

Plant Health Care Report

Scouting Report of The Morton Arboretum



May 20, 2016

Issue 2016.4

Welcome to the Plant Health Care Report (PHCR) for 2016. My name is Sharon Yiesla. I am on staff at The Morton Arboretum Plant Clinic and I will be responsible for compiling the newsletter again this year. Send comments regarding the Plant Health Care Report to me syiesla@mortonarb.org.

Our report includes up-to-date disease and insect pest reports for northeastern Illinois. You'll also find a table of accumulated growing degree days (GDD) throughout Illinois, precipitation, and plant phenology indicators to help predict pest emergence. Arboretum staff and volunteers will be scouting for insects and diseases throughout the season. We will also be including information about other pest and disease problems based on samples brought into The Arboretum's Plant Clinic.

We are continuing to use last year's format: full issues alternating with growing degree day issues; focus on more serious pests; minor pests covered in shorter articles; alerts issued for new major pests. Readers who received our email blasts in the past will continue to receive one weekly, either to announce that the newsletter is available or, on alternate weeks, that the growing degree day information is available. To be added to the email list, please contact me at syiesla@mortonarb.org

Quick View

What indicator plant is in bloom at the Arboretum?

Bridal wreath spirea (*Spiraea x vanhouttei*) is in bloom (fig. 1)

Accumulated Growing Degree Days (Base 50): 209 (as of May 19)

Accumulated Growing Degree Days (Base 30): 1524.5 (as of May 19)

Insects

- Viburnum leaf beetle
- European pine sawfly
- Spittlebug on pine
- Pine bark adelgid
- Cankerworm
- Green fruitworm
- Rose slug sawfly
- Galls, episode 1
- More aphids
- Oystershell scale

Diseases

- Anthracnose on shade trees
- Anthracnose on hosta

Weeds

- Poison hemlock



Figure 1 Bridal wreath spirea

Degree Days and Weather Information

We are adding a new location, Lisle, on the GDD list this year. Although we have our own weather station here at the Arboretum, we have noted that the Lisle weather station GDD often differs from our readings. So we are offering Lisle readings right above the Arboretum readings. This just goes to show that temperatures can vary over a short distance, which means growing degree days can be quite variable as well.

As of May 19, we are at 209 base-50 growing degree days (GDD). The historical average (1937-2013) for this date is 203 GDD₅₀.

Location	B ₅₀ Growing Degree Days Through May 19, 2016	Precipitation (in) May 13-19, 2016
Carbondale, IL*	687	
Champaign, IL*	447	
Chicago Botanic Garden**	140.5 (5/18)	1.34ö (5/12-18)
Chicago O'Hare*	279	
Kankakee, IL*	322	
Lisle, IL*	302	
The Morton Arboretum	209	.78ö
Northbrook, IL**	No report	
Quincy, IL*	537	
Rockford, IL*	222	
Springfield, IL*	490	
Waukegan, IL*	172	

**Thank you to Mike Brouillard, Northbrook Park District and Chris Beiser, Chicago Botanic Garden, for supplying us with this information.

*We obtain most of our degree day information from the GDD Tracker from Michigan State University web site. For additional locations and daily degree days, go to <http://www.gddtracker.net/>

How serious is it?

This year, articles will continue to be marked to indicate the severity of the problem. Problems that can definitely compromise the health of the plant will be marked “serious”. Problems that have the potential to be serious and which may warrant chemical control measures will be marked “potentially serious”. Problems that are seldom serious enough for pesticide treatment will be marked “minor”. Articles that discuss a problem that is seen now, but would be treated with a pesticide at a later date, will be marked “treat later”. Since we will cover weeds from time to time, we’ll make some categories for them as well. “Aggressive” will be used for weeds that spread quickly and become a problem and “dangerous” for weeds that might pose a risk to humans.

Pest Updates: Insects

Viburnum leaf beetle (potentially serious)

Our scouts verified that the larvae (fig. 2) of viburnum leaf beetle are feeding. We covered this pest in Issue 3, but will repeat some of that information here since this pest has the potential to be very serious.



