

Plant Health Care Report

Scouting Report of The Morton Arboretum



June 17, 2016

Issue 2016.6

Send comments regarding the Plant Health Care Report to Sharon Yiesla at 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, when 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?

Catalpa (*Catalpa* species) are in bloom (fig. 1)

Accumulated Growing Degree Days (Base 50): 743 (as of June 16)

Accumulated Growing Degree Days (Base 30): 2618.5 (as of June 16)

Insects

- Tussock moth caterpillar
- Cottony maple scale
- Spittlebug
- Plant bugs
- Sawflies
- The good guys

Diseases

- Sycamore anthracnose
- Oak leaf blister
- Powdery mildew on ninebark
- Downy leaf spot on hickory
- Rust on ash
- Update on cedar-quince rust

Weeds

- Creeping bellflower



Figure 1 Catalpa (photo: John Hagstrom)

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 June 16, we are at 743 base-50 growing degree days (GDD). The historical average (1937-2013) for this date is 651 GDD₅₀.

Location	B ₅₀ Growing Degree Days Through June 16, 2016	Precipitation (in) June 10-16, 2016
Carbondale, IL*	1347	
Champaign, IL*	1107	
Chicago Botanic Garden**	609	.93 (6/9-15)
Chicago O'Hare*	893	
Kankakee, IL*	934	
Lisle, IL*	921	
The Morton Arboretum	743	1.52ö
Northbrook, IL**	704	
Quincy, IL*	1226	
Rockford, IL*	779	
Springfield, IL*	1171	
Waukegan, IL*	713	

**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

Tussock moth caterpillar (usually minor)

White-marked tussock moth caterpillars (*Orgyia leucostigma*) were found feeding on leaves of a cockspur hawthorn (*Crataegus crus-galli*). The caterpillars are quite distinctive. When fully grown, they are about an inch to an inch and a half long and have long, pale yellow hairs, reddish orange heads, and long tufts of hair near the front of their body (fig. 2). It is best to avoid touching them, because some people have allergic reactions to the hairs. The caterpillars brought in by our scouts were very small and had recently hatched out of their eggs, which were found on the same twig. Not all of the eggs had hatched and we found that a parasitic wasp was the cause (the good guys at work!).



Figure 2 Caterpillar of white-marked tussock moth

Tussock moth larvae feed on leaves, first skeletonizing them and eventually eating the entire leaf. In late summer, caterpillars form gray, hairy cocoons on twigs and branches. The adult male moth is gray. The female is dirty white and cannot fly because she is wingless. The female often lays her eggs on the cocoon from which she emerged. The moth overwinters as an egg. Other hosts include apple, birch, crabapple, elm, fir, hickory, horsechestnut, linden, maple, oak, pecan, poplar, rose, sycamore, and walnut.

Management: In most years, damage by tussock moth larvae is mostly an aesthetic problem in landscape. In years with heavy populations there will be more damage. They can cause major problems in forests. The caterpillars can be handpicked (carefully and wearing gloves to avoid allergic reaction). *Bacillus thuringiensis var. kurstaki* (Btk) can be sprayed on young larvae.

Cottony maple scale (usually minor)

Cottony maple scale (*Pulvinaria innumerabilis*) adults have been found on maples and linden in the last week. Their preferred hosts are red and silver maple, but they also show up from time to time on other species like boxelder and linden. Normally, this scale is merely a curiosity and nuisance. Occasional epidemic outbreaks occur and can lead to premature foliage drop and twig and branch dieback. So far we have seen only very low populations, but it would be wise to check host trees at this time. Cottony maple scale is a pest that has a large population every few years. In most years, beneficial insects keep the population in check.

