

Plant Health Care Report

Scouting Report of The Morton Arboretum

June 26, 2020

Issue 2020.7

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. Due to the current COVID-19 situation, we will not be scouting on the Arboretum grounds at this time. We will be including information about pest and disease problems based on questions emailed to The Arboretum's Plant Clinic. We are working remotely, but still able to answer questions via email at plantclinic@mortonarb.org

We are continuing to use last year's format: full issues alternating with growing degree day (GDD) issues; focus on more serious pests; minor pests covered in shorter articles; alerts issued for new major pests. Readers who receive our email blasts that announce the newsletter is posted online will continue to receive them this year. To be added to the email list, please contact me at syiesla@mortonarb.org. Comments or concerns regarding PHCR should be sent to the same email.

Quick View

What indicator plant is in bloom in Dupage County?

Elderberry (*Sambucus canadensis*) is in flower (Figure 1)

Accumulated Growing Degree Days (Base 50): 909 (as of June 24)

Accumulated Growing Degree Days (Base 30): 2839 (as of June 24)

Insects/other pests

- Japanese beetles and white grubs
- Viburnum crown borer
- Tarnished plantbug
- Milkweed beetles and bugs
- Tussock moths
- European elm flea weevil
- Galls, Chapter 2

Diseases

- Cedar-quince rust on serviceberry
- Tar spot on maple-early stage
- Rust on ash



Figure 1 Elderberry (photo: John Hagstrom)

Thank you!

Writing the Plant Health Care Report has been more challenging this year without the regular scouts in the field. As I have mentioned previously, I can glean information from the Plant Clinic email, the scouts looking around their own neighborhoods and observations I can make while driving around the area. I am also receiving help from our Plant Clinic volunteers. They live in many different communities (and counties) in the Chicago region and they are very observant. I put out the call to them to tell me what they are seeing. The response is great and has allowed me to write a fuller and more in-depth newsletter than I thought I would. Never doubt the power of a group of volunteers. Thanks to them for helping and thanks to you for reading.

Degree Days and Weather Information

We are once again offering Lisle readings right above the Arboretum readings. The spread between these two sites shows that temperatures can vary over a short distance, which means growing degree days can be quite variable as well.

As of June 24, we have 909 base-50 growing degree days (GDD). The historical average (1937-2019) for this date is 835 GDD₅₀. Since January 1, we have had 22.79 inches of precipitation. Historical average (1937-2019) for precipitation Jan-June is 20.7 inches.

Location	B ₅₀ Growing Degree Days Through June 25, 2020
Carbondale, IL*	1344
Champaign, IL*	1070
Glencoe*	547
Chicago Botanic Garden**	829
Chicago O'Hare*	924
Kankakee, IL*	976
Lisle, IL*	958
The Morton Arboretum	909 (6/24)
Quincy, IL*	1141
Rockford, IL*	880
Springfield, IL*	1133
Waukegan, IL* (60087)	753
Waukegan, IL* (60085)	799

*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/>

**Thank you to Chris Henning, Chicago Botanic Garden, for supplying us with this information.

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

Japanese beetles and white grubs (Potentially serious)

That special time of year has arrived. It’s Japanese beetle time. As of June 23, we have already had a report of Japanese beetles (*Popillia japonica*) in Dupage County. Japanese beetles are up to 1/2 inch-long, and have oval, metallic green bodies with coppery brown wing covers (fig. 2). They have five white spots along each side and two additional white spots behind their wing covers. Upon examination under a hand lens, the spots are actually tufts of hair.



Figure 2 Adult Japanese beetle

Adult beetles feed on about 300 different species of ornamental plants with about 50 species being preferred. Highly preferred hosts include rose, crabapple, cherry, grape, and linden. The adults feed on leaf tissue between veins, resulting in skeletonized leaves (fig. 3). Severely infested plants may be almost completely defoliated. Early infestations of Japanese beetle may be missed since the insects start feeding in the tops of trees.

Japanese beetles overwinter as larvae (grubs) about four to eight inches beneath the soil surface. In spring, as the soil temperatures warm to about 55° F, the grubs move upward through the soil to pupate. Adults normally emerge from late June through July. Within a few days after emergence, the females mate and burrow into the soil to lay eggs. Nearly all eggs are laid by mid-August.



Figure 3 Leaf damage by Japanese beetle

In sufficiently warm and moist soil, eggs will hatch in about ten days. Grubs feed on plant roots until cold weather forces them to greater depths in the soil for the winter. There is one generation of this beetle per year.

