

Plant Health Care Report

Scouting Report of The Morton Arboretum

August 13, 2010

Issue 2010.16

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.

Quick View

Weekly reminder

What to look for in the next week

This week's sightings:

Insects

Annual cicada
Red milkweed beetle
Yellow-necked caterpillars
Black vine weevil damage
Imported willow leaf beetle
Milkweed tussock moth
Peach tree borer
Ash flower gall

Diseases

Cytospora canker of spruce

Sightings elsewhere

Possible phytoplasmas on red maple and red-osier dogwood

I have run out of Orton's indicator plants, so for this week I'm sharing an interesting plant that's flowering right now.

Limelight panicled hydrangea (*Hydrangea paniculata* 'Limelight' (Figure 1)

Accumulated Growing Degree Days (Base 50): 2132.5

Accumulated Growing Degree Days (Base 30): 4994.5



Figure 1 Limelight panicled hydrangea (*Hydrangea paniculata* 'Limelight')

Woody of the week

American Hornbeam, Blue Beech, Ironwood, Musclemwood (*Carpinus caroliniana*)

Degree Days and Weather Information

As of August 11, 2010, we are at 2132.5 base-50 growing degree days (GDD), which is approximately 28 calendar days (443 GDD) ahead of 2009 at this time, and ahead of the historical average (1937-2009) by 53 GDD, 2 calendar days. In the past two weeks, it has rained 3.44 inches, 2.46 inches this month, and 27.98 inches for the year.

Location	Growing Degree Days through August 11	Precipitation (in) Between July 28 – August 11
Aurora, IL**	2266.2	
Cahokia, IL**	3039.7	
Carbondale, IL **	3152.3	
Champaign, IL**	2636.2	
Chicago Midway	2463.1	
Chicago O'Hare*	2335.5	0.57
Decatur, IL**	2787.1	
DuPage County Airport (West Chicago, IL)**	2294.6	
Lawrenceville, IL**	3103.4	
Mattoon, IL**	2742.5	
Moline, IL**	2562.2	
The Morton Arboretum (Lisle, IL)	2132.5	3.44
Peoria, IL**	2660.3	
Quincy, IL**	2721.8	
Rockford, IL**	2268.8	
Springfield, IL**	2855.6	
Sterling, IL**	2382.9	
Waukegan, IL**	1979.0	
Wheeling, IL**	2258.0	

*Thank you to Mike Brouillard, Northbrook Park District 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/?zip=60185&model=2&state=IL>

Weekly Reminder:

With the lack of rain and the heat in the past week several plants (woody and herbaceous) are wilting. Be sure to water your plants. Remember, trees need at least one inch of water a week, which is much more than grass. Water your trees until the ground is moist 14 inches below ground level, this way you know the roots are getting adequate water.

What to look for in the next week:

Butternut canker, smooth patch, fall webworm

This Week's Sightings...

Annual cicada



Figure 2 Annual dog day cicada (*Tibicen linnei*)

The songs of the annual dog day cicadas (*Tibicen linnei*) (Figure 2) are frequently being heard now. These are the insects that make the sound “weeeeeeeeeeeeeee”, “weeeeeeeeeeeeeee” high in trees during the warm, dog-days of summer. This is the mating call of the male. They are about 1.75 inches long and are green to brown with black markings. The distinguishing factor between the annual and periodic cicada is the eye color. The periodic cicada has red eyes and the annual has black.

Like the periodical cicadas, females lay eggs by sawing a slit in the bark of twigs and placing the eggs in the twig. Egg-laying injury can cause some minor twig dieback. After the eggs hatch, the young nymphs drop down into the ground to feed on plant roots. They have large front legs used for digging in the soil. They live on tree roots as nymphs for two to five years with some adults emerging in late summer every year. The feeding on the roots doesn't cause much damage. As the insects grow larger, they break out of their old exoskeletons or skins.

Control: Control is not necessary since annual cicadas cause minimal damage to trees.

Suggested reading: <http://www.ag.ohio-state.edu/~ohioline/hyg-fact/2000/2137.html>

Red milkweed beetle

Red milkweed beetles (*Tetraopes tetraophthalmus*) (Figure 3) were found on common milkweed (*Asclepias syriaca*). They are 1/2 to 3/4 inch long and red with black spots and long black antennae. Adults feed on milkweed leaves, while in the larval stage they bore into and feed on milkweed stems and roots.

