

Plant Health Care Report

Scouting Report of The Morton Arboretum



THE
CHAMPION
of TREES

June 28, 2024

Issue 2024.7

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. Contact us via email at plantclinic@mortonarb.org or by phone at 630-719-2424 (Mon thru Fri, 10 am to 4pm).

There will be no PHCR next week due to the holiday.

Quick View

What indicator plant is in bloom?

Elderberry (*Sambucus canadensis*) is in flower (fig. 1)

Accumulated Growing Degree Days (Base 50) at The Morton Arboretum: 1092 (as of June 27).

Insects/other pests

- Japanese beetles and white grubs
- Milkweed beetles and bugs
- Aphids on native plants
- Tobacco budworm
- Viburnum leaf beetle update

Diseases

- Tar spot on maple
- Apple scab
- Mushrooms on trees

Miscellaneous

- Fallen twigs
- Blossom end rot



Figure 1 Elderberry

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://warm.isws.illinois.edu/warm/soil/> (you will need to set up an account to access data.)

Max. Soil temps For 6/27/2024*	St. Charles reporting station (north)	Champaign reporting station (central)	Carbondale reporting station (south)
2-inch, bare soil	83.3	103.9	94.2
4-inch, bare soil	83.3	93.7	86
4-inch, under sod	78.5	84.8	81.4
8-inch, under sod	75.6	79.2	80.6

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

Seasonal precipitation

Seasonal precipitation (rain and melted snow) in inches.			
	2024	2023	Historical average (1937-2023)
Jan	3.9	2.85	1.95
Feb	.56	4.88	1.81
Mar	2.64	2.29	2.53
April	4.44	2.23	3.65
May	3.73	.79	4.17
June	5.07 as of 6/27	1.23 (whole month)	4.16 (whole month)
July			
Aug			
Sept			
Year to date	20.34 (thru 6/27)	14.27 (thru June)	18.27 (thru June)

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

As of June 27, we have 1092 base-50 growing degree days (GDD) at The Morton Arboretum. The historical average (1937-2023) for this date is 901 GDD₅₀. The table below shows a comparison of GDD in different years. We are comparing the GDD₅₀ reported in this issue with the GDD reported last year, and in 2019 and 2018. These years were selected since publication dates of the issue were within a day or two of each other. Glencoe, and Waukegan (60085) were not used in 2018, so there is 'no report' from those stations.

Location	GDD as of 6/27/2024	GDD as of 6/29/2023	GDD as of 6/27/2019	GDD as of 6/28/2018
Carbondale, IL*	1911	No PHCR this week	1505	1709
Champaign, IL*	1513	No PHCR this week	1200	1496
Chicago Botanic Garden**	1111	No PHCR this week	633	832 (6/27)
Glencoe*	766	No PHCR this week	432	No report
Chicago O'Hare*	1369	No PHCR this week	858	1124
Kankakee, IL*	1334	No PHCR this week	972	1279
Lisle, IL*	1382	No PHCR this week	898	1165
The Morton Arboretum	1092	No PHCR this week	775.5	1106.5
Quincy, IL*	1620	No PHCR this week	1231	1633
Rockford, IL*	1239	No PHCR this week	795	1094
Springfield, IL*	1614	No PHCR this week	1239	1602
Waukegan, IL* (60087)	1116	No PHCR this week	645	850
Waukegan, IL* (60085)	1216	No PHCR this week	708	No report

*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/>

**Thank you to Elizabeth Cullison, Chicago Botanic Garden, for supplying us with this information.

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
Possibly 1200-1300	Viburnum leaf beetles	Adults emerging	Chewing on leaves
1200-1800	Fall webworm	Caterpillars feeding, but webbing not seen yet	Chewing on leaves
1950	Magnolia scale	Crawlers <u>begin</u> to emerge	Feeding on sap

Japanese beetles and white grubs (Potentially serious)

That special time of year has arrived. It's Japanese beetle (*Popillia japonica*) time. We have had reports, from staff and scouts, of very small groups of adults (two's and three's) in a couple of places on the grounds. Japanese beetles are up to ½- inch long, and have oval, metallic green bodies with coppery brown wing covers (fig. 2). They have five white spots along each side and two additional white spots behind their wing covers. Upon examination under a hand lens, the spots are actually tufts of hair.



