

Number 13 - July 31, 2009

Scouting Watch

Japanese beetle adult numbers continue to be heavy in southern Illinois but less so in the northern two-thirds of the state, with some exceptions. Historically, winter survival of numerous insects tends to be higher in the expanded Illinois River Valley area in western Illinois. Correspondingly, high numbers of Japanese beetles are being seen in the Peoria and Monmouth areas. High numbers have also been reported from the Rockford area.

White grub numbers are still unknown, although they should have hatched in southern Illinois. Scouting in the Urbana area on July 30 did not reveal any grubs yet. We expect hatching in central Illinois to occur during the first week of August and should occur towards the end of that week in northern Illinois. We expect high grub numbers to be spotty in occurrence in central and northern Illinois due to the reduced emergence of adult Japanese beetles and the abundant rainfall this summer.

Scout for grubs by cutting through the turf with a heavy knife and pulling it back to reveal the grubs in the root system. Till the upper two to three inches of soil with the knife to reveal deeper grubs, particularly in dry soil. Ten to twelve grubs per foot square is the general treatment threshold.

Zimmerman Pine Moth is treatable in southern Illinois towards the end of the first week of August with permethrin (Astro) sprayed on the trunk and major branches. The appropriate time to treat in central and northern Illinois is during the second half of August. There is at least a two-week window of treatment while the newly hatched larvae roam on the bark seeking an overwintering site.

Fall webworm, walnut caterpillar, yellownecked caterpillar, whitemarked tussock moth, and other late summer caterpillars are susceptible to control with *Bacillus thuringiensis* kurstaki (Dipel, Thuricide, others), acephate (Lepitect, Orthene), permethrin (Astro), other labeled pyrethroids, and other labeled insecticides. Realize that even severe defoliation at this time of year has little effect on tree health because the leaves have produced most of the sugars that they will produce this year. Treatments at this time are primarily for aesthetic reasons.--*Phil Nixon, C.M. Dailey, Martha Smith*

Magnolia Scale

Magnolia scale is common this year in northern Illinois. We have received numerous requests for information, so this article is being provided to help answer client questions even though it is still too early to achieve effective

control. Magnolia scale is common in northern Illinois south through Kankakee County and occurs sporadically in the rest of the state. It attacks star magnolia, *Magnolia stellata*; cucumbertree magnolia, *M. acuminata*; saucer magnolia, *M. soulangiana*; and lily magnolia, *M. quinquepeta*.

Magnolia scale females can be very large for scales, about 1/2 inch in diameter, but are usually smaller. They range from yellowish to brownish, from oval to a roundish blob. Magnolia scale produces large amounts of honeydew, resulting in shiny, sticky leaves, as well as sticky sidewalks and cars underneath infested trees. Black sooty mold grows on the honeydew, resulting in black branches, foliage, and sidewalks. Tree sap is very low in nitrogen, so soft scales consume great quantities of it, separate out much of the water and nitrogen, and excrete most of the remainder as the concentrated sap, or light syrup, called honeydew.

Mature females produce living young in late September to early October. These first-stage nymphs, or crawlers, are oval and gray, with a reddish brown ridge running down the back. Each crawler has two white, waxy spots, one on each side. Crawlers mass on the undersides of 1- and 2-year-old twigs for the winter. From the time that they emerge from the female until they molt to the second nymphal instar in late April or early May, they are vulnerable to insecticide sprays. In early June, they molt again to the third-instar nymphal stage and are deep purple.

Heavily infested twigs and branches appear purple and rough from the high scale numbers. The nymphs then

produce white, powdery wax that covers their bodies, causing twigs to appear whitish in high infestations. As they mature to adults, the white wax wears away, being heaviest on the edges of the scale. There is one generation per year.

An insecticidal spray of acephate (Orthene), insecticidal soap, or summer spray oil in late September into October controls the crawlers. Injection of acephate (Lepitect) should also control them at that time. The same treatments at bud break in the spring are also effective. With the insecticidal soap and summer spray oil, be sure to get good coverage, particularly on the twig undersides, where the crawlers will be most numerous. As these are contact insecticides, insects not hit directly with the soap or oil spray will probably survive; so thorough coverage is essential.--*Phil Nixon*

Lantania Scale

Lantania scale, *Hemiberlesia lataniae*, occurs on a wide range of plants and is more common in the southern U.S. where it feeds heaviest on Australian pine (Casuarina), loquat, rose, and various palms. However, it feeds on a wide range of other trees and shrubs except for oaks and some conifers. We recently received a declining balsam fir with a heavy infestation, and it has been found on other Illinois hosts in the past. Being an armored scale, honeydew is not produced.

