



## INSECTS

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### Gypsy Moth

Gypsy moth is becoming more numerous in northeastern Illinois. Infestations have risen high enough in Lake County, the most northeastern Illinois county, that it is in the process of being quarantined. The quarantine will restrict the movement out of the county of nursery stock, firewood, household belongings, and other materials.

Lake, Cook, and DuPage counties, including Chicago, and many suburban areas may contain too many gypsy moths for meaningful eradication efforts. The southwestern portion of DuPage County, including Naperville and some nearby townships, has low enough numbers for trapping and eradication efforts to continue.

The Illinois Department of Agriculture (IDA), in cooperation with the USDA Animal and Plant Health Inspection Service, USDA Forest Service, and local groups, has operated an eradication program in Illinois since the 1970s. The program has reduced tremendously the amount of tree injury that would have occurred due to gypsy moth and the amount of insecticide that would have been used to control the insect in Illinois during that time. Their aggressive program in detecting, delineating, and eradicating small, pioneer populations of gypsy moths has been copied by many other states, and Illinois residents should be very proud and appreciative of its activities.

However, over the last decade, a long-standing infestation in central Michigan has spread to include much of southwestern Michigan with relatively high numbers of gypsy moth. Strong evidence exists to suggest that caterpillars have blown across Lake Michigan into Illinois and Wisconsin, particularly in Door County, Wisconsin. Increased appearance of gypsy moths in northeastern Illinois, due to influx of gypsy moth from Michigan, Wisconsin, and other areas by natural and incidental human activities, has resulted in the establishment of this insect in parts of Illinois.

In response, IDA has had to change its approach to a program called "Slow the Spread." This involves the reduction of pheromone trapping and eradication activities in areas such as Lake, Cook, and most of DuPage counties, where gypsy moth numbers are too high for eradication to be practical. It allows the concentration of financial resources and personnel efforts on detection and eradication of gypsy moth in Illinois outside of that area. IDA remains committed to assisting local residents, governmental units, and community groups in suppressing and locally eliminating gypsy moth infestations in Lake, Cook, and DuPage counties but is unable to totally fund and execute these programs.

Residents, landscapers, governmental units, and others who wish to provide their own control efforts directed at gypsy moth are free to do so in Lake, Cook, and most of DuPage counties. IDA is very interested in finding out where these activities occur and where infestations of gypsy moth are located in these counties and anywhere else in Illinois. Contact the IDA office in Des Plaines at (847)294-4343, or contact your local University of Illinois Extension office and they will contact IDA. Again, IDA is willing to assist in control efforts in these three counties but recognizes that others are able to respond quickly to infestations and provide quality control as well.

At this point, gypsy moths have laid their egg masses, and most of the adult moths have died. The egg masses are about 1 inch long by 1/2 inch wide and look like buff to tan felt patches. Females lay egg masses on tree bark and other exposed surfaces but also commonly underneath loose bark, beneath house siding, within hollow areas of swing sets, in car wheel wells, and in other hidden locations. Egg masses should be scraped off and dropped into rubbing alcohol or soapy water. Dispose of them in the trash.

Next spring, the eggs hatch, with spray applications most effective when the oak leaves are expanded about halfway. In northeastern Illinois, this is usually in mid-May. Effective insecticides against the larvae

include *Bacillus thuringiensis kurstaki* (Dipel, Thuricide), cyfluthrin (Tempo), diflubenzuron (Dimilin), tebufenozide (Mimic), and many others. (Phil Nixon)

### White Grubs

Annual white grubs and Japanese beetle grubs have hatched. As of August 2, the grubs were still small, less than 1/4 inch long in central Illinois, which indicated that hatching was probably still occurring. With the emergence of adult beetles in northern Illinois at about the same time as in central and southern Illinois this year, the grubs should be about the same size throughout the state. We are finding irrigated turf areas containing 20 grubs per square foot. Damage is likely with 10 or more grubs per square foot, so insecticide application is warranted in watered turf.

