

Plant Health Care Report

Scouting Report of The Morton Arboretum

July 19 - 25, 2008

Issue 2008.15

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

What Indicator Plants are in Bloom at the Arboretum?

Chicory (*Cichorium intybus*) is in full bloom along roadsides.

**Accumulated Growing Degree Days (Base 50):
1411.5**



Insects

- Peachtree borer
- Ash leaf curl aphid
- Fruittree leafroller
- Annual cicada
- White-dotted prominent caterpillar

Diseases

- Pine wilt
- Septoria leaf spot

Sightings Elsewhere:

- Two-spotted spider mite

Feature Article:

- "Where Are The Bumble Bees?"
By Trica Barron

Degree Days and Weather Information

Through July 25, 2008, we are at 1411.5 growing degree days which is 11 days behind of the historical average (1937-2007) and 16 days behind of last year.

Location	Growing Degree Days through July 25	Precipitation between July 19 to 25 in inches
The Morton Arboretum (Lisle, IL)	1411.5	2.46
Chicago Botanic Garden (Glencoe, IL)*	1353.5	2.25
Chicago O-Hare Airport*	1445.5	2.52
Aurora, IL	1449.5	
Bloomington, IL	1608.0	
Champaign, IL	1709.0	
DuPage County Airport (West Chicago, IL)	1503.0	
Midway Airport	1613.0	
Danville, IL	1833.5	
Decatur, IL	1794.0	
DeKalb, IL	1446.0	
Moline, IL	1655.0	
Palwaukee Airport (Wheeling, IL)	1451.0	
Peoria, IL	1755.5	
Peru, IL	1770.0	
Pontiac, IL	1577.5	
Rantoul, IL	1886.5	
Rockford, IL	1520.0	
Romeoville, IL	1474.5	
Springfield, IL	1806.5	
Waukegan, IL	1239.5	
Madison, WI	1317.5	
Milwaukee, WI	1196.5	

**Thank you to Mike Brouillard, Green Living, Inc. and Chris Yooning, Chicago Botanic Garden for supplying us with this information.*

We obtain most of our degree day information from the Virtual Arborist web site. For additional locations and daily degree days, go to <http://virtualarborist.com/>.

This Week's Sightings

Peachtree borer



Finally, we have caught some greater peachtree borer (*Synanthedon exitiosa*) adult males 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.

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 *2007 Commercial Landscape & Turfgrass Pest Management Handbook (CPM)* for commercial applicators or the *Home, Yard & Garden Pest Guide (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.

Good websites:

Greater peachtree borer: <http://ohioline.osu.edu/hyg-fact/2000/2032.html>

Lesser peachtree Borer: <http://ohioline.osu.edu/hyg-fact/2000/2033.html>

Ash leaf curl aphid



A sample of the ash leaf curl aphid, also known as the woolly ash aphid (*Prociphilus fraxinifolii*), was brought into the plant clinic. The aphids are about 1/8 to 1/4 inches in length. They have a pear shaped body and are often covered with white waxy strands (which gives them a fuzzy appearance). They use their needle-like mouthparts to withdraw sap from plant tissue. The aphids produce large amounts of honeydew (poop in the insect world) covering leaves, branches and anything else under them. The honeydew often turns into sooty mold fungus. Aphid feeding causes stunting of shoots and curling, yellowing and distorted leaves.

Control: For chemical control, refer to the *CPM* and the *HYG*.

Good web site:

<http://www.coopext.colostate.edu/4dmg/Pests/leafcurl.htm>

Fruittree leafroller

Fruittree leafroller (*Archips argyrospila*) larvae have been found on some of our crabapple (*Malus spp.*) trees. The larvae have green bodies and black heads. They can be found inside rolled up leaves but when disturbed, they will wiggle vigorously and drop to the ground on a strand of silk to seek shelter. (Needless to say they are not co-operative for taking pictures!) Larvae chew leaves, making a skeletonized wound. Feeding on young fruit may occur, causing fruit drop or distorted fruit.

Adults are rusty brown with silvery to pale gold patches on their wings. Their wingspan is approximately ¾ inch. There is one generation per year.

Control: For chemical control, refer to the *HYG*.

Good web site:

<http://www.canr.msu.edu/vanburen/frtrelr.htm>



Annual cicada

We're starting to hear the songs of the annual dog day cicadas. These are the insects that make the sound "weeeeeeeeeeeee", "weeeeeeeeeeeee" 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.

Good websites:

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

White-dotted prominent caterpillar



Notice the yellow mandibles.

The white-dotted prominent (*Nadata gibbosa*) caterpillar has been found on our white oak tree (*Quercus alba*). They are commonly found on white oak during July and August. Because of their size, they are very easy to spot. The caterpillars are approximately one to two inches long and are blue-green to a bright green in color, with a yellow horizontal stripe running down the side of its body. The most noticeable feature is the yellow mandibles (lower jaw part that can move from side to side, and are modified based on their function) on its large pale green head. They almost look like fangs. The moth is tan to a dull orange with two silver spots on each wing. Its wingspan is approximately two inches wide. This moth is nocturnal, but is attracted to light.

