

Maple and other trees disorder: Cottony maple scale

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In certain years the twigs of maples and other shade trees become very heavily infested with popcorn-sized cottony masses. These masses produce a considerable amount of sticky liquid that resembles tree sap. However, the material eventually turns black due to fungal growth. The insect that causes these problems is the cottony maple scale, *Pulvinaria innumerabilis* (Rathvon).

Cottony maple scale prefers silver maple, but it also attacks other maples and numerous other trees and shrubs. These include apple, basswood, beech, black locust, boxelder, dogwood, elm, hackberry, hawthorn, honeylocust, lilac, oak, poplar, rose, sumac, sycamore, white ash, willow, and others. Infestations are usually more severe in southern Wisconsin than in the north.

Symptoms and effects

Cottony maple scale is usually a cyclical problem. Damaging populations occur irregularly but, once established, typically remain high for 1–3 years.

The first signs of cottony maple scale are the cottony masses they produce in mid-June on twigs and small branches. A few scattered scales will not affect the health of the tree. However, this insect harms the tree when it becomes so numerous that there is evidence of scales on most major branches, or when the tree drops its leaves in July.

The insect has sucking mouthparts and feeds by withdrawing large amounts of sap from the tree. Heavy infestations will cause twigs and branches to die back. Foliage may yellow in mid to late summer, and some leaves may drop early. In addition, reduced tree vigor may make the tree more susceptible to other insects and disease-causing organisms. If heavy infestations continue for several consecutive years, a tree may even die.

Cottony maple scale also becomes a nuisance to people.

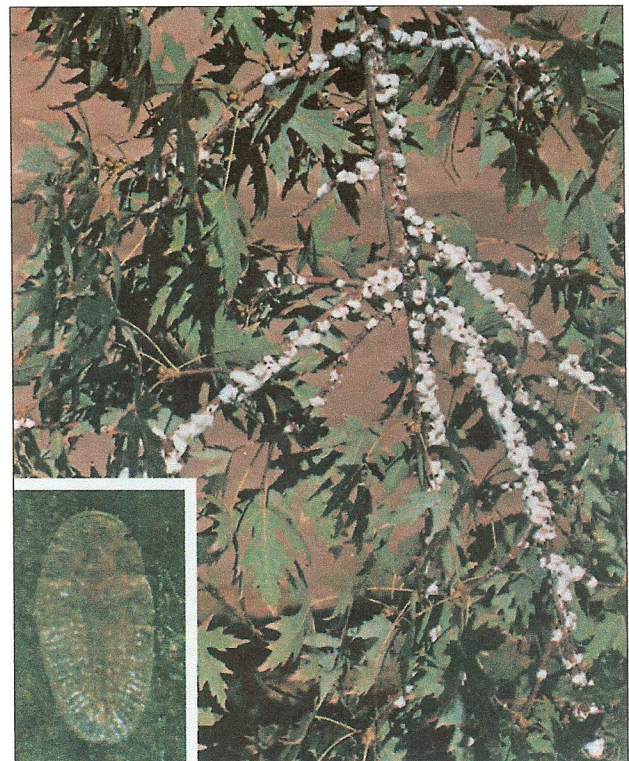
While feeding on the sap of leaves and twigs, the scales excrete a considerable quantity of a sweet, sticky liquid called honeydew. This honeydew, which is often mistaken for tree sap, coats the leaves and branches and even drips from the tree onto whatever is beneath.

Honeydew is a good food for sooty mold fungus, which eventually forms a black crust over the surface. Together, honeydew and sooty mold can blacken sidewalks, awnings, outdoor furniture, or vinyl car tops with a layer

that is almost impossible to remove. On the tree, the discoloration caused by sooty mold is ugly and may even interfere with photosynthesis. However, sooty mold does not cause diseases of maples or other trees or shrubs.

Life cycle

Cottony maple scales spend the winter as small, inconspicuous females on twigs and branches. At this season their drab, lavender-brown bodies are very flat and about 5 mm (1/5 inch) long, with a thin



The white, popcorn-sized egg masses of cottony maple scale are shown here covering branches of silver maple in late June. Inset: an immature scale on a leaf in August.

median ridge along their lengths. As temperatures increase in spring, these scales start to grow but remain stationary on twigs. By mid-June the white cottony masses begin to appear. Each of these masses is the egg sac of a female, and each sac can contain as many as 1,000 eggs. In late June or early July tiny, mobile crawlers hatch from the eggs. This is the stage most susceptible to chemical control.

The crawlers move out onto the leaves where they insert their mouthparts and suck out the plant juices. In late summer the males complete their development and turn into tiny winged insects, the only winged stage in the life cycle. The males fly to the wingless females, mate, and then die. The females continue to feed until fall. Before the leaves drop, the females crawl back to the twigs and small branches, where they attach themselves for the winter. They produce only one generation each year.

Control

A combination of several natural enemies usually keeps cottony maple scale under good control. Certain species of tiny parasitic wasps, flies, and lady beetles feed on the scales. Birds will also feed on the adult female scales and egg sacs. However, in certain years these natural enemies do an insufficient job, and many female scales survive summer, fall, and winter. The outbreak first

becomes apparent the following spring. The reasons for the ineffectiveness of natural enemies in some years are not known. Adverse weather, insufficient hosts, and pesticides may all contribute. Outbreaks sometimes follow mosquito control fogging, which may be detrimental to natural enemies.

Eventually, even large populations again come under natural control, but this may take 2–3 years. If populations have been high, trees may be severely weakened. It is up to the individual to decide whether to wait for nature to run its course, or to apply chemical controls.

Cultural

If you detect light infestations of mature females and egg masses before the eggs hatch, prune them out of the tree and destroy them. This will keep the populations from increasing. However, this is not feasible on large trees or when infestations are excessive.

Early in the season before the eggs begin to hatch, the adult females are very difficult to control chemically, and a considerable amount of honeydew may be produced. During this time wash the tree, sidewalk, and other underlying areas thoroughly and regularly with a garden hose. This will wash away the honeydew and retard the growth of sooty mold. Once sooty mold starts to build up, it is very difficult to remove from some surfaces.

Chemical

When infestations have been extremely high for two or more consecutive years—that is, affecting most major branches or forcing early leaf drop—chemical control may be necessary. *Insecticide application during the growing season is most effective at the crawler stage in late June or early July.* If necessary, check for crawlers with a magnifying glass; correct timing of this spray is critical. Spot sprays are recommended if the entire tree is not infested. This will help protect many of the natural enemies.

Insecticides available to the homeowner include dormant oil, Orthene, diazinon, malathion, Isotox, and carbaryl. Dormant oil sprays are of questionable efficacy against cottony maple scale, but they may provide sufficient control to allow natural enemies to catch up with the pest sooner. Refer to the insecticide label for amounts to use.

References to products in this publication are for your convenience and are not an endorsement of one product over other similar products. You are responsible for using chemicals according to the manufacturer's current label directions. Follow directions exactly to protect the environment and people from chemical exposure.

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