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HORT SHORTS

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In this Issue

JANET'S JOURNAL

The California Landscape Contractors Association (CLCA) is the largest and oldest organization of licensed landscape and irrigation contractors in the nation. The CLCA was formally incorporated as a nonprofit organization in 1952, although the idea began in 1937 by a group of contractors in the San Francisco area.

An extensive communications network exists among CLCA members. News releases are regularly disseminated to several media. California Landscape Magazine is the bi-monthly trade journal of the CLCA. Also, an annual roster entitled The Official Directory of Members, Services and Products of CLCA is published. The Executive Director's Report, a monthly digest capsulizes pertinent information from the executive director of concern and interest to members.

Unfortunately, there is no Inland Valley Chapter at this time. If enough interest can be stimulated, I'm sure the Board of Directors would gladly entertain the idea. If you are interested in joining the CLCA contact Larry Rohlfes, Director of Communications and editor of California Landscape Magazine at 916/448-CLCA. Or call to receive a complimentary issue. In the interim, you can join the the Los Angeles/San Gabriel Valley chapter, the High Desert chapter or Long Beach/Orange County chapter. Happy Holidays!!!

ENVIRONMENT, INSECTS, AND DISEASES OF LANDSCAPE TREES

Did you know that about 75 percent of problems affecting landscape trees are not directly due to insects or diseases? Instead, most problems are due to environmentally-related causes such as smog, temperature and water quality and quantity (usually too much rather than not enough). Trees not compatible with a particular climate often succumb to these non-parasitic problems.

However, certain insect pests are major problems in southern California. For the most part, insects are responsible for disfiguring ornamental plants.

Disfigurement may cause the tree or shrub to appear unsightly or to provide less shade or visual screening. Sometimes the rate of tree growth is lessened as well. Often infested trees become predisposed to attack by disease-causing pathogens or other insects.

Disfigurement is sometimes overshadowed by the nuisance some insects create. For example, sticky honeydew collecting on automobiles, sidewalks, or lawn furniture may be the result of small populations of aphids or soft (unarmored) scales too low to attract attention to damage caused to the tree.

Falling oak galls and caterpillar droppings, and insects crawling or pupating on exterior walls or window screens of residences, may be more significant than the actual plant damage caused by these same insects.

While it is sometimes simple to recognize an unsightly, poorly growing plant, determining the cause of poor plant performance can be difficult.

Insects and their relatives (such as mites, slugs, and snails) need nourishment to survive and reproduce.

During feeding most pests cause visible and predictable changes in the appearance of a plant, enabling the trained observer to narrow the possibilities for identifying the offending pest.

Recognizing damage symptoms and, of course, the identity of the plant involved, are important first steps in the diagnostic process.

Damage symptoms caused by insects and their relatives can be grouped conveniently into five categories:

(1) chewed, tattered foliage or blossoms;
(2) stippled (flecked) yellowed, bleached or bronzed foliage;
(3) distorted plant parts;
(4) dieback of plant parts;
(5) presence of insect or insect-related products.

Many insect pest problems can be prevented by proper tree selection and maintenance. The following information on diseases and symptoms and their control should assist you when problems arise.

Anthracnose (Gloeosporium aridum) disease appears on ash (Fraxinus spp.) and is indicated by irregular tan or brown areas on leaves which may later turn white. Although diseased leaves usually fall, lightly infected leaves of Modesto ash may not. The fungus spores are spread in splashing rainwater.

Control of anthracnose is achieved by pruning and destroying infected twigs and branches since they provide a source of inoculum during the following spring. Benomyl® sprays also offer some protection if properly applied.

Another disease that plagues ash is scorch (Pierce's bacterium and non-parasitic) which causes leaves to turn brown around the edges and sometimes between the veins. This results from lack of water balance in the tree or xylem plugging by bacterium caused by hot, drying winds, drought, shallow soils, or improper irrigation.

Control of scorch may be accomplished by deep, thorough irrigation rather than frequent, shallow waterings.

