

Plant Health Care Report

Scouting Report of The Morton Arboretum

May 3, 2013

Issue 2013.3

Our report includes up-to-date disease and insect pest reports, as well as color images, for northeastern Illinois. You'll also find a table of accumulated growing degree days throughout Illinois, precipitation, and plant phenology indicators to help predict pest emergence. The report is published bi-weekly on Fridays in April and August, and weekly May-July.

Arboretum staff and volunteers will be scouting for insects and diseases throughout the season. We will also be including information about other pest and disease problems based on samples brought into The Arboretum's Plant Clinic from homeowners and professionals.

If you have any comments or concerns regarding the Plant Health Care Report, please send them to Sharon Yiesla at syiesla@mortonarb.org.

Quick View

What indicator plant is in bloom at the Arboretum?

Saucer magnolia (*Magnolia x soulangiana*) (Figure 1)

Accumulated Growing Degree Days (Base 50): 80 (as of May 2)

Accumulated Growing Degree Days (Base 30): 683.5 (as of May 2)

Insects:

- Elm bark beetle update
- Galls
- Larch casebearer
- Hemlock rust mites

Disease:

- Cedar rust diseases
- *Dothistroma* needle blight
- Black knot



Figure 1 Saucer magnolia (photo credit John Hagstrom)

Weeds:

- Crabgrass control

Miscellaneous:

- Timing spraying
- Lichens

Degree Days and Weather Information

As of May 2, we are at 80 base-50 growing degree days (GDD). From April 19-May 2, we have had 1.98 inches of precipitation. For Jan-April 2013, our precipitation is 17.81 inches. Average for that time period is 9.6 inches.

Location	B ₅₀ Growing Degree Days Through May 2 , 2013	Precipitation (in) April 18-May 2, 2013
Carbondale, IL*	295	
Champaign, IL*	181	
Chicago Botanic Garden**	61.5 (April 30)	
Chicago O'Hare*	104	
Kankakee, IL*	140	
The Morton Arboretum	80	1.98 inches
Northbrook, IL**	95	4.61 (April 17-May 1)
Quincy, IL*	180	
Rockford, IL*	87	
Springfield, IL*	193	
Waukegan, IL*	71	

**Thank you to Mike Brouillard, Northbrook Park District and Mike Annes, 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 <http://www.gddtracker.net/>

New this year: To make the Plant Health Care Report (PHCR) more effective, each pest/disease article will be marked parenthetically this year to indicate the severity of the problem.

Problems that have the potential to be serious and which may warrant chemical control measures will be marked "potentially serious". Problems that are included in the PHCR, but 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, are marked "treat later". As the season goes on please give me feedback as to whether this system helps you or not. Contact me at syiesla@mortonarb.org.

Pest Updates: Insects

Elm bark beetle update (potentially serious)

Elm bark beetles are here. Ten elm bark beetles have been found in our pheromone traps.

Galls (minor)

Galls are irregular plant growths that occur on leaves, buds, bark, twigs, roots, and flowers of many plant species. Most galls are caused by irritation or stimulation of plant cells due to feeding or egg-laying by insects such as mites, midges, aphids, and wasps. Some galls are the result of infections by bacteria, fungi, or nematodes. There are numerous types and forms of gall. So far this year, we have seen a gall affecting the fruit (seed pods) of quaking aspen (figure 2) and a small black gall on hemlock (figure 3). The gall on quaking aspen was found in central Illinois. While we have not definitely identified either of these, like the majority of galls, they are most likely harmless (the one affecting the quaking aspen might even be useful as it seems to be limiting seed production.)

Management: As we go through the season, galls will be included in the Plant Health Care Report, primarily for the purpose of recognition. The majority of galls do not affect tree health, so control is not required.

Good websites:

<http://www.mortonarb.org/component/content/article/193-insects-diseases/751-plant-galls.html>

<http://www.ipm.iastate.edu/ipm/hortnews/node/2105>

<http://www.extension.iastate.edu/Publications/IC417.pdf>

Larch casebearer (minor)

Larch casebearer (*Coleophora laricella*) was found by our scouts this week. (Last year it was found on March 21!). The larvae hollow out needles, causing them to first wilt and then bleach to a light off-yellow color. The needles will soon turn reddish-brown and drop prematurely within a few weeks.



