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Gypsy Moth

Gypsy moth caterpillars hatch when common lilac, *Syringa vulgaris*, blooms. However, its main hosts, oaks, are typically just leafing out at that time. It is recommended to delay treatment until there is sufficient foliage expansion for sprays to have enough leaf surface to be effective.

Newly-hatched caterpillars are blackish and hairy. Once they have eaten their egg shells, they migrate to the top of the tree to feed. However, a few caterpillars stay on the leaves of lower branches, making it easier to detect infested trees. Binoculars are useful in detecting caterpillar activity at the top of trees. Within a week or so, the caterpillars grow and molt to a size and stage that is easier to detect. They are still black and hairy, but have obvious orange areas on their back. Later, they will develop the characteristic five pairs of blue and six pairs of red balls down their back.

Feeding continues through the spring. The caterpillars get progressively larger as the males go through five larval instars and the females go through six. In June to early July, the fully grown larvae approach two inches in length and migrate to pupate in protected areas. The adult moths emerge 10-14 days later.

Control Gypsy moth caterpillars with sprays of *Bacillus thuringiensis kurstaki*

(Dipel, Thuricide), diflubenzuron (Dimilin), tebufenozide (Mimic, Confirm), or spinosad (Conserve). Because Gypsy moth larvae feed primarily at the top of trees that are frequently quite tall, it is important to use equipment that will spray that high.

Systemic insecticides are attractive for the control of Gypsy moth to avoid spraying insecticide so high into the air. However, imidacloprid, sold as Merit and several other brand names, is not effective in controlling caterpillars. Bidrin, sold as Inject-A-Cide B by Mauget, is effective but is highly toxic and requires annual root flare injection. Its packaging in injectors makes it less hazardous to the applicator. Another option is acephate (Lepitect) used as a soil injection. It should take a week or two to move into the trees' foliage and should provide about a month of control.--*Phil Nixon*

Boxwood Psyllid

Boxwood psyllid, *Psylla buxi*, can be found feeding on boxwood in many portions of Illinois. Boxwood psyllids are small (1/16-inch), grayish green insects that are normally covered with a white, waxy, filamentous secretion that partially covers the body, providing protection from parasitoids and sprays of pest-control materials. Winged adults appear in late May and June. They can be

seen flying around plants. Females insert, between or under bud scales, spindle-shaped, orange eggs during early summer. Boxwood psyllid overwinters as an egg.

Eggs hatch into yellowish nymphs that begin feeding as soon as buds begin to open in early spring. The first-instar nymphs feed by sucking plant fluids from terminal leaves as they unfold and expand in spring. Their feeding causes leaves to yellow, curl, and form a cup, which conceals and protects the nymphs. There is one generation per year.

Acephate (Orthene), carbaryl (Sevin), insecticidal soap, and horticultural oil can be used for control. Particularly with insecticidal soap and horticultural oil, coverage within the cupped leaves is essential to be sure that the nymphs are directly contacted with the insecticide. Acephate and carbaryl are laminar systemics, they will move into the leaves to kill the psyllids feeding on them. --*Phil Nixon*

Hawthorn Mealybug

Hawthorn mealybug is being found in high numbers on cotoneaster in northeastern Illinois. Hawthorn mealybug, *Phenacoccus dearnessi*, is also known as two-circuli mealybug. It feeds on hawthorn, cotoneaster, pyracantha, mountain ash, amelanchier, and other rose family plants.

This mealybug is globular and red, but is covered with white wax so that the red does not show unless the wax is removed. Older nymphs overwinter in cracks in the bark. In the spring, the females move to twigs, being numerous

on the undersides. They become fully grown in late May to June. At the same time, the male nymphs that stayed in the bark crevices molt into winged adults. Mating occurs, and the females retain their fertilized eggs which hatch into crawlers which then emerge from their mothers.

These nymphs crawl onto the leaves to feed. In late summer, large numbers of nymphs form aggregations in leaf folds. They move to bark crevices to overwinter in September and October.

