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# OAK PIT SCALES

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*Integrated Pest Management for Home Gardeners and Landscape Professionals*

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Several *Asterodiapsis* species of pit scales (family Asterolecaniidae) attack many of the common deciduous and evergreen oaks that grow in California, with the valley oak, *Quercus lobata*, affected more frequently and severely than other species. Damage can be serious in oaks along the Central Coast as well as in the Central Valley.

## DAMAGE

Pit scales suck juices from twigs and cause twig dieback, which first becomes apparent in mid- to late summer (Figure 1). Dead leaves and twigs on affected trees may remain throughout the winter, giving the tree an unsightly appearance (Figure 2); however, don't confuse this with the natural retention of dead leaves characteristic of a few oak species such as pin oak and Turkish oak. A severe scale infestation delays the leafing out of deciduous oaks for as long as three weeks in spring. Heavy attacks of pit scales year after year may kill young trees.

The pitting effect scales cause is most noticeable on the bark of younger twigs (Figure 3). Surrounding the pit is a doughnut-shaped swelling with the scale in the center. If there are large numbers of scales, the pits coalesce, making the twig surface appear roughened and dimpled.

## LIFE CYCLE

The adult scale is a brown or dull green, flattened, circular, immobile insect about the size of the head of a pin. Immature scales, known as crawlers, are difficult to see without a magnifying glass (Figure 4).

Adult scales, all of which are female, produce living young from April through October in Northern California; maximum numbers of young are produced in May and June. The imma-



Figure 1. A twig that oak pit scales killed.



Figure 2. Dead leaves remain on an infested twig in winter.

ture scale then moves about for several days before settling on a twig, where it remains for the rest of its life. The crawlers enlarge by late fall, and the cycle begins again the following spring.

## MANAGEMENT

Natural enemies of the pit scale are uncommon in California, although parasite exit holes may sometimes be observed. Insecticide application is the main tool currently available for managing these pests; however, it may be possible to prune out isolated areas of infestation if detected very early. Because heavy infestations over several years can kill young trees and weaken older ones, consider management actions as soon as problems are detected.

Pit scales can be managed using narrow range oil applied to trees in spring just before buds open. Be sure to cover



Figure 3. Golden oak scales and pits made by scales that have dropped off.



Figure 4. Oak pit scale nymphs.

all branch tips and bark thoroughly. Thorough coverage can be difficult with very large trees unless high-pressure equipment is used. However, infestations on small- to medium-sized trees can be adequately managed with one annual application over several consecutive years. Insecticidal oil should be diluted to a solution of 1.5 to 2% (1.5-2 parts oil to 100 parts water). Once leaves are on the tree, it is too difficult to get the degree of coverage needed for oil treatments to be effective.

Although mixtures of oil and persistent insecticides such as pyrethroids applied in spring to kill hatching crawlers can be effective, these sprays aren't generally recommended for large trees in residential areas because of the environmental hazards associated with applying these insecticides and the difficulty of getting adequate coverage with available application equipment.

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# PEST NOTES

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## REFERENCES

Dreistadt, S. H., J. K. Clark, and M. L. Flint. 2004. *Pests of Landscape Trees and Shrubs: An Integrated Pest Management Guide*, 2nd ed. Oakland: Univ. Calif. Agric. Nat. Res. Publ. 3359.

Koehler, C. S., L. R. Brown, and C. O. Eads. 1980. *Pit Scales on Oak*. Oakland: Univ. Calif. Agric. Nat. Res. Leaflet 2543. ❖

### WARNING ON THE USE OF CHEMICALS

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original, labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Pesticides applied in your home and landscape can move and contaminate creeks, rivers, and oceans. Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits or vegetables ready to be picked.

Do not place containers containing pesticide in the trash or pour pesticides down the sink or toilet. Either use the pesticide according to the label, or take unwanted pesticides to a Household Hazardous Waste Collection site. Contact your county agricultural commissioner for additional information on safe container disposal and for the location of the Household Hazardous Waste Collection site nearest you. Dispose of empty containers by following label directions. Never reuse or burn the containers or dispose of them in such a manner that they may contaminate water supplies or natural waterways.

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