



Spruce Aphid

Forest Health Fact Sheet

August 2017



Spruce aphid (<2mm in length)

USFS

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 ornamental 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

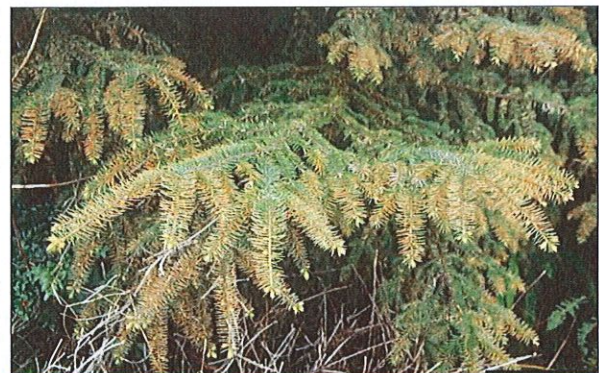
In western Oregon, spruce aphids are present on trees year-round. Populations in North America reproduce asexually and in Oregon there are several generations a year. Aphid populations increase dramatically and can be found on the underside of needles in late February and early March. The buildup of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



Yellowing needles from spruce aphid feeding

Elizabeth Willhite, USFS, Bugwood.org

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.

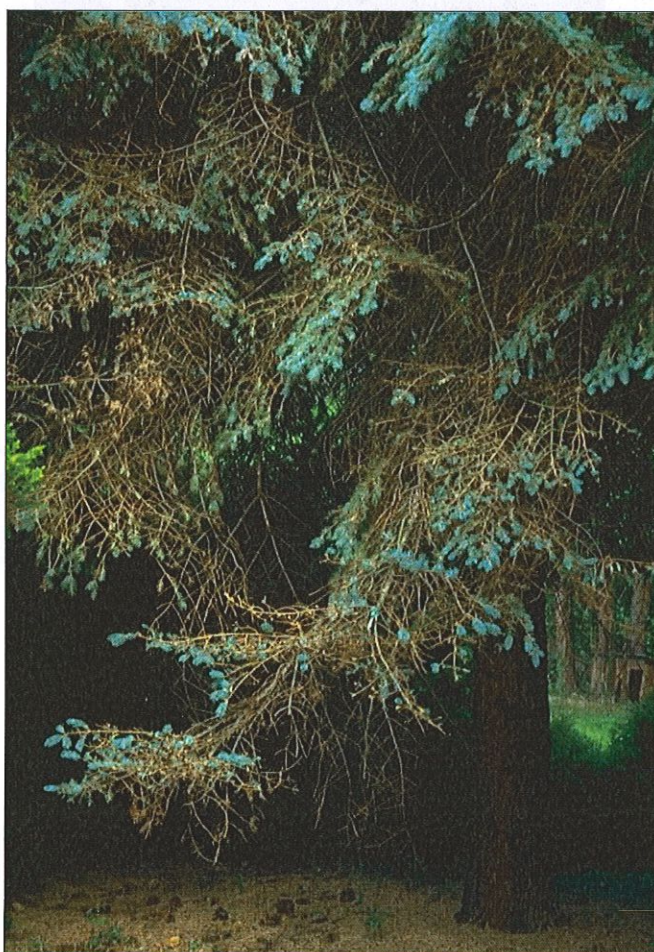
Insecticides

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:

Oregon Dept. of Forestry, Forest Health
2600 State St. Bldg. D, Salem, OR 97310
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/>



Forest Health Pest Alert (2019): Spruce aphid in coastal spruce

In spring 2019 there have been reports of spruce aphid damage in Sitka spruce along the Oregon coast. Spruce aphid (*Elatobium abietinum*) is a non-native insect that has been established on the west coast since the early 1900's and feeds on sap in needles of primarily spruce. Their populations periodically increase, often as a result of mild winters, and cause spruce needles to turn brown or prematurely shed. Damage is most severe at the start of spring, after the peak of aphid feeding, and is targeted on older needles that are lower in the canopy and more shaded. Tree buds are not damaged by this insect and will open and flush new needles in the same year of damage – even on heavily attacked trees. Aphid populations are largest in spring but decline as the season progresses due to natural enemies, overcrowding and lack of nutritious foliage (nitrogen levels decrease into summer).



Intense damage from this insect can result in shed branches and reduced diameter and height growth but mortality is a risk only after multiple, sequential years of intensive feeding. However, many trees in Oregon have been impacted by drought since 2012, which reduces their ability to produce defensive compounds and makes them more susceptible to damage or mortality from insect outbreaks.

Management options:

- 1) Wait out this outbreak. Outbreaks from this insect often collapse on their own due to natural enemies, colder winter temperatures, late spring frosts, lack of nutritious host material, etc.
- 2) Do not fertilize spruce trees. Aphids prefer nitrogen-rich trees.
- 3) Smaller trees may be sprayed with water from a high-pressure sprayer or sprayed with a soap water dilution.
- 4) Insecticide systemic tree injections, soil drenches or external sprays labeled for use against spruce aphid may be effective but chemical treatment is not advised, in most situations, due to prohibitive cost and impacts on non-targets. If treatment is necessary, contact ODF entomologist to discuss monitoring and treatment options.

For more info on spruce aphid:

<http://tinyurl.com/ODF-ForestHealth>

Questions?

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