

Two new species of the water mite genus *Anisitsiellides* Lundblad, 1941 from Australia (Acari: Hydrachnidia: Anisitsiellidae)

Harry Smit ^a, Vladimir Pešić ^b

^a Naturalis Biodiversity Center, P.O. Box 9517, 2300 RA Leiden, the Netherlands.

^b University of Montenegro, Department of Biology, Cetinjski put bb, 81000 Podgorica, Montenegro.

Original research

ABSTRACT

Two new species of the genus *Anisitsiellides* are described from Australia. A key is provided for the Australian *Anisitsiellides* species. One of the new species has the dorsal shield with five pairs of glandularia, which necessitates an emendation of the diagnosis of the genus.

Keywords systematics; taxonomy; Queensland; New South Wales

Zoobank <http://zoobank.org/37F10381-B8D4-4907-AFOC-BD98F5663E39>

Introduction

The water mite genus *Anisitsiellides* Lundblad, 1941 has a Gondwanan distribution, with several species known from Australia, New Zealand, Chile and Argentina (Smit 2020). From Australia six species are known (Harvey 1998, Smit 2007). All known Australian species of the genus are found in Eastern and Southeastern Australia, including Tasmania.

In this paper two new species are described.

Material and methods

The material was collected with a dip net, sorted in the field and fixed in so-called Koenike solution (5 parts glycerine, 2 parts glacial acetic and 3 parts water). All material from this study is collected by the senior author. Holotypes and paratypes will be lodged in the Australian Museum, Sydney (AMS) and the Queensland Museum, Brisbane (QM). The paratype will be lodged in Naturalis Biodiversity Center, Leiden (RMNH). The following abbreviations are used: Ac-1-3 – acetabula 1-3; asl = above sea level; Cx-I-IV – first to fourth coxae; Cxgl-2, 4 – coxoglandularia 2, 4; Dgl-1-6 – dorsoglandularia 1-6; dL – dorsal length; H – height; I-IV-leg-2-6 – second to sixth segment of first to fourth leg; L – length; Lgl-1 – lateroglandularia 1; NP – National Park; P-1-5 – palp segments 1-5; vL – ventral length; W – width. All measurements are in µm, measurements of palp and leg segments are of the dorsal margins, measurements of paratypes are given in parentheses. Ventral length is measured from the tip of Cx-I till posterior idiosoma margin. All coordinates are taken with a GPS.

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Corresponding author

Harry Smit :

harry.smit@naturalis.nl

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Systematics

Family Anisitsiellidae Koenike, 1910

Genus *Anisitsiellides* Lundblad, 1941

Diagnosis. Lateral eyes incorporated in an anterior platelet which is separated from the ventral shield. Dorsal and ventral shields present. Dorsal shield entire, with two, four or five pairs of glandularia. Dorsal furrow relatively wide with small glandularia platelets. Tips of Cx-I either slightly extending or not reaching beyond anterior idiosoma margin or not reaching this. Suture line Cx-III/IV incomplete. Posterior suture lines of Cx-IV not visible in ventral sclerotization. Genital field with three pairs of glandularia. P-2 with or without ventral seta, P-4 with small or large setal tubercles. Legs with swimming setae, IV-leg-6 without claw.

Anisitsiellides curtispalpis sp. nov.

Zoobank: F397F81C-585B-4244-BBC4-681CB868AD8A

(Figs. 1A-F)

Material examined. Holotype female, Dalrymple Creek at camping area, Main Range NP, Queensland, Australia, 27°58.793' S 152°20.782' E, 708 m a.s.l., 21 Nov. 2014, dissected and slide mounted (terminal segments of both IV-leg lost) (QM).

Diagnosis — Dorsal shield with five pairs of glandularia; P-2 without seta, ventral margin with two ventral projections, P-4 shortened and stout, dorsomedial seta long and curved.

