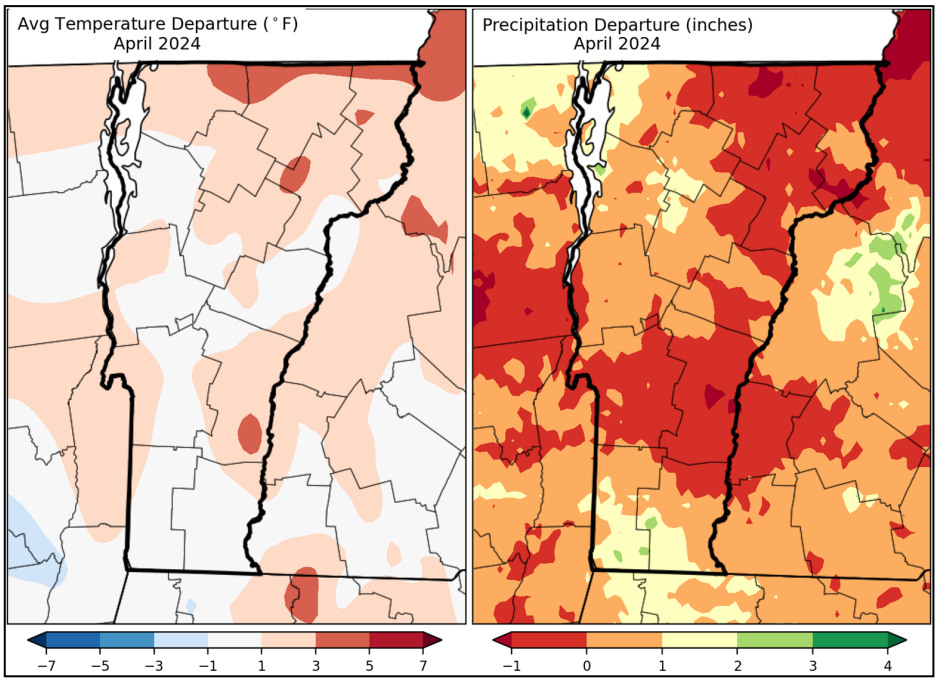
Vermont Forest Health

Insect and Disease Observations

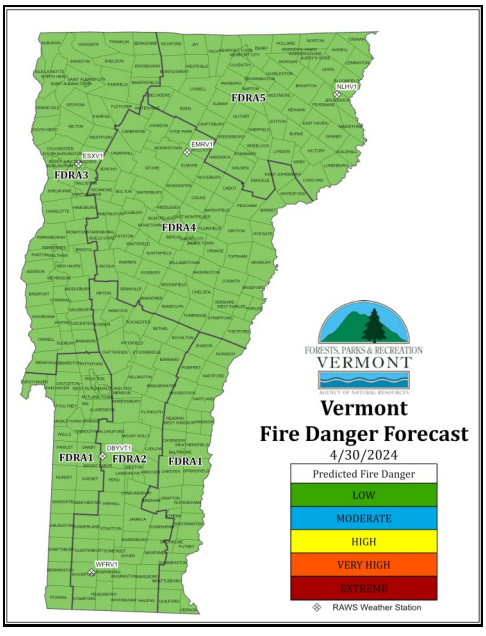
April 2024 | Department of Forests, Parks, and Recreation

Weather

On average, this month was slightly warmer and much dryer than last April. Statewide temperatures averaged 45.38°F, which was 0.38 degrees warmer than April of last year. Statewide precipitation averaged 0.13in., which was 3.9in. less than last year.



Average temperature and precipitation departure from normal. Maps and data: Northeast Regional Climate Center and the University of Utah.



Fire Update

The Vermont wildland fire season has started, with 27 fires and 38.11 acres burned statewide since January of this year. Generally, spring fire season begins shortly after snowmelt when weather conditions are favorable for drying wildland fuels, dead grasses, leaves and twigs. Clean-up after a long winter season generates a great deal of debris burning activity. Most Vermont wildland fires occur between the end of March and the beginning of June. Click here to sign up for the Vermont Fire Danger notification service.

