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Newsletter Update

The Home, Yard, and Garden Pest Newsletter is up and running at: <http://hyg.ipm.illinois.edu/>. If you are accessing this newsletter off of the old site's URL, realize that it is only functioning to transfer you to this new site. You should adjust your favorites menu to the above URL. You can also access this newsletter off of our IPM website at: <http://ipm.illinois.edu/>. This site has a variety of fact sheets and other information as well.

We are still working on making the new website fully functional. Past newsletter articles and search options to access them will be added. We will also be reinstating e-mail notification of new issues so keep a watch out for that option to appear on the website.

Because the newsletter is now free of charge, those who paid subscriptions will be reimbursed. That process was implemented about three weeks ago, but it can take four to six weeks or longer for processing through the University of Illinois accounting system. If your reimbursement does not arrive within the next month or so, there is a contact address on the front page of this newsletter's site. --*Phil Nixon*

Scouting Watch

In southern Illinois, as common lilac, *Syringa vulgaris*, finishes bloom, it is time to treat for lilac or ash borer, scurfy scale, and the brown race (apple race) of oystershell scale. Look for the pupal cases of the lilac or ash borer protruding from one-quarter inch diameter round holes in the trunk. Scurfy scale crawlers are purplish-red; oystershell scale produces gray crawlers which will be easily visible along leaf veins. Throughout the state, be alert for infestations of Eastern tent caterpillar. In central and northern Illinois, treatment of spruce spider mite should still be effective.--*Phil Nixon*

Gypsy Moth

Gypsy moth continues to spread and to increase in Illinois. Lake, Cook, DuPage, and McHenry counties are all under quarantine. Last year, there was heavy defoliation in these counties, particularly in the Downers Grove, Naperville, and Itasca areas. In addition, gypsy moth has been picked up in the last three years in most of the counties in the northern half of Illinois as well as in the St. Louis area. However, almost all of these catches have been individuals that do not usually indicate an infestation. A better idea of the leading edge of the infestation can be seen on the Slow-the-Spread map.

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. I have limited information on this material, but it should be effective. If you use Lepitect, let me know how successful you are in controlling Gypsy moths or other pests. It should take a week or two to move into the trees' foliage and should provide about a month of control.--*Phil Nixon*

European Pine Sawfly

European pine sawfly has hatched throughout Illinois. The larvae appear similar to green caterpillars with dark green stripes and large black heads, growing to about one inch long. They are not true caterpillars; they have more than five pairs of prolegs and develop into wasp-like adults. The larvae feed in groups near the tips of branches and lie along the needles. When disturbed, they raise their heads and abdomens in unison which serves to scare predatory birds. They feed primarily on Scotch and mugo pines.

The larvae feed on the outer portions of the needles, leaving a brown core that curls and falls off of the branch. Although they strip all of the foliage off

of branches, they are unlikely to die. The reason is that the larvae are feeding on the second and third year needles. They drop to the ground to pupate at about the same time that the new needles are emerging from the developed candles. These first year needles carry on photosynthesis and food production for the branch, keeping it healthy. With only one generation per year, those needles will not be fed upon until the following spring. However, damaged branches will be bare except for a puff of first year needles at the tip, making the tree less aesthetically pleasing.

The larvae drop to the ground and burrow into the duff. They form oblong, tan cocoons in which they pupate. They emerge as one-half inch, black, wasp-like adults. After mating, the female sawfly uses her saw-like ovipositor to make longitudinal slices in the needles where she inserts her eggs. Usually about six eggs are laid per needle with several needles attacked per shoot. Attacked needles have a series of small, yellowish spots along them where the eggs have been laid. These eggs hatch into larvae in spring.

