

Number 3 - May 7, 2010

### Scouting Watch

**Black vine weevil** will be present as adults in southern Illinois and susceptible to insecticidal control. Spray the yew foliage heavily, allowing much to run off onto the ground under the shrubs where the adults spend the day.

**European pine shoot moth** is susceptible to control in southern Illinois. Treatment of the shoots is usually sufficient to obtain control.

**Woolly apple aphid**, an insect that was very numerous in Illinois last year, is also susceptible to control in southern Illinois.

**Viburnum crown borer** is susceptible to control in central and northern Illinois. Spray the foliage and base of the plant heavily, allowing movement of the insecticide into the crown of the plant where the borers are most numerous. This insect is most common on the *Viburnum opulus compacta*.

**Euonymus caterpillar** will be actively spinning silk tents on the foliage of *Euonymus europaea*. *Euonymus alatus* is listed as a host in the literature, but has not been found feeding on this species in Illinois. This caterpillar is found in northern Illinois as far south as Kankakee. It is whitish with black spots.

**Bronze birch borer** is still susceptible to control with systemic insecticides such as dinotefuran (Safari) and imidacloprid (Merit, Xytect, Imicide, Pointer). Although egg-laying may have ended, these systemic insecticides should still provide control of the young larvae in the cambium. --*Phil Nixon*

### Mite Leaf Galls

There are a number of eriophyid mite species that cause galls on trees at this time of year. Generally, these mites spend the winter under bud scales, then leaving the buds to attack expanding leaves. They typically feed on the leaf underside, eventually being enclosed inside the growing leaf tissue. Galls that are produced as a result of this feeding generally form on the leaf upperside even though the attack was on the underside.

Inspecting the younger galls will commonly reveal numerous mites. Eriophyid mites are different in appearance from spidermites, being very tiny, whitish, cigar-shaped, and with only four legs at one end. You will need a fairly strong hand lens to see them.

These galls can be prevented with miticides applied at leaf expansion. The mites that cause maple bladder gall and

maple erineum galls have several generations per year, allowing the control of additional gall formation through the season with miticide applications after the galls first appear. However, all of these galls cause little damage to the trees. Considering the cost of control makes treatment generally unnecessary.

**Maple bladder gall** is obvious on silver maple leaves as bright red pinhead-sized nodules on the leaf upperside. The mite-caused galls are initially green before turning red. Later in the season, these galls will turn dark red and then black. There are several generations per year, so it is common in the summer to find green, red, and black galls all on the same leaf.

**Maple erineum** is another mite gall that causes velvety patches typically one-quarter to one-half inch across on the underside of silver maple leaves. Like maple bladder gall, a close relative, the patches are initially green, turn red, and then darken to blackish.

**Maple spindle gall** is found on sugar maple leaves, more commonly in forest situations. Galls are upright and slender galls, about one-eighth inch long on the leaf upperside. Like the other maple galls, they turn from green to red.

**Wild cherry pouch gall** occurs primarily on wild black cherry, so is primarily noticed on trees at the edge of forests. The galls turn from green to red and appear as slender pouches up to one-eighth inch long on the leaf upperside.

**Pearleaf blister mite** is common on ornamental pears as well as fruit-bearing pears. The leaves have tiny

blisters that are about one-sixteenth of an inch across and whitish, giving the appearance of whitish freckles on the leaf uppersides. On ornamentals pears, the leaf underside commonly has reddish streaks that turn blackish later in the season. --*Phil Nixon*

## Armored Scale Insects

There are a number of armored scale insects that are producing crawlers at this time of year in Illinois. Crawlers are the first stage nymphs and are very susceptible to contact insecticide sprays. Older nymphal stages and the adult secrete a waxy material that covers and protects them from drying out, predators, and contact insecticides.

Armored scales are sucking insects, feeding on the contents of cells. As a result, they do not produce honeydew and are not as easily killed with systemic insecticides as are soft scales that feed on phloem contents. That's why many systemic insecticide labels list armored scales as being suppressed rather than controlled.