Figure 2 Unknown gall on fruit of quaking aspen (photo credit Guy Sternberg)



Figure 3 Unknown gall on hemlock

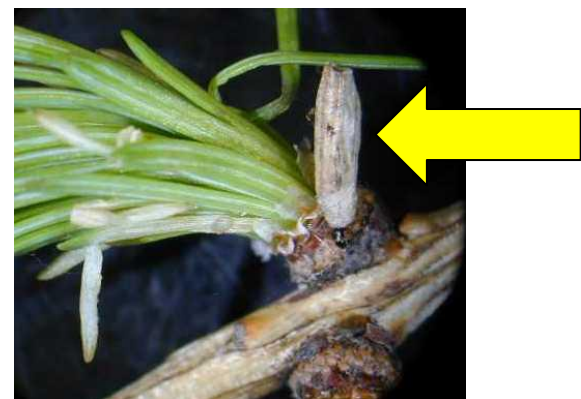


Figure 4 Larch casebearer case (see arrow)

The caterpillars of this species are very small and overwinter as larvae within tiny tan-colored cases made of hollowed out needles lined with silk (figure 4). Larvae emerge and begin feeding in early spring as needle growth begins. They feed for several weeks, pupate on the twigs, and emerge as adult moths in late May and early June. The adults lay eggs on needles and, in a few weeks, eggs hatch (late June and July) and larvae begin to mine inside the needles. Larvae mine the needles for about two months before making their cases from hollowed-out needles. These cases will be carried around on their backs (like a backpack) for the remainder of their larval period.

Management: Unlike most other conifers, larches can develop a second set of leaves. However, repeated defoliation can weaken trees and make them more susceptible to attack by other insects and pathogens. There are various natural controls, such as weather, predators and parasites, and needle diseases that usually keep populations in check. For severe or repeated infestations, insecticides may be needed.

Good websites:

<http://extension.umass.edu/landscape/fact-sheets/larch-casebearer>

<http://na.fs.fed.us/spfo/pubs/fidls/larch/larch.htm>

Hemlock rust mites (potentially serious)

Hemlock rust mites (*Nalepella tsugifolia*) (Figure 5), an eriophyid mite, was found this week at the Arboretum. Rust mites suck the juices from conifer needles, causing the infested needles to turn yellow then brown. If the infestation is severe, mite-ridden needles will drop off the tree. The mites themselves are cigar-shaped, pale yellow, about the size of dust, and can only be viewed using a strong hand lens or dissecting scope. These cool season mites may also attack fir, yew, and spruce.



Figure 5 Hemlock rust mite

Management: We are unaware of any cultural controls. For severe infestations, insecticidal soaps, summer oils, or miticides should be applied after eggs hatch, which is usually when saucer magnolia is in the pink bud stage (magnolias are already in full bloom this week).

Good website: <http://www.entomology.umn.edu/cues/Web/146HemlockRustMite.pdf>

Pest Updates: Disease

Cedar rust diseases (potentially serious)

Cedar apple galls on juniper are close to sporulating. The gall in figure 6 is getting ready to produce telial horns (this photo was taken in Rockford on April 27). Rain and warmer temperatures are coming this week and that could get the telial horns going (figure 7). There are three main rusts on juniper:

cedar-apple, cedar-hawthorn, and cedar-quince. Cedar-apple rust and cedar-hawthorn rust both form golf ball-shaped “galls” on junipers, with the cedar-apple rust galls being larger than the cedar-hawthorn rust galls. During spring rains, gelatinous tendrils called telial horns expand from the galls. Spores are released from the telial horns as they dry and are blown to a host in the Rose family, e.g., apples, crabapples, and hawthorns. Orange leaf spots subsequently develop on the Rose family plants. Spores from the large galls, the cedar-apple rust, create orange spots on the leaves of apples and crabapples. Spores from the smaller galls, the cedar-hawthorn rust, create orange spots on hawthorn leaves.