Eggs and crawlers have not yet been produced, but control can still be obtained with systemic insecticides such as imidacloprid (Merit, Xytech, Pointer, Imicide) or dinotefuran (Safari). Trees can be trunk injected and both trees and shrubs can be treated through soil injection. Sprays should also be effective, including imidacloprid, acephate (Orthene), and labeled pyrethroids. Be watchful for crawlers, control will be more effective then.--*Phil Nixon*

Helpful Info from NPDPN

The National Plant Diagnostic Network (NPDPN) is indeed a network of people employed at land grant universities, federal agencies (such as APHIS), and state departments of agriculture, consultants, and other stakeholders. Since 2002 this network has provided diagnosticians and clinics, such as ours at the University of Illinois, with funding for equipment, support personnel, training, and travel to training. It has provided a perfect venue for working with diagnosticians around the globe. I could go on and on about the wonderful opportunities NPDPN has provided plant

clinics, but it also has plenty to offer consultants, growers, and individuals.

The home site for NPDN is <http://www.npdn.org/>. Notice that each region can be accessed through bullets on the upper left of the page. **Many of the informational items can be found in the specific regions.** I personally find the most in the Southern region but, of course, not all applies to Illinois.

On-line **crop biosecurity modules** are offered free of charge. These modules are excellent for anyone who monitors the health of crops, diagnosticians, or students. The training helps users recognize high risk pests or select agents, establish communication with local and state “go-to” folks, and understand the goals and mission of NPDN. To take this on-line training, register at <http://cbc.at.ufl.edu> and click on “Take the On-Line Training Modules”.

Geranium and potato/tomato growers seem to have little in common. Unfortunately, they both share the threat of a devastating disease called bacterial wilt, caused by *Ralstonia solanacearum* race 3 biovar 2. Fortunately the pathogen has not become established in the US. It has made several attempts but has been thwarted by vigilant inspectors. An on-line module is available as part of a USDA-NRI project. ***Ralstonia solanacearum* race 3 biovar 2 e-learning** can be accessed as indicated for the biosecurity modules.

At a recent NPDN meeting/training, I learned of Lucid keys. These are keys to help with identification of plants, insects, pathogens, etc. Some can be purchased and some are free. You do not have to

follow a set pathway in Lucid keys. In a traditional key you might not be able to proceed on an insect ID if the antennae are missing. Lucid keys let you jump into the key at any point where you have a known character, such as wing placement. It systematically eliminates possibilities. There is an excellent **Lucid key available to help with identification of wood boring beetles.** It is a collaboration among USDA/APHIS/PPQ-CPHST, California Department of Food and Agriculture, and Montana State University. The key helps users, even non-entomologists, make accurate identifications. Give it a try at www.lucidcentral.org/keys/v3/WBB.
--Nancy Pataky

Know Your Invasives: Garlic Mustard

One of the seemingly fastest moving invasive plants in Illinois is garlic mustard. In fact, in one Illinois study, it advanced an average of 20 feet per year, expanding as much as 120 feet per year. It aggressively invades forested areas and can be found along roadsides as well. It likes shaded areas, especially disturbed sites and open woodland. Garlic mustard can quickly overtake an area, excluding other herbaceous plants.

Garlic mustard is a biennial plant, with a two year life cycle. During the first year, it grows as a seedling and then a rosette stage plant, flowering in the subsequent year. These plants can grow 2-48 inches high. The basal rosettes have dark green, kidney shaped leaves. Leaves on the second year plant are more triangular and sharply toothed. They are one to three inches long and get smaller towards the top of the stem. In Illinois, flowers occur in May. Each flower has four white petals

that narrow abruptly at the base. The plant will flower continuously at the top of the stalk. Individual plants will produce 350 to 7,900 seeds in narrow, linear capsules called siliques.

Garlic mustard can be distinguished from similar species by its characteristic garlic odor and 2-4 foot stalks with numerous white flowers.

