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Scouting Watch

Magnolia scale is also being found in high numbers in central Illinois. Infestations have been reported from Peoria, Springfield, and Urbana. There are adult female scales in Urbana with no sign of egg production yet. This corresponds with crawler production expected in late September.

In the last issue, only crawler control recommendations were given because imidacloprid or other systemic insecticide applications would be unlikely to provide control this late in the season. Even trunk injections this late in the season on a twig and trunk feeding pest might not build up to effective levels until after egg-laying has occurred. However, soil drench or microinjection of imidacloprid (Merit, Imicide, Xytect, Pointer) will provide control for at least one year. Application at this time of year should provide control next spring when the crawlers settle down to feed.

White Grubs had not been found in central Illinois nor reported from elsewhere in the state as of August 14. Scouting on August 13 in a couple of locations in Urbana did not reveal any hatched grubs. It is assumed that the grubs have hatched, but may be too few in number to be discovered during limited sampling.--*Phil Nixon*

Zimmerman Pine Moth

Zimmerman pine moth is a common trunk and scaffold branch borer in Scotch, Austrian, and red pine in Illinois. It is a shoot tip borer in Eastern white pine. Although it is difficult to control once inside the tree, its life cycle makes it relatively easy to control while on the outside of the tree.

Trunk damage appears as white, crusted areas of pitch an inch or two wide at branch whorls. Sometimes this also appears as whitish cones of pitch about one inch in length along with oozing pitch at the branch whorl. The caterpillars are located in the trunk underneath this pitch. They tunnel under the bark as well as deeper into the trunk and base of branches.

Commonly, associated branches will die. The death and flagging of these branches allows easy identification of attacked trees, even at highway speeds. Closer inspection for masses of pitch determines whether the damage is due to Zimmerman pine moth or other cause. Tunneling into the trunk for several years weakens the trunk to where it snaps off at that location, causing the loss of the upper part of the tree. The tree survives this loss as lateral buds will break and produce new trunks. However, without pruning, the tree usually becomes multi-trunked from that point upward. This changes the overall appearance of the tree from that of a tall, telephone pole shape into a squatty candelabra shape.

The location of pitch at the branch whorl is important. Pine pitch moth can cause similar damage, but the pitch is located just under the branch whorl rather than between the branches. Yellow-bellied sapsucker feeding also results in large exudation of pitch, but occurs on the trunk between branch whorls. These woodpeckers require an open stretch of trunk to perch, resulting in their attack between the whorls.

Tip damage to Eastern white pine causes two or more inches of dieback. The needles turn brown and the tip usually

bends downwards. Slicing open the shoot longitudinally during the summer reveals the feeding larva. The loss of the shoot results in lateral bud break and subsequent bushier foliage but not as much longitudinal growth. Generally, lateral shoots are attacked. Attack of the apical shoot on the tree causes a multiple-trunked tree if pruning and shoot training does not occur.

Full grown caterpillars are about one inch long and whitish to tan or greenish with dark brown spots. They pupate in or below the exuded pitch, emerging as one-half inch long light to dark gray moths. Emergence of the moths varies from mid-July in southern Illinois to mid-August in northern Illinois. Mating and egg-laying occurs soon after emergence. With egg hatch occuring a couple of weeks after moth emergence, this ranges from early to late August from southern to northern Illinois, respectively.

The young caterpillars on trunk-attacked trees feed on bark and crawl around on the bark for several weeks in the late summer before forming a hibernaculum under a piece of bark to spend the winter. A hibernaculum is a cocoon of silk that the larva spins around itself. After spending the winter in the hibernaculum, it emerges in the spring and roams across the bark for several days before tunneling under it. This behavior provides time periods in the late summer into early fall and early spring when the caterpillar is susceptible to exterior insecticide application.

On Eastern white pine and other shoot-attacked trees, the caterpillars feed on terminal buds scales and form their hibernacula under the bud scales. Roaming activity and exposure to insecticide application occurs at the same time as trunk-attacking caterpillars.

Permethrin (Astro) or other labeled pyrethroid insecticide applied at this time in central and southern Illinois or in northern Illinois at the end of August should provide control. Apply the spray to the trunk and base of major branches to Scotch, Austrian, and red pine. Spray the ends of the branches on Eastern white pine. *--Phil Nixon*

Tar Spot of Maple

Take a look at the image of maple attached. What would you name this disease? Tar spot fits perfectly; and this is a disease that most can identify without the aid of a microscope or diagnostic lab. The disease looks like drops of tar on the leaves. Some species cause large lesions as in the image. Others have more of the appearance of being speckled with tar.

Tar spot of maple is caused by fungi in the *Rhytisma* genus, *Rhytisma americanum* (as in the image), *R. punctatum*, and *R. acerinum*. Each is known to cause slightly different sizes of spots on various maple species. Moist conditions as leaves are forming allow infection, so this is another disease that has been more intense in 2009. Actually, the disease is most likely in moist areas where the leaves remain as part of the soil litter.

This disease may cause some early defoliation if severe, but even then it is not believed to significantly impact tree growth and development. I had not seen much of this disease in the Champaign-Urbana area until I was shown a silver maple on campus. The image is taken from a silver maple tree located on the University of Illinois horticulture farm. Evidently this tree is infected every year with no ill effects other than unsightly spots. It is in a naturalized location.

Since the causal fungus overwinters on fallen leaves, inoculum can be reduced by raking and removing fallen leaves. Infection occurs in the spring, so rake and remove the leaves in the fall. Fungicides are not warranted.*--Nancy Pataky*

Time to Test for BLS

Bacterial leaf scorch (BLS) is a disease with a name that definitely understates the

impact on infected trees. It causes far more than leaf scorching. The bacterial pathogen can slowly kill mature trees in 8-10 years.