How do you know if your lawn needs grub control? Grubs eat grass roots, and this will lead to brown areas in the lawn. Unfortunately, other causes can lead to a brown lawn. If your lawn has grubs, you will be able to pull the lawn up like a carpet since the roots are gone.

Homeowners who are irrigating the lawn should be watchful. The beetles have to bury their eggs in the soil. They are more likely to do this in soils that are moist and easy to dig. So, those of you who are watering may be more likely to deal with grubs this year.

Is grub control a good idea for everyone? Not necessarily. If your lawn has never had grubs before and you are not irrigating, it would be best to skip the grub control. Usually control is not warranted unless 10-12 grubs are present per square foot.

Management: Adult Japanese beetles can be handpicked. It is easiest to catch them by placing a soapy-water filled container directly under the leaf that they are chewing on and then shaking the leaf. The soapy water ensures that the beetles die while you're collecting them. The beetles generally fly straight down into the collecting container. Sometimes Japanese beetle pheromone traps are used to trap them. We don't recommend these, as they will attract even more beetles to your property (more than the trap can collect). Insecticides can be used in the case of valuable plants, but even insecticides do not guarantee control. A soil drench of imidacloprid in spring is sometimes recommended for control of Japanese beetles. **It should be noted that imidacloprid labels indicate that this product can no longer be used on lindens (*Tilia* species).**

Managing the Japanese beetle grubs that will hatch out around late July may help to reduce populations of adult beetles for next year. Eggs and first instar larvae require moisture to survive; therefore, the easiest way to reduce grub populations is to limit lawn irrigation during the egg-laying period when beetle populations peak (mid-July through early August). Japanese beetles also avoid laying eggs in shade, which is another great reason to plant more trees and shrubs. Insecticide applications are effective in controlling young grubs.

If you plan to manage grubs with insecticides, know that the timing of application depends on the product selected. There are now many insecticides available to treat grubs, and they have different application times. Traditional insecticides like trichlorfon are applied to the lawn when young grubs are active (August and September). Imidacloprid can be applied once in mid-July in areas where adult beetles were numerous. Chlorantraniliprole is applied in spring to kill new grubs that hatch out in late July. It will not kill grubs present in spring. (Insecticide information from University of Illinois and Michigan State University). The bottom line is to

read the product label carefully and use it at the appropriate time. The information given here is very general. The product label will give specific information.

We receive a lot of questions about the use of the biological control milky spore disease. This is a bacterium that is specifically toxic to the grub stage of the Japanese beetle and is applied to the soil. This is a slow method at best in the warmer southern states (may take 3-5 years to build up in soil enough to be effective) and is often not very effective at all in colder, northern states. Also, if you have grubs that come from another type of beetle, it won't work on them at all. This product is really not recommended for our area.

Beneficial nematodes can be watered into turf, again in late July, where they infest and kill grubs. Products containing *Heterorhabditis bacteriophora* nematodes are recommended by the University of Illinois. Beneficial nematodes are not always available in stores; they are available through mail order/internet sources.

Good websites:

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

https://www.canr.msu.edu/news/how_to_choose_and_when_to_apply_grub_control_products_for_your_lawn

Viburnum crown borer (potentially serious)

We are getting a lot of reports on damage by the viburnum crown borer. Viburnum crown borers (*Synanthedon* sp.) are clearwing moths that lay eggs on the bark or in wounds of viburnums near the soil line. The larvae hatch and tunnel into the cambium from several inches below the soil line to about 18 inches above. Larvae are white and legless with brown heads and eventually grow to $\frac{3}{4}$ inch long. Damage looks like gnarled and scarred stems (fig. 4), and eventually there is dieback of stems and the whole plant may die. The insects overwinter as larvae and pupate in spring. The moths usually emerge from infested viburnums in June to lay eggs near wound sites on other viburnums.



Figure 4 Stem damaged by viburnum crown borer

Young plants are especially susceptible. Sometimes plants are able to survive attack as they age. Susceptible species include *Viburnum carlesii* (Korean spice viburnum), *V. lantana* (Wayfaring tree),

V. lentago (Nannyberry), *V. opulus* (European Cranberrybush Viburnum), *V. opulus* var. *americanum* (formerly *V. trilobum*) (American Cranberrybush Viburnum), and *V. x rhytidophylloides* (hybrid leatherleaf viburnum). Arrow-wood viburnum shows some resistance, but is not immune.

