Tree Defoliators:
LEAF ME ALONE

What's eating your tree? Here are several common tree-leaf-eating insects to watch.

By Douglas A. Spilker, Ph.D.

Defoliators are insects that feed on the foliage (leaves or needles) of trees. Defoliators affect leaves in various ways. They can be destructive by chewing leaf edges, creating a "shot hole" effect by eating holes in the leaves, making "mines" by consuming the middle layer of the leaf or by devouring everything but the leaf veins, leaving a "skeleton." The most important defoliating insects are the larval stages of moths, butterflies or sawflies, but adult beetles, especially Japanese beetles, and leafcutter bees are also damaging pests.

What, Me Worry?

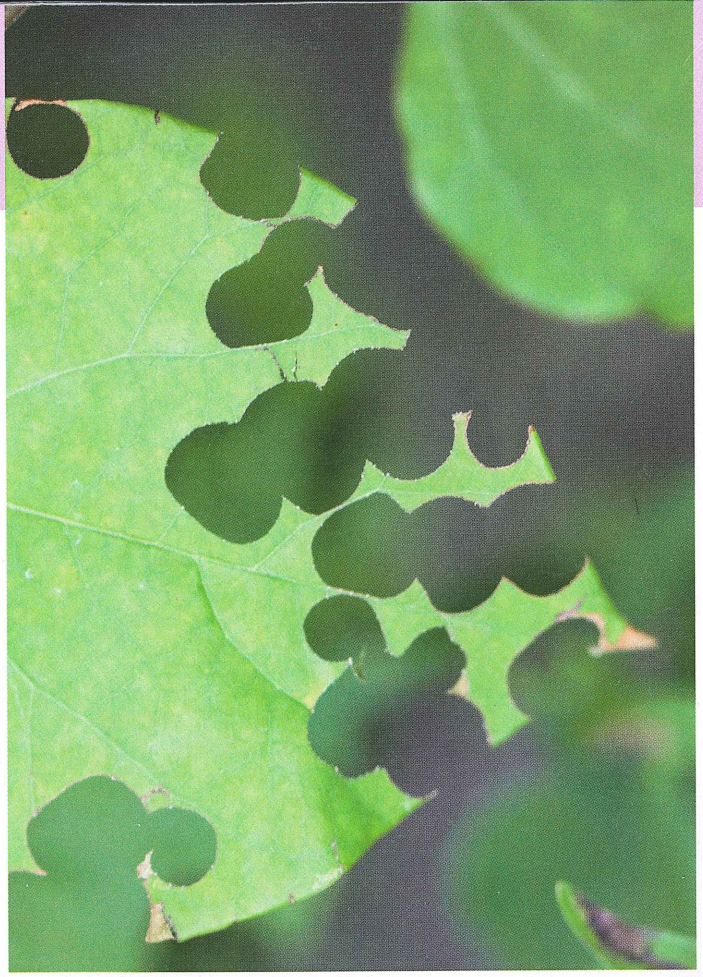
Why worry about tree defoliation? In the spring, leaf development is driven by stored reserves that were produced from photosynthesis during the previous growing season. Those resources are replenished when new leaves are produced. If insects defoliate trees, energy depletion occurs when another set of leaves must be produced in the same year. Therefore, defoliation that occurs later in the summer is typically less stressful to trees than defoliation that occurs early in the growing season.

Trees can easily tolerate the damage from a few random leaf-chewers, as long as they do not occur in large numbers. However, successive years of early defoliation or heavy defoliation in combination with other stresses such as drought or transplant shock can result in tree decline and death. Deciduous trees are commonly more tolerant of defoliation since they can replace the leaves after early season defoliation, whereas conifers cannot.

Pitching a Tent

Two of the most noticeable tree defoliators are caterpillars, the immature stages of moths. Populations of these web-builders fluctuate from year to year, but severe infestations may enclose hundreds of larvae in a single "tent." The eastern tent caterpillar is usually seen in late spring or early summer. The nests are formed in forks of branches and the larvae leave this webbing to feed. They are found most commonly on wild cherry, apple, crabapple and hawthorn, but can be found especially on fruit trees.

The "tents" of the eastern tent caterpillar and the fall webworm are frequently confused. Unlike the tent caterpillar, the fall webworm forms loose webbing at the ends of branches and feeds on the foliage inside these nests. As the name implies, fall webworms are commonly seen late in the season, and are general feeders on nearly all trees except conifers.



TOP: Although leafcutter bees are rarely seen, their circular-shaped leaf injury is very distinctive. The cut leaf pieces are not eaten, but are carried back for use in their nests. ABOVE: Bagworms are probably the most destructive defoliators of conifers, especially on juniper and arborvitae.

When left unchecked, a severe infestation of these web-building caterpillars can nearly defoliate a tree. Prevention and early control of web-builders is important. Unsightly small tents can be pruned out and destroyed. Larger tents can often be removed or disrupted by winding up the web on a stick, or spraying it with a strong stream of water. The burning of the tent with a torch is not recommended since this can easily injure the tree (and the arsonist). If chemical control is necessary, treatment is recommended when webs first appear. Smaller caterpillars are more susceptible to insecticides and larger webbed nests are some-

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what waterproof and can be difficult to penetrate with sprays. Both microbial and conventional insecticides are available to homeowners for the control of small caterpillars.

Tree Trimming

Have you ever noticed short clipped branches under trees in early fall? This damage is caused by twig pruners or twig girdlers. These long-horned beetles seem to prefer oaks, but will also attack many other hardwoods. After the adult female lays an egg, it chews a groove all of the way around the terminal branch causing it to die. This results in either dangling (flagged) branch tips or the weakened twigs snapping off and falling to the ground. The beetle larva continues its development in the fallen twig through much of the summer.

Squirrels will also clip off large numbers of twigs for their nests, but the twig cut will be smooth in contrast to the jagged ends of girdled twigs by beetles.

Infested branches should be gathered and destroyed. The thorough cleanup needs to be done by early spring, but may be drawn out as twigs continue to fall. If practical, prune infested twigs still on the tree. This eliminates the developing larvae. Insecticide applications are not practical. The overall effect on the tree's health is not severe, but young trees can become deformed by repeated attacks.

Be Vigilant

While many trees can survive defoliation that is minor or infrequent, early serious defoliation can stress trees and make them more susceptible to attack by other insects and diseases. It is important to understand that repeated defoliation can ultimately result in the death of trees, so be vigilant and protect your landscape investments.

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Don't Blame Everything on Insects


Scab, a fungal disease, can defoliate susceptible crabapple trees by early summer if left unprotected.

Insects are not the only culprits causing defoliation of landscape trees. Fungal diseases may become severe when cool, wet spring weather persists as leaves are first emerging. Severe infestations of crabapple scab or anthracnose of dogwood, maple, redbud and sycamore may cause total leaf drop by midsummer. Selection of resistant varieties is the best approach for avoiding these devastating diseases, but well-timed fungicide sprays can be effective. Needlecast of conifers takes place in shaded or crowded landscapes, or in areas with routine irrigation overspray. Powdery mildew infections may cause leaf curling and defoliation under conditions of cool weather with high relative humidity. If susceptible varieties are selected, avoid planting in secluded shady areas where humidity can be trapped.