



INSECTS

Bagworms

Bagworms attack a wide range of evergreen and deciduous trees. They also attack shrubs such as arborvitae, juniper, spruce, fir, pine, maple, box elder, and black locust. The young caterpillars (larvae) emerge from overwintering eggs in June and start feeding. They create a bag or pouch made of interwoven dead foliage from host plants, small twigs, and silk, and these bags cover the caterpillars for the rest of their lives. Young caterpillars are difficult to see because they blend in with plant foliage. They can be blown onto other trees by wind. Large populations of bagworms can completely defoliate plants. As the caterpillars increase in size, the bags dangle from trees like Christmas ornaments. In August, males pupate within the bags and then emerge as winged adults. It takes approximately 7 to 10 days for a bagworm to change from a pupa to an adult, depending on the temperature. The males then fly off to mate with females in bags. After mating, females remain inside bags and produce eggs. A female bagworm can lay between 500 to 1,000 eggs; then the female dies.

Management of bagworms includes physical removal and/or the use of insecticides. If small populations (less than 30 bags) are present, the bags, which hold the overwintering eggs, can be physically removed before egg hatch. Bags should be placed in a plastic container and disposed of. Insecticides should be applied about two weeks after hatching starts to allow all the bagworms to hatch and blow around. Because it appears to be an early spring, insecticides can be applied now in southern Illinois and in mid-June in central Illinois. Bagworms are not usually found in high numbers north of I-80.

Insecticides that are effective in controlling bagworms include *Bacillus thuringiensis kurstaki* (Dipel) and spinosad (Conserve). The bacterium *Bacillus thuringiensis* is effective on young caterpillars but the material must be ingested so thorough coverage of all

plant parts is essential. Spinosad works by contact and ingestion. My research with Dr. Clifford Sadof at Purdue University demonstrated that spinosad is very effective in controlling bagworms. In addition to these two insecticides, research has shown that certain species of beneficial nematodes attack bagworms. When the nematodes are sprayed onto the bags, they infect the bagworms inside. The bags provide a humid environment that is conducive to nematode activity. (Raymond Cloyd)

True White Grub

True white grub adults continue to be numerous. Although there is only one species of Japanese beetle and two species of annual white grub, there are several species of true white grub. The adults, called May beetles, typically emerge from April through June. Our most common species first appear as adults in April and May. These beetles are 1 inch long, heavy-bodied, reddish brown and dark brown. These species are still present, spending their nights feeding on tree leaves and laying eggs. These larger species typically have a three-year life cycle.

Another species of true white grub started appearing as adults in central Illinois around May 20. Some people are confusing these grubs with adult annual white grubs. These beetles are tan and about $\frac{1}{2}$ inch long. They are slightly darker in color than annual white grub adults, but otherwise look very similar.

Unlike annual white grub adults, true white grub adults feed. They feed at night on the leaf margins of oak, ash, crab apple, and other trees, and sometimes the damage can be very noticeable. During the day, when you are seeing the damage, these beetles are hiding in the thatch of turf areas. To discover the culprits, check the trees at night at about 10 P.M. A flashlight may reveal more May beetles than you ever thought were around.

Control adult May beetles with sprays of carbaryl (Sevin) or other labeled insecticides. The larvae that hatch from the eggs being laid this spring will be controlled with insecticide applications that are applied later to turf areas to control annual white grub and Japanese beetle grubs. (Phil Nixon)

Caterpillars

White-marked tussock moth caterpillars should be hatching on oak, crab apple, walnut, pecan, hickory, and other trees throughout the state. These are probably the prettiest caterpillars in Illinois, with long tufts of hairs front and rear. They have a broad yellow stripe down the back, enclosing a narrower black stripe. Within the black stripe, are short tufts of white hair and red spots, and, along the sides, there are bright blue stripes. Mature caterpillars are about 1½ inches long. They can cause considerable defoliation and will have a second generation later in the summer.

The first generation of mimosa webworm should also be appearing throughout the state. They feed on honey locust throughout the state and also on silk tree or mimosa in southern Illinois. Severely cold temperatures in the northern half of Illinois should have reduced their numbers, but this insect was numerous last summer in southern Illinois, so watch for it there. Very early damage makes leaflets glisten and shine in the light. Later, the damage turns brown. In the first generation, the caterpillars usually only web together and damage three to four leaflets, but the moths tend to lay their eggs back into the damage for the second generation. If there are many damaged areas in the tree, treatment is warranted to prevent the heavy damage likely to be caused by the second generation.