Scale crawlers typically crawl on the leaves and stems of the host for a couple of weeks. Once they settle down to feed, they will molt to the second nymphal instar that secretes the protective waxy covering. Scout for crawlers by looking closely for tiny insects crawling on the leaves and stems. Although they are considerably smaller than the head of a straight pin, they are easy to see with the unaided eye if you look close. They are easier to see on the leaves. Even so, a hand lens is useful to be sure that you are seeing scale crawlers. Wrapping black electrical tape, sticky side out,

around stems makes a good sticky trap to aid detection. The light-colored crawlers are more obvious on the background of the black tape.

The armored scales that are susceptible to control at this time are as follows.

**Euonymus scale** should be present as crawlers throughout Illinois. Look for lemon yellow crawlers on the foliage and stems of evergreen and deciduous species.

**Winged euonymus scale**, also known as *Euonymus alatus* scale, crawlers should also be present in southern Illinois. This scale is present only on winged euonymus or burning bush and is similar in size and shape to oystershell scale.

**Oystershell scale**, brown race, is still susceptible to control in central and northern Illinois. This race will be on apple, dogwood, and poplar. Scout for the gray race to see if the gray crawlers are still present in southern Illinois and to see if they have emerged yet in central and northern Illinois. The gray race occurs on lilac, ash, willow, poplar, and maple. Adult oystershell scales are about one-eighth inch long. They are curved and slender with one end being larger than the other. The crawlers are gray.

**Pine needle scale** produces dark red crawlers which are present and controllable in central and northern Illinois. They may still be present in southern Illinois. Adult pine needle scales are one-eighth inch long, white, and slender. They are common on the needles with heavy infestations making the tree look like a flocked Christmas tree. In addition to pines, this insect is also common on spruce and hemlock.

Armored scales cause dieback and even plant death when numerous. Frequently, armored scale populations are patchy, being very heavy on a few branches and almost absent on others. If the plant is relatively healthy, it may be useful to prune off heavily infested branches before treating. This will aid in achieving control of the remaining insects.

Although many scale species can be controlled with dormant oil sprays, oystershell scale and pine needle scale overwinter as eggs under their mother's protective cover, making them very resistant to that control method.

Because scale crawlers are so susceptible to contact sprays, a variety of insecticides are effective against them. Insecticidal soap and summer spray oil are effective, but very good coverage is needed and repeat applications every few days may be needed. Acephate (Orthene), acetamiprid (TriStar), bifenthrin (Onyx), carbaryl (Sevin), and cyfluthrin (Tempo) are effective and longer-lasting, requiring only one retreatment about ten days after the first application. Let your scouting and sticky traps be your guide as to whether and when repeat applications are needed.

The sucking mouthparts of scales are so long that they help keep dead scale from falling off of the plant. Control efficacy can be determined by flipping over individual scale covers while observing with a microscope or hand lens. If the soft-body of the scale under the cover has dried up or is missing, the scale is dead. Live scale are soft and plump under the scale cover. An easier way is to check for infestation later in the year on first year twigs. --*Phil Nixon*

## Purple EAB Traps are Back

Illinois Department of Agriculture personnel, USDA personnel, and others have been installing the large purple emerald ash borer traps over the last few weeks. These triangular traps are placed in ash trees and are about two feet long by one foot wide. They are covered on the outside with sticky material to catch and hold emerald ash borer adults. There is a lure in the trap, but no insecticide. The presence of the trap is not an indication that emerald ash borer is in the area, only that they are looking for it. A large section of the state is being trapped, so they are very numerous. The traps will be removed in a few weeks.--*Phil Nixon*

## Problems with Verticillium Wilt?

Many of you have experienced Verticillium wilt first hand. The disease knows no age barrier, killing plants ranging from tomato to mature maples. The fungus causes a tell-tale vascular streaking in the stems and roots of infected plants. To confirm the cause, however, you probably want to have some fresh, symptomatic tissues cultured in a plant lab. Samples with vascular streaking are required. About 10-14 days are needed for the fungus to grow in culture and provide structures for a positive identification. This fungus may survive in the soil for many, many years, so it is important to be sure of what you are trying to manage. Often girdling roots, deep planting, cankers, and other factors can mimic Verticillium wilt. Those problems, however, will not cause vascular staining throughout the plant (see image). You cannot control

this disease, but you can manage it. Generally, infected plants do not recover.

