

Plant Health Care Report

Scouting Report of The Morton Arboretum

May 15, 2015

Issue 2015.4

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. 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.

New this year: We are moving to an every other week schedule this year. Our focus will be on pests that are more serious. Some minor pests will still be covered, but in shorter articles. Should we encounter some new major pest, we will issue an alert. If this occurs during a week when we are not publishing the newsletter, our regular readers will receive a timely email alert, and the information will be published in the next scheduled newsletter. On weeks when we do not publish a full newsletter, we will still make growing degree day information available since many of our readers use this information. Readers who received our email blasts in the past will continue to receive one weekly, either to announce that the newsletter is available or, on alternate weeks that the growing degree day information is available. To be added to the email list, please contact me at syiesla@mortonarb.org

Quick View

What indicator plant is in bloom at the Arboretum?

Common Horsechestnut (*Aesculus hippocastanum*) is beginning to bloom (fig 1)

Accumulated Growing Degree Days (Base 50): 193.5 (as of May 14)

Accumulated Growing Degree Days (Base 30): 1175.5 (as of May 14)

Insects and insect relatives

- Zimmerman pine moth
- Boxwood psyllids
- Juniper webworm
- Azalea bark scale
- Euonymus webworm
- Galls
- Pine bark adelgid

Diseases

- Boxwood problems
- Cedar-quince rust update
- Powdery mildew on ninebark



Figure 1 Common Horsechestnut

Degree Days and Weather Information

As of May 14, we are at 193.5 base-50 growing degree days (GDD). The historical average (1937-2013) for this date is 151 GDD₅₀.

Location	B ₅₀ Growing Degree Days Through May 14, 2015	Precipitation (in) May 8-14, 2015
Carbondale, IL*	568	
Champaign, IL*	424	
Chicago Botanic Garden**	151.5 (as of 5/12)	1.39ö (5/6-12)
Chicago O'Hare*	258	
Kankakee, IL*	313	
The Morton Arboretum	193.5	1.88ö
Northbrook, IL**	163.5 (as of 5/13)	1.02ö (5/6-12)
Quincy, IL*	504	
Rockford, IL*	203	
Springfield, IL*	484	
Waukegan, IL*	164	

**Thank you to Mike Brouillard, Northbrook Park District and Chris Beiser, 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/>

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 and insect relatives

Zimmerman pine moth (serious)

Zimmerman pine moth (*Dioryctria zimmermani*) damage is being reported. Larvae damage trees by tunneling just beneath the bark of the trunk and branches. The tunnels can girdle and weaken the trunk or branches, so they are easily broken by wind or snow. Heavily infested trees are often deformed and are sometimes killed. Common hosts include Austrian, Scots, and ponderosa pines.

Larvae overwinter in cocoon-like structures under bark scales. They become active in the spring 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 exude from the wound site (Fig. 2). 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.

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), or when panicked hydrangea is pink (2700 – 2900 GDD).

Good websites:

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

Boxwood psyllids (minor)

Boxwood psyllid (*Cacopsylla buxi*) nymphs have been reported by our scouts. The psyllids overwinter as tiny orange eggs in the bud scales of the boxwood. As the buds open, the psyllids hatch and begin to feed. The nymphs are about 1/16th of an inch long, yellowish, and partially covered with a white, secretion that protects them from parasitoids and chemical sprays. Their feeding causes cupping of the leaves (Fig. 3). Winged adults normally appear in late May to early June. We sometimes see lady beetles (also known as ladybugs) feeding on the psyllids.

Management: Damage is mostly aesthetic. Shearing



Figure 2 Pitch from Zimmerman pine moth damage



Figure 3 Boxwood psyllid damage

boxwoods reduces the population as the insect or the eggs are removed in the process. Chemical insecticides can be applied, but if using a spray, it is important to spray inside the cupped leaves.

Good website:

<https://ag.umass.edu/fact-sheets/boxwood-psyllid>

Juniper webworm (minor)

Juniper webworm (*Dichomeris marginella*) larvae have been found feeding on junipers, including common juniper. Infestation is evident by brown needles bound together with silk, primarily in the inner foliage of the tree (Fig. 4). The larvae are small, light brown caterpillars, with dark reddish-brown stripes and dark brown heads. They reach 3/4 inch in length at maturity. Young larvae feed as needle miners and often build silken tubes around their feeding sites. The adult moths will emerge in June and lay eggs on current year's growth. Juniper webworm prefers *Juniperus horizontalis*, *J. depressa*, *J. aurea*, and many of the Chinese junipers.