Cottony maple scales overwinter as inconspicuous immature females on host twigs. By late spring, the 1/8 inch brown females mature and begin to produce white, cottony egg masses (fig. 3). The egg masses resemble popcorn. In early July, microscopic, nearly translucent yellow, flat, oval crawlers emerge. The crawlers attach themselves to the undersides of major leaf veins and feed on plant sap. Infested plant leaves are often covered with sooty mold. After spending the summer feeding on leaves, female crawlers migrate to small branches and twigs to overwinter.



Figure 3 Cottony maple scale adult with egg sac

Management: Small populations seldom need to be managed. Beneficial insects tend to be enough to control this pest. Insecticides for the crawlers may be needed in years when the population rises sharply, but it is always wise to check for the presence of beneficials before undertaking any spray program.

Spittlebug (minor)

In Issue 4, we reported on pine spittlebug. We are now seeing a different species of spittlebug on a number of plants (both perennials and trees). They can be identified by the frothy white mass they produce on foliage and twigs (fig. 4). 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 but inflict little damage on mature plants. There are a number of species of spittlebugs that feed on a variety of plants in our region.



Figure 4 Spittlebug

Management: Control 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.

Good website: <http://www.extension.umn.edu/garden/insects/find/spittlebugs-in-home-gardens/index.html>

Plant bugs (minor to serious)

The term plant bug refers to a large group of related insects that attack a wide variety of plants. These insects are all sap-feeders. Plant bugs belong to a group of insects known as true bugs.

As adults, these insects are often oval in outline and flattened (fig. 5). The wings fold over the back in a criss-cross pattern, leaving a triangular section exposed. We often see the nymphs instead of the adults. They look similar to the adults, but don't have wings yet or have only partially grown wings (fig. 6).



Figure 5 Honeylocust plant bug adult

How much damage is done depends on the species. In spring, we get reports of distorted foliage on honey-locust trees. This is due to the feeding of the honey-locust plant bug. By the time the reports come in, the pest is almost finished for the season. In Issue 5, we reported on the four-lined plant bug that was attacking a wide range of perennials. The damage is unattractive, not life threatening.

Our scouts recently found a lygus bug (*Lygus* species) feeding on a black walnut (*Juglans nigra*). It seemed to be doing relatively little damage, but there are members of the genus *Lygus* that can be serious pests on crops like strawberry. One species in this genus, *Lygus lineolaris* (tarnished plant bug), can attack over 300 species of plants and can be damaging to some crops. This insect is also known to transmit disease.



Figure 6 Honeylocust plant bug nymph

If you see any type of plant bug, it is time to take a closer look and gather more information. Note what plant the insect is on as some of them are very host specific and this can help with identification. Once the plant bug is identified, it can be determined if any management is needed. With many species, management is often not warranted.

Sawflies (minor to potentially serious)

Sawflies are another larger group of insects (literally hundreds of species). We are seeing a lot of sawfly larvae on a wide range of plants this year. So far we have reported on European pine sawfly and rose slug sawfly, which are both very host-specific. We recently have gotten a couple of reports on the pear



Figure 7 *Pseudosiobla* species (light colored larva) and unidentified species feeding on button bush

slug sawfly which often attacks cherry, pear and plum, doing similar damage to that of the rose slug sawfly on rose. We have even seen sawfly larvae (two types) feeding on native button bush (*Cephalanthus occidentalis*)! (fig. 7)

These insects can be confusing. As adults, they often have a fly-like or wasp-like appearance and may go unnoticed. As larvae, they look like caterpillars but are not true caterpillars (this means that *Bacillus thuringiensis* var. *kurstaki* will NOT kill them). Sawfly larvae and caterpillars do differ from one another. While each will have three pair of tiny legs near the head end of the body, they differ in the number of prolegs at the far end. Prolegs are outgrowths in the abdomen that the insect uses like legs. Caterpillars have five or fewer pair, while sawfly larvae with six or more pair. So to be sure who you have, you'll need to get close and count those prolegs. Caterpillars have hooks, called crochets on the bottom of their prolegs, so they can hold on tight. Sawfly larvae lack these hooks and can easily be dislodged from their host, so hitting them with a stream of water from the garden host often gets rid of them. Sawfly larvae vary in color by species. Some are very colorful (fig. 8), while others are not. Some may be identified by spots, spines or other marks (fig. 9).



