

Plant Health Care Report

Scouting Report of The Morton Arboretum

April 19 – May 2, 2008

Issue 2008.03

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.

Wow, snow! And we were warming up so nicely, at least the cold didn't last. April 28th's snowfall that had been seen by many was the second latest occurrence of snow here in the past 15 years. Gardeners beware; don't let the warm temperatures fool you. The danger of frost still lingers. The average last spring frost date, based on 1971-2000 averages, usually occurs April 28 in northern Illinois, April 7 in southern Illinois and April 14-21 in central Illinois. The Morton Arboretum average frost date is May 2nd. But the average last frost date varies from year to year. So the best advice to follow is to wait until May 15th to plant those tender annuals, seeds, perennials, and veggies.

BIG BUGS!

The arboretum has been invaded by big bugs! Artist David Rogers' Big Bugs are now on display until July 20th. There are 8 sculptures that are accessible for viewing and are located around Meadow Lake, and a praying mantis sculpture outside the visitor center in the greeting circle. Those of you who travel on I-88 can see the three ants which are located on the berm (stopping on I-88 to look at them is strongly discouraged). They all are a sight to see!!

Quick View

What Indicator Plants are in Bloom at the Arboretum?

Redbuds (*Cercis canadensis*) are in early bloom.

Accumulated Growing Degree Days (Base 50): 115.0

Insects

- Oystershell scale
- Hemlock needleminer
- Larch casebearer
- European pine sawfly
- Woolly alder aphid
- European elm flea weevil
- Hemlock rust mite
- Arborvitae leafminer



Diseases

- Phomopsis gall on forsythia
- Black knot
- Apple scab

Degree Days and Weather Information

As of May 1, 2008, we are at 115.0 growing degree days. The historical average (1937-2007) for the same date is 158.3. Last year we were at 199.0 growing degree days on May 2.

Location	Growing Degree Days through May 1	Precipitation between April 19 to May 1 in inches
The Morton Arboretum (Lisle, IL)	115.0	3.65
Chicago Botanic Garden (Glencoe, IL)*	93.5	1.12
Chicago O-Hare Airport*	108.0	1.45
Aurora, IL	114.0	
Bloomington, IL	145.5	
Champaign, IL	162.0	
DuPage County Airport (West Chicago, IL)	127.5	
Midway Airport	113.0	
Danville, IL	208.0	
Decatur, IL	183.5	
DeKalb, IL	113.5	
Moline, IL	142.0	
Palwaukee Airport (Wheeling, IL)	104.5	
Peoria, IL	173.5	
Peru, IL	172.0	
Pontiac, IL	148.5	
Rantoul, IL	178.0	
Rockford, IL	123.0	
Romeoville, IL	131.0	
Springfield, IL	179.0	
Waukegan, IL	59.0	
Lafayette, IN	206.5	
Milwaukee, WI	53.0	
Racine, WI	52.5	
Waukesha, WI	81.0	