Clients often submit tree samples to the University of Illinois Plant Clinic to be tested for the presence of *Verticillium*. Maple, redbud, and smoketree have been the most common hosts. In recent years magnolia has joined the list of commonly infected species. View a list of hosts in the University of Illinois Report on Plant Disease 1010 at <http://www.aces.uiuc.edu/~vista/abstracts/a1010.html>.

Management is the big issue. Since the fungus remains in the soil, replacement plants must be resistant species. We do not have an effective way to treat landscape sites to kill all pathogens. Heat treatment works on soil that will be used in containers as long as the temperature reaches 130-140 degrees F. Some tips that may help tree health in affected landscapes include maintaining a slightly acidic soil - below 7.0. Start with a soil test to determine the pH in the rooting zone. Hardwood bark mulch helps maintain the slightly lower pH, as do fertilizer amendments such as ammonium sulfate. The amount of fertilizer applied should be dictated by a soil test. It is thought that slightly acidic conditions also allow more bacteria and fungi to compete with *Verticillium*. In other words, it provides a better environment for natural competition. Balanced fertility, especially nitrogen, phosphorous, and potassium levels, has been shown to be important in Verticillium management. Increased disease levels have been correlated with nitrate sources of nitrogen. None of these tips will eradicate *Verticillium* from an infected site.--*Nancy Pataky*

## **Anthracnose Vs Environmental Stress**

Many recent inquiries concern shade trees with tattered, spotted, and blighted foliage. Is this anthracnose, wind damage, frost injury, chemical damage, or something else? Anthracnose fungi invade in wet conditions. In the mid-section of the state, weather has been rather dry. On the other hand, infection only requires several hours of leaf wetness, so anthracnose is certainly a possibility. However, anthracnose has not been as common this season as last year. Anthracnose fungi are not picky about infection temperatures, infecting in most moderate temperature conditions. Hot, dry weather shuts down the disease.

Recent high winds and warm days followed by cool nights have triggered environmental injury on tender new leaves. We have seen some anthracnose this year. How can you know whether anthracnose or the weather is causing discolored, tattered foliage? Diagnosis is not always clear cut. Let's use oaks as an example. The first image shows oak leaves with typical environmental scorch. The necrosis is uniform and along the leaf edges. The tree was recently transplanted, has few established roots, and is present in an exposed location. Wind and sun desiccate leaf edges more quickly than roots can replace water, resulting in this uniform leaf scorch. The second image shows an oak earlier in the spring with tattered leaf edges. This is definitely a wind effect confirmed by missing leaf tissue and the pattern of worse injury on the wind-exposed side of the tree. In addition, this tree may have some anthracnose involvement. Sometimes anthracnose will cause tan areas of necrosis. If the areas seem to spread down

a vein, anthracnose is more suspect. The last image is from an oak tree with only anthracnose. The blackened tissue, especially following a vein, is very typical of early season oak anthracnose. Tender new leaves are more susceptible to both wind and anthracnose. A report on anthracnose can be found at <http://www.aces.uiuc.edu/~vista/abstracts/a621.html>.

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 scattered on the leaf blades. Anthracnose will cause some infection of the edges of the leaves, along the veins, and scattered on the blades. Should confirmation be necessary, a lab can use microscopes to see the fruiting bodies of the fungus. The fruiting bodies may be present in wet conditions. They will pop up on incubated tissue in as little as 12 hours.

In the case of shade trees, treatment is the same, whether the cause is anthracnose or environmental stress. Chemicals are not recommended for anthracnose of shade trees. In both cases, water the tree in times of drought stress to help it recover. Consider fall fertilization to give the tree a boost as well. No immediate action is required.

Still other cases involve the possibility of chemical injury, usually in the form of drift. In those cases the pattern and timing of symptoms is important. Chemical drift will affect many species and symptoms will be most severe on the side closest to the alleged source. Our lab is not equipped to test for chemical residues. Often residue

information is not useful for trees because of a lack of data on injury thresholds. Even in the case of chemical drift, provide additional water in periods of drought to help the tree recover. --*Nancy Pataky*

### **May is Invasive Species Awareness Month in Illinois**

The Illinois Invasive Plant Species Council is declaring May to be Invasive Species Awareness Month. The Council along with many conservation organizations and agencies in Illinois are working together to promote awareness of the impact of invasive species to Illinois' diverse landscape. The organizations also want people to understand the economic and environmental costs we all bear due to the spread of these species. Invasive species are recognized as one of the leading threats to biodiversity and impose enormous costs to agriculture, forestry, fisheries, and other enterprises, as well as to human health.