Fall webworm has two generations per year in the southern half of Illinois. Be on the lookout for the first generation, particularly in the southern quarter of Illinois. These tussock moth and webworm caterpillars can be controlled with *Bacillus thuringiensis kurstaki* as well as other labeled insecticides. (*Phil Nixon*)

PLANT DISEASES

Oak Tatters or “Bare Bones”

The Plant Clinic has seen many cases of oak tatters or “bare bones” on oaks in the last few weeks. It may not be a problem, but it looks quite bizarre. The disease affects the oak leaves, and much of the leaf is just “gone.” Only the vein tissue and a bit of leaf blade around the veins remain. They appear to have been eaten by a voracious insect that prefers non-vein tissues. The edges of the leaf that remain are often brown or thickened like a callous tissue. While some people refer to this as oak tatters, our own Bruce

Paulsrud calls it the bare bones disease.

What causes this condition? We don't know for certain, but it appears to be the result of cold injury when the leaves were still in the bud. Look closely at the leaves. The injury appears to be nearly symmetrical as is often the case with injury that occurs in the bud. Because the injury is so bizarre, many people think that herbicides are involved. We cannot perform chemical residue tests at the Plant Clinic, but the symptoms are not typical of chemical injury. In all cases where other plant materials are growing nearby, only oaks are affected. Herbicides would not be so discerning. Anthracnose is not to blame for this condition, although anthracnose fungi might also be present. I have seen many cases of this condition, and I strongly believe that oak tatters is a reaction to weather stress and nothing more.

What should the homeowner do? Try to improve tree vitality so the tree can continue to produce new leaves. Usually, this means watering the tree in periods of drought, removing dead wood, and fertilizing with a general tree fertilizer in the fall. If you have a healthy, old oak tree with these symptoms, leave it alone.

University of Wisconsin Extension has a picture of this condition on their Web site. Go to <http://www.uwex.edu/ces/pubs/hortcat.html>; then click on “Trees and Shrubs.” This picture was taken from *Deciduous Trees Disorder: Springtime Weather Injury to Foliage*, University of Wisconsin publication A2508. (*Nancy Pataky*)

Phomopsis Galls

The Plant Clinic recently received a very interesting case of galls on viburnum. We have also seen this on forsythia in past years. The galls are caused by the *Phomopsis* fungus but look very much like a systemic infection of crown gall or possibly a stem gall from an insect. If you have taken the Master Gardener classes, you know that if you cut into the gall and do not see any chambers, trails, or evidence of insect borings, disease is a good possibility. *Phomopsis*-induced galls are about 1 to 2 inches in diameter, rather round, and have a bumpy, roughened texture. They look like a cluster of nodules pressed tightly together. The gall is a mass of undifferentiated plant tissue and fruiting bodies (pycnidia) of *Phomopsis*. We did not see the fungus on the dry tissue, but the pycnidia were visible

as black, pinhead-sized dots on tissue that was incubated in moist chambers overnight.

Phomopsis galls can occur on many tree and shrub species, including forsythia, viburnum, highbush blueberry, American elm, hickory, maple, oak, and privet. Gall size varies with the host species and time. If the galls girdle the twig, dieback results. Otherwise, very little is known about the disease cycle. The only control measures we can suggest are to prune out affected or dead branches and promote tree vitality through good horticultural practices. (Nancy Pataky)

Juniper Tip Blight

Juniper tip blight is caused by a *Phomopsis* species, but not the same species that causes galling on many woody hosts. Tip blight is the most common disease of junipers in the Midwest. Most damage occurs on eastern red cedar and on creeping, Rocky Mountain, and savin junipers, but you may also see the fungus on arborvitae, white cedar, cypress, Douglas-fir, fir, yew, and larch. The newest growth is susceptible to infection and becomes resistant when needles become a normal, dark green. The growth that is now emerging is susceptible to this fungus. Infection occurs on the youngest needles, starting as yellow spots. Then, shoot tips turn light green and finally brown. Homeowners usually don't notice the problem until the appearance of reddish brown shoot tips. A grayish band is often visible at the base of the dead shoot, and pinhead-sized, black fruiting bodies (pycnidia) of the fungus are found in this band. Pycnidia are visible with the naked eye or with the aid of a hand lens. Occasionally, a stem canker is also found in association with this disease.

Infection by *Phomopsis* can occur when succulent new growth is present in wet weather. The fungus is also very persistent. Spores germinate under moderate temperatures (60°F to 82°F) and high humidity within seven hours after coming into contact with the new foliage. If the foliage dries before infection occurs, the spores are not killed; they begin growth again with wet weather. Pycnidia form three to four weeks after infection, and spores are dispersed by splashing rain. Watch for this disease soon.

