The Coconut Rhinoceros Beetle Problem on Guam: Past, Present and Future

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Contents

1 Introduction

Guam's ecosystems are under attack by invasive species. Many people know about extermination of Guam's birds by the brown treesnake which invaded the island shortly after WWII. But the contemporary ecological disaster which is currently happening in Guam's forests is not well known.

During 2002, the USDA Forest Service and the Guam DOA Forestry Division did a survey to find out which species of trees where most abundant, and presumably most important, in Guam's forests[1]. They found Guam's endemic cycad, *Cycas micronesica*, to be the most abundant tree and coconut palm, *Cocos nucifera*, to be the first runner up. During the past decade and a half, Guam has been invaded by insect pests which have killed massive numbers of both trees.

It is estimated that 90% of Guam's cycads have been killed by a coalition of recently-arrived invasive insects which includes a scale insect, a leaf-mining moth, and a defoliating butterfly. Our cycad went from being the most abundant tree in Guam's forests in 2002 to being added to the National Endangered Species List in 2015 [2].

During recent years, many coconuts and other palms on Guam have been severely damaged and killed by the coconut rhinoceros beetle (CRB). There is no estimate for the proportion of palms killed but it is obvious to residents and visitors that palms are being killed at an alarming rate.

In this article I attempt to present a short history of the CRB problem on Guam and to recommend a strategy to stop our palms from being damaged and killed.

2 Discovery

3 Biology

3.1 Life Cycle

life cycle1[1]

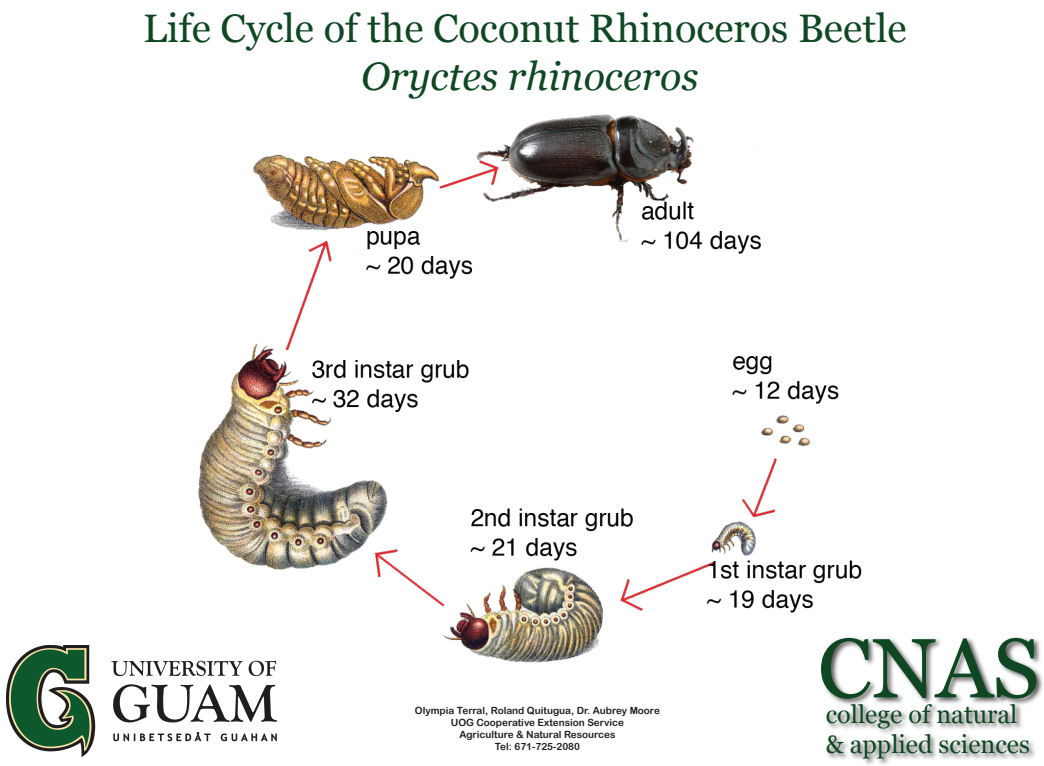

Figure 1: CRB life cycle

Table 1: Chronology asa asas asa sa s as as as asasasasas as as as as as as as a s as as a s as as a sa s as as as as as as a s as a s as as a sa s as as as as as as a s as as a s as as as as as a s as

Year	Event / Activity
Sept 2007	CRB discovered in Tumon.
2007-2010	Attempt to eradicate CRB using sanitation, pheromone traps, quarantine, and pesticides.
2011-present	Attempt to control CRB with biological control agents.
2014	Started using tekken net.
May 2015	Typhoon Dolphin generates CRB breeding sites throughout the island.

3.2 Geographic Distribution

4 Attempts to Control to CRB on Guam

4.1 Eradication

4.2 Quarantine

4.3 Sanitation

4.4 Trapping

4.5 Pesticides

4.6 Biological Control

5 Current Situation

5.1 Discovery of CRB-G

5.2 Typhoon Dolphin

6 Recommendations

References

[1] J. A. Donnegon, "Guam's Forest Resources, 2002," Tech. Rep. [Online]. Available: http://www.fs.fed.us/pnw/pubs/pnw_rb243.pdf

[2] "Endangered and Threatened Wildlife and Plants; Endangered Status for 16 Species and Threatened Status for 7 Species in Micronesia," Oct. 2015. [Online]. Available: https://www.federalregister.gov/documents/2015/10/01/2015-24443/endangered-and-threatened-wildlife-and-plants-endangered-status-for-16-species-and-threatened-status