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New records of water mites from New Zealand, with the description of three new genera and ten new species (Acari: Hydrachnidia)

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Original research

ABSTRACT

Many new records are presented of rare water mites from New Zealand. Three new genera are described, i.e. *Moanabates* **n. gen.** (Hygrobatidae), *Asperaturus* **n. gen.** and *Minyaturus* **n. gen.** (Aturidae: Notoaturinae), and ten new species, i.e. *Limnesia moanaensis* **n. sp.**, *L. pseudozelandica* **n. sp.**, *L. quinqueglandulosa* **n. sp.**, *Zelandobates tongariro* **n. sp.**, *Z. occidentalis* **n. sp.**, *Moanabates moanaensis* **n. sp.**, *Asperaturus petiolatus* **n. sp.**, *Minyaturus minutulus* **n. sp.**, *Paratryssaturus montanus* **n. sp.** and *Penemideopsis novaezelandica* **n. sp.** *Australiobates lacustris* Smit, 1996 is synonymized with *Australiobates setipalpis* Cook, 1983. The male is for the first time described for *Limnesia auspexa* Cook, 1983, *Apeltosperchon zelandicus* Cook, 1983, *Australiobates solomis* Cook, 1983, *Kritaturus vinnulus* Cook, 1983 and *Taintaturus longipileatus* Smit, 2017, the female is for the first time described for *Schwoerbelaturus aturoides* (Schwoerbel, 1984).

Keywords Acari; Hydrachnidia; new genera; new species; New Zealand
Zoobank http://zoobank.org/DCBDD9B8-C661-4906-9A68-7DE099CCA993

Introduction

Although the first record of a water mite from New Zealand dates from 1900 (Koenike 1900), most studies are of relative recent origin. In the sixties and seventies of the 20th century Hopkins published a series of papers on water mites from New Zealand (Hopkins 1966a, b, 1967, 1969, 1975; Hopkins & Schminke 1970). The most comprehensive study was published by Cook (1983), later on followed by Cook (1991, 1992). An extensive paper on the hyporheic water mites of the Selwyn River was published by Pesic *et al.* (2010). Papers dealing with less species were published by Arndt & Viets (1938), Cook & Hopkins (1998), Crowell (1990), Gerecke *et al.* (2017), Imamura (1977, 1978, 1979), Schröder (1935), Schwoerbel (1984), Smit (1996a, b, 2002, 2015, 2017, 2019), Stout (1953a, b) and Viets (1949). The number of species known from New Zealand tallies now 152 species (synonyms excluded).

In this paper three new genera and 10 new species are described. Moreover, new records are given of species with few records (less than five) known thus far. These data are based on collection trips of the first author in 1992 (South Island); 2000 (North and South Island), 2014 (North and South Island), 2019 (North and South Island) and 2020 (South Island). The Notoaturinae of the 2014 and 2019 collection trips were published by Smit (2017, 2019 [partly]).

This study reveals that the water mite fauna of New Zealand is still insufficiently known. This applies especially to the hyporheic fauna.

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Materials and methods

Unless stated otherwise, all material was collected by the first author. Holotypes and paratypes will be lodged in the Museum of New Zealand, Wellington (NMNZ), paratypes and all non-type material in Naturalis Biodiversity Center, Leiden (RMNH). The interstitial sampling was done by the Karaman-Chappuis method. Preferably the locations were situated in streams draining natural habitats. In streams draining pastures and exotic pine forest the diversity of water mites is low or water mites are even absent (Boulton *et al.* 1997). The following abbreviations are used: asl = above sea level; Cx-IV – fourth coxae; Cxgl-4 – coxoglandularia 4; P1-5 – palp segments 1-5; IV-leg-2 – second segment of fourth leg. All measurements are in µm, measurements of palp and leg segments are of the dorsal margins. Ventral length is measured from the tip of Cx-I till posterior idiosoma margin. For the glandularia notations Wiles (1997) is followed. The coordinates are taken with a GPS, but those given as degrees, minutes and seconds are taken from Google Earth and are by approximation. Numbers are given as male/female/deutonymph or adult/deutonymph. The distribution data are from the papers of Stout and Cook (see above), unless stated otherwise.

Taxonomy

Family Hydrachnidae Leach

Genus *Hydrachna* Müller, 1776

A genus with numerous species worldwide.

