



Sarasinula plebeia (Fischer, 1868)

FAMILY VERONICELLIDAE (= VAGINULIDAE)

Current Risk Status in Fiji:
Medium to High

Body Type:
Slug, no shell

Size:
Adults up to 5 cm in length



USP Introduced Land
Snails of the Fiji
Islands Fact Sheet
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Manaaki Whenua
Landcare Research



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Special points of interest:

- Veronicellid slugs are notoriously hard to identify. Fiji's *S. plebeia* is most readily confused with *Semperula wal-lacei*.
- With breeding in the wet season *S. plebeia* can reach high population densities in disturbed habitats.
- *S. plebeia* is an important agricultural pest. It is ranked in the top 10 mollusc species with potential to have major pest significance for the United States.

Description & Distribution

Description

Sarasinula plebeia (Fischer, 1868) is a relatively large shell-less slug. The upper surface (notum) is leathery and can sometimes appear pitted. The body form is flattened and becomes more elongate when the animal is alive and crawling. The notum colour is generally light to dark mottled brown with no pale stripe. Like all members of its family a mantle cavity is absent. The pneumostome (breathing pore) is very small (Shea 2006) and located at the posterior, under the notum. The head has two pairs of tentacles; the upper pair have terminal eyes. The tentacles are hidden under the notum when the slug is inactive. Because of its surface texture, mottled brown colour and elongated oval shape, *S. plebeia* is sometimes referred to by the common name "Caribbean Leatherleaf".



Source and location of photographs:
G. Brodie (Viti Levu) & P. Ryan

Distribution

Sarasinula plebeia is native to Central America however it is now widely distributed throughout the Americas and the Pacific. According to Barker *et al.* (2005) this species is widely distributed across the Fiji Islands.

Habitat & Behaviour

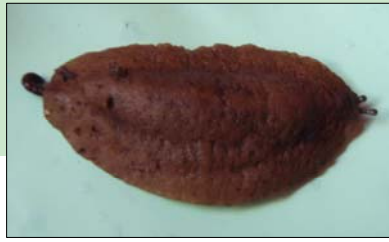
Habitat

Sarasinula plebeia is generally found in moist leaf litter or organic material on the ground, or under stones or rotting logs in areas relatively close to human habitation. It is also found to be arboreal on low vegetation. In Fiji, *S. plebeia* is found in low to midland disturbed forests, plantations, grass lands and gardens (Barker *et al.* 2005).

Behaviour

Sarasinula plebeia is nocturnal, hiding during the day. According to Rueda *et al.* (2002) the species is most active between 2 to 4 am and individuals can travel up to eleven metres in a single night. It has also been recorded that these slugs can bury themselves to depths of 25cm to 1 metre during the dry season (Garcia *et al.* 2007).

FIJI LAND SNAILS



Biology

Sarasinula plebeia is an hermaphrodite i.e. individuals are able to function as both male and female during their lifetime. If kept in isolation, self-fertilization may occur (Rueda *et al* 2002). The species lays eggs (oviparous) and produces 1 - 4 clutches per year that average ~ 30 eggs. The species regulates its food intake in response

to water and diet quality. Reproduction is generally high during the rainy season with maturity reached at ~ 2.5 months (Garcia *et al.* 2007). Populations in Mexico are known to increase substantially during heavy continuous rain and this phenomenon has also been observed in Fiji.

Threats & Similar Species

Threats

Sarasinula plebeia is an agricultural pest on numerous crops and can be extremely abundant (Cowie *et al.* 2009). The species is a polyphagous herbivore (feeds on a variety of plants) but prefers young leaf tissues and soft stems. *S. plebeia* is the most important pest of bean crops in Central America. It is also a known pest in several overseas countries for sweet potatoes, cucurbits and nursery mahogany (Rueda *et al.* 2002, Garcia *et al.* 2007, USDA 2010).

S. plebeia is a possible vector in Fiji for parasites like the rat lung worm *Angiostrongylus cantonensis*, which can cause meningoencephalitis in humans. The species is also known as an interme-

diate host for the related nematode, *A. costaricensis*, which causes an inflammatory disease of the intestine in humans (Rueda *et al.* 2002).

Similar Species

Two other introduced veronicellid slugs occur in Fiji. *S. plebeia* is most similar to *Semperula wallacei*, but the latter is smaller, generally paler brown and with an indistinct pale stripe running longitudinally over the mantle (S. Gomez pers. comm.). *Laevicaulis alte* is larger and darker, with a pale stripe running longitudinally over the mantle. These slugs are very variable in body colouration however they are readily distinguished by their internal anatomy, especially that of the reproductive system (Gomes & Thomé 2001).

Further Reading

- Barker, G.M., Price, R. & Briggs, C. (2005). Priorities for additions to the Fijian protected natural areas network: an assessment based on complementarity in land snail assemblages. New Zealand Landcare Research contract report prepared for Wildlife Conservation Society, Suva. 162 pp.
- Bishop, M.J. (1977). Terrestrial Mollusca of Queensland: the family Veronicellidae. *Memoirs of the Queensland Museum* 18: 53 – 59 pl. 18.
- Cowie, R.H., Dillon, R.T. Jr., 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: 13-132.
- Garcia, E.N. Thome, W.J., & Casteillejo, J.A. (2007). Review of Veronicellidae from Mexico (Gastropoda: Soleolifera). *Revisita Mexicana de Biodiversidad* 78: 41-50.
- Gomes, S.R. & Thomé, J.W. (2001). Anatomia comparada de cinco espécies da família Veronicellidae (Gastropoda, Soleolifera) ocorrentes nas regiões Australiana e Oriental. *Biociências* 9: 137-151.
- Rueda A., Caballero R., Kaminsky R. & Andrews K. L. (2002). Vaginulidae in Central America, with emphasis on the bean slug *Sarasinula plebeia* (Fischer). In: Barker G.M. (ed.). *Molluscs as Crop Pests*. CABI Publishing, New York.
- Rueda A. A., Slansky F. & Wheeler G.S. (1991). Compensatory feeding response of the slug *Sarasinula plebeia* to dietary dilution. *Oecologia* 88: 181-188.
- Shea, M. (2006). Exotic snails and slugs found in Australia. *Malacological Society of Australasia Newsletter* 130: 7-8.
- Thomé J. W. (1975). Os gêneros da família Veronicellidae nas Américas (Mollusca; Gastropoda). *Iheringia Zoologia* 48: 3-56.
- USDA (2010). New Pest Response Guidelines-Tropical Terrestrial Gastropods. United States Department of Agriculture, Washington D.C. 29 pp.

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