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Obscure Scale

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Introduction

Obscure scale, *Melanaspis obscura*, belongs to the family Diaspididae in the order Hemiptera. Obscure scale is a key pest of oak in the landscape, but also infests hickory, walnut, maple, and other hardwood trees.

Identification

As its name implies, obscure scale is difficult to detect, particularly when it occurs on trees with similarly-colored bark (Fig. 1). The protective cover over the insect is typically gray, but is often the same color as the bark. This cover has a diameter of no more than 3 mm when the insect is mature. A small black cap may be seen near the center of the cover on some scales (Fig. 1). All developmental stages are pink in color under their protective cover (Fig. 2) except for immature females, which are light yellow to cream.

Figure 1. Obscure scale on oak twig (Lorraine Graney, Bartlett Tree Experts, Bugwood.org).

The first stage of development after egg hatch is the crawler stage. Only scales in the crawler stage and the adult male stage are able to walk. Crawlers tend to settle under their maternal cover or under the covers of past generations and begin forming their own cover. This encrusting behavior results in patches of scale covers several layers deep that resemble roughened or thickened areas on the bark (Fig. 3).

Figure 2. Adult female obscure scales with protective covers removed, exposing their eggs and hatched crawlers (Lorraine Graney, Bartlett Tree Experts, Bugwood.org).

Figure 3. Heavily infested pin oak branch (John A. Davidson, UMD College Park, Bugwood.org).

Damage

Heavily infested trees will have large numbers of scales on twigs and branches (Fig. 3). Scales may also be found on exposed roots and on the trunk of

young trees. Like all scale insects, obscure scale feeds on plant sap with long, thread-like mouthparts (stylets) that are several times longer than the insect itself. The continual drain of sap by the scale's feeding and the disruption of the photosynthetic and respiratory functions of the bark due to encrustation (Fig. 3) weakens 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 the tree.

Life History

On pin oak in Maryland, obscure scale 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 quickly form their protective covers. Males will feed and grow until the following April at which time they stop feeding and enter the pre-pupal and pupal stages. Adult males emerge from the pupal stage during the second half of May, mate with adult females, and then die. Female obscure scales continue feeding until they lay their eggs the following summer (Fig. 2). Approximately two weeks before crawler emergence, adult females will add a small flap to their cover through which crawlers may exit. There is one generation per year. The development of obscure scale on white oaks 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 protective crust older scale covers; 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 oaks). During the growing season when dormant oil should not be used, insecticide treatments must be correctly timed to target either the unprotected adult males or the naked crawlers. Crawlers emerge approximately two weeks following the formation of the exit flap on the adult female covers. If using the presence of the exit flaps to predict crawler emergence, be certain that the covers possessing the flaps are of the present generation by removing the cover and determining if there is a living female beneath (Fig. 2).

Although labor intensive, male emergence may be monitored by placing sticky traps within the canopy during May. One example of a sticky trap is an ice cream lid coated with a tacky substance such as petroleum jelly and hung from infested branches. Sticky traps should be monitored frequently to detect male scale emergence.

See the current Home Grounds and Animals Virginia Pest Management Guide (VCE publication 456-018) for registered insecticides recommended for control of obscure scale. Crawlers on oaks in the red oak group (e.g., pin oak) should be targeted in mid-July, and for those on oaks in the white oak group (e.g., white oak) in mid-August. Monitor for scales yearly as it may take several years to get the infestation under control. Apply insecticides carefully because they may deplete the scale's natural enemy populations.

Remarks

Obscure scale is a serious pest of landscape oaks! Established populations are very difficult to control, so early detection of infested trees is necessary. Prune and destroy infested twigs and branches from the tree before scale populations reach injurious levels. Consider applying contact insecticides to the adult male stage rather than the crawler stage. Adult males are present over a much shorter period of time, requiring fewer chemical applications and having a smaller impact on the scale’s natural enemies.

Revised

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