New tactics in Guam rhino beetle invasion

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Dog handlers with the Guam Coconut Rhinoceros Beetle Eradication Project pose with their comrades. The dogs are trained to sniff out rhino beetle breeding sites. From left to right: Royce Flores with Kira, Tim Francisco with Nut, Anthony Santos with Beetle, and Ginger Haddock with Coco. Credit: Roland Quituqua

Canines and a bio-control organism come to the rescue of Guam's coconut trees in efforts to control an invasive species plaguing the island.

The coconut rhinoceros beetle (CRB) invasion, first detected in 2007, has been checked by the determined efforts of UOG scientists, Guam Department of Agriculture and the United States Department of Agriculture. "We've stopped the expected population explosion," says UOG entomologist Aubrey Moore, "due to the rapid response of the government of Guam and the federal government. The infestation has been contained to the northwest coast of the island, but we have yet to see a decrease in the population."

"Research has shown the bucket traps baited with pheromone lures are not as effective as we had hoped in curtailing the beetles," says Roland Quituqua, director of the Guam Coconut Rhinoceros Beetle Eradication Project. As head rhino hunter he is in the field daily with his eradication team.

New tactics are being employed to drive the population to zero. Canine skills are being utilized to sniff out rhino breeding sites. Four dogs were recruited from Georgia and Guam Customs and Quarantine officers were dispatched to bring the dogs to Guam. Handlers were hired and training for both the dogs and their handlers began in July. The dogs were deployed in November and they are helping the eradication team to detect breeding sites so that they can be destroyed.

A new wood chipper, especially designed for fibrous wood like that of coconut trees, has arrived on island and will be used for grinding up old coconut logs and debris that are the preferred breeding places for the beetles. This addition may result in the development of large scale composting of green waste on Guam.

With $25,000 grant from USDA APHIS, a New Zealand scientist, Trevor Jackson, was contacted to obtain and release a bio-control organism into the rhino beetle, *Oryctes rhinoceros*, population. Produced in a New Zealand laboratory, this naturally occurring bio-control virus, orycto virus, is very host-specific, targeting only rhino beetles. It is dispersed using autodissemination: adult beetles are fed a solution of the virus, become infected, and then they are released to infect the resident population. It will take several months to see the results. "The bio-control agent will not completely eradicate the CRB, but it will help to keep it under control," says Moore.

Sadanand Lal, formerly an entomologist with the Secretariat of the Pacific Community in Fiji, was on Guam in October for the initial release of the virus, which will have an adverse effect on the stomach walls of the beetles, resulting in death. This latest tactic in the CRB saga is true international collaboration at its best. The virus is naturally occurring and was originally discovered in Malaysia, cultured in New Zealand laboratories and released on Guam.

WPTRC scientists in collaboration with government entities and colleagues worldwide are making a difference for Guam and the region.

Source: University of Guam