

## The cottony cushion scale, *Icerya purchasi*, in Florida (Homoptera: Margarodidae)<sup>1</sup>

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**INTRODUCTION:** The cottony cushion scale was described by Maskell (1878) from specimens sent to him by Dr. Purchas from Auckland, New Zealand. The host was kangaroo acacia and the insect was named for Dr. Purchas. At that time only one other species was known in the genus *Icerya* (Maskell 1878). This scale is apparently native to Australia and made its way to California on acacia plants around 1868 or 1869, and in about ten years was causing damage to citrus groves in southern California (Ebeling 1959). The measures taken to control the cottony cushion scale in California were to change the methods of insect control and research; first in California and later in the whole United States. These new control methods led to the use of biological control and legislative quarantine (Ebeling 1959).

The following account of the introduction of this scale insect into Florida is largely taken from Gossard (1901). The ladybug, *Rodolia cardinalis* (Mulsant), was introduced into California in 1888 for the biological control of this scale (DeBach 1973). In 1893 the owners of a nursery in Keene, Florida (Pinellas County) sent an inquiry to someone in California about the possibility of the ladybug being used to control other scale insects in Florida. Apparently interpreting this as a request for the ladybug the party sent a shipment of ladybugs and included some cottony cushion scales as food for the ladybugs. The nursery owners who either didn't see the scales or assumed they would be of no consequence, left the packing container near a citrus tree which eventually became infested. Florida now had the dreaded cottony cushion scale to contend with. The originally infested Florida trees were destroyed, but infested trees again appeared in late 1898. However, this was presumably from a new introduction from a tramp peddler of nursery stock in about 1895 (Gossard 1901).



**Fig. 1.** *Icerya purchasi*, adult hermaphrodite with fluted egg sac. (DPI Photo Lab. #701808-7A)

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**DESCRIPTION:** The cottonycushion scale can be distinguished easily from other scale insects in Florida. It is the only species of *Icerya* present in Florida. The mature females (actually hermaphrodites) have bright orange-red, yellow, or brown bodies (Ebeling 1959). The body is partially or entirely covered with yellowish or white wax. The most conspicuous feature is the large fluted egg sac (Fig.1), which will frequently be 2 to 2.5 times longer than the body. The egg sac contains about 1000 red eggs (Gossard 1901). Depending on the temperature eggs hatch in a few days to 2 months. The newly hatched nymphs are bright red with dark antennae and thin brown legs. The antennae are 6-segmented. This is the primary dispersal stage, and can be wind blown to new locations, crawl to nearby plants, or possibly hitchhike on other animals. After 3 molts the adult begins to deposit eggs and secrete the conspicuous egg sac. As the egg sac is formed the scale abdomen becomes more tilted until the scale appears to be standing on its head.

Males are rare. They are winged with dark red body and dark colored antennae. Dark whorls of setae extend from each antennal segment, except the first (Ebeling 1959). It is interesting that the female is always a hermaphrodite with both testes and ovaries. If self fertilization occurs only hermaphrodites are produced; however, when a hermaphrodite mates with a male more males and hermaphrodites are produced (Ebeling 1959).

**HOSTS:** Cottonycushion scale is most frequently collected on *Citrus* spp. and *Pittosporum* spp. in Florida. However, numerous records on other host plants are in the Division of Plant Industry insect files.

**DISTRIBUTION:** The cottonycushion scale is now widespread throughout the world wherever citrus is grown (Ebeling 1959). In Florida, this scale has been reported from most counties.

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