Figure 2 Viburnum leaf beetle larva

The larvae are small (1/4 inch) and vary in color. They may be pale green, pale orange or yellow. They do have a distinctive pattern of black spots along their sides and a row of black dashes running down their backs. At maturity, the larvae are a little less than half an inch long. The larvae chew on the undersides of new foliage.

When mature, the larvae crawl to the ground, usually in mid-June, and pupate in the soil. Adults emerge from the soil (early July) and also chew on the leaves. Their feeding damage forms irregular round holes in the leaves. The beetles are about ¼ inch long and generally brown in color. On close inspection golden hairs can be seen on the wing covers of the adult beetle. The adult beetles will be mating and laying eggs from summer into fall. There is one generation of the beetle each year. Heavy and repeated defoliation by the viburnum leaf beetle can lead to death of the shrubs.

Management: Insecticides can be used on the larvae in May/June when they are feeding and on the adults in summer when they are feeding. Some university websites are suggesting these insecticides: spinosad, insecticidal soap (for larvae only), acephate, carbaryl, cyfluthrin or malathion. Cornell University also suggests a single soil application of imidacloprid in spring (not summer) to control adults this summer. From October through April twigs with eggs in them can be pruned out and destroyed.

European pine sawfly (minor)

We mentioned European pine sawfly (*Neodiprion sertifer*) earlier this year when our scouts found eggs in the needles. Now the larvae (fig. 3) are feeding. This insect can cause heavy defoliation on red, Scots, mugo, Japanese red, and jack pines. European pine sawflies are interesting to watch. Groups of sawfly larvae rear up their heads simultaneously when disturbed, making the group appear to be one much larger organism. This is a great defense mechanism. When fully grown, the sawflies will be about ¾ - 1



Figure 3 European pine sawfly larvae

inch long and will have several light and dark green stripes on each side of their bodies. Their heads and the three pairs of legs are black. Their mouths are so small after hatching that they can only eat one side of each needle, and therefore the chewed-on needles look like straw. Eventually as the insects mature, they are able to eat entire needles. The larvae feed for weeks on old conifer needles but are finished feeding before current year's needles emerge. They then drop down into the ground to pupate, emerging in September as adults to mate and lay eggs in the current year's needles.

Management: Birds feed on the larvae and rodents eat the pupae in the soil, but these predators are usually inadequate to control the larvae. Larvae can be removed by hand or washed off with a strong stream of water from the garden hose. They have no hooks on their feet like caterpillars do, so they can't hang on very well. Since European pine sawfly larvae are not caterpillars, *Bacillus thuringiensis* var. *kurstaki* (Btk) does not control them.

Good websites:

<http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-pests/pine-sawflies>

Spittlebug on pine (potentially serious)

Spittlebugs are fairly common in our area and most of them are not of much concern. However, the spittlebugs found on conifers can do significant damage if the population is high. Our scouts have identified spittlebug on white pine. Spittlebugs can be identified by the frothy white mass (fig. 4) they produce on foliage and twigs. The spittle, consisting of plant juices, is made by the immature bug to keep it moist and protect it from its enemies. Spittlebugs suck plant sap. On conifers, large populations can lead to stunting or death of shoots. Damage is most serious on younger trees.



Figure 4 Pine spittlebug

Management: On most plants, control of spittlebug is rarely necessary, but hosing the plants down forcefully with water is usually sufficient to remove most of the insects. This may need to be repeated a few times. For conifers, an insecticide may be needed to prevent damage to the tree.

Good website:

http://entomology.osu.edu/bugdoc/Shetlar/factsheet/christmasstree/pine_spittlebug.htm

Pine bark adelgid (minor to potentially serious)

Our scouts are reporting pine bark adelgid on white pine (*Pinus strobus*) this week. Pine bark adelgid (*Pineus strobi*) adult females secrete a protective white, woolly mass (fig. 5), which covers the light-yellow eggs and can be found at the base of needles and on the bark of limbs and trunks. This pest has five generations per year. The adelgid prefers white pine but also attacks Scots and Austrian pines. Healthy trees are not usually harmed by this adelgid, but high populations may require treatment.