Description — Female — Dorsal and ventral shields present; dorsal shield L/W 763/631, ratio, dorsal shield bearing the postocularia and five pairs of glandularia (Fig. 1A), three pairs of glandularia placed in the posterior part of dorsal furrow; ventral shield (Fig. 1B) L/W 850/769, no separate sclerite at anterior end of ventral shield, gnathosomal bay L 95; Cxgl-2 on posterior end of Cx-II close to Cx-II/Cx-III suture line; Cxgl-4 posteromedial to suture Cx-III/Cx-IV; medial suture line evident and extending nearly to genital field, posterior lines of Cx-IV obliterated, no ridges extending anteriorly from the region of IV-leg insertions, distance between I-leg insertions, 539; two pairs of glandularia incorporated into the posterior end of the ventral shield; genital field L/W 170/145, ratio 1.17, three pairs of acetabula, L Ac-1-3: 42, 42, 36. Eggs maximum diameter (n=2) 169-172.

Gnathosoma vL 163; palp: total L 198; dL/H, dL/H ratio: P-1, 23/31, 0.75; P-2, 66/50, 1.31; P-3, 34/38, 0.9; P-4, 45/28, 1.61; P-5, 30/11, 2.7; L ratio P-2/P-4, 1.45. P-2 without seta, ventral margin with one blunt, disto-ventral projection, and one triangular, distally slightly denticulated, projection near centre; ventral seta on P-3 a hair-like and very long, exceeding length of P-4; P-4 short and stout, proximoventral hair-like seta very long, dorsomedial seta long, curved and bluntly pointed, exceeding length of P-5 (Figs. 1C-D). Chelicera with dorsal elevation in the proximal part of the basal segment (Fig. 1F), total L 153.

Legs — dL of I-leg-3-6: 76, 92, 104, 144; terminal segments of IV-leg lost.

Male — Unknown.

Etymology — Named for its stocky palp.

Discussion — The new species differs from all other members of the genus by the dorsal shield having five pairs of glandularia, a characteristic shape of the palp with two ventral projections on P-2 and a shortened and stout P-4 with a strong dorsomedial peg-like seta. Moreover, no other *Anisitsiellides* species has the palp as illustrated for the new species. Therefore, it seems reasonable to define a new subgenus to accommodate the new species. However, in regard that in the new species the terminal segments of the fourth legs were lost, we postpone the decision to establish a higher rank for the new species until new material becomes available.

