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# The Poplar Vagabond Gall Aphid

*Mordwilkoja vagabunda* (Walsh)

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**Order:** Homoptera (aphids, plant hoppers, scales, etc.)  
**Family:** Aphididae (aphids)  
**Metamorphosis:** Simple (egg-nymph-adult)  
**Mouthparts:** Piercing and sucking in nymphs and adults

The poplar vagabond gall aphid is found throughout much of the United States and is commonly associated with cottonwoods in Wyoming. The insect is inconspicuous because of its small size and secretive habits, but its galls are very noticeable and often plentiful on trees. Consequently, homeowners and others who value cottonwoods as ornamentals are often concerned about heavy infestations. Aphid injury is localized to the galled portions of a host tree, and apart from cosmetic effects the insects cause no appreciable harm to a host.

## Body Form

**Egg:** Eggs, deposited singly, are tiny and cannot be detected without the aid of some magnification. Most are found in old, dried galls persisting on the tree from the previous year. Some eggs may be hidden in bark crevices.



Gall of the poplar vagabond gall aphid, *Mordwilkoja vagabunda* (Walsh) on cottonwood.

**Nymph and adult:** There are a variety of body forms, sizes, and colors for vagabond gall aphids depending on their age and generation. They range from 0.6 to 4.6 millimeters (2/100 to 18/100 of an inch) in length and can be winged or wingless. Their color is pale green to dark brown. The easiest way to identify the vagabond gall aphid is by its association with galls. Except for brief periods of migration on or between plants, the aphid will always be found within its galls.

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## Life History

The poplar vagabond gall aphid life history is complex. It has multiple generations in a year, and there are changes in the insect's appearance and behavior from one generation to the next. The aphid also migrates from a primary cottonwood host to an unknown secondary host plant, returning to a cottonwood in a single season. A simplified account follows.

Poplar vagabond gall aphids overwinter as eggs inside old, dried galls and bark crevices. In the spring at the onset of budbreak and renewed plant growth, eggs hatch and young nymphs move to growing buds where they begin to feed by sucking plant juices. This feeding causes the unusual transformation of normal leaf tissue into a dense and irregular bladder-like mass of tissue known as a gall. The newly formed gall eventually encloses the founding aphids, which mature rapidly and produce hundreds of offspring. The combined feeding by these insects continues to stimulate gall growth, and galls mature by midsummer. At maturity galls become brown and dry and split to form exit paths for the aphids. New generations of winged aphids emerge and migrate with the aid of the wind to another plant or secondary host. The secondary host is unknown, but based on the habits of similar species it is believed that the vagabond gall aphid feeds and reproduces there. In late summer the winged generation returns to cottonwood hosts and inhabits old galls and lays eggs. The eggs survive the winter and then resume the life cycle in the following spring.

## Plant injury

Injury to cottonwoods is restricted to the galled portions of the plant, but galls are not detrimental to the overall health of the tree. In fact, they act as a natural pruning mechanism, halting stem elon-

gation and promoting the growth of side shoots. There may be considerable change in the appearance of the branches (most noticeable after leaf fall), especially in heavily infested trees which may have hundreds of galls in the upper branches. Some tree owners consider galled trees to be unsightly and hence are interested in ways to control the aphids and thus reduce or eliminate future gall formation.

## Management

Although it is not necessary to control aphids or galls for the health of a tree, several options exist for prevention. Pruning trees of galled stems and removing old galls during dormancy reduces or eliminates reinfestation rates the following year. Continued attention to gall removal will be necessary each winter or gall numbers are likely to increase gradually in successive years. Direct control of aphids is more difficult because of their protection in the galls. Also, there is only a very narrow window of time when aphids hatch and are vulnerable to insecticides. Appropriately labeled insecticides must be applied during the period of budbreak when aphids are hatching from overwintered eggs and seeking open buds on which to feed. Once galls have formed in the spring, insecticide treatments will not be effective. Chemical treatments may again be necessary in subsequent years to combat reinfestation from neighboring galled trees.

**Sources of further information:** The University of Wyoming can assist in locating additional literature. Information on related horticultural insects and specific chemical control options can be found in guides available from the University of Wyoming, Communications and Technology Resource Center, or by contacting a local University of Wyoming Cooperative Extension Service educator.

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