Lantania scale is a small, circular scale, about one-sixteenth inch in diameter. It varies in color, tending to be light gray to white on leaves and smooth stems but gray to brown on older stems and

branches. On older stems and branches, there is a light to dark brown nipple made of the cast skins of younger nymphal stages. Male scales are oval with the shed skins offset from center. Both the females under the scale covers and the crawlers are yellow. With their small size and cryptic coloration, it is easy to overlook even heavy infestations.

In Maryland, this scale has two generations per year with first generation crawlers appearing from mid-June to mid-July and second generation crawlers appearing in September. In Egypt and Israel, there are two to four generations per year. The Illinois fir specimen inspected during the last week of July was in the egg stage, making crawlers likely to appear in August. Nymphs overwinter in Maryland. That is probably the case in Illinois as well because the life cycle takes a couple of months of warm temperatures to complete.

Overwintering as nymphs should make them susceptible to dormant oil spray. Crawler sprays in August of insecticidal soap, summer spray oil, pyrethroids, or other labeled insecticides should be effective. Be sure to scout for crawler presence before treating.--*Phil Nixon*

Rhododendron Root Rot

It has been said that the two major hurdles to growing healthy rhododendrons in Illinois are clay soil and high pH levels of the soil. Rhododendrons thrive in acidic, well-drained soil. To make matters worse, *Phytophthora* root rot is a common disease on rhododendrons in wet sites.

Phytophthora species are considered to be soil-borne pathogens and can remain dormant in the soil for many years until conditions are conducive for infection. *Phytophthora* species produce a spore that requires water for movement, so it follows that these diseases are favored by wet conditions. *Phytophthoras* are water molds that attack susceptible plant hosts in times of wet weather or on sites with poor drainage. Some attack above ground plant parts (foliar *Phytophthoras*), some attack at the soil line, and some are root pathogens.

Phytophthora root rot occurs on rhododendrons throughout Illinois. Initially the leaves have a dull green cast. This is followed by wilting, rolling of the leaves (see image), and lack of new growth. Roots of infected plants are reddish brown. Healthy roots should be white or should at least have white root tips. The image shows healthy roots on the left and infected roots on the right. 2009 has certainly been conducive to infection.

Phytophthora root rot kills roots, thereby inhibiting water and nutrient absorption. Any factor that injures roots could produce similar symptoms. Lookalike problems might include flooding, drought, mechanical or chemical injury to roots, compaction, exposure of the crown, improper site preparation, or alkaline sites. For details on this disease, consult RPD No. 664, *Phytophthora Root Rot or Wilt of Rhododendron and Azaleas in the Midwest*. This is available on the web at <http://www.aces.uiuc.edu/~vista/abstracts/a664.html>.

If you suspect a *Phytophthora* infection, the University of Illinois Plant Clinic can

test rhododendron roots using an enzyme-linked immunosorbent assay (ELISA), which allows for quick detection of the pathogen. The test takes one day in the lab and the cost is \$25.00. ELISA tests work best with live, symptomatic tissue. In the case of rhododendron root rot, submit fresh, symptomatic roots in a plastic bag.

You will not be able to save infected plants, but proper identification of the problem can go a long way in preventing spread to other rhododendrons. Since poorly drained soils allow disease development even in some resistant rhododendrons, proper soil preparation and good drainage are keys to disease control. Resistant varieties are available but even those will not thrive if soil conditions are poor. Chemical drenches are available for commercial growers to help prevent disease spread in the planting. Products are listed in the *Illinois Commercial Landscape and Pest Management Handbook*. There are no systemic products available in home grower quantities. Carefully inspect any plant material that you purchase or move to your landscape.--*Nancy Pataky*

Dutch Elm Disease or Elm Yellows

There are still many elms in Illinois and many of those are American elms. Each year at the Plant Clinic we culture elm samples for the presence of the Dutch elm disease (DED) fungus. From 2003-2008 there were 84 confirmed cases based on isolations of the causal fungus. In that same time period there were 129 cases where DED was not found.

