

Forest Leaflet 11: Aphids
Text: D.S. Kusch and H.F. Cerezke
Illustration: G. Weber
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Forestry Canada
Northwest Region
Northern Forestry Centre
5320 - 122 Street
Edmonton, Alberta
T6H 3S5

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Aphids



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Distribution and Hosts

Aphids, commonly known as plant lice, are represented by many species; they attack nearly all species of plants. Aphid damage is usually most noticeable on shade trees and ornamental plantings. Leaves, twigs, stems, or roots may be attacked by aphids, whose mouth parts are designed for piercing the plant and sucking the sap.

Symptoms and Damage

When leaves are attacked by aphids, damage often appears first as spotty yellow discolorations, usually on the undersides of leaves; the leaves may later dry out and wilt. Some aphid species form galls or cause distorted, curled, or deformed leaves. The galls are swellings of plant tissues that are usually globular or spindle-shaped, with mouth-like openings. Many galls turn brown and are considered unsightly. Each gall or deformed leaf may contain numerous aphids in all stages of development. Aphids attached to other plant parts such as stems or twigs may cause stunted growth, early leaf fall, or twig mortality, but aphid damage very rarely kills the plant.

Many aphid species secrete honeydew from the anus; this sweet, sticky substance consists mainly of excess sap ingested by the insect and contains sugars and waste materials. At times enough honeydew may be secreted to cover not only the aphid-infested foliage but also objects below the affected tree or shrub. After a time a black, sooty fungus that grows on honeydew gives everything it has covered a dirty gray appearance. Because of its sweetness, the honeydew attracts other pests such as flies, wasps, and especially ants, whose presence may be the first visible sign of an aphid infestation. (The honeydew is a favorite food of many ants, which may protect the aphids from

predation.) Some aphid species serve as agents for plant diseases such as virus mosaics.

Causal Agent

Aphids are small, soft-bodied, pear-shaped insects that are frequently found in large numbers. Their bodies may be translucent, but are usually various shades of green, brown, yellow, or white, sometimes blending in with the plant on which they are feeding. Many aphid species have two tubelike structures, called cornicles, which extend from the back and secrete a defensive fluid. Adult forms may be winged or wingless, depending upon their stage of development during the season. Winged forms have four membranous wings that rest upright above the body.

The life history of many aphids is somewhat unusual and complex. Most species overwinter in the egg stage on the host plant; the eggs hatch into young female nymphs (stem mothers) in the spring, and subsequently reproduce without mating (parthenogenetic reproduction), giving birth to living young. Several generations of aphids may breed in this manner during the summer, but only females are produced. The first one or two generations may be wingless, but eventually a winged generation may be produced that can migrate to new plants. Toward the end of the summer season a new generation of aphids may return to the original host plant to produce both males and females. After they mate, the females lay eggs on the host plant for the overwintering stage.

During the summer, successive generations of parthenogenetically reproduced aphids may produce population explosions in a relatively short period of time. For this reason plants should be inspected frequently during the growing season.

Prevention and Control

Aphids have many natural enemies such as parasitic wasps and predaceous insects, including both larval and adult stages of ladybird beetles, lacewings, and the larvae of some syrphid flies. Various small bird species also prey upon aphids. While these agents may be effective at times in reducing aphid populations, their action may be too slow to prevent aphid feeding damage, and other direct controls may be necessary.

Heavy infestations on foliage or other plant parts may be removed by the frequent application of strong jets of water. Infested leaves, twigs, and stems may be pruned off and destroyed. For plants growing indoors in greenhouses and atriums, biological pest control methods that use live aphid-specific predators may be deployed. Yellow sticky traps that are attractive to migrating adult aphids may be hung in the vicinity of plants to entrap the aphids in flight. Aphids may also be controlled by a variety of registered chemical insecticides (including insecticidal soaps). The application of these insecticides, however, should be undertaken with caution because some may be toxic to the plants requiring treatment.

For the most recent information on chemicals available for control of these pests, call Agriculture Canada's Pesticides Directorate in Ottawa (toll-free) at 1-800-267-6315.

Chemical pesticides are toxic to humans, animals, birds, fish, and beneficial insects. Follow all label instructions and precautions listed by the manufacturer.