End of the month fire danger. Map and data: FPR

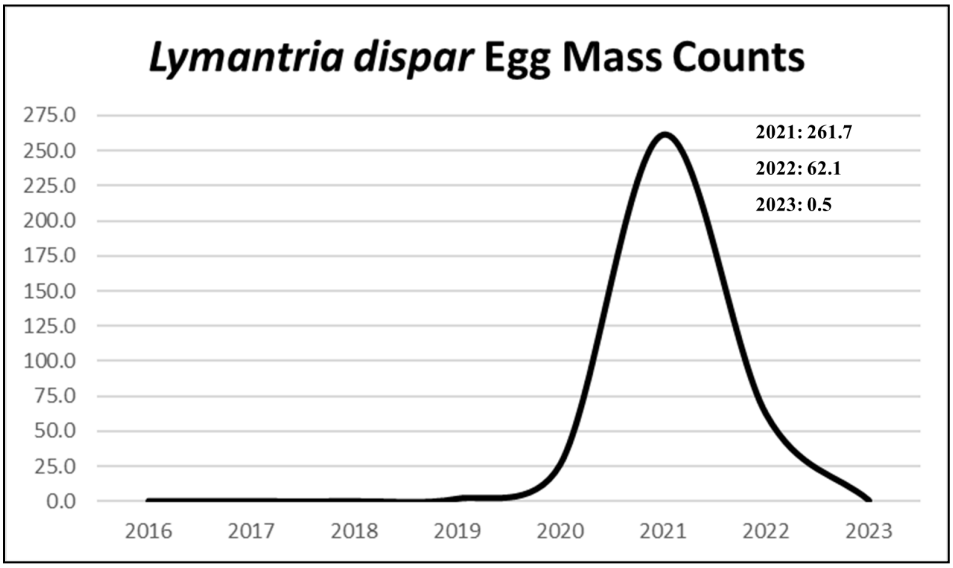
EAB Biocontrol Update

Emerald ash borer (EAB, *Agrilus planipennis)* parasitoid cocoons were observed at L.R. Jones State Forest in Plainfield this month. This site received three total species of biocontrol agents, *Tetrastichus planipennisi*, *Spathius galinae,* and *Oobius agrili* between 2020 and 2022. The presence of these cocoons indicate that a population of parasitoids was able to reproduce and establish on-site following initial releases. Collectively, these parasitic wasps are effective in reducing the number of EAB larvae by 50% or more. The goal of these releases is not to eradicate EAB, but to establish a self-sustaining population of the parasitic wasps that will improve ash regeneration and lessen the impact of EAB in infested areas in Vermont.

EAB parasitoid cocoons. Photo credit: FPR Staff.

Spongy Moth Update

The most recent spongy moth (*Lymantria dispar*) outbreak which started in 2021, is predicted to have ended. This hardwood defoliator was responsible for the largest disturbance to Vermont forests in 2021 and 2022, with populations crashing in 2023 and expected to stay low in 2024. The Forest Health team monitors spongy moth populations and predicts outbreaks in two ways; by egg mass surveys and by conducting aerial surveys of defoliation. Egg mass surveys in 2023 in 9 long-term monitoring plots were considerably lower than 2022 with an average of 0.5 egg masses per plot, compared to 62.1 egg masses per plot in 2022. Aerial survey results during the 2023 growing season were also a predictor of low populations with only 98 acres of defoliation mapped. For comparison, there were 50,945 acres of defoliation mapped in 2021, followed by 42,797 acres in 2022. Although we are not predicted to see widespread defoliation in 2024, since spongy moth is an invasive pest, they will continue to be present in Vermont and may cause occasional local defoliation outside of outbreaks.



Egg mass counts 2016-2023. Photo and data credit: FPR Staff.

Supplemental Sightings

Eutypella canker of maple (*Eutypella parasitica*) was observed on sugar maple in Washington County. This native pathogen causes perennial cankers to form within 10-12 feet from the ground on branches and the main stem of maple trees. Eutypella cankers can girdle trees as they grow in size which can lead to dieback and mortality. Additionally, these cankers may be the point of failure in extreme weather.

