



Galls Made by Aphids, Adelgids, Phylloxerans, Psyllids, and Midges

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Introduction

Galls made by aphids, adelgids, phylloxerans, psyllids, and midges occur on many different plants. Galls are abnormal growths of plant tissue induced by insects and other organisms. Gall-making parasites release growth-regulating chemicals as they feed, causing adjacent plant tissues to distort and form a gall. The parasite feeds and develops within the relative security of the gall. Most of these parasites and their galls are harmless to trees and plants, but a few are pests. Many of the gall-making insects are not well studied, and they and the galls they produce often do not have accepted common names.

Aphid Galls

Aphids are well-known pests of plants, but only a few species produce galls on plants.

Slippery elm pouch galls, also known as elm sack-galls, are elongated pouches produced by the aphid *Tetraneura ulmi* on the upper surface of elm leaves (Fig. 1). The galls appear in May and are soon filled by female aphids and their offspring. They are often reddish in color and large numbers can be found on leaves in heavy infestations.



Figure 1. Elm pouch galls (Haruta Ovidiu, University of Oradea, Bugwood.org).

Elm cockscomb galls are named for their resemblance to the convoluted comb of a rooster (Fig. 2). One to several of these galls may appear on the upper leaf surface on American and slippery elms. The aphid that creates these galls, *Colopha ulmicola*, also feeds on the roots of grasses after emerging from the leaf galls.



Figure 2. Elm cockscomb galls (Howard Ensign Evans, Colorado State University, Bugwood.org).

Adelgid Galls

Adelgids are commonly called aphids, but they are actually close relatives. Several different species of adelgids produce galls on spruce trees.

Cooley spruce galls are elongated cone-like growths on the young expanding tips of Colorado blue spruce (Fig. 3). The cooley adelgid, *Adelges cooleyi*, has an interesting and complicated life history. Immature females overwinter on spruce. In the spring they mature and lay eggs on the twigs. Feeding by young nymphs causes abnormal tissue growth, which soon surrounds them and becomes the gall. Openings appear on the galls by midsummer, and the adelgids molt into winged adults that migrate to Douglas fir. This generation on Douglas fir is often called "woolly aphids" although they are not aphids. Their

feeding causes yellowish spots and bent needles on Douglas fir, but produces no galls. A year later, another separate generation of this species returns to spruce. Cooley spruce gall aphids sometimes damage spruce trees to the extent that their control is justified.



Figure 3. Cooley spruce galls (Whitney Cranshaw, Colorado State University, Bugwood.org).

Several other adelgids attack spruce, such as the **spruce gall adelgid** (*Adelges abietis*). The resulting galls are usually cone-like, but sometimes they resemble scraggly, deformed twigs.

Phylloxeran Galls

These curious insects are also close relatives of aphids. Members of the genus *Phylloxera* produce a variety of galls on hickory and pecan.

Hickory leaf stem galls appear as irregular, globular growths on the leaves, petioles, and twigs of hickory trees. This phylloxeran, *Phylloxera caryaecaulis*, overwinters as eggs in bark crevices and hatch when the buds begin to open in the spring. Feeding by these insects induces the formation of galls. The females lay eggs inside the galls and a new generation of winged phylloxerans develops. The galls dry and open by the end of June, when the insects fly off to find summer hosts. This is a minor pest, but it can be controlled by spraying at bud break or picking up and destroying fallen twigs in the summer. Other phylloxerans on hickory usually produce disk, button or bead-shaped galls on the leaves.

Psyllid Galls

Psyllids, commonly known as jumping plant lice, resemble miniature cicadas. Little is known about

their biology. All species of psyllids feed on plant juices, but only a few produce galls.

Various species of psyllids in the genus *Pachypsylla* feed on hackberry and produce a number of different galls, including the **hackberry button gall**, **hackberry flask gall**, **hackberry nipple gall** (Fig. 4), **hackberry star gall**, and the **hackberry melon gall**. In the Gulf States, several galls on the leaves of bay trees in the genus *Persea* are caused by psyllids.



Figure 4. Hackberry nipple galls (Steven Katovich, USDA Forest Service, Bugwood.org).

Midge Galls

Gall midges are a large group of tiny, delicate flies about 3 mm (0.13 inch) long. Most species lay their eggs in plant tissue, and feeding by their larvae produces a wide variety of galls.

Dogwood clubgalls are elongate swellings at the tips of small twigs on flowering dogwood (Fig. 5). Female *Resseliella clavula* midges deposit their eggs in the tiny terminal leaves just as the buds begin to open. Larvae work their way into the tips of the new twigs. The first symptom of their presence is a wilted, gnarled leaf. Soon afterwards, the adjacent tissue begins to swell and forms the gall. By late summer the larvae chew exit holes in the gall and drop to the ground where they overwinter.



Figure 5. Dogwood clubgall (Terry S. Price, Georgia Forestry Commission, Bugwood.org).

Vein pocket galls are elongated swellings along the midrib and major veins of pin oak (Fig. 6). They are green when fresh but turn brown and harden with age. Heavily galled leaves may look twisted and distorted. Rake and remove leaves under infested trees in the fall to control the midge that makes these galls (*Macrodiplosis quercusoruca*).



Figure 6. Oak vein pocket gall (Ryan Armbrust, Kansas Forest Service, Bugwood.org).

Gall midges produce a wide variety of galls on different hosts. **Beaked willow gall** and **willow pine cone galls** can be found on willow trees. Maples host **maple leaf spot gall** and **gouty vein gall**. **Pine needle gall** and **gouty pine gall** occur on pines. **Woolly fold gall** can be found on oak leaves. **Grape tumid gall**, also known as **grape tomato gall**, is found on the leaves of both wild and cultivated grapes.

Ash midrib gall, as the name suggests, occurs on the midveins of ash leaves (Fig. 7).



Figure 7. Ash midrib gall (Jim Baker, North Carolina State University, Bugwood.org).

See separate fact sheets for information about galls made by wasps or mites.

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