

Plant Health Care Report

Scouting Report of The Morton Arboretum

May 17, 2013

Issue 2013.5

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?

Redbud (*Cercis canadensis*) is in late bloom

Horsechestnut (*Aesculus hippocastanum*) is blooming (Figure 1)

Accumulated Growing Degree Days (Base 50): 171 (as of May 16)

Accumulated Growing Degree Days (Base 30): 1022 (as of May 16)

Insects:

- Viburnum crown borer
- Brown marmorated stink bug
- Woolly alder aphid
- Eastern tent caterpillar
- Cankerworm
- Elm bark beetle
- Elm leafminer
- European elm flea weevil

Disease:

- Apple scab
- Rust on buckthorn



Figure 1 Horsechestnut (photo credit John Hagstrom)

Degree Days and Weather Information

As of May 16, we are at 171 base-50 growing degree days (GDD). On average we usually have accumulated 178 GDD base-50 by this date.

Location	B ₅₀ Growing Degree Days Through May 16, 2013	Precipitation (in) May 10-16, 2013
Carbondale, IL*	470	
Champaign, IL*	361	
Chicago Botanic Garden**	132 (5/15/13)	
Chicago O'Hare*	237	
Kankakee, IL*	324	
The Morton Arboretum	171	.44 inches
Northbrook, IL**	189	.38 inches (5/9-15)
Quincy, IL*	344	
Rockford, IL*	224	
Springfield, IL*	358	
Waukegan, IL*	166	

**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". 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. 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

Viburnum crown borer (potentially serious)

The viburnum crown borer moths have emerged. Our scouts have reported a few adults caught on our pheromone trap. Viburnum borers (*Synanthedon* sp.) are clearwing moths that lay eggs on the bark or in wounds of viburnums near the soil line. The larvae hatch and tunnel into the cambium from several inches below the soil line to about 18 inches above. Larvae are white and legless with brown heads and eventually grow to $\frac{3}{4}$ in long. Damage looks like gnarled and scarred stems, and eventually there is dieback of stems and the whole plant may die (figure 2). The insects overwinter as larvae and pupate in spring. The moths usually emerge from infested viburnums in June to lay eggs near wound sites on other viburnums.



Figure 2 Damage caused by viburnum crown borer

Young plants are especially susceptible. Sometimes plants are able to survive attack as they age. Susceptible species include *Viburnum carlesii* (Korean spice viburnum), *V. lantana* (Wayfaring tree), *V. lentago* (Nannyberry), *V. opulus* (European Cranberrybush Viburnum), *V. opulus* var. *americanum* (formerly *V. trilobum*) (American Cranberrybush Viburnum), and *V. x rhytidophylloides* (hybrid leatherleaf viburnum). Arrow-wood viburnum shows some resistance, but is not immune.

Management: Beneficial nematodes (*Heterorhabditis bacteriophora*) can be drenched into the soil in late August when larvae are present. Be sure to keep the soil moist so the nematodes don't dry out. They are living organisms. The optimum temperature for spraying is between 60 and 85 degrees. Chemical control can also be applied when adults are laying eggs. The insecticide should be sprayed on the base of the stems from the ground level to a height of 18 inches.

Good web site:

<http://www.mortonarb.org/tree-plant-advice/article/818/viburnum-crown-borers-synanthedon-viburni-and-synanthedon-fatifera.html>

<http://www.uwex.edu/ces/wihort/gardenfacts/X1046.pdf>

Brown marmorated stink bug (potentially serious)

A brown marmorated stink bug (BMSB) (figure 3) was confirmed in Oak Park recently. This insect has been reported in Illinois before, but its presence here is thought to be limited at this time. These insects will overwinter in houses and become active again as the spring weather warms. BMSB will feed on a variety of hosts including many fruit, vegetable and field crops, reducing yield on those crops. The adults that are becoming active now will mate in spring and lay eggs in summer. There are other insects that resemble the BMSB, so

