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Monthly Issues

This is the last biweekly issue of the *Home, Yard & Garden Pest Newsletter* for this year. There will be two more issues, one in late October and one in late November. The October issue will contain winter meeting announcements as well as pest information. November's final issue will contain the index of this year's articles. You will probably receive a brochure during the fall for subscribing to next year's newsletter. Thank you for your interest and support. (*Phil Nixon*)

INSECTS

Pine Shoot Beetle Update

Pine shoot beetles, *Tomicus piniperda*, are native to North Africa, Europe, and Asia. They were first discovered in Ohio in July 1992. This beetle was considered a minor or "regulatory" pest when it attacked Christmas trees in the Great Lakes region. As a result, strict quarantines were established to restrict the movement of the beetle and infested material. However, it appears that the beetle is spreading outside the suspected quarantine zone into Canada.

Pine shoot beetle adults overwinter in the bark at the base of pine trees. They emerge in early spring and fly to newly killed or cut pine trees, stumps, logs, and pine slash. Adult females lay eggs beneath the bark. Larvae that emerge from eggs feed and develop within the sapwood. Adults emerge in early summer and feed in tunnels in shoots of live pines after which they move to overwintering sites before the onset of winter. The beetle's impact depends on adult numbers and management of Christmas tree plantations.

Surveys have been conducted in the United States and Canada since 1993. In summer 1998, pine shoot beetles were captured in two traps in Quebec. These were the first catches since the trapping program started in 1993. In addition, 24 counties in Quebec were found

infested with this beetle. In North America, pine shoot beetles were reported attacking Scots, red, white, and jack pine. Tree susceptibility to attack by pine shoot beetles may be influenced by drought, disease, overstocking, and poor management practices (that is, slash left on the ground). These factors, along with the ability of adult females to reproduce more than once, may have led to high beetle populations. The beetle's potential spread into northern, western, and southern pine forests is a major concern.

Surveys this year have found pine shoot beetles in seven regions of Quebec. In the United States, the USDA Animal, Plant, Health, Inspection Service (APHIS) has surveyed Maine, Vermont, and New Hampshire. Pine shoot beetles were detected in two Vermont counties and in one county in New Hampshire. These new infested areas are not near the Great Lakes region, which is the center of pine shoot beetle infestations.

Pine shoot beetles have been found in 25 counties in Illinois, including Woodford County, where they were detected by the APHIS trapping program this year. The complete list of infested Illinois counties includes Boone, Bureau, Champaign, Cook, DeKalb, DuPage, Grundy, Iroquois, Kane, Kankakee, Kendall, Lake, LaSalle, Lee, Livingston, McHenry, McLean, Ogle, Piatt, Putnam, Stephenson, Vermilion, Will, Winnebago, and Woodford. Indiana now has 45 infested counties, and Wisconsin has three known infested counties.

In response to survey findings, APHIS and Canadian regulatory agencies are promoting research on the biology of the beetle and reviewing current survey methods. In addition, APHIS and agencies in Canada are trying to establish cooperative programs to strengthen pine shoot beetle regulations. They are currently determining regulatory windows to restrict commodity movement. This involves examining the life cycle of the pine shoot beetle to determine how it is influenced by different geographic locations.

APHIS and Canada are also evaluating the current compliance program. The compliance program has been effective with nursery stock and Christmas tree farms, but there are several concerns. First, lack of intensive management in forests and woodlots results in the

presence of logs with bark, which act as a reservoir for pine shoot beetles. Second, logging procedures that allow fallen logs and slash to be left on the ground attract pine shoot beetles and may act as breeding sites. Finally, the difficulties of regulating the movement of logs may increase the spread of the pine shoot beetle beyond the infestation area.

Part of the information for this article comes from the United States/Canada guidelines for pine shoot beetle surveys, August 10, 1999. (*Raymond Cloyd and Charles Helm*)

Cottonwood Leaf Beetle Larvae

Cottonwood leaf beetle larvae are present on poplar leaves at The Morton Arboretum. These larvae can be serious leaf skeletonizers of poplars, cottonwoods, and willows, although they have a lot of natural enemies, such as lady bugs, ants, spiders, and lacewings. All stages—eggs, various larval stages, pupae, and adults—are present. Cottonwood leaf beetle larvae are about 1/4 inch long. They are pale yellow with tiny black spots when they are fully grown, and they have small, white bumps along their sides. The four white bumps closest to its head are large scent glands, which secrete a foul-smelling fluid that repels predators. Large larvae skeletonize the leaves.

