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INSECTS

Zimmerman Pine Moth

This is the time to be on the lookout for Zimmerman pine moth, *Dioryctria zimmermani*, larvae (caterpillars) actively crawling on the bark of trees. The larvae are highly exposed and susceptible to an insecticide spray, which provides an opportunity to kill the larvae before they enter the overwintering stage. Zimmerman pine moth larvae feed on all pines, especially Scotch and Austrian. Larvae bore into trees and create masses of pitch at branch whorls on the trunk or on shoots near the terminal leader. These pitch masses may resemble galls. The larvae can kill terminal leaders; heavily infested terminals curve downward, resembling a fishhook. Repeated attacks by larvae can cause tops to break off, making the tree unsalable. Young trees are more susceptible to attack from the larvae, possibly due to the stress from transplanting.

Zimmerman pine moth adults are gray, with a 1- to 1-1/2-inch wingspan. The forewings are gray, mottled with a zigzag line pattern of red to dark gray, whereas the hindwings are pale yellow. The adults are active at night from mid-July to mid-August in most of Illinois and can live from 3 days to 2 weeks. Males and females are similar in size and color.

Female moths lay between 20 to 30 eggs underneath bark in the whorl region of trees. The eggs hatch in early August to early September into reddish brown larvae with dark brown heads. The young larvae, about 1/16 inch long, are very difficult to see with the naked eye when they first hatch. The body is covered with small black dots, each containing a single bristle. Larvae are about 3/4 inch long when fully grown. They are generally located at the base of terminal buds or under bark flakes. Young larvae are active on the outside of the tree in mid-August. From late summer to early fall, the newly emerged larvae feed on the bark and base of buds. The larvae overwinter in bark crevices in silken webs, forming what is referred to as a "hibernaculum." They emerge from these hibernacula in early April and crawl around on the bark before boring into the shoots and stem. The pupae—brown initially, turning to black—are found

in shoots and pitch masses from mid-July to late August. There is one generation per year in Illinois.

Management of Zimmerman pine moth involves sanitation and the use of pest-control materials. On Christmas-tree plantations, scout regularly by visually inspecting a random sample of trees for the larvae and (later) for pitch masses on the main stem or terminal leader. Prune out damaged wood and injured shoots, or remove trees that are showing visible symptoms of Zimmerman pine moth damage. The pest-control materials chlorpyrifos (Dursban) or dimethoate (Cygon) can be used to control the larvae by spraying the bark and foliage in mid- to late August. Spray applications should be made again next year in April when the larvae leave the hibernacula and crawl across the bark before boring into the trunk or shoot. The best time to control Zimmerman pine moth is the caterpillar stage before it enters the bark. High-volume sprays should be used to drench the stem and bark, as a thick canopy of pine needles may prevent sprays from reaching the trunk.

Although Zimmerman pine moth larvae are susceptible to natural enemies, including parasites and predators, their numbers are not sufficient to impact the population and prevent damage. Planting resistant varieties of Scotch pine (such as the short-needed varieties from Greece, Turkey, and west and south Eurasia) may be a long-term alternative to minimize problems with this pest. (*Raymond Cloyd*)

Strawberry Root Weevil

Strawberry root weevil, *Otiorhynchus ovatus*, adults are numerous in landscapes and houses in many areas of the state. The adult beetles are about 3/16 to 1/4 inch long, with a somewhat bulbous abdomen and a head that narrows into a broad muzzle. Most are black, but brown individuals are common.

Adults start emerging from the soil in June but become noticeable again in late July and August. They feed primarily at night for 10 to 14 days before laying eggs. Adult feeding damage is very noticeable on various flowers, such as rose, black-eyed Susan, coralbells, azalea, rhododendron, and trumpet creeper. They chew even notches about 1/8 inch across in the margins of flower petals and leaves. Where adults are common, additional notches may be chewed at the edge of previous damage, resulting in more severe

injury. Rose leaflets may be eaten to the midvein; rose petal damage commonly extends 1/4 inch or more into the petal. In addition, the beetles tend to hide among the rose petals, further damaging the bloom's appearance with their presence and black feces.

They also feed on arborvitae, other conifers, grasses, brambles, cucurbit and crucifer vegetables, and many deciduous trees and shrubs. On arborvitae, the beetles girdle the twigs of terminals and eat the younger foliage. The adults are long-lived, with some individuals living through the winter. These beetles also enter buildings, where they may be found wandering about indoors throughout the winter.

Flightless, the adults lay eggs near the vicinity of summer feeding damage. Larvae feed on roots of many of the hosts listed earlier. Root feeding by the grubs kills hemlock seedlings. Fully grown larvae or grubs are about 3/8 inch long. They are white, legless, and thick-bodied, with a brown head.

