Plant Health Care Report

Scouting Report of The Morton Arboretum

April 15, 2022 **Issue 2022.2**

For comments regarding PHCR, or to subscribe to email alerts regarding posting of new issues, contact me at syiesla@mortonarb.org.

Our report includes up-to-date disease and insect pest reports for northeastern Illinois. This year we resume our on-grounds scouting program. Plant Clinic staff and volunteers are back working on-site this year. Contact us via email at plantclinic@mortonarb.org. or by phone at 630-719-2424 (Monday thru Friday, 10 am to 4pm). The Plant Clinic is also open to walk-ins, but a timed entry for the Arboretum is required and non-members need to pay the entry fee.

Quick View

What indicator plant is in bloom at the Arboretum?

Cornelian-cherry dogwood (*Cornus mas*) is still in flower (Figure 1). Our slow buildup of growing degree days is leading to slow emergence on many flowering trees and shrubs.

Accumulated Growing Degree Days (Base 50): 27 (as of April 14)

Insects/other pests

- **Spring is cold, but weather can change quickly**
- **Viburnum leaf beetle**
- **Eastern tent caterpillar**
- **Spongy moth (formerly gypsy moth)**
- **European pine sawfly**

Diseases

- **Boxwod blight or something else?**
- **Black knot**
- **Diplodia tip blight**

Figure 1 Cornus mas in flower

Weeds

- **Ficaria verna**
- **Crabgrass preventer update**

Oak and Elm Pruning Advisory

Time to stop pruning oaks and elms**.** If you need to prune now, consider sealing the pruning cuts immediately. Wisconsin DNR offers this guideline about the emergence of the vectors: As a general rule, "temperatures above 60 degrees for 7 consecutive days" is considered to be warm enough for the emergence of *C[olopterus] truncates* [sap beetles]. These are the beetles that can carry the oak wilt fungus. Northern Illinois has not seen those temperatures yet, but the weather can change quickly.

Soil temperatures around Illinois (from Illinois State Water Survey)

This information will be provided all season. For data from other reporting stations, go to https://www.isws.illinois.edu/warm/soil/ (you will need to set up an account to access data.) Crabgrass does not germinate until soil temps are above 55 degrees for 5 to 7 days (use more shallow depth for this). Root growth on trees/shrubs occurs when soil temps are above 45 degrees (use deeper depth).

Max. Soil temps For 4/14/2022*	St. Charles reporting station (north)	Champaign reporting station (central)	Carbondale reporting station (south)
2-inch, bare soil	58.5	65.2	69.2
4-inch, bare soil	53.3	57.6	60.6
4-inch, under sod	52.1	57	60.7
8-inch, under sod	50.5	53.7	57.6

* This is the maximum soil temperature recorded the day prior to publication of PHCR.

Seasonal precipitation

Seasonal precipitation (rain and melted snow) in inches.			
	2022	2021	Historical average (1937-2021)
Jan	1	1.5	1.946
Feb	2.61	1.49	1.765
Mar	3.88	1.24	2.520
April	2.33	1.39 (whole month	3.665 (whole month
May			
June			
July			
Aug			
Sept			
Year to date	9.82	4.27 (Jan thru April)	9.9 (Jan thru April)

Degree Days (current and compared to past years) and rainfall

As of April 14, we have 27 base-50 growing degree days (GDD) at The Morton Arboretum. The historical average (1937-2021) for this date is zero GDD_{50}. The table below shows a comparison of GDD in different years. We are comparing the GDD reported in this issue with the GDD reported in 2021, 2015 and 2014. These years were selected since publication dates of the first issue were within a day or two of each other. Glencoe, Lisle and Waukegan (60085) were not used in 2015 and 2014, so there is 'no report' from those stations.

Location	GDD as of 4/14/22	GDD as of 4/15/21	GDD as of 4/16/15	GDD as of 4/17/14
Carbondale, IL*	174	255	233	144
Champaign, IL*	61	146	143	55
Chicago Botanic Garden**	26 (as of 4/13)	148	33.5 (4/15)	19 (4/16)
Glencoe*	6	41	No report	No report
Chicago O'Hare*	46	146	79	35
Kankakee, IL*	37	129	95	40
Lisle, IL*	49	147	No report	No report
The Morton Arboretum	27	95	31	9.5
Quincy, IL*	105	167	183	71
Rockford, IL*	16	85	51	20
Springfield, IL*	85	157	176	75
Waukegan, IL* (60087)	28	114	40	15
Waukegan, IL (60085)	33	132	No report	No report

**Thank you to Chris Henning, 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 https://gddtracker.msu.edu/

How serious is it?