It is very possible that DED could be involved if your elm exhibits yellowing.

Watch for yellowing of the leaves, followed by wilting and browning. Often this happens so quickly that the problem is first noticed when branches with brown leaves appear in the canopy "overnight". A single branch will usually show symptoms first (see image) with rather rapid spread to adjacent branches and the entire tree. Look for vascular discoloration to help with diagnosis of this disease. DED will cause streaking of the sapwood. Peel back the bark of a symptomatic branch to reveal the brown streaks in the otherwise tan outer sapwood. Verticillium Wilt and Dothiorella Wilt can also cause this streaking in elm but appear infrequently at the Plant Clinic. Positive identification would require laboratory culturing of the fungus. Each of these fungi has distinct structures that can be identified in laboratory cultures. Cut several 8- to 10-inch long sections from wilting, but living, branches that show definite streaking in the sapwood (see image). The fresh wood sections should be finger thickness and can be sent in plastic or foil to the Plant Clinic for testing. Chilling the wood should not be necessary with Dutch elm suspect samples. Expect about 7 days of lab time for the fungus to grow to the point where it can be positively identified. There is a \$15.00 fee for this service. Call 217-333-0519 with questions. It is generally too late to save a tree once it is infected with DED, but an accurate diagnosis of the problem may help save nearby elm trees.

Elm yellows disease is caused by a phytoplasma, an organism that cannot be isolated on agar in a lab. We cannot test for this phytoplasma at the Plant Clinic and must rely on symptoms for diagnosis of this disease. Symptoms of

elm yellows may appear any time during the summer but are most common now (mid- to late-summer). Symptoms include yellowing and drooping of foliage followed by leaf drop and death of branches. This pattern may occur on one or a few branches or may quickly involve the entire tree. Susceptible trees may show symptoms over the entire tree in a matter of a few weeks. Tolerant trees become stunted and may develop bunched, prolific growth at the tips of branches or on the trunk. The inner bark tissues of infected trees often exhibit butterscotch or light brown discoloration in small streaks or flecks. Although trees infected with the Dutch elm disease fungus usually show vascular discoloration in symptomatic branches, the discoloration from elm yellows is not usually in the branches. It is more commonly found in the trunk. A simple field test to help with diagnosis of this disease involves taking a few chips of the stained phloem tissue, placing it in a closed container for a few minutes, and then checking for a wintergreen odor.

I have often wondered whether some of the 129 negative cases mentioned above could be trees with elm yellows. Since we cannot test for the elm yellows phytoplasma, we cannot be certain of anything more than the fact that the DED fungus was not isolated.

As was mentioned last week in the ash yellows article, phytoplasmas can be detected by some laboratories, but at a fairly high cost. One method of proving the presence of a phytoplasma is to find a lab that offers PCR (polymerase chain reaction) testing for phytoplasmas. AGDIA, Inc, a private company in Indiana, has such a service. They offer a

nested PCR test for phytoplasmas in general. The cost is currently about \$190.00 for the first sample and much less for each additional sample. If you want to know the specific phytoplasma you can add about \$50.00 more for a gene sequence to obtain the specific phytoplasma. You will want to contact your testing service of choice before sending a sample.

There is no cure for elm yellows; and infected trees usually die within a year or two. The good news is that elm yellows disease does not move into new areas as quickly as Dutch elm disease. Removal of infected trees is advised in order to remove inoculum sources from the area. Siberian elm seems to be resistant to this disease problem. For additional information about this disease consult Report on Plant Diseases No. 660, *Elm Yellows or Phloem Necrosis and its Control*, available at <http://www.aces.uiuc.edu/~vista/abstracts/a660.html>. For more information on DED, consult RPD No. 647, *Dutch Elm Disease and Its Control* at <http://www.aces.uiuc.edu/~vista/abstracts/a647.html>.--Nancy Pataky

Clematis Wilt

Clematis is host to a fungal leaf spot called *Ascochyta* leaf spot. The cause is a fungus, formerly called *Ascochyta clematidina*, but now known as *Phoma clematidina*. The image shows this leaf spot on lower leaves of my clematis this year.