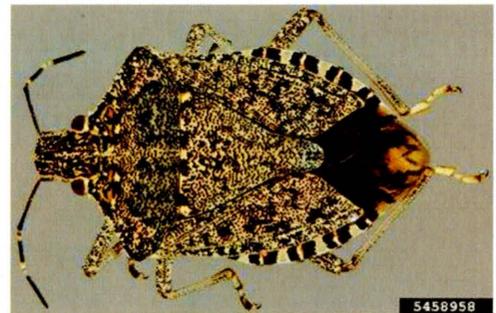


Figure 3 Brown marmorated stink bug (photo credit: Steven Valley, Oregon Dept of Ag, bugwood.org)

check the websites listed below to see more pictures of this insect. The insect is similar in shape to other stink bugs (a somewhat 'shield-shaped' body), but the edge of the body has alternating black and white bands. The antennae will have light-colored bands on them. Overall, the body has a mottled appearance.

The presence of BMSB in Illinois is being tracked by the Illinois Cooperative Agricultural Pest Survey. If you think you have found this insect in your area, contact Kelly Estes at kcook8@illinois.edu. She may want to see digital photos of the insect or the actual insect itself to confirm identification.

Management: Managing this pest in the home is similar to managing boxelder bugs in the home. Caulk cracks and keep screens in good repair. Physically remove the insects in the home either by hand or with a vacuum.

Good websites:

http://www.ncipmc.org/alerts/stinkbug_alert.pdf

http://ohioline.osu.edu/hyg-fact/pdf/FS_3824_08.pdf

<http://njaes.rutgers.edu/stinkbug/identify.asp>

Woolly alder aphid (minor)

Woolly alder aphids (*Paraprociphilus tessellates*) have been found on alders on The Morton Arboretum grounds this week. Aphids are small (about 1/12th of an inch long) and have sucking mouthparts, long, thin legs, long antennae, pear-shaped body, and a pair of tube-like structures (called cornicles) emerging from their abdomen. Two hosts are needed to complete their life cycle: alders and silver maples. The eggs are usually laid in fall in the bark of the maples. When the young hatch in spring, they collect on leaves and reproduce. Their offspring fly to alders and collect on the twigs where new generations develop. They are small and covered with white waxy filaments, which makes them easy to see (figure 4). In fall, they will fly back to the silver maples to lay eggs. They do little damage.



Figure 4 Woolly alder aphids

Management: Aphids can be dislodged from plants using a strong jet of water from the hose. Doing this periodically will keep the aphid populations low and allow the parasites and predators to build up to effective control levels.

Good websites:

<http://www.ipm.iastate.edu/ipm/hortnews/2000/7-21-2000/woollyaphid.html>

<http://www.entomology.umn.edu/cues/Web/223WoollyAlderAphid.pdf>

Eastern tent caterpillar (potentially serious)

Eastern tent caterpillar (*Malacosoma americanum*) has been seen at the East Branch Forest Preserve. The caterpillars (figure 5) ultimately grow to two inches long and are hairy with white stripes down their backs and blue spots between longitudinal yellow lines (they are beautiful caterpillars). The larvae gather at a fork in a tree and build a web or “tent”. They leave the web to feed during the day, but return at night. Severe defoliation only occurs when populations are high.



Figure 5 Eastern tent caterpillar

Eastern tent caterpillars prefer trees in the rose family, such as wild black cherry, apple and crabapple, plum, and peach, but occasionally will feed on ash, birch, willow, maple, oak, and poplar.

Management: The safest way to control the caterpillar is pruning out the webs. This should be done on cloudy or rainy days or at night when the caterpillars are in the nest and not out feeding. Another option is to remove the overwintering egg masses before spring if you can find them. The egg masses are dark gray to black and are wrapped around twigs that are about the diameter of a pencil. *Bacillus thuringiensis* var. *kurstaki* (Btk) can also be sprayed on young larvae but will not kill mature larvae.

Good web sites:

<http://www.mortonarb.org/tree-plant-advice/article/729/tent-or-web-making-caterpillars.html>

<http://www.ca.uky.edu/entomology/entfacts/ef423.asp>

<http://www.ag.ohio-state.edu/~ohioline/hyg-fact/2000/2022.html>

<http://learningstore.uwex.edu/pdf/A2933.pdf>

Cankerworm (minor)

Spring (*Paleacrita vernata*) and fall (*Alsophila pometaria*) cankerworms have been found on elm. Commonly known as the ‘inchworm’, cankerworms (Figure 6) are in the same family as loopers and have a characteristic ‘looping’ form of movement.



