

# Guam Coconut Rhinoceros Beetle Biological Control Project



## Semiannual Report for USDA APHIS Grant 12-8515-1555-CA Performance Period: June - December, 2012

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This project has two objectives:

1. OBTAIN AND DISSEMINATE VIRUS STRAINS WHICH KILL GUAM'S RHINO BEETLES (CRB). *Oryctes nuditarsis* (ONV) has been effective in reducing CRB population levels and keeping them at low levels elsewhere in the Pacific. Our objective is to obtain samples of virus strains currently use for biological control in the Philippines and elsewhere. Strains which show high pathogenicity in laboratory bioassays will be propagated *in vivo* for release by autodissemination.
2. DETERMINE WHY PREVIOUSLY TESTED VIRUS STRAINS FAILED TO KILL GUAM'S RHINO BEETLES. Suppression of CRB populations on Pacific Islands has been used successfully over the past 50 years, and has become the major tactic in the region. Much of this work has been done on a regional basis by the Secretariat of the Pacific Community (SPC). It is of regional importance to determine reasons for failure of our initial attempt at biocontrol of Guam's CRB using ONV in order to prevent similar failures elsewhere.

As per the approved work plan, the entire budget amount (\$40,000) will be used to subcontract AgResearch New Zealand to run the project. AgResearch scientists, Dr. Trevor Jackson and Sean Marshall, are regarded as worldwide experts on biological control of rhino beetles using virus and they maintain several strains of virus in insect cell culture. Unfortunately, there has been very little progress on this project. A contract AgResearch has been negotiated and we are currently waiting for the UOG business office to certify availability of funds.

Collaboration with Jackson and Marshall has proceeded at no cost to the project:

- In June, 2012, I organized a planning meeting for the project at the Pacific Plant Protection Organization Meeting in Fiji. This meeting was attended by Aubrey Moore (UOG), Russell Campbell (Guam Agriculture), Trevor Jackson (AgResearch NZ), Sean Marshall (AgResearch NZ), and Maclean Vaqalo (SPC).
- Sean Marshall has started characterizing the genotype of the Guam coconut rhinoceros beetle population using DNA barcoding. Beetles collected on Guam (n=15) are genetically distinct from those collected in Fiji (n=6), Samoa (7), and Papua New Guinea (n=5). This work may give us evidence on the source of Guam's beetles. We are currently assembling DNA sampling kits which will be sent to collaborators throughout the native and introduced range of CRB

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December 31, 2012

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Date

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