

Number 7 - June 6, 2011

### **Emerald Ash Borer Detection**

Emerald ash borer adults are likely to emerge within the next week or two in Illinois. In previous years, adults have started emerging in Chenoa, IL around June 8. Adults would be likely to start emerging in Illinois north of I-80 around mid-June. Although it takes some diligence to find adult beetles in low level infestations, the emerging beetles leave behind new emergence holes on trunks and branches and marginal feeding damage on ash leaflets. These increase the likelihood of discovering infested trees. A photo of their leaf feeding damage was in last week's issue of this newsletter.

I find it easiest to detect emerald ash borer emergence holes on branches up to three inches in diameter. The bark on these smaller branches is still smooth enough that the holes are easier to spot. Unfortunately, branches this small are unlikely to be present any closer than eight to ten feet above the ground on pruned landscape trees. Binoculars are useful in spotting these holes. On the trunk and larger branches, where the bark is rough, shaving down the outer layers of bark with a pocket knife helps reveal the true shape and size of suspicious holes.

Many other borers commonly attack ash trees under stress, and some of them leave emergence holes that can be

confused with the one-eighth inch diameter D-shaped holes made by emerald ash borer. Redheaded ashborer adults leave one-eighth inch diameter round holes when they emerge.

Emerging ash and privet borer adults leave three-sixteenth inch diameter oval holes. Flatheaded appletree borers also attack ash, with the beetles leaving three-sixteenth inch diameter D-shaped holes when they emerge. An overview of these and other borers common in ash, including photos, was published in this newsletter in 2007 and is available at <http://hyg.ipm.illinois.edu/pastpest/200708d.html>. (Phil Nixon)

### **Emerald Ash Borer and Damage**

Emerald Ash Borer, *Agrilus planipennis*, is an exotic, invasive insect in North America that attacks and kills healthy ash trees. All ashes in the genus *Fraxinus* are attacked, including green, white, blue, and black ash. Its native range includes China, Korea, Japan, Mongolia, the Russian Far East, and Taiwan. It was first identified in the Detroit, Michigan, area in 2002 and was first found in Illinois in 2006. Ash trees are important in our residential landscapes, towns, cities, and forests in Illinois. In many communities, ash trees comprise 10 to 20 percent of the trees.

Adult beetles are 1/3 to 1/2 inch long and elongate, with metallic emerald

green wing covers on a bronze body. The upper surface of the abdomen is bright red, which is obvious when they fly. They emerge primarily in late spring through 1/8-inch-wide, D-shaped holes in the bark of ashes. Adult beetles are present through June and July. After mating, the female inserts her eggs, one or two at a time, between bark flakes.

The eggs hatch into larvae that tunnel through the bark into the cambium, where the water-, nutrient-, and sugar-conducting tissues, the xylem and phloem, are located. The larvae are white, elongate, and flattened, growing to about 1-1/2 inches long. The larval body appears as flattened beads, and there are two short, dark brown to black spine-like cerci at the posterior end of the body. After feeding for one or two growing seasons, the larvae tunnel as much as 1/2 inch into the sapwood below the cambium to pupate. Adult beetles emerge the following spring.

The larvae create slender, winding tunnels under the bark. As the tunnels become numerous, they effectively girdle the branch, causing the branch to die due to lack of water and nutrients. Emerald ash borer attacks at the top of the tree first, causing thinning of the canopy. Attacked trees try to compensate for reduced foliage with numerous epicormic branches near the base of scaffold branches. Attack continues down the tree, resulting in the gradual death of branches, and the entire tree eventually dies. Larvae commonly attack the tree for about 4 years before branch dieback becomes evident. Once dieback starts to occur, the tree usually dies in 2 to 3 years. The bark on attacked trees separates from the tree trunk, allowing the larval

tunnels to be easily seen. Once the tree dies to the ground, suckers form around the base of the trunk, but they do not grow into strong, attractive trees. These suckers are also attacked and killed by the emerald ash borer. Woodpeckers chip away the bark to reach the larvae, appearing as light areas on the bark, and is a useful means of identifying potentially attacked trees before dieback becomes evident. (*Phil Nixon*)

### **Bagworm**

Bagworm eggs are hatching in southern Illinois and will soon be hatching in central and northern Illinois. Due to the ballooning of young larvae, it is most effective to wait for a couple of weeks after egg hatch to apply larval control sprays.

