

Number 6 - May 29, 2009

Weather Impacts on Insects

As we get more warm weather, insects will develop very quickly. Along with rainy weather, we have had somewhat cooler temperatures, which have slowed down the development of insects. That is, their progression through larval or nymphal stages. During this time, the plants have been able to get ahead of the insect pests which should result in less damage. Insects have a base temperature of around 50 degrees F, below which very little development occurs. The higher the temperature rises above that base temperature and the longer it stays above that temperature, the faster the insects develop. On the other hand, plants tend to develop above a threshold in the high 30's degrees F. During the last couple of weeks with lows in much of the state in the 40's to low 50's degrees F, and highs in the 60's, plant stems have continued to grow and leaves have continued to expand while their insect pests have been slowed by the cool temperatures. As a result, you are likely to see younger, smaller, insect stages for the size of the host leaves compared to that seen in other years.

Another factor affecting insect and plant interactions is rainfall. The abundance of rainfall this year, along with the cooler temperatures, promotes fungal growth and development. Although these conditions are conducive to leaf

diseases, insects also get fungal diseases. This is noticeable particularly in soft-bodied insects, such as tree and shrub feeding caterpillars. Their numbers typically drop in cool, wet weather due to disease mortality. High soil moisture levels can also promote fungal disease and mortality among turf pests such as sod webworm and white grub larvae and pupae. Fungal disease can also be prevalent on adult May beetles, black turfgrass *Ataenius*, and billbugs. Dead, off-color insects are frequently signs of fungal attack. If moisture levels stay high, many of these fungi will produce sporangia that cover the insect with white or green fuzz.--*Phil Nixon*

Scouting Watch

Emerald ash borer adults are emerging in McLean County. Marion Shier, Crops Educator in Livingston County, found adults coming out of an ash tree in his yard in Chenoa, IL on May 26. Most were still in the process of tunneling their way out of the tree. Just in time, Illinois Department of Agriculture (IDA), USDA APHIS employees, and municipalities in cooperation with IDA have set many of the large, triangular, purple emerald ash borer traps throughout the state.

In southern and central Illinois, bagworms should be hatching. Because the caterpillars blow from tree to tree for the first couple of weeks, we

recommend holding off on insecticide applications for a couple of weeks so that additional applications are not needed. It is also time to treat for roundheaded appletree borer and flatheaded appletree borer. Peachtree borer and viburnum borers are also susceptible to control at this time. Elm leaf beetle, mimosa webworm, and whitemarked tussock moth larvae are susceptible to control.

In northern Illinois, euonymus scale crawlers and euonymus caterpillar are controllable. Flatheaded appletree, roundheaded appletree, peachtree, and viburnum borers are also susceptible to control. Gypsy moth larvae have hatched and should be young enough for very effective control for at least the next couple of weeks.--*Phil Nixon*

Flatheaded Appletree Borer

Flatheaded appletree borer, *Chrysobothris femorata*, is a pest of newly transplanted and declining trees and shrubs in the rose family including hawthorn, serviceberry, crabapple, rose, and cotoneaster. It also attacks many other trees including maple, oak, hickory, sycamore, tuliptree, willow, and ash. It is particularly damaging to young maple trees, tunneling just under the bark in a spiral pattern from near ground level. Such trees are commonly transplanted into landscapes only to die within a year or two from this girdling.

Flatheaded appletree borer larvae are slender, elongate, flattened, white insects with dark mouthparts. The segments are obvious, appearing like flattened beads. Fully grown larvae are about one inch long. They tunnel just

under the bark through the cambium, but tunnel deeper into the sapwood to overwinter. These tunnels are oval in shape, about one-quarter inch wide, and filled with sawdust-like frass.

They pupate in the sapwood to emerge as adult beetles at this time of year. These adults are dull metallic-brown to dull gray with indistinct blackish to grayish spots on the back. They are about one-half inch long and somewhat bullet-shaped and flattened. After mating, eggs are laid in bark cracks by the female.

Control on young maples in nurseries and landscapes includes grassy weed control. Attacked trees tend to be found in areas where tall grass is growing. Keeping grass mowed or maintaining grass-free beds may help reduce borer incidence. Keep trees growing vigorously with proper siting, mulching, watering, and fertilizing.

