

Number 4 - May 15, 2009

Scouting Watch

Insects to be watchful for in northern Illinois include birch leaf miner, European pine sawfly, Eastern tent caterpillar, Gypsy moth, lilac (ash) borer, oystershell scale (brown), scurfy scale, and euonymus caterpillar.

In southern Illinois, it is time to be treating flatheaded appletree borer, roundheaded appletree borer, elm leaf beetle, mimosa webworm, whitemarked tussock moth, and viburnum crown borer.

In central Illinois, flatheaded appletree borer, roundheaded appletree borer, European pine sawfly, Eastern tent caterpillar, euonymus scale, peachtree borer, whitemarked tussock moth, and viburnum crown borer can be treated. --
Phil Nixon

Euonymus caterpillar

Euonymus caterpillar has been reported by the Morton Arboretum in northeastern Illinois. This insect attacks primarily European euonymus, not being a problem on the more common burning bush or winged euonymus nor on the various vine or groundcover species. The insect is not usually found south of Kankakee.

The insect appears as yellowish to white, slender caterpillars with rows of black spots and living in masses of leaves webbed together. Fully grown caterpillars are about one inch long. Damage can end up being extensive with high percentages of defoliation, so be watchful for small infestations. *Bacillus thuringiensis kurstaki* (Dipel, Thuricide) as well as other labeled insecticides are effective. Be sure to get penetration of the spray through the webbing to achieve a high level of control--*Phil Nixon and Morton Arboretum*

Mosquitoes

Repeated heavy rainfall over the state has resulted in a lot of flooding of low-lying areas. This, along with the rising temperatures as we head towards summer, is setting us up for a heavy floodwater mosquito season.

There are three main groups of mosquito life cycles. One group is the permanent pool group that reproduces in relatively small numbers in established lakes and ponds. The *Anopheles* mosquitoes capable of carrying malaria are in this group. The second group is the container breeding mosquitoes that prefer stagnant water and become more numerous during the summer when rainfall is minimal. The northern house mosquito, *Culex pipiens*, the main vector of West Nile Virus and

St. Louis Encephalitis, is in this group. Floodwater mosquitoes are the third group.

Floodwater mosquitoes lay their eggs on low-lying dry soil. These eggs are very resistant, retaining a high hatch percentage for two years or more. When heavy rains flood these areas, the eggs hatch into larvae that feed on debris in the water. As rainfall continues, and flood waters rise higher, continually more eggs are flooded and hatch. Repeated heavy rainfalls as we are experiencing this spring cause huge numbers of eggs to hatch.

If the water temperature stays below 50 degrees F, the mosquito larvae develop very slowly, resulting in a high percentage of them dying from disease. For that reason, heavy rains in the late winter or early spring frequently do not result in high numbers of biting mosquitoes. With warmer temperatures, the larvae develop quickly and relatively small numbers die from disease. Generally, from mid-May through the summer, we can expect high numbers of biting mosquitoes to occur about fifteen days after a heavy rainfall. This is the length of time required for egg hatch, larval development, and the pupal stage to complete, resulting in biting mosquitoes.

Outbreaks of adult mosquitoes are relatively short-lived because many other insects, birds, and other animals eat them. High numbers usually occur for 3-5 days, occasionally lasting for a week. To understand the importance of predation, adult mosquitoes live for about two weeks before dying of old age. Both male and female adult mosquitoes primarily feed on flower nectar, but

female mosquitoes feed on blood to obtain the protein needed to produce eggs.

The most common Illinois mosquito in this group is the inland floodwater mosquito, *Aedes vexans*. It is a noisy biter, meaning that you hear it buzzing by your ears and produces a bite that is easily felt. It is an excellent flier, being able to fly 30 miles or more and commonly being found 15 miles from where it grew up. This results in huge numbers entering urban areas from outlying flooded areas. When numerous, they drive people indoors to escape their buzzing and biting.

Another noticeable floodwater mosquito is the gallinipper, *Psorophora ciliata*. It is perhaps our largest mosquito, being about one-half inch long with a larger leg span. Although a vicious biter, its larva feeds on other mosquito larvae, reducing the number of inland floodwater mosquitoes. Although common, the gallinipper is much less numerous than the inland floodwater mosquito.