Figure 8 Rowan sawfly on mountain-ash



Figure 9 *Periclista* sp. sawfly

Sawflies eat foliage, and the severity of their damage depends on the host, the size of the population and general health of the plant. High populations of sawfly can do a lot of damage and will add some stress to the host's life, but generally won't kill the host. Repeated defoliation year after year can lead to decline. Deciduous hosts can often tolerate more damage than evergreen hosts, and healthy plants can tolerate more defoliation than weak plants.

The good guys

It seems like our little newsletter is all about the gloom and doom of pests attacking our plants. Let's take a break for some good news. As we have examined many samples this season, we have also been seeing some beneficial organisms. Predatory mites have been noted on some samples. The

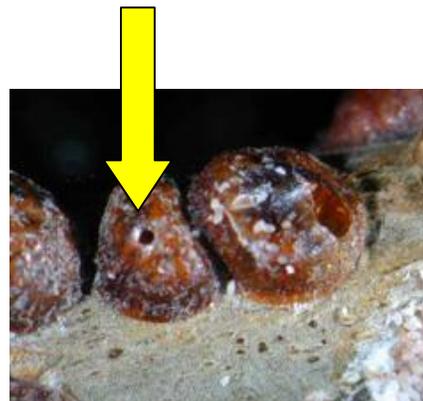


Figure 10 Lecanium scale with hole in it

tussock moth mentioned in this newsletter had been parasitized by a wasp so not all of the eggs hatched. Even some scale has come in showing signs of being parasitized. They have holes in them where the parasitoid exited (fig. 10). This is all to be expected. As pest populations rise, eventually so does the population of various beneficial organisms. If you are planning to use insecticides, always check first to see if beneficials are at work. Learn to identify beneficials. Some of them, like lady bug larvae, look scary (fig. 11). If they are there and in large numbers, skip the spray. If you see only a few good guys and fear that they will not control the problem, look for insecticides with lower toxicity (like insecticidal soap and horticultural oils) that are less harmful to beneficial.



Figure 11 Lady bug larvae

Pest Updates: Disease

Sycamore anthracnose (potentially serious)

Earlier we reported on anthracnose on shade trees. We are now seeing anthracnose on sycamore. The disease is very noticeable now as these large trees leaf out poorly. Sycamore anthracnose is caused by the fungus *Apiognomonia veneta*, and is more serious than the anthracnose we see on other shade trees. Sycamore anthracnose is common when we have cool, wet weather during leaf development. Considerable defoliation may occur in late spring, but trees normally bounce back and produce a second set of leaves in early July that remain disease-free. Leaves that are infected in early spring often turn brown and shrivel while still small and may be mistaken for frost damage (fig. 12). Leaves that are infected in late spring may show brown foliar lesions that extend along the veins, often in V-shaped patterns. The leaves turn brown and may drop prematurely.



Figure 12 Sycamore anthracnose

There are two other stages of this anthracnose: shoot and leaf blight and canker formation. Shoot and leaf blight results when the pathogen enters succulent shoots. It causes the rapid death of expanding shoots and leaves. The pathogen overwinters in twigs and is active whenever temperatures are high enough in the fall, winter, and spring. During winter, cankers form on infected shoots and kill the buds. Repeated infection results in deformed shoots and

witches brooms (dense clusters of twigs) (fig. 13). Although this disease can weaken trees and increase their susceptibility to attack by other pathogens and pests, it is not lethal.