Eutypella canker of maple. Photo credit: Joseph O' Brien, USDA Forest Service, Bugwood.

Sugar maple borer (*Glycobius speciosus*) damage was observed on sugar maple (*Acer saccharum*) in Caledonia County. As larvae, this native borer excavates "J-shaped" galleries that can aid in girdling trees and promote stem decay in host trees. This pest tends to increase in activity following defoliation events. Although not a common cause of mortality, galleries and associated damages can significantly reduce lumber quality.

Sugar maple borer damage. Photo credit: FPR Staff.

Spider mite (Tetranychidae) damage was observed on hemlock trees (*Tsuga canadensis*) in Orange County. These mites can be found on many plant species, and typically increase in population when the environment is hot and dry. Spider mites cause minimal damage to trees, but some species can cause severe damage to agricultural crops.

Spider mite damage. Photo credit: FPR Staff.

Emerald ash borer (EAB, *Agrilus planipennis*) was detected for the first time in the towns of Dorset and Thetford this month. These new towns expanded the infestation severity into neighboring towns, and also increased the infestation severity of already affected towns. For additional resources including managing ash, and reporting a sighting, visit VTInvasives.

EAB galleries. Photo credit: FPR Staff.

Spring beauty rust, causal agent *Puccinia mariae-wilsoniae*, was reported on spring beauty (*Claytonia* spp.) in Orange County. This native pathogen requires two hosts to complete its life cycle, the primary host spring beauties, and an alternate host, miner's lettuce (*Montia* spp.). Although this rust infects both native species of spring beauty, varieties with red flowers are more prone to infection.

Spring beauty rust. Photo credit: FPR Staff.

Eastern comma (*Polygonia comma*) was observed in Caledonia County at the end of this month. In the forest, the larval stage of this native defoliator feeds on nettles (*Urticaceae*) and American elm, (*Ulmus americana*) and in agricultural settings, on hops (*Humulus* spp.) where it causes light defoliation of hosts. As adults, they feed on tree sap and decaying fruit. Although present from spring through the fall, this butterfly is easily overlooked since it camouflages in with the leaf litter when its wings are closed.

Eastern comma. Photo credit: Steve Morris, BugGuide.

Pear thrips (*Taeniothrips inconsequens*) have started emerging in most parts of the state. This invasive insect feeds on buds and young leaves of maple (*Acer* spp.) and other hardwoods starting in early spring. Heavy pear thrips damage causes leaves to be dwarfed, mottled yellow to brown and distorted. This damage can lead to a thin canopy and may result in premature leaf drop.

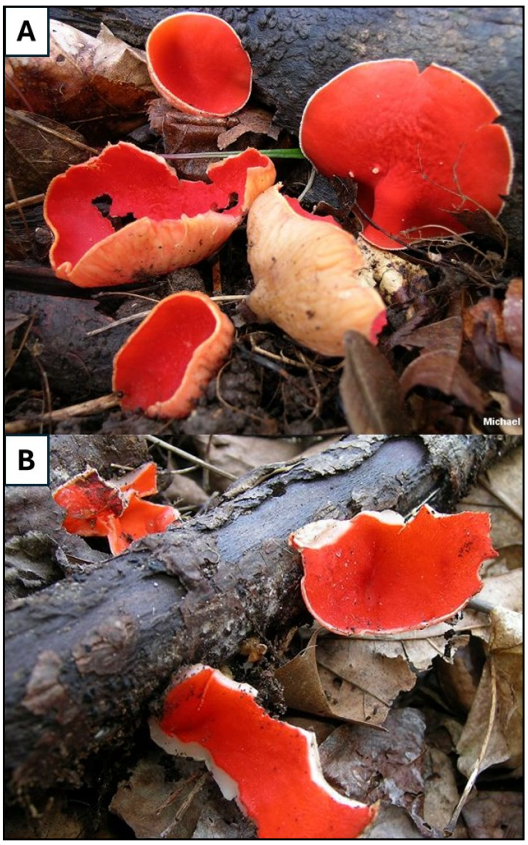
Pear thrips on a sticky monitoring trap. Photo credit: FPR Staff.