Figure 5 Pine bark adelgids

Management: In mild cases, eggs and crawlers can be washed off now with a high-pressure water spray. In severe or repeated infestations, an insecticidal spray can be applied when the crawlers are out. Lady beetles, hover flies, and lacewings feed on adelgids, so if these predators are present, it is best to use an insecticidal soap or high pressure water spray.

Cankerworm (minor)

Spring cankerworm (*Paleacrita vernata*) has been found on dotted hawthorn (*Crataegus punctata*). Commonly known as the ‘inchworm’, cankerworms are in the same family as loopers and have a characteristic ‘looping’ form of movement.



Figure 6 Cankerworm

Spring cankerworm caterpillar eggs are laid in early spring. Eggs hatch at their host’s budbreak. Full-grown cankerworms are about one inch long and range in color from yellow-green to black (ours looked like the one in fig. 6, but in the past we have seen green ones like the one in fig. 7). Cankerworms feed on the buds and new leaves of host trees in spring, eventually devouring all but the midrib of a leaf, and often defoliating an entire tree. Currently, small holes are being seen in the leaves. Trees suffering from a heavy defoliation will usually produce a second crop of leaves, but their overall vitality may be diminished. Cankerworms infest many deciduous trees and shrubs.



Figure 7 cankerworm

Management: Light infestations are not harmful to tree health, and natural enemies such as flies, wasps, and birds help to control the cankerworm populations. Heavy infestations can be controlled with *Bacillus thuringiensis* var. *kurstaki* (*Btk*) or other insecticides. To obtain good results, *Btk* or insecticides should be applied when larvae

or feeding damage is first noticed in the spring.

Good website: <http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-pests/cankerworms>

Green fruitworm (minor)

The green fruitworm (*Lithophane antennata*) has been found on dotted hawthorn (*Crataegus punctata*) and red oak (*Quercus rubra*). Fruitworms are usually associated with fruit trees, but can attack a wide variety of woody hosts. The green fruitworm is marked by white stripes and distinct white spots. It is a minor pest that will be present only for a short while (through mid June or so). Just a side note: a green fruitworm showed up while I was examining a cankerworm under the microscope. The cankerworm, which was half the size of the fruitworm, reared up and smacked the fruitworm in the head and sent him packing. Be careful out there. Nature plays rough.

Management: Handpicking will control them. Also *Bacillus thuringiensis* var. *kurstaki* (*Btk*) can be used to control young larvae, but is not as effective against older larvae.

Good websites: <http://bugguide.net/node/view/4865>
<http://bugguide.net/node/view/29931>

Rose slug sawfly (minor)

Rose slug sawfly (*Endelomyia aethiops*) larvae have been seen on roses. They feed on the upper layers of the leaf, leaving behind the lower epidermal layer and creating a "window pane" effect (fig. 8). The larvae are greenish yellow with orange heads and are about ½ inch long when fully grown. They resemble caterpillars but are not. They are covered in slime that helps protect them from predators. When larvae mature, they lose their slimy coverings. Around mid-June, larvae will drop to the ground to pupate.



Figure 8 Rose slug sawfly and damage

Management: Minor infestations of rose slug sawfly can be controlled by using a forceful jet of water to dislodge the sawfly larvae or by handpicking. Although this insect looks like a caterpillar, it is not, so *Bacillus thuringiensis* (*Bt*) will NOT control this pest.

Good website: <http://hort.uwex.edu/articles/roseslug-sawfly>

Galls, episode 1 (minor)

Every year, we see a steady stream of galls on a wide variety of plants. The vast majority of these cause no injury to the plant, and no controls are needed. We like to feature them so that you can recognize them and know that they are not serious. Here are this issue's contestants:

Maple bladder gall (fig. 9) is being reported on the leaves of silver maple (*Acer saccharinum*) and red maple (*Acer rubrum*). The galls look like small round red beads. They are caused by eriophyid mites (*Vasates quadripedes*) that overwinter in bark crevices. The mites become active in spring and migrate to feed on expanding leaf buds. The feeding induces formation of galls on leaves.

Spindle gall (fig.10) has been found on American linden (*Tilia americana*). This gall, true to its name, is spindle-shaped. It starts out green and turns red. Like maple bladder gall, it is caused by an eriophyid mite (*Eriophyes tiliae*).

