



## Black pineleaf scale

*Nuculaspis californica*

Order Homoptera, Family Diaspididae; armored scales

Native pest

**Host plants:** Douglas-fir preferred, but most species of pine are susceptible.

**Description:** Adult scales are convex, oval, 1.5 mm in diameter, and black with gray margins and a yellow central area.

**Life history:** Black pineleaf scale infestations occur only on the needles. There is one generation per year.

**Overwintering:** Adults on needles.

**Damage symptoms:** Infestations are often localized with sometimes just one or two trees in an area being affected. Injured needles turn yellow and eventually drop. Severely infested trees exhibit sparse, short needles. Extreme cases may cause the death.

**Monitoring:** Eggs hatch when Greenspire littleleaf linden and Northern catalpa bloom mid to late June (Herms). Look throughout the year for adult scale covers, needle yellowing and needle shortness. Look for crawler activity in late June to early July.

**Chemical control:** *General information.*

*Conservation of beneficial insects:* Use short duration, low residual insecticides, such as horticultural oil, insecticidal soap, and insect growth regulators (IGR).

*Foliar applied broad spectrum insecticides, such as acephate, carbaryl, imidacloprid, and pyrethroids:* Use only when scale populations are high to rescue trees; beneficial insects will be also killed.

*Dormant season oil treatments:* Use for soft scales that winter as immatures; and for armored scales that winter as eggs under female cover (delayed dormant).

*Summer oil treatment:* Oil smothers exposed eggs, crawlers, and immature females.

*Insect growth regulators (IGR), such as pyriproxifen.* Use for crawlers as they disrupt molting.

*Soil applied systemic insecticides or trunk injections, such as imidacloprid:* Apply in fall for crawlers in spring; not effective against armored scales which feed at different sites than soft scales. Less harmful to beneficial insects than foliar-applied, broad spectrum insecticides.

**Biological control:** Two parasitic wasps, *Prospaltella* sp., and *Phyiscus varicornis*, can exert significant control.

**Plant mortality risk:** High

**Biorational pesticides:** horticultural oil, insecticidal soap, pyriproxifen



Black pineleaf scale adult females. (19)

Photo: George Heaton



Close-up of black pineleaf scale adult females. (19)

Photo: Donald Alstad

**Conventional pesticides:** acephate, bifenthrin, carbaryl, chlorpyrifos (nursery only), deltamethrin, fluvalinate, lambda-cyhalothrin, malation, permethrin