

Plant Health Care Report

Scouting Report of The Morton Arboretum

April 16, 2021

Issue 2021.2

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

Our report includes up-to-date disease and insect pest reports for northeastern Illinois. Due to the ongoing COVID-19 situation, volunteers will not be scouting in the early part of the season. Once the situation improves, both Arboretum staff and volunteers will be scouting for insects and diseases. Plant Clinic staff are working remotely, but still able to answer questions via email at plantclinic@mortonarb.org. or by phone at 630-719-2424 (Monday thru Friday, 11 am to 3pm).

Quick View

What indicator plant is in bloom at the Arboretum?

Eastern redbud (*Cercis canadensis*) is just beginning to flower (Figure 1). Early flowering of this tree can indicate that pine sawfly and gypsy moth larvae may soon be arriving. Iowa State says that when it is in full bloom, crabgrass seed will start to germinate, so now is the time to get the crabgrass preventer down if you have not done so already.

Accumulated Growing Degree Days (Base 50): 95 (as of April 15)

Insects/other pests

- Eastern tent caterpillar
- European pine sawfly
- Gypsy moth
- Euonymus scale...
- ..and oystershell scale

Diseases

- *Diplodia* tip blight
- Black knot

Weeds

- *Ficaria verna*

Miscellaneous

- Lichens



Figure 1 *Cercis canadensis*

Soil temperatures around Illinois (from Illinois State Water Survey)

This information will be provided in spring and fall issues only. For more data 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 April 16, 2021	St. Charles reporting station (north)	Champaign reporting station (central)	Carbondale reporting station (south)
2-inch, bare soil	45.3	47.5	46.2
4-inch, bare soil	48.3	50	50.2
4-inch, under sod	49.4	54.5	55.9
8-inch, under sod	50.1	56.5	55.7

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

As of April 15, we have 95 base-50 growing degree days (GDD). The historical average (1937-2020) for this date is 1 GDD₅₀. 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 the first issue of 2020, 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 4/15/21	GDD as of 4/16/20	GDD as of 4/16/15	GDD as of 4/17/14
Carbondale, IL*	255	190	233	144
Champaign, IL*	146	87	143	55
Chicago Botanic Garden**	148	No report	33.5 (4/15)	19 (4/16)
Glencoe*	41	7	No report	No report
Chicago O'Hare*	146	56	79	35
Kankakee, IL*	129	67	95	40
Lisle, IL*	147	61	No report	No report
The Morton Arboretum	95	40	31	9.5
Quincy, IL*	167	104	183	71
Rockford, IL*	85	37	51	20
Springfield, IL*	157	105	176	75
Waukegan, IL* (60087)	114	27	40	15
Waukegan, IL (60085)	132	34	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/>

Seasonal precipitation (rain and melted snow) in inches.			
	2021	2020	average
Jan	1.5	2.14	1.952
Feb	1.49	.85	1.769
Mar	1.24	4.15	2.536
April	.77 (as of 4/15)	4.37	3.692
May		8.24	4.194
June		4.91	4.190
July		2.87	3.893
Aug		1.1	3.802
Year to date	5 (as of 4/15)	11.51 (as of 4/30)	9.949 (as of 4/30)
Total (Jan-Aug)		28.63 (Jan-Aug)	26.03 (Jan-Aug)

Oak and Elm Pruning Advisory

Stop pruning oaks and elms now. Sap and bark beetles, the insects that spread the pathogens that cause oak wilt and Dutch elm disease, will soon be active. The beetles are attracted to pruning wounds. Pathologists differ in their opinions on when to resume pruning. To err on the side of safety don't prune oaks and elms between April 15 and October 15, when the beetles are active. If you must prune close to or after that deadline, seal the pruning cuts immediately. Wisconsin DNR offers this guideline about the emergence of the vectors: As a rule of thumb, "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 oak wilt.

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
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	Elm flea weevil	Overwintering adults and larvae	Chewing leaves
100-200	Pine sawfly	larvae	Chewing needles
100-450	Gypsy moth	larvae	Chewing leaves
100-200	Zimmerman pine moth	Larvae emerging from overwintering sites on trunk	Tunneling into bark

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. When they start to emerge, look for small tents beginning to form. The larvae gather at a fork in a tree and build a web or “tent” (fig. 2), 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 and blue spots between longitudinal yellow lines (fig. 3). These markings will not be as distinct on the young caterpillars. They leave the web to feed during the day, but return at night. Severe defoliation only occurs when populations are high.



Figure 2 Tent made by Eastern tent caterpillar

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

Management: The safest way to control the caterpillar is pruning out the webs. This should be done on cloudy or rainy days or at night when the caterpillars are in the nest and not out feeding.



Figure 3 Eastern tent caterpillar

Good website:

<http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-pests/tent-or-web-making-caterpillars>

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 (fig. 4), making the group



Figure 4 European pine sawfly larvae

appear to be one much larger organism. This is a great defense mechanism. When fully grown, the sawflies will be about $\frac{3}{4}$ - 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-on 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.

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:

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

Gypsy moth (serious)

Gypsy moth (*Lymantria dispar*) caterpillars are serious defoliators that feed on over 450 species of trees and shrubs. This pest comes out at GDD 100-450. We have not found them yet this year, but it is wise to be scouting and catch them early as Gypsy moth populations have been rising in the last couple of years. Note that very early instar caterpillars (fig. 5) will not look the same as older caterpillars. As the caterpillars mature, they will develop 5 pairs of blue bumps, followed by 6 pairs of red bumps (fig. 6).

Their favorite trees are 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.