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". "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

Examples of insects that may emerge soon in northern Illinois (based on growing degree days)			
GDD (base 50)	insect	Life stage present at this GDD	Type of damage
20-90	Magnolia scale	Overwintering nymphs become active	Feeding on sap
100 (possibly less)	Viburnum leaf beetle	Larvae (may be feeding when leaves are half expanded)	Chewing leaves
100-200	Eastern tent caterpillar	Caterpillars	Chewing leaves
100-200	Pine sawfly	larvae	Chewing needles
100-200 (value corrected from previous issue)	Spongy moth (formerly gypsy moth)	Caterpillars hatching	Chewing leaves

Spring is cold, but weather can change quickly

We are at that odd part of spring where we don't have enough growing degree days (GDD) for the insects to come out now, but by the time we write the next issue, they may be coming out in droves. We had a similar experience in 2020, when the GDD was 17.5 on this date and three weeks later we were at 100. So, let's be proactive and take a look at some of the critters that might descend on us as soon as the weather warms.

Viburnum leaf beetle (potentially serious)

Viburnum leaf beetle (*Pyrrhalta viburni*) is becoming a common problem in the Chicago region. It was first reported in Dupage County in 2012 and is now found in much of our area. It has been found feeding mostly on arrowwood viburnum (*Viburnum dentatum*) and the American cranberrybush viburnum (*Viburnum opulus* var. *americanum*, formerly *V. trilobum*). We have noted some feeding damage on blackhaw viburnum (*Viburnum prunifolium*) as well.

Figure 2 Egg sites as seen in winter and early spring

This is a pest of concern because it is a serious defoliator of viburnums. Both the larvae and the adult beetle will feed on leaves, so we can see damage all season. The beetle overwinters as eggs in the tips of stems. The egg-laying damage occurs in rows. The eggs are laid in holes chewed by the adult female. The holes are then covered by a cap of chewed bark. These caps are fairly easy to see as they are a slightly different color than the stem. Figure 2 shows the

egg-laying sites in fall when they are new, and figure 3 shows them after the larvae have emerged. We may still have time to minimize populations by cutting out and destroying these egg-laying sites. You only have to cut out the infested twig tips, not the whole branch. If we can kill a large portion of the population before they hatch, management of this pest will be easier for the rest of the season.

Figure 3 Eggs sites after larvae have emerged

When the larvae do hatch, they are tiny. In fact, they are so small that they are easily overlooked. In figure 4, the little spot next to the penny is a very young viburnum leaf beetle larva. Be looking for them on leaves that are only about half open. The larvae can be found feeding between the veins and doing damage before the leaf has completely expanded. Figure 5 shows a leaf that is only partially expanded, but already being fed upon by newly hatched larvae.

The larvae, when larger, are easier to see (about 1/3 inch), 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 foliage.

Figure 4 Very young VLB larva below penny

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 holes in the leaves. The beetles are about ¼ inch long and 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: From October through April twigs with eggs in them can be pruned out and destroyed. This is the most effective way to reduce populations and minimize damage and is highly recommended. If the larvae can't hatch, they can't eat. Trim out only the last few inches of each twig where egg-laying sites are visible. You do not need to cut the whole stem.

Insecticides can be used on the larvae from late April through June when they are feeding. Michigan State University suggests treating **larvae** with spinosad, insecticidal soap or chlorantraniliprole. To be effective, spinosad and insecticidal soap must be sprayed on the larvae (usually found on the undersides of the leaves). Chlorantraniliprole can be sprayed on the insect or on the plant. Cornell University also suggests a single soil application of imidacloprid in spring to control **adults** this summer. Because imidacloprid is systemic, it can be translocated into the flowers and pose a hazard for pollinators. If previous damage warrants the use of this product, protect pollinators by applying imidacloprid immediately after flowering ends. Other insecticides can be used in summer when the beetles are out. Insecticidal soap is not effective against the adult beetles. If the larvae are successfully controlled in spring, there will be no adults to treat. The larvae do a lot of damage and are easy to kill, so it is worth attacking that stage of the life cycle.