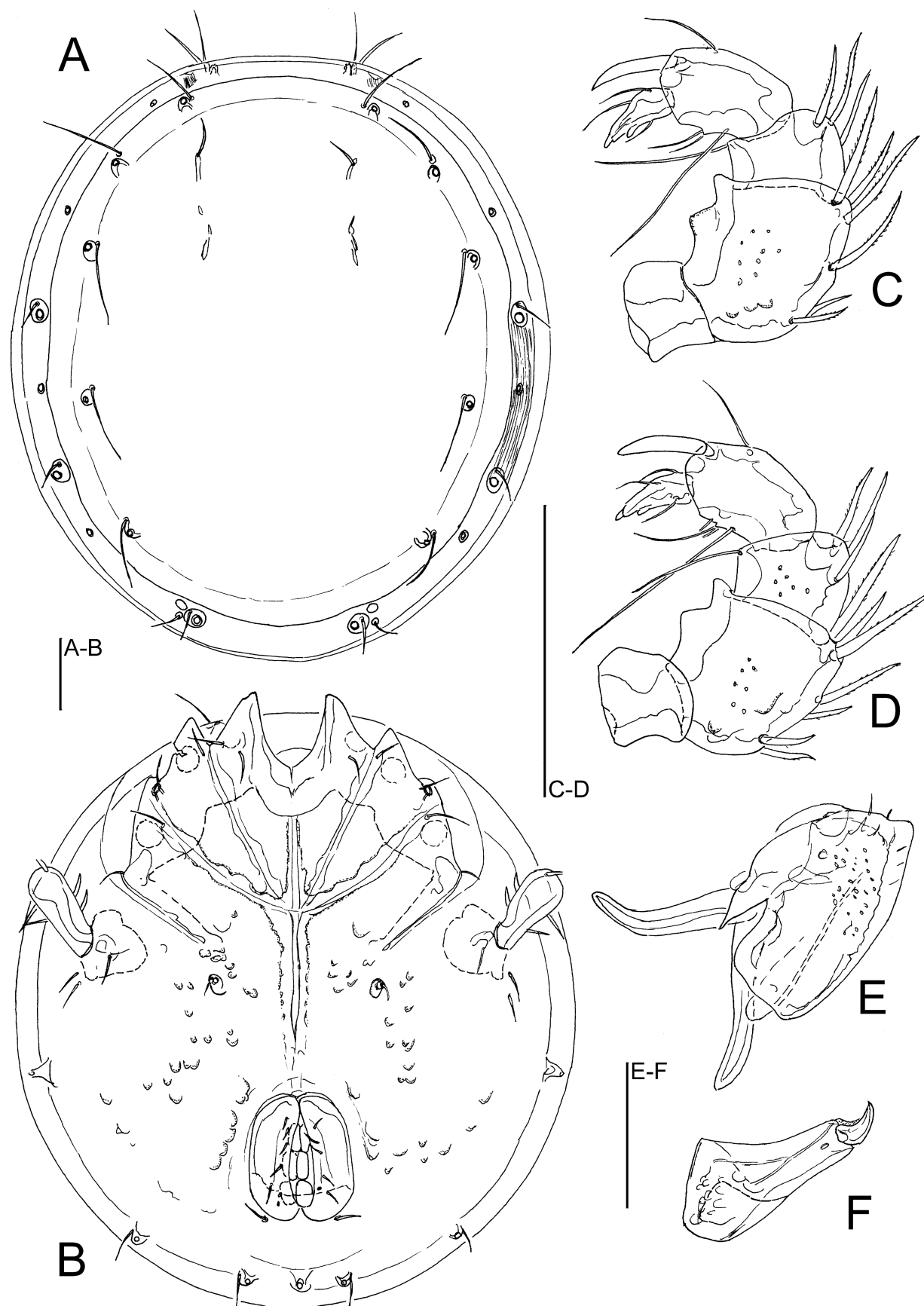


Figure 1 *Anisitsiellides curtispalpis* sp. nov., ♂ holotype, Dalrymple Creek. A – idiosoma, dorsal view; B – ventral shield; C-D – palp; E – gnathosoma; F – chelicera. Scale bar = 100 μm.

Anisitsiellides alpinus sp. nov.

Zoobank: [A74C3EF4-0DF1-4600-82D5-B3BA01D1F5BA](https://doi.org/10.24349/wxgx-vtaq)

(Figs. 2A-F)

Material examined. Holotype female, Small unnamed creek below summit of Mt. Kosciuszko, Mt Kosciuszko NP, New South Wales, Australia, 36°27.322' S 148°15.929' E, 2178 m a.s.l., 7 Dec. 2003, dissected and slide mounted (AMS). Paratype: one female, Blue Lake Creek near outlet in Blue Lake, Mt Kosciuszko NP, New South Wales, Australia, 36°24.270' S 148°18.745' E, 1893 m a.s.l., 6 Dec. 2003 (RMNH).

Diagnosis — Dorsal shield with four pairs of glandularia; Cxgl-2 on anterior margin of Cx-II; P-4 without an anteroventral projection.