The adult moth emerges and mates in spring and is active until early June. The larvae are active until fall, and then they pupate in the soil until the following spring.

Control: You can handpick caterpillars off plants, but *Bacillus thuringiensis* var. *kurstaki* (Btk) can be used on young larvae.

Pine wilt



We suspect pine wilt on a Scots pine (*Pinus sylvestris*) sample brought into the plant clinic. Pine wilt is a very serious disease. Every species of pine grown in this area is a potential host but Scots pine is most common. First needles turn grayish green, then yellowish green, yellow brown and then totally brown. Symptoms occur rapidly during the warm months of summer. Infected pines usually suffer a sudden decline and death within a few weeks or months.

Pine wilt is caused by the pine wilt nematode, *Bursaphelenchus xylophilus*, which is a foliar nematode. The disease cycle is quite complex. Sawyer beetles lay their eggs in dead or dying pines. The eggs hatch into larvae and overwinter in the pines. The pine wilt nematodes infect beetles before they emerge from the dead pine. When the beetles emerge, they carry the nematodes to live pines. The beetles feed on twigs of healthy pines and the nematodes enter the pines through feeding wounds. The nematodes migrate to the resin canals of the tree and destroy the cells which line the canals. The nematodes reproduce rapidly. The tree's water transport system becomes clogged and the tree dies. Bluestain fungi then invade the dead wood. The nematodes feed on the bluestain fungi. Frequently the bluestain fungus is seen in the wood when the tree is felled.

Control: Pine wilt is not curable. The trees should be removed and destroyed as soon as possible. Don't store the wood for firewood. The trees must be burned or buried because the beetles that spread the nematodes will emerge from the wood and fly to other trees, carrying the nematodes with them and infecting other trees. Resistant conifers can be planted such as Norway or blue spruce, Douglas fir from a southwest seed source, cedar or hemlock.

Good web sites:

<http://www.ag.uiuc.edu/~vista/abstracts/a1104.HTML>

<http://www.extension.iastate.edu/Publications/SUL9.pdf>

Septoria leaf spot

Septoria leaf spot caused by the fungus *Septoria cornicola* was found on our dwarf dogwood (*Cornus pumila*). Flowering dogwood (*Cornus florida*) and Tatarian dogwood (*C. alba* 'Ivory Halo') is also a host to the fungal disease. The spots are present only on leaves. They have purple brown margins with pale centers, are angular, about 1/8 of an inch in diameter, and limited by veins. The spots get larger and more numerous as the growing season progresses, but the disease is actually of little consequence to the plant. Sanitary measures, such as collecting and discarding infected leaves as soon as they become apparent, should help reduce spread to new leaves and plants.

Good web site:

<http://hyg.aces.uiuc.edu/secure/subscribers/200414b.html>



Sightings Elsewhere

Two-spotted spider mite

Chris Yooning of the Chicago Botanic Garden tells us they are seeing the two-spotted spider mites (*Tetranychus urticae*) at the Garden. Two-spotted spider mites are very small, about 1/60 of an inch long. You need a hand lens to see them clearly – we know you always carry one around. Mites are not insects but insect relatives. Mites have eight legs and two body regions, while insects have six legs and three body regions. The two-spotted variety has two spots (no surprise there!) on their backs which are composed of food contents. Two-spotted spider mites love hot, dry weather. Leaves attacked by spider mites show stippling or tiny, chlorotic flecks. If enough damage



is done to a leaf, it begins to look bronzed and may drop prematurely. Spider mites attack many kinds of plants and are also very common on house plants, especially in winter when your house is warm and dry.

Control: First, you may want to determine what kind of mites are on your plant by performing the spider mite squish test™. Hold a white sheet of paper under a branch and shake the branch firmly. If you have mites, tiny specks will start crawling on the paper. Squish some of the moving specks. If the resulting streaks are green, you are seeing mites that feed on plants. If you see red or brown streaks, you probably have predatory mites that are the natural predators of

spider mites (a good thing). Beneficial mites move faster than the pest mites. Pest mites don't have to move fast to catch their food; plants don't run too fast. But the beneficials have to move faster in order to catch their prey. Anyway, if you see lots of green spider mites, you may want to treat the plant.

There are several options. A forceful stream of water may knock mites off the plant. This should be repeated for three days. Predatory mites can also be purchased and released on the plants. Insecticidal soaps can be sprayed to control mites. For information about chemical control, refer to the CPM if you are a commercial applicator or the HYG if you are a homeowner.

Good web sites:

<http://www.ext.colostate.edu/pubs/insect/05507.html>

<http://ohioline.osu.edu/hyg-fact/2000/2012.html>

What to Look for Next Week

Next week we will be looking for milkweed beetles, tar spot on maple, and sycamore lacebug.

Quote of the week: "A weed is a plant that is not only in the wrong place, but intends to stay." - Sara Stein

Feature Article:

Where Are All The Bumble Bees?