Bagworm is a solitary, tent-building caterpillar. Eggs overwinter in the dead female's body within her spindle-shaped tent (bag) on the tree. After hatching, the larvae emerge through the lower end of their mother's bag. They immediately spin a conical tent around them and cover it with bits of foliage, bark, or anything else that is handy. They climb to the top of the tree, appearing as moving, one-eighth inch long, conical hats. They then spin out and dangle at the end of a two to three foot long strand of silk that they attach near the top of the tree. Winds detach these strands and carry the associated larvae up to several miles. This process is called ballooning. With the female moth being larvaform and wingless, ballooning by young larvae is the principle method of dispersal for this species.

The larvae hatch out over a span of several days and balloon repeatedly for

a couple of weeks before settling down to feed in earnest. Although some feeding occurs during the ballooning period, it is primarily window-feeding and not very damaging nor noticeable. Their feeding on the foliage appears initially as light areas of foliage which turn brown as the exposed cells die. Probably because bagworms have to try to feed on wherever the wind blows them, they feed on many kinds of trees and shrubs. Not only evergreens such as arborvitae, spruces, Eastern white pine, Eastern red cedar, and other junipers are damaged, but they also feed on deciduous hosts including crabapple, oaks, maples, and hackberry.

One application of *Bacillus thuringiensis* kurstaki (Dipel, Thuricide, others), spinosad (Conserve), cyfluthrin (Tempo), indoxacarb (Provaunt) or other effective insecticide provides season-long control if applied after the larvae finish ballooning. This should be during the third week of June in southern Illinois, about July 4 in central Illinois, and in the second week of July in northern Illinois. Because the larvae start feeding at the top of the tree and work their way down, sprays need to reach the top of the tree to provide complete control.

The larvae otherwise continue to eat and grow through the summer, increasing the size of their tents (bags) as they get larger. Because of this process of continual growing, an actively feeding bagworm will have green foliage at the top of the bag that has only recently been clipped off and applied to the outside of the silk tent. This aids in determining insecticide control efficacy as the foliage at the top of the bag soon turns brown if the caterpillar is dead.

Fully-grown larvae pupate between early-August and mid-September, depending on the weather and locale. They will typically pupate in the early part of that range in southern Illinois and towards the end of that range in northern Illinois. Bags of pupating bagworms are closed at the top and are brown because the larvae are no longer feeding. Within a couple of weeks, black one-half inch long, clear-winged male moths emerge to mate through the lower ends of the bags with adult female moths that are wingless, remain in their bags, and are similar in appearance to the larvae. Mated females fill their bodies with 300 to 1000 eggs and die. The eggs hatch in late spring of the following year.

Because the eggs overwinter in their mothers' bags on the trees, hand-removal and destruction of the overwintering bags up to egg hatch provides effective control. On average, every other bag will contain eggs. Due to ballooning, complete bag removal does not guarantee a larva-free ornamental, but typically the number of subsequent larvae on the tree is substantially reduced. (*Phil Nixon*)

### **Ryegrass – the Unexpected Weed**

Homeowners tend to be impatient. They want a green lawn and they want it done yesterday. There's no shortage of seed mixes on the market and marketing campaigns for that magazine perfect lawn. But the time you spend doing a little homework before you buy grass seed is certainly time well spent.