Imidicloprid (Merit) or halofenozide (Mach 2) can still be applied through about August 12. The grubs should be killed before causing any obvious damage. For home turf, diazinon can be applied at this time. With its month-long residual control, it should effectively control even late-hatching eggs. Trichlorfon (Dylox, Proxol) kills grubs quickly but has a short residual. All of the grub eggs should be hatched by August 10, so applications of trichlorfon after that date should provide complete control as well. (Phil Nixon)

## PLANT DISEASES

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### Current Turf Disease Problems

Based on Plant Clinic telephone queries and samples, and comments from turf specialists, the common turf diseases on home lawns currently include red thread, rust, and dollar spot. All of these diseases are easy to identify, not requiring the help of a diagnostic lab, microscope, or magic wand. You will find that management options involve many of the same practices.

We discussed *red thread* in issue No. 5 of this newsletter. In the morning dews of the week of August 1, the coral-pink threadlike masses on the grass blades were very noticeable. Pathologists particularly enjoy this sight because the mycelium and sclerotia (resting stage) are so distinctive. The disease does not usually kill plants but will predispose them to other problems. Hosts include Kentucky and annual bluegrasses, fine-leaved fescues, perennial ryegrass,

and bentgrass. Look for this disease to cause pinkish patches 2 to 12 inches wide. The patches can merge to cause larger scorched areas with a reddish brown cast. Cut and remove grass clippings until this disease is under control, use a balanced fertilizer program, and water during drought stress. Reseeding with resistant varieties should be done at the end of this month. Red thread is discussed in *Report on Plant Diseases* No. 413.

*Rust* is another common turf disease that is currently turning many heads and coloring many white shoes orange. All turfgrasses can be infected with rust fungi, but Kentucky bluegrass, perennial ryegrass, tall fescue, and zoysiagrass tend to be most susceptible. Early symptoms of rust diseases include light yellow flecks on leaves and stems, giving the lawn a yellow cast. The leaf tissue ruptures as these yellow spots and spores of the fungus are produced. The pustules may be yellow, orange, brown, or red. The spores rub off easily on hands, shoes, clothing, and animals. Often the disease is not noticed until you mow the lawn and see that your white shoes are covered with a dusty coating of rust-colored spores. This is usually when we get the telephone calls at the Plant Clinic.

Severely infected turf appears thin and tinted yellow, red, or brown, depending on the fungus and time of year. The turf becomes weakened, unsightly, and more susceptible to injury from environmental stress and other disease pathogens. Grasses growing slowly under stressful environmental conditions are most susceptible to rust, particularly when water, fertility, and soil compaction are inadequate for good growth. Varieties with resistance to susceptibility to rust exist. We could provide a list of these varieties, but that won't help unless they are available in your garden center. I prefer to look for varieties available for sale and see what disease resistance is advertised with them.

Management measures should target stress areas. Leaf wetness is required for infection, so it is important to water early in the day so the turf can dry before night. Water turf infrequently but to a depth of 6 inches or more at each watering. Avoid frequent, light sprinklings. Fertilize to keep the grass growing about 1 inch per week in summer and early fall droughts. Use balanced fertilizer. Do not apply excessive nitrogen. As the grass grows, it pushes rust-infected leaves outward, making it easy to mow and remove infected blades. Be sure to catch these clippings and remove them from the area, just as you would do with red thread. Mow regularly to remove infected leaf

tips, but avoid mowing below the recommended height for the particular turf species. Prune surrounding trees and shrubs to improve light penetration and air circulation around densely shaded areas.

If the lawn is badly infected or the combination of rust and other stress produces a poor lawn and forces a renovation, it is ideally done in mid- to late August. Use a blend of turf cultivars with resistance to rust, as listed in *Report on Plant Diseases* No. 412 or check with your garden center. Preventive fungicides are available but offer only a temporary solution. Check the usual pest-control handbooks for registered chemicals.

The other turf disease common at this time is *dollar spot*. This fungal disease infects creeping bentgrass, Kentucky bluegrass, annual bluegrass, and fine-leaf fescues. Even Bermuda grass and zoysia grasses can become infected. The disease appears as roundish, brown spots in the lawn. Initially, spots are silver dollar size (thus the name), and later they may enlarge to as much as 4 to 8 inches in diameter. Merged spots could affect a larger area. The affected area will eventually turn straw colored and will appear sunken in the lawn.