Control: They usually do not cause enough damage to require control.



Figure 3 Red milkweed beetle (*Tetraopes tetraophthalmus*)

Yellow-necked caterpillars

Yellow-necked caterpillars (*Datana ministra*) (Figure 4) were found defoliating a swamp white oak (*Quercus bicolor*). These are larvae that feed in groups. In light infestations, individual branches can be defoliated. Yellow-necked caterpillars have a broad range of hosts including basswood, beech, birch, crabapples, elms, maples and oaks. Young larvae have black heads and yellow bodies with red stripes. Their name is derived from the orange-yellow segments behind their heads. When young, they are in the yellow-red color phase, which means they have red longitudinal stripes on their yellow bodies. As they mature, they go into their black-yellow phase, which means their red stripes turn black. They will eventually grow to two inches in length. They devour entire leaves, leaving only the petioles (leaf stems). When disturbed, they lift their heads and tails above the rest of their bodies, almost like they're trying to touch their tails with the heads. The ones we saw were black and yellow and nearing two inches in length, meaning they were quite mature. They were also very hungry.

Yellow-necked caterpillars overwinter as pupae in the soil, emerging as adults in June to lay eggs. There is one generation annually.

Control: A small infestation can be pruned out or ignored since they feed relatively late in the growing season. Control is more critical on a young tree. We would probably handpick them on a small tree using our patented pick'n'squish™ technique. They can also be dropped in a bucket of soapy water as they are not strong swimmers. *Bacillus thuringiensis* var. *kurstaki* (Btk) can also be used to control young larvae. Btk is not as effective on mature larvae. For chemical recommendations, refer to the Commercial Landscape and Turfgrass Pest Management Handbook 2010 (CPM) if you are a commercial applicator or Home, Yard and Garden Pest Guide (HYG) from the University of Illinois if you are a homeowner.



Figure 4 Yellow-necked caterpillars (*Datana ministra*)

Suggested reading: <http://bugs.osu.edu/~bugdoc/Shetlar/factsheet/ornamental/FSyellowneckcat.htm>

Black vine weevil damage

Black vine weevil (*Otiorhynchus sulcatus*) damage (Figure 5) has been seen on the leaves of catawba rhododendron (*Rhododendron catawbiense*). Adult black vine weevils are nocturnal creatures that feed along leaf margins producing crescent-shaped notches. Moderate feeding is not damaging to plant health. The more serious damage is done by the larvae which consume tender feeder roots, causing foliage of infested plants to turn yellow or brown. When young roots become scarce or the soil becomes excessively moist, the larvae will move to larger roots at the base of the plant. Severe larval infestations can ultimately kill the host plant.

Adult female weevils emerge from the soil in late May through early July and feed for three to four weeks at night before laying eggs in the soil beneath the host plant. Eggs hatch in two to three weeks and the larvae feed on roots until late fall. With the onset of colder temperatures, larvae burrow deeper in the ground to overwinter. Black vine weevils feed on a wide range of herbaceous and woody ornamentals. Preferred hosts are yew, hemlock, and various rhododendrons.



Figure 5 Black vine weevil (*Otiorhynchus sulcatus*) damage

Control: If you place boards down in infested areas, the weevils will hide under the boards during the day. You can then pick them up and destroy them. Insecticidal sprays are effective in controlling adult weevils. Insecticides should be applied now before egg laying occurs and repeated twice at 2-week intervals. Parasitic nematodes, *Steinernema feltiae* and *Heterorhabditis bacteriophora*, have been found to be effective in controlling larvae. They should be applied when larvae are present (in about five to seven weeks). Moderate to high soil moisture in July and August will help egg and larva survival. Remove excessive mulch layers to reduce soil moisture levels and do not water plants unless necessary. Excessively damp soils in the fall

also force larvae to move up the base of the plant where girdling can occur. For specific chemical recommendations, refer to the *Commercial Landscape and Turfgrass Pest Management Handbook* (CPM) for commercial applicators or the *Home Yard and Garden Pest Guide* (HYG) for homeowners.

