

**A new genus and species of mite of the family Ereyenetidae
(Acari Prostigmata) from the pallial cavity of
a New Zealand terrestrial gastropod (Athoracophoridae)**

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Summary

Austreynetes maudensis FAIN & BARKER new genus and new species (Acari: Ereyenetidae) is described from the pallial cavity of the terrestrial gastropod *Pseudaneitea schauinslandi* (PLATE, 1897) (Athoracophoridae) collected from Maud Island in the Marlborough Sounds, New Zealand.

Keywords: New mite. Lung. Gastropod. New Zealand.

Introduction

Terrestrial gastropods are known to be parasitized by members of three different families of Prostigmata. The best-known species are from the genus *Riccardoella* BERLESE, 1923 in the family Ereyenetidae. The genus *Riccardoella* currently comprises five species in the Holarctic, four of which have been recorded as parasitic in terrestrial gastropods, namely *R. limacum* (SCHRANK, 1776), *R. oudemansi* (THOR, 1932), *R. reaumuri* FAIN & VAN GOETHEM, 1986, and *R. triodopsis* FAIN & KLOMPEN, 1990. An unidentified species of the genus *Boydaia* WOMERSLEY, 1953, also in the Ereyenetidae and very common in the nasal cavities of birds, has been recorded once from a bulimulid gastropod from Mexico (POLACO & MENDEL, 1988). The second family, Eupodidae, is common in damp soil, humus and moss. One species, *Eupodes voxencollinus* THOR, 1934, originally described from plants in Norway, has been found in the pallial cavity of bulimulid and helicid gastropods from Mexico (POLACO & MENDEL, 1988). The Ereyenetidae are more closely related with the Tydeidae than with the Eupodidae but they differ from both of these groups by their aptitude to invade and colonize a large number of invertebrate and vertebrate hosts. The third family, Trombiculidae, is represented in gastropods by *Schoengastia* (*Endotrombicula*) VERCAMMEN-GRANDJEAN & BENOIT, 1971 infection in an African urocyclid. Only the larvae are parasitic, deeply embedded in the soft integument of the host from Sierra Leone

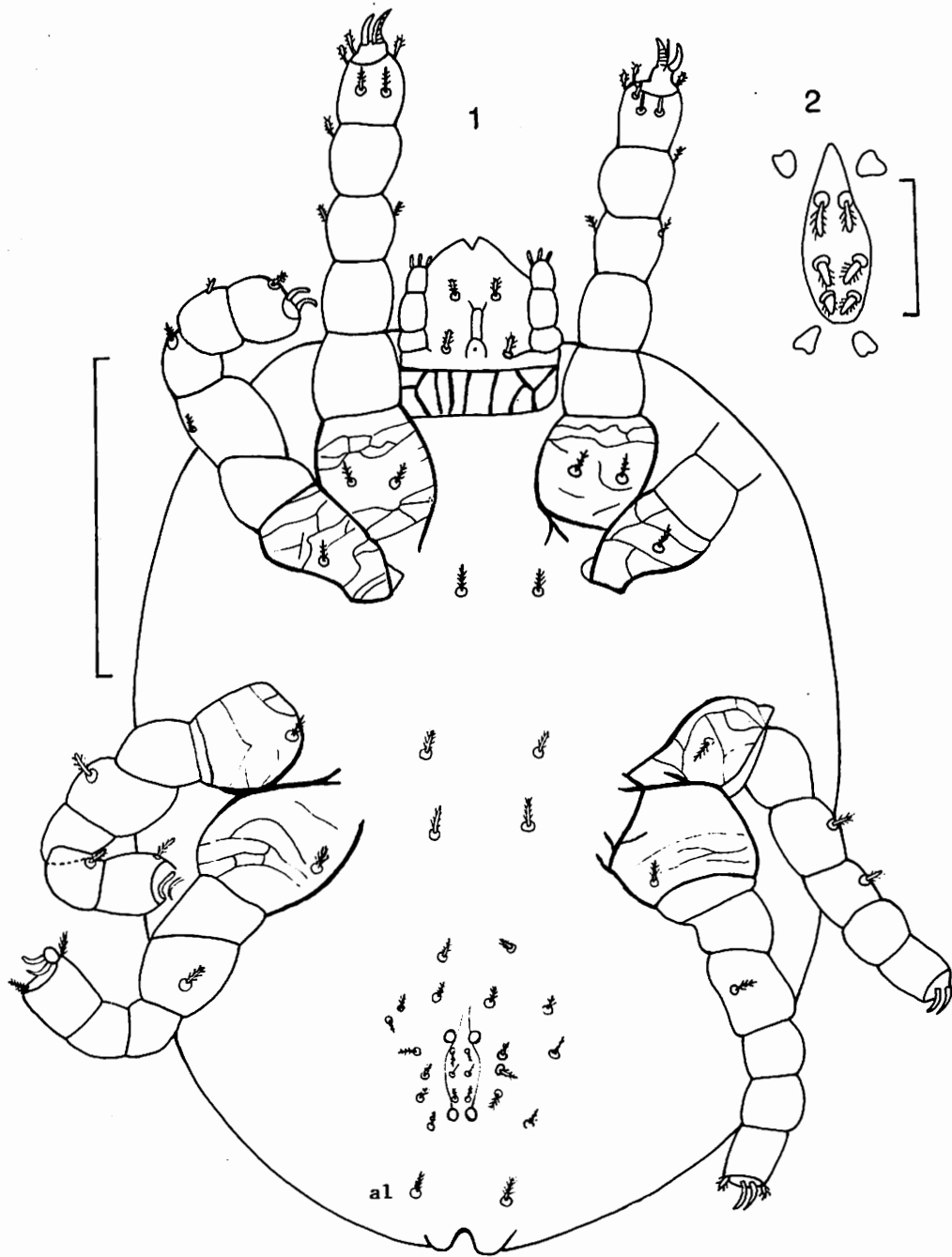
(VERCAMMEN-GRANDJEAN & BENOIT 1971; FAIN, 2004 in press). The Trombiculidae comprise a large part of the Trombidioidea, and the adults and nymphs being generally predators of small arthropods whilst their larvae, also called chiggers, being parasitic on vertebrates.

