



TREES & SHRUBS

Oystershell Scale

no. 5.513

by W.S. Cranshaw¹ (12/08)

Quick Facts...

Oystershell scales feed on the plant by sucking plant sap. Heavy infestations can kill branches and even cause the decline and death of the tree.

In most areas of Colorado, there is only one generation per year.

Oystershell scales overwinter in the egg stage.

The eggs hatch in the spring and the newly emerged insects quickly attach themselves to the plant.

Oystershell scale can be controlled in the winter by using a dormant oil.

More than 50 plant species in Colorado are attacked by the oystershell scale. Of these, aspen, ash, cotoneaster, dogwood, lilac, poplar and willow are most commonly infested.

Oystershell scales attach themselves to the bark of twigs and branches. They feed on the plant by sucking out plant sap and can weaken and even kill the plant when the infestations are abundant.

Description and Life Cycle

The most familiar stage of the oystershell scale is the covering of the full-grown female scale that overwinters attached to the bark (Figure 1). The mother scale is about 1/8-inch long, brown or gray, slightly banded, and the general shape of an oyster shell. The overall appearance of the scale often is similar to that of the underlying bark and these insects are easily overlooked. Old scales can stay attached to the tree for several years before falling off.

The oystershell scale overwinters in Colorado only in the egg stage. Eggs are underneath the old scale covering of the mother. At lower elevations, eggs typically hatch in late May or early June. At higher elevations, egg hatch may be delayed into mid-June.

Eggs from all the scale insects do not hatch at the same time, and egg hatch may last a couple of weeks. Eggs of oystershell scale with two generations per year are reported to hatch earlier than one-generation scales. In most areas of the state, there is only one generation of the insect per year. Where two-generation races exist, second generation egg hatch occurs in July and August.

The newly hatched scale insects are called crawlers. The crawlers are pale and smaller than a pinhead. This is the only mobile stage in the life history of the oystershell scale.

After a few hours, the crawlers find a suitable location, usually on a shaded area of the tree. They insert their mouthparts into the plant, begin to feed and soon molt. They remain in this location for the rest of their lives. Within a week they are covered with a waxy scale that protects them from most insecticides.

Control

Overwintering scales can be scrubbed off of small trees and shrubs with a plastic scrub pad. Avoid vigorous scrubbing on thin-barked trees which can be injured.

Where heavy infestations are present but limited to single branches, consider pruning. The scales and eggs on pruned wood should die within a few weeks but some precaution should be made to remove prunings from the vicinity of host trees to prevent possible infestation by crawlers.

**Colorado
State**
University

Extension



Figure 1: Oystershell scale adults and crawlers.



Figure 2: Oystershell scale on aspen trunk.



Figure 3: Closeup of Oystershell scales

Oystershell scales can be difficult to control because they are well-protected with a thick waxy covering for most of their lives. One popular method for assisting in control is to use a horticultural oil (see fact sheet 5.569, *Insect Control: Horticultural Oils*) before bud break in spring—a ‘dormant oil’ application. Oils applied during the dormant season can kill many oystershell scales before eggs hatch. However, the wax covering of oystershell scale is a barrier to effective use of horticultural oils during the dormant season and may result in erratic control.

Most horticultural oils can also be used after leaves emerged. Young oystershell scales—crawlers and newly settled scales—can be killed by oils applied in late spring. After leaves have emerged oystershell scale is particularly vulnerable during the crawler stage. After this time the waxy cover prevents most insecticides (except oils) from being effective. However, the crawler stage is highly susceptible to almost all insecticides (Table 1).

The occurrence of the crawlers usually occurs in late May or early June, but may vary considerably due to plant location and weather. Weekly examinations of infested plants can detect when the tiny yellow first stages of the oystershell scale have hatched from eggs and move about the plants. Close inspection can detect them, although some magnification is useful. Crawlers can be dislodged for easier view by shaking infested branches over a sheet of paper or tray. Double-sided sticky tape on branches can be used to capture crawlers for inspection.

Several insecticides that have some residual activity can be used to control crawlers during the period they are present (Table 1). Usually a single application applied to coincide with the beginning of the crawler period can kill crawlers for the subsequent few weeks that they are present.

Systemic insecticides that are applied to soil or injected into trunks are sometime promoted for control of oystershell scale. Most systemic insecticides, such as imidacloprid (Merit) or acephate (Orthene, AceCaps) provide poor control of oystershell scale since they do not move in high concentration to the site where the scale insect feeds (mesophyll cells). Use of these products is not recommended for control of this scale insect.

A newer systemic insecticide with increased water solubility, dinotefuran, does appear to be able to control oystershell scale when applied as a soil treatment. However, at present dinotefuran is only available in formulations sold to commercial applicators, under the trade name Safari. Over-the-counter formulations of this insecticide that can be used on shade trees are not currently available.

Table 1: Active ingredients of some insecticides used to control oystershell scale crawlers.

| | |
|---------------------------------|---------------|
| acephate (Orthene) ¹ | bifenthrin |
| carbaryl (Sevin) | cyfluthrin |
| lambda cyhalothrin | esfenvalerate |
| horticultural oils ² | permethrin |

Always read and follow label instructions for mixing, usage and application safety.

¹Acephate may injury foliage of aspen, cottonwood and some flowering crabapples

²Horticultural oils do not have any residual activity and have to be reapplied to control crawlers. However, it can also control stages of oystershell scale after the crawler stage by smothering the young scales that have settled on the bark and begun to feed.