Suggested reading: <http://ohioline.ag.ohio-state.edu/hyg-fact/2000/2016.html>
<http://www.uwex.edu/ces/wihort/gardenfacts/X1065.pdf>

Imported willow leaf beetle

Imported willow leaf beetle (*Plagioder a versicolora*) larvae and adults (Figure 6) have been found feeding on the leaves of bluestem willow (*Salix irroata*). Young larvae feed in groups and skeletonize leaves. As they mature, larvae consume all leaf tissue except the veins. Adults, who cause minor damage, chew notches and holes in leaves. Larvae are black, and very young larvae can be a cream color but darken with age. Adults are about a ¼ inch long, oval, and metallic black to greenish blue.

Adult beetles overwinter under loose bark of willows and poplars or in piles of nearby debris and leaf litter. Adults begin feeding on young foliage in late April to early May and lay eggs shortly thereafter. Young larvae emerge a few days later and begin feeding. There are two to three generations per year in our region.



Figure 6 Imported willow leaf beetle (*Plagioder a versicolora*) adult

Control: Treatment of imported willow leaf beetle is generally not necessary. However, in severe and repeated infestations, control may be warranted. Insecticides should be applied now to control first generation larvae. Refer to the CPM or HYG for specific chemical control recommendations.

Suggested reading: <http://www.entomology.umn.edu/cues/Web/154ImportedWillowLeafBeetle.pdf>
<http://www.entomology.cornell.edu/cals/entomology/extension/idl/upload/Imported-Willow-Leaf-Beetle.pdf>

Milkweed tussock moth



Figure 7 Milkweed tussock moth caterpillars (*Euchaetes egle*)

Milkweed tussock moth caterpillars (*Euchaetes egle*) (Figure 7) were found eating the leaves of common milkweed plant (*Asclepias syriaca*). They have black and white “hair pencils” along their front, back, and sides and six pairs of thick yellow and black tufts of hair along their middle and grow up to an inch long. The caterpillars feed in colonies and roll into balls, dropping to the ground when disturbed. They are late season feeders on all kinds of milkweeds, so check your butterfly weed (*Aesclepias tuberosa*). They may defoliate patches of milkweed. Adult males sing to attract females by making lovely clicking sounds.

Control: *Bacillus thuringiensis* var. *kurstaki* (Btk) will kill young caterpillars, but is not as effective against older larvae.

Peachtree borer

Greater peachtree borer (*Synanthedon exitiosa*) adult males (Figure 8) have been caught in our pheromone traps. The adults are wasp-like, clear-winged, day-flying moths that primarily infest plants in the *Prunus* genus. Male adults are blue-black with narrow yellow bands on their abdomens and have clear wings with edges and veins outlined with blue-black scales. Females are steel blue with an orange band around the abdomen and have dark blue forewings and clear hind wings. The wingspan of the male is about one inch, and the female's is about one and a half inches.



Figure 8 greater peachtree borer (*Synanthedon exitiosa*) adult males

Adult emergence usually begins in June, typically peaks in mid-July to early August, and may extend into September. Soon after emergence, the female lays eggs

in bark crevices of host plants. Hatching occurs about seven to ten days later. The brown-headed, creamy-white larvae burrow into the bark and begin to feed on inner bark, eventually reaching an inch and a quarter long. The insect overwinters as a partly grown larva underneath the host's bark and resumes feeding and growing in spring and early summer. Most larval activity is confined to the trunk area, usually just below the soil line or in the lower 10 inches of the trunk. Young trees can be killed when trunks are girdled by feeding; older trees are weakened and become susceptible to attack by pathogens and bark beetles. When monitoring for larvae, look at the root crown for cracked bark, frass, and resin.

The lesser peachtree borer (*Synanthedon pictipes*), which is more commonly found in orchards, starts to emerge earlier and over a longer time period and lays its eggs higher in the tree than the greater peachtree borer.

Control: Since adult females are attracted to open wounds in which to lay their eggs, avoid wounding *Prunus* species at this time. Keep the trees healthy by watering during dry periods and mulching properly. Refer to the CPM or HYG for homeowners for specific chemical recommendations.

If only a few trees are infested, greater peachtree larvae can be mechanically removed. This should be done in the spring at bud break or in late fall. Larvae can be removed through a technique called worming. Remove soil from around the base of infected trees; then use a pocketknife or other pointed instrument to dig the larvae out. Be careful since it is possible to seriously injure the tree if too much bark or wood is removed. Larvae may also be killed by inserting a wire into their holes. Keep trees stress-free by proper watering and fertilization practices.