Spray trunks and branches at this time with imidacloprid (Merit, Xytect) or apply as a soil drench or soil injection near the trunk. Remove mulch, sod, and other organic matter before drenching or soil inject below this material. Imidacloprid will bind to dead organic matter and not be taken up by the plant. Because this insect commonly attacks trees dying from old age, treating these trees may not make economic sense. (Phil Nixon)

Squirrels

We have received a number of calls concerning damage by squirrels to trees. Damage primarily consists of the bark being stripped off of one to three inch

diameter branches for one to several feet. Typically, the bark is removed from the entire circumference of the branch, girdling it. At the edge of the removed area, one can detect arcs that are about one-quarter inch wide cut through the bark to the sapwood. These correspond to the size and shape of the squirrel's front teeth. The girdled branch dies. Damage typically occurs during the winter, but can occur at any time of year. Typically, hardwood trees are attacked with maples appearing to be the most common.

Twig clipping is commonly caused by squirrels at this time of year. Twigs that are one or more feet long and about one-quarter inch in diameter are bitten through and fall to the ground. Caused by rodents with large front teeth, clipped twigs will have a clean, angled cut, similar to that made by a hand pruner. After several days, the ground may be littered with a hundred or more twigs. This usually causes little damage to the large trees that are typically attacked.

Typically, gray squirrels are the culprits, although this same damage can be caused by fox squirrels or pine (red) squirrels. Gray squirrels are usually gray or black, although white squirrels, albinos, are common in Olney, IL and are occasionally seen elsewhere. Squirrels build twig and leaf nests on tree branches and also nest in branch forks and trunk cavities. Each squirrel will have a home range of about one acre. Squirrels feed on nuts, seeds, buds, leaves, bulbs, bark, insects, and fruit.

Although bark and twigs are food for squirrels and some damage will occur if squirrels are present, large amounts of

damage are usually caused by one individual. Squirrels are also creatures of habit, causing damage to only one or a couple of trees when many similar trees are nearby. For this reason, removing the individual squirrel or restricting access to only one or a few trees is likely to be successful.

Squirrels can be live-trapped using nutmeats, sunflower seeds, fresh orange slices, sweet corn, or oatmeal for bait. Because squirrels are protected game animals, consult the Illinois Department of Natural Resources for the necessary permits before removing squirrels. Although trapped squirrels can be released at least 5 miles away, humanely killing the squirrel is usually recommended. A high percentage of relocated mammals die, and they disrupt the home ranges and ecology of the residents of the same species in the area where they are released.

Squirrels can be excluded from a tree by attaching a two-foot wide band of sheet metal around the trunk at least six feet off the ground. Attach the metal with encircling wires held together with springs to allow tree growth. This is only effective if there are no nearby trees or buildings to jump from and reach the tree. Repellents such as Ropel, thiram, or capsaicin can be applied to the bark to provide protection.--*Phil Nixon*

Early Season Anthracnose

Anthracnose is a term used to refer to many fungal diseases that have a specific fruiting body called an acervulus. The anthracnose diseases cause leaf and stem spots, cankers, or fruit lesions. Some anthracnose fungi

thrive in cool, wet conditions. We see these in the spring because cool, wet weather favors fungal growth and foliage has not yet developed a thickened cuticle to help fight infection. Some of the early season anthracnose diseases include anthracnose of sycamore, anthracnose of peony, anthracnose of corn seedlings, and the list goes on. All are caused by different species of fungi. Most of the tree anthracnose diseases are caused by species of *Discula*, *Gloeosporium*, *Kabatiella*, or forms of these fungi.

Recently at the Plant Clinic at the University of Illinois we have received samples of maples with anthracnose. They have spotting and blighting that is black and very noticeable. When young leaves are infected, lesions are often black and merge together. Older leaves may have more distinct brown spotting. Infection tends to be worse at the bottom of the tree where the canopy stays wet longer. Infection may occur along the veins in blotches from the leaf edges, or as random spots on the leaves. The image shows maple anthracnose from this spring. Infected ash trees may exhibit leaf spotting or they may drop leaves because of petiole infection. If you have a sycamore tree in your area, inspect it for this disease. It is very likely that the newest growth has been infected and is brown and shriveled as in the image. By now, the older leaves have emerged and escaped infection. You will see larger, green leaves 5 or 6" back from the stem tips. The trees will fill in with healthy leaves now that warmer, drier weather has occurred. The most common early season shade trees affected by anthracnose in Illinois are ash, maple, oak, sycamore, and elm.