Red-necked false blister beetle (*Asclera ruficollis*) was observed among the trout lilies (*Erythronium americanum*) in Caledonia County. Since this adult beetle consumes flower pollen, large numbers of adults may be observed in spring and summer when food is most readily available. Like other blister beetles, this species can causes blisters of the skin in humans.

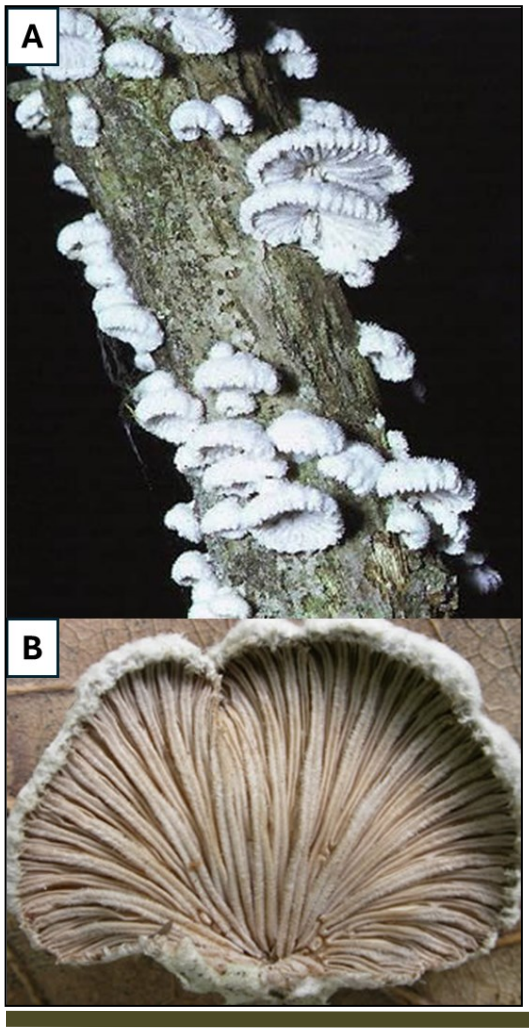
Red-necked false blister beetle. Photo credit : Bo Zaremba, BugGuide.

Foraging for Fungi

Scarlet elf cup (*Sarcoscypha austriaca*) is a saprotrophic mushroom that can be found on decaying hardwood trees. Although not a poisonous mushroom, it is controversially recorded as edible, inedible, and suspect depending on what field guides you are referencing. The fruiting body is usually a cup or disk shaped and has a bright red surface when immature, fading in color, and becoming wrinkled with age. The underside of the fruiting body is whitish pink to orange in color. This mushroom is 2-7 cm wide and has an absent or rudimentary stem that is up to 3 cm long and has a white spore print. This mushroom has also a controversially recorded edible look-a-like the crimson cup (*Sarcoscypha dudleyi).* This mushroom is only differentiated from the scarlet elf cup by microscopic details.



A: Scarlet elf cup. **B:** Crimson cup. Photo credits: Michael Kuo, Mushroomexpert.



Split gill mushroom (*Schizophyllum commune*) is an edible mushroom that is saprotrophic on hardwood trees, and occasionally parasitic to humans. It can be found year-round, dehydrating into dormancy until the humidity is more favorable. Its cap is irregularly fan to shell-shaped and is 1-4 cm across. The cap is fine to densely hairy and ranges in color from white to brown to greyish. The underside of the cap has radial gill-like folds that are centrally split and are used to cover the reproductive structures when dehydrated. The gills are white to pinkish grey and produce a white spore print. This mushroom has no reasonable look-a-likes. 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.***