Rust (Melampsoridium betulinum) affects birch (Betula spp.) and appears reddish-yellow on lower leaf surfaces. These pustules contain rust spores (urediniospoires) that reinfect birch leaves.

Raking and burying leaves during fall is the best control of rust. Fungicide sprays may offer some protection if applied early in the spring.

Sooty mold, a dark sooty material on leaves caused by a harmless fungi growing on the excreta of insects and on plant exudates, is also a disease of birch. The best way to control sooty mold is to control the insects. This may be accomplished by washing the leaves with a strong stream of water.

Powdery mildew appears as a white powdery growth on the leaves of box elder (Acer negundo) with tiny, black overwintering fruiting bodies (cleistothecia) appearing later. This disease is generally not severe enough to warrant control measures.

The buckeye or horse chestnut (Aesculus californica) also displays the symptoms of yellowing and browning leaves in late summer (or earlier under drought conditions). This condition is often due to a blight or to the normal dormancy of the tree and no control is warranted.

Diseases common to the Chinese elm (Ulmus pavifolia) are anthracnose and canker (Stegophora ulmea). These are indicated by irregular, black, tar-like spots on the leaves. Heavily infected leaves fall prematurely and twigs may be killed. Anthracnose can be avoided by keeping foliage dry. Do not irrigate leaves!

Control of canker is accomplished by pruning dead twigs and severely infected growth and applying a fungicide such as benomyl® as a protective spray in spring. Also, pruning and destroying infected twigs aids in controlling anthracnose. There is, however, a cultivar, "Drake," that is resistant to the disease.

Another tree plagued by canker is the cypress. Cankers on branches and main trunk slowly expand, girdling and killing the infected part. Fungus enters through wounds and uninjured bark; the foliage on girdled branches turns brown and dies.

The best method to avoid and control canker is to avoid wounds and protect previously wounded tissue with benomyl®. In the summer, prune out all dead branches well below any visible infection and burn pruned branches or dispose of them far away from the tree.

Tar-spot (Rhytisma punctatum) occurs on maple trees (Acer spp.) as oval or irregular, glossy-black, thickened, raised tar-like spots on upper sides of leaves. Control of tar-spot is accomplished by raking and burning infected leaves during fall.

Oak trees (Quercus spp.) often have problems with a disease called branch dieback (Diplodia quercina). This disease causes wilting and browning of the leaves. The cambium, sapwood and bark of the tree is killed, and the wood is stained brown. To control branch dieback, remove the diseased limbs in the dry summer. Also, benomyl® has shown activity against the fungus and might be helpful if sprayed onto fresh wounds.

Anthracnose (Gnomonia veneta) occurs on the black oak (Quercus kelloggii) in the spring. Brown, dead areas follow the leaf veins and the leaves on lower branches are generally not severely affected. Anthracnose is usally not serious enough to warrant control measures other than keeping foliage dry and pruning out and destroying infected twigs and branches.

Witches broom or powdery mildew (Sphaerotheca lanestris) on Live Oak trees (Quercus wislizenii and Quercus agrifolia) can be controlled by avoiding cultural practices that stimulate excessive growth, such as heavy pruning and summer irrigation. Also, pruning out infected growth is helpful.

Live Oak trees can also be stricken with twig blight (Cryptocline cimerescens and Discula quercina) which causes the death of current season twigs. The leaves turn white and remain on the twig. This disease is most severe when pit scales are present. Benomyl® provides good control when applied in the fall and in the spring at bud break.

Leaf spot (Mycosphaerella populorum) occurs on cottonwood (Populus fremontii) trees as small, circular, tan spots on leaves. This is usually not serious enough to warrant control measures; rake and burn leaves in the winter and prune out diseased branches.

The flowering dogwood (Cornus florida) sometimes has a problem with spot anthracnose (Elsinoe corni), a disease that produces small, circular, dirty-yellow spots with reddish purple margins on the flowers, leaves, and young shoots. Again, this disease is generally not serious enough in California to warrant protective fungicidal sprays.

