



Galls Made by Wasps

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Introduction

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. Several different groups of insects and one family of mites have developed the ability to induce plant galls. In addition, there are a few galls produced by nematodes, bacteria, fungi, and viruses. Many of the gall-making insects are not well studied, and they and the galls they produce often do not have accepted common names.

Many gall wasps (Hymenoptera: Cynipidae) primarily attack oak trees and can be found on the roots, flowers, and acorns, but especially the leaves and twigs (Fig. 1). Roses and brambles (blackberries and raspberries) also are attacked by gall wasps. These insects have complicated life cycles and the galls they produce occur in an endless variety of shapes, sizes, and colors. In some species, alternate generations produce distinctly different galls. The wasps that emerge from the galls do not sting humans.



Figure 1. Galls made by a gall wasp on an oak leaf (Ronald Billings, Texas A&M Forest Service, Bugwood.org).

Damage and Control

Controlling wasp galls is difficult and even systemic insecticides rarely give satisfactory control. Pruning out heavily galled portions of a plant and destroying them is sometimes feasible and may help reduce populations of the gall insects. The good news is that most galls are harmless to the plant. Overall, it is best to accept galls as curiosities of nature — enjoy watching their development if you are interested, but simply ignore them if you are not.

Some Examples of Gall Wasps

Oak-apple galls are golf ball-sized growths with thin shells and spongy cores (Fig. 2). A single larva develops inside each gall.



Figure 2. Large oak-apple gall (William M. Ciesla, Forest Health Management International, Bugwood.org).

Horned oak galls are hard, woody swellings on oak twigs. Small, spikey horns protrude through the surface of the gall, and a single gall wasp develops in each horn (Fig. 3). Gouty oak galls are similar to horned oak galls, but lack the protruding horns (Fig. 4). These two galls, produced by wasps in the genus *Callirhytis*, are the only wasp galls known to cause economic damage and possible death of the tree if left unchecked. Pruning the galls off the tree in May,

when the wasps are developing inside, is the only known effective control.



Figure 3. Horned oak gall (Jason Sharman, Vitalitree, Bugwood.org).

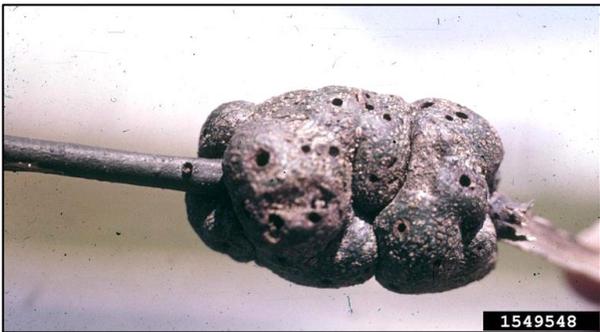


Figure 4. Gouty oak gall on an oak twig (Jim Baker, North Carolina State University, Bugwood.org).

Wool sower galls are white, spongy, fibrous masses with yellow, seed-like capsules throughout the gall (Fig. 5). A gall wasp larva develops within each capsule.



Figure 5. Wool sower gall on oak twig (Eric R. Day, Virginia Tech, Bugwood.org).

Various types of oak button or oak spangle galls are made by gall wasps in the genus *Neuroterus*. The galls made by *Neuroterus umbilicatus* resemble small, flattened disks or suction cups on the underside of oak leaves (Fig. 6).



Figure 6. Underside of oak leaf with small galls (Joe Boggs, Ohio State University).

Leaves with these types of gall may show yellow-ringed brown spots on the upper surface that are often mistaken for a foliar disease, especially after the galls dry up and fall off the underside of the leaf (Fig. 7).



Figure 7. Upperside of oak leaf affected by oak button galls on the underside (Joe Boggs, Ohio State University).

Another member of this genus, *Neuroterus saltatorius*, produces the jumping oak gall. Native to the western US, this wasp is now found on the east coast and has been reported in Virginia. Once these galls fall to the ground in mid-summer, the wasp larva inside the small gall throws its body against the interior walls to produce movement, much like Mexican jumping beans. It is thought that this action

can move the gall into more favorable nearby areas where the larva can continue its development.

Other wasp-induced leaf galls on oak resemble blisters, beads, or fuzzy balls. Galls of these types will sometimes separate from the leaves and fall from the tree, making a sticky mess on cars, decks, and sidewalks below the tree.

Mossy rose gall, made by *Diplolepis rosae*, resembles a springy ball of tangled filaments on the leaves or stems of roses (Fig. 8). They may be partly colored reddish-pink to yellow. If of concern, prune out and destroy the galls when found.



Figure 8. A mossy rose gall (Milan Zubrik, Forest Research Institute – Slovakia, Bugwood.org).

Blackberry knot galls are produced by the gall wasp *Diastrophus nebulosus*, a minor pest of blackberries. This wasp produces a lumpy, round or elongated gall along the blackberry cane (Fig. 9). This particular gall has characteristic longitudinal furrows, but related species of wasps may form similar galls without these furrows. Cutting out the gall and destroying it when found is recommended.



Figure 9. A blackberry knot gall produced by the gall wasp *Diastrophus nebulosus* (Judy Gallagher, CC BY 2.0 via Wikimedia Commons).

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