We describe here *Austreynetes maudensis* new genus and new species (Acari: Ereyenetidae), a mite found in the pallial cavity of the slug *Pseudaneitea schauinslandi* (PLATE, 1897) (Gastropoda: Athoracophoridae) from Maud Island in the Marlborough Sounds, New Zealand.

This new mite presents the general characters of the genus *Riccardoella*, i.e. same chaetotaxy of the body and the legs, same structure of gnathosoma and absence of dorsal shields. It differs, however by the absence of the posterior pair of sensillae on the dorsum which is replaced by a pair of normal setae. These posterior sensillae are present in all the genera of the Ereyenetidae and their absence represents an important step in the evolution of this genus. We therefore create a new tribe, *Austreynetini* for this genus.

This new species is represented by one male (holotype) in good condition and several nymph and larvae in rather poor condition. The only female of the collection was used by the junior author for scanning electron microscopy which was helpful in the interpretation of certain structures observed in the male.

All the measurements are in micrometers (μm). For the nomenclature of the idiosomal setae see Fain, 1970



Figs 1-2. *Austreynetes maudensis* Fain & Barker new genus, new species. Holotype male: 1. Ventral view. 2. Genital area enlarged. Scale line 100 μm (1), 25 μm (2).

Systematics

Ereynetidae OUDEMANS, 1931

Ereynetinae OUDEMANS, 1931, FAIN, 1957

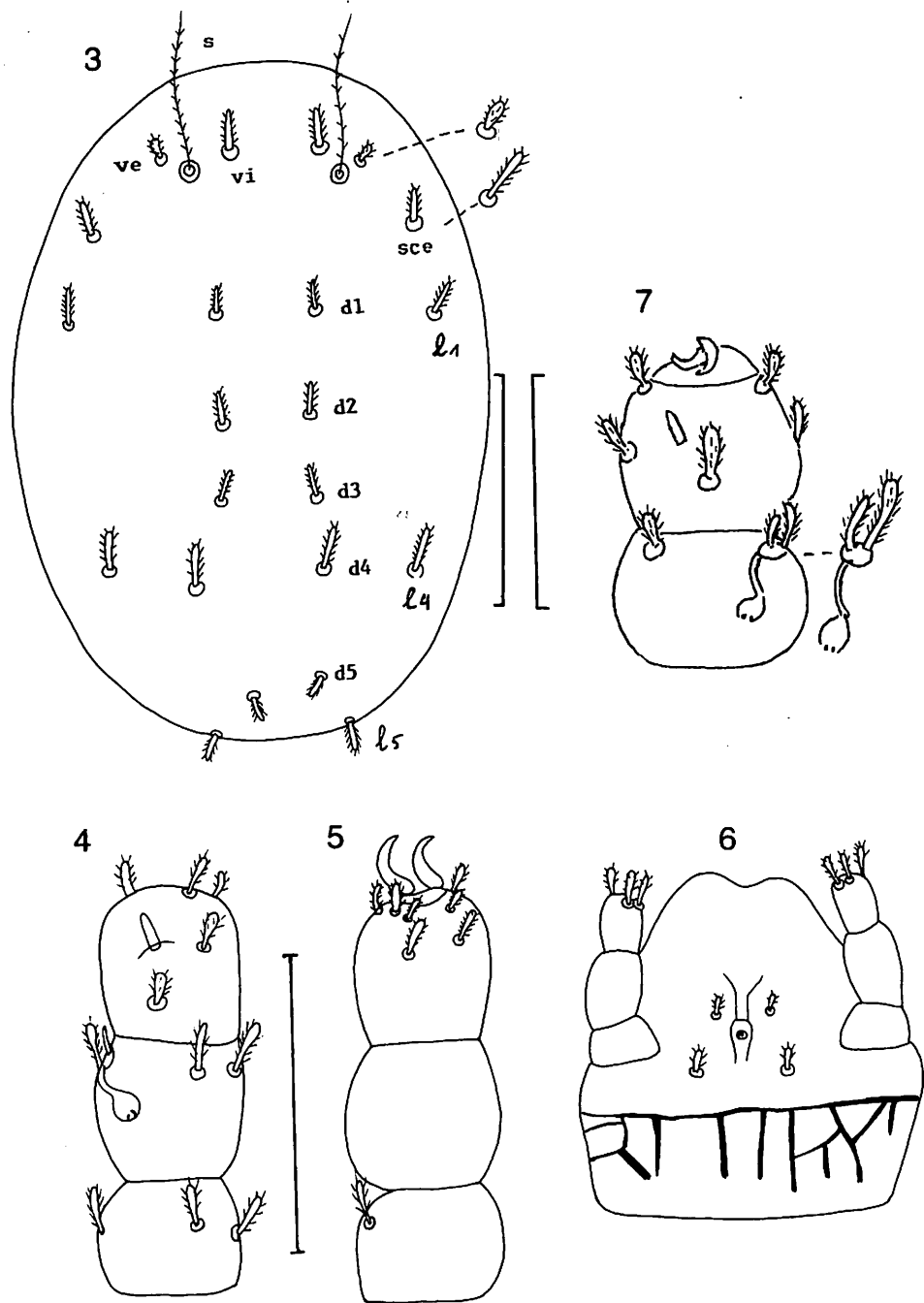
Austreynetini new tribe

Diagnosis : *Austreynetes* new genus, the type of the new tribe, is clearly distinguished from all other described Ereynetinae by the presence of a paired setae in the usual position of the posterior sensillae.

Type genus : *Austreynetes* FAIN & BARKER new genus.

Genus *Austreynetes* FAIN & BARKER new genus

Diagnosis: With the characters of the tribe. In the type and only known species in the genus, the body is small, with the idiosoma 280 μm long in the holotype male; the chaetotaxy is strongly reduced, with all the setae being very short and the number of setae reduced especially on some



Figs 3-7. *Austreynetes maudensis* Fain & Barker new genus, new species. 3-6. Holotype male. 3. Dorsal view of idiosoma. 4-5. Three apical segments of leg I, dorsally (4), ventrally (5). 6. Gnathosoma ventrally 7. Larva paratype. Tarsus and tibia of leg I in dorsal view with ereynetal organ. Scale lines : 100 μ m (3), 50 μ m (4-6), 25 μ m (7).

