

Invasive insects cause staggering impact on native tree

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The beautiful, endemic and endangered cycad, *Cycas micronesica* was once a dominant forest tree on the island of Guam, but recent plant mortality predicts extirpation from Guam habitats by 2019. This dire prediction by scientists at the Western Pacific Tropical Research Center (WPTRC), University of Guam is validated by the research of Thomas E. Marler and John H. Lawrence, which has concluded that *Cycas micronesica* is the only native host for the invasive scale insect *Aulacaspis yasumatsui*. "The potential cascading ecosystem responses are yet to be completely understood," says WPTRC research scientist Marler.

The armored scale insect *A. yasumatsui* attacks several cycad genera, but only members of the *Cycas* genus are killed by the pest. Around twenty years ago the insect was unintentionally introduced to an area in southern Florida known for the production and exportation of *Cycas revoluta*. The scale was documented in Hawaii in 1998 and in Guam in 2003, and by 2005 it was found in native limestone [forest habitat](#) close to the initial outbreak site.

"We looked for native habitats that would be representative of the general cycad populations where we could study population-level response to the devastating scale pest. Our data showed the number of months for juvenile plants to reach 100% mortality was dependent on size and other demographic features," says Marler.

Just like the human body, plants exposed to constant stresses eventually

become weakened and unable to withstand additional stresses that by themselves would not be fatal. After the scale invasion, mature *C. micronesica* trees began to succumb to other pressures. These other factors contributing to the plant mortality include two other invasive insects that enjoy eating cycad salads for dinner: the cycad [blue butterfly](#) (*Chilades pandava*) and a tiny moth (*Erechthias* sp.).

"During the time frame of our study, cycad scale has been found in Rota in 2007 and in Palau in 2008," says Marler. "The spread of *A. yasumatsui* in the region underscores the importance of empirical studies to inform conservation efforts on Guam and the rest of Micronesia."

Provided by University of Guam

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