The seed label should be carefully read and considered. Premium mixes will be

found in blue, while less expensive mixes will have a white label. Often times the white labeled mixes will contain a certain percentage of annual ryegrass (*Lolium multiflorum*) which will germinate very fast – within a week if it's being watered. Although it is quick to establish, annual ryegrass will only live for one, maybe two years, leaving thin spots behind where the more permanent cool season perennial grass has not filled in yet. Also, it will die or get stemmy in warm weather. It has a very coarse texture, is often a lighter color, and requires frequent mowing. It is not recommended for use in any permanent setting. It can be used for erosion control on newly excavated sites. Annual ryegrass is also known as Italian ryegrass.

Perennial ryegrass (*L. perenne*) can be undesirable at times when it is mixed in with another turfgrass species that is slower growing. Low mow Kentucky bluegrass seed mixes are becoming more prevalent in the market. Surprisingly, they aren't necessarily the premium mixes that you first might think they would be. In order for a green lawn to be achieved faster, perennial ryegrass is often added to the mix. Usually, it will germinate in about 2 weeks if it's being watered. However, perennial ryegrass will grow much faster than the slow growing Kentucky bluegrass will. Tall weedy looking clumps are the result. With the heat of summer, the perennial ryegrass will slow its growth and with time, the Kentucky bluegrass will overcome most but not all of the perennial ryegrass. I've had two grassy "weeds" to identify this spring and I suspect this is the culprit on both.

Low mow Kentucky bluegrass seed mixes do have benefits that homeowners may like. They offer the homeowner (when established) less mowing. There are a few out there that really enjoy mowing, but I suspect the majority of us could easily find other things to do with our time. In addition, many of these grasses have not only been bred for slow growth but also for a darker green color that really makes a yard stand out. Keep in mind that these low mow types are very slow to establish. Slow establishment means opportunities for weeds to invade. Homeowners are reminded to be patient after seeding. Alternatively, if a faster growing species is blended with it, an uneven weedy appearance may temporarily be the result.

(Michelle Wiesbrook)

### **New University of Illinois Plant Clinic Web site and Podcasts**

The new University of Illinois Plant Clinic web site was recently launched and can be accessed at: <http://web.extension.illinois.edu/plantclinic/>. This web site will provide a history of the Plant Clinic, a list of services offered by the Plant Clinic, help with sample submission, easy access to plant data forms, directions to the Plant Clinic, and staff contact information.

The U of I Plant Clinic address is provided at the top of our website and this is where samples can be either dropped off or sent via mail or by other shipping method. Please note that our address will change in the future, as we will be moving to another location. Stay tuned for additional details.

There are 9 tabs on the new U of I Plant Clinic website and they consist of the following information:

About Us: Here you will find a short history of the U of I Plant Clinic, examples of services that we have provided throughout the years, as well as information about how we have collaborated with several U of I campus specialists to help with accurate diagnosis.

Our Services: This is where you will find a list of the services that the Plant Clinic provides, as well as a list of techniques that we use to provide plant diagnosis.

Our Fees: Here you will find our fee schedule. You can also find information on how to pay by check for a sample. Checks should be made payable to the University of Illinois or to the Plant Clinic.

Submit a Sample: If you are not sure how to collect or submit a sample to the U of I Plant Clinic, be sure and click on this tab! This tab provides information on plant, nematode, and insect specimen collection and submission.

Sample Forms: Here you can find our U of I Plant Clinic sample forms! One of the appropriate sample forms should accompany every sample that is submitted, supplying client and sample information!

Find Us: If you would like to drop off a sample, but are not sure how to find our location, you should click on the “Find Us” tab. Here, you will find our address, directions, and a map to the U of I Plant Clinic.

Contact Us: Go to this tab to locate contact information for the Plant Clinic staff: Stephanie Porter, Visiting Plant Diagnostic Outreach Specialist - Crop Sciences and Suzanne Bissonnette, Plant Diagnostic Clinic and IPM coordinator. We are always happy to answer questions, as it can avoid confusion in the long run.

Other Resources: We will try and keep this tab updated with newsletters, videos, publications, websites, and books that may help you with your pest management needs.

