

# Plant Health Care Report

Scouting Report of The Morton Arboretum

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May 31, 2013

Issue 2013.7

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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](mailto:syiesla@mortonarb.org).

## Quick View

### What indicator plant is in bloom at the Arboretum?

Cranberrybush Viburnum (*Viburnum opulus* var. *americanum*) is in late bloom.

Weigela (*Weigela florida*) is in early bloom (figure 1).

**Accumulated Growing Degree Days (Base 50): 368.5 (as of May 30)**

**Accumulated Growing Degree Days (Base 30): 1494.5 (as of May 30)**

### Insects:

- Elm leaf miner
- Fruitworms
- Euonymus caterpillar
- Azalea sawfly

### Diseases:

- Tobacco rattle virus on *Epimedium*
- Powdery mildew on ninebark
- Wetwood and slime flux on elm
- Cedar-hawthorn rust on hawthorn



Figure 1 Weigela (photo credit: John Hagstrom)

## Degree Days and Weather Information

As of May 30, we are at 368.5 base-50 growing degree days (GDD). In 2012, when we were having an abnormally warm season, we had accumulated 683.5 GDD base-50 by this date. On average we usually have accumulated 351 GDD base-50 by this date. So we are fairly close to average this year. For the month of May (though the 30<sup>th</sup>) we have had 6.19 inches of rain which is above the monthly average of 4.8 inches.

Location	B <sub>50</sub> Growing Degree Days Through May 30 , 2013	Precipitation (in) May 24-30 , 2013
Carbondale, IL*	776	
Champaign, IL*	613	
Chicago Botanic Garden**	303 (as of 5/29)	1.71 (5/23-29)
Chicago O'Hare*	442	
Kankakee, IL*	566	
The Morton Arboretum	368.5	.85
Northbrook, IL**	367.5	.4 (5/23-29)
Quincy, IL*	602	
Rockford, IL*	427	
Springfield, IL*	619	
Waukegan, IL*	329	

\*\*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](mailto:syiesla@mortonarb.org).

## **Pest Updates: Insects**

### **Elm leaf miner (minor)**

Elm leafminer (*Fenusa ulmi*) larvae are forming mines on Valley Forge elm (*Ulmus americana* 'Valley Forge'). 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 2). The sawfly larvae are feeding 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. Susceptible elms include the American elm (*U. americana*), English elm (*U. procera*), and Armenian elm (*U. elliptica*). They spend most of their life cycle burrowed about an inch in the ground.



Figure 2 Damage from elm leafminer

**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://hyg.ipm.illinois.edu/pastpest/200806f.html>  
<http://www.ext.colostate.edu/pubs/insect/05548.html>

### **Fruitworms (minor)**

Two species of fruitworm have been found at The Morton Arboretum this week. The speckled green fruitworm (*Orthosia hibisci*) was found on pontic azalea (*Rhododendron flavum*) and the green fruitworm (*Lithophane antennata*) was found on dotted hawthorn (*Crataegus punctata*). Fruitworms are usually associated with fruit trees, but can attack a wide variety of woody hosts. Both fruitworm caterpillars are green. The green fruitworm is marked by white stripes and distinct white spots. The speckled green fruitworm has white stripes, but lacks the distinct white spots. Instead, it has a generally speckled appearance. These are minor pests that will be present only for a short while (through mid June or so).

**Management:** Handpicking will control them. Also *Bacillus thuringiensis* var. *kurstaki* (Btk) can be used to control young larvae, but is not as effective against older larvae.

Good websites: <http://bugguide.net/node/view/4865>  
<http://bugguide.net/node/view/29931>

### **Euonymus caterpillar (severity is determined by the amount of defoliation occurring )**

Euonymus caterpillars (*Yponomeuta cagnagella*) (figure 3), also known as euonymus webworms for the webbing they make, are feeding on corky euonymus (*Euonymus phellomanus*). They are leaf-feeding insects that live in colonies within thin webs at branch ends (figure 4). 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. 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*).

**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.

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

### **Azalea sawfly (severity is determined by the amount of defoliation occurring )**

Azalea sawflies (*Amauronematus azalae* and *Nematus lipovskyi*.) are fast defoliators. One day a rhododendron looks fine and two days later, all you can see are the mid-ribs of the leaves! This week we found them at work on the Arboretum grounds. These sawflies feed heavily on azaleas and can defoliate plants, leaving only the midribs of the leaves and seriously damaging flowers (figure 5). The sawflies were about a third of an inch long and insatiable. The sawflies that fed on leaves were green (figure 6) while the larvae feeding on the red flowers were dark brown. Deciduous flame azaleas are said to be their favorite hosts, but we haven't found much difference in host preference in the landscape.



Figure 3 Euonymus caterpillar



Figure 4 Webbing of euonymus caterpillar



Figure 5 Damage by azalea sawfly



Figure 6 Azalea sawfly larva



**Management:** Minor infestations can be controlled by using a forceful jet of water to dislodge the sawfly larvae. Handpicking is also effective. Insecticides may be needed on heavy populations and should be used on young larvae. Remember, these are sawfly larvae, not caterpillars, so the microbial insecticide *Bacillus thuringiensis var. kurstaki* (Btk) will not control them.

