

## Matters of Scale: Wax and Azalea Bark Scales

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Scale insects are becoming more of a problem in northeast landscapes and nurseries including some 'new' species in the region. Wax scale (*Ceroplastes ceriferus*), also known as Indian wax scale, is a non-native pest established in the southeastern U.S. but now being found as far north as Long Island and Westchester County where it seems to be surviving winters with some regularity, both outdoors and especially under cover in nurseries. Holly, euonymus, and rhododendron are among the plants most affected, but the host range includes over 50 landscape ornamentals such as andromeda, pyracantha, boxwood, hemlock, camellia, spirea, flowering quince and barberry. Azalea bark scale (*Acanthococcus* [*Eriococcus*] *azaleae*) is another exotic species probably established in much of the US. It overwinters regularly in the northeastern US and has been present for many years in NY. It feeds on a variety of hosts mostly in families Ericaceae and Salicaceae, including azalea, rhododendron, blueberry and huckleberry. (A very similar species on crape myrtle has been shown to be a separate species.)



Wax scales can build to high levels on host plants. Inset: Close-up of mature female Photos © Dan Gilrein



Azalea bark scale on rhododendron stem © Dan Gilrein

### Descriptions

Wax scale is among the strangest-looking of the soft scales. Adult females (males are rare) have circular thick white, waxy protective covers and are relatively large, ranging in size from 1/8 to 1/4 inch long. Even a few can detract from the appearance or cause rejection at sale, but they often develop into large populations on host plants. Like other soft scales, wax scale produces a lot of honeydew followed by sooty mold that further spoils the plant's appearance. Heavy infestations can also reduce plant vigor. Azalea bark scale is also an unusual species, placed in the 'felt scale' group noted for the white felt-like covering of adults. They also produce copious honeydew resulting in sooty mold coating twigs and leaves. Heavily infested plants can turn yellow and appear unhealthy.



Sooty mold on rhododendron leaves and branches from azalea bark scale © Dan Gilrein

### Life Cycle

Some details on the biology reveal why these scales can be serious pests and also where they are most vulnerable to control. Wax scale females typically lay between 1,200 and 2,000 eggs around late spring, but some may lay up to 3,000. In Riverhead in 2014, we found the tiny, newly hatched crawlers appearing at 1077 GDD<sub>50</sub> (July 3) with most hatched by 1424 GDD<sub>50</sub> (July 18), though in some locations and years the egg hatch period can be more protracted. Crawlers (first stage after hatching) soon settle on twigs where they remain their entire lives, but when populations are high some may establish along the leaf midribs. As the scales develop, they secrete the waxy covering that gives them their name and pass through several immature stages. The first ones are aptly described as the 'cameo' stage, soon followed by the 'dunce cap' stage. These are both easily recognizable and help in timing foliar insecticides. The wax scales mature during the summer, continuing to produce the thick, waxy covering and develop a more dome-like appearance with a small forward-facing horn at top. The heavy cover undoubtedly provides some protection from natural enemies, as well as pesticide sprays, suggesting the most effective time to treat with foliar sprays is during the crawler and cameo stages. There is only one generation a year.



The 'cameo' stage wax scales most susceptible to treatment with dead adult scales nearby. Inset: Close-up of 'cameo' stage. Photos © Dan Gilrein



'Dunce cap' and 'cameo' stages of wax scale on holly. Inset: Closeup of 'dunce cap' stage. Photos © Dan Gilrein

