

Assessment of Coconut Rhinoceros Beetle Damage and Resistance in the Palau Archipelago

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ABSTRACT:

The Coconut Rhinoceros Beetle (CRB), a.k.a. *Oryctes rhinoceros*, is an invasive insect that kills coconut trees and other palm species by feeding on the plant's crown. There is a confirmed presence of at least two biotypes of the CRB in Palau, Nudivirus (OrNV) resistant CRB-G versus all other CRB types. The resistant CRB-G has caused the devastation of palm trees throughout Southeastern Asia and Pacific. Multiple institutions across the globe have been working to help control and eradicate CRB.

In Palau, Damage Assessment Surveys were conducted on coconut trees at representative locations throughout all states in 2016, 2017, and 2018. Specialized traps were used along with manual searches through debris to collect samples as well. DNA analysis was used to determine distribution of CRB-G as well as incidence of Nudivirus infection in each sample.

The results of the Damage Assessment Surveys show slow recovery/reduced damage in coconut tree fronds. Furthermore, analysis of biotype and viral detection show a very high rate of infection of all CRB with the Nudivirus (CRB: 92%; CRB-G: 83%).

These findings lead to the preliminary conclusion that the OrNV in Palau's CRB is virulent. This is one of the largest collections and assessment in the region and the first sites where the resistant strain was found infected by the Nudivirus. Further assessment is necessary but immediate focus of all parties should be made to identify and test virulence of OrNV in Palau in order to control CRB for the region.

Key Words: CRB, Palau, OrNV, *Oryctes rhinoceros*

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