

Number 7 - June 5, 2009

Boxwood Leafminer

We have had several cases of boxwood leafminer, *Monarthropalpus buxi*, sent in to the plant clinic this spring. Boxwood leafminer causes off-green pouches on leaves that turn brownish as the larvae mature. Because partially-grown larvae overwinter, heavily affected leaves develop light brown mottling in the spring when other foliage is green. This mottling occurs on both the under- and uppersides of the leaves.

Adult flies emerge from pupae when weigela begins to bloom. In central Illinois, weigela just finished blooming, thus adult fly emergence would have occurred in mid-May. The adult flies are tiny yellowish-orange flies about pinhead-sized. Female flies land on the leaf upperside and insert eggs into the leaf tissue. These eggs hatch into yellowish-white larvae (maggots) that feed on the mesophyll tissue in the interior of the boxwood leaf. About twenty larvae are commonly present per leaf. They develop slowly through the summer, initially causing raised, green blisters on the leaf upperside and small, tan blisters on the underside. After overwintering, the mature larvae cause the lower epidermis of the leaf to separate and appear whitish. If many larvae are present, this will happen to the entire leaf underside.

Many insecticides are effective to control the flies during egg-laying, and may still be effective in northern Illinois. These include carbaryl (Sevin) and labeled pyrethroids. Abamectin (Avid), acephate (Orthene), and imidacloprid (Merit and others) can be applied throughout the state in June as these systemic insecticides will penetrate the leaf tissue and control the larvae.--*Phil Nixon*

Boxwood Spidermite

We are also seeing some damage caused by boxwood spidermite, *Eurytetranychus buxi*. Initial damage appears as light green squiggles across the leaf upperside. The mites feed on both sides of the leaf and look similar to other spidermites except that they are slightly reddish and have elongated front legs. Their round, yellow-green eggs are also relatively obvious on the leaf underside as they are almost as large as the adult mites. Eggs overwinter on the leaves and hatch in the spring. They have eight or more generations through the year, but damage tends to be heavier in spring and early summer.

As the infestation grows, both leaf surfaces will become covered with brown stippling feeding damage. Severely damaged leaves will drop off of the plant. At this time, we are seeing only the early signs of feeding and have

not seen eggs or active stages of the mite. Spidermites are susceptible to fungi that specialize on attacking mites. These fungi do better under the cool, damp conditions that are also helping their plant-attacking fungal relatives be a problem to various landscape plants. As the early summer progresses and it becomes hotter and drier, keep an eye out for increased mite populations that will require control.

These mites are controlled with the same miticides used for other spidermites. These include abamectin (Avid), acequinocyl (Shuttle), bifenthrin (Talstar, Onyx), etoxazole (TetraSan), insecticidal soap, spiromesifen (Forbid), and summer spray oil. Particularly with the short-lived insecticidal soap and summer spray oil, plan on two applications 7-10 days apart. --*Phil Nixon*

Pearleaf Blister Mite

Extensive damage from pearleaf blister mites, *Phytoptus pyri*, has been reported on ornamental pears. This is an eriophyid mite that attacks not only apple and pear fruit and ornamental trees, but also other rose family trees including serviceberry, cotoneaster, hawthorn, and mountain ash.

Eggs overwinter under bud scales, hatching in the early spring. The young mites crawl to the leaves to feed. Being eriophyid mites, they are elongate, cigar-shaped mites with only two pairs of legs at the anterior end. They are much smaller than spidermites, being too small to be seen without a hand lens. They suck juices out of cells on the leaf underside, causing them to rupture. The

mites then crawl inside the ruptured cells to lay their eggs. Successive generations cause pinhead-sized pimples to form on the leaf underside that coalesce to form gall-like swellings. These appear as reddish to brownish streaks extending at angles from the midvein. Although the damage is most evident on the leaf underside, similar, lesser damage also appears on the upper leaf surface. Heavily damaged leaves curl and drop from the plant.

Unlike spidermites, eriophyid mites thrive under cool, damp conditions. This spring's weather may be the reason that more pearleaf blister mite damage is being seen. Various miticides may be effective in controlling these mites, but abamectin (Avid) is more effective than some other miticides against eriophyid mites. It is also translaminar; it moves systemically into the leaf tissue which should make it more effective than others against these mites. --*Phil Nixon*

Tick Protection

Reports from the Illinois Department of Public Health show that disease incidence from ticks has been rising over the last few years. Although the number of reported cases is a small percentage of the population, it is still important to protect yourself from these giant mites. One of the major mortality factors in ticks is losing water, so they survive better in moist conditions. The increased rainfall of the last two springs may have increased their numbers. Public health professionals have noticed an apparent increase in tick numbers this spring.

