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Forest Health Protection and State Forestry Organizations

Management Guide for Black Pineleaf Scale

Nuculaspis californica (Coleman)

Sustained heavy feeding for several years progressively weakens and can kill trees.

Hosts:

- Ponderosa pine
- Western White Pine

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Scale Insects infest stressed trees

Trees under stress from soil moisture deficit, soil compaction, spray drift, root damage, salt, smog, and dust tend to be especially susceptible to scales. Dust may have a deleterious effect on the natural enemies of the scale, or upon reduced photosynthesis (which may favor scale survival), or both.

Scale insects are capable of killing trees after several years of

infestation. Persistent infestations cause sparse, short foliage on twig tips. Needles turn blotchy, yellowish-green and may drop off.

Black pineleaf scale covers about the same range as the pine needle scale and can be associated with it. During the late seventies it killed many mixed-sized ponderosa pines, near the Clearwater River west of Orofino, Idaho.

Key Points

- Stressed trees are susceptible to scale insects
- Dust is particularly damaging, especially to natural controls of scales.
- Pesticide application in June reduces populations by killing crawlers.

Management

Preventing or minimizing infestation is the most efficient means to manage scale insects. Chemical control may also be effective.

Prevent or minimize

- Keep trees vigorous— trees under stress are the most likely victims of scales.
- Maintain biological controls—The wasp parasitoid, *Prospaltella* sp., normally keeps scale populations at low densities. Dust may have a deleterious effect on *Prospaltella*.

Chemical control

- Spraying is effective and should be directed against the crawlers near the end of June. There are several insecticides registered for scale control such as carbaryl and acephate. Always follow label instructions when using pesticides.

Life History

Black pineleaf scale overwinters as nymphs under black scale covering. In mid-June males emerge and mate with immature females. Eggs are laid under scales and the new crawlers settle on the same needle or nearby spring needle. Nymphs suck needle juices until fall. There is one generation per year.

Identification

Sites on needles infested by the scale tend to become spotted or blotched with yellow patches. Scale coverings are gray to black and the scale of the mature female is about 2 mm long, broadly oval in outline, broadly conical in profile, and has a central yellowish-brown nipple. The insect and eggs under the scale are yellow.

Other Reading

Edmunds, C. F., Jr. 1973. Ecology of black pineleaf scale. (Homoptera: Diaspididae). *Environ. Ent.* 2(5): 765-777.

Johnson, W. T. and H. H. Lyon. 1976. *Insects that feed on trees and shrubs.* Cornell University Press, Ithaca, New York, p. 82 illus.

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