Once active, the caterpillars will be feeding for a few weeks. They pupate around the end of June, generally emerging as adults in mid-July through mid-August. The adults will mate and lay eggs, then die.



Figure 5 Early instar of gypsy moth caterpillar

Management: *Bacillus thuringiensis* var. *kurstaki* (*Btk*) can control young larvae but is not as effective against 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.



Figure 6 Late instar gypsy moth caterpillar

Good websites:

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

Euonymus scale... (potentially serious)

Euonymus scale (*Unaspis euonymi*) is one of those insects that we can find all year round. Right now, we are seeing the overwintering adults. This year, we are seeing them not only on euonymus ground cover, but also on pachysandra. Even though we see the adults all season, the young crawlers are out and active for only a short time. Many insecticide treatments are targeted at the crawlers when they emerge, which is generally around the early part of June (GDD 500-700). The crawlers are a pale, yellow-orange. Male adult scales are white, and the females are brown and oystershell-shaped (fig. 7). Euonymus scale overwinters as mated females on plant stems.



Figure 7 Euonymus scale, males (white) and females (brown)

Management: On smaller plants, like groundcover euonymus and pachysandra, heavily infested branches may be pruned out to reduce the population. Sprays of insecticide are commonly targeted at the young (crawler stage) of the scale. Start looking when GDD is 500 (usually early June, but possibly late May this year). Imidacloprid, used as a soil drench, may be used on some species of scale, but it is not generally effective on armored scale, like euonymus scale.

Good website:

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

... and oystershell scale (potentially serious)

Speaking of scale insects that are shaped like oyster shells, that brings us to the, you guessed it, oystershell scale (*Lepidosaphes ulmi*). We are also seeing this scale showing up on pachysandra. It may be possible to have both of them at the same time. They can be hard to tell apart. Both scales do have the overall shape of an oyster shell, but the female euonymus scale often tends to be more pear-shaped and a bit flattened.



Figure 8 large population of oystershell scale

The male euonymus scale is white and elongated. The oystershell scale is closer to really looking like an oyster shell (fig. 8) and is usually more convex. There may be some banding on oystershell scale, but it is not always obvious.

It is not only pachysandra that is affected by oystershell scale. It has a wide host range, and we did see it on some trees and shrubs last year. This year, The Morton Arboretum Plant Clinic has already had a report of it on a Freeman's maple. The population was so dense that the bark of the branch could not be seen. This is a pest to be watching.

Oystershell scale overwinters as eggs under the female's protective cover. The crawlers emerge just slightly earlier (GDD 300) than those of euonymus scale (GDD 500). In the last three years, those GDD (300 vs 500) were separated as little as 1 week and as much as 2 weeks.

Management: With the emergence of both crawlers so close to one another, it may not matter if you are sure which scale you have on pachysandra, or if you have both. When you spray for one, you may catch both, if you time it right. Careful scouting of plants will be important. Start looking for crawlers around that GDD 300 mark. Like euonymus scale, oystershell scale is also one of the armored scale and imidacloprid is not effective against it as a drench.

Pest Updates: Diseases

***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. 9). As I walk around my neighborhood, I see the terminal buds on Austrian pines already swelling a bit, so bud break may come a bit early this year, depending on how temperatures trend over the next couple of weeks.



Figure 9 Stunting of new growth due to *Diplodia*

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, and 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 label for details).

Good website: <http://www.mortonarb.org/trees-plants/plant-clinic/help-diseases/diplodia-tip-blight>
<https://ohioline.osu.edu/factsheet/plpath-tree-03>

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 10 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. 10). 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 to eight 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:

<http://www.mortonarb.org/trees-plants/plant-clinic/help-diseases/black-knot-ornamental-cherry-and-plum>

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

Pest Updates: Weeds

***Ficaria verna*, a weed of many names (aggressive)**

You may know this plant as fig buttercup, lesser celandine or pilewort. Or maybe you know it 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 11 *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 two other Midwestern states have the plant on a watch list.

Every year, The Morton Arboretum Plant Clinic gets a few reports of this plant in northern Illinois. We already have two reports of it. What makes this plant a problem? This low growing, spring-blooming, plant is very pretty (fig. 11), but can be quite a spreader. It can grow quickly and crowd out spring ephemeral wildflowers that grow in moist woodlands. I have 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>

Miscellaneous

Lichens (minor)

A call that comes into The Morton Arboretum Plant Clinic all year round (and very frequently) regards strange growths, called lichens, on tree branches and trunks. Lichens are often flat and scaly and come in many colors (gray, white, blue-green, blue-gray, fig. 12). Lichens are the result of a relationship between a fungus and algae. These organisms will not harm the tree, but they can be an indicator that something is not well for your plant. Lichens grow best on plants that have slow growth (it's hard to get established on a stem that is actively growing), so if anything is negatively impacting the growth of your tree or shrubs, the lichens will find it easy to settle in.



Figure 12 Lichens growing on a tree trunk

In the last few years, we have seen a big increase in calls about this problem. Lichens are currently very abundant in the landscape. So, what is going on? We have had several years of environmental stress, everything from drought to flooding to harsh winters. This is taking a toll on our landscape plants, causing them to grow slowly or poorly. The lichens are not a problem, but they do remind us that our plants need good care to help them through these difficult times.



Bartlett Tree Experts, Plant Clinic sponsor

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://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. Plant Clinic can also be reached by phone (630-719-2424), Monday thru Friday 11 am to 3pm. Inquiries or comments about the PHCR should be directed to Sharon Yiesla at syiesla@mortonarb.org.

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2021 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, Cankers..... 1 means that it was discussed in the PHC report 2021.01 or the newsletter dated April 2, 2021. 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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