Figure 6 cankerworm

The fall cankerworm caterpillar eggs are laid in late fall and winter. The spring cankerworm caterpillar eggs are laid in early spring. Both cankerworm eggs hatch at their host’s budbreak. Full-grown cankerworms are about 2.54 cm (1 in) long and range in color from yellow-green to black. Cankerworms feed on the buds and new leaves of host trees in spring, eventually devouring all but the midrib of a leaf, and often defoliating an entire tree. Currently, small holes are being seen in the leaves. Trees suffering from a heavy defoliation will usually produce a second crop of leaves, but their overall vitality may be diminished. Cankerworms

infest many deciduous trees and shrubs, but prefer elms (*Ulmus*) and apples (*Malus*).

Management: Light infestations are not harmful to tree health, and natural enemies such as flies, wasps, and birds help to control the cankerworm populations. Heavy infestations can be controlled with *Bacillus thuringiensis* var. *kurstaki* (*Btk*) or other insecticides. To obtain good results, *Btk* or insecticides should be applied when larvae or feeding damage is first noticed in the spring.

Good website:

<http://www.mortonarb.org/component/content/article/193-insects-diseases/764-cankerworms.html>

<http://www.fs.fed.us/r8/foresthealth/idotis/insects/fallcank.html>

Elm bark beetle (potentially serious)

We caught a larger population of adult elm bark beetles (*Hylurgopinus rufipes* and *Scolytus multistriatus*) in our pheromone trap this week. These are the insects that spread the fungus that causes Dutch elm disease (DED). The beetles (figure 7) are dark brown and about 1/8 inch long (smaller than a grain of rice). Everyone who sees them is amazed at their small size considering how much damage occurs from them visiting trees and spreading the fungus. The adults lay eggs in dead or dying elm trees that still have bark attached. Larvae feed under the bark of the dead or dying elm. When they emerge as adults from infected trees, the spores of the DED fungus stick to their backs. The beetles fly to the tops of healthy elms to feed. The beetles are especially attracted to fresh wounds from pruning, storm damage or bark damage. Trees are most susceptible to infection during mid-spring to early summer when they are actively growing. The beetles typically have two generations per year in the Midwest and are present continuously from late April through October.



Figure 7 Elm bark beetles

We'll provide further updates about DED when we start seeing its symptoms, usually in early June.

Management: Begin to monitor elm canopies weekly. Rapid removal of wilting branches can save a tree. Infections from late in the season last year will begin to show soon. Do not prune elms now to prevent attraction of elm bark beetles to wounded trees. Search out and destroy elm bark breeding sites, including piles of elm logs, standing dead elm trees, and stumps with bark attached. Remove bark and chip, compost, bury, or burn the woody material to eliminate potential breeding sites.

Plant tolerant and resistant elms. Non-native hybrid elms, such as Accolade and Triumph (both Morton Arboretum introductions) are resistant to Dutch elm disease. A biocontrol tool, Dutch Trig™, is available in Illinois and is effective as a protectant, though, like most treatments including fungicides, it is not 100% fail-safe. Valuable specimen elms can be injected with one of several fungicides that have good success rates. These must be applied by a licensed professional pesticide applicator.

Good websites about Dutch elm disease:

<http://www.mortonarb.org/tree-plant-advice/article/720/dutch-elm-disease.html>

http://na.fs.fed.us/spfo/pubs/howtos/ht_save/ht_save.htm

Elm leafminer (minor)

Elm leafminer (*Fenusa ulmi*) adults are laying eggs on elms leaves this week (figure 8). The adults emerge in spring to lay eggs in elm leaf tissues. After about a week, the eggs hatch and young larvae begin to make mines in the leaves (figure 9). The sawfly larvae will feed on the leaf tissue between the upper and lower epidermis of the leaves. The mines at first look like U-shaped brown spots between veins in the leaf. Eventually the insects will eat a hole through the leaf epidermis, fall to the ground, and excavate a hole in the soil to overwinter. Severe damage can result in defoliation. To test a leaf for miners, hold the leaf up to the light. If the insect is still in the leaf, you can see it. You will also be able to see frass (insect feces) which looks like pencil shavings within the mined area. They spend most of their life cycle burrowed about an inch in the ground.

