

Plant Health Care Report

Scouting Report of The Morton Arboretum



THE
CHAMPION
of TREES

June 10, 2022

Issue 2022.6

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 4 pm). 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?

Japanese tree lilac (*Syringa reticulata*) is flowering (fig. 1). It can serve as an indicator for a variety of pests. In early to full flower (500-700 GDD), it can indicate hatching of euonymus scale crawlers. In full to late flower (700-800 GDD), it can indicate time for bagworm caterpillars to hatch out and begin to feed.

Accumulated Growing Degree Days (Base 50): 641 (as of June 9)

Insects

- Euonymus scale
- Oystershell scale
- Pine needle scale
- Four-lined plantbug
- Viburnum leaf beetle update
- Rose slug sawfly
- Woolly aphids

Diseases

- Eastern filbert blight
- Rust on elderberry
- Downy leafspot on hickory
- Witchhazel blight

Weeds

- Poison hemlock
- Weeds or not?



Figure 1 Japanese tree lilac

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.)

Max. Soil temps For 6/9/2022*	St. Charles reporting station (north)	Champaign reporting station (central)	Carbondale reporting station (south)
2-inch, bare soil	79.6	89.9	94.7
4-inch, bare soil	79.1	83.6	83.6
4-inch, under sod	73.1	75.4	83
8-inch, under sod	68.9	71.6	76.4

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

Degree Days (current and compared to past years)

As of June 9, we have 641 base-50 growing degree days (GDD) at The Morton Arboretum. The historical average (1937-2021) for this date is 527 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 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 6/9/22	GDD as of 6/10/21	GDD as of 6/11/15	GDD as of 6/12/14
Carbondale, IL*	1119	1013	1136	1120
Champaign, IL*	854	823	960	919
Chicago Botanic Garden**	No report	726	494 (6/10)	488.5 (6/11)
Glencoe*	344	417	No report	No report
Chicago O'Hare*	692	789	730	709
Kankakee, IL*	706	733	783	762
Lisle, IL*	702	778	No report	No report
The Morton Arboretum	641	665.5	599.5	571
Quincy, IL*	899	886	1030	960
Rockford, IL*	588	691	607	599
Springfield, IL*	882	865	1020	953
Waukegan, IL* (60087)	552	679	542	560
Waukegan, IL (60085)	605	728	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

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	3.88	1.39	3.665
May	6.10	3.34	4.18
June	1.8 (as of 6/9)	6.57 (whole month)	4.2 (whole month)
July			
Aug			
Sept			
Year to date	19.27 (as of 6/9)	15.53 (Jan thru June)	18.3 (Jan thru June)

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
300-700	Oystershell scale	Crawlers emerging	Feeding on sap
500-700	Euonymus scale	Crawlers emerging	Feeding on sap
500-600	Viburnum crown borer	Caterpillars hatching and entering bark	Tunnel under bark
700-800	Bagworm	Caterpillars emerging	Chewing foliage
900-1200	Japanese beetle	adults	Chewing foliage; mating and laying eggs

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. Even though we see the adults all season, the young crawlers are out and active for only a short time (and now is the time to look). 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. 2). Euonymus scale overwinters as mated females on plant stems. Euonymus scale does not produce honeydew.



Figure 2 Euonymus scale adults, male (white) and female (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. 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:

<https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/scale-insects/#overview>

... 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*). On plants like pachysandra, it may be possible to have both oystershell and euonymus scale 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. The male euonymus scale is white and elongated. The oystershell scale is closer to really looking like an oyster shell and is usually more convex. There may be some banding on oystershell scale, but it is not always obvious. Oystershell scale does not produce honeydew.

This scale has a wide host range, and we did see it on some trees and shrubs last year. Populations can get very dense, sometimes to the point where the bark of the branch cannot be seen (fig. 3). 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). We are past both of those GDD levels already.

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.