Clematis wilt is the disease that occurs when this leaf spot fungus grows from the leaf to the stem, causing cankers and ultimately wilting of the plant. Clematis

wilt is not a term that is intended to implicate a vascular wilt pathogen such as *Verticillium*. This clematis stem disease causes individual shoots to suddenly wilt and die. We do not always find the causal fungus on plant specimens sent to the Plant Clinic lab because often only the top portion of the stem is submitted. Look for small lesions at the soil line. The fruiting bodies of this fungus will appear as black, pin-head sized specks in the lesions.

When the plants are lush and full, any type of injury low on a stem seems to make whole sections of the plant wilt and not recover. When planting new clematis, plant them deeper than you might normally plant. You want at least two sets of opposite buds under the soil line. Dig the hole and lay the plant down while gently curving the stem at the right place to get two buds below the soil. It has been found that clematis planted in this manner have a much harder root system and a better chance of recovering from stem blight. Make sure your clematis has adequate support. This will help minimize injuries to the stems caused by wind. Always be careful when working around clematis. Don't allow clematis to become water stressed. Water the soil rather than the foliage or water at a time when plants will dry quickly. Clematis species prefer neutral to slightly alkaline soil with lots of organic matter. The soil should be kept cool and evenly moist. Roots should be in shade or mulched.

If this stem disease is present in your plants, follow the above suggestions. At the end of this season, cut affected stems (or the entire plant) back to a few buds above the soil. Remove all stems and fallen leaves from the site. This should

remove most of the inoculum from the site. Chemicals are not recommended, although in severe cases a fungicide with a general ornamental label (such as thiophanate methyl or copper sulfate products) may slow the disease progress.--*Nancy Pataky*

Invasive Species Spotlight: Viburnum Leaf Beetle

Last week, the Viburnum Leaf Beetle was confirmed in Illinois for the first time. A few beetles were positively identified on a viburnum planting in Cook County. This invasive beetle is native to Europe and is currently found in New York, Maine, Massachusetts, Pennsylvania, and Ohio.

This pest has the potential to become a serious problem in nurseries and landscapes. Both the adult and larval stages of the viburnum leaf beetles can be severe defoliators. Larvae and adults feed on the leaves, defoliating between the midrib and larger veins. Heavy infestations can defoliate shrubs, cause dieback, and eventually kill the plants. It is the only pest known to skeletonize viburnum leaves.

Viburnum leaf beetles overwinter as eggs on twigs of the host plant. Eggs hatch in May of the following year. Larvae begin feeding on the host plant; they are usually found feeding in groups. Between early and mid-June, larvae drop to the ground and pupate. They remain in the ground for about 10 days. Adult emergence generally occurs from mid- to late July. Adults will remain active until the first frost. Development from egg to adult takes eight to ten weeks.

After emergence, adults feed on leaves, leaving irregular circular holes. In late summer and fall, females will begin laying eggs. They chew holes in the bark of twigs to deposit eggs and then cover them with excrement and fragments of chewed bark. A female can lay up to 500 eggs.

Viburnum leaf beetle adults are $\frac{1}{4}$ to $\frac{3}{8}$ inch long, yellowish brown to light brown in color. When held in the sunlight, they have a sheen that is the result of a golden-grey pubescence. Larvae are larger than the adults ($\sim\frac{1}{2}$ inch), greenish-yellow to white, and covered with dark spots.

Feeding is limited to species of viburnum. The viburnum leaf beetles have a preference for viburnums with little hair (pubescence) on the foliage, including the European cranberrybush viburnum, arrowwood viburnum, and

American cranberrybush viburnum. They also feed on wayferringtree viburnum, Rafinesque viburnum, mapleleaf viburnum, nannyberry viburnum, and Sargent viburnum.

Resistant varieties include Koreanspice viburnum, Burkwood viburnum, doublefile viburnum, Judd viburnum, lanatanaphyllum viburnum, and leatherleaf viburnum.

The most effective management strategy (for small plantings) is to prune out and destroy infested twigs. This is best accomplished after egg laying in the fall and before hatch occurs in the spring.

Residents are urged to report suspected infestations. Visit the Illinois CAPS website (<http://www.inhs.illinois.edu/research/CAPS/>) for all the latest news on invasive pests in Illinois.--*Kelly Estes*