Management: Dead twigs should be pruned as they develop throughout the growing season. Rake and discard fallen leaves to reduce the source of inoculum. It is impractical to spray fungicides on large trees, but for smaller, specimen trees, the disease can be controlled with fungicides applied at three intervals: 1) just before bud break; 2) during bud break; 3) 10 to 20 days later. Systemic fungicide injections can also be used. If you want to plant a *Platanus* species and don't want to worry about sycamore anthracnose, you can plant a hybrid planetree, which are resistant to the disease. Two common cultivars can be seen on the Chicagoland Grows website (<http://www.chicagolandgrows.org/index.php>)



Figure 13 Witches-broom

Oak leaf blister (minor)

Oak leaf blister, caused by the fungus *Taphrina caerulescens*, has been found on bur oak. Leaves develop wrinkled, raised, pale whitish-yellow blisters on their upper surface (fig. 14) and corresponding gray depressions on the lower leaf surface in spring and early summer. Blisters range from 1/10th of an inch to an inch in diameter. As they age and merge, the blisters become thickened and puckered and the leaf may become distorted. Red oak (*Quercus rubra*) is the most susceptible species. Oak leaf blister, like other *Taphrina* diseases, usually develops only during cool, wet springs and is mostly a cosmetic problem. Infected leaves become distorted and may prematurely drop. The disease usually slows during the summer.



Figure 14 Oak leaf blister

Management: The fungus survives the winter on twigs and bud scales. On oak, leaf blister is more unsightly than harmful, so control is not a high priority.

Good web site: <http://www.ag.uiuc.edu/~vista/abstracts/a663.html>

Powdery mildew on ninebark (minor to potentially serious)

We have not seen a lot of powdery mildew yet this season, but it is showing up on the leaves of ninebark (*Physocarpus opulifolius*). The straight species of ninebark is relatively resistant to powdery mildew, but some of the cultivars can be very susceptible and can sustain quite a bit of damage. University of Connecticut has done some research on this. Go to [http://www.academia.edu/14492054/Susceptibility_of_eastern_ninebark_Physocarpus_opulifolius L. Maxim. cultivars to powdery mildew](http://www.academia.edu/14492054/Susceptibility_of_eastern_ninebark_Physocarpus_opulifolius_L_Maxim_cultivars_to_powdery_mildew) to see their findings. Hundreds of plant species are susceptible to powdery mildew, but the disease is caused by many different species of fungi which are host specific. This means that the powdery mildew on coralberry will not infect lilacs and so forth.

Powdery mildew appears as a superficial white to gray coating over leaf surfaces, stems, flowers, or fruits of affected plants. Initially, circular powdery white spots appear. These spots coalesce producing a continuous patch of “mildew.” On ninebark, the tips of branches often develop a thick coating of white powder, while other parts of the same plant may show very few symptoms (fig. 15). Later in the season, fungal fruiting bodies that look like black pepper under a hand lens will appear. Warm days and cool nights favor this fungal disease, and we have been seeing this type of weather this year. The fungi that cause powdery mildew are deterred by free water since spores will not germinate in free water on leaves. However, the fungus still needs high humidity to infect the plant. Leaf curling and twisting result, and in severe infestations you may see premature defoliation and deformed flower buds. Although unsightly, powdery mildew is usually not fatal in the landscape.



Figure 15 Powdery mildew on ninebark

Management: Infected plant parts should be removed as soon as symptoms appear. Dispose of fallen leaves and do not handle plants when foliage is wet. Water plants during periods of drought to keep them healthy. High humidity can increase disease severity so avoid overhead watering in late afternoon or evening. Put plants in locations where there is good soil drainage and sufficient sunlight. Provide proper plant spacing for good air circulation. Powdery mildew on some plants can result in significant damage, and fungicides may be needed. To obtain optimum results, spray programs should begin as soon as mildew is detected. In the future, plant mildew-resistant cultivars and species.

