

ASIAN CYCAD SCALE

A NEW THREAT TO SAGO PALMS

Michael Womack, Ed.D.
County Horticulturist, Texas Cooperative Extension

Cycad *Aulacaspis* scale (*Aulacaspis yasumatsui*) or Asian cycad scale (ACS) is one of the few major pests known to affect sago palms and other cycads. Although other scale insects are periodically found on sago palms, they usually do little harm and can be easily controlled using horticultural oil or systemic insecticide. Unfortunately, ACS is more persistent.

Scales are sucking insects that often appear like small immobile scabs on the plant leaf. When the ACS insects hatch, they are actually mobile in the initial crawler stage. Once they find a suitable location on the plant, they insert their straw-like mouthparts, known as a stylet, into the leaf and start sucking. Shortly afterward, they produce a waxy white coating over themselves and stay there until they reproduce and die.

Heavy infestations can result in layers of scales with individual insect counts numbering up to 3,000 per square inch, producing the dense white flocculent appearance similar to being sprayed with artificial Christmas snow. Infestations usually begin on the underside of leaves and then move to the upper side and stems. A medium-sized sago can be completely coated with scale within a couple of months. ACS is also unlike other scales in that the crawlers can attack roots and have been found up to 24 inches deep.



Magnification of Asian Cycad Scale shows the long, narrow, white form of the male. Females are larger and broader.

Where did ACS come from?

ACS was first reported in the continental United States in southern Florida in 1996 and rapidly moved throughout that state. It was also detected in Southern California in 2003. The movement of the insect to South Texas likely resulted either on a commercial shipment of cycads from Florida that were not inspected by USDA or possibly on a plant that an individual might have unknowingly brought back from vacation.

In 2003, Asian Cycad Scale was found by Texas Department of Agriculture inspectors on a shipment of sago palms from Florida about a year ago, but TDA believed that all infested plants were quarantined and then either treated or destroyed. Further investigation with local nursery professionals revealed that the problem has been around in the Padre Island area since late 2001. This insect's true identity and its potential risk was unknown until it was positively identified by Texas Cooperative Extension in August, 2004. Texas Cooperative Extension and the Texas Forest Service are currently working together to inform Coastal Bend homeowners about the threat of ACS and control measures



Heavy infestations of Asian Cycad Scale resembles Christmas flocking on the underside of sago palm fronds.

How is it spread?

ACS can be spread in a number of ways. The most common ways that it can be spread is through lawn maintenance being used without proper sanitation. Scale could also be transported from infested to clean plants via human and animals, and equipment, and University of Florida Extension even reports its movement by wind. If an individual or a commercial lawn service cuts fronds from an infested sago palm and then proceeds to another plant either in the same yard or another yard without adequately cleaning the clippers, the crawlers and/or its eggs can be transferred to the other plants.

Although ACS has been reportedly spread by wind as well as humans, animals, and lawn maintenance equipment, the insect doesn't have a flying stage in its life cycle which will slow it's spread. It actually takes several months of heavy infestation to weaken a sago palm to the point of death, but some of these hardy cycads have already fallen victim to the ACS.

ARE OTHER PALMS

AFFECTING BY ACS?

ACS is very specific to affecting cycads, primitive tropical plants which are not true palms despite the “palm” reference in common names. The most commonly affected cycad is the sago palm (*Cycas revoluta*); however, it has also been found on queen sago (*C. circinalis*), Mexican sago (*Dione edule*), and cardboard palm (*Zamia furfuracea*). The coontie palm (*Zamia pumila*), a native cycad of Florida is resistant to the scale.

True palms such as our Mexican fan palm (*Washingtonia robusta*), California fan palm (*W. filifera*), Chinese fan palm (*Livistonia chinensis*), Mediterranean fan palm (*Chamaerops humilis*), Canary Island date palm (*Phoenix canariensis*), and pygmy date palm (*P. roebelinii*) are not at risk.

HOW DO YOU CONTROL ACS?

Many scale insects can be controlled by removing infested leaves or stems. Since the crawler stage of ACS may be present on roots, the plant can be quickly re-infested after fronds are removed. For this reason, frond removal is only recommended in severe infestations and used in conjunction with chemical treatments.

Simply removing the white fronds usually doesn't provide control since the crawlers are also found on the roots and will quickly result in re-infestation. Frond removal is not recommended except on severe infestations.

