

WOOLLY ASH APHID

(taken from the Pacific Northwest Nursery IPM Website
Oregon State University
<http://oregonstate.edu/dept/nurspest/woolyashaphid/introduction.htm>)

INTRODUCTION

Woolly ash aphid is a key pest in nursery production of ash, *Fraxinus* spp. Damage from aphid feeding can be severe and lasting. Although this pest is relatively common, little information of its activity in nurseries and landscapes has been published. Most of the aphids described on ash are in the tribe Pemphiginae. Some Pemphigid aphids can infest the root systems of conifers. These aphids are described as woolly aphids due to the light colored waxy strands secreted by some stages.

There are several species of aphids that have been listed as occurring on ash trees (Blackman and Eastop, 1994). Walker (1969) mentions *Prociphilus (Pemphigus) americanus* Wlk. specimens collected from ash in California, Colorado, Oregon, Utah, and Canada. In the Northwest Zak (1965) mentions *P. americanus* using ash as an alternate host in rotation with Noble fir, *Abies procera* Rehd.

BIOLOGY

Aphids can have very complex biologies. They may have multiple host plants and widely varying shapes through the year. Additionally there may be confusion due to specialized terminology concerning aphid biology.

Ash trees are considered the primary host for *P. americanus* and noble fir trees, the secondary host. *P. americanus* is thought to overwinter on ash as eggs placed in bark crevices (Bugwood, 2000). The eggs hatch (eclose) in early spring and produce wingless females which reproduce without mating (parthenogenesis). This aphid form is the fundatrix or stem mother and her progeny are termed fundatrigenia, fundatripuria, or apterous (wingless)

viviparae (live birth) and also reproduce parthenogenetically. A wee bit confusing! Hang on, there's more.

The fundatrigenia give birth to winged (alate) aphids called Sexuparae. This winged stage allows the aphid to disperse, generally to the alternate host, the noble fir. This aphid form has both male and egg-laying (oviparae) female offspring. These offspring can mate and are known as Sexuales. The female Sexuales lay the overwintering eggs on the primary host, ash trees.

In the Pacific Northwest, root aphids can be found year round on both noble fir and ash trees according to nursery producers and research in Christmas tree production.

DAMAGE

Damage from woolly aphid feeding can be extensive. Aphid feeding induces curling in growing plant tissue. Enation or cupping of tissue can occur from the feeding of a single aphid. This damage is long lasting and can gravely impact the quality of nursery grown ash trees. The most critical economic damage in shade tree production occurs when the tree terminals are affected, often causing cull trees. Honeydew produced by the aphids is copious and may promote the growth of black sooty mold.

BIOLOGICAL CONTROL

Little is known about specific natural enemies associated with woolly ash aphid. Carver (1980) reports on a parasitic wasp, *Aphelinus prociphili*, of *P. fraxinifolii* (Riley) on ash in Iowa. Wu and Fang (1987) report of the importance of the predatory ladybeetle *Callicaria superba* Muls. The author's research has indicated there are a variety of natural enemies associated with this aphid. The natural enemy complex

generally does not keep plant damage below an acceptable level in nursery production. The natural enemies we have seen associated with woolly ash aphid in Oregon are syrphid flies, spiders, ladybeetles, and parasitic wasps.

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