



Figure 1. Sago palm infested with *Aulacaspis yasumatsui* Takagi

Introduction. The sago palm scale, *Aulacaspis yasumatsui* Takagi, also known as the cycad scale or cycad aulacaspis scale, was first collected from heavily infested sago palm (Figure 1), *Cycas revoluta* Thunb., at Ahuimanu (Kaneohe), Oahu, in September 1998. The identification was made by R. Kunishi, Insect Identifier with USDA-Animal and Plant Health Inspection Service (APHIS) and D. Odermatt, USDA-Agriculture Research Service (ARS) Systematic Entomology Laboratory in Beltsville, Maryland. Native to Thailand and southern China, the scale is believed to have been accidentally introduced into Florida through the legal importation of cycads (McLaughlin 1998). The scale may also have been introduced into Hawaii from Florida.

Description. Infestations of the scale start on the undersides of sago palm leaflets (Figure 2). As infestations increase, scales infest the upper surfaces of the leaflets, the terminal portion of the sago palm, and even the trunk. Mature females are covered by a white circular disk, about 1/16" in diameter (Fig. 3). Coverings of juvenile males are also white, but are much smaller, elongate, and thread-like in appearance. Several grooves run length-wise along the white covering. Males significantly outnumber females. Adult males are orange-brown and are similar in appearance to tiny flying midges with one pair of wings and well-developed legs and antennae.

Sago Palm Scale

Aulacaspis yasumatsui Takagi

(Homoptera: Diaspididae)

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Hosts. According to McLaughlin (1998), *A. yasumatsui* affects cycads of the genus *Cycas*, which includes *Cycas revoluta* (also referred to as "sago palm," "Japanese sago," or "king sago") and *Cycas rumphii* ("tree sago" or "queen sago"). Although the scale occurs on both *C. revoluta* and *C. rumphii* in Hawaii, sago palm has been observed to be the more susceptible of the two, with severe infestations occurring on the leaves, petioles, and trunk.



Figure 2. Sago palm leaf with a whitewashed appearance caused by *A. yasumatsui*.



Figure 3. Sago palm scale, mature females (left), immature males (right).



Figure 4. Scale-infested sago palm with leaves removed.



Figure 5. Scales fed upon by *Rhyzobius lophanthae* (Blaisdell).

Damage. The leaves of infested sago palms have a whitewashed appearance due to the numerous white scales (Figures 1 & 2). Those plants which have been infested for awhile typically contain chlorotic, yellow-brown leaves (Figure 1). Continuous feeding and removal of plant sap by huge numbers of the scale usually results in death of the leaves. In their attempts to eliminate the scale, some homeowners have removed all infested leaves from their sago palms (Figure 4).

Distribution. Since its discovery in 1998, infestations of the scale have been found throughout Oahu. The scale is able to spread to other areas via infested planting material or by the crawler stage which can be carried by the wind, or by "hitchhiking" on people, animals, birds, large insects, etc. In March 2000, this scale was collected at Keaukaha on the island of Hawaii. In August 2003, the scale was found at Wailua on Kauai.

Natural enemies. A tiny black predaceous lady beetle, *Rhyzobius lophantheae* (Blaisdell), has been found in association with the scale on Oahu. This lady beetle has been in Hawaii since 1894 when it was purposely introduced from California for control of scale insects. It was known at that time as *Lindorus lophantheae* (Blaisdell). At sites where lady beetles were plentiful, many individual scales were found to have been fed upon and destroyed (Figure 5). Unfortunately, no parasitoids have yet been found associated with the cycad scale.

Miscellaneous. Other scales, such as the hemispherical scale [*Saissetia coffeae* (Walker)], Cockerell scale [*Pseudaulacaspis cockerelli* (Cooley)] and hibiscus snow scale [*Pinnaspis strachani* (Cooley)] commonly infest sago palm. The hemispherical scale is brownish, slightly oval, hemispherical in cross section and is larger than the cycad scale. Individual Cockerell scales are pear-shaped, thin, shiny white, and are larger than female cycad scales. Both females and immature males of the hibiscus snow scale are similar in appearance with the cycad scale and are easily confused as such. Parasitic wasps usually keep infestations of the hemispherical scale, Cockerell scale, and hibiscus snow scale at low levels.

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Reference

- McLaughlin, M. 1998. What's this white stuff on my cycad? Fairchild Tropical Garden.
http://www.ftg.org/horticulture/n_cycadscale.html