

NATIVE LAND SNAILS OF SCHOUTEN ISLAND, EASTERN TASMANIA

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ABSTRACT

This paper documents a recent survey of the native land snails of Schouten Island, south of the Freycinet Peninsula. Twenty species were recorded, of which one (*Tornatelinops jacksonensis*, only its third Tasmanian record) may have been introduced. The fauna is similar to that of nearby Maria Island and more diverse than that of some significantly larger Tasmanian islands. Several significant range extensions are documented.

INTRODUCTION

Schouten Island is a rugged 3439 hectare island separated from the Freycinet Peninsula on Tasmania's central east coast by a channel that is about one kilometre wide at its narrowest point. The island is of natural history interest because it is divided by a north-south running fault into an eastern section of granite crags and a slightly less mountainous western section of sandstone and dolerite. This division is mirrored dramatically in the island's vegetation communities (Harris and Kirkpatrick, 1982) – the eastern portion is rocky with sparse eucalypt cover while the western side includes grassy dry eucalypt forests and areas of dense wet forest (the latter mainly on south-facing slopes).

Schouten Island has previously been only very lightly sampled for land snails. Smith and Kershaw (1981) recorded no native land snails from Schouten Island, although they did record the introduced *Cerneuella vestita* (Rambur, 1868). *Bothriembryon tasmanicus* (Pfeiffer, 1853) was recorded by M. Johnstone in 1986 (QVMAG records) and Robert Taylor added *Caryodes dufresnii* (Leach, 1815), *Helicarion cuvieri* Ferussac, 1821 and *Tasmaphena ruga* (Legrand, 1871) in about 1993 (author's notes). On the adjacent Freycinet Peninsula, there has been a moderate degree of sampling around Coles Bay, but relatively little south of Hazards Beach.

This survey was conducted as one of a series of surveys of selected insufficiently sampled Tasmanian islands of likely biogeographical interest for land snails.

METHODS

This survey consisted of seven samples (Table 1), each taken loosely and informally over a radius of up to 100 metres. The aim of sampling was to find

as many species as possible, both on the island as a whole and at each sampling site. Sites were searched by hand searching (chiefly of rocks, logs, leaf litter, bark, moss and other shelters) for between one and two hours. Sites were selected subjectively with the aim of achieving reasonable spatial coverage while sampling a wide variety of habitats. Due to the ruggedness of the island and scarcity of tracks, it was not possible to achieve a thorough spatial coverage of the island in the time available. Furthermore, most sites surveyed were on the western (dolerite) side of the island, which supported forests considered likely to support far more snail diversity than the often bare granitic eastern side.

Table 1. Grid references and summary habitat characteristics of the study sites.

Site 1: (6054 3159) Eucalypt/sheoak coastal scrub on sandstone

Site 2: (6063 3163) Significantly taller and denser eucalypt/sheoak forest on granite

Site 3: (6045 3152) Open dry forest on dolerite

Site 4: (6045 3141) Dense low wet forest on dolerite

Site 5: (6049 3137) Grassy eucalypt woodland on steep dolerite slope

Site 6: (6034 3167) Sheoak scrub and tussocks on sand dune

Site 7: (6046 3163) *Bedfordia* and coastal shrubs on steep loose dolerite escarpment

RESULTS

Table 2 gives results of sampling at each of the seven main sites. Specimen numbers include both live and dead specimens and are estimates in three cases where over 50 specimens of a species were seen at a site. Additionally, the following incidental records were made:

GR 6046 3132, 9 Jan 06, one live *Bothriembryon tasmanicus* clinging to a reed in a dried-up pond.

GR 6045 3139, 9 Jan 06, two dead *Laomavix collisi* in blackwood leaf litter on a steep slope in wet forest.

GR 6053 3159, 9 Jan 06, one dead *Caryodes dufresnii* on an escarpment.

GR 6056 3159, 10 Jan 06, one dead *Helicarion cuvieri* on beach.