Hydrachna maramauenis Stout, 1953

New record. **North Island**. 0/1/0, Lake Ngapouri, 38°20′14.95″S 176°20′11.94″E, 16-x-2000; 1/2/0, Boggy Pond south of Lake Wairarapa, 41°14′36.94″S 175°16′22.14″E, 19-x-2000. **South Island**. 4/1/0, pond Whariki Beach, south of Farewell Spit, 40°30′35.08″S 172°40′18.57″E, 5-i-1992; 2/0/1, cattle pond 35 km S of Karamea, 41°28′45.37″S 172°3′34.93″E, 9-1-1992; 3/1/0, cattle pond Mt Aspiring Road, W of Wanaka, 44°32′14.54″S 168°53′23.42″E, 18-i-1992; 1/2/0, cattle pond near Bluff, 46°35′51.10″S 168°19′9.89″E, 22-i-1992; 1/1/0, pond 5 km S of Taranui, 45°14′0.89″S 170°51′50.60″E, 29-i-1992; 1/0/0, Lake Mc Gregor, 43°56′17.39″S 170°28′2.66″E, 31-i-1992; 8/7/0, cattle pond Okuti Valley, Banks Peninsula, 43°47′4.80″S 172°50′47.36″E, 1-ii-1992; 4/4/0, Halswell River at Motukarara, 43°43′35.83″S 172°35′39.05″E, 1-ii-1992; 0/2/0, pond in Rakaia River bed, 6 km W of Rakaia, 43°43′31.42″S 171°58′36.58″E, 1-ii-1992.

Distribution. Previously reported from three locations, all from North Island (Stout 1953b), and reported here for the first time from South Island.

Family Zelandothyadidae Cook

Subfamily Zelandothyadinae Cook

Genus *Zelandothyas* Cook, 1983

A small genus, with three species known from New Zealand (Cook 1983, Smit 1996a, Gerecke *et al.* 2017).

Zelandothyas balloti Gerecke, Judson & Cook, 2017

New records. **South Island**. 0/1/0, Twin Creek, Arthur's Pass National Park, 42°54.715′S 171°33.535′E, alt. 877 m asl, 23-xii-2014; 0/1/0, Petrel Creek crossing Kumara Inchbonnie Road, E of Mitchells, 42°38.937′S 171°25.704′E, alt. 90 m asl, 25-iii-2020; 0/1/0, unnamed stream crossing Palmer Road, at Palmer Rd Culvert, Springs Junction, 42°22.043′S 172°08.132′E, alt. 472 m asl, 28-iii-2020.

Distribution. Previously known from the type locality only, the Pelorus River near Middy Hut (probably Middy Creek Hut), South Island (Gerecke *et al.* 2017).

Zelandothyas diamphida Cook, 1983

New records. **South Island**. 0/1/0, Askews Hill Creek NE upper course, Taipare Bay, 41°01.119′S 173°42.807′E, alt. 179 m asl, 2-1-2019; 1/2/0, Askews Hill NE Creek upper course, Taipare Bay, 41°01.119′S 173°42.807′E, alt. 179 m asl, 2-i-2019; 0/1/0, Askews Hill NE Creek upper course, Taipare Bay, 41°01.119′S 173°42.807′E, alt. 179 m asl, 25-ii-2020; 0/1/0, Hapiata Stream, Okiwi Bay, 41°06.167′S 173°40.763′E, alt. ± 50 m, 28-ii-2020; 0/2/0, Matai River South Branch, interstitial, SE of Nelson, 41°17.900′S 173°21.994′E, alt. 139 m asl, 29-ii-2020.

Distribution. Previously known from two locations from South Island.

Family Eylaidae Leach

Genus *Eylais* Latreille, 1796

A genus with numerous species known worldwide.

Eylais schauinslandi Koenike, 1900

New record. **North Island**. 3/5/1, Boggy Pond south of Lake Wairarapa, 41°14′36.94″S 175°16′22.14″E, 19-x-2000. **South Island**. 5/1/2, pond Farewell Spit, 40°30′42.27″S 172°48′13.95″E, 5-i-1992; 2/0/1, cattle pond 35 km S of Karamea, 41°28′45.37″S 172°3′34.93″E, 9-1-1992; 8/9/0, cattle pond Mt Aspiring Road, W of Wanaka, 44°32′14.54″S 168°53′23.42″E, 18-i-1992; 3/1/1, pond 5 km S of Taranui, 45°14′0.89″S 170°51′50.60″E, 29-i-1992; 1/0/0, Lake Mc Gregor, 43°56′17.39″S 170°28′2.66″E, 31-i-1992; 1/1/0, old river branch of River Clutha at Balclutha, 46°14′14.03″S 169°43′42.90″E, 27-i-1992; 6/3/0, pond in Rakaia River bed, 6 km W of Rakaia, 43°43′31.42″S 171°58′36.58″E, 1-ii-1992.

