry variety also contribute to its invasive characteristics in its current North American range. It is listed as invasive in many eastern U.S. states, including New York, Maryland, Pennsylvania, Tennessee, Virginia, North Carolina, West Virginia, and the District of Columbia. It was declared a Plant Pest in 2024 by the Vermont Agency of Agriculture, Food and Markets, which prohibits the import, sale, or movement of this plant.

### Habitat and Distribution

In the U.S., wineberry was found to have escaped cultivation and become an invasive weed by the 1970s; since then, it has spread and been recorded in most states east of the Mississippi River. Wineberry has a wide range of tolerance for light, soil type, and moisture level, and is hardy to USDA Zone 5 (annual minimum temperatures to -20F). Although it is most productive in edge habitat and disturbed sites, it is shade tolerant can be found in most habitat types, including forest understories. The extent to which wineberry associates with different plant communities has not yet been widely studied in Vermont, but wineberry forms

associations with a wide range of plant communities in the southern portion of its range where it has been established for longer periods of time. The website iNaturalist.org has three research grade confirmed reports of wineberry in Vermont; because of its limited statewide distribution, it has been identified as an early detection terrestrial plant species by VTInvasives.org. Members of the public are encouraged to report wineberry observations on the website's Report It! page.




North American distribution of wineberry. Photo credit: *USDA Plants Database* .

**Biology and Spread**

Like the closely related raspberries and blackberries, wineberry is a perennial shrub with stems that grow in long shoots. These canes can grow up to 6-9 ft long per season, and re-root at the tips when they touch the ground. Wineberry canes grow in two stages; in the first year they form a vegetative cane, and in the second year the cane becomes woody and produces lateral branches, flowers, and fruit. While the canes each live two years, the plant produces new canes every year. Leaves are produced in April, flowers in May, and fruit from late June to August; leaves drop in late November. Wineberry does not need pollen from another individual to set seed, and therefore may reproduce more easily than its native berry relatives. Seeds are readily eaten and dispersed by many animal species, and wineberry plants can also reproduce vegetatively from root nodes as well as from canes touching the ground.

Wineberry infestation in young forest understory . Photo credit: John M. Randall.

**Ecological Concern**

Wineberry can form dense, impenetrable thickets in natural areas, and similar to its native rubus relatives, often colonizes disturbed sites such as forest clearings where the canopy has been opened. However, it is more competitive than native raspberry and blackberry species and has a wider range of tolerance for light conditions, moisture level, and soil type. Wineberry thickets impede natural succession because they persist for longer and are able to spread into mature forest understories more than their native relatives. Once established, wineberry can shade out native understory plants such as tree saplings, impacting forest

regeneration. Because wineberry outcompetes similar native species, it also reduces the biodiversity and wildlife habitat value of natural areas. In addition, its persistent, tall, dense thickets of vegetation make travel difficult and can therefore greatly reduce the recreational value of an area.

## Identification

**Stems:** Long shoots/canes are vegetative in the first year, woody in the second. The stems/petioles are covered in red thorns and fine hairs.

**Leaves:** Alternate, divided into three leaflets, broadly ovate with pointed tips, serrated margins, undersides silvery white with dense hairs.

Wineberry stem with red hairs/thorns. Photo credit: Salicyna, Wikipedia Commons.

**Flowers:** Five white heart-shaped petals surrounded by five longer hairy green sepals. The arrangement of sepals is distinctly star-shaped.

**Fruits/Seeds:** Clusters of druplets (small parts of an aggregate fruit containing a single seed) ½" in diameter, shiny red with hollow centers.

Wineberry leaves. Photo credit: Richard Gardner.

## Management

For any invasive species control project, it is important to have a plan for the location before control begins. Disturbance without replanting often results in the return of either the same invasive species or other invasives to the site; have a restoration plan in place before starting invasive species removal.

**Manual Removal:** Although any root fragments may propagate new plants, wineberry does not have a vigorous underground root structure; this makes hand pulling or digging a more successful strategy than for some perennial invasive shrubs. Because wineberry is covered with thorns and spiny hairs, minimize skin contact during removal. A weed wrench or a pronged digging fork can be effective for pulling out whole plants and root systems. Repeated efforts over a few years will be necessary to remove plants that resprout from root fragments.

**Chemical Removal:** Wineberry can be controlled using systemic herbicides such as glyphosate or triclopyr. A foliar spray method of application can be useful in covering large or dense stands of vegetation but presents an increased likelihood for off-target impacts via herbicide spray drift. Conduct applications with little to no wind and an appropriate droplet size and spray pressure to minimize these risks. For smaller infestations, a more labor-intensive cut stump application method may be effective if it is timed later in the season; in the fall, plants are transporting their energy reserves to the root system, which aides in translocation of the herbicide. As with all pesticide use, follow all label application instructions and precautions, and wear appropriate personal protective equipment. The label is the law.

## Invasive Plant Phenology

In the second full week of each month, volunteers around the state observe and report invasive plant phenophases. Their observations are compiled here, creating both a timely resource for best management options and a historic record of plant behavior. Below are the various plants and phenological phases observed in six different counties. Observations from individuals within counties were combined. These observations when combined over several years may show trends or changes in when certain phenophases are observed. Monthly observations can be found on VTInvasives *Why Monitor Invasive Plant Phenology?*

**Observations taken week of September 8-14, 2024**

| County where observations were made. | Knotweed (*Fallopia/Reynoutria spp*) | Common Reed (*Phragmites australis*) | Barberry (*Berberis thunberii*) | Bittersweet (*Celastrus orbiculatus*) | Buckthorn, Common (*Rhamnus cathartica*) | Buckthorn, Glossy (*Frangula alnus*) | Honeysuckle (*Lonicera sp.*) |
|---|---|---|---|---|---|---|---|
| Addison | Leaves, Open Flowers | Leaves, Flower Buds/Flower Heads | not observe | not observe | Leaves, Ripe Fruit | Leaves, Ripe Fruit | Leaves |
| Caledonia | leaves, open flowers | Leaves, Flower Buds/Flower Heads | leaves, fruit, ripe fruit | leaves, fruit | Leaves, Fruit, Ripe Fruit | Leaves, Fruit, Ripe Fruit | Leaves |
| Chittenden | not observe | not observe | not observe | not observe | Ripe Fruit, Fruit or Seed Drop | Ripe Fruit, Fruit or Seed Drop | Ripe Fruit, Fruit or Seed Drop |
| Windham | Leaves, Increasing Leaf Size, Colored Leaves, Flower Buds/Flower Heads, Open Flowers | not observe | not observe | not observe | not observe | not observe | not observe |


FORESTS, PARKS & RECREATION VERMONT AGENCY OF NATURAL RESOURCES

**For more information, contact the Forest Biology Laboratory at 802-505-8259 or:**

Windsor & Windham Counties..... Springfield (802) 289-0613
Bennington & Rutland Counties..... Rutland (802) 786-0060
Addison, Chittenden, Franklin & Grand Isle Counties..... Essex Junction (802) 879-6565
Lamoille, Orange & Washington Counties..... Barre (802) 476-0170
Caledonia, Orleans & Essex Counties..... St. Johnsbury (802) 751-0110



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