

OBSCURE SCALE

Hemiptera: Diaspididae, *Melanaspis obscura* (Comstock)

By Eric Day

ATTACKED: Primarily oaks, chestnuts, pecan and other hickories, but also several other ornamental trees. It is not a pest of forest trees.

DESCRIPTION OF DAMAGE: Heavily infested trees will have large numbers of scales on twigs and branches. Scales may also be found on exposed roots and on the trunk of young trees. Scale insects feed on plant sap with their long thread-like mouthparts (stylets), which are several times longer than the insect itself. The continual drain of sap from the scale's feeding and the disruption of the photosynthetic and respiratory functions of the bark due to encrustation (see below) weaken the infested tree. Infestations seldom kill the tree directly, but can cause extensive die-back of twigs and branches which decreases the tree's aesthetic value. Weakened trees also are more susceptible to secondary infestation by other insects and diseases, which can kill.



Obscure scale. James Solomon, USDA Forest Service. Bugwood.org.

IDENTIFICATION: As its name implies, obscure scale is difficult to detect, particularly when it occurs on trees with dark-colored bark. The protective cover above the insect is typically gray but is often the same color as the bark. This cover will have a diameter of no more than 3mm when the insect is mature. At times, a small black cap is evident near the center of the cover. All developmental stages except the immature female stage are pink in color. Immature females are light yellow to cream. The first stage of development following egg hatch is called the crawler stage. This developmental stage is the only one other than the adult male stage that possesses legs and is able to walk. Crawlers tend to settle under their maternal cover or under covers of past generations and begin forming their cover. This encrusting behavior results in patches of scale covers several layers deep that resemble roughened areas on the bark.

LIFE HISTORY: On pin oak in Maryland, eggs are laid from the end of June through the beginning of September. Crawlers emerge from the first of July through mid-September; however, crawler activity peaks from mid to late July. Crawlers settle, begin feeding, and form their protective cover within an hour. Males will feed and grow until the following April at which time they discontinue feeding and

enter a pre-pupal and pupal stage. Adult males will emerge from the pupal stage throughout the second half of May, mate with adult females, and then die.

The female feeds throughout her entire life until she lays eggs that following summer. Approximately two weeks prior to crawler emergence, adult females will add a small flap to their cover through which crawlers may exit. There is one generation per year. The scale's development on white oak occurs one month later than that on pin oak.

CONTROL: Several factors contribute to the difficulty of controlling obscure scale: (1) the scale's waxy cover provides protection against pesticide exposure; (2) crawlers tend to settle under the protection of older scale covers, thus producing a layering or encrusting effect; and (3) crawler activity extends over a long period of time. Dormant oil can be applied to the overwintering stages (second-instar males and females on pin oak; settled crawlers on white oak). During the growing season, when dormant oil cannot be used, insecticide treatments must be correctly timed at either the unprotected adult males or unprotected crawlers. Crawlers emerge approximately two weeks following the formation of the exit flap on the adult female covers. If using exit flaps to predict crawler emergence, one must be sure that the covers possessing the flaps are of the present generation. This can be done by removing the cover and determining if there is a living female beneath. Although difficult, male emergence may be monitored by placing sticky traps within the canopy during May. An example of a sticky trap is an ice cream lid coated with a tacky substance such as petroleum jelly, and hung from infested branches.

See the Virginia Pest Management Guide for specific insecticides for control. Average treatment dates given for the control of crawlers on red oaks (e.g., pin oak) is mid-July, and for those on white oaks (e.g., white oak) is mid August. Care should be taken when applying insecticides because they may deplete the scale's natural enemy populations.

REMARKS: A serious pest for landscape oaks! Very difficult to control once the scale population becomes established. Early detection of infested trees is necessary for best control and infested twigs and branches should be pruned from the tree and destroyed before scale populations reach injurious levels. Consideration should be given to the adult male stage rather than the crawler stage when applying contact insecticides, because this stage occurs over a much shorter period of time. Chemical applications at this stage will require fewer treatments and will have a less detrimental effect on the natural enemies of obscure scale.