By Trica Barron

Plant Health Care Technician

Many of us have noticed that there have been few bumble bees in our gardens this season. They are gentle, slow, clumsy and vividly colored. The loveable bumble bee is native to North America. They are fascinating to watch and are considered the most important pollinators of all. It is difficult to pin point the exact reason for our low bumble bee population here in Northern Illinois. It is suspected that this season's decline may be due to last year's spring freeze, which caused some bee larvae to perish for lack of food. This year's wet spring and summer has

caused lush green growth with less flowering, again causing a lack of food. There are places, especially southern Illinois, where the busy bumble bee population is thriving.

Here are some interesting bumble bee facts:

- There are approximately 50 species of bumble bees known in North America.
- The majority of bumbles are solitary nesters, meaning that they create and take care of their nest without the cooperation of other bees.
- Most bumble bee species nests are underground in well drained soil. They are a little bigger than a grapefruit half.
- They are sensitive to habitat disturbances.
- Unlike the wasps' nest we are always trying to knock down around our houses for fear of being attacked by a swarm of bees, the bumble bee does not swarm and has a small nest. So if you come upon a bumble's nest in your yard, it can be left alone.
- New queens hibernate alone and emerge in early spring to form new colonies.
- The bee's life stages are similar to that of the butterfly. There are four stages: egg, larva, pupa, and what we see, adult (this is known as complete metamorphosis). It is during the first three stages that the bees are inside the nest.
- The queen bee produces just enough honey from spring flower nectar to feed her young.
- When they pupate, they emerge as full grown worker bees. All worker bees are female.
- They are among the few known insects that can control their body temperatures. This allows them to fly and work in lower temperatures than most other insects.
- The queen continues to lay eggs from late spring and summer until the nest has reached the right size for its species. Once her goal is reached she will begin to lay next season's queens (all female bumble bees come from fertilized eggs) and drones (male, unfertilized eggs).
- The drone's only purpose is to mate with the newly born queen bees.
- Not all bumble bees have stingers. The drones, which hatch in mid-summer, have no stingers.
- During our first hard frost of the season the old queen, her workers and drones will die. Only the newly mated queens hibernate.

There is a crucial need for scientists and conservationists to initiate more research programs for our native bees. Without them, we can kiss good-bye our apples, blueberries, strawberries, almonds, melons, peaches, pumpkins, all flowers that depend upon insect pollination (which is the majority) and even, dare I say it, CHOCOLATE! That's right chocolate, the flowers of the cocoa tree must be pollinated, so it can produce the cocoa bean pods (what chocolate is made from). In California, scientists have seen a major decline over the past decade in certain bumble bee species; in fact the Franklin's bumble bee *Bombus franklini*, is now thought to be extinct. They suspect the spread of pests and diseases by the commercial bumble bee industry to be the culprit. Some other probable causes for the population declines include urban development, heavy pesticide use, loss of native flowering plants, and a changing climate.

Here is a list of a few things you can do to help the local bumble bee population:

- Use pesticides responsibly. If you must use a pesticide, be sure to use those that are targeted to specific pests. Try to spray at night or when flowers are not in bloom, when pollinators are not in your garden.
- Plant a pollinator friendly garden; they prefer blue or yellow flowers and those that are sweet smelling. Here are some good plant selections for our area (inquire about more plant selections at your local nursery):

Perennials

Red columbine (*Aquilegia* spp.)

Black snakeroot (*Cimicifuga racemosa*)

Purple coneflower (*Echinacea purpurea*)

Sunflower (*Helianthus* spp.)
Hyssop (*Hyssopus* spp.)
Blazing star (*Liatris*)
Bee balm (*Monarda* spp.)
Scarlet penstemon (*Penstemon* spp.)
Salvia (*Salvia* spp.)
Sedum (*Sedum* spp.)
Goldenrod (*Solidago* spp.)

Annuals

Cosmos
Zinnias

Trees and Shrubs

Summersweet (*Clethra* spp.)
Linden (*Tilia* spp.)

- Become a bee spotter through the University of Illinois website: <http://beespotter.mste.uiuc.edu/>. A bee spotter is a citizen (almost like a storm spotter) who takes pictures of bees, writes down the date and location of the bee, and sends the information through the web site to the U of I. Scientists then identify the bee and records the data.

I can't imagine a spring and summer without the sight or sound of a busy bumble bee. And knowing that ¾ of the world's flowering plants and approximately 90 types of food crops eaten in North America depend on pollinators like the bumble bee, tells us we need to be more diligent with our efforts on keeping our pollinators thriving.





The Plant Health Care Report is prepared by Trica Barron, Plant Health Care Technician, and edited by Donna Danielson, Plant Clinic Assistant; Fredric Miller, PhD, research entomologist at The Morton Arboretum and professor at Joliet Junior College; Doris Taylor, Plant Information Specialist, and by Carol Belshaw, Plant Clinic 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.

The *2007 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). You may also purchase them online at <https://pubsplus.uiuc.edu/ICLT-07.html> (commercial handbook) and <https://pubsplus.uiuc.edu/C1391.html> (homeowners' guide). One further source is your local county extension office.

This report is available on-line at The Morton Arboretum website at <http://www.mortonarboretumphc.org/>.

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

Copyright © 2008, The Morton Arboretum
Printed on recycled paper