

IAPPS has helped prepare coconut rhinoceros beetle emergency workers for operations in a post COVID-19 world

The effects of COVID-19 are being felt as far away as the remote Pacific islands where governments have shut down travel and transport to prevent arrival of the virus. Unfortunately, this is not the only problem the island states are facing. Increasing storms and sea level rise, are a consequence of climate change. Invasive pests, like the coconut rhinoceros beetle (CRB) (*Oryctes rhinoceros*), are highly damaging on vulnerable islands.

In recent years, fortunately, IAPPS has provided a focus for scientists working on CRB to raise awareness of the problem and develop solutions. Symposia and papers bringing scientists together to discuss the problems of Pacific pests and CRB were presented at the IPPC 2011 (Hawaii), IPPC 2015 (Berlin) and IPPC 2019 (Hyderabad) (See report below) and a call for an emergency response to the invasive CRB-G was published in the IAPPS newsletter 77C (2015).

The IAPPS activities contributed to formation of a CRB-G Action Group of scientists from the affected countries and international institutes with the aim of addressing the urgent problem of invasion of the Pacific islands by a new biotype of the rhinoceros beetle (CRB-G) (Figure 1). The insect is causing heavy damage to coconut and oil palms and is a threat to economic and food security. A side meeting of the CRB Action Group at IPPC Hyderabad was able to confirm the network of scientists and suggest collaborative activities to prevent spread and control the invasive insect. Emergence of COVID-19 has squashed many of the plans for personal interaction through travel to the affected sites, but the established network means that information and samples can still be shared via the internet and courier transport systems. Recent information shows how CRB-G is spreading through the region in the absence of adequate control measures and severe damage is caused once populations establish. Despite the inability to travel, training materials can be distributed and mentoring can take place for network members over the internet. A response to CRB-G, involving awareness, containment through clean-up of potential breeding sites and the search for new effective biocontrol agents is being supported with funding from MFAT (New Zealand), DFAT (Australia) and other donors.



Figure 1 Members of CRB-G Action Group in field assessment, West New Britain, Papua New Guinea.

IPPC 2019, Hyderabad, India. Symposium Report

The challenge of coconut rhinoceros beetle (*Oryctes rhinoceros*) to palm production and prospects for control in a changing world.

Organisers. Trevor Jackson & Sean Marshall

The coconut rhinoceros beetle (CRB) (*Oryctes rhinoceros*) is a major pest of coconut and oil palms throughout Asia and islands in the Pacific and Indian Oceans and the symposium at IPPC was timely. The role of palm products in underpinning food security and economic viability of tropical communities is increasingly recognised, but attack by CRB threatens viability of established plantations and new industries such as virgin coconut oil and coconut water. In the Symposium, Sean Marshall (AgResearch New Zealand) explained that a new biotype (GRB-G) is of particular concern as it is highly damaging and appears to be resistant or tolerant to the biocontrol strains of the *Oryctes* nucleopolydnavirus (OrNV). Dr Geoff Bedford (Macquarie University, Australia) provided a historical perspective of the success of the original introduction of OrNV and provided some pointers for new investigations. Methods of incorporating biological control into IPM were explained by Dr Mohd Mazmira (MPOB, Malaysia) based on the successful management of CRB in Malaysian oil palm plantations. Mark Ero (PNGOPRA, PNG) described the situation in Papua New Guinea where earlier introductions of the pest have been controlled by IPM but the country is now challenged by CRB-G. The devastating impact of CRB-G on the island of Guam was described by Aubrey Moore (Univ. Guam) where the insect escaped control efforts after palms were felled by Typhoon Dolphin in 2015 leaving an abundance of breeding sites. The complex situation in Palau was described by Chris Kitalong (Palau Community College) where a long-established presence of CRB occurs together with CRB-G and virus infection is reported in the beetles. The situation in India, where young palms seem most vulnerable to attack, was explained by Sajan Jilu in a paper showing how botanical paste and cake can be used to effectively protect the palms. Trevor Jackson (AgResearch, New Zealand) explained how the spread of CRB-G in the Pacific and the voracious nature of its attack led to researchers forming a CRB-G Action Network which is working to contain and control the pest. The symposium provided a unique opportunity for researchers to come together and build collaborations to meet the threat of CRB to palm grower regions of the world. The symposium was supplemented by a workshop where symposium participants shared experiences with Indian colleagues and established contacts for future partnerships.

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