Lyme disease, which is transmitted by the deer tick subspecies of the blacklegged tick, occurs primarily in the northern two-thirds of Illinois. Reported cases in the state have climbed steadily from 35 in 2000 to 149 in 2007.

Ehrlichiosis, which is a disease with symptoms very similar to those of Lyme disease, is transmitted by the American dog tick and is primarily found in southern Illinois. Reported Illinois cases have climbed from one case in 2000 to 50 in 2007. Rocky Mountain spotted fever is transmitted by the American dog tick and reported Illinois cases have risen steadily from five in 2000 to 39 in 2007. Unlike Lyme disease and ehrlichiosis, which are bacterial diseases commonly cured with early antibiotic treatment, Rocky Mountain spotted fever is a viral disease, as are colds and flu, and has no direct treatment. Severe cases can result in death.

In recent years, deer ticks have become more common, with some areas having numbers as high as states such as Wisconsin and Minnesota that have high incidences of Lyme disease. With this increase in numbers, it is expected that Lyme disease will continue to increase in the state. Lone star tick used to be very common in the southern one-third of Illinois and was not found in the northern third of the state. It is now common throughout the state.

June is when deer tick nymphs are most abundant. The pinhead-sized nymphs are common in forested areas with abundant leaf litter, being the same habitat as native mice that are their primary host. Nymphs become infected with Lyme disease when feeding as larvae on mice. They commonly feed on mice as well as larger mammals,

including humans. They tend to crawl up to the groin where they feed. After 24 hours, they can start introducing Lyme disease bacteria into the host.

Ticks are most common in wooded areas and those with tall grass, but they can be associated with any vegetation, particularly in southern Illinois.

Landscapers should protect themselves from ticks with repellents containing DEET or picaridin which 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. 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 ticks on clothing. Wear light-colored clothes so that it is easier to see ticks crawling on them. Wearing long pants with the cuffs tucked into boots reduces the likelihood of ticks crawling up the legs. --Phil Nixon

Rotting Iris Plants

If you are seeing rotted iris plants, chances are the plants have bacterial soft rot. This bacterium, *Erwinia carotovora* is present in most soils and will invade through wounds. You have probably seen soft rot on ripe tomatoes that fell before they could be picked, or possibly you have experienced soft rot on your carrots in a plastic bag in the refrigerator. Usually you can smell the

problem before you find it. Such is the case with soft rot of iris.

Look for leaves that wilt and die from the tips toward the base. If you pull on the affected leaves, they are often rotted at the base and easily pull from the plant. There is a distinct odor of rotting plant material. Soft rot can enter the rhizomes as well, often leaving only the shell intact.

Several factors could be involved in the soft rot scenario. Wounds caused by iris borers are often the precursor to soft rot. Still, borers are not always the problem. Two years ago, I saw quite a bit of soft rot in my iris bed, possibly as a result of freeze/thaw injury in the early spring before flowers bloomed. There were no borers in my planting. Identify soft rot as the pathogen and then investigate to determine the cause of injury that allowed the bacterium to enter.

In my case the rotted rhizomes were removed, weeds cleared out to provide better air movement, and the iris bed was divided and cleaned in late July. This should be done every 3 to 5 years to reduce the incidence of soft rot. For information on how to divide iris plants, visit this extension link:

<http://web.extension.uiuc.edu/champaign/homeowners/000722.html>. The

rhizome should be just slightly exposed on the soil surface when planted correctly. Deep planting will also cause rhizomes to rot.

Iris borers can be controlled by applying insecticide in April when leaves are 5 to 6 inches tall. It would be wise to inspect rotted plants now for borers so that you can plan to use insecticides next spring.

Acephate (Orthene, Ortho Systemic Insect Killer, etc.) or disulfoton (Bayer Advance Garden, Bonide Systemic Granules, etc) will work when sprayed once at this stage of growth. Sprays are no longer beneficial for this year. --
Nancy Pataky

Juniper Tip Blight

If you are seeing discolored new growth on your junipers, it is likely that *Phomopsis* tip blight is to blame. Sprays to control this disease are made beginning when new flushes of growth appear. Repeated applications are applied until that new growth is mature.