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

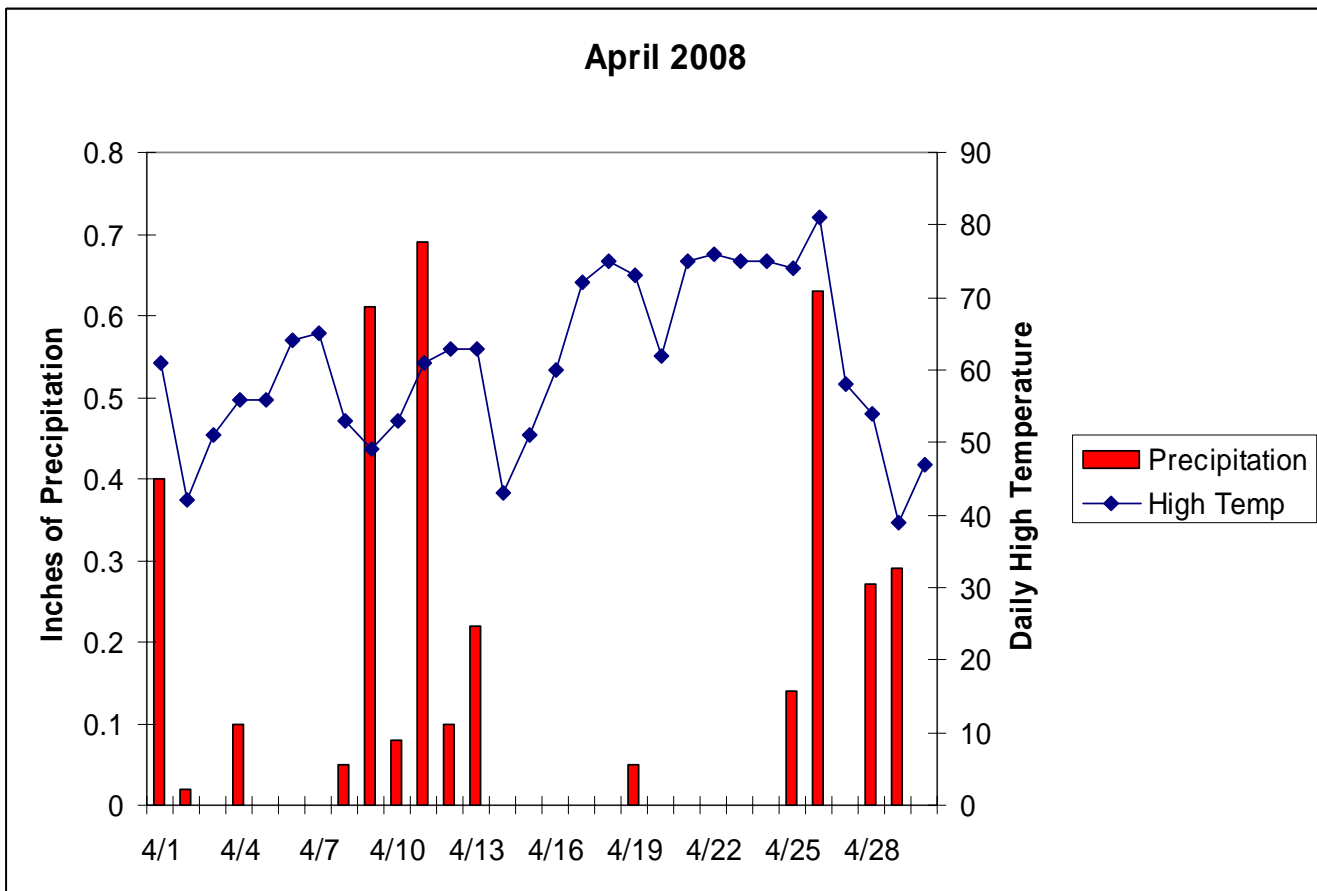
We obtain most of our degree day information from the Virtual Arborist web site. For additional locations and daily degree days, go to <http://virtualarborist.com>.

April Weather

Believe it or not, our April weather was only slightly cooler than the average. The average temperature was 0.4 degrees cooler than our historical average (1937-2007). It was also only slightly wetter with 0.04 inches more of rainfall than in the average April. The chart on the next page provides daily precipitation and temperature highs for April.

Summary of April Temperature and Precipitation Data

	April 2008
Average Daily Temperature	49.5° F
Historical Avg. Daily Temp.	49.9° F
High Temperature	81.0° F
Low Temperature	22.0° F
Total Precipitation	3.65 in.
Historical Avg. Precipitation	3.61 in.
Total Days with Precipitation	14



This Week's Sightings

Oystershell scale

Oystershell scale (*Lepidosaphes ulmi*) was identified on a sample that was brought into the plant clinic. The oystershell scale attacks over 130 trees and shrubs including lilac, beech, and viburnum. The scale overwinters on twigs and branches as eggs under the females' waxy scale cover, which closely resembles one-half of oystershell. In late spring, minute pale-yellow crawlers emerge and attach themselves to the bark of twigs and branches to feed. As crawlers mature, they develop their scale cover. The fully developed scale cover is elongated, curved, and is about one eighth of an inch long with brown or gray concentric bands. Adults cluster together and in severe infestations may cover the bark of branches completely.

Oystershell scale feeding causes cracked bark and chlorotic, stunted foliage. Twig and branch dieback occurs in heavy infestations. Occasionally, a plant will die from an infestation.



Control: Reduce scale population by pruning out heavily infested branches. For oystershell scale, insecticidal soaps, summer oils, or insecticides should be applied in early June to control crawlers. Additional applications are typically recommended. For further information about chemical control and timing refer to the 2007 *Commercial Landscape and Turf Management Pest Handbook (CPM)* from the University of Illinois if you are a commercial applicator in *Illinois or Home, Yard and Garden Pest Guide (HYG)* from the University of Illinois if you are a homeowner.

Good websites:

<http://www.forestpests.org/vermont/oystershellscale.html>

http://www.ipm.uiuc.edu/landturf/insects/oystershell_scale/index.html

Hemlock needleminer

We found hemlock needleminers (*Coleotechnites macleodi*) on Eastern hemlock (*Tsuga canadensis*). The term "needle miner" describes the larval feeding habits of insects that bore into and feed on the soft internal tissue of evergreen needles. These tiny caterpillars hatch in July, enter leaves near the base, and feed on green tissue inside the needle, leaving the epidermis of the needle intact. They bind needles together with webs, so you see clusters of brown, mined needles throughout the tree. The insect overwinters as a larva and resumes feeding in the spring.

