

Japanese Maple Scale, *Lopholeucaspis japonica* Armored Scale of Nursery and Landscape Trees

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Introduction

In Maryland we have many species of armored scales but the Japanese maple scale, *Lopholeucaspis japonica*, has in the last 5 years become one of the most frequently encountered scales in nurseries and landscapes. This scale is being found on a very wide range of plant material. A body covering that conceals the scale and its cryptic coloration and nature makes this scale very difficult to detect. Populations can build up over several years to levels that cause dieback and even death of the infested tree. When this scale becomes established in a nursery it will often spread throughout the nursery and infest many different species of woody plants. This scale is not a quarantine pest on the east coast but several states in the mid-west have quarantines on Japanese maple scale. Plant material infested with this pest can be condemned when shipping to mid-west states.

Physical Characteristics to Look for in Field Situations

Armored scales are members of the family Diaspididae. The presence of a cover that is not attached to the body is good field characteristic to distinguish armored scales from other families. The cover of Japanese maple scale is elongate. The second instar shed skin that is part of the cover is light brown. This is overlaid with a dirty whitish colored wax. The male and females covers look very similar but the male covering is smaller.



Males and females showing dirty white wax cover



White wax has been rubbed off cover

Life Cycle

The lifecycle of Japanese maple scale is rather poorly understood. It is pretty well documented that Japanese maple scale has three female instars and five male instars including adults. The information on what stage of development that the scale overwinters varies between researchers. In Pennsylvania and Japan it is reported to overwinter as fertilized 3rd instar females. Other researchers report that it overwinters as 2nd instar male and females. Miller and Davidson (2005) report that adult females and males are not found until April which would indicate that they overwinter in Maryland as 2nd instars. We do know that the egg laying is over a relatively long period of time. In Maryland at CMREC, Clarksville, MD we have observed females laying eggs in early May in warm springs but in most years egg laying starts in mid to late May. Miller and Davidson (2005) report that eggs continue to be laid by females through June and early July. We have observed crawlers in late May to early June (2002 through 2007) and have observed them until the first week of August. Miller and Davidson report 2nd instars present from the last of June through late August and adult females from July through October. Eggs of the fall generation are present from late July and continue through October. Because the egg laying period is over a long period of time it is very difficult to distinguish between the two generations.

Host Plants for Japanese Maple Scale

Acer spp. (maples – American red, Japanese red, sugar maple and paperbark maple), *Camellia*, *Cornus* (American dogwood, Chinese dogwood and hybrid dogwoods), *Cotoneaster*, *Diospyros* (native persimmon and oriental persimmon), *Euonymus*, *Fraxinus* (Ash), *Magnolia*, *Malus* (crabapples), *Prunus*, *Pyracantha*, *Pyrus* (ornamental and edible pears), *Salix* (willow), *Styrax*, *Syringa* (Lilac), *Ulmus* (elms), *Zelkova*.

Monitoring

Examine plants with slow dieback of branches for presence of male and female scale. Look under tree guards (**photo**) because this is an area along the bark where Japanese maple scale can build up quickly.



Control

Horticultural oil can be applied at 2 - 3% rates in the fall after leaves drop or in spring before bud break. If treating in fall or spring, make sure to apply when temperature are above 50 - 60 °F for 4 – 5 days. Summer rates oils applied at 0.5 – 1.0 % can be applied during the growing season when crawlers and early instars are present. The summer oil will also kill early instar scales. Do not apply horticultural oils to drought stressed plants. When crawlers and early instars are present, which is over a relatively long time, one of the two insect growth regulators (IGRs), Distance or Talus, can be applied. The IGRs will prevent the crawlers or early instar stages from developing into the next instar stage, resulting in death of the insect. IGRs are slow acting so patience is helpful. The systemic dinotefuran (Safari) has been used to control several species of armored scale but there is no published data on efficacy of this material on Japanese maple scale.

Sources

Johnson, Warren J., and H.H. Lyon. 1991. *Insects that Feed on Trees and Shrubs – Second Edition*, Cornell University Press

Miller, Douglass R., and J. Davidson. 2005. *Armored Scale Insect Pests of Trees and Shrubs*. Cornell University Press.

Photographs by Suzanne Klick and Stanton Gill.

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