

Plant Health Care Report

Scouting Report of The Morton Arboretum

April 17, 2020

Issue 2020.2

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 in the early part of the season. Once the situation improves, Arboretum staff and volunteers will be scouting for insects and diseases. We will also 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?

Corneliancherry dogwood (*Cornus mas*) is still in full flower (Figure 1)

Accumulated Growing Degree Days (Base 50): 40 (as of April 16)

Accumulated Growing Degree Days (Base 30): 684.5 (as of April 16)

Insects/other pests

- Zimmerman pine moth
- Peachtree borer
- Hydrangea borer

Diseases

- Cedar rust
- *Diplodia* tip blight
- *Volutella* blight on pachysandra.
- Crown gall
- Black knot

Weeds

- *Ficaria verna*, a weed of many names
- Crabgrass preventer update

Miscellaneous

- A little thought about growing degree days
- Lichens
- Vole damage
- Rabbits



Figure 1 *Cornus mas*

Oak and Elm Pruning Advisory

Just a reminder - **stop pruning oaks and elms by April 15!** 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 the beetles that can carry oak wilt.

Adapting to the situation

The Arboretum grounds have been closed to the public for a couple of weeks and staff have been working remotely from home for an even longer time. So, you may be asking, how can they still write this newsletter? There are actually a lot of resources on which I can draw. Plant Clinic is still answering questions via email and many of these questions are accompanied by pictures that verify for us what problems are occurring out in the region. Also, the scouts that are usually out on the grounds are now looking around their own neighborhoods and reporting what they see there. Casual observations from staff members have inadvertently provided me with information. A little drive around the area has yielded information about indicator plants in flower as well as problems. Also, it doesn't hurt that as a long-time horticulturist, I have a feel for what problems come when and which things can be discussed every year. All in all, it gives me enough to put together a newsletter that I hope you find useful. Thanks 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 April 16, we have 40 base-50 growing degree days (GDD). The historical average (1937-2019) for this date is 3 GDD₅₀. Since January 1, we have had 8.33 inches of precipitation. Historical average (1937-2019) for precipitation Jan-April is 10.3 inches.

Location	B ₅₀ Growing Degree Days Through April 16, 2020	Precipitation (in) April 10-16, 2020
Carbondale, IL*	190	
Champaign, IL*	87	
Glencoe*	7	
Chicago O'Hare*	56	
Kankakee, IL*	67	
Lisle, IL*	61	
The Morton Arboretum	40	.78 inches
Quincy, IL*	104	
Rockford, IL*	37	
Springfield, IL*	105	
Waukegan, IL* (60087)	27	
Waukegan, IL* (60085)	34	

*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

Zimmerman pine moth (serious)

Over the last year or two it seems that The Morton Arboretum Plant Clinic has had an increase in calls about Zimmerman pine moth. Already, we have had a number of emails about it for this year. The cooler temperatures that we have been having may slow down the activity of this pest, causing it to become active a bit later than usual. Larvae overwinter in cocoon-like structures under bark scales. They become active in the spring (usually between 100 and 200 GDD base 50) and tunnel into the bark and sometimes the terminals. In late spring, they migrate to the base of branches, tunneling into the whorl area where pitch masses (fig. 2) exude from the wound site. The larvae continue to feed, pupate within the pitch mass, and emerge as adults in August. After mating, female moths lay eggs, often near wounds or previous pitch masses. Eggs hatch in about a week, and the larvae feed for only a brief time before preparing to overwinter.



Figure 2 Pitch masses from Zimmerman pine moth

Management: Larvae are very difficult to detect by scouting, so you have to focus on symptoms and phenological indicators. Damaged wood should be pruned out as soon as dieback and pitch masses are seen. Larvae can be controlled by spraying bark and foliage with insecticides when saucer magnolia is in pink bud to early bloom (70 –160 GDD). We will have another chance to treat in mid-August; GDD 1900-2150 (this GDD derived from several universities, not “Coincide”).

Good website: <http://www.mortonarb.org/trees-plants/plant-clinic/help-pests/pine-moths>

Peachtree borer (serious)

You may be asking why we are discussing peachtree borer, since peaches are not a big crop here. This insect not only attacks peach trees, but cherry trees as well, and we have a lot of cherry trees in the landscape. Additionally, these borers tend to go to trees under stress, and we have had years of environmental stress piling up on our trees. One of our scouts notified me of borer damage on a cherry tree in her neighborhood.