Good website:

<https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/scale-insects/#overview>

Pine needle scale (potentially serious)

As long as we are talking about scale, let's keep going. Chris Henning of the Chicago Botanic Garden tells me that crawlers of pine needle scale (*Chionaspis pinifoliae*) are out. Pine needle scale overwinters as eggs under a female adult. The female looks like a white, tear-drop shaped fleck on a pine needle (fig. 4). After the eggs hatch, the tiny crawlers move to a new site on the host plant to feed. They suck sap from the needles. As the crawlers develop, they secrete a white, waxy covering over their bodies. By late June or early July, they reach maturity, and second-generation eggs are laid. Second generation crawlers begin to appear in late July to early August. A heavy infestation will cause needles to turn yellowish brown. Pine needle scale does not produce honeydew.



Figure 3 Large population of oystershell scale

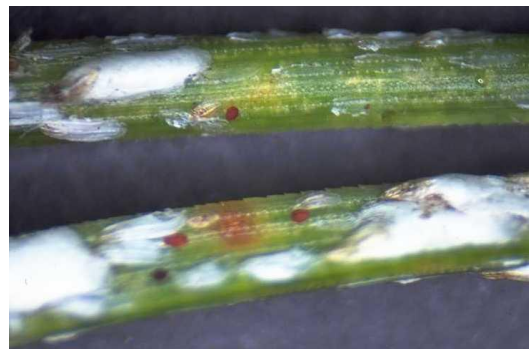


Figure 4 Pine needle scale adults and crawlers

Heavy infestations can give trees a flocked appearance. After multiple years of severe infestation, branches, and sometimes trees, can be killed. Pine needle scale prefers Scots and mugo pines and occasionally infests Austrian, white, and red pines.

Management: Again, insecticide sprays are targeted at the young (crawler stage) of the scale. Pine needle scale is also one of the armored scale and imidacloprid is not effective against it as a drench.

Four-lined plantbug (minor)

Be looking for the four-lined plantbug (*Poecilocapsus lineatus*). The nymphs are out, and feeding damage may be found on a variety of plants. This insect feeds on 250 species, including many kinds of perennials, vegetables, and shrubs such as bluebeard, forsythia, and sumac. Feeding injury is frequently mistaken for leaf spots. Four-lined plantbugs have piercing, sucking mouthparts which they use to break plant cells and then flush the feeding wound with digestive juices. Damage appears as dark leaf spots which subsequently turn translucent (fig. 5). The damage is more serious on herbaceous plants than on woody plants. Both nymphs and adults feed on leaves, creating the spots.

Nymphs are red and will develop dark wing pads as they mature (fig. 6). We are seeing them at this time. The adult stage is 1/4" to 1/3" long and has four longitudinal black lines on its yellow or green back, thus the name (fig. 7). It's quite a shy insect that scurries away when you try to find it. The insect overwinters as eggs laid in slits cut into plant shoots. There is one generation per year.

Management: Some people try to hand-pick these insects, but their timidity makes them difficult to catch. Small populations don't generally need to be controlled

Good website: <https://extension.umn.edu/yard-and-garden-insects/four-lined-plant-bugs>



Figure 5 Four-lined plantbug damage



Figure 6 Four-lined plantbug nymph



Figure 7 Four-lined plantbug adult

Viburnum leaf beetle update

We will soon be coming to the time when the viburnum leaf beetle (*Pyrrhalta viburni*) larvae finish feeding on viburnum leaves. The larvae will then go into the ground to pupate and become adults. While they are in the soil, they can't be treated with insecticides. Insecticides generally do not harm insects in the pupal stage. A soil drench of imidacloprid can be done now, but that will be taken up by the plant and will target the adults when they emerge to feed. It will not kill the pupae in the soil. In early July, the small brown beetles (fig. 8) will emerge and again feed on leaves.

Insecticides that are effective against other leaf-feeding beetles will manage this pest as well. Insecticidal soap that worked on the larvae will not treat the adults, due to their hard bodies.

In fall, look for egg-laying sites. The actual eggs are not visible. The eggs are laid in small holes on the ends of twigs, and then the holes are capped with a mixture of chewed wood and excrement. The caps are dark and stand out against the bark of the twig, making them easy to see. From October through March, cut out the twig tips that have the eggs in them and get them out of the garden completely. This is the most effective and least toxic means of control. It will greatly reduce the number of insects you have next year. If the eggs can't hatch, they can't eat.