Control: Hemlock needleminer is considered a minor pest and control is usually not necessary.



Good website:

<http://www.forestpests.org/caterpillars/brownhemlock.cfm>

Larch casebearer

Larch casebearer (*Coleophora laricella*) larvae are just starting to feed on the emerging needles of Olga Bay larch (*Larix gmelinii* var. *olgensis*) and larch (*Larix* sp.) throughout the Arboretum. 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.



Larch casebearer inside hollowed out needle.

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. 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.

Control: 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 should be applied now. According to the USDA Forest Service (<http://na.fs.fed.us/spfo/pubs/fidls/larch/larch.htm>), malathion is effective.

Good websites:

http://www.umassgreeninfo.org/fact_sheets/defoliators/larch_casebearer.html

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

European pine sawfly

European pine sawfly (*Neodiprion sertifer*) larvae are just hatching (which was exciting to watch) and are feeding on needles of red pine (*Pinus resinosa*). These are one of our favorite insects because they're so amusing to watch. Groups of sawfly larvae rear up their heads simultaneously when disturbed, making the group to appear to be one much larger organism. This is a great defense mechanism. Right now the larvae are less than a quarter of an inch long, but already you can see their black heads. When fully grown, the sawflies will be about $\frac{3}{4}$ - 1 inch long and will have several light and dark green stripes on each side of their bodies. Their heads and the first three pairs of legs are black. Their mouths are so small after hatching, they can only eat one side of each needle, and therefore the chewed-on needles look like straw. Eventually as the insects mature, they are able to eat



entire needles. The larvae feed for weeks on old conifer needles but are finished feeding before current year's needles emerge. Then they drop down into the ground to pupate, emerging in September as adults to mate and lay eggs. The eggs look like small gold dots along the needles. In an extremely heavy infestation, trees could be entirely defoliated or stunted. But because new growth is rarely attacked, the trees survive.

Control: Birds feed on the larvae and rodents eat the pupae in the soil, but these predators are usually inadequate to control the larvae. At the Arboretum, we usually use the patented "pick and squish"TM method (haha!). We haven't found an insect yet that has developed a resistance to being picked and stomped on. If you can find the needles before the larvae hatch, remove the needles. European pine sawfly larvae are not caterpillars, thus *Bacillus thuringiensis* (Bt) does not control them. In severe infestations, insecticides are also effective if applied now. For chemical recommendations, refer to the *2007 Commercial Landscape and Turf Management Pest Handbook* (CPM) from the University of Illinois if you are a commercial applicator in *Illinois or Home, Yard and Garden Pest Guide* (HYG) from the University of Illinois if you are a homeowner.

Good websites:

http://woodypests.cas.psu.edu/FactSheets/InsectFactSheets/html/European_Pine_Sawfly.html

http://bugs.osu.edu/~bugdoc/Shetlar/factsheet/christmasstree/european_pine_sawfly.html

<http://www.entomology.umn.edu/cues/Web/128EuropeanPineSawfly.pdf>

Woolly alder aphid

Small masses of woolly alder aphids have been found on the lower trunks of European alder (*Alnus glutinosa*). Aphids are small (about 1/12th of an inch long) and are identified by their sucking mouthparts, long, thin legs, long antennae, pear-shaped body, and pair of tube-like structures (called cornicles) emerging from their abdomen that look somewhat like tailpipes. 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. In fall, they will fly back to the silver maples to lay eggs. They do little damage.

Control: Aphids can be dislodged from plants using a strong jet of water from the hose (syringing). Periodic syringing 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>

European elm flea weevil

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 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, then pupate within the mined leaf. The significant feeding can reduce photosynthetic capacity of the tree, thereby impacting overall tree vitality.



Control: Insecticides are effective in controlling adults and could be applied now. According to Phil Nixon, Ph.D., Extension Entomologist at the University of Illinois at Urbana-Champaign, adults can be controlled with a spray of acephate, imidacloprid, bifenthrin, or cabaryl. The acephate and imidacloprid should also prevent the larval mines from appearing later. Depending on how long the insecticide is effective, several applications may be needed. However, spraying a large elm may not be practical. We are also hearing that a soil drench of imidacloprid is effective.

For further information on the European elm flea weevil refer to the feature article by Dr. Fredric Miller in PHC 2005.02

(<http://www.mortonarboretumphc.org/PHC%20report%20pdfs/042205%20Issue%202.pdf>).

Good website:

<http://richland.osu.edu/hort/european-elm-flea-weevil>

Hemlock rust mite

We've found hemlock rust mites (*Nalepella tsugifolia*), an eriophyid mite, on Eastern hemlock (*Tsuga canadensis*). 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.



Control: 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. For further information on chemical controls, refer to the CPM or HYG.