Although floodwater mosquitoes are not serious disease vectors, their biting is distracting. Repellents containing DEET or picaridin are sold in major brands such as Off and Cutters. Soybean oil repellent is sold as Bite Blocker. All three are effective, lasting over an hour per application, and commonly several hours. Herbal repellents, Skin-So-Soft, and other materials are considerably less effective and/or are effective for much less than an hour. Repellents containing 20-30% DEET are the most effective in repellency and longevity. Higher concentrations of DEET do not last as long, probably because the lotion

components in lower concentration products reduce evaporation. There are also permethrin (Permanone) containing clothes treatments that will kill mosquitoes and other insects landing on the clothing--*Phil Nixon*

Buffalo Gnats

Buffalo gnats, also known as black flies, are being reported in the Springfield area. These pinhead-sized, hump-backed, black flies have been very numerous in central Illinois for a couple of years and have been numerous in northeastern Illinois for many years. They bite humans and other animals, but do not bite through clothing. They have been numerous enough to kill many birds in central Illinois, particularly chickens, other poultry, bluebirds, and other wild birds. Confining poultry inside buildings greatly reduces biting. Repellents are effective in human protection. --*Phil Nixon*

Pine Tip Blight

Here's a disease that has become very, very common in Illinois. Diplodia tip blight causes the needles to die at the tips of branches, as seen in the first image. Additionally, it may cause sappy cankers on stems, girdling and killing the tissue beyond the cankers. This disease can make your pine look very unattractive without quite killing it. Look around your town and you will find many cases of Diplodia blight.

Many growers confuse Diplodia tip blight with Dothistroma blight. Dothistroma blight of pine was

discussed in issue #3 of this newsletter. Keep in mind that *Diplodia* causes symptoms on new growth and *Dothistroma* causes symptoms on one-year and older needles. The second image shows the older needles affected when Dothistroma needle blight is present.

Diplodia tip blight is caused by a fungus, *Diplodia pinea*. This fungus forms fruiting bodies (containing spores) on the affected needles. The fruiting bodies are black, about as large as the head of a pin, and are embedded in the pine needle. The third image shows these fruiting bodies on infected needles just after a rain event.

Research has shown that drought stressed trees and trees growing in high nitrogen situations are more likely to be infected. Wet spring weather also promotes infection of new shoots. There are several practices that can help reduce the amount of damage caused by Diplodia blight. Reduce tree stress through mulching and timely watering. Removal of dead stems is helpful, but only in dry weather so as to avoid spreading the fungus. Since the fungus survives on cones, rake and remove fallen cones throughout the season. Chemical options are available but are often too late once symptoms are visible. When fungicides are used, consider systemic products and apply three applications: (1) when buds begin to elongate/swell, (2) just before new needles emerge from the sheath, and (3) 10 to 14 days later. We have already passed the timing for the first two sprays this year. Concentrate on cultural management options this year.

For the future, trade names of registered fungicides, along with mobility of the products, can be found in the *Illinois Commercial Landscape and Turfgrass Pest Management Handbook* or the *Home, Yard, and Garden Pest Guide*. Azoxystrobin, chlorothalonil, myclobutanil, thiophanate-methyl, propiconazole, and triadimefon are the active ingredient options.

For more on Diplodia blight, consult report on plant disease 625, available online at <http://www.aces.uiuc.edu/~vista/abstracts/aSPHAERO.HTML>.
--Nancy Pataky

Ash Leaf Drop

Leaf drop of ash trees at this time of year (mid-late May) is usually caused by a fungal disease called ash anthracnose. The problem occurs on susceptible ash species (especially green ash) in extended periods of cool, moist weather. If these conditions persist, secondary infections occur, and lesions become more visible. Hot, dry weather shuts down the disease.

The causal fungus, *Discula fraxini*, infects expanding leaves, resulting in water-soaked to brown areas. This early infection may kill young leaves and shoots. When infection occurs at the base of the leaf rachis, the leaf may drop from the tree. This symptom looks much like a late frost. Often callers complain that their ash trees look like they are in the midst of autumn leaf drop.

Young leaves may have pin-point-sized, purple lesions. Older leaves may appear somewhat distorted as they continue to

grow around these early lesions as seen in the first image. Later, but when leaves are still succulent, anthracnose lesions appear as black blotches. As leaves mature, the lesions become tan. When leaves reach full size and stems become woody, they resist infection. We do not see ash anthracnose on mature foliage in warm weather.

How do you know anthracnose is the cause? Look at the pattern on the tree. Anthracnose generally occurs in the lower portion of the tree where moisture is high and air movement and light low. Look for lesions on the foliage. The fruiting bodies are easiest to see on the underside of the leaf, on veins or within lesions. The fruiting bodies are acervuli, appearing as masses of spores in tiny piles as seen in the image of the underside of an infected ash leaf. You may need the help of a plant pathologist to confirm these fruiting bodies.