Control can frequently be achieved through hand-picking. Because the larvae feed in groups and usually only a few shoots per tree are attacked, it may be easiest to pick off the larvae or smash them on the foliage. Sprays of acephate (Orthene), azadirachtin (Azatin), carbaryl (Sevin), or spinosad (Conserve) are effective. Because these are not caterpillars, *Bacillus thurgiensis kurstaki* does not provide effective control.--*Phil Nixon and Morton Arboretum*

Rhizosphaera and Swiss Needle Casts

Rhizosphaera needle cast is primarily a problem on landscape spruce trees, primarily Colorado blue spruce. Swiss needle cast is a common problem on Douglas-fir trees in plantations and forests, especially in wet regions. Trees planted outside their natural range, stressed trees, and wet conditions all promote more infection.

Both of these needle cast diseases are now visible. They cause discoloration (yellow then brown) of one-year-old needles and eventual defoliation (casting) of older needles. Rhizosphaera needle cast is commonly found on Illinois spruce trees and occasionally on Douglas-fir. Swiss needle cast looks almost identical but occurs commonly on Douglas-fir.

Rhizosphaera needle cast is diagnosed by the pin-head sized fruiting bodies of the *Rhizosphaera* fungus. These protrude through the stomates on the under side of the needles, appearing in neat rows. The first image shows Rhizosphaera needle cast on spruce. Pathologists also look further to confirm the disease. The spores within these pycnidia are unicellular and oval.

The Swiss needle cast fungus, *Phaeocryptopus gaeumannii*, produces similarly sized fruiting bodies in rows on the underside of needles, but on Douglas-fir. These fruiting bodies are actually pseudothecia that contain ascospores that look much different than the spores of *Rhizosphaera*. Without a compound microscope, the diseases cannot be differentiated. The

second image shows pseudothecia of Swiss needle cast on Douglas-fir needles.

Spores are released from infected tissue starting in April and continuing with wet weather. As with *Rhizosphaera* on spruce, you can protect new growth of the Douglas-fir trees from infection by the Swiss needle cast fungus. Sprays are initiated at bud break for Douglas-fir and as soon as bud caps fall off for spruce. Chemicals are repeated at label intervals until new growth is fully elongated. Products labeled for both hosts and fungi include Camelot, Chlorostar, Daconil, Echo, Kocide, Manicure, Protect, Spectro, or TwoSome. The first seven products have protective/contact mobility. Spectro and TwoSome are the only products with upwardly systemic activity. Home growers can use chlorothalonil products. Consult the *Illinois Home, Yard, and Garden Pest Guide*.

Links to information on *Rhizosphaera* needle cast are abundant. Two links to more details and images on Swiss needle cast follow:

http://www.na.fs.fed.us/SPFO/pubs/hosts/ht_df_ndlcst/ndlcst.htm

<http://www.cof.orst.edu/coops/sncc/>

--Nancy R. Pataky

Boxwood Bane

Many boxwood plants in Illinois (especially northern counties) have suffered the last two winters. I present this article as an aid, but certainly not as the answer to the problem. We have tested boxwood samples submitted to the Plant Clinic the last 15 months and have not recovered a primary pathogen to blame for the decline seen. We cannot

survey the state, but work only with what is submitted.

We have observed bronzing of foliage, dieback of stems, bark blast near the base of the plants, blackened tissue in blasted areas, and mixed reviews on the condition of roots. The stem discoloration under the bark extended all the way to stem tips on some samples. Where I have had entire plants to dissect, the wood at the soil line seems normal, without discoloration. The images show the top of a recent boxwood sample and a stem with the black discoloration described.

Some boxwood species are injured by winter winds. Bronze foliage is often the result. The problems we have seen, and those discussed with clients by telephone, have been much more severe. Entire stems have died; and in some cases plants have died.

Boxwoods do not tolerate poor drainage. Northern Illinois has been soggy for long stretches in 2008 and 2009. This alone could be part of the problem. With wet soils comes a fungal-like disease called *Phytophthora* root and crown rot. There are ELISA tests available for the *Phytophthora* genus. We have not detected *Phytophthora* in samples submitted and tested with ELISA.

