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THE GIANT AFRICAN SNAIL

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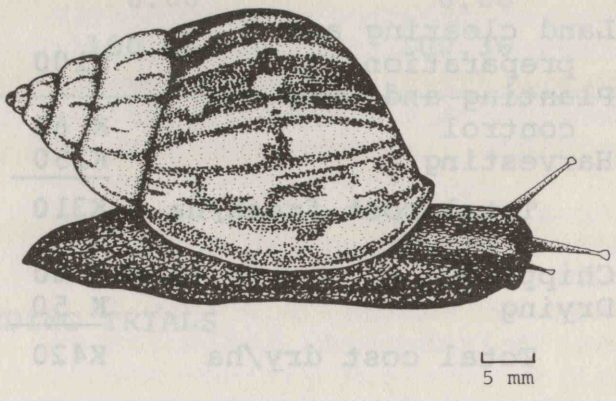
INTRODUCTION

The giant African snail (*Achatina fulica*) was introduced into Papua New Guinea during the Second World War. It is a tropical snail native to East Africa which has been spread by man to many Pacific countries. It was first observed at Rabaul in 1945. It is known to be established on the Gazelle Peninsula and the Kimbe area of New Britain; on New Ireland; around Kieta in the North Solomons; at Port Moresby and Sogeri in the Central Province; in the Lae area of the Morobe Province; and on Manam Island and Bogia in the Madang Province. It is a destructive pest which causes severe damage to a wide range of plants and crops.

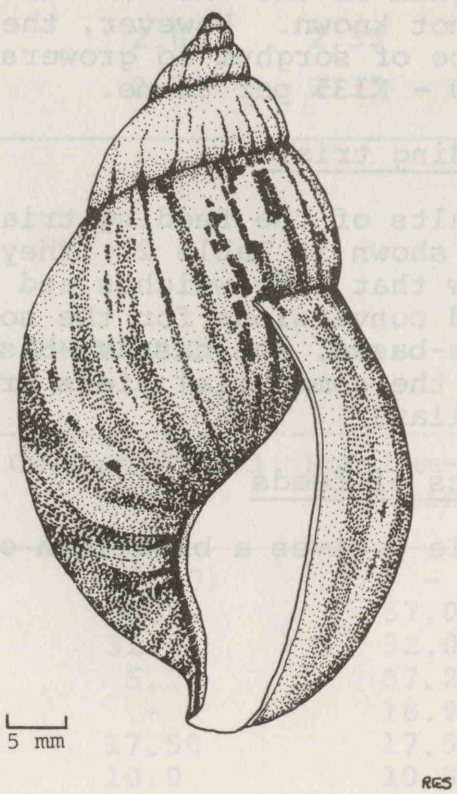


The giant African snail

DESCRIPTION

The body of the snail is made up of three parts: the head, foot and visceral hump. The visceral hump is the part of the snail which is inside the shell when the animal is expanded. The head and foot, which are not separated, make up the rest of the body and can be withdrawn into the shell.

There is a pair of short tentacles and a pair of stalked eyes on the head. Both the tentacles and the stalked eyes can be withdrawn into the head. The mouth is below the tentacles.



Empty shell of the giant African snail

The shell is usually brown and has paler or darker stripes. The shell of a fully grown snail may be 20 cm long.

The snail moves by means of muscular waves along its foot. The foot produces large amounts of slime to lubricate the snail's movement over the ground. The slime trails made by these snails are very noticeable.

BIOLOGY

Snails are hermaphrodite (each individual animal has both male and female sex organs) and they lay eggs. These are produced one to two weeks after mating and are yellow, spherical, about 5 mm in diameter. They are laid in clusters of 100-200 though sometimes in smaller numbers. About 1000 eggs are laid in a year.

The eggs hatch in 10-14 days. The young snails are about 4-6 mm long. They do not move much at first, and hide themselves in the plant litter covering the soil. They become sexually mature within 5 to 8 months. Mature snails may travel up to 50 m in one night.

Snails are nocturnal (active and searching for food only at night) and hide away in plant debris and other sheltered sites before sunrise. During the cloudy or overcast weather they may remain active during the day especially when there are regular morning rain showers.

In dry weather, when conditions are not suitable for their growth and development, they can enter into a state of aestivation (resting and waiting for better conditions to return). They burrow into the ground or crawl into sheltered spots, where they can remain for several months. During this time the opening of the shell is closed by a membrane (skin). Snails can also survive periods of low temperature. Giant African snails are reported to live for up to six years, though no reliable data are available for their life-span in Papua New Guinea.

ECONOMIC IMPORTANCE

The giant African snail normally feeds on decaying animal and vegetable matter, such as refuse, fallen fruits and excreta (dung). It also attacks living plants, especially fleshy young ones, and is thus often found in vegetable and flower gardens. It has been recorded damaging chinese cabbage, aibika, beans and newly planted seedlings, which are particularly vulnerable. The giant African snail has also caused extensive damage in cocoa and fruit nurseries. They have also been reported to attack the bark of trees such as pawpaw, rubber and cocoa.

As an introduced animal the giant African snail is living under rather unnatural conditions and its food preferences may vary considerably from one part of Papua New Guinea to another. However it has been observed that the damage caused by the giant African snail is at its worst when they have advanced (or been introduced) into a new area. As the snail population becomes more stable so the damage caused by snails reaches a steady level and control methods are more easily applied.

There are no internal quarantine restrictions within Papua New Guinea to prevent the spread of the giant African snail because in the past these

control measures have failed. However, the giant African snail has not established itself in Australia. For this reason, very rigorous inspections and controls are carried out at some Papua New Guinea ports from which specified commodities are exported to Australia.

CONTROL

Physical control

In small gardens, collect the snails by hand in the early morning when they are still active, and break their shells with a bush knife or other suitable implement.

The snails' habit of hiding during the day can be used to trap and kill them on hot sunny days. Lay sheets of corrugated iron (where available) on an area of open ground. The snails shelter under these in the morning and as the sun heats the iron they are killed.

Snails may also be trapped in larger gardens where there is a lot of dead and decaying vegetation. Heap this up to provide a large sheltered area. The snails are allowed to use it for several weeks before it is burnt off. This should be done on a hot sunny day.

Chemical control

The giant African snail can be controlled using a chemical called metaldehyde. This is available as commercially prepared baits. These baits should be scattered between the crops in the food gardens and along the border of the garden. It is preferable to protect the bait from rainfall which breaks it down. This can be done by covering the 'bait stations' with banana leaves. These bait stations should be placed at one metre intervals around the border of the garden or nursery, and inside it. It is important to visit the bait stations regularly and replace the bait that has been used up.

Bait blocks can be prepared by mixing equal quantities by volume of sawdust, cement and the chemical metaldehyde. It is important that the sawdust is not fresh and does not smell strongly. When mixing is complete, a little water is added to make a creamy mass which is then laid out thinly on a flat surface, such as a piece of timber, or corrugated iron sheeting. This must be dried in the shade, not in the sun light. When the mix has set hard it is broken into blocks 2-5 cm square (across), and used as above. Gloves must be worn when making these baits.

WARNING:
Snail bait is poisonous. Keep it away from children and domestic animals.

Biological control

Two species of predacious snail *Gonaxis quadrilateralis* and *Euglandia rosea,* which attack and eat the giant African snail have been introduced into Papua New Guinea. So far these have not been as effective here as they have in other countries in the South Pacific.

FURTHER READING

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FURTHER INFORMATION

For further information or advice about the giant African snail, contact the P.R.D.O. in your area, or the entomologist nearest to you. The addresses and telephone numbers of entomologists are:

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