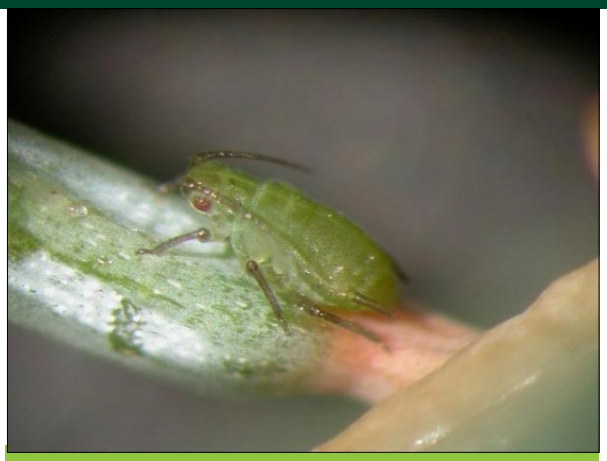
Spruce Aphid

Forest Health Fact Sheet

August 2017



USFS

Spruce aphid (<2mm in length)

Spruce aphid (*Elatobium abietinum*) is a sap-sucking insect that is thought to have been introduced from Europe, and has been established in Oregon since the 1920's. This insect attacks various native and ornamentally planted species of spruce. Infestations cause fading and premature loss of older needles. Repeated defoliation can cause some branches or the entire tree to die. Infestations are the most severe on large Sitka spruce growing along the coast. Spruce decline visible along the Oregon coast can often be attributed to repeated defoliation by the spruce aphid. Spruce aphid is not known to attack Engelmann spruce growing in high-elevation forests in Oregon.

Hosts

•Major: Sitka spruce and ornamental spruce

In the U.S., spruce aphid occurs from Alaska to California and into the southwest. The largest incidence of this pest in Oregon is along the coast where Sitka spruce grows. Spruce planted ornamentally around the state, such as Colorado Blue spruce, may also be attacked.

Biology

In western Oregon, spruce aphids are present on trees year-round. Populations in North America reproduce asexually and in Oregon there are several generations a year. Aphid populations increase dramatically and can be found on the underside of needles in late February and early March. The buildup of aphid populations on foliage occurs several weeks later in the eastern part of the state.

Spruce aphids bear live young which undergo several molts as nymphs ending with final development into an adult. Development can occur in as little as 3 weeks. Both winged and wingless adults occur.

Damage

Aphids feed on the sap in needles, causing yellow patches at the feeding site. Needles fade or turn yellow and from May - June needles turn brown and fall from the tree. When damage is finally apparent aphids have usually already dispersed to other trees. The heaviest damage from aphid feeding is in the lower or mid crown of the tree. Aphid infested trees often have sparse foliage, and are lacking older needles. In severe cases of defoliation, spruce may appear dead just before budburst in the spring. Usually buds are unaffected by aphid infestations and new growth flushes normally.

Elizabth Willhite, USFS, Bugwood.org

Yellowing needles from spruce aphid feeding

Management

Natural

Mild winter temperatures, typical of the coastal environment, may contribute to aphid outbreaks. Prolonged periods of cool temperatures or early spring frosts result in decreased survival. Populations reach their peak from February - April, which is too early for insect predators to significantly reduce aphid populations.

Silvicultural

Avoid fertilizing spruce; increased nitrogen content in foliage is preferred by aphids and contributes to increased fecundity.

Insecticides

Sprays are too costly and labor-intensive to apply across forest stands but may be used for ornamental trees. These sprays must be conducted in late March or early April, well before needle drop occurs, to be effective. In larger trees trunk injections or soil applications of imidacloprid are most effective at controlling spruce aphid infestations. Pesticides registered for use on spruce aphid can be found in the Pesticide Center Online (PICOL) database.

When using pesticides, always read and follow the label

Management

- Prolonged periods of cool temperatures or early spring frosts can reduce aphid populations
- Avoid fertilizing spruce
- Spray ornamental trees in late March or early April
- Large ornamental trees can be treated with trunk injections or soil applications

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Loss of older needles from spruce aphid feeding

More information:

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503-945-7200
http://www.oregon.gov/ODF/ForestBenefits/Pages/ForestHealth.aspx

References & further reading:

U.S. Forest Service:
http://www.fs.usda.gov/main/r6/forest-grasslandhealth
Oregon State University:
http://extensionweb.forestry.oregonstate.edu/