



Tuliptree Scale

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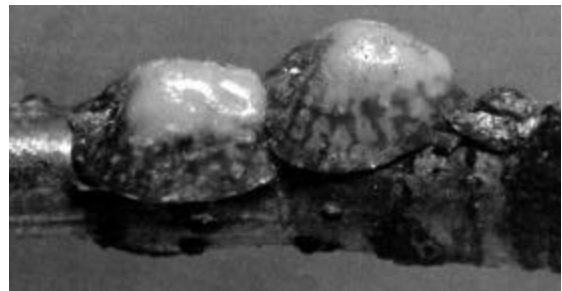
The tuliptree scale, *Toumeyella liriodendri* (Gmelin), is an insect in the family of Coccidae, the soft scales. This species is a serious pest of tuliptree or yellow poplar and saucer magnolia. Other magnolias are occasional hosts, as well as basswood, banana shrub, cape jasmine, loblolly bay, bottonbush, red bay, persimmon, and walnuts. In the United States, tuliptree scale is found east of the Mississippi River Valley and in California.

DAMAGE

Tuliptree scale is so prolific that it may completely cover a tree's twigs and branches, resulting in foliage yellowing, premature leaf drop, and branch dieback. The scales feed by inserting their tube-like sucking mouthparts into the bark to draw sap and nutrients into their bodies. Compounds toxic to the tree may be injected under the bark as part of this process. Entire trees up to five inches in diameter may be killed. It is known that as few as thirty-two female scales have killed a three-year-old sapling. Terminal shoots of surviving saplings are often killed, leading to deformed stems which reduces the aesthetic value of the tree. During the summer months the scales excrete large amounts of "honeydew". A sooty mold grows in this substance, covering leaves, branches and automobiles with a dull black stain.

Figure 1. Life cycle of tuliptree scale

A) Adult males emerge and mating occurs during June



B) Females feed and grow through summer

C) Crawlers are produced from late August through September

D) Second instar male and female scales overwinter

LIFE CYCLE AND DESCRIPTION

Tuliptree scale normally has one generation per year. In the North, overwintering occurs on the bark as flat, inconspicuous, second instar males and females. In the southern region of its range all stages of development have been found during the winter. The males pupate and emerge as small two-winged adults during late spring and early summer. After the females have been mated, they continue to feed and develop during the summer,

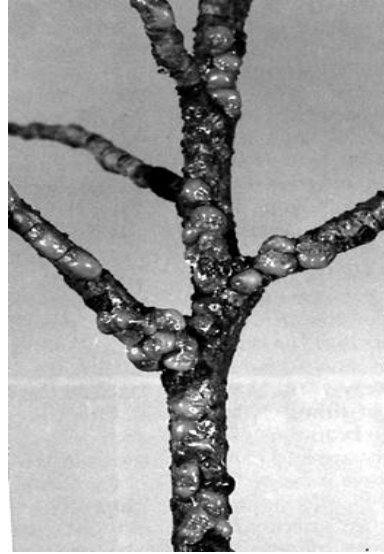
becoming one of the largest of the soft-scale insects. A mature female is six to twelve mm (1/4-1/2 inch) in diameter and hemispherical in shape. Color ranges from grayish green through dark brown to black, although chestnut brown is the most common color. Eggs develop within the body of the female and the young crawlers (the next generation) are born alive in late August and September. A single female may produce as many as 3,500 crawlers during a period of forty-five days.

Crawlers are about one mm (1/32 inch) long, black and move actively. This is the dispersal stage, since they may be carried by the wind or birds to new areas. Crawlers tend to attach themselves to twigs and branches less than four years old. Once their mouthparts are inserted into plant tissue, the legs degenerate and the scale can no longer move about. After feeding during the fall, the small scales are ready to overwinter.

PEST MANAGEMENT

There are many natural enemies of tuliptree scale, but trees may often be damaged or weakened before biotic factors control outbreaks. Pathogenic fungi, lady beetles, wasp parasites and a fly contribute to biological control. There is also a predatory caterpillar of a moth which consumes the scales.

A dormant application of horticultural oil will reduce the scale populations with minimal impact on beneficial species. The crawler stage is controlled with two insecticide applications at ten to fourteen day intervals in late August and early September. Consult the Bartlett Tree Research Laboratories Insect Control Recommendations or local state guidelines for specific insecticides and rates labeled for control of this pest.



Tuliptree scale on stem