This insect is difficult to control in the larval stage, partly because it is difficult for an insecticide to be effective deeper in the soil, where many of the larvae feed. Insecticides tend to move slowly through the soil, binding to organic matter and losing effectiveness. The wide host range of the grubs also makes control difficult. One would end up treating almost the whole landscape, with a relatively low level of control. Hb nematodes, *Heterorhabditis bacteriophora*, have been shown to be effective. These searching nematodes burrow through moist soil, seek out, and kill the root weevil larvae. Their cost reduces their usefulness except in small areas or valuable crops, such as seedling beds or nurseries.

Feeding adults can be controlled with acephate (Orthene) or bifenthrin (Talstar) by spraying the foliage. Avoid spraying blossoms because these insecticides are toxic to bees and other pollinators. Typically, there is enough feeding on the foliage of attacked plants to obtain control. If you still have bendiocarb (Turcam), it controls adults on the foliage, and what drips to the ground controls the larvae.

Nonfeeding adults, particularly those entering houses and other buildings, are not easily controlled with insecticides. Caulking cracks and crevices along the foundation and making sure that door thresholds fit tightly are the most effective measures. Removing bark mulch and fallen leaves along the foundation reduces beetle hiding places and reduces the number next to the house. Indoors, vacuum or hand-remove individuals as they are found. (*Phil Nixon*)

Spider Wasps

Spider wasps, family Pompilidae, are common on flowering plants in landscapes. Common species are

long-legged, elongate but not slender; and they have dark blue to black transparent wings. Some species have white, orange, red, or blue markings, but the most common in Illinois are all black or bluish black. They range in size from 1 to almost 2 inches long.

These adults feed on flower nectar, making them common on blooming flowers and shrubs. They are unlikely to sting but probably would if handled roughly. On numerous occasions, I have been in their midst engaged in close-up photography and insect collecting without being stung or even seriously bothered.

They are called spider wasps because the adult females collect spiders, sting them, and provision their nests with them. Nests are usually underground but can be in rotten wood or made of mud. Larvae are white and legless. They feed on the paralyzed spiders.

Although intimidating, these wasps are not dangerous. Do not spray blooming plants, to avoid killing important pollinators. If a plant is attracting spider wasps and intimidating people nearby, removing the blooms should cause the spider wasps to leave. Spider wasp burrows are not noticeable and dug in public areas like those of the cicada killer, so burrow treatment is rarely needed. (*Phil Nixon*)

Robber Flies

Robber flies, family Asilidae, are common on flowering plants. These flies appear larger than they are due to their long legs. They are about 1 inch long and usually tan, with large, bulging eyes on a triangular face. Their wings are transparent.

These are predatory insects, frequently seen on or near blooming plants, where they fly out and capture bees, flies, and other visiting insects. They are not dangerous to people, but their large size and quick flights can be intimidating. It would be difficult to control them with insecticides because they are not feeding on the plant—they are using the flowers to attract prey for them. In addition, to avoid killing pollinating insects, one should not spray blooming plants. Spraying the plants kills many more pollinators than the robber flies eat. If necessary, removing the blossoms would probably cause the robber flies to leave.

Robber fly larvae are beneficial. They live in the soil, where most species feed on white grub larvae and pupae. Some species' larvae feed on grasshopper eggs. (*Phil Nixon*)

PLANT DISEASES

Plant Clinic Closing—It's That Time Again!

It's hard to believe that the summer is nearly over, but there's no stopping it. The University of Illinois Plant

Clinic is a seasonal operation. We close for the fall/winter on Friday, September 14—still time to send in that nagging plant problem or a sample of a declining plant that has been bothering you. Samples received by September 14 will be completed, but nothing will be started after that date. This is a firm deadline. We will open May 1, 2002, ready to face another exciting year of new challenges.

If you have a plant problem after the closing date, contact your local Extension office. If you are the Extension personnel or otherwise need help from a specialist, the following persons may be available for telephone questions. *Do not* send samples to these specialists unless the specialist requests them. There is no lab service after September 14. (Nancy Pataky)

Problems with Ornamental Plants

Insects: Phil Nixon, 333-6650; Raymond Cloyd, 244-7218

Diseases: Nancy Pataky, 333-2478; Bruce Paulsrud, 244-9646

Trees/shrubs: David Williams, 333-2126

Turf: Tom Voigt, 333-7847

Herbaceous plants: Jim Schmidt, 244-5153

Nematodes: Dale Edwards, 244-2011

Problems with Fruit/Vegetable Plants

Insects: Rick Weinzierl, 333-6651

Diseases: Mohammad Babadoost, 333-1523

Vegetable production: Chuck Voigt, 333-1969

Food crops: Mosbah Kushad, 244-5691

Nematode problems: Dale Edwards, 244-2011

Weed control: John Masiunas, 244-4469

Brown Patch of Turf

We have been seeing cases of brown patch in home lawns lately, including my own. Weather conditions in many parts of Illinois have been conducive to its development. This fungal disease is caused by a *Rhizoctonia* species. It commonly occurs in hot, muggy weather when night temperatures are at least 70°F and daytime temperatures are in the 80s and 90s. It is favored by heavy rains or watering and by grass that is dense and at least adequately fertilized.