Management: We are unaware of any nonchemical control. There is only one generation per year, and the leaves that emerge later will not be infested.

Good website:

<http://www.ext.colostate.edu/pubs/insect/05548.html>



Figure 8 Adult leafminer laying eggs (photo credit: Donna Danielson)



Figure 9 Leafminer damage

European elm flea weevil (minor)

Damage from the European elm flea weevil (*Orchestes alni*) adults feeding on the undersides of newly emerging leaves of elms have been sighted at the Arboretum. This pest first appeared in Northern Illinois in 2003 and has caused significant foliage damage to elms (particularly Siberian) during the past five years.

Adult feeding results in tiny shot holes (figure 10) in the leaves, and heavy feeding can cause newly expanding leaves to wither and turn brown. After feeding, the female weevil cuts a cavity into the leaf mid-vein and inserts an egg. The hatching larvae create blotch mines at the leaf tips. Larvae feed for about 2-3 weeks, and then pupate within the mined leaf. The significant feeding can reduce photosynthetic capacity of the tree, thereby impacting overall tree vitality.



Figure 10 Damage from European elm flea weevil

Management: Insecticides are effective in controlling adults and could be applied now. Depending on how long the insecticide is effective, several applications may be needed. However, spraying a large elm may not be practical.

Good website:

<http://www.mortonarb.org/component/content/article/193-insects-diseases/757-european-elm-flea-weevil-orchestes-alni.html>

Pest Updates: Disease

Apple scab (potentially serious)

We are seeing early symptoms of apple scab (figure 11) on crabapple (*Malus*). The lesions look like velvety, olive-green leaf spots and will continue to develop into larger, irregular dark spots. Sunken spots may also appear later on fruits. Often lesions develop along the mid-veins of the leaves. Infected leaves eventually turn yellow and drop prematurely on susceptible hosts. This defoliation can stress and weaken the tree, especially if it happens year after year. 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 hours of leaf wetness and a specific temperature range and host susceptibility. Scab severity is worse in wet springs.



Figure 11 Apple scab

Management: The best way to avoid apple scab is to plant resistant varieties. “Resistant” just means that, in the 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 these tissues may help reduce the source of inoculum next year.

Sprays for apple scab need to begin when leaves begin to emerge and should continue (at labeled intervals) until two weeks beyond petal fall.

Good websites:

<http://www.mortonarb.org/tree-plant-advice/article/730/apple-scab.html>
http://www.extension.purdue.edu/extmedia/BP/BP_39_W.pdf

Rust on buckthorn (minor)

You have to love a disease that attacks an invasive plant! Crown rust on buckthorn (*Rhamnus cathartica*) caused by the fungus *Puccinia coronate* is now showing up. In general, buckthorn is considered an invasive weed. The State of Illinois officially added it to the list of exotic weeds regulated

by the Illinois Exotic Weed Act a few years ago. The act states that “it shall be unlawful for any person . . . to buy, sell, offer for sale, distribute or plant . . . exotic weeds without a permit issued by the Department of Natural Resources”. So we can be happy to see that this plant is diseased. The down side is that rust is not fatal.



Figure 12 Rust on buckthorn

Symptoms of crown rust are bright orange swollen spots (aecia) on leaves and petioles (Figure 12). A number of susceptible grasses, including oats and rye, are the alternate hosts for this rust. There are many rust organisms and this one is not the one that causes cedar apple rust. You may see rust diseases on other plants as well. We have had one report of rust on mayapple. Luckily it is mostly a cosmetic problem.

Management: None required as buckthorn is not a desirable plant in the landscape.

Good website:

<http://www.extension.umn.edu/projects/yardandgarden/ygbriefs/p418buckthornrust.html>

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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