Rose slug sawfly (minor)

The roses are ready to bloom (or maybe already blooming) and then there it is, a hole (or many holes) in the leaf. Someone is chewing on your rose plants. The rose slug sawfly (*Endelomyia aethiops*) is a likely culprit, but there are other species willing to damage your roses as well. The larvae are greenish yellow with orange heads (fig. 9) and are about ½ inch long when fully grown. They resemble caterpillars but are not. They are covered in slime that helps protect them from predators. When larvae mature, they lose their slimy coverings. The rose slug sawfly feeds on the upper layers of the leaf, leaving behind



Figure 8 Viburnum leaf beetle adult



Figure 9 Rose slug sawfly larva and damage

the lower epidermal layer and creating a "windowpane" effect. (Other species may make bigger holes, all the way through the leaf.) Around mid-June, larvae will drop to the ground to pupate, so this is a short-lived problem.

Management: Minor infestations of rose slug sawfly (or friends) can be controlled by using a forceful jet of water to dislodge the sawfly larvae or by handpicking. Although this insect looks like a caterpillar, it is not, so *Bacillus thuringiensis* var. *kurstaki* (Btk) will NOT control this pest.

Good website: <http://hort.uwex.edu/articles/roseslug-sawfly>

Woolly aphids (minor)

The aphids have been showing up on plants, and now their fuzzy cousins, the woolly aphids, are out and about. In our last full issue, we talked about the woolly apple aphid on elms. We now have had reports on woolly beech aphids. There are also woolly birch aphids, but we don't yet have a report on them being out. Both these insects look a lot like regular aphids, except they dress themselves up with a little bit of white fluff. Like regular aphids, they are sap feeders and also produce honeydew.

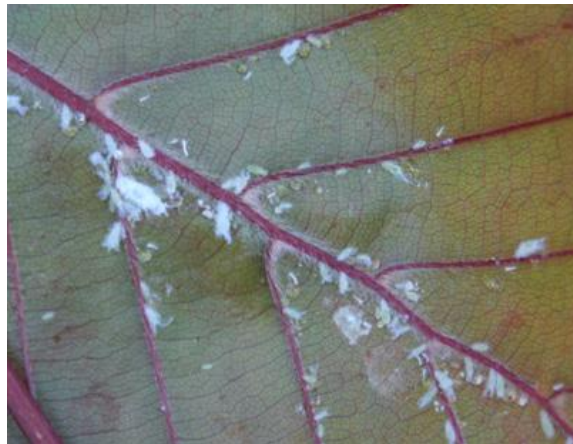


Figure 10 Woolly beech aphid

The woolly beech aphid (*Phyllaphis fagi*) (fig. 10) feeds only on beech trees (*Fagus* spp). It seldom does any real damage to beech trees. It can become a nuisance when populations are high, due to the mess of the honeydew it produces.

The woolly birch aphid (*Hamamelistes spinosus*), however, has two hosts, birch (*Betula* spp.) and witch-hazel (*Hamamelis* spp.). The insect overwinters on the bark of a birch tree. When spring comes, the female will give birth to live young on the undersides of new leaves. The feeding of



Figure 11 Woolly birch aphid tucked in on underside of leaf

the woolly birch aphid causes the leaf to take on a corrugated look at first. Later, the feeding will lead to curling of the leaves, with most of the insects tucked into the lower side of the leaf (fig. 11) protected by the curling of the leaf.

In late June, the aphids will go to their other host, witch-hazel. They will lay eggs on the twigs, and these eggs will overwinter on the witch-hazel. The eggs will hatch, and the feeding caused by this generation of aphids will lead to the formation of a spiny gall on the stem. The female produces a number of aphids in the gall, and then she leaves the gall to fly to the birch.

Management: Both of these woolly aphids are fairly minor pests. They can often be washed off the plant with a strong stream of water from the garden hose. Insecticides would not be needed, unless a very high population of insects develops.