Description — Female — Dorsal and ventral shields present; dorsal shield L/W 684/469, ratio 1.46, dorsal shield bearing the postocularia and four pairs of glandularia (Fig. 2A), four pairs of glandularia placed in dorsal furrow; ventral shield L/W 731/588, a separate sclerite present at anterior end of ventral shield, Cxgl-2 on anterior margin of Cx-II, close to Cx-I/Cx-II suture Cxgl-4 situated in ventral shield; gnathosomal bay L 103; medial suture line evident and extending to genital field, posterior lines of Cx-IV obliterated, no ridges extending anteriorly from the region of IV-leg insertions, distance between I-L insertions 393; one pair of glandularia incorporated in the posterior end of the ventral shield; genital field L/W 156/128, ratio 1.22, three pairs of acetabula, L Ac-1-3: 43, 41, 33.

Gnathosoma vL 131; palp: total L 290; dL/H, dL/H ratio: P-1, 28/31, 0.9; P-2, 75/60, 1.25; P-3, 49/43, 1.14; P-4, 111/31, 3.6; P-5, 27/14, 1.9; L ratio P-2/P-4, 0.68. P-4 without a projection, with a small denticle-like extension near insertion of ventral setae (Fig. 2E). Chelicera with dorsal elevation in the proximal part of the basal segment (Fig. 2D), total L 168.

Legs — dL of I-leg-2-6: 55, 77, 114, 139, 142; dL of IV-leg-2-6: 78, 98, 142, 156, 116; two very long swimming setae at distal end of IV-leg-5 (Fig. 2F).

Male — Unknown.

Etymology — Named for occurring in the high mountains.

Discussion — In regard to the dorsal shield with 4 pairs of glandularia and Cxgl-2 shifted to distal end of Cx-II, the new species resembles *A. caledonia* Harvey, 1990. The latter species was originally described from Victoria and can be separated from *A. alpinus* sp. nov. in having P-4 with an anteroventral projection and the suture lines Cx-II/III are absent (Harvey 1990).

Key to the Australian *Anisitsiellides* species

1. Dorsal shield with 5 pairs of glandularia; P-2 with two ventral projections, P-4 shortened and stout P-4 dorsomedial peg-like seta curved and long, exceeding in length P-5 *Anisitsiellides curtispalis* sp. nov.
— Dorsal shield with 2 or 4 pairs of glandularia; palp not as described above 2
2. Dorsal shield with 2 pairs of glandularia 2
— Dorsal shield with 4 pairs of glandularia 7
- 3(2). Ventral shield with separate anterior sclerite 4
— Ventral shield without separate anterior sclerite *Anisitsiellides circularis* Cook, 1986
- 4(3). Anterior sclerite of ventral shield divided medially; glandularium Lgl-1 situated in dorsal furrow *Anisitsiellides tolarda* (Cook, 1986)
— Anterior sclerite of ventral shield undivided; glandularium Lgl-1 situated in ventral shield 5
- 5(4). Glandularium Cxgl-2 situated in middle of Cx-III 6
— Glandularium Cxgl-2 situated at distal end of Cx-III 6