Although there are always exceptions, we are not usually concerned with early season anthracnose diseases of shade trees. Ash trees probably elicit the greatest concern because owners are fearful that Emerald ash borer could be involved. Ash anthracnose causes leaf drop but branches do not die and new leaves will emerge on the same stems. When submitting a suspect plant sample to the Plant Clinic, send foliage, stems, and images to obtain a more complete and accurate assessment of the situation.

Some anthracnose diseases do warrant treatment. Dogwood anthracnose, which appears in mid-June, is a disease that will cause considerable plant damage if left untreated. A recent case of peony anthracnose is also a candidate for treatment. The *Home, Yard, and Garden Pest Guide* or the *Commercial Landscape & Turfgrass Pest Management Handbook* offer fungicides that can be used to prevent infection by anthracnose fungi. For more on anthracnose diseases, read *Anthracnose Diseases of Shade Trees* at <http://www.aces.uiuc.edu/~vista/abstracts/a621.html> .--Nancy Pataky

Oak Leaf Blisters

Here is a fungal disease that you may be seeing soon on your oak leaves. The causal fungus is *Taphrina caerulescens*. Although many oaks may be attacked, red oak is most susceptible. Leaf blisters (aka leaf curl) refers to a group of diseases on oak and occasionally on poplar. Leaf distortion and blister-like growths or puckering of the leaves is common to all. The leaves are often thickened. At first the puckered areas are green but these turn red and then brown as the season progresses. The

image shows the disease on a red oak in the author's yard in spring.

The causal fungus survives over winter in buds and on twigs. They infect leaves and flowers in the cool, moist weather of early spring, from bud swell to bud opening (ideally temperatures are 50 to 70 degrees F). Obviously, 2009 has been ideal for *Taphrina* infection.

Oak leaf blisters is an aesthetic problem on mature trees. I do not treat my oak tree and would not recommend others treating their oaks. A related disease occurs on fruit. It is caused by other *Taphrina* species and causes enough damage to warrant treatment. That disease is called peach leaf curls. The fungus that causes oak blisters does not cause peach leaf curls. For more on peach leaf curls, visit http://web.aces.uiuc.edu/vista/pdf_pubs/805.pdf.

Landscape managers should focus on promoting oak tree health through pruning, watering, and fertilization. Fungicides are not usually recommended for ornamental trees unless the disease is a chronic problem on very young trees. Regardless, it is too late to spray fungicides to fight this disease for 2009. If you are having problems with curl and blisters, mark your calendar for a late fall or winter fungicide application so you don't forget again.

If you have used sprays to control *Taphrina* but have not obtained control of the disease, consider these facts. Sprays must provide complete coverage of the stems and buds. The fungus over winters in bud scales and cracks and crevices of the bark, so thorough coverage is necessary. Check Illinois pest management manuals to be certain you have chosen the correct fungicide. Chemicals must be

applied in the dormant season, which means either late fall or early spring before buds swell. Fungicides for homeowners are listed in the *Home, Yard, and Garden Pest Guide*. Fungicides available to commercial growers are listed in the *Commercial Landscape and Turfgrass Pest Management Handbook*.--Nancy Pataky

Deep Planting and Girdling Roots

Deep planting and girdling roots are problems that were initiated about 30 years ago but are affecting trees (and shrubs) now. Both conditions may kill trees and shrubs and are often misdiagnosed.

One issue is **deep planting**. When a tree or shrub is planted too deeply, the lower stem is placed below the soil and gaseous exchanges cannot occur freely through the bark. This condition does not immediately kill the plant. Decline may occur for many years before the plant passes the point of no return. Once the bark begins to fall from the trunk, the end is near. A similar slow decline may occur when mulch is mounded around the base of a tree.

Deep planting is not difficult to avoid. Locate the first major root coming off the trunk and place it just below the soil line. You may need to remove some of the top of the root ball to do this. A flare of the trunk should be visible above the soil line. The trunk should not be the same width at the soil line as it is 4' up the trunk. It is really a pretty simple concept: roots are below ground and everything else is above the ground. The image shows a birch tree that has been planted too deeply. The yard stick indicates the soil line. The darker colored bark was covered by soil. We

dug 8” before we found a major root and the beginning of root flare. The tree is alive but has struggled over the last 20 years. The situation is complicated by clay soil with high pH, resulting in chlorosis. For many years the entire situation was blamed on the soil. Deep planting is probably half of the problem.