Figure 2 Japanese beetle

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



Figure 3 Japanese beetle damage

Japanese beetles overwinter as larvae (grubs) about four to eight inches beneath the soil surface. In spring, as the soil temperatures warm to about 55° F, the grubs move upward through the soil to pupate. Adults normally emerge from late June through July. Within a few days after emergence, the adults mate and the females burrow into the soil to lay eggs. Nearly all eggs are laid by mid-August. In sufficiently warm and moist soil, eggs will hatch in about ten days. Lawns that are being watered regularly could become a prime target for egg-

laying, since it will be easier for the female to dig in moist soil. Grubs feed on plant roots until cold weather forces them to greater depths in the soil for the winter. There is one generation of this beetle per year.

Japanese beetles are harmful as adults, but also in the larval or grub stage. Even if you do not see Japanese beetles in your yard, your lawn could still have grubs. Other species of beetles also have grubs as their larval stage. How do you know if your lawn needs grub control? Grubs eat grass roots, and this will lead to brown areas in the lawn. Unfortunately, other causes, like drought and fungal diseases, can lead to a brown lawn. If your lawn has grubs, you will be able to pull the lawn up like a carpet since the roots are gone.

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

Management: Adult Japanese beetles can be handpicked. It is easiest to catch them by placing a soapy-water filled container directly under the leaf that they are chewing on and then shaking the leaf. The soapy water ensures that the beetles die while you're collecting them. The beetles generally drop straight down into the collecting container. Sometimes Japanese beetle pheromone traps are used to trap them. We don't recommend these, as they will attract even more beetles to your property (more than the trap can collect). Insecticides can be used in the case of valuable plants, but even insecticides do not guarantee control. A soil drench of systemic insecticide in spring is sometimes recommended for control of Japanese beetles. **It should be noted that imidacloprid, chlothianidin and dinotefuran labels indicate that these products can no longer be used on lindens (*Tilia* species). That means it is illegal to use it on those trees. Some other systemic products have the same labeling. Be sure to check the label of any systemic product concerning its use on lindens.**

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

If you plan to manage the grub stage with insecticides, know that the timing of application depends on the product selected. There are now many insecticides available to treat grubs, and they have different application times. Traditional grub control insecticides are applied to the lawn when young grubs are active (August and September). Other products may be applied in mid-summer or even late spring, but are still targeted at new grubs. The bottom line

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

Biological insecticides that contain *Bacillus thuringiensis* var. *galleriae* are targeted toward beetles and their grubs. Other grub control insecticides are broad spectrum and may kill other insects besides beetles.

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

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

Good websites:

<https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/japanese-beetles/>

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

Milkweed beetle and milkweed bug (minor)

Milkweed has become a popular plant to grow in home gardens, as well as in native areas. Many people are hoping to attract monarch butterflies. Sometimes, uninvited guests show up too. A few of these out there already. I am talking about milkweed bugs and milkweed beetles.

Red milkweed beetles (*Tetraopes tetraphthalmus*) are 1/2 to 3/4 inch long and rosy red with black spots and long black antennae (fig. 4). Adults feed on milkweed leaves; while in the larval stage, this insect bores into and feeds on milkweed stems and roots.



Figure 4 Milkweed beetle

Milkweed bugs also attack milkweed. There are two species of milkweed bug, the large milkweed bug (*Oncopeltus fasciatus*) and the small milkweed bug (*Lygaeus kalmia*). These two insects look very much alike, both sporting bright orange-red and black colors (fig. 5). Young

bugs (nymphs) also have these colors, but lack fully developed wings. Both the adults and the nymphs will feed on the milkweed seeds, and it is not uncommon to see groups of them huddled together on the milkweed fruits. These insects are often mistaken for boxelder bugs which are similar in color.

