



Aphids

Many species

Order Hemiptera, Family Aphididae; aphids or plant lice
Native and introduced pests

Host plants: Aphids are generalist feeders on many plants or specialist feeders on specific plants. Aphids can feed externally on leaves, cause leaves to curl around them, and cause leaves to make galls. Aphids feed on flowers, flower buds, leaves, stems, branches, and bark. Aphids attack conifers, deciduous trees, and herbaceous plants. Many species alternate host plants between warm and cold seasons. Winter hosts are often woody plants, while summer hosts may be herbaceous plants or grasses. Aphids are winged or wingless depending on the quality of the host plant and the season. Aphids produce live young parthenogenetically in summer. They often have male and female forms in the cooler months.

Description: There are numerous species of aphids. Adults range in color from yellow, to red, to black. Short, oval bodies have long antennae and legs. Some species have cornicles on the back of the abdomen. Aphids produce live nymphs that resemble adults.

Life history: Aphids usually produce many generations each year. Aphids produce honeydew, a sweet, sticky sugar that covers leaves and stems. Opportunistic, black sooty molds grow on the honeydew. Ants, lady beetles, and parasitic wasps feed on the honeydew.

Overwintering: Many aphid species overwinter as black, oval eggs on bark or needles.

Damage symptoms: Stunting, chlorosis, deformation, and death of leaves may be caused by aphids sucking fluids from leaf veins and buds. Large populations of aphids may cause unacceptable levels of honeydew and its accompanying sooty mold.

Monitoring: Look for curled or discolored leaves on new growth and white, shed skins, honeydew and sooty mold, winged and wingless aphids, predators, and swollen, immobile aphids that are parasitized (mummies).

Chemical control: Spray leaf buds to control gall-forming aphids before galls are formed. For external free-living aphids, treat before aphids are numerous.

Horticultural oil or insecticidal soap may be used if parasites and predators are present. Soil applied systemic insecticides may be effective. Overwintering eggs may be treated with dormant oil sprays.

Biological control: Many species of predators attack aphids, such as lady beetle adults and larvae, lacewing larvae, syrphid fly larvae, cecidomyiid fly larvae, and ants (which also milk the aphids for honeydew). Parasitoids in the families Braconidae, Aphelinidae, and Encyrtidae attack aphids and cause swollen, immobile mummies.

Plant mortality risk: High, if predators and parasitoids are not present.

Biorational pesticides: azadirachtin, insecticidal soap, horticultural oil, (summer and dormant), pymetrozine, pyrethrins

Conventional Pesticides: acephate, bifenthrin, carbaryl, chlorpyrifos (nursery only), cyfluthrin, deltamethrin, esfenvalerate, fluvalinate, imidacloprid, lambda-cyhalothrin, malathion, permethrin



The reddish corrugation on the upper leaf surface is caused by *Hamamelistes spinosus*, spiny witch-hazel gall aphids. The overwintering eggs are laid on witch-hazel, *Hamamelis virginiana*, and hatch the following spring into nymphs that feed on buds causing a gall to form. Inside the gall a new generation of winged aphids develop which fly to birch where they give birth to a scale-like aphid that overwinters on birch twigs. The following spring they induce the leaf corrugations. Wingless and winged aphids develop inside these corrugations and the winged aphids fly back to witch-hazel, giving birth to a generation of wingless males and females which mate and lay eggs which overwinter. This aphid requires two full years to complete all of its life cycle. Alternation of hosts is well known for other aphids, such as woolly apple aphid on apple and elm, woolly alder aphid on maple and alder, and green peach aphid on peach and many other hosts. (2B) Photo: John Davidson



Aphids inside the corrugated ridges on the underside of the birch leaf. This leaf damage is a cosmetic problem; trees are not severely harmed. (2C) Photo: John Davidson



The whitefly-like aphids, a form of *Hormaphis cornu*, also feed on birch leaves. (2D) Photo: John Davidson