Figure 5 Young VLB larvae feeding on half-expanded leaf

If you plan to add new viburnums to the landscape, don't plant big groups (remember diversity is the way to go). Plant one or two, and this pest will be easier to manage.

Good websites: http://www.hort.cornell.edu/vlb/manage.html
https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/viburnum-leaf-beetle/

Eastern tent caterpillar (minor to potentially serious, depending on population)

Eastern tent caterpillar (*Malacosoma americanum*) has not been spotted yet, but it is a pest that often starts to show up at GDD 100-200, so we will want to be looking later this month. When the caterpillars start to emerge, look for small tents beginning to form. They gather at a fork in a tree and build a web or "tent" (fig. 6), but at this point you may need to look carefully to spot it. The caterpillars will ultimately grow to two inches long and are hairy with white stripes down their backs

Figure 6 Tent made by Eastern tent caterpillar

and blue spots and yellow lines (fig. 7). These markings will not be as distinct on younger caterpillars. The caterpillars leave the web to feed during the day, but return at night. Severe defoliation only occurs when populations are high.

Eastern tent caterpillars prefer trees in the rose family, such as wild black cherry, apple and crabapple, plum, and peach, but will also feed on ash, birch, willow, maple, oak, and poplar.

Figure 7 Eastern tent caterpillar

Management: The most efficient method for managing the caterpillar is pruning out the nests. This should be done on cloudy or rainy days or at night when the caterpillars are in the nest and not out feeding.

Good website:
https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/tent-or-web-making-caterpillars/#overview

Spongy moth (formerly Gypsy moth) (serious)

Figure 8 Early instar of spongy moth caterpillar

Spongy moth (*Lymantria dispar dispar*) caterpillars are serious defoliators that feed on over 300 species of trees and shrubs. The caterpillars begin to hatch between GDD 100 and 200. Again, the cold weather will be slowing their emergence, but it is wise to be scouting and catch them early as spongy moth populations have been rising in the last few years. Note that very early instar caterpillars will not look the same as older caterpillars (fig. 8). As the caterpillars mature, they will develop 5 pairs of blue bumps, followed by 6 pairs of red bumps (fig. 9). Their favorite host trees include oak, crabapple, birch, linden, willow, and hawthorn. Although deciduous trees that are defoliated can put out a new set of leaves, the trees use a lot of resources to do so. Trees that suffer a lot of defoliation (greater than 50%) several years in a row may die. Severe defoliation also makes trees more susceptible to other problems. Needle-bearing conifers, including spruces and pines, cannot re-foliate and therefore may die after one season of attack.

Figure 9 Late instar spongy moth caterpillar

Once active, the caterpillars will be feeding for a few weeks. They pupate mid-June into early July (GDD 900-1200). Each insect pupates for about 10 to 14 days, generally emerging as adults in mid-July through mid-August. The adults will mate and lay eggs, then die.

Management: *Bacillus thuringiensis* var. *kurstaki* (*Btk*) can control young larvae but is not as effective against more mature larvae. Treat while larvae are still relatively small. The first three instars remain in the tops of trees, so detection may be difficult. Mature larvae (fourth instar and later) feed at night and crawl down from tree tops to hide during the day in protected spots.

Good website:
https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/gypsy-moth/

European pine sawfly (minor to potentially serious, depending on population)

Another pest to expect around GDD 100-200 is the European pine sawfly (*Neodiprion sertifer*). When the larvae come out, they will be very small at first. Look at the ends of branches, as the eggs were laid in last year's needles. If you can't find any larvae, check the needles for unopened eggs. 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 (fig. 10). This is a great defense mechanism. When fully grown, the sawflies will be about ¾ - 1 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 needles look like straw. Eventually as the insects mature, they are able to eat entire needles. The larvae feed 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.

Figure 10 European pine sawfly larvae

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 website:
https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/pine-sawflies/

Pest Updates: Diseases

Boxwood blight (serious) or something else?