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

Good websites: <http://bugguide.net/node/view/504>
<http://bugguide.net/node/view/460>
<https://bugguide.net/node/view/2966>



Figure 5 Milkweed bug adults and nymphs

Aphids on native plants (minor)

This growing season, we have seen aphids on everything from trees to perennials. We have seen many species (green ones, black ones, pink ones, even woolly ones). Now as we get into summer, we are starting to see populations of aphids on some of our native plants like common milkweed (*Asclepias syriaca*) and cup plant (*Silphium perfoliatum*). The species we are seeing on our native plants are the yellow and red species. The yellow ones (*Aphis nerii*) are called oleander aphids or milkweed aphids (fig. 6). The red ones (fig. 7) are most likely a species of *Uroleucon*, which feed on members of the Aster family (to which many of our late season natives belong). They are all tear-drop shaped and have two cornicles on the back end (looks like twin tail-pipes). Aphids are small, about 1/16”.

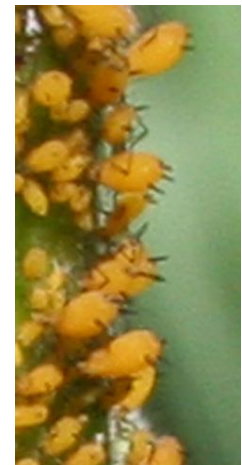


Figure 6 Yellow aphids on milkweed stem

These insects suck out sap from the leaves, and in many cases, stems. The feeding can lead to curled or distorted leaves (but it does not do so in every case). Aphids also produce honeydew, which is a sticky substance. Sticky leaves are often noticed before the insects themselves. Aphid damage is generally fairly minor, but they can be vectors for viruses.

Management: Aphids are relatively easy to manage. They tend to feed in groups. Clipping off parts of the plant that are heavily infested can get rid of the whole population quickly. Spraying the plant with a strong stream of water from the garden hose may also dislodge much of the population. I have done this myself and found it to be a very effective and satisfying process. There are also natural predators, like lady bugs, that will feed on aphids, so avoid insecticides and let the



Figure 7 Red aphids

good insects do their job. The Plant Clinic at the Morton Arboretum has received several photos lately of ladybugs in the pupal stage, ready to become adults. So, help is on the way!

Good websites:

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

Tobacco budworm (potentially serious)

We are starting to get scattered reports that tobacco budworm (*Heliothis virescens*) is attacking petunias. Besides petunias, this caterpillar also favors geraniums, chrysanthemums, flowering tobacco and other flowering plants.

In southern states, the pupae overwinter in the soil. Hard freezes may prevent this in more northern states. In colder climates, the moths may fly up from the south in the summer. The [moths](#) are light colored with wavy bands on their wings. Eggs are laid on flower buds and foliage. In a few days, the young caterpillars emerge and begin to feed on the buds. They may occasionally feed on leaves. The caterpillars can vary widely in color from green or red to almost black. There are often stripes or bands on the caterpillars. They will feed for about 3 weeks or so, doing a great deal of damage. Then they will drop to the soil to pupate.

Management: If the pest is noticed early, the caterpillars can be handpicked. For larger populations, or for areas with a lot of host plants, an insecticide may be needed. [University of Minnesota Extension](#) reports that *Bacillus thuringiensis* may not be fully effective, since the caterpillars are often eating into the bud and the *Bt* is on the surface of the bud. The caterpillar may not be able to ingest enough to kill it.

Good websites: <https://extension.umn.edu/yard-and-garden-insects/tobacco-budworms>
<https://extension.colostate.edu/topic-areas/insects/tobacco-geranium-budworm-5-581/>

Viburnum leaf beetle update (serious)

We expect viburnum leaf beetle adults to emerge soon (if they are not out already). The beetles are small (1/3 inch) and brown to golden brown (fig. 8). They are not easily noticed, but their feeding is. They will pick up where the larvae left off.

Management: Adults can be treated with a variety of insecticides. Do not spray for the adults until they are present. Insecticides applied at this time are not preventative. Insecticidal soap worked on the larvae, but it is **not** effective on the adults. They have hard bodies and insecticidal soap works primarily on soft bodied insects.



Figure 8 Adult viburnum leaf beetle

In fall, look for egg-laying sites (fig. 9). The actual eggs are not visible. The eggs are laid in small holes on the ends of twigs, and then the holes are capped. The caps stand out against the bark of the twig, making them easy to see. Cut out the twig tips that have the eggs in them, and get them out of the garden completely. This will greatly reduce the number of insects you have next year.

