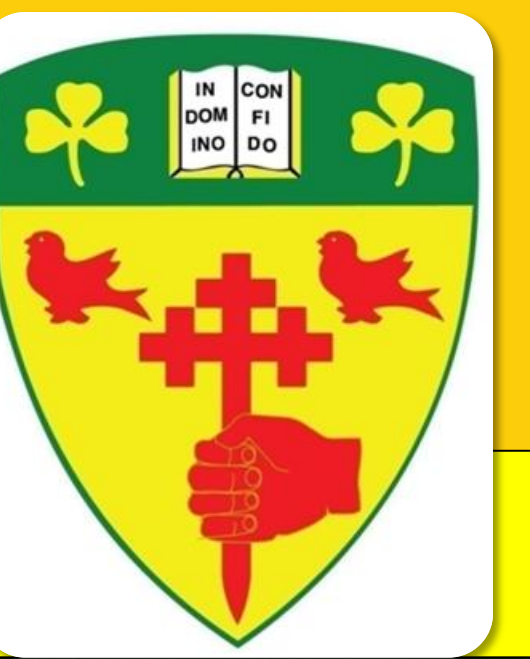


Achatina fulica – An invasive species



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Taxonomic name: *Achatina fulica* Bowditch
Common name: The Giant African Snail (GAS)

Biology of the Giant African Snail

An adult snail can measure 20 cm, with a 6 to 12.5 cm shell.

The eggs
• Yellow-cream
• Round
• 4.5 to 5.5 mm

The shell

- Narrow and conical
- Usually light-coffee coloured with yellowish stripes
- Varies depending on the snail's diet
- Usually 5-10 cm long

The body

- Dark-brown
- 2 pairs of tentacles on the head; the large one bears the eyes
- Moist with a rubbery texture

Abstract

A. fulica is a very invasive species that is widespread in some tropical countries. Classified as one of the 100 most invasive species of the world, this snail provokes major disturbance and concern among ecosystems, agriculture, and human health.

Origin and distribution

- Native of Eastern Africa.
- First introduced in East African islands in the late 1700s as a food source or medicine against tuberculosis (Mauritius; 2).
- Now entrenched in several islands in the Indian and Pacific Oceans, in parts of Asia, the Caribbean, and more recently in some South American countries (1).
- GAS has been present in the Caribbean for over 20 years. Present in Guadeloupe in 1984, the snail has spread to Martinique (1988), Marie Galante and Saint Martin (1995), St. Lucia and Barbados (2000). Most recently, the snail has arrived in Dominica (2006) and Antigua (2008).

Habitat

Humid and warm climates in a broad range of habitats such as nurseries, forests, urban, coastal, agricultural, and wetland areas.

What can explain GAS dispersal?

- Human activities e.g. tourism, international commerce.
- Its ability to adapt to new environments.
- Without human intervention, the snail spreads only a few hundred meters per year (5).

Why is *A. fulica* invasive?

- The snail is very fecund: a snail can engender millions of off-spring during its lifetime.
- GAS always finds something to feed on.

Nutrition

Varied diet

- GAS is polyphagous feeding on more than 500 types of plants (3, 8). Will consume bark.
- Prefers decayed vegetation (4).
- Is a scavenger, eating carcasses and animal matter and is also coprophagous (feeding on feces).
- Consumes sand and concrete as calcium sources.

Reproduction

- *A. fulica* is a simultaneous hermaphrodite.
- Self-fertilisation is rare.
- Hatchlings become sexually mature after 5-6 months.
- Typically mate anywhere.
- Eggs are laid 15 days later, usually buried in soil.
- About 300 eggs laid at a time, up to 1200 eggs a year (3).
- The hatchlings emerge after 8-21 days (1).
- Minimum 15°C is necessary for the eggs to hatch (6).

How can GAS be controlled?

- GAS cannot move on sand (useful barrier).
- Regular collection and destruction of snails.
- Methaldehyde is commonly used in pellet form to poison snails. It is not specific to GAS and needs to be applied with great care (5).
- Elimination of breeding sites, e.g., by removing mulches in fields (5).
- Biological controls. The agents of control that have been used, such as the snail *Euglandina rosea*, and the flatworm *Platydemus manokwari* are non-specific predators, and in many countries where they were introduced, extinctions of native and endemic snails have been reported.
- Animal and human consumption: the snail's fresh meat is low in fat and high in proteins (10%) (11). There is a need to investigate its use as a food item.
- Bounty system. The Barbados Ministry of Agriculture has put a price on their head (\$0.50/lb Bajan) (12) and supplies pesticides (13).
- In Barbados, there is a need to further investigate best practices for GAS control.

Damage caused by GAS

To the Ecosystem

- Consumes vegetation.
- Competes with herbivores.
- Representing an alternative prey for predators, it causes some species to grow out of control.
- neutralises soil acidity through the decomposition of empty shells (7).

As a nuisance

- GAS invades gardens and urban areas.
- Their dead bodies release a strong stench (7).

In Agriculture

- Feeds on crops.
- Infests agricultural areas.
- Spreads plant diseases (cocoa black pod) (7).

Human health

- GAS is a vector of the rat lung worm (*Angiostrongylus cantonensis*) which causes eosinophilic meningitis in humans.
- Mosquitoes, vectors of several disease-causing organisms, may use water trapped in empty GAS shells for breeding.
- GAS can carry *Aeromonas hydrophyla* an opportunistic pathogenic bacterium that can cause a variety of symptoms in humans (7).
- In Barbados, there is a need to investigate the incidence of *A. cantonensis* in GAS to determine whether or not it represents a threat to human health.

BITS program wins internship grant from IICA

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