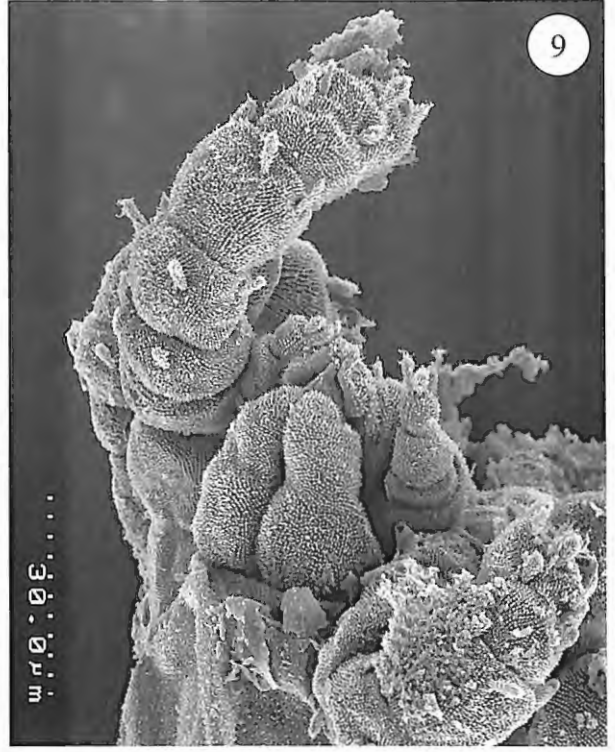
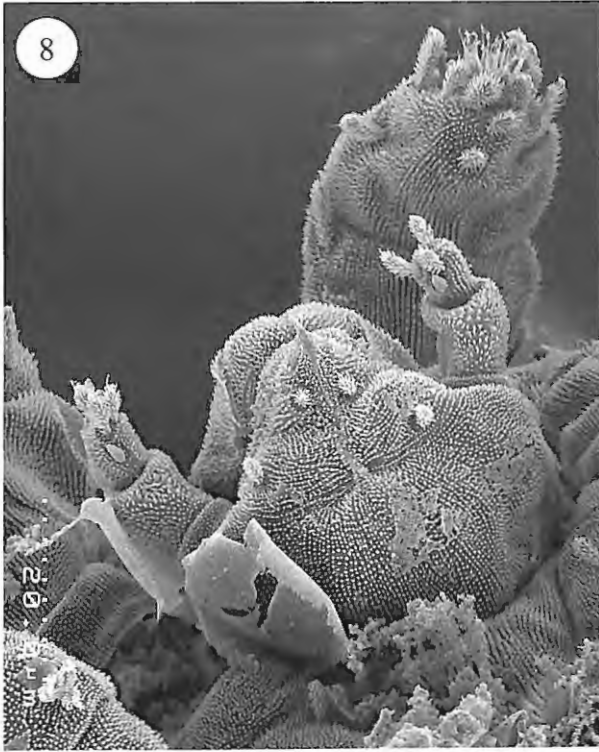
segments of the legs (tibiae, femora and trochanters) (see table).

Type species : *Austreynetes maudensis* FAIN & BARKER new species.