Figure 4 Juniper webworm damage

Management: Prune out and discard webbed needle masses now and whenever you see them. Insecticides are most effective against young larvae.

Good website:

<http://kentcoopextension.blogspot.com/2009/04/landscape-and-nursery-juniper-webworm.html>

Azalea bark scale (potentially serious)

A small population of azalea bark scale adults (*Eriococcus azaleae*) has been found on the Arboretum grounds. Azalea bark scale overwinters as immature females. As the females mature in spring, they secrete white, waxy threads which become matted into a thick covering over their entire body (Fig. 5). The crawlers, which are reddish pink and extremely tiny, emerge predictably at approximately 850 to 1,100 GDD and tend to settle in bark crevices and branch crotches. They use their piercing, sucking mouthparts to feed on plant sap. There is only one generation a year in this area. Common hosts are rhododendron, hawthorn poplar, and willow.



Figure 5 azalea bark scale

The adult females are approximately 1/8 inch long and covered with a white waxy protective coating. They resemble small mealybugs but are nearly always found at branch crotches. If you squash them, you can see that they are actually red. Females feed on twigs and stems. The feeding sometimes causes chlorosis (yellowing) of the leaves. Branch dieback may occur in heavy infestations. This scale creates honeydew (sugary liquid insect excrement). Leaves and twigs are often covered with sooty mold that grows on the honeydew.

Management: Prune out dead or dying infested plant parts. Hand-picking method can be applied to adult scales before the crawlers hatch. Severely infested branches and twigs can be pruned out. Insecticides can be used in summer to kill crawlers after they have hatched. Beneficial insects (e.g., lady bugs and parasitic wasps) help control these pests, so use insecticides sparingly and only if less toxic means seem to be ineffective.

Good web sites: http://ipm.ncsu.edu/AG189/html/azalea_bark_scale.HTML

Euonymus caterpillar or webworm (severity is determined by the amount of defoliation)

Euonymus caterpillars (*Yponomeuta cagnagella*), also known as euonymus webworms for the webbing they make, are feeding on running strawberry-bush euonymus (*Euonymus obovatus*). These caterpillars are leaf-feeding insects that live in colonies within thin webs at branch ends (Fig. 6). The web increases with size as the larvae feed on the leaves and continue to grow themselves. Larvae are pale yellow with black spots, eventually reaching an inch at maturity (Fig. 7). The larvae will pupate in cocoons that hang on the branches. The adult moth emerges in June. The moth, known as an ermine moth, is white with black spots. Euonymus caterpillar also attacks other species of euonymus including spindle tree (*E. europaeus*) and burning bush (*E. alatus*).



Figure 6 Webbing of euonymus webworm

Management: Small populations can be managed by pruning out webs now and destroying them. *Bacillus thuringiensis* var. *kurstaki* (*Btk*) will control young larvae (it is less effective on mature larvae). Spray the web and plant thoroughly with *Btk*, as the insect must eat it in order for it to work.



Figure 7 Euonymus webworm

Good web site: <http://bugguide.net/node/view/70367>

Galls (minor)

It's that time of year. The galls are already starting to show up. The vast majority of galls are harmless, and we publish them here just to let you know what that weird thing on your plant really is. The gall show is underway, and this week's contestants are maple bladder gall and oak apple gall. Maple bladder galls are being reported on the leaves of silver maple (*Acer saccharinum*) and red maple (*Acer rubrum*). The galls look like small round red beads (Fig. 8). They are caused by eriophyid mites (*Vasates quadripedes*)



Figure 8 Maple bladder gall

that overwinter in bark crevices. The mites become active in spring and migrate to feed on expanding leaf buds. The feeding induces formation of galls on leaves. Oak apple gall was reported on pin oak. The galls are round, 1-2 inches in diameter, and filled with a spongy mass, and they are usually found on the leaves (Fig. 9). The adult cynipid wasp lays eggs in developing leaves, and this causes adjacent plant cells to grow and engulf the egg, thereby providing it with food and shelter.

Management: Galls do no real damage to the host plants, so no treatment is needed.

Good website:

<http://www.mortonarb.org/trees-plants/plant-clinic/help-pests/plant-galls>



Figure 9 Oak apple gall

Pine bark adelgid (minor to potentially serious)

Our scouts are reporting pine bark adelgid on white pine (*Pinus strobes*) this week. Pine bark adelgid (*Pineus strobi*) adult females secrete a protective white, woolly mass, which covers the light-yellow eggs and can be found at the base of needles (Fig. 10) and on the bark of limbs and trunks. This pest has five generations per year. The adelgid prefers white pine but also attacks Scots and Austrian pines. Healthy trees are not usually harmed by this adelgid, but high populations may require treatment.