If you have a number of shrubs, remember that you have all fall and winter to remove these twigs. Getting them in the egg stage greatly reduces the need to spray next year. We can't stress enough the importance of this technique. This is the most effective management approach and the least toxic to beneficial insects



Figure 9 Egg laying sites

Pest Updates: Diseases

Tar spot of maple (minor)

With the rainy spring we had this year, there is a good chance that tar spot of maple this year will be big this year. We have a recent report of early symptoms seen in McHenry County. As the name indicates, the spots will look just like shiny black spots of tar flung about on the upper surface (fig. 10) of maple leaves later in the season. Right now, the early symptoms are yellow spots with black dots scattered in the center (fig. 11). Several different fungi in the genus *Rhytisma* infect the leaves of maples and cause the spots. The spots range from 1/5 to 4/5 inch in diameter. In some cases, a red ring surrounds the spot. *Rhytisma* spp. most commonly infect leaves of silver and Norway maples, although red and sugar maples are also susceptible. Tar spot does little harm to the trees, but is unsightly.

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



Figure 10 Tar spot in late season



Figure 11 Early symptoms of tar spot

Good website: <https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/tar-spot-of-maple-rhytisma-spp/>

Apple scab (potentially serious)

Apple scab is showing up on crabapples. We are seeing development of the leaf spots. Early lesions look like olive-green leaf spots and will continue to develop into larger, irregular dark spots. Often lesions develop along the mid-veins of the leaves. Infected leaves eventually turn yellow (fig. 12) and drop prematurely on susceptible hosts. This defoliation can stress and weaken the tree, especially if it happens year after year.



Figure 12 Apple scab

The fungus which causes scab (*Venturia inaequalis*) overwinters on fallen leaves and on lesions on twigs. Sunken spots may appear later on fruits, and susceptible crabapples can be completely defoliated in severe disease years. Scab severity is a product of a specific temperature range, duration of moisture on leaves, and host susceptibility. Scab severity is worse in wet springs, so we can expect to see quite a bit of this on susceptible cultivars.

Management: The best way to avoid apple scab is to plant resistant varieties. “Resistant” just means that. In a typical year, a resistant plant won’t suffer as much from the disease as a susceptible plant. However, it may exhibit symptoms in “bad” scab years. When shopping for new crabapples, ask your local nursery which scab-resistant varieties they stock. Caring for your trees, such as watering during summer droughts, may moderate effects of defoliation and reduced photosynthesis in affected trees. As the fungus overwinters on fallen leaves and blighted twigs, collecting and destroying them may help reduce the source of inoculum next year. It is too late to treat for this disease now. Spraying for apple scab needs to begin when leaves begin to emerge and should continue at labeled intervals.

Good websites: <http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-diseases/apple-scab>

Mushrooms on trees (serious)

Mushrooms can be interesting to look at, and some are even very pretty. We need to remember, however, that the fungal organisms that cause wood decay in trees eventually produce mushrooms. These fungal organisms may enter a tree through a wound or through a crack in the bark that allows water to enter. The mushrooms produced by these decay organisms can take on a lot of different appearances. Sometimes it will be a group of mushrooms growing at the base of the trunk or out of the root system. We may see a typical-looking mushroom growing out of the trunk of the tree (fig. 13) or a shelf-like structure referred to as a shelf fungus. These all tend to look fairly minor, but we should pay close attention.

Any mushroom-like structure growing out of a tree is a sign that there is decay inside the tree. We often refer to this under the general term ‘wood rot’. The mushroom growing out of the trunk or stems is the tip of the ice berg. With wood rot, there is a fungal organism inside the wood causing it to decay. This decay process may continue, undetected, for years. At some point, in the life cycle of the fungal organism causing the decay, the reproductive structure (the mushroom) is produced and can be seen on the outside of the tree.