Here's what you may see. About mid-summer, infected trees appear to have environmental leaf scorch. The same trees appear healthy again the next spring, but scorching returns each summer, becoming progressively worse over 5 or 6 years, thinning the canopy and eventually killing the tree. I have seen the problem on Illinois oak trees, but other trees may also host this disease.

Bacterial leaf scorch is an infectious plant disease caused by a bacterium called *Xylella fastidiosa*. The pathogen is systemic, living only in the xylem. The most frequent hosts of this disease in the U.S. include elm, oak, sycamore, mulberry, sweetgum, sugar maple, and red maple. At the University of Illinois Plant Clinic we have confirmed BLS on pin, red, shingle, bur, and white oaks. Kentucky pathologists report BLS on pin, red, scarlet, bur, white, willow, and shingle oaks; silver, sugar, and red maples; sweetgum, sycamore, planetree, hackberry, American elm, and red mulberry. Look for scorch symptoms that occur in early summer to midsummer and then intensify in late summer. The scorched leaf edges or tissue between veins may be bordered by a yellow or reddish-brown color, but not in all cases. The symptoms may occur first on one branch or section of branches and slowly spread in the tree from year to year. The pin oaks we have seen infected have general thinning. It is one of those situations that you hope will be better next year but only gets worse. The images show two examples of Illinois oaks with confirmed BLS.

There is no cure for this disease. Some have tried injections with oxytetracycline, but none have shown more than disease suppression with this antibiotic. Since the pathogen is in the xylem, cleaning pruning tools before moving to another tree is important to reducing spread of the disease. Xylem-feeding leafhoppers and spittlebugs are thought to spread the bacterium in landscape trees. Transmission between trees through root grafts has been reported.

Unlike most other bacteria, *Xylella fastidiosa* cannot be isolated in the lab. However, it may be confirmed using serological techniques. ELISA (enzyme linked serological assay) testing can be done in one day and is used to help identify the *Xylella* pathogen. The most reliable test results occur in August and September, possibly because the bacterial population in trees is higher late in the season. **The University of Illinois Plant Clinic staff will be testing for BLS the week of August 24th this year.** If you have a sample you want tested for BLS, and you live in the state of Illinois, give us a call at 217-333-0519 and we will arrange to run an ELISA with the next batch of samples. It is not economical to run this test for only one sample, but the standard Plant Clinic fee of $15.00 covers expenses when a group of samples are processed together. We use the ELISA reagents available from AGDIA, Inc in Indiana.

Here is what you need to send: Since testing for *Xylella fastidiosa* is done on new growth, send 3" of live, symptomatic twig tip and all leaves attached to that twig tip. Place four or five such tip cuttings in a zip lock plastic bag, label with tree species, include a check ($15.00) payable to the University of Illinois, a completed specimen data form (http://plantclinic.cropsci.uiuc.edu/hortdf.pdf) and mail to the Plant Clinic. (http://plantclinic.cropsci.uiuc.edu/) We can only accept Illinois samples at this time. --*Nancy Pataky*

Rose Rosette

Rose rosette is a lethal disease of roses that may look very much like chemical injury from a plant growth regulator herbicide. Unfortunately there is no lab test for rose rosette, so understanding symptom expression is helpful in deciding whether or not to remove a plant or change chemical application practices in the area.

Symptoms of rose rosette disease may include thick, often redder than normal stems with many times the normal number of thorns. Multiple stems at the ends of branches produce witches' broom growth and often small, distorted, and chlorotic leaves as seen in the image. Some herbicides may cause the witches' brooms, distorted growth, and discoloration, but they do not cause prolific production of thorns. Chemical injury usually follows a pattern of application or drift. When diagnosing rose rosette, investigate the use of herbicides in the area, including products applied nearby, on the lawn around the plants, and to the plants themselves. I have seen some cases of glyphosate applied in the fall around rose plants that absorbed it through thin bark and buds. Those roses looked like they had rose rosette the next spring, but only on the side next to the glyphosate application. Witches' brooms of strap shaped leaves may be caused by glyphosate, so beware.

Rose rosette disease often appears in new plants or in plants near new roses in the garden, possibly related to increases in population of the eriophyid mite vector. Infected plants cannot be cured and must be removed from the garden, roots and all. Waiting for the problem to go away will only allow it to spread further.

Rose rosette is caused by a double-stranded RNA, which means that it is a virus-like disease. It cannot be cultured in a lab and diagnosis relies on symptom expression. Plants usually die within about 22 months of infection. Multiflora, climbers, hybrid teas, floribundas, miniatures, and a number of old variety roses have been infected with rose rosette. Hybrid teas typically show color that is more yellow than red. So far, no other host besides rose has been found for rose rosette.

The presence of the vector may help with diagnosis. The vector of this disease is an eriophyid mite, a mite so small that 20 could fit on a pinhead. Eriophyid mites are much smaller than red spider mites which are commonly seen on plants. You can see these with a 10X or stronger power magnifying glass. In the lab we use a dissecting microscope to view the new growth. As we pick apart the buds the mites can be found scurrying away from the light and heat.

How would the rose rosette disease get into your garden? It could move in via eriophyid mites. It is more likely to come in on new plants. Consider isolating new roses until you are sure they are disease free. Grafting can also spread rose rosette disease. Infected plants cannot be salvaged. Plants with symptoms should be dug up and destroyed (including roots) when first noticed. It is strongly suggested that multiflora and garden roses be separated as far as possible from each other. The efficacy of mite control has been questioned in control of this disease. Research suggests that the critical mite transmission time is May and June, so concentrate your efforts in those months if you use a miticide.--*Nancy Pataky*