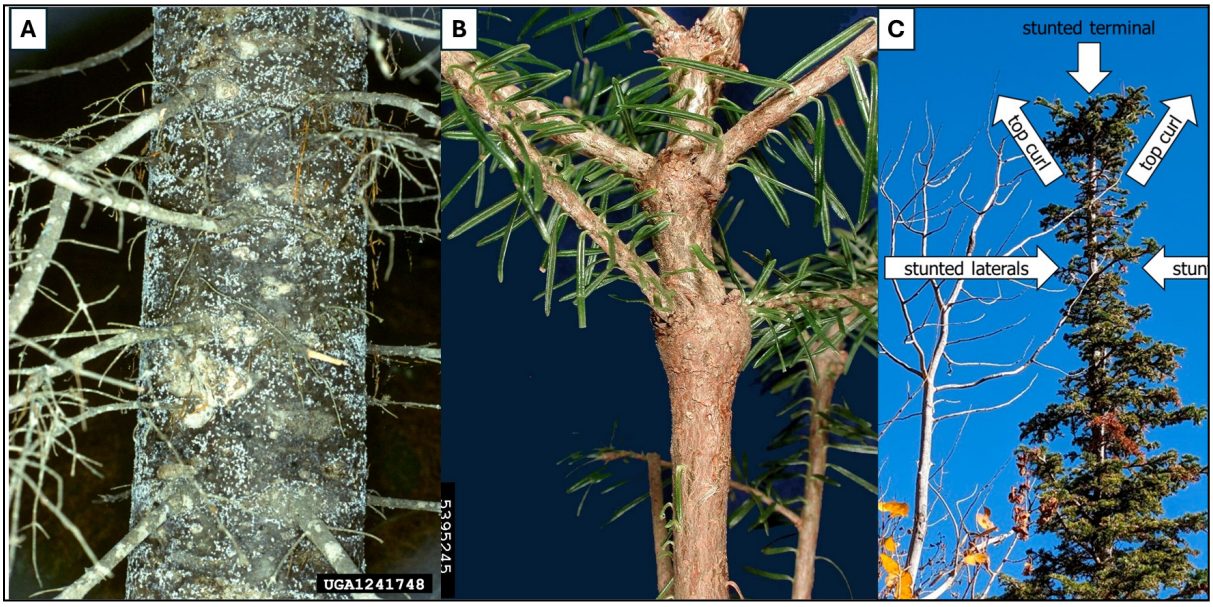
A: Split gill mushrooms**.** Photo credit: Larry Grand, Messiah University. **B:** Close up of split gills. Photo credit: David Work, Messiah University.

Invasive Pest Spotlight: Balsam Woolly Adelgid

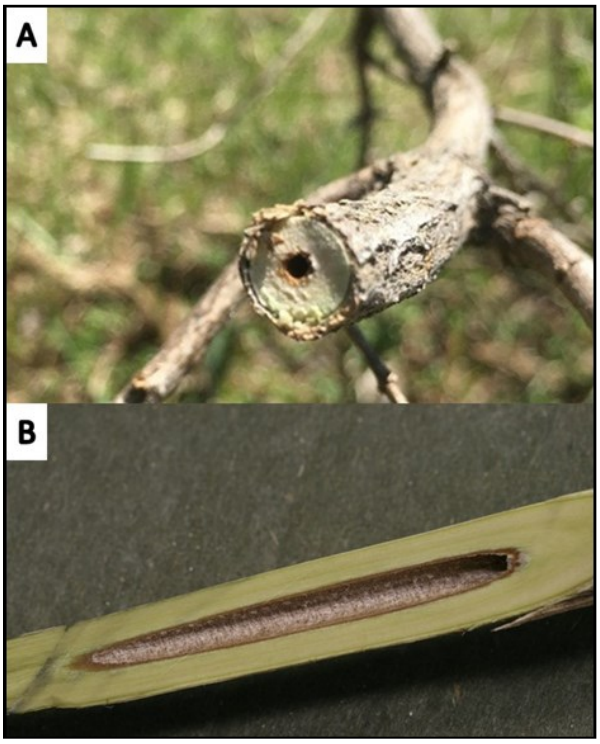
Balsam woolly adelgid (BWA, *Adelges piceae*), is an invasive sapsucking insect that feeds on true firs (*Abies* spp.). This invasive pest was first documented in North America in Nova Scotia, Canada in 1910 where it is believed to have been introduced through contaminated nursery stock from Europe. Today BWA is present in 16 U.S. states, including Vermont where it was first observed in 1930.