Young larvae are gray to black and window feed by eating the leaf's lower surface and interior, leaving the upper surface intact. Fully grown larvae form pupae that are whitish with black spots and look like roundish blobs of bird manure on the leaf surface. The adult beetle is about 1/4 inch long. It is light yellow with a black line down the middle of its back, and it has three black lines in the form of dashes and dots on each side. The pronotum, the area just behind the head, is red with a large black spot in the center. The adults lay masses of yellow eggs that are 1/4 inch in diameter. There are two to three generations per year.

You can ignore damage to leaves at this time of year; there will be little effect on tree health because leaves will drop soon anyway. This beetle is an unusual insect for Illinois. It is much more common in Kansas and Colorado. At this time, it is more of a curiosity than anything else, but at least you will know what it is when clients ask about it. It has multiple generations per year, so keep an eye out for its presence and damage next fall. Just like its relatives, the elm leaf beetle and the imported willow leaf beetle, it overwinters as an adult. As the leaves approach full size next spring, damage should appear as holes and eaten leaf margins.

Control is probably not needed at this time of year.

Bacillus thuringiensis tenebrionis and insecticidal soap can be used to control young larvae, but they are not as effective against older larvae. Carbaryl, sold as Sevin, is effective against all larval stages and adults. Handpicking works in a light infestation and is environmentally safe. (*Donna Danielson of The Morton Arboretum and Phil Nixon*)

Sod Webworm

With the dry turf conditions throughout Illinois, watch for sod webworm attack. Sod webworm larvae are usually controlled by disease caused by microsporidia in Illinois. Normally, we have enough rainfall that these organisms are very effective. Any time that we have a protracted dry spell during the growing season, disease is less prevalent, and sod webworms are likely to become numerous enough to be a problem.

Adult moths are present at this time in central Illinois. These moths will be laying eggs over the next two weeks, but all life stages will already be present in the turf as well. With an insect that has three generations per year such as sod webworm, the emergence of generations typically gets very jumbled toward the end of the growing season. Some larvae are slowed in growth because of poor grass quality, cooler temperatures under trees, and various moisture regimes, causing larvae of every size as well as pupae, adults, and eggs to be present constantly at this time of year.

Sod webworms overwinter as larvae, so larvae will be present throughout the fall and are more numerous in dry turf. A long Indian summer increases the likelihood of damage. Dry turf areas should be scouted for sod webworms. Pour an irritant solution of a teaspoon of 5 per cent pyrethrin or a tablespoon of dishwashing detergent in a gallon of water over a square-foot area of turf. Two to three of the slender, brown-spotted sod webworm caterpillars per square foot are enough to cause damage. Once detected, several insecticides are effective control agents. (*Phil Nixon*)

PLANT DISEASES _____

Illini Shoes Commonplace

Have you been walking around the soccer fields, football fields, or just your own lawn lately and discovered that your shoes are covered with an orange dust? University of Illinois fans don't mind this color, but most would like to know the cause. The orange dust is

actually a mass of spores of the rust fungus that is prevalent on turf again. See issue No. 13 of this newsletter for more details on rust of turfgrass.

The rust fungus remains on the foliage. Whenever the weather favors mycelial growth and spore germination, the foliage becomes infected again. Favorable conditions for infection by this fungus include temperatures near 70°F and some leaf wetness. After infection, the fungus can thrive in temperatures from 68 to 86°F, especially on stressed turf. We see heaviest infection levels in drought-stressed lawns, areas of poor nutrition, and areas in which grass is growing slowly. Control measures for rust have been addressed in issue No. 13. (*Nancy Pataky*)

Common Tree Diseases in 1999

The Plant Clinic received 656 woody ornamental samples this year. These are some of the major problems we detected in 1999. The list is not intended to represent any sort of survey of problems in Illinois. It is merely a listing of the problems that occurred repeatedly that were sent to the Plant Clinic. An example of a disease that is not listed but still prevalent is sycamore anthracnose. That disease was once again very common in 1999, but most people recognize the disease and do not send it to the lab for confirmation.