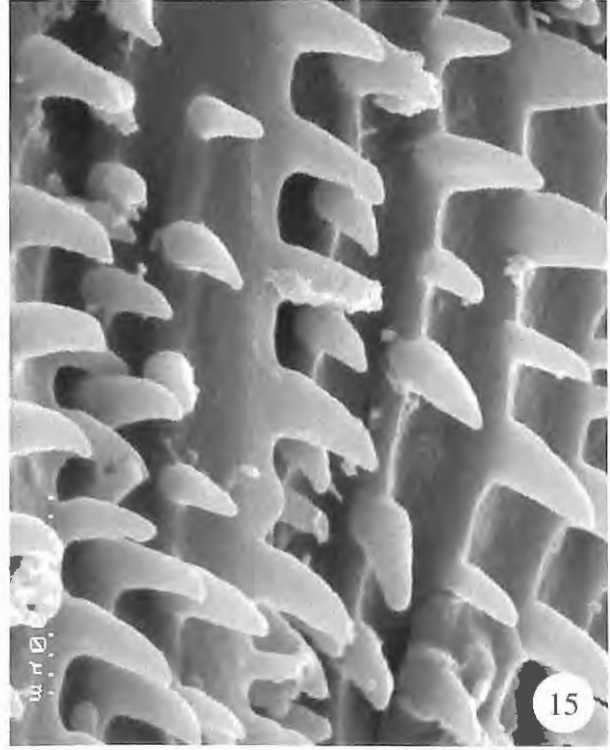
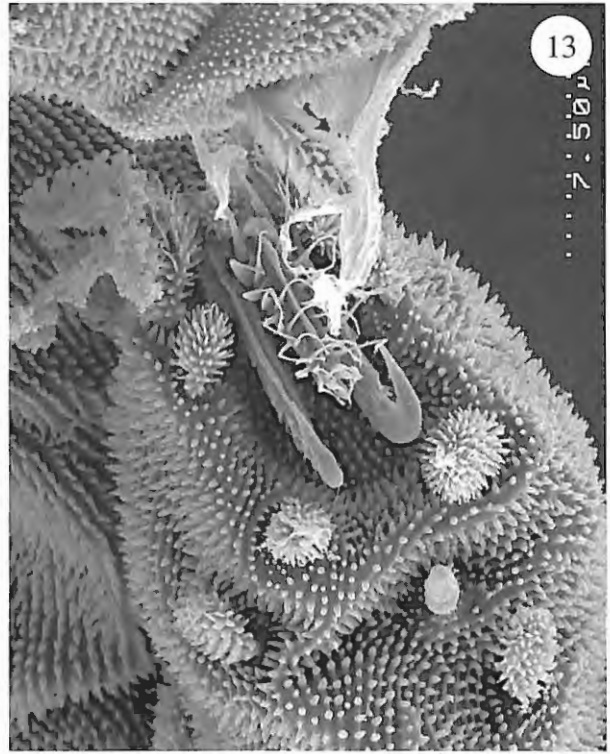
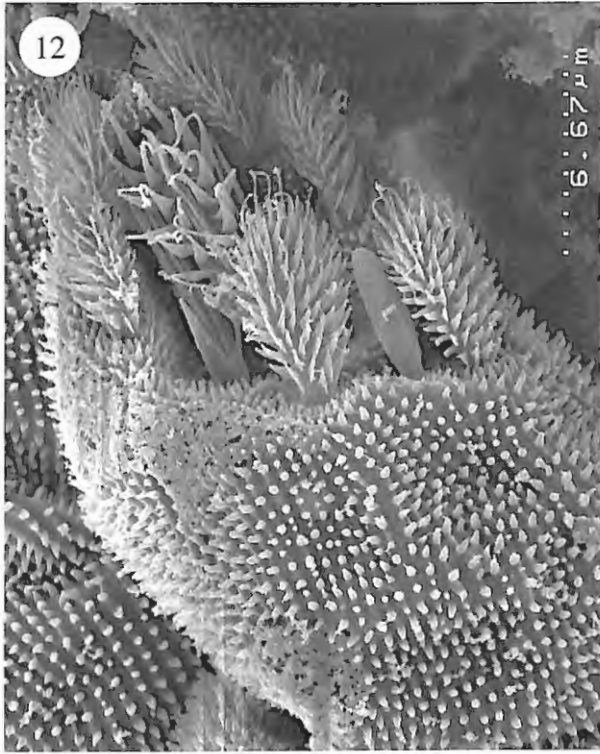
Austreynetes maudensis FAIN & BARKER n. sp.

Male, holotype (Figs 1-6) : Idiosoma (excl. gnathosoma) 279 μ m long and 200 μ m wide.

Dorsum: Cuticle very finely striated, devoid of shields. Anterior sensillae (s) with short barbs, 48 μ m long. All dorsal setae short or very short: vi 15 μ m, ve 6 μ m, sce 12 μ m, d1 to d3 9 to 12 μ m, d4 12 μ m, d5 10 μ m, l1 10 μ m, l4 12 μ m, l5 11 μ m. Venter: Coxae with irregular lines, with strong epimeres, they bear 2-1-1-1 setae. There are 3 pairs of intercoxals. Genital organ surrounded by 8 pairs



Figs 8-11. Scanning electronic micrographs of the female of *Austreynetes maudensis* Fain & Barker new genus, new species. 8. Ventral surface of gnathosoma. 9. Dorsal surface of gnathosoma and of leg I. 10. Dorsal surface of palp tarsus showing the solenidion. 11. Anterior sensilla.