Current known range of BWA. Map and data: USDA Forest Service.

The North American population of BWA is entirely female and has two asexual generations a year. When populations are low, BWA can be found in and around bark fissures and branch collars, and when populations are high they can be found on all bark-covered surfaces. This insect uses its piercing and sucking mouthparts to consume phloem tissue in infested hosts. As BWA is feeding, they inject digestive enzymes into the host which results in abnormal growth/ swollen areas also known as “gouting” on branches and “rotholz” on the main bole. This stunting causes girdling of branches and the main stem which contributes to needle loss and dieback of infested hots. This dieback can cause the tree to have a “fiddle-shaped” appearance. Although an invasive insect, BWA has a scattered and presence in VT due to their low mobility and reliance on wind dispersal as well as their cold vulnerability, which causes populations to drop following cold winters. Due to this cold sensitivity, the highest populations of BWA can be found on protected areas of the lower trunk. BWA has varying management techniques which can range from shortening rotation ages in forested settings, removing infested hosts in Christmas tree farms, and treating infested trees with insecticides in urban settings. For more information, visit VTInvasives.



A: BWA on bole. Photo credit: Scott Tunnock, USDA Forest Service. **B:** Gouting. Photo credit: FPR staff. **C:** Fiddle-shaped symptom. Photo credit: Micheael Campbell, University of Utah.



All four invasive honeysuckles have hollow/brown piths, while the locally evolved honeysuckles have solid/white piths. Photo credit: (A) FPR staff, (B) Chris Evans, University of Illinois, Bugwood.

Invasive Plant Spotlight: Honeysuckle

In New England, many members of the honeysuckle family (*Caprifoliaceae*) are present. According to the Online Etymology Dictionary, the term honeysuckle comes from Middle and Old English words indicating the action of sucking the nectar from tubular flowers (honeysouke, hony soukil) most likely a reference at first to red clover and eventually to vines and shrubs. In Vermont, you can find multiple examples of honeysuckle, including locally evolved plants like fly honeysuckle (*Lonicera canadensis*), and bush-honeysuckle (*Diervilla lonicera*), and several species of the genus Lonicera that are considered invasive in Vermont, including amur honeysuckle (*L. maackii*), Morrow's honeysuckle (*L. morrowii*), and tatarian honeysuckle (*L. tatarica*). Also present is a hybrid crossed from Morrow's and tatarian honeysuckle that escaped cultivation – Bell's honeysuckle (*Lonicera x bella*). The genus *Lonicera* contains shrubs and vines, but the more common invasive honeysuckles in Vermont are woody shrubs. The leaves are arranged oppositely and are generally oval-shaped with a rounded or pointed tip. Honeysuckle flowers and fruits are also similar in appearance and occur twinned from the leaf axils. These plants are all fairly tall, reaching upwards of 8'-20' in height. While tatarian was introduced to the United States in 1845 and Morrow's in 1860, there isn't a clear picture of how Bell's honeysuckle came to be, or exactly when/where it was introduced. It is understood that the hybrid was a cultivated cross, but it is also possible that the hybrid occurs spontaneously in North America where the parent species co-occur. Identification is complicated because the hybrid hosts traits that overlap with both parent species. In fact, it was discovered that a fair number of botanical records for the parent species were misidentified samples of Bell's honeysuckle. In some states, it is believed that Bell's honeysuckle may be more prevalent than either parent species.

The hybrid Bell's honeysuckle is a tall shrub with white to pink flowers which turn yellow as they wither. Photo credit: Leslie J. Mehrhoff, University of Connecticut, Bugwood.