Figure 3 Resin flow on cherry tree due to peachtree borer (Photo: Sharon Yiesla)

The adults are clear-winged moths that look more like wasps than moths. They infest plants in the genus *Prunus*. The insect overwinters as a larva under the bark. These larvae are found low on the trunk, usually just below the soil line or in the lower 10 inches of the trunk. Young trees can be killed when trunks are girdled by feeding; older trees are weakened and become susceptible to attack by pathogens and other insects. Look low on the tree for exit holes, cracked bark, and resin (fig. 3) mixed with frass (insect excrement). Resin without frass may be an indicator of canker or frost cracking, rather than borers.

Adult emergence usually begins in June, and can continue for most, if not all, of the summer. Soon after emergence, the female lays eggs in bark crevices of host plants. Hatching occurs about seven to ten days later. The brown-headed, creamy-white larvae burrow into the bark and begin to feed on inner bark, eventually reaching an inch and a quarter long.

Management: Adult females are attracted to wounded and stressed trees to lay their eggs. Avoid wounding peaches, cherries, plum and other species within the genus *Prunus*. Keep the trees healthy by watering during dry periods and mulching properly. Be aware that peach and cherry trees are not well adapted to our northern climate and are often under stress just due to weather.

Due to the long timeframe for adult emergence and egg laying, it can be difficult to control this pest with insecticides. If trees are grown for edible fruit, any insecticide used must be labeled for use on trees bearing edible fruit.

Good websites: <https://entomology.ca.uky.edu/ef200>
<https://extension2.missouri.edu/g7190>

Hydrangea borer (minor)

This little guy shows up occasionally in Plant Clinic. One of our scouts has found this in her neighborhood. The borer hollows out the stem (fig. 4), and sometimes we find remains of pupal cases. We have not been able to fully identify this pest, and a reference search turns up no definite information so we are just very generically referring to this pest as a hydrangea borer. Damage is fairly minor and populations seem to be light, but with so many hydrangeas in the landscape now, it is probably worth keeping a lookout for this pest.



Figure 4 Hydrangea stem tunneled by borer

Damage is usually found when a stem is cut off during pruning, and the stem is found to be hollow. We have seen a handful of cases in the last year or two, and we suspect that the increase may be due to an increase in stress on our landscape plants. The weather for the last few years has not been great, and many of our trees and shrubs are under increased stress. Stressed plants can give off volatile chemicals that are attractive to wood boring insects. We have primarily seen this insect on paniced hydrangea (*Hydrangea paniculata*).

Management: At this point, we still feel that this is likely to be a minor pest. Prune out any stems that show obvious damage, and when pruning look for hollow stems and cut below that area until stems are solid. This should remove any borers present in the stems. Cut stems should be removed from the landscape. During dry spells, water hydrangeas weekly to help maintain vigor.

Pest Updates: Diseases

Cedar rust (potentially serious, but not life-threatening)

Temperatures may still be cold, but we have been having some rain (and snow!). That made me wonder about the cedar rust diseases that often start to sporulate about this time of year. My next-door neighbor has a juniper that is unlucky enough to have all three of the cedar rust diseases every year. This cold windy weather discouraged me from making the trek across the backyard, but I found that looking out my back window with a good pair of binoculars



Figure 5 Gall with telial horns starting to expand

gave me the view I needed (I said we were being creative with our scouting methods). Sure enough, I spotted some cedar-apple galls, and the telial (spore) horns had sprouted out about 1/4 inch (similar to those seen in fig. 5). The ten-day forecast includes both warmer temperatures and more rain. That could be enough to cause those horns to expand quickly. Cedar rust really does not harm the juniper host. We want to think about protecting the deciduous hosts (like crabapple and hawthorn). We want to be treating before the spores come in contact with the deciduous host's leaves, so treatment time should begin around the time when crabapple flower buds start to show color.

***Diplodia* tip blight (serious)**

Diplodia tip blight (*Diplodia pinea*) is currently 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 (fig. 6) and turning the needles straw-colored or brown. 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.