Figure 6 Cedar apple gall, early telial stage (photo credit Sharon Yiesla)

Cedar-quince rust is not well-named. Of the three cedar rust diseases, cedar-quince rust can cause the most damage by infecting fruits and twigs on trees in the Rose family, especially hawthorns. Although cedar-quince rust spends part of its life cycle on junipers similar to cedar-apple rust and cedar-hawthorn rust, it does not form galls on the junipers. Cedar-quince rust appears as spindle-shaped swellings on twigs and branches of junipers (figure 8). In spring, the swellings turn orange and release spores.

Management: The disease is usually not serious on the juniper host. Management is usually based on the hosts in the Rose family. The best management is to plant resistant varieties of crabapples and hawthorns. Remember, resistance is not the same thing as immunity. Being resistant does not mean that the tree will never get rust. It only means that, in an average year, it is not likely to have much problem with the disease. In a year that is very favorable to the fungus, even resistant trees may show some signs of disease. When considering the purchase of a new crabapple, check with your local nursery about which rust-resistant cultivars they offer. Chemical control for rosaceous hosts, if used, needs to start as leaves are emerging and when the telial horns are expanding on junipers (very soon!).



Figure 7 Cedar apple gall, telial horns expanded

Good web sites:

<http://www.mortonarb.org/tree-plant-advice/article/733/cedar-apple-and-related-rust-diseases.html>



Figure 8 Cedar quince rust gall

http://www.caf.wvu.edu/kearneysville/disease_descriptions/omcar.html
<http://ohioline.osu.edu/hyg-fact/3000/pdf/3055.pdf>

***Dothistroma* needle blight (potentially serious)**

Dothistroma (*Dothistroma pini*) infections initiated last year have been found on needles of red pine (*Pinus resinosa*) (figure 9). Initial infection symptoms, which began last year, are green bands and yellow spots. The spots and bands quickly turn brown to red brown and may also be accompanied by a white resin droplet. Black, elongated, fungal fruiting bodies (figure 10) often begin to form in fall and mature the following spring. Conidia (fungal spores) are released from these structures during wet weather and transported by rain throughout the growing season. Eventually needles will be brown at the tip and green at the base. Many needles will fall in late spring and summer.

New infections can occur from May to October as long as there is rainfall. Austrian and ponderosa pines are reported to be the most common hosts of *Dothistroma* in the Midwest. Limber pine is a common host in the West. Red and Scots pine are usually resistant, although the disease has been found on red pine this year. Remember that resistant does not mean immune.

Management: The fungus resides in infected, cast needles, so remove fallen needles as much as possible. Give plants ample spacing and prune to improve air flow and allow for faster needle drying. Once a tree exhibits symptoms throughout the canopy, there is little that can be done except removal. For less severe situations, and to protect nearby healthy trees, one to two applications of a fungicide controls this disease, but timing is critical. Sprays should be applied just before buds begin to elongate/swell (usually early May) and once again when new needles are fully expanded. If wet weather continues late into spring and summer, additional applications may be needed.

Good web sites about *Dothistroma* needle blight:

<http://www.mortonarb.org/tree-plant-advice/article/740/pine-diseases.html>

<http://learningstore.uwex.edu/pdf/A2620.pdf>

<http://na.fs.fed.us/spfo/pubs/fidls/dothistroma/doth.htm>



Figure 9 *Dothistroma* on red pine

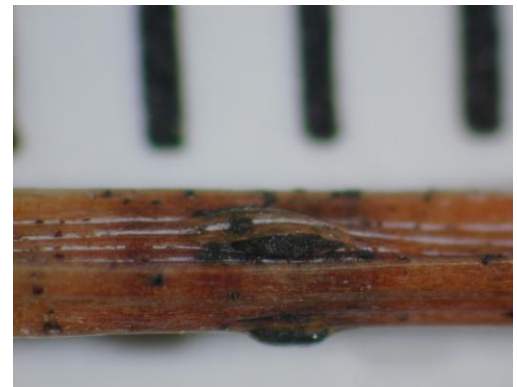


Figure 10 fruiting body erupting through needle

Black knot (potentially serious)

Black knot (*Dibotryon morbosum*) (figure 11) is a serious and widespread problem of trees in the genus *Prunus*, especially plums and cherry trees. The black knots can be seen year round. 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 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



Figure 11 Black knot (older infection on left, newer on right)

extensive overgrowth of bark and wood is a response to hormones and produces the swellings that we are now 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 on the swelling. The swellings 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.