More aphids (minor)

In Issue 3 we reported aphids on viburnums. This looks like it may be a good year for aphids. Our scouts are now reporting the hazel aphid (*Myzocallis coryli*) on American hazelnut (or filbert, if you prefer) (*Corylus americana*). This sample came in last week and the insects were so tiny that the microscope was needed to see the cornicles on the back end of the insect (cornicles look a bit like twin tail pipes). A staff member also brought in woolly aphids (fig. 11) on beech (*Fagus sylvatica*). These were a bit larger, but were just starting to produce the 'wool' that covers their bodies. There were also some winged specimens in this population.

Management: Aphids are relatively easy to manage. Some species do not stay with a particular plant for the whole season. By the time the damage is noticed, the insects may have moved on. Aphids tend to feed in groups at the ends of branches. Clipping off those branch



Figure 9 Maple bladder gall



Figure 10 Spindle gall on linden



Figure 11 Woolly aphids on beech

ends can get rid of the whole population quickly. Spraying the plant with a strong stream of water from the garden hose may also dislodge much of the population. There are also natural predators, like lady bugs, that will feed on aphids, so avoid insecticides and let the good insects do their job.

Oystershell scale (potentially serious)

Oystershell scale (*Lepidosaphes ulmi*) was reported by a staff member just this week. It was found on cotoneaster, but this scale attacks over 130 trees and shrubs including lilac, beech, and viburnum. The scale overwinters on stems as eggs under the females' waxy scale cover, which closely resembles one-half of an oyster shell (fig. 12). In late spring, minute pale-yellow crawlers emerge and attach themselves to the bark of twigs and branches to feed. We noted on our sample that the crawlers are just beginning to emerge. As crawlers mature, they develop



Figure 12 Oystershell scale

their scale cover. The fully developed scale cover is elongated, curved, and is about one eighth of an inch long with brown or gray concentric bands. Adults cluster together and in severe infestations may cover the bark of branches completely. Oystershell scale feeding causes cracked bark and chlorotic, stunted foliage. Twig and branch dieback occurs in heavy infestations. Occasionally, a plant will die from an infestation.

Management: Reduce scale population by pruning out heavily infested branches. For oystershell scale, insecticidal soaps, summer oils, or insecticides should be applied when bridal wreath spirea is in bloom (which it is now!!) to control crawlers.

Pest Updates: Disease

Anthracnose on shade trees (minor)

Anthracnose is primarily a foliar disease affecting many deciduous trees including ash, elm, oak, and maple (fig. 13). Our scouts have found it on maples and oaks (*Acer* and *Quercus* species) this week and it is likely that other species are infected as well. The fungi are able to infect the young, tender leaves, especially during cool and wet springs, like we've been having this year. The disease is caused by several different fungi, including *Apiognomonium errabunda*, *A. veneta*, *Discula fraxinea*, *Glomerella* sp., *Gnomonia* sp., and *Stegophora ulmea*. The fungi are host specific, so the maple fungus doesn't infect oak trees, and so on. Symptoms vary with the plant host, weather, and time of year when infection occurs. Infection is more severe when

prolonged spring rains occur after new growth is produced. Although the symptoms appear in late spring into the summer, the initial infection took place in the early spring at bud break and before the leaves hardened off. Once the symptoms show up, it is too late for any chemical applications to be effective.

Management: Cultural methods are usually sufficient to reduce the severity of anthracnose in our region. These include:

- Pruning trees to open up the canopy for better air circulation.
- Maintaining tree vigor with proper watering and fertilization.
- Mulching around the base of the tree (always keep mulch about 2 to 4 inches from the trunk).
- In the fall, cleaning up and destroying fallen leaves to reduce the source of inoculum.

Good website:

<http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-diseases/anthracnose-shade-trees>

Anthracnose on hosta (minor)

A different type of anthracnose is showing up on hostas this spring. This one is caused by several fungi in the genus *Colletotrichum*. This disease is causing spots with dark margins on the leaves (fig. 14). The center of the spot often falls out. Sometimes the leaves become tattered. The regular rains we have had this spring are certainly contributing to the problem. Many of the cases we have seen are in gardens with many hostas planted closely together (reducing air circulation).