Figure 6 Tip of Austrian pine stunted and killed by *Diplodia*

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>

***Volutella* blight on pachysandra (potentially serious)**

The Plant Clinic at The Morton Arboretum has already received a few emails about *Volutella* blight on Japanese pachysandra (*Pachysandra terminalis*). In most springs, we see this disease right after snow-melt, and the plants tend to outgrow the disease quickly. In 2018, due to heavy rains in May, this disease ran rampant and did a lot of damage to large, established plantings. We also saw quite a bit of this in 2019 as well. The infections we are seeing this year, so far, are resulting in small patches of dead plants.

Volutella blight, caused by the fungus *Volutella pachysandricola*, will cause leaf blight and stem cankers on pachysandra. Symptoms first noticed in early spring are brown to tan leaf spots that can be confused with winter desiccation. The spots will enlarge and may eventually cover the entire leaf. Concentric circles form within the spots (fig. 7) and are diagnostic for this disease. Leaves eventually turn yellow and fall off the plant. Stems turn dark and die. During extended wet periods, salmon- or peach-colored fungal spore masses may be visible. Eventually, large patches of the ground cover may become infected and die.



Figure 7 *Volutella* on pachysandra

Volutella is an opportunistic pathogen. Damage from winter may allow this disease to get started. It can infect a plant any time during the growing season but is more common during periods of rainy weather. Infections tend to diminish as the weather becomes drier in the summer, but the high humidity created by densely planted and heavily mulched beds can promote the blight. Stress from overcrowding, too much sun, winter injury, and shearing may increase susceptibility to stem blight. Older and injured plant parts of Japanese pachysandra are more susceptible to the disease than young succulent tissue. Bottom line: consider whether the site is one in which pachysandra can thrive.

Management: Pachysandra prefers filtered sun or full shade, and will be stressed by too much sun and thus more susceptible to blight. Plants should be watered during dry periods by using drip irrigation and/or by watering early in the day to allow foliage to dry out. Avoid working with plants when they are wet to prevent the spread of disease. Remove and discard diseased leaves and plants as soon as symptoms are visible to limit spread to healthy plants. Clean up fallen leaves and other debris that may have accumulated on top of ground covers. Thin and divide overcrowded plants in early spring, when weather is dry, to improve air

circulation. Avoid over-fertilization, which causes dense foliage that encourages infection. Fungicides may be helpful in the early stages of the disease.

Good websites:

<http://www.mortonarb.org/trees-plants/plant-clinic/help-diseases/ground-cover-diseases>
<http://ag.umass.edu/landscape/fact-sheets/volutella-blight>

Crown gall (serious)

One of our scouts has found crown gall on euonymus ground cover in Wheaton. Crown gall has a wide host range and attacks woody and herbaceous plants. It is very common on rose and euonymus. It is caused by several strains of a bacterium, *Agrobacterium tumefaciens*, that form woody galls that girdle stems. The galls (fig. 8) appear near the soil line on most plants. The bacterium lives in the soil and is spread by splashing rain and by tools that were used in infected soil and not cleaned properly. Infected soil on shoes may also be a source of inoculum.



Figure 8 Crown gall on wintercreeper euonymus

Management: Remove and destroy infected plant parts. As the bacterium must enter the plants through wounds, avoid wounding stems and roots. Do not plant in the infected soil for 5 years. Without a host plant, the bacterium will eventually die out. Grasses are immune and can be planted in area where crown gall has been found.

Good websites:

<http://extension.psu.edu/pests/plant-diseases/all-fact-sheets/crown-gall>
<https://ag.umass.edu/landscape/fact-sheets/crown-gall>

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” (fig. 9) 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.

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. The black knots enlarge and can girdle the twig or branch, eventually killing it.



Figure 9 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)

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)**

Beth Botts, senior staff writer for The Morton Arboretum, is usually not a contributor to this publication. However, in a recent email, she mentioned that her yard has lesser celandine EVERYWHERE. If you don't recognize that name, maybe you know this plant as fig buttercup 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.

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. What makes this plant a problem? This low growing, spring-blooming, plant is very pretty (fig. 10), but can be quite a spreader. It can grow quickly and crowd out spring ephemeral wildflowers that grow in moist woodlands. The time to manage it is often very short, so we want to be ready.