Yes, boxwood blight is in northern Illinois and in some areas, there is quite a bit of it, but not in all areas. The symptoms of boxwood blight can be confused with the symptoms of other boxwood problems. Leaf spots are a symptom of boxwood blight. But leaf miners can also cause leaf spots. Holding a leaf up to the light can reveal the insect larva inside, if the cause is really leaf miner. You can also cut open a spot with a razor or even a pin and if you find an insect larva inside, the problem is leaf miner.

Another symptom of boxwood blight is quick decline of foliage leading to major defoliation. The leaves quickly turn yellow and fall off, generally starting at the bottom and moving upwards through the plant. In contrast to that, we often see boxwood branches that are dying from canker diseases. On these branches, all the leaves will turn brown on the diseased branch, but will stay attached to the branch for a long time.

Boxwood blight can also result in stem cankers. These cankers are along the stems and are long and narrow and very dark in color. Older boxwood stems will often develop elongated areas on the stem that are no longer green, but they are normal and usually tan or light brown in color. The canker diseases mentioned in the above paragraph often result in cracked or peeling bark, so they have a different appearance.

The bottom line here is that when a boxwood is doing poorly, it is wise to take some time and examine it carefully to determine the real cause of the decline. Boxwood blight is in the area, but we also have a number of other problems affecting boxwood. The first website link below takes you to a document from the University of Illinois that has good photos of boxwood blight.

If you need some help sorting out the symptoms on your boxwood, you can call the Plant Clinic at The Morton Arboretum (630-719-2424) or email us photos taken at high resolution (plantclinic@mortonarb.org). The Morton Arboretum Plant Clinic CANNOT accept samples as it

is not a diagnostic lab. Samples must be sent to an approved lab. In Illinois that lab is the University of Illinois Plant Clinic in Champaign-Urbana.

Good websites: https://uofi.app.box.com/v/boxwoodblight
https://www.extension.purdue.edu/extmedia/bp/bp-203-w.pdf

Black knot (potentially serious)

Black knot (*Apiosporina morbosa*) is a serious and widespread problem of trees in the genus *Prunus*, especially plum and cherry trees. The Plant Clinic at The Morton Arboretum receives questions on this problem year-round since it is so prevalent and so easy to spot. Now is the time to look for new abnormal swellings on branches of cherry, peach, plum and related trees. The fungus overwinters in the hard, brittle, rough, black "knots" on twigs and branches of infected trees such as wild black cherries in the woods. These knots may be small or may be several inches long and wrap around the branch. In some instances, the main trunk of the tree can become infected.

Figure 11 Black knot showing an old infection on the left, a newer infection in the middle and a new one developing on the right (swelling of stem)

In the spring, the fungus produces spores within tiny fruiting bodies on the surface of these knots. The spores are ejected into the air after rainy periods and infect succulent green twigs of the current season's growth. The newly infected twigs and branches swell. The extensive overgrowth of bark and wood is a response to hormones and produces the smaller swellings that we will soon be seeing. Frequently these swellings are not noticed the first year. The swellings become dormant in winter. But the following spring, velvety, green fungal growth will appear, and the knot increases in size. The knots darken and elongate during summer and, by fall, turn hard, brittle, rough and black (fig. 11). The black knots enlarge and can girdle the twig or branch, eventually killing it.

Management: This is a difficult disease to manage. Prune and discard all infected wood during late winter or early spring before growth starts and when new swellings appear. Pruning cuts should be made at least four inches below any swellings or knots. In advanced cases with many knots, pruning out branches may not be feasible as it may destroy the shape of

the tree. Fungicides offer some protection against black knot, but are ineffective if pruning and sanitation are ignored. Fungicides are protective, not curative.

Good web site:
https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/black-knot/

https://extension.umn.edu/plant-diseases/black-knot

Diplodia tip blight (serious)

Diplodia tip blight (*Diplodia pinea*) is doing a lot of damage to Austrian pines. This disease was *Diplodia*, then became *Sphaeropsis* and now is called *Diplodia* once again. It is a common disease of two- and three-needle pines in our region. Austrian, mugo, red and Scots pines are highly susceptible to this disease, especially if they are stressed. The fungus infects needles as they are expanding, thus causing stunting and turning the needles straw-colored or brown (fig. 12).