Hot Topics: At this tab, we currently have web resources for invasive pests that you may have questions about, such as: Asian Longhorned Beetle, Brown Marmorated Stink Bug, Emerald Ash Borer, Sudden Oak Death (SOD), Soybean Rust, and Thousand Cankers Disease.

*In the very top right corner of the U of I Plant Clinic website, you have easy access to:*

U of I Plant Clinic Facebook Page:  
<http://www.facebook.com/UofIPlantClinic>

U of I Plant Clinic Blog:  
<http://universityofillinoisplantclinic.blogspot.com/>

Illini Plant and Pest Podcasts:  
<http://web.extension.illinois.edu/podcasts/plantandpest//>

The Illini Plant and Pest Podcasts provide audio updates on current pest issues!

Be sure and bookmark the U of I Plant Clinic and Illini Plant and Pest Podcast

websites on your computer! (*Stephanie Porter*)

### **Fireblight.....It's Back!**

Fire blight is showing up across Illinois. We have been diagnosing it on Callery pear. But, fire blight can affect apples, pears, crabapples, and ornamental pears (yes, Callery pear). You might also see infection on other rosaceous hosts, such as cotoneaster, hawthorn, quince, firethorn, and mountain-ash.

The bacterial pathogen, *Erwinia amylovora*, that causes fireblight may linger and over winter in cankers. The bacterium will ooze from these cankers in the spring and attract insects. These insects can spread the bacteria to blossoms, fruit, or other plant parts. The heavy rainfall that we had this spring could have also spread the bacteria. Most importantly, don't forget, we also contribute to spread by way of **pruning tools**.

The fire blight bacterium, infects in warm (>60 degree F), humid conditions. The primary mode of entry into the plant is via flowers, so the critical infection period is during bloom. Therefore, if you are seeing these disease symptoms on your tree, infection has already taken place. Infection can also occur via wounds, especially after wind or hail storms, which have also been frequent in areas of Illinois this year. The bacterium moves systemically in plants to shoot tips. Blighted leaves and blossoms near twig tips appear first. Leaves may wilt and turn brown or black and form the typical shepherd's crooks symptom at stem tips. Stem cankers develop as sunken, cracked areas on stems.

What can you do to manage fire blight? Prune out infected wood in the dormant season, if you can wait. If not, prune in an extended dry period and disinfect pruning tools after every cut. The bacterium may have extended down the stem ahead of the canker. Unfortunately this means wood should be removed 8-10 inches below the edge of the visible canker. Chemical options are limited for home growers because the timing of sprays is so critical. Commercial growers apply copper products in the dormant season and streptomycin at 4-5 day intervals throughout bloom. This is not a disease that you can try to fix with fertilization and watering. You will promote lush growth which is more susceptible to infection by the fire blight bacterium. If planting a new tree that can be a host, try to focus on purchasing a tree with resistance to fire blight. For more reading enjoyment about fire blight, you can go to this link and find the Report on Plant Disease of Fire blight of Apple: [http://web.aces.uiuc.edu/vista/pdf\\_pubs/801.pdf](http://web.aces.uiuc.edu/vista/pdf_pubs/801.pdf)

As a side note, this sample of ornamental pear (as seen in the picture above) was misdiagnosed last year by an individual that was thought to be a "reliable" arborist. Without going into too much detail, this tree underwent fungicide injections last year. When the disease reappeared this year, the sample was submitted to the U of I Plant Clinic and diagnosed with fire blight. As explained above, fire blight is a bacterial disease and a fungicide application would have no effect on this disease. Please make sure that you call upon a Certified Arborist or expert. You can search for a Certified Arborist in your area at: <http://www.isa-arbor.com/faca/findArborist.aspx>. If an

“on-site” diagnosis is made, and pricey chemical recommendations are given, don’t be afraid to get a second opinion. As always, you are welcome to send a

sample to the U of I Plant Clinic, where you can receive an accurate diagnosis, and unbiased management recommendations. (*Stephanie Porter*)