Illinois is a prime area of the country to be impacted by invasive and exotic species because of its connection to the Great Lakes, Illinois River, Ohio River, Mississippi River, and a road and rail transportation hub. Invasives are reported to cause over \$137 billion of environmental damages and economic losses every year in the United States. They are considered to be a severe and insidious form of environmental pollution. Increasing public awareness of invasive species is an essential goal because prevention and early intervention are the most effective and cost efficient approaches to address the economic and ecological impacts of exotic invasive species.

Invasive species continue to take a toll on Illinois' natural lands, waterways, and parks. It is hoped this proclamation will raise awareness and provide opportunities for citizens of Illinois to participate in invasive species awareness events around the state and learn more about what they can do to help defeat this threat. To learn more about the Council and activities planned for Illinois Invasive Species Awareness Month go to [www.illinoisinvasives.org](http://www.illinoisinvasives.org).

In the coming issues, stay tuned to find out more about invasives that are a threat to Illinois. There are many invasive pests that if introduced and established in Illinois, would threaten commodity regions and natural areas as well. Illinois woodlands, wetlands, and prairies may also be affected by the potential invasion of exotic pests. Many of the invasive threats have a large host range. Not only will a potential invasive pest affect the Illinois economy, but it may also affect the beauty of our landscape, the diversity of our environment, and lead to the destruction of natural habitats.

--*Kelly Estes*

### **Bee Careful, Those Critters Might be More Important than You Realize**

Lately there has been a lot of buzz about honey bees. Honey bees, *Apis mellifera*, are not native to the Americas. They were imported hundreds of years ago to provide sweet honey for colonists who made the move from Europe.

Recently, honey bees have come under a great deal of stress due to a relatively new malady called colony collapse

disorder (CCD). First reported in 2006, CCD is characterized by a sudden disappearance of most of the worker bees in a hive, leaving only the queen and a few attendants. Some commercial bee keepers sustained losses up to 90 percent of their hives.

Honey bees are one of the important pollinators that we as a species depend on for many of our favorite foods. Honey bees work cheap. They will work virtually non-stop just for a bit of nectar and pollen.

In fact, they literally work themselves to death. There are no holidays or time off, just the fact that after as little as four weeks, their wings become so battered that they literally fall out of the sky and perish from the punishing schedule they keep. It has been estimated that honey bees fly 55 thousand miles in order to make just one pound of honey.

Honey bees have been considered so important that they have been designated as the state insect in 18 states. Every time we bite into an apple, almond, cherry, squash or virtually any other fruit, a honey bee has been involved with its pollination. Other crops benefit as well; clover and alfalfa are among bee favorites. It has been estimated that honey bees have an impact on agriculture that exceeds \$200 billion annually.

While honey bees are an important cog in our agricultural machine, they are actually very delicate creatures. Their immune system is under powered when compared to other insect species. As such, they are extremely susceptible to the pesticides we routinely apply.

Some of the more egregious pesticides include the neonicotinoid class such as imidacloprid, thiamethoxam and clothianidin. These chemicals act on the insect's central nervous system to cause paralysis and eventually death. Honey bees are susceptible to their actions.

How can you lessen the impact of these and other compounds on the honey bee population? When possible, don't apply pesticides to plants that are in bloom, especially those that the bees are actively visiting. If feasible, use other methods rather than pesticides to control pests. Integrated pest management (IPM) is a common sense practice that can help. If you must apply a pesticide, always read the label and choose those chemicals that are less toxic to honey bees. The label will also provide information about how to apply so that you are not directly affecting the bee population.

Another way to help is to provide suitable resources for the bees to flourish. Lawns are akin to a desert as far as the bees are concerned. We crop our grass short and clean; nothing is left to flower. A good compromise might be to plant some clover in the yard and mow the grass at the highest mower setting. Or, you might stagger the mowing of the grass to allow parts of the yard/pasture to flower.

Learn how to keep bees. I have found beekeeping to be a rewarding endeavor. You won't get rich doing it, but you will gain a great appreciation for how important this small, but fierce, creature really is.--*Doug Jones, Integrated Pest Management, Mt. Vernon Extension Center, 618-242-9310*