Good websites: <http://hyg.ipm.illinois.edu/pastpest/200510e.html>
<http://hyg.ipm.illinois.edu/pastpest/200510f.html>

Pest Updates: Diseases

Eastern filbert blight (serious)

Eastern filbert blight, caused by the fungus *Anisogramma anomala*, has been reported to The Morton Arboretum Plant Clinic a couple of times this month on Harry Lauder's walking stick (*Corylus avellana* 'Contorta'). This disease has largely been studied in Oregon, where they have cool wet winters, so the lifecycle may be different in other parts of North America (Sinclair and Lyon). The pathogen requires 2-3 years to complete its life cycle, the length depending on the host's susceptibility. The symptoms include football-shaped pustule-like bumps (fig. 12) in single or multiple rows. The infected branches may have dead leaves attached. The plant will decline, but may not die for several years.



Figure 12 Fruiting bodies of Eastern filbert blight

The pathogen's life cycle begins in the fall during rainy periods. Spores are moved in water and wind to surrounding plants. Once the spores adhere to a branch, they germinate and infect the plant. The pustules form and produce spores that overwinter and infect new tissue next year.

Management: The most common management practice is planting resistant varieties of *Corylus*. The cankers can be pruned out of the tree successfully so long as all the infected tissue is removed. It may be moved around within an infected tree on pruning tools, so disinfecting pruning tools between cuts is imperative.

Good websites: <https://web.engr.oregonstate.edu/~mendelse/EFB/index.htm>

Rust on elderberry (minor)

We often spend a lot of time talking about the three cedar-rust diseases, but there are other interesting rust diseases. One of them has shown up on elderberry on the Arboretum grounds. Dr. Stephanie Adams and Horticulture Display Manager, Abbie Rea, reported finding this, and then one of volunteers saw it on grounds and sent me a great photo. This is a very cool looking disease as it causes the stems to grow out of proportion (fig. 13 on the right side of the photo). We have seen this rust from time to time in natural areas, but not usually in landscapes. In researching this rust on elderberry, we have found that the alternate host is sedge. Both hosts tend to be in natural areas, so this might explain why the disease is showing up there. Since we are now growing more sedges in the landscape, we might start seeing it more. Time will tell.



Figure 13 Elderberry rust (photo: Davida Kalina)

Management: This disease is not frequently seen and at this time is not a major problem. Good sanitation (removing infected parts and improving air circulation) should be suitable management techniques. Where elderberry is grown commercially this may be more of a problem.

Downy leaf spot of hickory (minor)

Downy leaf spot, also known as white mold or white leaf spot, caused by the fungus *Microstroma juglandis*, has been found on hickory (*Carya* sp.). Powdery, white, fuzzy spots

(fig. 14) that are more concentrated near the leaf veins are forming on the underside of the leaf surface. Corresponding chlorotic spots appear on the upper leaf surface. These spots vary in size and may coalesce to form large angular lesions. The fungus may also cause witches' brooms near the ends of branches with stunted and yellowish leaves that may drop in early summer.

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



Figure 14 Lower leaf surface showing white fungal spots

Witchhazel blight (potentially serious)

We are seeing symptoms of blight on witchhazel (*Hamamelis* species), caused by the fungus *Phyllosticta hamamelidis*. In the past, we have reported this as a leaf spot or blotch because the primary symptom has been irregular leaf blotches with very narrow dark-brown margins (fig. 15). The lesions often, but not always, begin at the leaf base and extend upward and outward eventually covering the entire leaf. This year we are reporting it as a blight as we are seeing a more severe infection that is killing the tip of the twig and all the attached leaves (fig. 16). This disease can defoliate witchhazels when severe.



Figure 15 Blotched leaf

Management: Prune branches and give plants ample space to improve air circulation. This fungus overwinters in fallen leaves; therefore rake and destroy leaves to reduce the source of inoculum. Fungicides can be applied in spring when leaves emerge.



