

## The Cooley Spruce Gall Adelgid by Lloyd Eighme, retired entomologist

Adelgids are similar to aphids. This one has a complex life cycle with five biological forms, three on spruce and two on Douglas fir with a two year life cycle. Here we will just look at symptoms of its host and how to detect the damage it can do to landscape trees. If you want to learn more about its life cycle read EB 0996, "Managing the Cooley Spruce Gall Adelgid".

At first glance you might think your spruce tree is just making cones for seed. The female adelgid lays hundreds of eggs near the tip of a twig in the spring. The eggs hatch into hungry nymphs that find the soft new growth a good place to insert their beaks at the base of a needle. Their feeding stimulates the soft growing stem to swell into a cone-like structure enclosing the nymphs in a nutritious mass where they can feed on the plant juices while protected from their enemies. By midsummer the 1-2 inch long cone-like gall hardens and an opening forms at the base of each needle from which the mature adelgid escapes to fly away to another tree. If it lands on a Douglas fir it lays eggs on the needles where they hatch into a wingless form that sucks juices from the needles and forms a white woolly cover for protection. They can multiply in that form and by the end of summer the fir tree is decorated with tiny white tufts. It is too early for Christmas tree decorations and the infected needles drop off, spoiling the neat appearance of a good Christmas tree if the infection is heavy. Meanwhile (back to the spruce tree) the spruce tree has developed brown cone-like galls at the branch tips which do not drop off like real spruce cones, but remain for several years. That stops the terminal growth of the branch and produces a deformed spruce tree.

Spruce and Douglas fir trees in the forest can survive the attacks of the Spruce Gall Adelgid and grow to maturity. Landscape trees might also survive, but a heavy infestation of this pest will disfigure the trees and spoil their intended role as symmetrical forms in a beautiful landscape. Where Douglas fir and spruce trees are planted together in the landscape the problems caused by this pest will continue to increase.

Pesticides for spraying spruce and fir trees are recommended in the PNW Insect Control Handbook. Understanding this complex life cycle is essential to the proper use of pesticides as a control for Cooley Spruce Gall Adelgid.



Galls on spruce



Adelgid on Douglas Fir