More information on garlic mustard can be found in a pdf file from Wisconsin (<http://dnr.wi.gov/invasives/publications/pdfs/GarlicMustardHandout.pdf>), as well as at Invasive.Org (http://www.invasive.org/weedcd/pdfs/wow/garlic_mustard.pdf).

--Kelly Estes

On the Watch for Emerald Ash Borer

In the first issue of Home, Yard and Garden (<http://hyg.ipm.illinois.edu/contents.php?id=20>), Dr. Phil Nixon shared with us the latest news about the emerald ash borer in Illinois. This metallic green beetle was recently found in Iroquois county, just north of Loda. Citizens are asked to be on the lookout for this invasive pest, but do you know what you are looking for?

There are several metallic green beetles that are seen everyday during the summer months. Several are commonly confused with the emerald ash borer. The two I most commonly receive calls and questions about are the Japanese beetle and the six spotted tiger beetle. Both are similar in size to the emerald ash borer, about 3/8 – 5/8 inch long. The Japanese beetle is rounder in shape, and has bronze coloration on its elytra

as well as that metallic green sheen. The six spotted tiger beetle is close to the emerald ash borer in size and shape, but has six white spots on its elytra. For more information on these and more look-alikes, check out these links:

Native Borers and Emerald Ash Borer Look-alikes
<http://www.emeraldashborer.info/files/e-2939.pdf>

Don't be Fooled by Look-Alikes
<http://www.emeraldashborer.info/files/E2944.pdf>

And finally, it's Emerald Ash Borer Awareness week! As we start off the summer camping season this weekend, take care to remember not to move firewood and check out the firewood regulations (<http://www.emeraldashborer.info/firewood.cfm>) to make sure you're in compliance. If you have a suspect emerald ash borer or questions about any signs or symptoms (<http://www.emeraldashborer.info/files/E-2938.pdf>) you may be seeing, please contact your local extension office or myself at the Illinois Natural History Survey.--Kelly Estes

Raspberry Orange Rust

Customers growing raspberries other than red raspberry may be seeing an orange growth on the leaves now. This is a fungal disease called orange rust that infects blackberry, black raspberry and purple raspberry. Red raspberry is resistant. Raspberry orange rust should not be confused with the late leaf rust disease of red raspberries. The major symptom of raspberry orange rust is the

presence of masses of yellow-orange spores covering the lower leaf surface (see image) by late May, at least in Illinois. These spores serve to spread the disease to other plants. In addition, heavily infected leaves may die, and infected shoots will be weak, spindly and have very few, if any, thorns.

This disease is systemic, meaning the orange rust fungus invades the entire plant, reducing blossoming and fruit set. Although the pathogen does not kill plants, heavily infected plants are of no value. They will not recover; and unless destroyed, infected plants will persist as a source of inoculums, spreading the disease to other plants.

Management of this disease includes planting only healthy black raspberry and blackberry stock. Eradicate infected wild blackberries and black raspberries (including roots) near your raspberry patch. Remove and destroy infected plants as soon as they appear in the spring. Promote good air circulation by thinning healthy canes and controlling weeds. There are no effective fungicides at this time.--*Jim Schuster*

Anthracnose Update

This spring, many plants have become infected with anthracnose (refer to issues 3 and 4 of this newsletter). There are several similar fungi that cause anthracnose diseases. Most of these fungi infect foliage and overwinter on the dead leaves. However, the anthracnose fungi on oak, sycamore and dogwood trees will overwinter in bud and bark tissue. This explains why we see those hosts infected each year in Illinois.

Anthracnose fungi need wet conditions to infect and spread. Foliar symptoms include small round to irregular tan to dark brown or black spots. Symptoms vary with the host plant. The images show anthracnose on sycamore and silver maple. Spots can enlarge/merge to form blotches. Veinal necrosis (along veins) may occur on sycamores, oaks, and maples. Young leaves may die and fall soon after infection. Severe defoliation usually triggers new leaf growth. Management includes growing resistant plants when possible, sanitation and the use of fungicides (preventives only).--*Jim Schuster*