Another disease that usually does not warrant spraying is bacterial blight (Pseudomonas syringae pv. mori) on mulberry (Morus spp.) trees.

This disease causes distortion of young leaves and shoots and in severe attacks, elongated lesions on twigs. Symptoms appear as angular, black areas on leaves and bacteria ooze from the infected tissue in wet weather. If symptoms are severe, spray in spring as leaves emerge with a bordeaux mixture or a copper fungicide. Mild symptoms can be controlled by pruning infected twigs and branches. (Do not wet the leaves by overhead irrigation).

Needle rust (Coleosporium madiae) occurs on Monterey, Coulter, and Jeffrey pine (Pinus spp.)and appears as small pustules of orange spores on the needles. The spores do not reinfect pine but can infect Madia spp. such as the common madia, Chilean tarweed, and others.

Needle rust can be controlled by destroying the alternative host, Madia spp., growing within 900 feet of the pines.

Compiled in part by Dr. Koehler & Dr. McCain, UC Specialists

'TIS THE SEASON

TO PRUNE YOUR CONIFERS

Pruning trees properly may prevent subsequent attack by borers. Conifers, in particular, are susceptible to attack by several species of borers after tree trunks have been injured. This has been demonstrated for the sequoia pitch moth (Synanthedon sequoiae) and the red turpentine beetle (Dendroctonus valens) in Monterey pine and for cypress bark beetles (Phloeosinus spp.) and cypress bark moth (Laspeyresia cupressana) in Monterey cypress.

Judicious pruning includes avoiding excessive pruning and not topping trees. This avoids a poor balance between root and top growth. Avoiding potentially hazardous trees is a major consideration when any pruning takes place. Avoid flush cuts and always cut behind the branch bark ridge. Excessive pruning of conifers has often resulted in their death soon afterward from bark beetle attack.

For several boring insects that have been studied in detail, pruning (or otherwise opening wounds in tree trunks) during late winter through summer results in more severe borer infestations than pruning during fall or early winter.

MERRY CHRISTMAS

AND

HAPPY NEW YEAR!

Fall and winter are the periods of least activity of adult borers, and pruning at that time affords the tree an opportunity to begin the wound callusing process before adult activity resumes in spring or summer. The application of wound dressing compounds, in the belief that they will prevent insect attack, is not supported by research. Instead, make proper pruning cuts, just outside of the collar to allow callus tissue to form.

CHRISTMAS TREE CORNER

The Nantucket pine tip moth (NPTM), Rhyacionia frustrana (Comstock), is a major insect pest attacking Monterey pine (Pinus radiata Don), which comprises a large portion of the commercially grown Christmas trees in San Bernardino County. Since being introduced in San Diego County in 1967, NPTM has spread to four other southern California counties: Los Angeles, Orange, Riverside, and San Bernardino.

The fact that the pest has four generations per year complicates control efforts and requires multiple insecticide applications each season until an effective biological control alternative is discovered.

The following information on the biology and control of the NPTM in southern California was compiled by A.D. Ali, extension entomologist, UC Riverside.

NPTM usually overwinters in the pupal stage, and sometimes late larval stage, in damaged pine tips. Adult moths emerge as early as January and February. Mated females lay up to 80 eggs singly near the bases of pine needles and fascicles. Four to five weeks are required to complete the cycle from egg through five larval instars to pupa and adult.

The first (overwintering) generation usually has a double-peaked flight in late February and early March. The second generation of the peak flight occurs in May and June with the third and fourth generations peaking around early August and late September, respectively.

First, second and early third instar NPTM mine and feed on the surface of needles and young shoots. Later instars cause the most damage by feeding in growing bud tips, which results in browning and death of the tips and disfigurement of the tree. Frass, webbing and resin can be observed on infested tips. Disfigured trees with dead brownish tips are not the first trees sold at a Christmas tree farm!

Pheromone traps can be used to monitor NPTM flights. These traps contain a scent which resembles that produced by female moths to attract the males. At present, both wing-type and Delta-type traps are commercially available.

