



Hala Scale

Thysanococcus pandani Stickney

(Hemiptera: Halimococcidae)

Background

The hala scale was originally detected in Hāna, Maui in 1995 and now infests all but the most remote hala trees. It was not until 2013 that this scale was first detected on O'ahu. Eradication and treatment trials were initiated at several sites in subsequent years but hala scale has established in Southern Honolulu. In 2014, hala scale was confirmed established on Moloka'i. In 2018, a very small and contained infestation was discovered on Hawai'i Island but quickly eradicated. There have not been any reports Hawai'i Island since. In 2019, a small infestation was discovered and remains under control on landscaped hala on Lāna'i.

Importance and Damage

Hala is an iconic tree in Hawai'i and one of the most important plants in Native Hawaiian culture (Figs. 1 & 2). It continues to be threatened by this invasive scale insect, which causes significant damage to the plant. The hala scale can cause leaf deformities, discoloration (Fig. 3), stunting, twisting (Fig. 5), yellowing (Figs. 3, 5 & 8), and leaf blade length can be greatly reduced, all of which render leaves useless to weavers. It also attacks the tree's fruit, can cause entire crowns of the plant to fall off, and possible premature death of the tree.

Hala is also an important indigenous tree of coastal ecosystems in the Hawaiian Islands and throughout the Pacific. They play a role in preventing coastal erosion and block invasive plants, such as red mangrove, from taking over the coastline. The hala scale can kill young seedlings and prevent new trees from regenerating current hala stands. It is a huge concern that the remaining trees will be the last, as the infestation of the hala scale puts these ecosystems at risk of disappearing and being replaced by invasive species.

Description

The hala scale is a member of the pupillarial palm scale family, Halimococcidae. Adult females of this family are encased within their hard, shell-like exuviae. Like other scale insects, the hala scale disperses from its mother while in the first instar/crawler stage and is spread by moving infested plants, leaves, and fruit. Crawlers can also be carried by wind, birds, other animals, insects, or people. These newly hatched hala scales are extremely tiny at about 0.3 mm long, impossible to see without high magnification. Once crawlers begin feeding and developing, they settle and feed in place for the remainder of their lives. Mature females are oval and black, with a white waxy ring around their bodies (Figs. 4 & 6). Other stages may not have the white waxy ring. They are around 0.6 mm long, still difficult to spot on the underside of large hala leaves, and in the crevices of seeds (fig. 7) and plants. The hala scale's inconspicuous size can make it difficult to detect and easily moved around on infested plant material.



Figure 3 & 4. Yellowing seen on top of leaf (left) and hala scales infesting the underside of the leaves (right).



Figure 1. Canoe with sails made from lauhala.

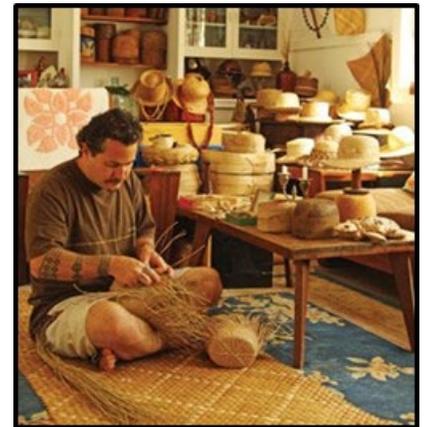


Figure 2. Traditional weavers use hala leaves for mats, hats, baskets, and more. Photo: Nina Kuna- <http://www.mauimagazine.net/Maui-Magazine/March-April-2013/The-Weave-of-History/>

Distribution

Currently known from Java, Indonesia and Singapore (Stickney 1934).



Figure 5. Heavily infested hala showing leaf yellowing.

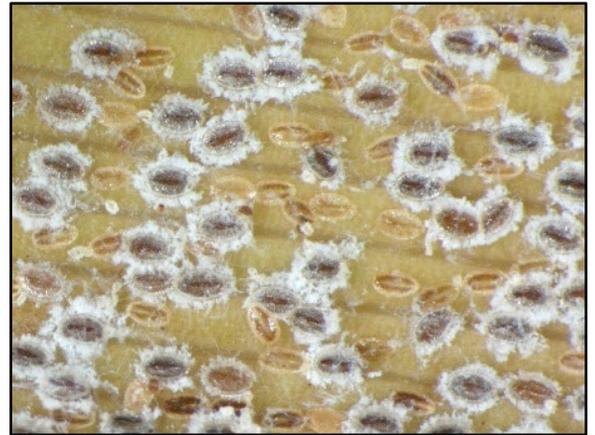


Figure 6. Magnified females with black oblong bodies with white waxy fringe.



Figure 7. Hala scales also infest the fruit, making this another distribution pathway.

(continued)

In Hawai'i, it is widespread on Maui and Moloka'i. It is limited in distribution on O'ahu and Lāna'i.

Hosts

Hala scale has been recorded from *Pandanus* species (family Pandanaceae) including *P. penangensis*, *P. tectorius*, and *P. utilis* (Stickney 1934), however, all species within the genus *Pandanus* may be potential hosts. Some species may be more susceptible to infestations than others.

Control and Management

Chemical treatments will not completely eliminate infestations of this hala scale. Initial research by HDOA and the University of Hawai'i shows that Imidacloprid drenches in conjunction with ultra pure oil foliar sprays or drenches of Dinotefuran alone keep infestations low and slows the spread of this invasive pest. **Always read and follow chemical labels prior to application.** No natural enemies have been found attacking the hala scale in Hawai'i thus far. Biological control of the hala scale remains the most sustainable and effective option to save the remaining culturally important hala stands.

To prevent the further spread of this invasive species:

- Do not move any hala plants (*Pandanus* spp.), seeds, or green leaves interisland
- Do not visit other areas with hala after being exposed to infested trees
- When moving brown leaves from an area of infestation, or interisland, double bag and freeze for at least 48 hours
- Monitor your hala plants regularly and look for signs of yellowing or discoloration of leaves, or check the undersides for black and brown scales

If you suspect a new infestation of hala scale:

Report online: 643pest.org; Call: 643-PEST
Email: hdoa.ppc@Hawaii.gov



Figure 8. Heavily infested hala tree crown.

Reference:

Stickney, F.S. 1934. The external anatomy of the red date scale *Phoenicococcus marlatti* Cockerell, and its allies. United States Department of Agriculture Technical Bulletin 404: 1-162.