This disease is easy for the layman to identify. A quick and rather good diagnostic guide involves the appearance of the leaf lesions (dead areas on the leaf). Look for these on plants at the edge of the sunken areas. The lesions girdle the blade, may be up to 1 inch long, and are usually bleached white to light tan, with a dark-brown, reddish-brown, or purplish border. When dew is present on the blades of grass on overcast days or early in the morning, a white cobweb-like growth of mycelia may be seen on infected plants. The disease appears in warm (60°F to 85°F), wet, and humid weather, especially in lawns that are low in nitrogen. Control measures include maintaining balanced fertility, avoiding late-afternoon or evening watering, providing good air circulation in the area by pruning surrounding plants, providing adequate surface drainage, mowing at the maximal height, and using resistant cultivars of grass. Chemical options can be used on a preventive basis but are generally used only on golf courses or high visibility areas. Refer to the *Illinois Homeowners' Guide to Pest Management Handbook* or the *Illinois Commercial Landscape & Turfgrass Pest Management Handbook 2000* for chemical options. Also refer to *Report on Plant Diseases* No. 407 for details on the disease, pathogen, and management options. (Nancy Pataky)

## Chlorosis on Trees

*Chlorosis* is the name we give to yellowing of plant foliage due to a lack of chlorophyll development. If the chlorosis is due to a lack of iron, we call it *iron chlorosis*. Often, the term *iron chlorosis* is used improperly to refer to general chlorosis. To make the correct management decision to treat the chlorosis, it is important to accurately identify the cause of the chlorosis. Conditions that can induce chlorosis include soil compaction, poor drainage, nutrient deficiencies (especially micronutrients), high pH soils, root injury, flooding, and drought.

In Illinois, iron chlorosis is common on many tree species, most commonly pin oak, sweetgum, maple, and birch. In most cases, the soil has plenty of iron for tree growth, but our high pH soils bind up the iron and make it unavailable to the roots. Iron is available to plants only as the Fe<sup>++</sup> ion and is available in that form only when soil pH is between 5.0 and 6.5. Soils with high levels of zinc, manganese, or copper also aggravate the iron chlorosis problem. This is the case with large amounts of limestone or ash, a deficiency of potassium, or excessive applications of fertilizers high in phosphorus.

As chlorosis intensifies, we see brown speckling of the leaves, then totally necrotic leaves, branch tip dieback, and eventually death of branches and even mature trees. The process is a slow one, taking several years before dieback occurs and branches die. I've been watching the slow demise of many pin oaks with chlorosis in central Illinois for the last 12 years.

We have seen more than the usual amount of chlorosis on trees this summer. Some of the chlorosis may be the result of wet soil conditions, which cause root injury and thus inhibit uptake of nutrients. Many of the cases we have seen at the Plant Clinic are on oaks, birch, and sweetgum.

Why is the situation worse this year, and why does a tree that has grown apparently unaffected for 15 or 20 years start to show chlorotic symptoms? Iron chlorosis seems to occur when roots grow into an area of high pH such as around the foundation of a building, the area under a sidewalk, a gravel parking lot or driveway, or many other alkaline sites. This can explain why an older tree would start to show symptoms. Logically, any factor that affects root health could cause a nutrient-uptake problem. This year we've had an abundance of rain, often in flooding quantities. Such conditions rob soil of oxygen,

causing root injury and inefficient nutrient absorption. Obviously drought stress can also injure roots.

What can be done to remedy the situation? Any of several treatments can be used for iron chlorosis, depending on the intensity of the problem, the age of the tree, the pH of the soil, and site restrictions. Suggestions for attacking the chlorosis problem are discussed in *Report on Plant Diseases* No. 603, Iron Chlorosis of Woody Plants: Cause and Control, or "Horticulture Facts" NC-3-80, Iron Chlorosis of Woody Plants: Symptoms and Control. For many trees, especially shallowly rooted trees, it would help considerably to water in periods of drought lasting 2 weeks, remove dead wood in the tree to promote vitality and avoid wood rots, and fertilize in the fall with a balanced tree fertilizer. For details, see the references listed. The *Report on Plant Diseases* is available on the Web at <http://www.ag.uiuc.edu/~vista/horticul.htm>. (Nancy Pataky)

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