Suggested reading:

Greater peachtree borer: <http://extension.usu.edu/files/publications/factsheet/greater-peachtree-borers07.pdf>

Lesser peachtree Borer: <http://www.canr.msu.edu/vanburen/flptb.htm>

Ash Flower Gall

Flower galls (Figure 9) are beginning to turn brown on male (seedless) ash trees. The new galls were formed earlier this summer. Some people have described them as "bunches of grapes" hanging on the trees. These galls are caused by ash flower gall mites, an eriophyid mite (*Aceria fraxiniflora*). They feed on male flowers before buds are fully expanded. Feeding induces formation of round, greenish galls that become dry and turn brown in late summer and remain on the tree over the winter. Normally male flowers fall off after disseminating pollen, but when infested with ash flower galls mites, the galls may stay on the tree as long as two years. Seedless green ashes are most commonly attacked.



Figure 9 Ash flower galls on green ash

Control: Control is not necessary, as damage is just aesthetic. Although unsightly, the ash flower gall does not harm the tree. We think of it as winter interest.

Suggested reading:

<http://www.entomology.umn.edu/cues/Web/065AshFlowerGallMite.pdf>

<http://www.uwex.edu/ces/wihort/gardenfacts/X1048.pdf>

Cytospora canker of spruce

Infections caused by *Cytospora kunzei* (*Leucostoma kunzei*) were seen on common koyama spruce (*Picea koyama*) (Figure 10). This is a common fungal disease of stressed Colorado and Norway

spruces that can be diagnosed driving past the tree up to 40 miles an hour. It also attacks Douglas fir, hemlocks, larches, and balsam fir. Cytospora canker rarely affects trees that are younger than 15 to 20 years old or that are less than 20 feet tall. The disease usually starts on the lower branches of the tree and progresses upwards. Needles first turn purple (this is what we saw earlier in the season), then brown and finally drop, leaving dry, brittle twigs and branches. The fungus enters the tree through wounds and creates cankers within the bark. A thin coating of white resin is often found on infected twigs and trunks.

Another problem that can be confused with Cytospora canker is too much shade. Spruces need full sun, so when the bottom branches get shaded out by other plants, those bottom branches die. But an older spruce in full sun that has the lower branches die is most likely a victim of Cytospora canker.

Control: Cytospora canker is a stress-related disease, so, at minimum, trees should be kept mulched and watered well during dry periods. Remove infected branches promptly during dry weather to reduce the spread of the disease. It is imperative to disinfect pruning tools between cuts. Give spruces adequate space when planting as dense planting is another common predisposing stress factor. There is no effective chemical control.



Figure 10 Cytospora canker on blue spruce

Suggested reading:

<http://ohioline.osu.edu/hyg-fact/3000/3033.html>

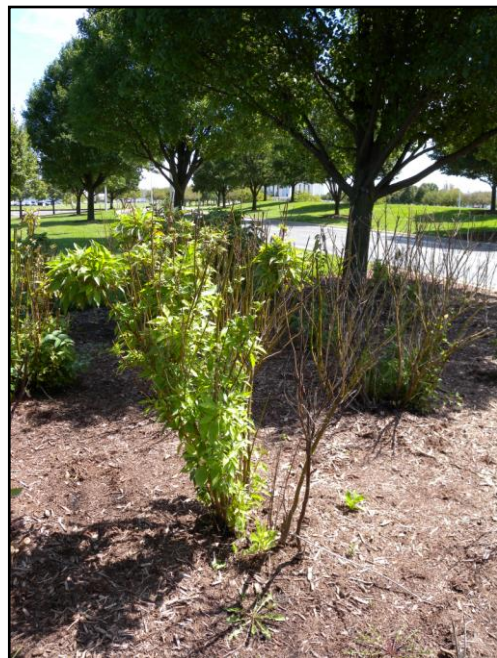
<http://ipm.uiuc.edu/diseases/series600/rpd604/index.html>

<http://plantclinic.cornell.edu/FactSheets/cytospora/cytotwig/cytotwig.htm>

Possible phytoplasmas on red maple and red-osier dogwood

Symptoms of phytoplasma infections were found on red maples and red-osier dogwoods at a DuPage County location recently (see photos below). Phytoplasma infection symptoms include stunted leaves that grow in bunches around the stem, like a witches-broom. The leaves are discolored; in this case, both species' leaves were paler than healthy plants. Symptoms can either be seen uniformly over the entire canopy, but can also only affect one-half of the plant.