The most consistently effective treatment is spraying infested plants every two weeks with a lightweight horticultural oil (**not** dormant oil) but spray coverage must be thorough to both the top and bottom of fronds. Combining oil treatment with malathion can increase effectiveness and is commercially available as Malation-in-oil. Homeowners can mix their own by combining Malathion and horticultural oil in a pump-up sprayer. Make sure the label directions on both bottles are followed. Systemic insecticides like imidicloprid (Merit®) or acephate (Orthene®) have not proven to be consistently effective.

After the fifth or sixth bi-weekly application, plants should be sprayed down hard with a garden hose to loosen and remove dead scales. The plants should then be retreated to kill any remaining scales. Preventative monthly treatments can then be used to keep the pest in check until biological control populations are established. Remember, the key to successful control is thorough and consistent treatments.

Currently, there are no natural enemies in the United States. The lack of these natural population checks makes this a potentially devastating insect problem. However, as part of a long-term solution, USDA and IFAS researchers in Florida have identified and are trying to establish colonies beneficial insects that target ACS. They include a predatory beetle and a parasitic wasp that may provide biological control hope.

Control-In-Brief

1. Treat with horticultural oil or Malathion-in-oil.
 2. Repeat treatments every 2 weeks.
 3. Remove dead insects with water spray.
 4. Repeat oil treatment after cleaning.
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SANITATION IS CRITICAL!

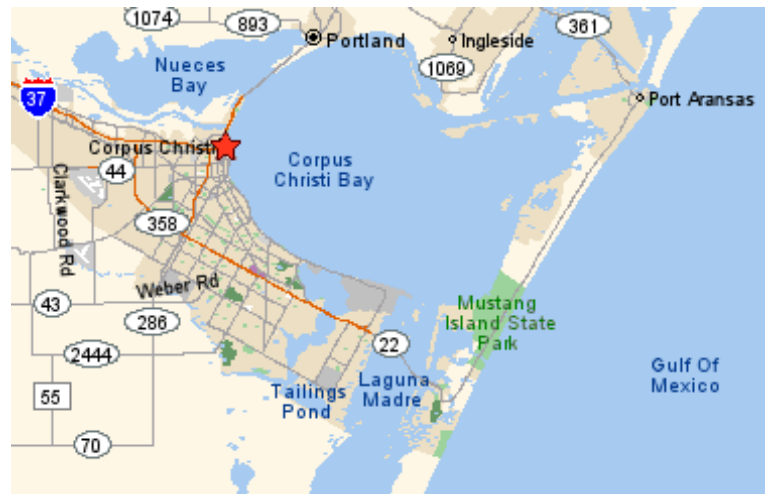
If fronds are removed or clippers used around infested cycads, the equipment should be soaked for 10 minutes in a 10% bleach solution before they are used on another plant. Simply spraying the clippers with a bleach solution does not always kill the insects.

This practice may not seem practical, especially in commercial situations. Commercial landscape maintenance personnel working with sago palms should therefore have two or three sets of clippers that can be alternated in bleach to minimize time delays.

Any fronds that are removed should be double-bagged and sealed in heavy duty trash bags. Afterward, the fronds should be burned or incinerated. Since these options are often not available, an alternative is to being buried in an area away from other sago palms and cycads. Fronds should not be left stacked for future pick up and disposal. Also, do not compost or send fronds to a landfill where plant materials are composted since these procedures have not been found to be adequate to kill the insect.

HELP US TRACK ACS

In order to manage this insect infestation, it is important to document it's presence in the Texas Coastal Bend. The initial infestation appeared to be localized on Padre Island but it has recently been sited near Saratoga near Staples, Weber Road and in Port Aransas and Taft. If you find ACS in another area of Corpus Christi or the Texas Coastal Bend, please contact Texas Cooperative Extension in Nueces County immediately at 361-767-5250. Tracking this insect's spread will assist us in keeping its impact minimized to other cycads in the area.



Sources:

Palmer, D. (2003). Asian Cycad Scale. University of Florida Extension Hillsborough County Extension Service, Seffner, FL. Retrieved August 11, 2004 from <http://acs.ifas.ufl.edu/CycadScaleNewArticle.PDF>

Tattar, T. A. (2004). Asian Cycad Scale: New Threat to Cycads. Irrigation and Green Industry. Retrieved August 11, 2004 from www.igin.com/Landscaping/0204cycad.html

If you find Asian Cycad Scale, please call Texas Cooperative Extension at 361-767-5250 to report its location.
