Pacific Pests, Pathogens and Weeds - Online edition

Coconut rhinoceros beetle - Oryctes (108)

Summary

- Widespread distribution. South and Southeast Asia, Oceania. On coconut, but other palm species are attacked, including betel nut, sago palm and oil palm. Banana, *Pandanus*, sugarcane and tree fern are also hosts. An important pest.
- Adults fly at night, tunnelling into crowns, damaging the leaves, causing distinctive symptoms.
- Cultural control: destroy fallen logs or grow ground legumes to hide them, and encourage rotting: compost dead leaves and grass; turn manure and sawdust heaps and remove grubs; use wire to kill adults in crowns.
- Biopesticides: *Oryctes rhinoceros nudivirus* (capture and release adults); *Metarhizium anisopliae* (placed in breeding sites). Note, a new form of OrNV occurs in Guam, Palau, Papua New Guinea and Solomon Islands.
- Chemical control: impractical and uneconomic; a pheromone is available to monitor/control populations

Common Name

Coconut rhinoceros beetle, rhinoceros beetle

Scientific Name

Oryctes rhinoceros. Several strains are recognised. In Pacific islands

Photo 1. Characteristic damage done by the coconut rhinoceros beetle, *Oryctes rhinoceros*, showing V or wedge-shaped sections missing from the fronds eaten by the adults as they tunnel into the crowns of mature palms. (Solomon Islands)

Photo 2. Severe damage to young fronds by adult coconut rhinoceros beetle, *Orytes rhinoceros*. (Palau)

Photo 3. The damage from *Orytes rhinoceros* in Solomon Islands is so severe that palms are dying from the attack.

Photo 4. Close up of characteristic shape of fronds eaten by adult coconut rhinoceros beetle, *Oryctes rhinoceros*. (Palau)

Photo 5. Holes made by adult coconut rhinoceros beetle, *Oryctes rhinoceros*, in the base of fronds. Presumably, the holes were made when the leaves were much younger as the beetle tunnelled into the crown of the palm. (Palau)

Photo 6. Larvae of coconut rhinoceros beetle, *Orytes rhinoceros*, in a rotten coconut trunk. A favourite breeding site, especially in still standing but decaying palms (Fiji).

Photo 7. Larvae of coconut rhinoceros beetle, *Orytes rhinoceros*, under a log of unknown tree species.

Photo 8. Close-up of the larva of a coconut rhinoceros beetle, *Orytes rhinoceros*. Note that the C-shape grubs or larvae grow up to 100 mm.

Photo 9. The adult is jet-black, up to 40 mm long with a prominent horn. Both male and female beetles vary in size, and size cannot be used to distinguish the sexes.

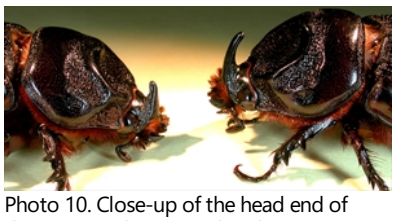

Photo 10. Close-up of the head end of the coconut rhinoceros beetle, *Oryctes rhinoceros*. Male (right), female (left).

Photo 11. Underside of adult coconut rhinoceros beetle, *Oryctes rhinoceros*, to show the fuzzy group of hairs at the rear end of the female (left) compared to the male (right).

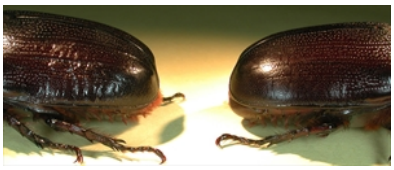

Photo 12. Close-up of the hind end of the coconut rhinoceros beetle, *Oryctes rhinoceros*. Female, with abundant hairs at the tip (left); male (right).

Photo 13. The grub or larva of a coconut rhinoceros beetle, *Oryctes rhinoceros*, infected by the fungus *Metarhizium* (Guam). The green areas are where the fungus is sporulating.

Photo 14. Trapping coconut rhinoceros beetle, *Oryctes rhinoceros*. Breeding sites are heaps of old fronds or other organic matter; they are covered by a gill net, and the beetles get caught in the mesh when entering or leaving the heaps.

Photo 15. Bucket traps for coconut rhinoceros beetles, *Oyctes rhinoceros*, with chicken-wire covers and pheromone (Fiji).

Photo 16. Bucket traps for coconut rhinoceros beetles, *Oyctes rhinoceros,* placed above ground. About 2 m above ground is ideal.

Photo 17. Bucket trap with catch of coconut rhinoceros beetles, *Oryctes rhinoceros*.

Photo 18. An artificial breeding site inoculated with spores of *Metarhizium anisopliae*, in order to infect larvae of the rhinoceros beetle, *Oryctes rhinoceros* (Fiji).

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Information from Waterhouse DF, Norris KR (1987) *Oryctes rhinoceros* (Linnaeus). *Biological Control Pacific Prospects.* Inkata Press, Melbourne; and Mark Schmaedick (2005). Coconut rhinoceros beetle. Pests and diseases of American Samoa, Number 8. American Samoa College Community & Natural Resources Cooperative Research & Extension. (https://www.ctahr.hawaii.edu/adap/ASCC_Landgrant/Dr_Brooks/BrochureNo8.pdf); and from USDA APHIS (undated) Coconut rhinoceros beetle. Hungry Pests. (https://www.aphis.usda.gov/aphis/resources/pests-diseases/hungry-pests/the-threat/coconut-rhinoceros-beetle/hp-crp). Photos 7-13 Mark Schmaedick, Land Grant Program, American Samoa Community College. Photos 2,4,5 Joel Miles, Bureau of Agriculture, Republic of Palau. Photo 14 Aubrey Moore University of Guam. Photos 6&15-18 Nitya Singh, Ministry of Agriculture, Fiji.

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