Phytoplasmas are prokaryotic organisms (Prokaryotes lack a nucleus and any other membrane-bound organelles, such as bacteria.) that lack cell walls. They are ultramicroscopic (175-250 nanometers in diameter) and consist of cytoplasm, randomly distributed ribosomes, and strands of nuclear material and they're contained within a "unit" membrane. Plant pathogenic phytoplasmas are vectored by leafhoppers, psyllids, and plant hoppers. The phytoplasma's life-cycle is closely associated with its vector because it reproduces inside various parts of the vector for several days before it can be spread to new plants. Much of this information was taken from, and more can be found in Sinclair and Lyon's *Diseases of Trees and Shrubs*, 2nd ed. Cornell University Press.



Woody of the Week

by Jaime Horn

The Woody of the Week is written to aid in basic botanical identification of the featured plant, while adding to the reader's knowledge bank of woody plants. Many of the terms used are standard for describing plant morphology and may require definitions for complete understanding. There are several publications on botanical terminology. Two of these publications are *Plant Identification Terminology: An Illustrated Glossary* by J.G. Harris and M. Woolf Harris and the Plant Morphology section in Michael Dirr's *Manual of Woody Landscape Plants* (page xiv) for pictures and descriptions.

American Hornbeam, Blue Beech, Ironwood, Musclewood (*Carpinus caroliniana*)

Family: Betulaceae

Native: Minnesota and Nova Scotia to Florida and Texas.
Introduced 1812.

Mature Size: 20-30' tall and wide, possibly larger. Multi- or single stemmed.

Hardiness: Zone 3b-9

Foliage: Alternate, ovate-oblong, doubly serrate, up to 5" long and 2" wide, dark green, 10-14 pairs of veins, veins rarely fork at ends, pubescent petiole. Fall color may be yellow, red, orange, or purple; variable levels of showiness.

Bud/stem: Small, imbricate (composed of scales), scales in 4-ranks, usually pubescent on tip, ovate and pointed, reddish-brown, no terminal bud. Stem is slender, zig zag, dark red-brown, and has tan lenticels.

Flower: Monoecious. Male catkins 1 to 1 ½ inches long, females up to 4" long.

Fruit: Nutlet, not showy, green, borne in a bract up to 4" long in fall.

Bark: Smooth, light gray to medium gray, becomes furrowed with age.

Culture/Usage: American Hornbeam is native to streambanks and can tolerate periodic flooding. Utilized best as an understory tree in a naturalized area with moist, slightly acidic soils. Best transplanted in spring, it can tolerate deep shade or full sun. Although it is generally considered to be problem-free, two-lined chestnut borer can attack and kill stressed trees. Hardiness can be problematic depending on seed source, so choose a tree from a reputable garden center!

Get An Up-Close View!:

Planted just off the aggregate walkway leading from the Visitor Center to the West Side, a single specimen planted in the small area of turf. Grid Location: M-43/94-32.

Interesting fact of the week:

The name *Carpinus* is most likely derived from the Latin *carpentum*, meaning a horse drawn wagon with wooden wheels. Similarly, the wood of the genus was used historically for making ox-yokes, giving birth to the common name Hornbeam. The alternate common name Musclewood hints to the smooth, sinewy bark of the species.



The Plant Health Care Report is prepared by Stephanie Adams, M.S., Plant Health Care Technician, and edited by Donna Danielson, M.S., Plant Clinic Assistant; Fredric Miller, Ph.D., research entomologist at The Morton Arboretum and professor at Joliet Junior College; and 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 that scouted this past week and found most of the insects and diseases that are in this report. The Scouting Volunteers include: LeeAnn Cosper, Fritz Porter, Mary Carter Beary, Davida Kalina, Kathy Davidson, Kevin Monaco, Laurie Blackmon, Betsy Morton, Ann Klingele, and Loraine Miranda. Your hard work is appreciated.

Literature recommendations:

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University of Illinois. 2008. *Home, Yard & Garden Pest Guide.* <https://pubsplus.uiuc.edu/C1391-08.html>.

UIPlants: The Woody Plant site for the University of Illinois <http://woodyplants.nres.uiuc.edu>.

This report is available on-line 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 Stephanie Adams at sadams@mortonarb.org.