Figs 12-15. Scanning electronic micrographs of the female of *Austreynetes maudensis* Fain & Barker new genus, new species. 12. Dorsal surface of tarsus I showing the solenidium. 13. Dorsal surface of tarsus II showing the solenidium. 14. Vulva and anus. 15. Detail of the cuticular ornamentation at very high enlargement (dorsal area).

Table 1. Comparison of the chaetotaxy in *Austreynetes* new genus with that in *Riccardoella* (*Proriccardoella*) and *Riccardoella* (*Riccardoella*).

	<i>Riccardoella</i> (<i>Proriccardoella</i>) <i>oudemansi</i> (Thor, 1932)	<i>Riccardoella</i> (<i>Riccardoella</i>) <i>limacum</i> (Schränk, 1776)	<i>Austreynetes maudensis</i> g.n and sp. n.
Legs I-IV (number of setae)			
Tarsi	12-9-8-8	12-9-8-8	12-8-8-8
Tibiae	5-4-3-3-	5-3-3-3	3-1-1-0
Genua	4-4-3-3	4-4-3-3	4-4-3-0
Femora	7(6)-3-2	4(5)-3-2(3)-3	2-2-2-1
Trochanters	1-1-1-0	1-1(0)-0-0	0-0-0-0
Coxae	2(3)-1-3-1	1-1-2-1	2-1-1-1
Posterior sensillae	presence	presence	absence
Perigenital setae	10 pairs	9-10 pairs	8 pairs
Number of anal setae	2 pairs	2 pairs	1 pair
Number of setae on palpal tarsus	3	3	3

of small barbed setae. There are 3 pairs of intra-vestibular setae and more deeply 2 pairs of genital sensory organs. Anus preterminal flanked by one pair of short setae. *Gnathosoma* 56 µm long and 48 µm wide. Palps as in *Riccardoella* spp (3 segments). Palptarsus with 3 short barbed setae. A solenidion has not been observed but it is clearly visible in the SEM micrograph of the female. *Legs*: relatively short, bearing a pair of apical claws and a hairy empodium. Tarsus I with a dorsal solenidion (6 to 7 long) situated in the apical half of the tarsus. Ereyneal organ of tibia I with a thin and short *famulus* and very close to it there is an ordinary seta. Length and width of tarsi I to IV 21 µm × 21 µm, 19 µm × 18 µm, 20 µm × 18 µm, 21 µm × 19 µm (ambulacra not included). Number of setae on legs I to IV: see Table.

Nymph: A single specimen in poor condition. No description provided.

Larva (Fig 7): Length and width of idiosoma 204 × 126 (in another specimen 204 × 116) Chaetotaxy of dorsum as in male but the setae *d5* are ventral. *Venter*: There are 2 pairs of intercoxals (II and III). Anus with 2 pairs of setae. *Gnathosoma* and palps as in the male. Leg chaetotaxy (number of setae): Tarsi 10-6-5, Tibiae 3-1-1, Genua 4-4-3, Femora 2-2-2, Trochanters 0-0-0, Coxae 2-1-1. Ereyneal organ of tibia II: Internal organ well developed, *famulus* and guard seta (ordinary seta) both set on the same base, they are shortly barbed, clublike and 4,5 (*famulus*) and 6,2 (guard seta) long.

Type material: HOLOTYPE (New Zealand Arthropod Collection, Landcare Research, New Zealand). Male from the pallial cavity of *Pseudaneitea schauinslandi* (PLATE, 1897) (Athoracopho-

ridae), Maud Island, Marlborough Sounds, New Zealand 41°02'S, 173°53'E, collected by A. Goodman. PARATYPES (New Zealand Arthropod Collection, Landcare Research, New Zealand): 3 larvae and 1 nymph (later in poor condition), same collection date as holotype.

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