Figure 10 Pine bark adelgid

Management: In mild cases, eggs and crawlers can be washed off now with a high-pressure water spray. In severe or repeated infestations, an insecticidal spray can be applied when the crawlers are out. Lady beetles, hover flies, and lacewings feed on adelgids, so if these predators are present, it is best to use an insecticidal soap or high pressure water spray.

Pest Updates: Diseases

Boxwood problems (serious)

Our pathologist, Stephanie Adams, reports that she has examined numerous samples of boxwoods that are in decline. On some samples the bark has come off, on others it is still intact. Healthy green stems and dead stems with straw colored leaves can be found on the same plant (Fig. 11). Stephanie has been able to detect fusarium cankers on some of the samples (Fig. 12). This is not the main cause of decline, since canker pathogens usually attack stressed plants. Our plants have certainly seen enough stress in the past few years (drought in 2012, flooding in 2013, brutal winter of 2013-14, and fairly cold weather in late winter 2015).

Management: Prune out cankered or dying stems. Disinfect tools between cuts. Give plants the best care possible (especially proper watering during dry times).

Cedar-quince rust update

In issue 3 (May 1), we reported that galls of cedar-apple and cedar-hawthorn rust were starting to expand their telial horns. Telial horns are now fully expanded due to the rain we have had. We also have a report that the cedar-quince rust on junipers is showing orange pustules. Cedar-quince does not produce the typical golf ball-like galls, but instead produces spindle-shaped swellings on twigs and branches of juniper. See issue 2 (April 17), for a full description.

Powdery mildew on ninebark (minor)

Powdery mildew has been brought in to The Morton Arboretum Plant Clinic on samples of ninebark (*Physocarpus opulifolius*), but it may start showing up on other plants soon. Hundreds of plant species are susceptible to powdery mildew, but the disease is caused by many different species of fungi which are host specific. This means that the powdery mildew on coralberry will not infect lilacs and so forth.

Powdery mildew appears as a superficial white to gray



Figure 11 Boxwood showing dieback (photo: S. Adams)



Figure 12 Fusarium canker (orange color). Photo: S. Adams



Figure 13 Powdery mildew on ninebark

coating over leaf surfaces, stems, flowers, or fruits of affected plants (Fig. 13). Initially, circular powdery white spots appear. These spots coalesce producing a continuous patch of “mildew.” Later in the season, cleistothecia (fungal fruiting bodies that look like black pepper under a hand lens) will appear. Warm days and cool nights favor this fungal disease. The fungi that cause powdery mildew are deterred by free water since spores will not germinate in water on leaves. However, the fungus still needs high humidity to infect the plant. Leaf curling and twisting result, and in severe infestations you may see premature defoliation and deformed flower buds. Although unsightly, powdery mildew is usually not fatal in the landscape.

Management: Infected plant parts should be removed as soon as symptoms appear. Dispose of fallen leaves, and do not handle plants when foliage is wet. Water plants during periods of drought to keep them healthy. High humidity can increase disease severity so avoid overhead watering in late afternoon or evening. Put plants in locations where there is good soil drainage and sufficient sunlight. Provide proper plant spacing for good air circulation. Powdery mildew on some plants can result in significant damage, and fungicides may be needed. To obtain optimum results, spray programs should begin as soon as mildew is detected. In the future, plant mildew-resistant cultivars and species.

Good websites:

<http://www.mortonarb.org/trees-plants/plant-clinic/help-diseases/powdery-mildews>



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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, 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: LeeAnn Cosper, Paul Duke, Deborah Finch-Murphy, Anne Finn, Ann Klingele, Loraine Miranda, and Bill Sheahan. Your hard work is appreciated.

Literature/website recommendations:

Indicator plants are chosen because of work done by Donald A. Orton, which is published in the book

Coincide, The Orton System of Pest and Disease Management. This book may be purchased through the publisher at: <http://www.laborofloveconservatory.com/>

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

The Commercial Landscape & Turfgrass Pest Management Handbook (CPM), for commercial applicators, and Pest Management for the Home Landscape (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/visit-explore/news-events/arboretum-news?tid=259>

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 PHCR should be directed to Sharon Yiesla at syiesla@mortonarb.org .

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