Figure 10 *Ficaria verna* (photo: Sharon Yiesla)

Management: Manage this weed by spraying it with an herbicide containing glyphosate. This works best in early spring when the plant is in active growth. Glyphosate will kill anything green, so do not get it 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:

<http://www.newinvaders.org/species/fig%20buttercup.pdf>

<https://www.invasiveplantatlas.org/subject.html?sub=3069>

Crabgrass preventer update

In our first issue we talked about when to apply crabgrass preventers. I mentioned a couple of different criteria to use. Crabgrass seed will not germinate until SOIL temperatures are greater than 55 degrees F for 5-7 consecutive days. That still has not happened. Iowa State gives this guideline: “Crabgrass seed germination usually begins ... when redbud trees reach full bloom” and that is often mid to late April. Looks like it will be closer to late April this year.

So, can we think about applying crabgrass preventers? The answer is yes. Despite the fact that we have not reached the two criteria mentioned above, we do want to think about applying soon. These products are preventers, so we do want to get them down before germination begins. We are close enough now to start planning. Check the label of the product you purchase as not all products will be applied the same way.

Miscellaneous

A little thought about growing degree days

Growing degree days are a great tool, but we must remember that they are not perfect. The strange up and down temperatures we are having this year may shine a light on those imperfections. According to the temperatures we have recorded to date, we only have 40 growing degree days (base 50) at the Arboretum, which is located in Lisle. Another weather station in Lisle is recording 61 growing degree days for the same date. Why?

Over the last few weeks, we have had some days where the temperatures recorded at our weather station were close enough so that we ALMOST recorded a degree day or two. Even though those temperatures don't trigger a degree day, there is some likelihood that they do have an impact on plants and insects. The temperatures at the Lisle station may have exceeded ours just enough that to get those extra GDD on several occasions. Also, temperatures can vary a bit from location to location within a given area (like a city). We get the Lisle data from gddtracker.net which uses a number of different models to obtain GDD base 50, GDD base 32 and GDD base 22. We use the averaging methods. Differences in methodology can also lead to some variations between reporting stations. So growing degree days are good guidelines, but they are not as precise as we would like. They are still far superior to the old calendar method of tracking and treating pests. Note that when we give GDD within an article those are GDD base 50.

Lichens (minor)

A call that comes into the 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 (fig. 11) and come in many colors (gray, white, blue-green, blue-gray). 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 11 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.

Vole damage (minor in lawns, serious on shrubs)

Voles have been very active during winter and early spring. Voles are small, mouse-like animals. They can run under the snow and feed on the bark of shrubs and young trees. If the vole girdles the branch or trunk, that branch will die. Vole damage may also be seen in lawns. Vole damage usually occurs in winter, especially when we have snow cover. Voles will produce shallow runways in the lawn (fig. 12) which become obvious when the snow melts. This damage will fill in as the lawn begins to grow.



Figure 12 Vole damage in lawns

For more information on animal damage and management of that damage, go to The Morton Arboretum website: <http://www.mortonarb.org/trees-plants/plant-clinic/horticulture-care/animal-damage>

Rabbits (serious)

I don't need a report from the scouts or anyone else to know that the rabbits have also been very busy over the winter and into early spring. Most of the shrubs in my yard were pruned over the winter, but not by me. When I go out to look at the yard every day, I note which plants are sending up shoots and I also make note of what has gone missing since yesterday. Rabbits can feed high on shrubs, as they can stand on their haunches easily. They can also run across the surface of the snow. Branches show a distinct 45-degree angle where the rabbit has bitten them off. Rabbits can also chew the bark off of the lower branches.

Animal repellent can be useful in deterring rabbits, but it must be applied early in the season to teach the rabbit that he really does not want to eat this plant. Repellants may use smell and might contain eggs or coyote urine. Others focus on taste and these often contain capsaicin (derived from peppers) that give the plant a hot taste. Some local garden centers are open now and some are offering curbside pickup for safety (call or check the websites of your favorite

garden center for more information). I was also pleasantly surprised to see that I could buy animal repellants from some on-line vendors.



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 Cospers, Ingrid Giles, Loraine Miranda, and Emma Visee. 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.

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.

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