Management: Beneficial nematodes (*Heterorhabditis bacteriophora*) can be drenched into the soil in late August when larvae are present. Be sure to keep the soil moist so the nematodes don't dry out. They are living organisms. Chemical control can also be applied when adults are laying eggs. The insecticide should be sprayed on the base of the stems from the ground level to a height of 18 inches.

Good websites: <https://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-pests/viburnum-crown-borers>

Tarnished plant bug (minor to potentially serious)

Tarnished plant bugs (*Lygus lineolaris*) are out and about. These true bugs can be found on a wide range of ornamental plants, as well as fruit and vegetable crops. These 1/4" long insects overwinter as adults in leaf debris, in bark, or in other protected areas. They emerge in the spring and begin feeding on buds and young leaves, often on early-emerging weeds. In early to mid-summer the females deposit their eggs in plant tissues (stem, leaves, buds, etc.). They hatch after a few weeks. Depending on their location, there can be 2-3 generations per year. We don't have a good picture of this pest, but the first website listed below does.

Management: This insect can be damaging to fruit and vegetable crops, and may warrant control. In landscape plantings, damage may be tolerable without any control measures. Removing weeds can help lower populations early in the season.

Good website: <http://entopl.okstate.edu/ddd/insects/tarnishedbug.htm>

http://ipm.illinois.edu/fieldcrops/insects/tarnished_plant_bug/index.html

Milkweed bugs and beetles (minor)

Milkweed has become a popular plant to grow in home gardens as well as native areas. Many are hoping to attract monarch butterflies.

Sometimes uninvited guests show up, too. We are starting to see some of these uninvited guests already (perhaps a little earlier than usual).

Red milkweed beetles (*Tetraopes tetraphthalmus*) are 1/2 to 3/4 inch-long and red with black spots and long black antennae (fig. 5). Adults

feed on milkweed leaves; while in the larval stage they bore into and feed on milkweed stems



Figure 5 Adult milkweed beetle

and roots. Milkweed bugs (fig. 6) also attack milkweed. There are two species of milkweed bug, the large milkweed bug (*Oncopeltus fasciatus*) and the small milkweed bug (*Lygaeus kalmia*). These two insects look very much alike, both sporting bright orange-red and black colors. Young bugs (nymphs) also have these colors, but lack fully developed wings. Both the adults and the nymphs will feed on the milkweed seeds, and it is not uncommon to see groups of them huddled together on the milkweed fruits. These insects are often mistaken for boxelder bugs which are similar in color.

Management: None usually needed as very little damage is done.

Good websites: <http://bugguide.net/node/view/504>
<http://bugguide.net/node/view/460>



Figure 6 Adult milkweed bug

Tussock moths (usually minor)

White-marked tussock moth caterpillars (*Orgyia leucostigma*) were found this week. 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. 7). It is best to avoid touching them, because some people have allergic reactions to the hairs. There are a number of different species of tussock moth in our area.



Figure 7 White-marked Tussock moth caterpillar

White-marked tussock moth caterpillars 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. 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 landscapes. 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.

Good website: http://entnemdept.ufl.edu/creatures/URBAN/MEDICAL/tussock_moths.htm

European elm flea weevil (minor)

We are still using the name European elm flea weevil (*Orchestes alni*). Ohio State reports that this is a case of mistaken identity, and the pest is really *Orchestes steppensis* from Russia, not Europe (<https://bygl.osu.edu/node/1018>). No matter what we call them, they are here and feeding. This pest (fig. 8) has been in our area for over a decade and has regularly caused foliage damage to elms during that time. Adult-feeding results in tiny shot holes in the leaves, and heavy feeding can cause newly expanding leaves to wither and turn brown. After feeding, the female weevil cuts a cavity into the leaf mid-vein and inserts an egg. The hatching larvae create blotch mines at the leaf tips. Larvae feed for about 2-3 weeks, and then pupate within the mined leaf. Very heavy feeding can reduce photosynthetic capacity of the tree, thereby impacting overall tree vitality. Dr. Fredric Miller tells me that “the elm flea weevil, for some reason, prefers Siberian elm and any hybrids that contain *U. pumila* in their genetics.”



Figure 8 Adult elm flea weevil

Management: Insecticides are effective in controlling adults and could be applied now while adults are being seen. Depending on how long the insecticide is effective, several applications may be needed. However, spraying a large elm may not be practical, especially for a pest whose damage is relatively minor.