Good website:

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

Downy leaf spot on hickory (minor)

Downy leaf spot, also known as white mold or white leaf spot, caused by the fungus *Microstroma juglandis*, has been found on hickory (*Carya* sp.). Powdery, white, fuzzy spots that are more concentrated near the leaf veins are forming on the underside of the leaf surface (fig. 16). Corresponding chlorotic spots appear on the upper leaf surface. These spots vary in size and may coalesce to form large angular lesions. The fungus may also cause witches' brooms near the ends of branches with stunted and yellowish leaves that may drop in early summer.



Figure 16 Downy leaf spot on hickory

Management: Downy leaf spot attacks hickories and walnuts but is not a significant threat to the trees. Brooms can be pruned to improve the appearance of the tree. Chemical management is not recommended.

Good website: <http://plantclinic.cornell.edu/factsheets/downleafspothckory.pdf>

Rust on ash (minor)

Rust on ash? Really? Do we need another problem on ash trees? Isn't EAB enough? Luckily this is a fairly minor problem and one that just does not show up that often on ash. One of our volunteers brought this sample in and we had to take a minute to think about it as this is not a common occurrence on ash. This rust is different from the cedar-apple rust that we see so much on crabapple and hawthorn. The cedar rust diseases are caused by fungi in the genus *Gymnosporangium*. Ash leaf rust is caused by the fungus *Puccinia sparganoides*. This fungus also requires two hosts to complete its life cycle. Ash (*Fraxinus* species) is one host. The alternate host is marsh grass (*Spartina* species).



Figure 17 Rust on ash

Infection occurs in May and June, and symptoms show up on the leaves, petioles and

sometimes young stems. Leaves may show spots, and petioles will often have elongated swollen areas. Typical of rust, these areas are orange-colored. Cup-like fruiting structures (fig. 17) will form in these areas and produce spores. These spores do not re-infect the ash tree, but will serve to infect the alternate host. The infected alternate host (marsh grass) will develop the disease in late summer and will form overwintering spores that can re-infect the ash tree next spring.

Management: This disease is very uncommon in our area and we do not expect it to be a big problem. We may see some defoliation due to petiole infections cutting off the water supply to some leaves. No management should be needed.

Update on cedar-quince rust

It's that time again. The sputniks have arrived. Cedar-quince rust-infected fruit are developing those tubular horns that give them that sputnik look. These horns produce the spores that will go back to the juniper host and re-infect it (these spores will not re-infect the deciduous host). We have seen these on hawthorn fruit, which is a fairly common occurrence. One of our volunteers sent us a photo of infected serviceberry fruit (fig. 18), which we do not see as often. This is turning into an interesting year.



Figure 18 Rust on serviceberry (Photo Julie Moore)

Pest Updates: Weeds

Creeping bellflower (aggressive)

For the last four or five years, we have been receiving reports of an annoying weed making itself known in flower gardens and lawns. There are actually two plants that are nearly identical, ladybells (*Adenophora* spp.) and creeping bellflower (*Campunula rapunculoides*). The two plants differ only by a small structure within the flower. Ladybells and creeping bellflower are closely related, but on doing a little research, it seems that the creeping bellflower may be the 'bad seed' of this family. It is the one that seems to be overly aggressive. Unfortunately, because the plants are so identical, if a friend shared some ladybells with you from her garden, you may actually have creeping bellflower.



Figure 19 Creeping bellflower

Young plants have leaves that are heart-shaped to lance-shaped (fig. 19). This innocent looking plant has fleshy roots growing horizontally under the soil. These fleshy roots help to spread the plant and before you know it you have a healthy patch of them in your flower bed (fig. 20). If the plants are not removed, a flowering stalk with purple, nodding, bell shaped flowers will form.



Figure 20 Bellflower growing in a patch

Management: Plants can be removed manually through digging, but any roots left will continue to produce new plants. As new plants develop and are actively growing, spray them with a weed killer containing glyphosate. Glyphosate will be absorbed by the leaves and taken down to kill out the roots. Do not get the glyphosate on desirable plants as it will kill them as well.



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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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