Good website:

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

Arborvitae leafminer

Overwintering arborvitae leafminer (*Argyresthia thuiella*) larvae are in their very early stage of becoming active and feeding on eastern arborvitae (*Thuja occidentalis*). The larvae are 1/8 inch long and pale yellowish green with dark brown to black heads. They tunnel into the tips of needles where they remain and feed for most of the year. The heaviest feeding occurs in fall and early spring resulting in browning of needle tips. After pupation, adult moths begin to appear in late May to early June (400-600 GDD). Eggs are laid during the latter part of summer, and upon hatching, the tiny caterpillars tunnel into the arborvitae scales. We are



observing far less damage now than the considerable damage we suffered a few years ago. We are assuming the natural enemies of this moth have caught up with it.

Control: In light infestations, prune off infested tips. With heavy infestations, chemical treatments are effective in controlling larvae and should begin in early May (150-260 GDD). Use chemicals sparingly. There are over 25 parasites (natural enemies) that have been recovered from arborvitae leafminer larvae and pupae. The use of insecticides may actually increase the leafminer numbers by destroying these natural enemies.

An arborvitae leafminer feeding preference study at the Arboretum by Donna Danielson, Lisa Nakomoto, and Dr. Fredric Miller several years ago found that generally, the shorter, denser arborvitae cultivars such as 'Hetz Midget' were attacked less than the taller cultivars or the straight species.

Good website:

http://www.umassgreeninfo.org/fact_sheets/leaf_miners/arborvitaeleafminer.html

Phomopsis gall on forsythia

A sample of phomopsis stem gall on forsythia has been brought into the Plant Clinic this week. The galls, caused by the fungus, *Phomopsis sp.*, are light brown and irregularly shaped with a bumpy, rough texture. The galls ranged in size from 1/4 to 1-inch in diameter. Phomopsis galls can occur on many tree and shrub species, including viburnum, privet, American elm, hickory, maple, and oak. Gall size varies with the host species and time. If the galls girdle the twig, then dieback is the result. The disease is frequently mistaken for crown gall, which is a bacterial disease that usually attacks plants near the soil. Phomopsis galls are located higher on the stems, not near the soil line.

Control: There is little known about the disease cycle of this fungus. The only suggested control measure is to prune out the galls. It is imperative to sterilize pruning tools between cuts by dipping them in a disinfectant such as Lysol, Pinesol, or alcohol.



Good websites:

<http://www.urbanext.uiuc.edu/hortanswers/detailProblem.cfm?PathogenID=51>

<http://hyg.aces.uiuc.edu/secure/subscribers/199906e.html>

Black knot

Black knot (*Dibotryon morbosum*) samples have been brought into the Plant Clinic this past week; it is a serious and widespread problem of trees in the genus *Prunus*, especially plums and cherry trees. Right now we're seeing the abnormal swellings on branches of European bird-cherry (*Prunus padus*), which, along with wild black cherry (*Prunus serotina*), is a magnet for this disease. 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 or abandoned cherry orchards. These knots look like, well, OK; we'll say it – dog poop wrapped around branches and twigs. It's always amusing listening to callers trying to describe the knots over the phone. 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 hypertrophied growth 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.



Control: This is a difficult disease to control. 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. Some recommend painting wounds greater than two inches in diameter with shellac and covering with wound dressing. This may prevent infections but may also impede wound healing. It is better to prevent larger limbs from developing knots. Chemical recommendations include a dormant fungicide spray. Perhaps consider this next year if you can't get the disease under control through sanitation. Refer to the CPM if you are a commercial applicator or the Home, Yard and Garden Pest Guide (HYG) from the University of Illinois if you are a homeowner.

Good websites:

<http://ohioline.osu.edu/hyg-fact/3000/3011.html>

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

<http://www.apsnet.org/education/LessonsPlantPath/blackknot/>

Apple Scab

If you haven't sprayed for apple scab yet, start right away. Apple scab is a fungal disease that is very common in springs with wet weather and moderate temperatures. If you have a tree that suffers frequently from scab and loses a lot of leaves, you might consider a fungicide spray program. Fungicide applications need to start when buds are breaking and leaves are still tiny. Applications need to be continued at regular intervals based on label directions as long as the wet weather continues.

Crabapples vary in their susceptibility to scab. http://www.mortonarb.org/res/CLINIC_dis_appleScab.pdf

We will discuss scab in greater detail when symptoms begin to appear.

What to Look for Next Week

Next week we will be looking for spruce spider mites, ash plant bugs, and cedar rusts.

Quote of the week: "I always thought a yard was three feet, then I started mowing the lawn."

- C.E. Cowman



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 email plantclinic@mortonarb.org. Inquiries or comments about the PHC reports should be directed to Trica Barron at tbarron@mortonarb.org.

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