



# Forest Health Note

## Hosts:

Sitka spruce and most ornamental spruces grown in Oregon.

## Importance:

Spruce aphid infestations cause premature loss of older needles. A series of defoliation events can cause some branches or the entire tree to die. Large Sitka spruce growing near the coast often suffer severe aphid infestations. Much of the spruce decline visible along the Oregon coast is attributable to repeated defoliation by the spruce aphid. The appearance of ornamental spruce, particularly Colorado blue spruce, may be ruined by the needle loss associated with aphid infestations.



Photo: Don Owens, CDF; Bugwood.org

Figure 1: Loss of older needles gives aphid-infested spruce a thin, sickly crown.

## Spruce Aphid (*Elatobium abietina*)

### Look For:

Aphid infested trees have sparse foliage (Figure 1). Close examination of a branch reveals the absence of most older needles (Figure 2).

### February - April

Small, green aphids are found on the underside of older needles (Figure 3). The nymph stage is particularly abundant when aphid numbers are increasing rapidly in late winter and early spring. In eastern Oregon, the buildup of aphid populations on foliage occurs several weeks later than in the western part of the state.



Photo: Dave Overhulser, ODF

Figure 2: Feeding of spruce aphid causes older needles to be lost, leaving only the current year's growth.

### April - May

Spruce needles yellow and fall from heavily infested trees. Massive needle drop from large trees near the coast

is common. When infested spruce branches overhang houses, gutters and drains are clogged with 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.

**“...defoliation events can cause some branches or the entire tree to die.”**

### Biology:

The spruce aphid is thought to have been introduced to North America from Europe. In western Oregon, spruce aphids are present on trees year-round, and there are probably several generations each year. Aphid populations increase dramatically in late February and early March. Aphids feed on the sap of needles, causing yellow patches at the feeding site. The heaviest damage from aphid feeding is in the lower or mid crown of the tree. During May - June, damaged needles turn completely

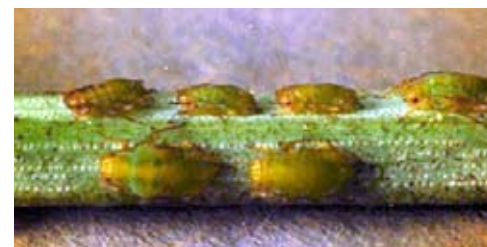


Figure 3: Green, wingless nymphs (1.5mm in length), with red eyes, are found on the underside of older spruce needles.

brown and drop off the tree. Mild winter temperatures, typical of the coastal environment, may contribute to aphid outbreaks. Avoid fertilizing spruce, since the increased nitrogen content in foliage may result in greater aphid fecundity and higher populations.

***Control:***

*Natural*

Weather is believed to strongly affect spruce aphid abundance and prolonged periods of cool temperatures or early spring frosts result in decreased survival. The high aphid populations, occurring from February - April, are active too early for insect predators to be effective in significantly reducing aphid populations.

*Insecticides*

Ornamental spruce can be treated with insecticides for aphid control. Spraying must be conducted in late March or early April, well before needle drop occurs, to be effective. The following formulations are registered for use on ornamental spruce to control spruce aphid infestations:

- Insecticidal soap
- Bifenthrin
- Acephate
- Imidacloprid

Trunk injections or soil applications of imidacloprid are most effective at controlling spruce aphid infestations in larger trees.

**Remember, when using pesticides, always read and follow the label.**

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