The CRB Saga

A Perfect Storm

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Image 01 - Coconut Rhinoceros Beetle (CRB)

In February 2019 we visited the Solomon Islands to set up and test equipment which we hoped would mitigate the impact of the Coconut Rhinoceros Beetle (CRB) infestation by recycling the dead palms to give significant Salvage Value with craft, lumber, charcoal and biochar.

On arrival, the view from our room at the Solomon Islands Translation Advisory Group (SITAG) in central Honiara provided a vantage point that dramatically summarised the situation.

In the foreground (left) there is a productive palm showing signs of CRB attack. In background are four dead palms that have been killed by the Beetle. These palms have lost all their foliage and are dangerous. When they fall, they pose a serious threat to those living in this crowded suburb. *Image 02*

The CRB infestation is heavily impacting on the rural economy of the Solomon Islands and affecting the livelihoods of many people: A Perfect Storm

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Image 02 – View from SITAG Honiara Solomon Islands


Healthy Palm


Healthy Palms


CRB Infected Palm

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CRB Infected & Dead Palms

The Good, the bad & the ugly.

History

The Coconut Rhinoceros Beetle (CRB) was first detected in Honiara in December 2014 and was confirmed as CRB-G biotype by scientists in New Zealand in February 2015.

First reported damage was in the Mbaranamba area.

How it came into Solomon Islands has not been confirmed. It could have been attracted from boats coming from PNG by lights of Honiara, or it could have arrived with people and artifacts during the Pacific Festival of Arts in Honiara. But there is no proof for either of these.

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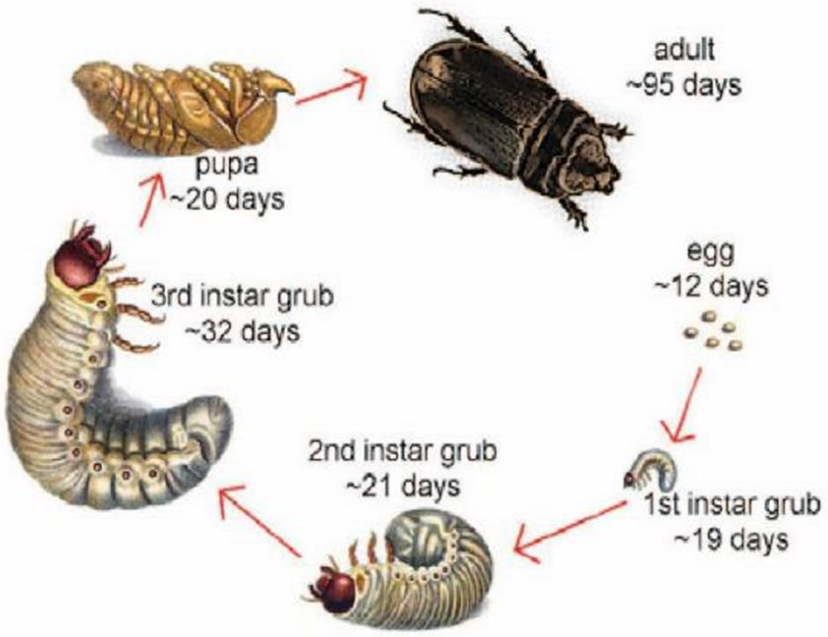
Life Cycle

All these stages occur in rotting vegetation, most common in palm logs. Only the adult is found in the living palms.



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CRB attacks most types of palms


Beetle-nut


Coconut


Banana


Oil Palm


Sago Palm

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CRB adults chew big holes through the growing tops of palm trees to feed on their sap. This repeated action can kill a whole tree.

CRB is a destructive pest.

Cannot be ignored

If not controlled, millions of dollars of export earnings will be lost.

Income earnings for villages from Coconut will be severely affected.

The reduced availability of the highly nutritious coconut for eating and drinking will affect 100% of the population. On average one nut per person per day equals over 600,000 nuts each day.

Fewer tourists due to the demise of the beautiful paradise image of the islands.

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Destroy the Larvae

Potentially each of these larvae can kill a palm, therefore, the best control is by destroying the Larvae

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How?

Destroy all palms lying on the ground by burning (not current practice)

Cut down dead palms, use healthy logs for timber, charcoal, veneer etc., (not current practice)

Rotate or work over compost every month to expose and kill larvae and feed to chickens and pigs

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How?

Pheromone Trapping: Biological control methods currently used by Ministry of Agriculture & Livestock (MAL) & Guadalcanal Plains Palm Oil Ltd (GPPOL)

Use of Green Muscardine Fungus (GMF) by creating an Artificial Breeding Site (ABS) to kill the larvae

Entomologists & other scientists are working on rural & fungal approaches to combatting CRB.

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Our Project Mission

To assist the Coconut Technology Centre (CTC) mitigate the impact of the CRB infestation by recycling the dead palms to give significant Salvage Value with charcoal and biochar, lumber and craft.

400 Litre Retort

Log Splitter

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The Charcoal ‘Baking’ process:

A Canberra ACT (Australia) trial of the Pit-kiln

1. Dig a pit with vertical sides of almost any desired size. This pit is 1.5m wide x 2.5m long & 1m deep = 3.75cum.

2. Start a fire in the base of the pit.

3. Keep piling on more fuel when the burn begins to show ash

4. When the pit is full, burning well but showing ash, seal it to snuff out the fire

5. 48 hours later, open to find your charcoal Treasure trove!

Because the pit-kiln is so simple, cheap to ‘build’ and can be of any size, it is particularly suited to village or even individual household use.

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Digging the pit


Starting the fire

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Seal it with corrugated iron sheets

48 hours - Charcoal

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The Koivu Community

To prove the efficacy of this baking process, Tony Matelaomao, CTC Project Manager, negotiated with the villagers at Koivu to allow us to use some of their land, and arranged delivery of **nine** truck loads of 'dead' palm logs.

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The Koivu Charcoal Pit-kilns

Two kilns dug at 1.5m wide x 6m long x 1.5m deep = 14cum pits

A good base fire pit

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Load & 'bake' through the night

Final layer the day after

The Task Ahead

This is just the beginning…

The CTC Project Manager, Tony Matelaomao, in front of the remaining logs at one Biosecurity Solomon Islands (BSI) site after nine truck loads were taken away to Koivu. The Project constructed three trench pit-kilns on this site and baked this pile of logs into charcoal in August & September 2019.

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bags of charcoal ready for sale

Charcoal Use

Converting wood & coconut shell to charcoal may be the easy part, the challenge is convincing the people to buy it and use it in place of burning wood, that is free and in abundance.


'Kon-tiki' cone kiln


Activation of biochar slurry

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Biochar

Informal biochar trials at the CTC show very promising results.