Good website:

<http://www.extension.umn.edu/yardandgarden/yglnews/yglnews-june0106.html#azalea>

## **Pest Updates: Diseases**

### **Tobacco rattle virus on *Epimedium* (minor)**

A sample of *Epimedium* (barrenwort) was submitted to the Plant Clinic this week. The leaves showed viral symptoms, most likely the tobacco rattle virus (TRV) (figure 7). Symptoms can vary a bit and can include mottling, yellow ring and spot patterns, and streaks. The virus can be spread by stubby-root nematodes which acquire the viral pathogen by feeding on the roots of infected plants. It can also be spread by pruning tools. Plants generally do not die from the virus, but they can be a source of inoculum for other plants as long as they remain in the garden. This virus can affect other plants including *Dicentra* (bleeding heart) and *Heuchera* (coral bells).



Figure 7 Symptoms of tobacco rattle virus (photo credit: Anette Phibbs, DATCP, bugwood.org)

**Management:** Any plant infected with a virus will always be infected with that virus. Remove and destroy plants showing viral symptoms, including the roots. Avoid purchasing any plants with viral symptoms. There is no practical control of the nematodes in the home garden.

Good websites: <http://datcpservices.wisconsin.gov/pb/pests.jsp?categoryid=43&issueid=200>  
<http://negreenhouseupdate.info/photos/tobacco-rattle-virus-trv-epimedium>

### **Powdery mildew on ninebark (minor)**

Powdery mildew has been found by our scouts and has also been reported to the Plant Clinic. So far this year the disease has been appearing on the leaves of ninebark (*Physocarpus opulifolius*) (figure 8), 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



Figure 8 Powdery mildew on ninebark

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 coating over leaf surfaces, stems, flowers, or fruits of affected plants. 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, and we are currently seeing this weather pattern. The fungi that cause powdery mildew are deterred by free water since spores will not germinate in free 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://ohioline.osu.edu/hyg-fact/3000/3047.html>

<http://www.uri.edu/ce/factsheets/sheets/powderymildew.html>

### **Wetwood and slime flux on elm (minor)**

We’re seeing wetwood and slime flux on elms (*Ulmus* species). This is a bacterial disease usually associated with elms and poplars, although it occasionally affects maples, mulberries, and oaks. The bark or trunk of the tree appears to be water-soaked. The causal organisms of wetwood are several different bacteria in the inner sapwood and heartwood. Gas produced by bacterial fermentation creates pressure that forces the wetwood-ooze liquid waste products through openings and weak points in the tree. When wetwood ooze becomes a chronic problem, the resulting flow of ooze is called slime flux. If this toxic liquid is transported internally to branches, wilting and/or defoliation may occur. Wilting is rarely seen, but areas of dead bark are common. On the plant surface, this liquid supports the growth of many other kinds of bacteria, yeasts, and fungi that sometimes results in ‘slime’ being produced on the surface of the bark (figure 9).



Figure 9 Wetwood/slimeflux

**Management:** There is no cure for wetwood. Keep trees watered during dry periods because drought is thought to increase wetwood problems. The practice of boring a hole into the trunk and inserting a pipe to release gas pressure probably doesn't help much. Dead and weak branches should be removed. Bacteria are easily transmitted by tools so disinfect tools before pruning another tree.

Good web sites: <http://www.mortonarb.org/tree-plant-advice/article/750/wetwood.html>  
<http://www.ext.colostate.edu/PUBS/GARDEN/02910.html>  
<http://www.ag.uiuc.edu/~vista/abstracts/a656.html>

### **Cedar-hawthorn rust on hawthorn (potentially serious\*, treat juniper host later)**

Bright orange cedar-hawthorn rust spots (figure 10) are appearing on the upper surfaces of leaves of hawthorn (*Crataegus* species). As the spots age, they will become swollen, and aecia, the cup-shaped fruiting bodies produced by rust fungi, will form on the underside of the leaves. Aeciospores will be released from these structures during the summer and infect junipers, the alternate host. The spores produced on hawthorn do not re-infect hawthorn. Cedar-hawthorn rust is also a disease of apple, crabapple, mountain ash, and pear trees.



Figure 10 Cedar-hawthorn rust on hawthorn

**Management:** It is too late to prevent current season leaves of the deciduous hosts from becoming infected. If you want to prevent infection of the juniper host, fungicide treatment should start around early July.

\*While we list this disease as potentially serious, cedar rusts do not kill their host trees. The disease often warrants treatment mainly due to the unattractive nature of the symptoms (most people don't want their trees to look like they have the measles).

Good websites:  
<http://www.mortonarb.org/tree-plant-advice/article/733/cedar-apple-and-related-rust-diseases.html>  
<http://ohioline.osu.edu/hyg-fact/3000/pdf/3055.pdf>

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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, 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](mailto:plantclinic@mortonarb.org) . Inquiries or comments about the PHC reports should be directed to Sharon Yiesla at [syiesla@mortonarb.org](mailto:syiesla@mortonarb.org) .

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