With the arguable exception of *Tornatellinops jacksonensis* (see below), no introduced species were recorded.

Table 2. Number of specimens of each species observed or collected at each of the seven main sites listed in Table 1. Use of “cf.” indicates a species that is not referable to any valid taxon but may be referable to a name currently listed as a synonym. Tags for undescribed species follow the system used by Bonham (2003). * denotes species not previously recorded from the Freycinet Peninsula or Schouten Island.

	1	2	3	4	5	6	7
Achatinellidae							
<i>Tornatellinops jacksonensis</i> (Cox, 1864)*							9
Rhytididae							
<i>Tasmaphena ruga</i> (Legrand, 1871)		18	1		1		
<i>Tasmaphena</i> cf. <i>quaestiosa</i> (Legrand, 1871)				10			
<i>Prolesophanta nelsonensis</i> (Brazier, 1871)*		3		2	1		
Caryodidae							
<i>Caryodes dufresnii</i> (Leach, 1815)		4	7	32	1		
Bulimulidae							
<i>Bothriembryon tasmanicus</i> (Pfeiffer, 1853)	3	2	2	16	13	6	2
Punctidae							
<i>Paralaoma caputspinulae</i> (Reeve, 1854)	4	1	10		4	25	
<i>Paralaoma</i> cf. <i>halli</i> (Legrand, 1871)*		1	2		1		
<i>Paralaoma</i> cf. <i>mucooides</i> (Tenison-Woods, 1879)*			1				
<i>Laomavix collisi</i> (Brazier, 1877)	150	120				12	5
<i>Trocholaoma parvissima</i> (Legrand, 1871)*				4			
<i>Magilaoma penolensis</i> (Cox, 1868)	7					2	1
Charopidae							
“ <i>Discocharopa</i> ” <i>mimosa</i> (Petterd, 1879)*				5			
<i>Elsothera ricei</i> (Brazier, 1871)			1	16	1		
<i>Allocharopa</i> sp. “Freycinet”					5		
<i>Pernagera tasmaniae</i> (Cox, 1868)*				22			
<i>Pernagera</i> sp. “Paradise”*				2			
<i>Pernagera officeri</i> (Legrand, 1871)	30					6	15
<i>Thryasona diemenensis</i> (Cox, 1868)*				80			
Helicarionidae							
<i>Helicarion cuvieri</i> Ferussac, 1821		8			1	3	1
Total species	5	8	7	10	9	6	6
Total specimens	194	157	24	189	28	54	33

DISCUSSION

Significant records

Tornatellinops jacksonensis has only been recorded twice previously in Tasmania - from Preservation Island (Smith and Kershaw, 1981) and Deal Island (record advised by Peter Brown). The species is widespread on the NSW and Victorian coasts. This find extends the species' known Tasmanian range by 200 km. Achatinellids such as this species are likely to have frequently been inadvertently dispersed by indigenous peoples (Cooke and Kondo, 1960), and this species was considered introduced to Tasmania by Kershaw (1991) without stated reason but presumably on this basis. This find of the species, close to Aboriginal middens and well away from all previous records, is consistent with this theory, but is also consistent with introduction after European settlement from some other area to which indigenous peoples had earlier introduced the species. (A rail track associated with coal mining had once existed through the area.) Specimens were found in leaf litter and under shrubs on a dry escarpment not far above the high-water mark. No live specimens were found. *T. jacksonensis* is one of two species suspected of having been introduced to Tasmania by Aboriginal peoples, the other being *Pupilla australis* (Angas, 1864) – see Bonham (2003).