Brown patch is easier to diagnose in the field than in the lab. Symptoms usually stand out most vividly in hot, moist, overcast weather. The disease appears as patches, up to 2 or 3 feet across. The patches may be a dark blue color initially, as though under drought stress. The color quickly changes to purple-brown and then light brown. The patches may develop green centers and resemble summer patch and necrotic ring spot. In light infections, the turf generally recovers in 2 or 3 weeks. When the attack is severe, the crowns,

rhizomes, stolons, and roots may turn brown and rot, causing turf to be thinned or killed in large areas.

Cultural practices for brown patch are listed in *Report on Plant Disease (RPD)* no. 411, "Rhizoctonia Diseases of Turfgrasses," available on the VISTA Web site or in Extension offices. Once the disease occurs, chemicals may keep it from spreading, but long-term control requires following cultural recommendations. Chemical options are listed in the *Commercial Landscape and Turfgrass Pest Management Handbook* or the *Home, Yard, and Garden Pest Guide*. Read the label on the selected product for recommended formulation, rates, and timing for your particular turf conditions. Because such applications usually require sprays at 5- to 14-day intervals throughout the summer, fungicide control of brown patch is usually reserved for golf courses. Products are not always available in quantities suitable for homeowner use. For a severe infection in a home lawn, rake and remove the dead areas, follow cultural recommendations in the *RPD*, and re-seed with a blend of resistant turf grasses suitable for the light requirements of the lawn. Now is a great time to get out there and do the raking and seeding. (Nancy Pataky)

Phytophthora Root and Crown Rot of Rhododendron

It has been said that the two most limiting factors to healthy rhododendron growth in Illinois are clay soils and *Phytophthora* root rot. Actually, the two usually go hand in hand. *Phytophthora* is an oomycete fungus, a water mold requiring free moisture to infect. *Phytophthora* species causing root rot of rhododendron are soil-borne. It seems odd that we might see this disease in a year of drought, but irrigation can also supply too much water and create conditions conducive to infection. Because clay soils hold moisture longer than other soil types, plants growing in clay soils provide more opportunities for *Phytophthora* to infect. Often the top several inches of our lawns is rich topsoil. Unfortunately, many of us have a clay subsoil that is in the root zone of shrubs and trees. If we dig and prepare a nice planting hole (a million-dollar hole) and it is enclosed in clay, drainage problems and this root rot still occur. Site preparation includes ensuring drainage away from the roots. Plants that were under other environmental and site stresses also are more susceptible to infection.

Symptoms of root rot include dull green leaves that may turn yellow and roll. Leaves may wilt but usually remain attached for up to 2 weeks after plant death. Healthy roots are white inside, whereas plants with *Phytophthora* are reddish brown. Plants may die in as little as 2 weeks from symptom initiation.

Although there is some resistance available to this root rot, most rhododendron cultivars are susceptible. Drs. Hoitink and Schmitthenner at the Ohio State University found the most resistant hybrids in their trial to be Caroline, Professor Hugo de Vries, and Red Head. They reported that Purple Splendor was one cultivar more susceptible to *Phytophthora* root rot. Keep in mind that even resistant plants let the fungus develop, so good drainage and correct soil pH are extremely important to long-term health for rhododendrons in Illinois. Established plants diagnosed with *Phytophthora* root rot can be treated with a fungicide as a drench around plants to saturate the soil. Applications must be repeated at 3- to 12-week intervals in spring and fall. With some fungicides, granules can be blended into the soil before planting. In most cases, fungicides are used to protect plants near one that has died from the disease. Refer to the *Home, Yard, and Garden Pest Guide* or *Illinois Commercial Landscape and Turfgrass Pest Management Handbook* for chemical options. Read labels carefully for rates, warnings, restrictions, timing, etc.

To avoid this problem, choose your planting site carefully. It must be well drained and protected and have an acidic soil pH. The pH level could be the most difficult requirement here because most Illinois soils are very alkaline. Choose your cultivar to suit your site needs, but try to find one with resistance to *Phytophthora*. Consult *Dwarf Shrubs for the Midwest*, U of I ACES special publication 60/NCR 469, for specific instructions on lowering the pH for rhododendron plants. Did you know that you should not use

aluminum sulfate to acidify the soil because aluminum is toxic to rhododendrons and azaleas? Or that iron sulfate is not recommended during the initial soil preparation because it can cause a salt buildup? Before you get your rhododendron bed ready, read SP 60/NCR 469, available in Illinois Extension offices and from ACES Marketing and Distribution, 800-345-6087. Information on *Phytophthora* root rot of rhododendrons and azaleas is in *Report on Plant Disease (RPD)* no. 664 on the VISTA Web site or in Illinois Extension offices. (Nancy Pataky)

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