Verticillium wilt may infect boxwoods. It often causes discoloration like that seen on these stems. In several cases, where fresh material was submitted, we have cultured the stems on agar that would be more likely to recover this fungus. *Verticillium* has not been found to be the cause of decline.

We have consistently isolated either *Volutella* or *Fusaria* species from affected or dead stems. Both appeared on incubated stem and leaf tissues. Both of these genera of fungi are known to invade stressed boxwood plants. There are no fungicides available for control of this problem.

Based on the samples we have received, our lab tests, and communications with other diagnostic labs, it appears that pathogens have invaded following stress. The stress could vary with the site. In some cases it could be the extreme temperature change and loss of dormancy in the winter of 2008 and 2009. In some cases water stress may be the problem. In others salt may be an issue. If more information becomes available, it will be conveyed via this newsletter.--*Nancy R. Pataky*

Arborvitae Mystery

Here is a problem we see periodically. Arborvitae plants sometimes develop areas of black foliage like those shown in the images. These images were submitted by a home owner in Sangamon County who sent them to the Sangamon regional extension office. The owner gave permission for us to use these images. Although I have seen this in the past, I did not have any images of my own.

We believe this is a physiological response to environmental stress. In other words, we don't find an infectious cause and cannot associate a specific abiotic factor to the symptoms.

We did not have a physical sample in this case. Past cases occasionally yield *Pestalotiopsis*, a fungus that is found on

injured evergreens. It is a common opportunistic fungus and not the cause of the blackened foliage. Fungicides will do nothing to improve the condition. In fact, this black foliage is not known to spread and is not a threat to tree health. It often occurs in dense areas or places where air circulation is slow. Winter injury and desiccation of foliage has also been associated with this black foliage. Sometimes root or root collar injury, root rot, or root decline are associated with this symptom. In those cases I would expect to see a general decline of the plant as well. More often, only a few isolated areas of the arborvitae are affected with this blackened foliage.

This condition has been reported by some of diagnosticians like me in Virginia, Delaware, Ohio, Indiana, Nebraska, Oregon, and North Carolina. None have associated it with a pathogen.

My advice is to wait until you are certain the affected foliage is dead. Pick a dry day and prune it from the plant. Inspect the plant for injury or signs of stress and address the stress as you are able. In dense plantings, consider pruning nearby plants to allow better air flow. Do not apply chemicals near the base of the plant. Consider supplemental watering in long periods of drought.--*Nancy R. Pataky*

Invasive Species Spotlight: Garlic Mustard

Garlic mustard is an exotic, invasive plant that was originally brought to the United States by early settlers. It is widely distributed throughout Illinois and can be found in forested areas, roadsides, and ditches.

This biennial plant produces a rosette of dark green kidney or heart shaped leaves with scalloped margins the first year of growth. The leaves emit a pungent odor when bruised. During the second year, the plant sends a 1 to 3 foot flower stalk in mid-spring. This plant is readily identifiable in mid-May in forested areas. Its stems have white flowers in small clusters with 4 petals each. Flowers turn into seeds that fade from tan to black and finally split open by mid-summer.

Garlic mustard is a very dominating plant that can establish quickly and outcompete native plants for nutrients, light, and water. Each plant produces hundreds of seeds that can be dispersed by animals, humans, and even flowing water.

Small infestations of garlic mustard can be eradicated by hand pulling plants during their first year or before seed set their second year. Also, cutting the stalk as close to the soil surface as possible as flowering begins may also be effective. Larger infestations may require chemical applications (glyphosate). Recommended treatments times are late fall or early spring as this is a nonselective herbicide and most other plants are dormant during this time frame.

For more information, stop by the Illinois CAPS blog (<http://www.illinoiscapsprogram.blogspot.com>) for all the latest news on invasive pests in Illinois.—*Kelly Estes*