The genus *Allocharopa* includes a radiation of at least nineteen predominantly undescribed Tasmanian species (most discussed in Bonham, 2003). The specimens collected from Schouten Island have an extremely wide umbilicus (shell diameter over umbilicus width [D/U] is around 2.2), a very flat shell (height/shell diameter ratio [H/D] is around 0.3), a relatively tight spire (1.8 mm wide at 4.5 whorls) and a rough sculpture resembling *A. kershawi* (Petterd, 1879). This combination of characters is not present in any Tasmanian *Allocharopa* form in known collections. However, in 2000, the author saw several similar specimens at a creek on the south side of Mt Mayson on the Freycinet Peninsula, but lost all material collected. A specimen recorded by Alastair Richardson as *A. kershawi* from Coles Bay in the late 1990s could also have been similar.

Pernagera sp. "Paradise" is a poorly known undescribed species with only nine previous records. It occurs in eastern Tasmania with a known linear range of about 110 km from St Patricks Head in the north to Wielangta and northern Maria Island in the south.

The record of *Thryasona diemenensis* was surprising as the nearest previous records were from Maria Island 30 km to the south, and the southern Douglas-Apsley 50 km to the north. This species, widespread and common over much of the state, is apparently absent from wet forests on the ad-

jacent east coast mainland between the Douglas-Apsley and Wielangta.

Diversity and biogeography

The native land snail diversity on the island (nineteen or twenty species depending on whether *Tornatellinops jacksonensis* is included) is high by east coast standards. Indeed there is no 10x10 km grid square within 70 km of Schouten Island from which more species have been recorded, although some grid squares have been far more extensively searched. By comparison, 31 species have been recorded from Bruny Island and 21 from Maria, but both of these are much larger than Schouten and have also been far more thoroughly searched. Significantly larger well-surveyed Tasmanian islands with fewer species recorded include King (15 spp.), Flinders (15), Three Hummock (10), Hunter (7), and Robbins (9) (Bonham 1997, 2003). The presence of wet forest on the southern side of Milligans Hill made a significant contribution to the diversity recorded in this survey. For example, of nine species found at only one of the seven sites, six of these occurred at the wet forest site, Site 4. Most of these six species are wet forest specialists. During the same project, a similar survey of South Maria Island (which did not support large areas of very dense wet forest) yielded only twelve species, including no wet forest specialists.

The recorded snail fauna of Schouten Island is very similar to that of Maria Island overall. The two islands have 17 species in common. They differ in which species of *Tasmaphena* and *Allocharopa* are present (Maria has what appears to be *T. sinclairi* and a different undescribed *Allocharopa*), and Maria has two charopids not yet recorded from Schouten (*Planilaoma luckmanii* (Brazier, 1877) and an undescribed *Roblinella* known only from the summit of Bishop and Clerk). *Tornatellinops jacksonensis* has not yet been recorded from Maria Island.

Indeed, the fauna of Schouten is more similar to that of Maria Island, 30 km to the south, than to mainland areas a similar distance to the west on the opposite side of Great Oyster Bay. The presence of *Thryasona diemenensis* has been discussed above. There are also three common north-eastern species that are present on the western side of Great Oyster Bay but were not found in this survey. These are *Victaphanta lampra* (Reeve, 1854), *Dentherona subrugosa* (Legrand, 1871), and the slug *Cystopelta petterdi* (Tate, 1881). All of these species extend south to roughly level with Schouten Island and *D. subrugosa* extends to at least 30 km south of it. If any of these species were present on Schouten Island it is highly likely they would have been found during this survey.

The only other species common on the nearby mainland but not found in this survey was *Planilaoma luckmanii*. This species could be present

and have been missed in this brief survey. On Maria Island it is rare.

Nine species not previously recorded from the Freycinet Peninsula were found in this survey. Sampling in the wet forests of the southern Freycinet Peninsula is desirable to determine whether the wet forest species documented here are also present on the Freycinet Peninsula. This is of special interest in the case of *Thryasona diemenensis* because of the curious east coast gap in this species' known range.

The southern portion of the Tasmanian east coast is a hotspot for undescribed local endemic snails, often associated with wet forests on dolerite screes (Bonham, 2003). On this basis, there is potential for further species to be added to the Schouten Island snail list if such habitats, especially on the southern side of Milligans Hill, are further targeted.

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