



Coconut Rhinoceros Beetle

Oryctes rhinoceros (Linnaeus)

(Coleoptera: Scarabaeidae)

Introduction

On December 23, 2013, a suspect coconut rhinoceros beetle (CRB) adult was detected at the Joint Base Pearl Harbor–Hickam military facility during routine trap surveys conducted under a cooperative agreement between UH³ and USDA–PPQ⁴. It was sent to the USDA entomology lab in Miami, FL and confirmed as CRB, *Oryctes rhinoceros* (Linnaeus). Within two weeks, it was discovered that the primary breeding site was a large mulch pile at Hickam’s Malama Bay Golf Course, and 8 additional adults were collected in traps in the vicinity. The mulch infestation consisted of several thousands of CRB individuals.

After the discovery, an Incident Command System (ICS) was initiated, with coordinated efforts between HDOA¹, USDA–PPQ, UH–Manoa, DLNR², U.S. Navy, and other partners. The ICS goal is to systematically and effectively manage this invasive pest. Surveys and trapping activities have been initiated in the Base area and immediate areas. The focus is in establishing 2 mile– radius buffer zones around positive finds.

CRB is a destructive pest of coconut palms (Fig. 3–7) and oil palms, but it may also attack other palm species. Minor hosts include hala (*Pandanus*), banana, and sugarcane.

Biology

CRB is a large (1.5–2 inches), shiny, dark brown beetle native to southern Asia but is established throughout the Pacific Islands. The male beetle has a large horn on its head, while the female usually has a shorter horn. The female also has an orange, fuzzy posterior (Fig. 2). The larva, or grub, is light colored and can grow to a length of 4 inches (Fig. 1).

Female beetles lay their eggs in decaying logs or decomposing organic matter such as mulch piles. The eggs hatch in 8–12 days and the larvae feed in the rotting material for about 3–5 months before pupating into adult beetles. The life cycle (egg to adult), may vary greatly, depending on the food source and environmental conditions. It may range from 4 –9 months. Adults can live as long as 9 months and gravid females lay 50–100 eggs throughout their lifetime. They are capable of flying long distances and can infest isolated coconut trees over a mile from the breeding site.

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Figure 1. Larvae.



Figure 2. Adult female.



The beetles are active at night and hide in feeding or breeding sites during the day.

Damage

The adult beetles damage coconut palms by burrowing into the crowns to feed on the exuding sap, injuring the soft, developing leaves inside (Fig. 3 & 4). When the leaves grow out, the damage appears as V-shaped cuts (Fig. 6) or holes through the base of fronds (Fig. 5). Sometimes the tips of the leaves are completely cut off. Damage inflicted by CRB weakens the tree, and severe attacks may cause death of the tree (Fig. 7).

What you can do

Report suspected CRB adults and grubs or any suspicious damage to coconut and palm plants on all islands to HDOA's Pest Hotline- 643-PEST (7378). This is also a toll-free number for neighbor islands.

Further information

<http://hdoa.hawaii.gov/pi/main/crb/>

Acknowledgments

We gratefully acknowledge all members of the ICS response team, including officials and staff of the federal, state, and city governments, U.S. Armed Forces, Invasive Species Committees, landscaping industry, and other groups. A project of this magnitude requires the cooperation and coordination of many groups to successfully combat this serious pest.

References

Coconut Rhinoceros Beetle, Pests and Diseases of American Samoa Number 8. 2005. American Samoa Community College, Community and Natural Resources Cooperative Research Extension.

Giblin-Davis, R. M. 2001. Borers of Palms. In F. W. Howard, D. Morre, R. M. Giblin-Davis, and R. B. Abad (eds.) Insects on Palms. CABI Publishing. pp. 267-304.



Figure 3. Bore hole in the base of an unopened palm frond.



Figure 4. Frond cut open to expose a mating pair of CRB adults.

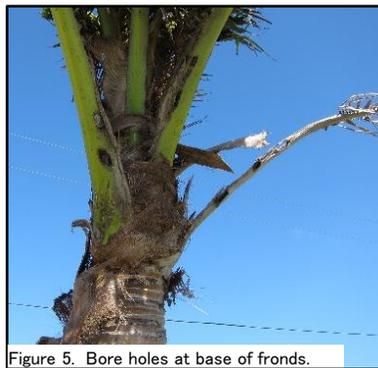


Figure 5. Bore holes at base of fronds.



Figure 6. Signature damage: V-shaped cuts to palm fronds.

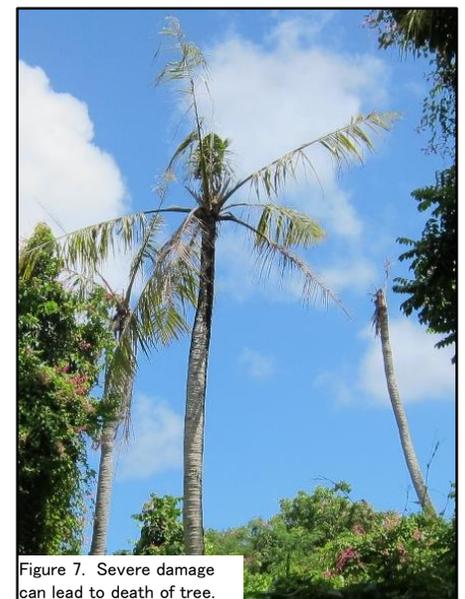


Figure 7. Severe damage can lead to death of tree.