Phomopsis twig blight of juniper is caused by the fungus *Phomopsis juniperivora*. Although *Juniperus* species are the major hosts, arborvitae (*Thuja*), cypress (*Cupressus*), and false cedar (*Chamaecyparis*) may be susceptible as well. Other conifers are occasionally infected. The disease is mainly a needle and shoot problem found in young plants and on the new growth of older plants. Low growing beds of junipers seem most vulnerable, possibly because they stay wet longer. So how do you know whether *Phomopsis* is the cause of the symptoms?

Yellow spots at the shoot tips of young needles are the first symptoms to appear. As the infection progresses into the stems, needles turn pale green and then reddish brown. Small cankers, visible as grayish bands, are present at the junction of healthy and diseased tissues. These cankers girdle small stems (less than 1/3 inch in diameter), causing tip death. Dead shoots will remain on the plant, eventually fading to

an ash-gray color. After 3-4 weeks of infection, small black spots (the fungal fruiting bodies) can be seen with the unaided eye or with a magnifying glass on the dried, ash gray parts of stems and needles. These are the diagnostic structures used to confirm the disease. Images show stem tip infection in a juniper planting and fruiting bodies on affected stem tips as viewed through a dissecting microscope (about 40X magnification).

During prolonged wet, warm periods in spring and summer (April through early June) and again in late August and September, the fungus becomes particularly infectious. It is more damaging to plants in landscape and nursery settings than it is to plants growing in the wild. Young plants and seedlings are highly susceptible and are commonly killed by the blight. This disease becomes progressively less serious as trees and shrubs grow older, and even though new growth of older plants is still susceptible, death or serious damage to a plant over five years old is much less likely.

The spores can tolerate some drying and may remain viable within diseased tissue for as long as two years. Where practical, prune out and burn, bury, or remove all blighted parts as they appear. Restrict pruning to periods of dry weather within the dry season (late June through August), to minimize spore dispersal, and also so that susceptible new growth will emerge and develop with less chance of infection. If overhead irrigation is necessary in nurseries, water in the early part of the day so plants will dry quickly.

There are several other diseases and environmental stresses which may cause similar symptoms to Phomopsis twig blight. For an exact diagnosis, samples should be submitted to the University of Illinois Plant Clinic (<http://plantclinic.cropsci.illinois.edu/>), but to help in ruling out other possible causes look for:

- 1) death of only this year's new growth (needles *and* stems)
- 2) a distinct line of demarcation between healthy and diseased tissue
- 3) symptoms on plants which have not been subjected to injury, drought, or high salt levels (in soils, irrigation water, or spray from road salts)

For more information on Phomopsis twig blight of juniper, consult [Report on Plant Disease, no. 622, "Phomopsis Twig Blight of Juniper"](#). Fungicide options include copper sulfate, mancozeb, potassium bicarbonate, propiconazole, or thiophanate-methyl. Refer to the *Illinois Commercial Landscape & Turfgrass Pest Management Handbook* or the *Home, Yard, and Garden Pest Guide* for product names. --Nancy Pataky

Invasive Species Spotlight-- Hydrilla

Last week, our invasive species spotlight focused on Brazilian elodea (<http://hyg.ipm.illinois.edu/article.php?id=46>). Like this last aquatic invader, hydrilla is an aggressive invasive plant that can rapidly displace native aquatic vegetation. In fact, hydrilla and Brazilian elodea are similar in many ways. These non-native plants form thick mats under water that shade out native vegetation, block the flow of water, and impede

fishing and recreational activities, among other things.

Hydrilla can be difficult to identify as it closely resembles both Brazilian elodea and American elodea (also known as American water-weed). These plants can be separated by the presence of tubers. Both Brazilian elodea and waterweed lack the yellowish, pea-like structures that are buried in the sediment. Hydrilla has leaves in whorls around the stem (generally 5 leaves per whorl), along the leaf edges are serrations or small spines, and the leaf midrib is often reddish when fresh. It can survive in a few inches of water or in water as deep as 20 feet.

Hydrilla can reproduce by several different methods. While seeds play a very small role in the reproductive process, it still has excellent survival and dispersal strategies. Hydrilla breaks apart very easily. In fact, it spreads to new waters mainly as fragments on

boats and trailers. These small pieces of stem can produce entire new plants. Hydrilla possesses special structures called turions (on the stems) and tubers (in the sediment). The turions break off of stems and can float long distances before sinking to start a new plant. And the tubers that help identify this invasive plant, can also lead to the production of several hundred others in the course of one growing season! These tubers create a huge challenge when attempting eradication as they can lay dormant in the sediment for several years, even if no water is present.

A great resource for hydrilla, including comparison photos of Brazilian elodea and waterweed can be found here (<http://plants.ifas.ufl.edu/node/183>).

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