Figure 16 Blighted leaves

Pest Updates: Weeds

Poison hemlock (dangerous)

We have had several reports of poison hemlock (*Conium maculatum*) being found in residential yards, as well as along highways. Poison hemlock (fig. 17) is a member of the carrot family (which contains both edible and toxic plants, so beware!!). Most members of this family have the same type of umbrella-shaped flower cluster known as an umbel. Because the flower cluster of Queen Anne's lace and the flower cluster of poison hemlock look similar, plants may be incorrectly identified. This can lead to contact with a dangerous plant.



Figure 17 Poison hemlock, first year (Photo: S. Yiesla)

Poison hemlock is a large, non-native plant (often 6 feet tall or more). The stem is stout and is marked with purple spots (fig. 18). It is also hollow. Leaves are large and very ferny in appearance (fig. 19). Poison hemlock is a biennial plant, which means it will form foliage in the first year and flower and set seed in the second year. Plants in their second year will have the typical white flower cluster (umbel) of the carrot family. Queen Anne's lace has one red floret in the center of its flower cluster, poison hemlock does not.

All parts of the plant are toxic and may lead to death if ingested. The plant's oil may be absorbed through the skin, so long sleeves and gloves will be needed when handling it.

Management: Plants can be cut down or dug out. This should be done before the plants go to seed and is most easily done when plants are small. Cover your skin during this process. Do NOT burn the plants. In spring, small, actively growing plants may be treated with an herbicide containing glyphosate.



Figure 18 Spotted stem of poison hemlock (photo: S. Yiesla)



Figure 19 Foliage of poison hemlock (Photo: S. Yiesla)

Good website:

<https://www.extension.purdue.edu/extmedia/fnr/fnr-437-w.pdf>

Weeds, or not?

There are plants that can really get ‘busy’ in the landscape. Does that automatically make them weeds? Two of these ‘busy’ plants are native plants. So, let’s look at who is showing up in home gardens all over the region, as well as on the Arboretum grounds. Weed or not, you decide.

These two plants are related; they belong to the same genus. They are [butterweed](#) (*Packera glabella*) and [golden ragwort](#) (*Packera aurea*).

Butterweed is a native of Illinois, but is far more common in the southern half of the state than it is in the Chicago region. Yet, we have had numerous reports of it for the last 2 or 3 years. I even found one in my yard. This plant does well in partial to full sun and is reported to prefer a loamy soil, with moist to wet conditions. The one in my yard was growing up against the chimney in an area so dry and hard I have not even attempted to garden there. I was so impressed by this plant’s tenacity that I let it stay there. It keeps coming back, despite the poor soil. Butterweed is actually fairly attractive, with yellow daisy-like flowers, that provide nectar for pollinators. It flowers for 6 to 8 weeks. The leaves are interesting too, being deeply and irregularly cut (fig. 20). Those leaves contain alkaloids which prevent rabbits and deer from feeding on them.



Figure 20 Butterweed

Golden ragwort (fig. 21) is a cousin to butterweed and has similar yellow flowers that also provide for pollinators. The basal leaves of this plant are oval to almost rounded, with rounded teeth. Leaves higher on the stem are much smaller, narrower and deeply dissected. The leaves of this plant also contain alkaloids.



Figure 21 Golden ragwort

Are these plants weeds or wildflowers? This is a decision each person has to make. They are native plants, but every native is not desirable (poison ivy is native, too). Weigh the pros (benefits to pollinators) and cons (potential to colonize too much) of each plant. I have linked the name of each plant to a webpage, so you can gain more information to make that decision. Hopefully, this article at least answers the question “What plant is that?” for you.

Good websites: https://www.illinoiswildflowers.info/woodland/plants/gold_ragwort.htm
<https://www.illinoiswildflowers.info/wetland/plants/butterweed.htm>
<https://bygl.osu.edu/node/1023>



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 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.

I would like to thank all the staff and volunteers that report disease and pest problems when they find them. Our scouts this year are Deb Link, Maureen Livingston, Loraine Miranda, and Molly Neustadt.

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](#) 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 .

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2022 Plant Health Care Report Index



THE
CHAMPION
of TREES

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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