Good website:

<http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-pests/european-elm-flea-weevil>

Galls, Chapter 2 (minor)

Maple bladder gall (fig. 9) is a common problem on red maple (*Acer rubrum*), silver maple (*Acer saccharinum*) and the hybrid between the two, Freeman maple (*Acer x freemannii*). We see this gall almost every year. It starts out as a small green bead and then changes to red and later in the season almost black. We are seeing it in the red stage already. They are caused by eriophyid mites that overwinter in bark crevices and around



Figure 9 Maple bladder gall

callous growth of wounds, scars, and pruned branches.

Hackberry nipple gall (fig. 10) is caused by a tiny insect called a psyllid. The adult female psyllid will lay eggs on the underside of the leaves. When the eggs hatch about a week later, the plant grows tissue around the nymphs in response to the feeding of the insect. Inside the gall resides a tiny yellow to orange psyllid nymph. Nymphs grow larger and emerge from the galls as adults in September. The adults actually look a bit like miniature cicadas. Hackberries are the only known host of this psyllid. The psyllids are also called jumping plant lice because of their ability to jump. Hackberries frequently get nipple galls. As a matter of fact, I was taught to identify hackberries (*Celtis* spp.) by their warty leaves caused by the galls as well as their warty bark. The damage is not considered serious.



Figure 10 Hackberry nipple gall

Pest Updates: Diseases

Cedar-quince rust on serviceberry

It's that time again. The sputniks have arrived. (For those of you too young to remember sputnik, Google it). Cedar-quince rust-infected fruit are developing those tubular horns that give them that sputnik look (fig. 11). 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. Several people have sent us photos of infected serviceberry fruit, which we do not see as often. This ruins the fruit for us, but does not do much damage to the serviceberry plant. Too late to treat.



Figure 11 Cedar-quince rust on serviceberries (Photo: Julie Moore)

Tar spot on maple-early stage (minor)

In the last month, we have had several emails about tar spot, but up until now, it is actually maple anthracnose that people have been seeing. Anthracnose spots are often more angular in shape, may run along veins or even infect most of the leaf



Figure 12 Tar spot (early stage)

tissue. The early symptoms of tar spot of maple are just beginning to show up now. In the early stage, the spots are yellowish with black specks in them (fig. 12). As the disease develops, the spots will be fairly round and will look just like shiny black spots of tar (fig. 13) flung about on the upper surface of maple leaves. Several different fungi in the genus *Rhytisma* infect the leaves of maples and cause the spots. The spots range from 1/5 to 4/5 inch in diameter. In some cases, a red ring surrounds the spot. *Rhytisma* spp. most commonly infect leaves of silver and Norway maples, although red and sugar maples are also susceptible. It does little harm to the trees, but is unsightly.



Figure 13 Tar spot (late stage) (photo: S. Yiesla)

Management: Fungicides generally are not necessary. To reduce inoculum, rake up and discard the leaves in fall. Raking is only effective if you and your neighbors with maples all rake and discard leaves.

Good website:

<http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-diseases/tar-spot-maple-rhytisma-spp>

Rust on ash (minor)

Rust on ash? The poor ash trees have seen more than their fair share of problems, including the emerald ash borer. Luckily this rust is a fairly minor problem and one that just does not show up that often. 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 sparganioides*. 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 14 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 (fig. 14). Cup-like fruiting

structures 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 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.



Bartlett Tree Experts, Presenting Sponsor of the Plant Clinic.

The Plant Health Care Report is prepared by Sharon Yiesla, M.S., Plant Knowledge Specialist and edited by Fredric Miller, Ph.D., Research Entomologist at The Morton Arboretum and Professor at Joliet Junior College; Julie Janoski, 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: Maggie Burnitz, LeeAnn Cosper, Ingrid Giles, Loraine Miranda, and Emma Visee. Your hard work is appreciated.

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.

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

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

<https://www.mortonarb.org/news-publication/plant-healthcare-report?tid=259>

For pest and disease questions, please contact the Plant Clinic. At this time due to the COVID-19 situation, the Plant Clinic building is closed. You can still contact the Plant Clinic via email at plantclinic@mortonarb.org. Emails will be answered during business hours Monday through Friday. Inquiries or comments about the PHCR should be directed to Sharon Yiesla at syiesla@mortonarb.org.