Phomopsis blight can be controlled by pruning and removing infected foliage when the plant is dry and by using preventive fungicides. If you are willing to start your planting over from scratch, use resistant

varieties for the easiest long-term control. If replanting is not an option, pruning is important because the most common source of the fungus is infection from the previous year. Prune only dry foliage to avoid spreading spores and to lessen the risk of infection by other fungi. Fungicide recommendations are provided in the *Illinois Commercial Landscape and Turfgrass Pest Management Handbook, 1998–1999* and in the *Illinois Homeowners' Guide to Pest Management Report on Plant Disease* No. 622 contains more details about *Phomopsis* blight. (Nancy Pataky)

Cytospora Canker of Spruce

Although we see this disease all year, it seems most prevalent in the spring when trees are being cleaned up and recently discovered dead wood is removed. When a spruce is brought to the Plant Clinic, the only two disease concerns are *Rhizosphaera* needle cast (discussed in issue no. 3, 1999) and *Cytospora* canker. Both are fungal diseases, and both can be identified without the aid of a lab.

Colorado blue and Norway spruce, especially 10- to 20-year-old trees, are very susceptible to *Cytospora* canker. Look for dead or dying branches, usually starting at the base of the tree and moving upward, at a rate of one or two branches per year. Occasionally, affected branches are scattered throughout the tree. Needles may drop from affected branches early or they could hang on for several months, leaving dry, brittle twigs. *Cytospora* canker can continue to spread until all branches or even the entire tree is dead. A white, sappy resin is usually associated with cankered branches. Look for this resin at the base of the branch or at axils of smaller branchlets. When the bark is cut away, the wood beneath it will be brown (dead), indicating infection by the fungus. Black, pinhead-sized fruiting bodies (pycnidia) of the fungus form in the inner bark, often embedded in the resin, but they can be very difficult to find without the aid of a dissecting microscope. Because the girdling canker kills the branch, the entire branch dies from tip to base.

Cytospora, like most canker diseases, is considered a stress pathogen, meaning that the fungus only infects trees under stress. Technically, such a tree is one that is not growing under ideal conditions. Stress factors could include a limited root zone, moisture extremes, root compaction, chemical injury, nearby

construction, insect or mite problems, and more. There are no magical fungicide cures for this disease. Disease management should focus on determining the source of stress and then trying to alleviate it. At the very least, remove dead wood, water the tree in periods of drought, and fertilize in the fall.

How do you determine whether a tree is infected with Rhizosphaera needle cast or with Cytospora canker? Look at the overall damage pattern. Rhizosphaera occurs on scattered branches on the tree, while Cytospora tends to occur on lower branches and move up the tree. Also look at the pattern on a single branch. Rhizosphaera affects newest needles last; Cytospora girdles the stem, causing newest needles to turn brown first. Finally, look for resin, which is present with Cytospora but not with Rhizosphaera. For more information on Cytospora canker of spruce, consult *Report on Plant Disease* No. 604. (Nancy Pataky)

Home, Yard & Garden Pest Newsletter is prepared by Extension specialists from the University of Illinois at Urbana-Champaign and the Illinois Natural History Survey. Information for this newsletter is gathered with the help of staff members, Extension field staff, and others. Karel Jacobs and Donna Danielson of The Morton Arboretum also provide information and articles.

Major authors are Phil Nixon, (217) 333-6650, Fredric Miller, (708) 352-0109, Raymond Cloyd, (217) 244-7218, entomologists; Nancy Pataky, plant pathologist, (217) 333-0519; and Tom Voigt and David Williams, horticulturists, (217) 333-0350. Phil Nixon is the executive editor of the Home, Yard & Garden Pest Newsletter. This newsletter is written by faculty in the Department of Natural Resources and Environmental Sciences and the Department of Crop Sciences. The newsletter is edited by Phyllis Picklesimer, typeset by Oneda VanDyke, and proofread by Erin Cler, all of Information Technology and Communication Services.

For subscription information, phone (217) 333-2666 or (800) 345-6087, or e-mail acesnews@uiuc.edu. Web subscriptions are available (<http://www.ag.uiuc.edu/cespubs/hyg>).

State • County • Local Groups—U.S.D.A. Cooperating
The Cooperative Extension Service provides equal
opportunities in programs and employment.



College of Agricultural, Consumer and Environmental Sciences,
University of Illinois at Urbana-Champaign



Return Services Requested

NEWSLETTER SERVICES
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN
69 MUMFORD HALL
1301 WEST GREGORY DRIVE
URBANA IL 61821

Presorted First Class
U.S. Postage Paid
Permit #75
Champaign, IL