

# What's Wrong With My Tree!!!!

Adapted from articles by Dave Smitley, MSU Entomology Department

Calico scale, *Eulecanium cerasorum* is a pest of a variety of woody landscape plants and is currently infesting trees in the City. This scale is mainly covering branches of honeylocust and has been recently found on many other species of hardwood trees in Troy. It does not usually kill its host plant, however, it can severely weaken the plant, making it more susceptible to woodborers, drought and other stresses. The City has been treating for Calico scale since 2006. Calico scale can be spread by windblown crawlers or carried on the feet of birds between plants.



First Instar Calico Scale

Honeydew rain is usually the first symptom notice by residents and can be particularly annoying when branches of infested trees are over decks or parked cars. Honeydew is the sugary liquid waste excreted by scale insects. A considerable amount of honeydew is excreted because scale insects need to suck lots of sap from trees in order to get the amount of protein they need for growth and development. This creates a large excess of sugars that are excreted in the honeydew. The sugary sap can turn black from sooty mold fungi growing on it. If the sooty mold is extensive, it may actually interfere with the trees ability to use sunlight for photosynthesis, thus weakening the tree.



Mature Calico Scale with twice stabbed ladybird beetle predator

## Plants Attacked

Calico scale's host range includes but is not limited to dogwood (*Cornus*), redbud (*Cercis*), crabapple (*Malus*), honeylocust (*Gleditsia*), magnolia (*Magnolia*), maple (*Acer*), sweetgum (*Liquidambar styraciflua*), tulip tree (*Liriodendron tulipifera*), oak (*Quercus*), Zelkova (*Zelkova*), elm (*Ulmus*), pear (*Pyrus*) and ornamental fruit trees.

## Insect Identification

This colorful white and dark brown calico scale is about 1/4 inch in diameter. It is brightest at maturity and darkens with age. The first-instar nymphs are pinkish in color becoming yellowish as they enlarge. Throughout the winter the immature females are oval, flattened, and light to dark brown with a hard waxy coating.



Calico Scale adults

## Life History

**Winter** In late winter/early spring they molt to the third instar stage. The nymphs feeds heavily on tree sap and molt into the adult stage.

**Spring/Summer** In April, the females continue to feed, and produce eggs, prior to turning brown and crusty. Honeydew is at its worst during this time. After egg hatch occurs in late May, through early June, crawlers move to the leaves and settle to feed for the summer



Calico Scale eggs

months. The falling of honeydew stops during the crawler stage. Crawlers are tiny oval-shaped and flattened. They feed all summer and grow to a length of 2-3 mm.

**Summer/Fall** The Crawlers move back to the woody tissue where they molt to the second instar, which is black and has a harder waxy coating.

### *Damage Symptoms*

Calico scale covers the branches and leaves of the host plant feeding on the phloem tissue. The plant may be covered in sooty mold as a result of the large quantities of honeydew produced by the calico scale. In large numbers, feeding can result in branch dieback and with prolonged infestations possible death of the host plant.

### *MSU Recommended Management Options*

Note - homeowners should not try to treat trees larger than 15" in diameter.

- 1) Do nothing and wait for the scales to be brought under control by natural enemies in the next two to three years.

*To date natural enemies do not seem to be effectively controlling the scale. The City asks residents to limit use of broad spectrum insecticide sprays as these will kill off the predator insects attacking the calico scale.*

- 2) Spray the infested trees with insecticidal soap or 2% horticultural oil at peak crawler emergence (expected in early to mid-June). This will give some control and allow natural enemies to build.

*The City does not own spray equipment, and obtaining permission to spray large areas is difficult.*

- 3) Spray infested trees with a pyrethroid insecticide at peak crawler emergence. This will give you a higher level of control but will suppress natural enemies.

*Suppression of natural enemies is not desirable. The City would prefer residents to use the least environmentally damaging control methods.*

- 4) Start soil drenches, or soil injections with imidacloprid for systemic scale control. Since imidacloprid takes six weeks to move into the tree from the soil, the best timing for soil drenches or soil injections is April. However, early June is not too late.

*Soil drenches and soil injections are the least effective means to apply imidacloprid however good results can be achieved.*

- 5) Start trunk injections with imidacloprid for systemic scale control. Trunk injections move imidacloprid into trees much faster, so late May or early June is a good time for them. Spring trunk injections of imidacloprid have not given very good control of the large female scales in May or early June, but they give excellent control of the next

generation of crawlers and young scales that settle on the leaves in July and August.

*The City owns equipment to inject trees. During the past three years we have concentrated on treating individual trees on resident request. This has not proven effective. Currently, City staff is treating entire streets in section #2 & #19. Effectiveness of this group treatment will best be determined May and June of 2010.*

*Currently research tests are underway to evaluate new chemical treatments.*