The trap should be hung horizontally on a permanent pole at crown height and moved higher as the trees grow. According to studies by M.K. Malinowski, Research Associate at UC Riverside, Dept. of Entomology, two traps seem to suffice for small farms in an area up to 10 acres (4 ha). For larger farms, one trap for every 10 acres would be appropriate for monitoring moths.

If too many traps are placed on the farm, the pheromone odor will confuse the male moth and reduce the efficacy of the traps. Traps should be inspected daily and the number of adult NPTM counted and removed from the internal sticky card. The cumulative number of moths can be plotted on a graph in order to determine flight peaks.

Shearing and shaping of trees should be done between moth flights, preferably during early larval development, for maximum mortality of insect population.

Sheared tips and clippings infested with mature larvae and pupae should be removed from the field and disposed of appropriately (i.e., placed in sealed plastic trash bags and buried or burned)

in order to prevent adult emergence and reinfestation.

Chemical control with insecticides should be appropriately timed by determining peak flight for each generation. This allows timely insecticide applications that coincide with maximum egg hatch. Young larvae will be killed while feeding externally on the needles.

Later applications may not be effective on larger worms that are protected in the tips. Thorough spray coverage of the whole tree is needed for good control and should be applied according to label instructions.

Since the first generation usually has a split or double peak, while the second to fourth generations have only one peak each, insecticide applications may be timed as follows:

Generation 1:
- warm winter-----spray 9 to 11 days after second peak
- cold winter-----spray 13 to 15 days after second peak

Generations 2-4:
- hot summer----spray 4 to 6 days after peak
- cool summer---spray 6 to 7 days after peak

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Janet S. Hartin

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CALENDAR OF UPCOMING EVENTS

Short Course in Horticulture. January 13-February 12, 1987, five-session course, offered in Los Angeles, Fullerton, and San Bernardino. 10 PCA hours approved. $25 fee. Contact Janet Hartin, chairperson (714)387-2171 or registration coordinators Ed or Irma McNeill, 2492 E. Mountain, Pasadena, CA (818) 798-1715 for brochure.

Pest Control Seminars. January 6, 8, 12, 14, 15, and February 10, 1987, offered in five locations (including Riverside). PCA credit according to sessions attended. $25 pre-registration fee for CAPCA members, $35 for non-members, $40 for late registrations. Contact Pest Management, P.O. Box 80016, Salinas, CA 93912-0016 (408) 755-6730 for more information.

Western Tree Management Symposium. January 16, 1987, (Joint I.S.A. Western Chapter-Street Tree Seminar, Inc. annual meeting), Cal Poly Pomona. 6 PCA hours. $35 pre-registration fee, $45 for at-the-door registration. (I.S.A. certification test review during symposium, testing on January 17, 1987 at same location.) For more information, contact John Vos, 541 West Chevy Chase Drive, Glendale, CA 91204, (818) 956-3950.

Wholesale Nursery Production Seminar. February 19, 1987, Los Angeles State and County Arboretum, 301 N. Baldwin Ave., Arcadia. $25 fee. Contact Don Hodel, UCCE Horticulture Advisor, 2615 S. Grand Avenue, Suite 400, Los Angeles, CA 90007 (213) 744-4881.

Turf and Landscape Institute. April 27, 28 & 29, 1987, Anaheim Convention Center, PCA hours. Register for one, two or three days. (Special Water Efficient Landscape Session on April 29.) For more information, contact Mike Henry, chairperson, U.C. Cooperative Extension, 1000 S. Harbor Blvd., Anaheim, CA 92805 or Ed McNeill, registration coordinator, 2492 East Mountain St., Pasadena, CA 91104, (818)798-1715.

Third Annual Troubleshooting Seminar. June, 1987, U.C. Riverside. Contact Ted Stamen, U.C. Cooperative Extension, 21150 Box Springs Road, Riverside, CA 92507, (714) 683-6491 for more information.