Many of the deciduous tree samples we receive at the Plant Clinic show scorching, wind tatter, and perhaps cold injury. Often these same trees exhibit poor stem growth for at least the last 3-5 years. Follow-up questioning and photographs of the lower trunk frequently show that the tree was planted too deeply. Deep planting can cause slow decline of a tree over many years. It may not kill the tree but will not allow the tree to thrive. Does a tree that is planted too deeply need to be removed? That is not usually the case, but there are things that can be done by arborists to help the tree grow better. Deep planting is a major problem in our landscapes and one that is completely avoidable.

The second issue is **girdling roots**. If major roots grow in a circle around the trunk, they will eventually strangle the trunk. It may take years for this to happen. The trunk grows in girth but so do the encircling roots. By the time the tree dies, the installer is long gone. We are left to deal with the problem.

Girdling roots may be more difficult to detect. Sometimes they cause the same lack of flare caused by deep planting. Other times, trunk flare is present, but growth is stunted, resulting in small, off-color leaves, and possibly stem dieback. The picture in this article shows the base of a red oak tree with the collar

exposed. The trunk has a nice flare, but a major girdling root has been growing for 25 years. It often takes that long for roots growing around the tree to become girdling. The message to remember is to make certain that you are planting trees correctly. You would be surprised at how many so called “diseased trees” are actually those stressed by deep planting and girdling roots.

The International Society of Arboriculture (ISA) created www.treesaregood.com to provide quality information on tree care to the public. A section on planting new trees explains the planting process and has a helpful diagram to illustrate major points. Taking the time to plant your tree correctly will help ensure a healthy tree for many years to come. Deep planting will only cause years of tree decline and frustration in tree care.--
Nancy Pataky

Invasive Species Spotlight – Brazilian Elodea

Native to southeastern South America, Brazilian elodea (<http://www.inhs.uiuc.edu/research/CAPS/docs/BrazilianElodea.pdf>) has spread from its native habitat with the aid of its usage as an aquarium plant. The problem occurs when this plant is released into natural aquatic habitats.

Brazilian elodea can be found growing in open ponds and lakes, old reclaimed quarries, slow-moving streams, and wetlands. It can be found growing at depths of up to 20 feet. Its only primary form of spread is through introductions from unwanted aquarium waste and

fragmentation, where a portion of the plant becomes separated from the main plant and floats away or roots in a new area. Elodea is dioecious and all the plants found in the US are thought to be males and is not known to spread through seed production.

The plant can grow very rapidly in new areas. They quickly out-compete native plants for space. This aquatic invader can slow down or alter water flow, thereby trapping sediment and creating stagnant pools. It is also a problem for aquatic recreationists, interfering with boating and fishing.

Until recently, in Illinois this invasive plant was positively identified in a few southern counties (<http://www.inhs.uiuc.edu/research/CAPS/docs/WetlandWeedsfinal.pdf>). Last summer, Brazilian elodea was found in a pond in Libertyville (Lake county). During regular pond maintenance, two populations were uncovered.

It can be identified by the leaves and stems. Its leaves grow in whorls around the stem in groups of 4 to 8. They are oblong to linear about 1 inch long and $\frac{1}{4}$ inch wide. The margins have very fine serrations that may be difficult to see. Brazilian Elodea may flower from spring and early summer with sporadic flowers up into the autumn. Each flower is held above the water's surface on a fine stalk up to $\frac{3}{4}$ of an inch in diameter and white with 3 petals. It can be confused with American Elodea (*Elodea canadensis*) which can look very similar but has leaves whorled usually in groups of 3's that are only $\frac{1}{2}$ inch long.

For a neat reference on Brazilian elodea, complete with a species video, visit

Weedy Plants of the U.S.

(<http://www.thewildclassroom.com/biodiversity/problemplants/species/Brazilian%20Elodea.htm>).

Residents are urged to report suspected infestations and also help stop the spread of aquatic invasives with these simple precautions:

- Dispose of any excess plants in the trash.
- Do not release aquatic invasive plants into any waters.
- Rinse your aquatic garden plants before planting.
- Keep aquatic plants contained in your water garden.
- Clean all recreational vehicles, trailers, and equipment before leaving any lake or river, since the plant can "hitchhike" onto such equipment.

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