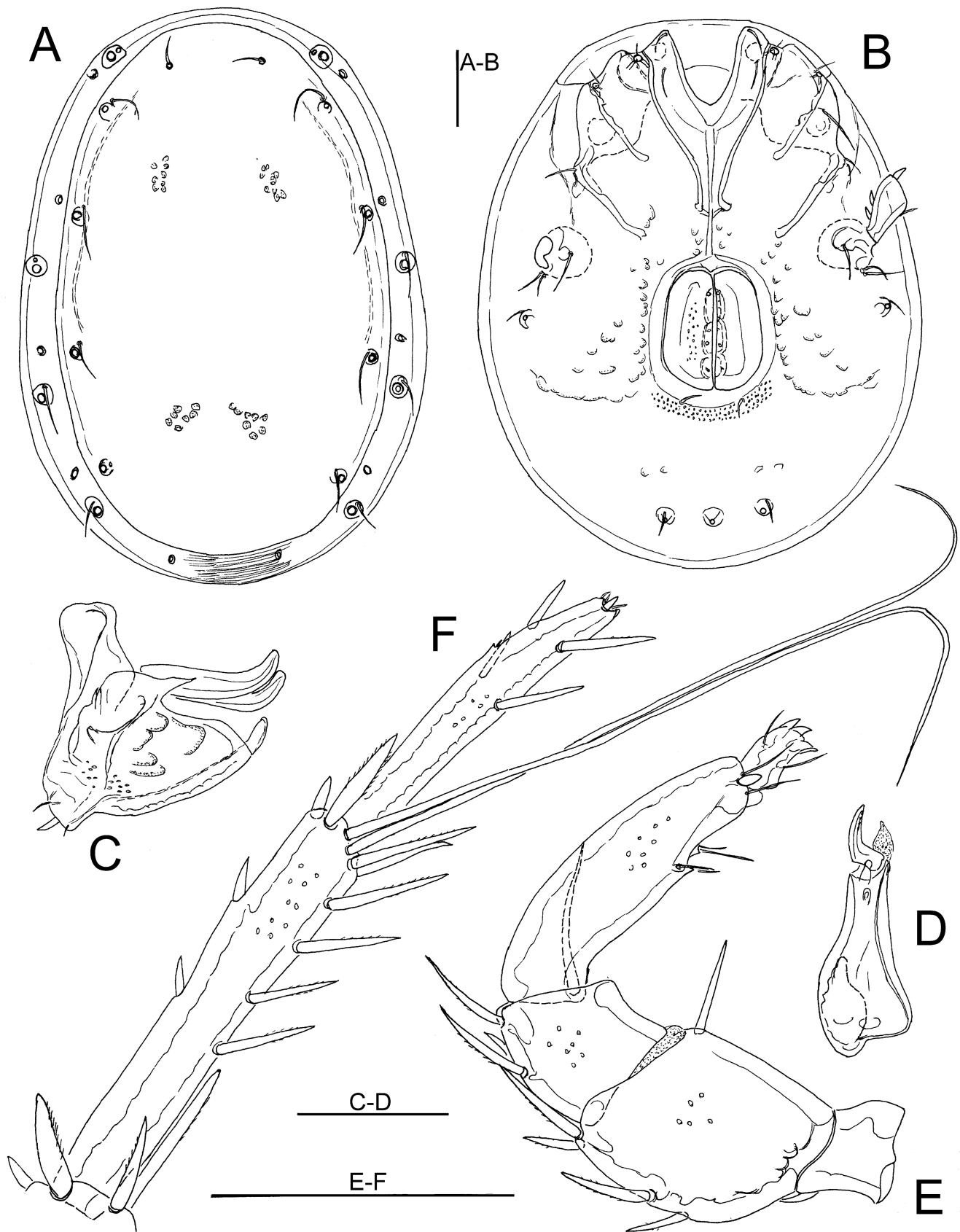


Figure 2 *Anisitsiellides alpinus* sp. nov., ♀ holotype, Small unnamed creek below summit of Mt. Kosciuszko. A – idiosoma, dorsal view; B – ventral shield; C – gnathosoma and chelicera; D – chelicera; E – palp; F – IV-leg-5 and -6. Scale bar = 100 μm.

..... *Anisitsiellides tasmanicus* Cook, 1986

6(5). Palp stocky; P-2 without ventral seta; swimming setae of IV-leg-5 just reaching past tip of IV-leg-6 *Anisitsiellides tabberabbera* Harvey, 1990

— Palp less stocky; P-2 with one ventral seta; swimming setae of IV-leg-5 reaching well past tip of IV-leg-6 *Anisitsiellides fuscatus* Smit, 2007

7(2). P-4 with an anteroventral projection *Anisitsiellides caledonia* Harvey, 1990

— P-4 without ventral projection *Anisitsiellides alpinus* **sp. nov.**

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ORCID

Harry Smit  <https://orcid.org/0000-0002-0376-6808>

Vladimir Pešić  <https://orcid.org/0000-0002-9724-345X>

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