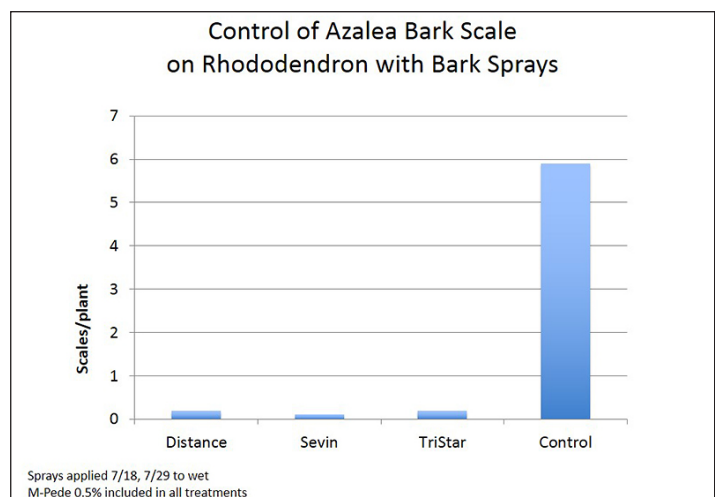
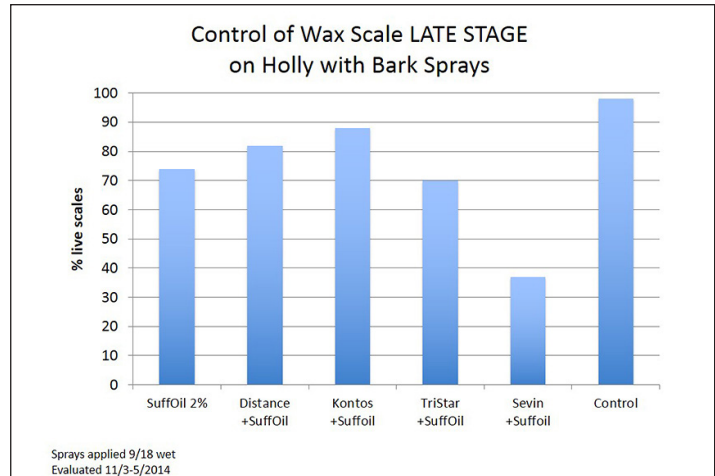
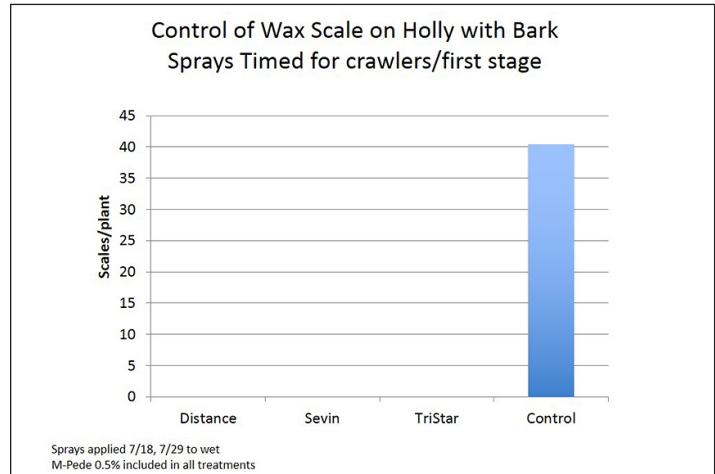
Azalea bark scale overwinters as nymphs or adults in the northeast, laying up to 250 eggs in spring. These hatch around late June through July and the crawlers settle in bark crevices, on leaves, or twig forks and pass through several stages. Crawler activity for azalea bark scale was similar to wax scale noted above at the same location in 2014. There is one generation a year in the northeastern United States.

### Management

Several replicated trials at the Long Island Horticultural Research and Extension Center in Riverhead in 2014 evaluated control of both scales, using 'China Girl' hollies infested with wax scale and 'Taurus' rhododendrons with azalea bark scale. Several insecticide treatments were compared, applied twice at a 10-day interval (July 18 and 29) starting when most crawlers had hatched. M-Pede insecticidal soap (0.5%) was included to improve coverage. Treatments included carbaryl (Sevin), TriStar (reduced-risk) and Distance (an insect growth regulator). All provided excellent control for both scales. Based upon these results we obtained a 2(ee) label in NY ([pmep.cce.cornell.edu/profiles/insect-mite/mevinphos-propargite/pyriproxyfen/Distance\\_2ee\\_0215.pdf](http://pmep.cce.cornell.edu/profiles/insect-mite/mevinphos-propargite/pyriproxyfen/Distance_2ee_0215.pdf)) adding both as target pests for use of Distance (the others are already labeled). Users applying Distance for either scale should have a copy of the 2(ee) label in their possession. Note that TriStar is exempt from prior notification requirements under NY State's Neighbor Notification law. We followed up this trial with a third one comparing late summer (mid-September) treatment for wax scale on holly, for cases where an infestation was not detected early. Efficacy with any foliar spray

was not high, but one application of Sevin + 2% SuffOil-X resulted in about 60% control. In cases where infestations are discovered late at least this treatment will significantly reduce the population. Good coverage with any application for these scales is important—use a hydraulic sprayer and thoroughly wet bark, twigs, and under leaves. Other labeled treatments not evaluated in these trials may also work.

For light infestations of wax scale, it may be quite effective to simply pick the scales off the plants manually. Destroy scales if removing after mid-spring; those removed during fall and winter can be dropped to the ground where they will die. Note that last year's old, dead wax scales often remain attached to plants—they are easily distinguished by their grey, deteriorated appearance while healthy scales will appear bright white or even pinkish.



Results of treatment trials for wax scale and azalea bark scale © Dan Gilrein