Figure 13 Mushrooms growing out of a tree trunk (photo: S. Yiesla)

Even though these appear minor, and many people just knock them off when they see them, we really should pay attention to this sign and call in a professional, certified arborist to examine the tree. When the wood inside a tree decays, that tree starts to lose stability. It may be one branch that is rotting and we can easily remedy that by removing that branch. If the rot is inside the main trunk, the whole tree may need to be removed. Any fungal structure growing on a tree should be taken seriously. Trees with rot inside may still leaf out fully and look great. The wood rot is often in the heartwood of the tree. Water is moved up through the sapwood, and when that wood is undamaged, the tree gets the water it needs and will still leaf out even if the core is rotting. To find a certified arborist, go to illinoisarborist.org or treesaregood.org.

Miscellaneous

Fallen twigs (minor)

Got twigs? Seems like many of us do these days. The Plant Clinic at The Morton Arboretum is getting lots of calls and emails about this. Our friends the squirrels may have a role in this. They often chew off more twigs than they can use for nest building. But they are not to blame for all of it this year. The cicadas and the weather have teamed up to produce most of the fallen twigs. Cicadas do not cut twigs off, but when the female cuts slits in them to lay her eggs, the stems are weakened. We have had a lot of strong winds in the last two to three weeks and these winds have caused some of the weakened stems to fall



Figure 14 Fallen twigs due to cicada egg laying and strong winds

(fig. 14). Many of them are still hanging in the trees, broken, but still hanging on. Not every twig used for cicada egg laying will break or fall. The trees will be able to heal some of the slits and these twigs may not break off at all.

Is that the end of the story for this year? Possibly not. There are other pests that may pull the same trick later this season. Kermes scale can cause fallen twigs on bur oaks. They will be present as dark bumps at the ends of the fallen twigs. Twig girdlers and twig pruners are both insects that cut off twigs in very precise method and we may see this later in the season on oaks and some other trees. If any of these pests show up, we will feature them in a future issue of the PHCR.

Blossom-end rot

You planted and tended your tomato plants. You are rewarded with flowers. The pollinators visit your flowers and before you know it there are tiny tomatoes forming. Then one day, you discover that the bottom of the tomato is turning black and sometimes almost leathery (fig. 15). This is blossom-end rot. The bottom of the tomato is called the blossom end, because that is where the flower or blossom was connected. That little dark dot on the bottom of the tomato marks the spot where the flower was.



Figure 15 Blossom end rot damage (Photo: Larry Williams, Okaloosa County Extension)

This type of 'rot' is not a disease. It is caused by a calcium deficiency. Calcium is an important building block of the cell walls within every plant. When it is deficient, the cell walls don't form properly and the cells collapse. Blossom-end rot does not always mean that there is not enough calcium in the soil. It means that the calcium is not making it all the way to the bottom of your tomato. Our soils are generally not deficient in calcium.

Improper watering or very dry weather are often the reasons we don't get the calcium out to the bottom of the tomatoes. The water carries the calcium from the soil into the plant. If water is lacking, the calcium can't be delivered. Even though we have been having rain, we have also had extreme heat that can dry that rain up quickly. As summer progresses we may get more heat and less rain. That makes us responsible to give our plants what they need in terms of water. Often, gardeners are watering frequently, but not deeply. Watering every day is not needed for in-ground gardens. Water those plants when the top inch or so of soil is drying, and when you water be sure to water thoroughly. If you have to water every day or every other day, you are not watering thoroughly. Depending on weather, you should be watering every 4 to 7 days.

Container-grown tomatoes are the exception. They most likely will need to be watered every day due to the small volume of the container. Water containers enough so that some water comes out the drainage holes in the bottom of the container. Container-grown tomatoes often get blossom-end rot because it can be difficult to maintain adequate water in containers. Also, unlike our garden soils, potting mixes for containers may need to have calcium added.

Blossom-end rot is not only seen on tomatoes. It can be on other vegetables as well, including peppers and watermelons.



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 Juluia Lamb, 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. Our volunteer scouts for 2024 are Deb Link, Maureen Livingston, Loraine Miranda, Molly Neustadt and Moira Silverman.

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 (630-719-2424) or visit in person, Monday thru Friday 10 am to 4 pm.

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

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2024 Plant Health Care Report Index



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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 2024.01 or the newsletter dated April 5, 2024. 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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