Figure 12 Diplodia tip blight

Some "bleeding" or resin may appear, dripping from infected branches, due to small cankers. This is a 'tip' blight, so it infects new growth that emerges in spring. Dead shoot tips and needles (held on by resin) from previous years are often found throughout the canopy of larger trees. Black pepper-like fruiting bodies form at the base of the needles (look underneath the needle sheath) soon after the needles die.

Management: Most of the pines that get this disease are no longer recommended for use in the landscape. Managing the disease on existing trees is possible through sanitation, cultural and chemical control practices. Rake up and discard infected cones and needles to remove immediate inoculum sources. The spores are moved on air currents, so sanitation will never be the complete answer. Also, keep trees mulched (do not use diseased pine needles as mulch) and watered during dry periods. Avoid overhead irrigation which helps spread spores, and do not prune susceptible trees in wet weather. As soon as tip blight is noticed, prune out and destroy diseased tissue. Sterilize tools between pruning cuts. Fungicides are effective if applied at bud break (additional sprays are needed as well, check the label for details).

Good website:
https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/diplodia-tip-blight/

https://ohioline.osu.edu/factsheet/plpath-tree-03

Pest Updates: Weeds

***Ficaria verna* (invasive; classified as an exotic weed in Illinois)**

With our cold spring, many plants are very slow to emerge this year. Not so with *Ficaria verna*! The Plant Clinic at The Morton Arboretum has already started to receive emails about this pesky plant. You may know this plant as fig buttercup, lesser celandine or pilewort. Or maybe you know if by one of its scientific names. The current name is *Ficaria verna*, but it was once classified as *Ranunculus ficaria.* Some of those names almost sound friendly, but this is not a plant to invite into your yard.

Figure 13 Ficaria verna

Illinois classifies this plant as an exotic weed under the Illinois Exotic Weed Act. The Midwest Invasive Plant Network, on their invasive plant list, shows that three Midwestern states have legislated against this plant and three other Midwestern states have the plant on a watch list.

What makes this plant a problem? This low growing, spring-blooming, plant is very pretty, but can be quite a spreader. It can grow quickly and crowd out spring ephemeral wildflowers that grow in moist woodlands. I have even spotted it in some suburban parkways, which are neither moist or wooded, so there is some adaptability here. The time to manage it is often very short, so we want to be ready.

Management: Manage this weed by spraying it with a systemic herbicide. This works best in early spring when the plant is in active growth. These products generally kill just about anything green, so do not get them on any desirable plants. The foliage of this plant may die back in early summer so treat as soon as you see it growing in your yard. It may take more than one year to get rid of it since there is such a short time to treat. Manual removal of the plant may be sufficient when the population is small.

Good websites:
https://www.invasive.org/alien/pubs/midatlantic/five.htm
https://www.eddmaps.org/midwest/distribution/uscounty.cfm?sub=3069
https://www.invasiveplantatlas.org/subject.html?sub=3069

Crabgrass preventer update

Crabgrass is beginning to germinate in Southern Illinois. As soon as we start to get some consistently warm temperatures, crabgrass will get going. Consider getting your crabgrass preventers applied in the next two weeks or so.

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The Plant Health Care Report is prepared by Sharon Yiesla, M.S., Plant Knowledge Specialist and edited by Stephanie Adams, Ph.D., Plant Health Care Leader; 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 all the staff and volunteers that report disease and pest problems when they find them. 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://mortonarb.org/about-arboretum/plant-health-care-report/

For pest and disease questions, please contact the Plant Clinic. You can contact the Plant Clinic via email at plantclinic@mortonarb.org . Emails will be answered during business hours Monday through Friday. You can call the Plant Clinic by phone (630-719-2424) or visit in person, Monday thru Friday 10 am to 4 pm. Arboretum members need a timed entry ticket is needed to enter the Arboretum and visit Plant Clinic in person. Non-members need a timed ticket and must pay the Arboretum entry fee.

Inquiries or comments about the PHCR should be directed to Sharon Yiesla at syiesla@mortonarb.org .

2022 Plant Health Care Report Index

Following is an index of the various subjects in this year's report. The number after each subject is the report number. For example, using the chart below, Cicadas…..1 means that it was discussed in the PHCR 2022.01 or the newsletter dated April 1, 2022. The index is updated with the publication of each full issue and is included at the end of each full issue.

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