This disease causes concern to the grower when leaves fall in great numbers, but the long term effects are usually minor. Sprays are not warranted in the landscape. They are sometimes used as preventives in seedling beds in production. The greatest advantage to a positive diagnosis is to know the problem is not life threatening to your tree. Promote the production of new foliage by watering the tree in periods of drought, fertilizing with balanced fertilizer in spring or fall, and removing dead wood in dry weather--Nancy Pataky

What is Stigmina of Spruce?

Through networking with other plant diagnosticians in the National Plant

Diagnostic Network (www.npdn.org) and on a diagnostic listserv, I have been hearing about a “new” fungus found on spruce. Recently we found the fungus on a spruce sample from McHenry County in Illinois. The fungus is *Stigmina*, most likely *Stigmina lautii*.

This fungus has been found on spruce trees showing symptoms typical of *Rhizosphaera* needle cast (issue 2 of this newsletter). When affected needles are incubated, they produce fruiting bodies that look, at first glance, like those of *Rhizosphaera*. The fruiting bodies of both fungi appear in neat rows on affected needles. This is because the fruiting bodies emerge through stomates. Both fruiting body types are black. Often with *Rhizosphaera* we see a white waxy cap that has been pushed out with the fruiting body. That is not present with *Stigmina*. *Rhizosphaera* fruiting bodies (pycnidia) appear as distinct, rounded, smooth balls. *Stigmina* fruiting bodies (sporodochia) are loose masses of fungal tissue as seen in the Plant Clinic sample images attached.

We do not yet know whether *Stigmina* is a pathogen on spruce. We know that this *Stigmina* is associated with needle blight symptoms on spruce. We also know that there are other *Stigmina* species that are pathogenic on conifers.

If you would like more information on this fungus, link to this article in “Tree Talk” at North Dakota State University. Go to the December 2006 issue at <http://www.ag.ndsu.edu/trees/whatnew/TreeTalkNewsletter.htm>.

Information at Michigan State University states that chlorothalonil sprays used to control *Rhizosphaera* needle cast did not

control *Stigmina*. If you have a spruce with a needle cast problem that you cannot control, possibly it is not *Rhizosphaera* but actually *Stigmina*. --
Nancy Pataky

Invasive Species and Firewood

With Memorial Day just around the corner, many people are digging out their grills and dusting off their gardening tools. Vegetable gardens and landscaping plans are in full swing. You may even be thinking about airing out the camping gear in anticipation of a weekend trip this summer, but are you aware of the dangers associated with invasive species and moving firewood?

Non-native insects and diseases that have found their way into the United States are being transported long distances as “hitch-hikers” in firewood. On their own, these pests move very slowly – only a couple of miles or less per year. Unfortunately, people are innocently providing a ready means of dispersal, often several hundred miles per day, by bringing infested firewood from home to their camping, sporting, or second home destinations.

Insects such as the gypsy moth and emerald ash borer are just two of the many different pests that are moved in firewood. The presence of emerald ash borer in the state of Illinois has changed how firewood and forest products can be moved within our state.

Firewood Regulations in Illinois

State and federal quarantines regulate the movement of invasives in commercial forest products. The federal government has quarantined the entire

state of Illinois

(<http://www.agr.state.il.us/eab/data/200811057750.pdf>), making it illegal to move ash products (ash trees, parts of ash trees) as well as all hardwood firewood outside of the state without federal certification. The state of Illinois has also quarantined infested areas within the state, making it illegal to move these materials out of those infested areas.

The quarantine prohibits the removal of the following items from the respective quarantine areas:

- The emerald ash borer in any living stage of development
- Ash trees of any size
- Ash limbs and branches
- Any cut, non-coniferous firewood
- Bark from ash trees and wood chips larger than 1 inch from ash trees
- Ash logs and lumber with either the bark or the outer 1 inch of sapwood, or both, attached
- Any item made from or containing the wood or the ash tree that is capable of spreading the emerald ash borer

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- Any other article, product or means of conveyance determined by the Illinois Department of Agriculture to present a risk of spreading the beetle infestation.

So, as you get ready to head out to your favorite camping destinations, please remember these firewood tips.

If you purchase firewood:

- Buy it close to where it will be burned
- Make sure it is labeled with required information (commercially bought)
- Make sure it has the federal shield (examples of the USDA shield can be found in this document - http://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/downloads/firewoodfed.pdf)

If you have your own firewood:

- Burn it close to where it was harvested/cut down

Visit the Illinois CAPS website (<http://www.inhs.illinois.edu/research/CAPS/>) for all the latest news on invasive pests in Illinois.—*Kelly Estes*