Both of Vermont's locally evolved honeysuckles are widely distributed across the state, and at a glance, offer similar characteristics as the invasive honeysuckles. To differentiate those from the invasive honeysuckles, break off a branch of older growth (indicated by the shaggy, brown-grey bark) to observe the center of the stem (pith). The fly and bush-honeysuckles have a solid white pith, whereas all the invasive shrub honeysuckles have brown, hollow piths. Other distinguishing features to differentiate include looking at the leaves—those of the bush-honeysuckle have a serrated leaf edge while the invasives have a smooth edge; fly honeysuckle leaves have a smooth texture and the growth form is much smaller and less dense. Here are a few ways to distinguish the invasive honeysuckles from each other:

Leaf shape

- Amur honeysuckle ranges from elliptic to ovate to lanceolate with a long, tapered tip.
- Morrow's honeysuckle ranges from oval to elliptic to ovate with a blunt pointed tip.
- Tatarian honeysuckle ranges from ovate to oblong with a blunt pointed tip.
- Bell's honeysuckle is typically ovate with a blunt pointed tip.

Comparison of hybrid and parent species of honeysuckle. Left to Right: Morrow's, Bell's, and tatarian honeysuckle leaves and flowers. Photo credit: Leslie J. Mehrhoff, University of Connecticut, Bugwood.

Leaf hairs on the lower surface

- Amur honeysuckle is pubescent (hairy).
- Morrow's honeysuckle is densely pubescent.
- Tatarian honeysuckle is glabrous (lacks hairs).
- Bell's honeysuckle is slightly pubescent.

Flower color and fruit

- Amur honeysuckle flowers are white fading to yellow turning to dark red fruit.
- Morrow's honeysuckle flowers are white fading to yellow turning to red fruit.
- Tatarian honeysuckle flowers range from white to pink and don't fade to yellow, the fruit is red and occasionally orange or yellow.
- Bell's honeysuckle flowers range from white to pink fading to yellow turning to somewhat red fruit.

These invasive shrubs can be found across Vermont, but the hybrid may be under reported because of the similarities with the parent species and the potential of hybridization. All four invasive shrubs grow densely in the understory of forests or along fields and forest edges, which shades out and excludes locally evolved plants, and changes habitat and food resources for wildlife. Though the physical structure of the shrubs can provide habitat and the fruit is plentiful, neither are ideal for wildlife – with the lower branching nature making predation easier on nesting birds, and the fruit lacking nutrition needed by locally evolved birds and mammals. These negative impacts are why amur, Morrow's, tatarian, and Bell's honeysuckle are listed as Class B Noxious Weeds in Vermont.

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. This project aspires to include observations from every county, so observers are still needed in multiple places. If you would like to be involved in this effort please contact Kathy.Decker@vermont.gov.

County	Garlic mustard (*Alliaria petiolata*)	Knotweed (*Fallopia/Reynoutria spp*)	Wild Parsnip (*Pastinaca sativa*)	Buckthorn, Common (*Rhamnus cathartica*)	Buckthorn, Glossy (*Frangula alnus*)	Honeysuckle (*Lonicera sp.*)	Multiflora Rose (*Rosa multiflora*)
Addison	Initial Growth, Leaves, Flower Buds/Flower Heads		Initial Growth, Leaves	No phases observed	No phases observed	Initial Growth, Breaking leaf buds, Leaves	Initial Growth
Caledonia				No phases observed	No phases observed	Breaking leaf buds, Leaves	
Chittenden	Initial Growth, Breaking leaf buds, Leaves, Increasing Leaf Size	Initial Growth		Initial Growth	Initial Growth	Initial Growth, Breaking leaf buds, Leaves, Increasing Leaf Size	Initial Growth, Breaking leaf buds, Leaves
Windsor						Initial Growth, Breaking leaf buds	

FORESTS, PARKS & RECREATION VERMONT AGENCY OF NATURAL RESOURCES

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

Windsor & Windham Counties……..
Bennington & Rutland Counties……..
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Lamoille, Orange & Washington Counties……..
Caledonia, Orleans & Essex Counties……

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