

Extension Fact Sheet 57: Scapanes Beetles



Common name: Melanesian rhinoceros beetle;
Coconut rhinoceros beetle; Scapanes

Scientific name: *Scapanes australis*. Different sub-species (*S australis australis* and *S australis grossepunctatus*) exist in Papua New Guinea, but the situation in Solomon Islands has not been studied.

Hosts: The main hosts are coconut, oil palm and betel nut, but the beetle is also found on banana, sugarcane and wild palms.

Damage

The adults bore into crowns of coconut, oil palm and other palm species, as well as pseudostems of bananas. Damage to coconuts is considerable, especially up to 5 years' old. The emerging fronds show V-shaped cuts, twisting, spiraling and truncated leaflets. If the growing point is damaged, the palms die. The damage allows entry of other organisms: termites and, especially, *Rhynchophorus*, the Black palm weevil.

Damage can be severe when coconuts are planted in land cleared from forest, where the rotting logs provide breeding sites. All the palms may be damaged within 5 years, discouraging farmers from planting or replanting the crop. However, as the logs rot away so the attack decreases.

Biology and Life Cycle

The egg is creamy-white, about 5 mm long and 3 mm diameter, and is laid singly in soil near rotting logs or other decaying matter that is food for the larvae. In Papua New Guinea, breeding sites occur in cocoa and coconut plantations associated with rotting stumps of shade trees (*Gliricidia sepium*). Breeding sites have also been found in old nests of magapodes, when these were near breadfruit trees.

Eggs hatch after about 30 days producing C-shaped larvae (photo, left), with heads of reddish brown to brown. As the larvae grow, they moult twice, reaching 10 cm in length and 2 cm

thick, before pupating at 9 months or more. Adults are black, 4-6 cm long, and are strong fliers. Males are horned (photo, right), while females have small double horns on their heads. Adults live for about 4 months. Males and females have been seen in the same tunnel in the crown of a coconut, but it is the male alone that is seen most commonly.

Detection and Inspection

Look for the larvae beneath rotting logs. However, they need to be bred to adults, as they are similar to other beetles in the scarab family. Keep them in a sterilised cowdung and sawdust mixture. Look for the horns on the adult males beetles, they are characteristic, whereas females may be more difficult to recognize.

Oryctes is not present in Solomon Islands, so confusion with that insect is unlikely; also, *Oryctes* attacks much older palms.

In the field, inspect the crown of the palms, looking for V-shaped cuts in the leaves, distorted fronds and fibre pushed from the tunnels into the crown. Follow the tunnel to find the beetle.

Management

Control of *Scapanes* is difficult as the number of adult beetles is relatively low per ha, albeit they can cause substantial damage.

Biological control:

A pheromone has been isolated and used in mass trapping trials in Papua New Guinea. It is said to be easy to make and is cheap. It attracts both males and females. It is still to be put to use in smallholder and estate plantations.

Resistant varieties:

- None known in Solomon Islands, but fast-growing varieties are more likely to outgrow the damage caused by the beetles. In Papua New Guinea, fewer coconuts of Gazelle Tall died from attack compared to Rennell Tall or Malayan Dwarf.

Cultural control:

- Remove or burn breeding sites, logs in particular, or burn them (a difficult practice for small holders when clearing sites from forest);
- Plant *Pueraria phaseolodes* or other legume species as soon as the trees have been felled to cover the logs and stumps in order to interrupt egg laying.

Chemical control:

Chemical control of this pest is very difficult and not recommended under small-scale production systems. If it is required:

- Put granules of insecticide in the axils of the fronds. Lindane and BHC have been used in the past, but the production and use of these chemicals is banned by international agreement. Furadan granules have been used as an alternative. **READ THE INSTRUCTIONS BEFORE USING ANY PESTICIDE.**