Management: This is a difficult disease to manage. Prune and discard, burn or chip and compost 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. Pesticide treatments may help but seldom eliminate the problem.

Good web sites:

<http://www.mortonarb.org/tree-plant-advice/article/731/black-knot-of-ornamental-cherry-and-plum.html>

<http://www.ag.uiuc.edu/~vista/abstracts/a809.html>

<http://www.nysipm.cornell.edu/factsheets/treefruit/diseases/bk/bk.asp>

Pest Updates: Weeds

Crabgrass control

Pre-emergent crabgrass control products have been in the stores for weeks. Just because you can buy it does not mean it’s time to use it. Crabgrass seed will not germinate until SOIL temperatures are greater than 55 degrees F for 5-7 consecutive days. We are just now coming to that point. So this is the time to put down your crabgrass preventer. If you put it down 3 or 4 weeks ago, you may find it is not as effective. Crabgrass preventers last about 60 days, so if yours was applied early and the soil has been too cold for seed germination, you may not get good control this year, since crabgrass seed can continue to germinate until soil temps get up to 95 degrees F.

Miscellaneous

Timing spraying

Whenever pesticides (insecticides, fungicides, herbicides) are used, timing is important. As we come into this spring and rainfall has been plentiful so far, we should expect that we may see a number of fungal problems show up this year. Fungicides are, for the most part, protective devices. They are applied to the plant early and coat the growth to protect it from fungal infection. In many instances, the fungicide needs to be applied as new growth begins to open on a plant. For our trees and shrubs, we are at or approaching the time when new growth is beginning to emerge. So for some diseases, we will need to consider spraying fungicides in the near future (for apple scab and cedar apple rust, we are almost too late) . For some diseases, repeat applications may be needed to really manage the disease well. Check the product label for the correct use of that product.

Lichens

The Plant Clinic regularly receives calls regarding strange growths on tree branches and trunks. These have all turned out to be lichens (figure 12). Lichens are often flat and scaly and come in many colors (gray, white, blue-green, blue-gray). Lichens are the result of a relationship between a fungus and an alga or cyanobacterium. These organisms are harmless and no control is needed.



Figure 12 Lichen

The Plant Health Care Report is prepared by Sharon Yiesla, M.S., Plant Clinic Assistant and edited by Stephanie Adams, M.S. Research Specialist in Plant Health Care; Fredric Miller, Ph.D., Research Entomologist at The Morton Arboretum and Professor at Joliet Junior College; Doris Taylor, Plant Information Specialist, and Carol Belshaw, an 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 that are in this report. The Scouting Volunteers include: LeeAnn Cosper, Deborah Finch-Murphy, Anne Finn, Ann Klingele, Arnis Krusow, Jack Leider, Loraine Miranda, Bill Sheahan and Kathy Stephens. Your hard work is appreciated.

Literature recommendation:

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. This book may be purchased through the publisher at: <http://www.laborofloveconservatory.com/>

The Commercial Landscape & Turfgrass Pest Management Handbook (CPM), for commercial applicators, and the Home, Yard & Garden Pest Guide (HYG) for homeowners from the University of Illinois, are available by calling (800-345-6087).

This report is available as a PDF at The Morton Arboretum website at <http://www.mortonarb.org/tree-plant-advice.html>

For pest and disease questions, please contact the Plant Clinic at (630) 719-2424 between 10:00 and 4:00 Mondays through Saturdays or email plantclinic@mortonarb.org . Inquiries or comments about the PHC reports should be directed to Sharon Yiesla at syiesla@mortonarb.org .

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