



Achatina (Lissachatina) fulica Bowdich, 1822

FAMILY ACHATINIDAE

Current Risk Status for Fiji:
Very High

Body Type:
Snail with well developed shell

Size:
Adult shells can reach 20cm in height



USP Introduced Land
Snails of the Fiji
Islands Fact Sheet
Series, No. 9



Manaaki Whenua
Landcare Research



Direct funding from the Critical Ecosystem Partnership Fund (CEPF) and a USP FSTE Grant is gratefully acknowledged.

Special points of interest:

- *Achatina fulica* is considered one of the world's worst invasive pests because of its ability to create high economic loss.
- *A. fulica* has NOT yet become established in Fiji although it is sometimes intercepted by quarantine services on incoming cargo vessels.
- *A. fulica* is a voracious herbivore (plant eater) that is highly active at night.

Description & Distribution

Description

Achatina fulica Bowdich, 1822 has a narrow, conical shell, which is twice as long as it is wide and comprises 7 to 9 whorls when fully grown (GISD 2010). The shell is generally reddish-brown in colour with weak yellowish vertical markings but coloration varies with environmental conditions and diet. A light coffee colour is common. Adults of the species may exceed 20cm in shell length but generally average about 5 to 10cm. Because of its large size and country of origin *A. fulica* is often referred to as the Giant African Snail or GAS for short.

Distribution

Achatina fulica is native to East Africa. It has been introduced, sometimes intentionally, to many parts of the world including American Samoa, Samoa, Solomon Islands, Vanuatu, New Caledonia, Kiribati, Tuvalu, Cook Islands, French Polynesia, Marshall Islands, Federated



Source and location of photographs: P. Skelton (Samoa) & A. Derksen (Florida)

States of Micronesia, Palau, Wallis & Futuna and PNG (GISD 2010). Some reports need reconfirmation as introductions have in some cases been brought under control and the species has not become established. Despite some reports to the contrary *A. fulica* **is not currently established in Fiji**, although it is sometimes intercepted by quarantine control on cargo vessels arriving from overseas.

Habitat & Behaviour

Habitat

Achatina fulica is usually found in agricultural areas, coastal areas, natural and planted forests, scrubland, urban areas, riparian zones and wetlands. It is commonly transported locally via plant mate-

rials and equipment (GISD 2010).

Behaviour

Achatina fulica is highly active at night. A voracious herbivore it eats >500 varieties of plants. Also documented to prey on veronicellid slugs (Meyer *et al.* 2008).

If you find this snail in Fiji please report it urgently to the Biosecurity Authority of Fiji: Phone Suva 3312512.

FIJI LAND SNAILS

Biology

Maturity is reached in approximately 6 months depending on temperature, and life expectancy is between 5 and 10 years (GISD 2010). *Achatina fulica* has the ability to aestivate (shut down) for up to three years in times of extreme drought. Individuals are hermaphrodites (possess organs of both sexes) but instances of self-fertilization



A. Derksen

are rare. The sperm transferred from one individual to another can be stored for up to two years. The snail may lay about 200 eggs per clutch and it may produce about five to six clutches per year. Unlike many native Pacific island land snails, *A. fulica* has a relatively high natural dispersal rate.

Threats & Similar Species

Threats

Achatina fulica is considered one of the worst snail pests of tropical and subtropical regions (Raut & Barker 2002). The aggregated nature of infestations can lead to severe damage in crops and high economic losses both in yield and control measures. *A. fulica* may also spread disease through transmission of plant pathogens (such as fungi) and by acting as a vector for parasites with serious human health implications (Wallace & Rosen 1969). Because of their density and relatively large size *A. fulica* can also change the nutrient-cycling dynamics of their ecosystem. They are a nuisance when found near hu-

mans and can be hazardous to drivers on roads. Their decaying bodies release a bad odour and the calcium carbonate in their shells alters soil properties and in turn the types of plants that can grow (Mead 1961).

Similar Species

Achatina fulica is superficially similar in shape and overall colour to some of the endemic *Placostylus* species found in Fiji. However *A. fulica* grows much larger, the shell has a more rounded, less elongate body whorl, and *A. fulica* does not have an expanded aperture lip.

Further Reading

- Barker, G.M. & Efford, M. (2004). Predatory gastropods as natural enemies of terrestrial gastropods and other invertebrates. Pp. 279-403 In: Barker, G.M. (ed.), *Natural Enemies of Terrestrial Molluscs*. CABI Publishing, Wallingford.
- Cowie, R.H. (2001). Can snails ever be effective and safe biocontrol agents? *International Journal of Pest Management*, 47: 23-40.
- Cowie R.H., Dillon R.T., Robinson D.G. & Smith J.W. (2009). Alien non-marine snails and slugs of priority quarantine importance in the United States: a preliminary risk assessment. *American Malacological Bulletin*, 27:113-132.
- GISD. (2011). <http://www.issg.org/database>. Accessed February, 2011.
- Mead, A.R. 1961. *The Giant African Snail: A Problem in Economic Malacology*. University of Chicago Press. Chicago.
- Meyer, W.M., Hayes, K.A. & Meyer, A.L. (2008). Giant African snail, *Achatina fulica*, as a snail predator. *American Malacological Bulletin*, 24:117-119.
- Neto N.A.L., Brooks S.E. & Alves R.R.N. (2009). From Eshu to Obatala: animals used in sacrificial rituals at Candomblé "terreiros" in Brazil. *Journal of Ethnobiology and Ethnomedicine*, 5: 23.
- Raut, S.K. & Barker, G.M. (2002). *Achatina fulica* Bowdich and other Achatinidae as pests in tropical agriculture. Pp. 55-114. In: Barker, G.M. (2002). *Mollusks as Crop Pests*. CABI. 468 pp.
- Wallace, G.D. & Rosen, L. (1969). Studies on eosinophilic meningitis. Molluscan hosts of *Angiostrongylus cantonensis* on Pacific islands. *Journal of Tropical Medicine and Hygiene*, 18:206-216.

How to Cite:

Brodie, G. & Barker, G.M. 2012. *Achatina (Lissachatina) fulica* (Bowdich, 1822). Family Achatinidae. 'USP Introduced Land Snails of the Fiji Islands Fact Sheet Series', No. 9.

For Further Information Contact:

Dr Gilianne Brodie, Biology Division, USP, Suva, Fiji Islands. Phone: 679 3232876, Email: brodie_g@usp.ac.fj