Ash—anthracnose, Verticillium wilt

Crab apple—scab, cankers

Elm—Dutch elm disease

Fir—Cytospora canker

Maple—anthracnose, Verticillium wilt,

Botryosphaeria canker

Oak—anthracnose, leaf blisters, oak wilt, cankers, bacterial scorch

Peach—leaf curl

Pear—fire blight

Pine—pine wilt, Sphaeropsis blight, brown spot,

Dothistroma blight

Smokebush—Verticillium wilt

Spruce—Rhizosphaera needle cast, Sirococcus blight,

Cytospora canker

(*Nancy Pataky*)

Tree Root Decline

There are many cultural, environmental, and site-related problems that can stress—and even kill—trees. Last year, many of us predicted that trees would have root problems this year, and that was certainly the case. The problem comes in knowing what symptoms to look for in diagnosing root decline. There are, of course, many belowground reasons for the decline of a tree. Drought, flooding, compaction of the root zone, poor soils,

planting too deeply, inadequate space for roots, and many other factors could be involved. Often, diagnosing such a problem involves a process of elimination, ruling out possibilities that might cause similar symptoms. One of the more difficult possibilities to eliminate is root rot. Most gardeners believe that they cannot possibly know the health of a mature tree's roots. We regularly tell Plant Clinic clients how to check roots for problems. I am always amazed when they call back and tell us how few roots they found or how rotten the roots were.

The first sign of any root problem is top decline. Look for a few clues to determine if a tree is growing well. You can get an idea of how well a tree has been growing by looking at the amount of stem growth over the past few years. You can even tell approximately when a tree was transplanted or when it was fertilized. Start at the tip of the stem and follow it back to the first set of closely aligned rings (about 1/8 inch apart) around the stem. That is one year's growth. Continue down the stem to the next set of rings for the next year's growth. Most trees grow anywhere from 6 to 18 inches of twig length in one year. Of course, this will vary with the species and whether you are looking at a shady or sunny part of the tree. If the tree has only 1 inch of twig growth in the last two years and 8 inches three years ago, it is safe to say that the tree is under stress and that the stress started two years ago. Cankers on the stems, stem tip dieback, off-color foliage, early fall color, and early defoliation are also clues that a tree may be stressed by underground causes.

To detect the pathogenic wood rots and root rots, look for mushroom-like fungi growing at the base of the tree or shrub. In the case of wood rot fungi, the conks (also called shelf fungi or fruiting bodies) may be found growing out of the trunk or main branches in the canopy of the tree. These are signs of the pathogen. The actual mycelium of the fungus is probably growing in or on the roots or internally in the wood. I am sure you have seen these structures on trees in the forest. *Polyporus sulphureus* is a common heart rot fungus on oaks. It produces a bright yellow structure that protrudes from the tree 6 to 8 inches. Other fungi may indicate root rots, such as *Ganoderma* root rot of honeylocust, with its reddish brown conk growing off the base of the trunk. Wet weather often triggers the formation of these structures. They could easily be confused with fungi growing on dead organic debris near a tree. If, however, they are growing out of the tree itself, they are excellent signs of wood rot or root rot.

You can also do some careful digging in the root zone of a tree to try to determine the health of its roots. Do

this near the drip line at two or three spots. Healthy roots are brown on the outside but white on the inside or at the very tips of the roots. If the roots have a soft, brown outer layer that easily pulls off the center of the root, a root rot may be involved.

Some experts say that the presence of conks on a tree or root rot in the root system means that a tree will soon die. That may be true, but trees and shrubs can survive for many years with wood or root rots. Do not remove a tree simply because it has a conk. Instead, use this diagnostic tool to determine the true problem with the tree. If the tree becomes a threat to life or property because of its potential to fall or blow over, do remove it as soon as possible. Some arborists can make a determination on internal tree integrity to help with this decision.

No chemicals will help a tree in decline. Use approved cultural practices to improve tree vitality, including weekly watering of 1 to 2 inches in periods of extended drought. Also, cut out dead branches in the dormant season, fertilize in late fall or early spring, and keep traffic off the root system. These measures may help the tree continue to live for many years. But, for very old or very large trees, fertilization and watering may have no benefit. The wood rot and

decline fungi do not have to be fatal. Consult *Report on Plant Disease* No. 642 for more information on the wood rots and decay of trees. (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.

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