

## The Sheer Gall of those Wasps

By Susan Camp

In springtime the leaves are a delicate, baby green and the landscape looks like a Monet painting. At midsummer, the trees are lush and heavy with deep green leaves. By summer's end, the trees appear ragged and discolored. Leaf edges look as though they have been munched by hordes of hungry mice. Right now, near the end of October, the leaves on most of our trees haven't taken on fall color, except those of tulip poplars and sycamores, which turn brown and drift to the ground without the attractive fall hues of other deciduous trees. Some trees were affected by the late summer drought and appear parched and drab.

Even the remaining green leaves aren't very pretty anymore. If you closely examine your trees, especially the oaks, you may find strange, warty growths on leaves and twigs and areas of mottling and discoloration on leaves. Property owners often become concerned that their trees are infected with a serious fungal, viral, or bacterial disease. While an infection may need to be ruled out, chances are that the trees have developed one or more of many varieties of gall growths.

Galls are deformities that occur on twigs, leaves, bark, roots, flowers, and even acorns of many species of oak trees, which seem to be the most susceptible to infestation. Galls can take the form of lumps, spines, blisters, or flattened discolorations, varying in size from less than an inch to several inches in diameter. Most galls are caused by small insects, called gall makers, which include species of non-stinging Cynipid wasps and tiny flies called midges. Mites, which are related to spiders and ticks, can cause galls to form on some trees, as can fungi, viruses, bacteria, and tiny, microscopic worms called nematodes.

Galls are composed of plant tissue. They are formed when tree hormones react with growth-regulating chemicals secreted by parasitic, gall-forming insects. The insect larvae develop within the galls, using the plant tissue as a food source. Most of these insects have complex, little understood life cycles. Gall development often is a two year process. The galls themselves can be difficult to identify because they occur in many colors and forms. Virginia Cooperative Extension (VCE) Publications ENTO 145-NP, ENTO 146-NP, and ENTO 147-NP provide color photographs of galls produced by varieties of wasps, midges, aphids, scale insects, and mites.

Oak apple galls, caused by a species of wasp, form on oak leaves into large, spongy masses, each containing a hard-walled cell that houses a single wasp larva. Roly poly galls resemble green grapes. Like the oak apple gall, each structure contains one wasp larva. Oak spangles resemble reddish-brown buttons on oak leaf surfaces.

The galls that most commonly form on oak twigs and branches are the horned oak gall and the gouty oak gall. They are caused by two closely related wasp species. The galls look similar, but

the horned oak gall develops projections that make it resemble an alien spacecraft from a 1950's cartoon.

Oaks are not the only trees susceptible to attack by gall-making insects. Gall wasps attack roses, raspberries, and blackberries. Galls occur on maple, beech, poplar and nut trees. The good news is that although galls may not be aesthetically pleasing, they rarely harm healthy trees.

Insecticides and oil sprays will not penetrate the sturdy cell that houses each larva and timing of spraying is difficult because the life cycles of the different insects are variable. Small trees and shrubs can be pruned to remove galls, but pruning is impractical for large trees.

What can a property owner do when trees are infested with galls? The Missouri Botanical Garden entry "Gouty, Horned and Other Twig Galls" suggests learning to live with some gall deformities and using cultural methods of management to include raking and burning tree debris. Maintaining tree health is important; trees with heavy gall infestation may benefit from fertilizer application.

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