Management: It is key to remove all the infected foliage. If plants are becoming overgrown, space them further apart to improve air circulation. Avoid overhead watering, if possible. Fungicides are available for this disease, but they are used to protect new growth and will do nothing for leaves that are already infected.



Figure 13 Maple anthracnose



Figure 14 Anthracnose on hosta

Pest Updates: Weeds

Poison hemlock (dangerous)

The Plant Clinic has been receiving reports of poison hemlock (*Conium maculatum*) popping up in home gardens (fig. 15). This weed has been fairly prominent for the last few years, not only in home gardens, but popping up along the side of the road in many areas. Poison hemlock is a member of the carrot family (which contains both edible and toxic plants, so beware!!). Most members of this family have the same type of umbrella-shaped flower cluster know as an umbel.

Because the flower cluster of Queen Anne's lace and the flower cluster of poison hemlock look similar, plants may be incorrectly identified. This can lead to contact with a dangerous plant.

Poison hemlock is a large, non-native plant (often 6 feet or more). The smooth stem is stout, has a ridged appearance and is marked with purple spots (fig. 16). The stem is hollow. Leaves are large and very ferny in appearance (fig. 17). Poison hemlock is a biennial plant, which means it will form foliage in the first year and flower and set seed in the second year. Plants in their second year are starting to flower and have the typical white flower cluster (umbel) of the carrot family. Queen Anne's lace has one red floret in the center of its flower cluster, poison hemlock does not.

All parts of the plant are toxic and may lead to death if ingested. The plant's oil may be absorbed through the skin, so long sleeves and gloves will be needed when handling the plant.

Management: Plants can be cut down or dug out. This should be done before the plants go to seed and is most easily done when plants are small. Cover your skin during this process. Do NOT burn the plants. In spring, small, actively growing plants may be treated with an herbicide containing glyphosate.



Figure 15 Poison hemlock plant (photo: S. Yiesla)



Figure 16 Poison hemlock stem (photo: S. Yiesla)



Figure 17 Poison hemlock leaves

Good websites: <http://hyg.ipm.illinois.edu/article.php?id=380>
<http://www.btny.purdue.edu/weedscience/2003/articles/PHemlock03.pdf>



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The Plant Health Care Report is prepared by Sharon Yiesla, M.S., Plant Knowledge Specialist and edited by Stephanie Adams, M.S. Research Specialist in Plant Health Care; Fredric Miller, Ph.D., Research Entomologist at The Morton Arboretum and Professor at Joliet Junior College; Doris Taylor, Plant Clinic Manager, and Carol Belshaw, Arboretum Volunteer. The information presented is believed to be accurate, but the authors provide no guarantee and will not be held liable for consequences of actions taken based on the information.

Thank you...I would like to thank the volunteers who will be scouting for us this season. They find most of the insects and diseases reported here. The Scouting Volunteers include: LeeAnn Cosper, Anne Finn, Ingrid Giles, Emily Hansen, Ann Klingele, Loraine Miranda, and Bill Sheahan. Your hard work is appreciated. Thanks also to Donna Danielson who shares her scouting findings.

Literature/website recommendations:

Indicator plants are chosen because of work done by Donald A. Orton, which is published in the book Coincide, The Orton System of Pest and Disease Management. This book may be purchased through the publisher at: <http://www.laborofloveconservatory.com/>

Additional information on growing degree days can be found at:

http://www.ipm.msu.edu/agriculture/christmas_trees/gdd_of_landscape_insects
http://extension.unh.edu/resources/files/Resource000986_Rep2328.pdf

The Commercial Landscape & Turfgrass Pest Management Handbook (CPM), for commercial applicators, and Pest Management for the Home Landscape (HYG) for homeowners from the University of Illinois, are available by calling (800-345-6087).

This report is available as a PDF at The Morton Arboretum website at

<http://www.mortonarb.org/visit-explore/news-events/arboretum-news?tid=259>

For pest and disease questions, please contact the Plant Clinic at (630) 719-2424 between 10:00 and 4:00 Mondays through Saturdays or email plantclinic@mortonarb.org . Inquiries or comments about the PHCR should be directed to Sharon Yiesla at syiesla@mortonarb.org .

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