Distribution. Previously reported from one locality from South Island (Koenike 1900) and from two localities from North Island (Stout 1953a).

Family Hydryphantidae Piersig

Subfamily Pseudohydryphantinae K. Viets

Genus *Pseudohydryphantes* K. Viets, 1907

A genus with several species from the Holarctic and Australia. From New Zealand one species is known.

Pseudohydryphantes cf *bebelus* Cook, 1983

New record. **South Island**. 0/0/1, Peg Leg Creek, Arthur's Pass National Park, 42°53.702′S 171°33.587′E, alt. 839 m asl, 23-xii-2014.

Distribution. Previously known from the type locality on South Island only. As the nymph has not been described, the assignment is not certain.

Subfamily Wandesiinae Schwoerbel

Genus *Euwandesia* Andre & Naudo, 1962

A genus with two species known, one from New Zealand and one from South America (Argentina and Chile, Besch 1964, Cook 1988).

Euwandesia tenebrio Hopkins & Schminke, 1970

New record. **Stewart Island**. 0/1/1, Mill Creek at Fern Gully, 46°53.616′S 168°06.412′E, alt. 32 m asl, 29-xii-2015.

Distribution. Previously known from four localities from North and South Island, and here reported for the first time from Stewart Island.

Family Anisitsiellidae Koenike

Genus *Anisitsiellides* Lundblad, 1941

A genus with several species known from Australia (Cook 1986), Chile and Argentina (Cook 1980, 1988). From New Zealand three species are known.

Anisitsiellides arraphus Cook, 1983

New records. **South Island**. 1/2/0, Parsons Creek near Lake Ohau, interstitial, 44°14.962′S 169°49.118′E, alt. 534 m asl, 18-iii-2020; 1/2/0, Nelson Creek Right Branch, interstitial, Moana, 42°30.047′S 171°41.617′E, alt. 321 m asl, 2-iv-2020; 1/2/0, Deep Creek, interstitial, at crossing with Bell Hill Road, Moana, 42°33.071′S 171°36.014′E, alt. 245 m asl, 4-iv-2020; 0/1/0, Deep Creek, at crossing with Bell Hill Road, Moana, 42°33.071′S 171°36.014′E, alt. 245 m asl, 4-iv-2020.

Distribution. Previously known from the type locality from North Island only.

Anisitsiellides partitus Cook, 1983

New records. **South Island**. 0/1/0, Foundary Creek, interstitial, SW of Onekaka, 40°46.288′S 172°42.111′E, alt. 255 m asl, 5-i-2019.

Distribution. Previously known from the type locality only from South Island.

Family Limnesiidae Thor

Subfamily Limnesiinae Thor

Genus *Limnesia* Koch, 1836

A genus occurring worldwide with numerous species.

Limnesia (*Limnesia*) *auspexa* Cook, 1983

(Figures 1A-D)

Mamersella anomala Hopkins, 1967– Panesar (2004).

New records. **South Island**. 1/0/0, Okuri Hill Creek NW, North Papawai Bay, 40°59.864′S 173°45.898′E, alt. 232 m asl, 27-ii-2020.

Male: Idiosoma 688 long and 608 wide, ventrally 697 long. Integument lineated, brownish. Dorsal shield 620 long and 502 wide, with three pairs of glandularia and the postocularia. Dorsal furrow with five pairs of glandularia. Gnathosoma not attached to a protrusible tube. Gnathosomal bay medially with a cleft. Medial margin of Cx-III straight, Cxgl-4 on Cx-III near suture line of Cx-III/IV; posterior margin of Cx-IV rounded. No ridge anterior to insertions of fourth legs. Genital field with three pairs of acetabula, the anterior pair more distanced from the second pair than the second and third pair, anterior margin straight; gonopore 110 long. Length of P1-5: 24, 86, 60, 132, 41. P2 with a short, stout seta, P4 ventrally with a small setal tubercle. Length of I-leg-4-6: 92, 110, 130 (till tip of segment). Length of IV-leg-4-6: 130, 156, 162; IV-leg-6 with a 92 long terminal seta. Fourth leg segments with numerous stout setae. Excretory pore incorporated in the ventral shield.

Distribution. Previously known from three localities from North Island. Hopkins (1967) described this species as *Mamersella anomala*, but according to Panesar (2004) this is a

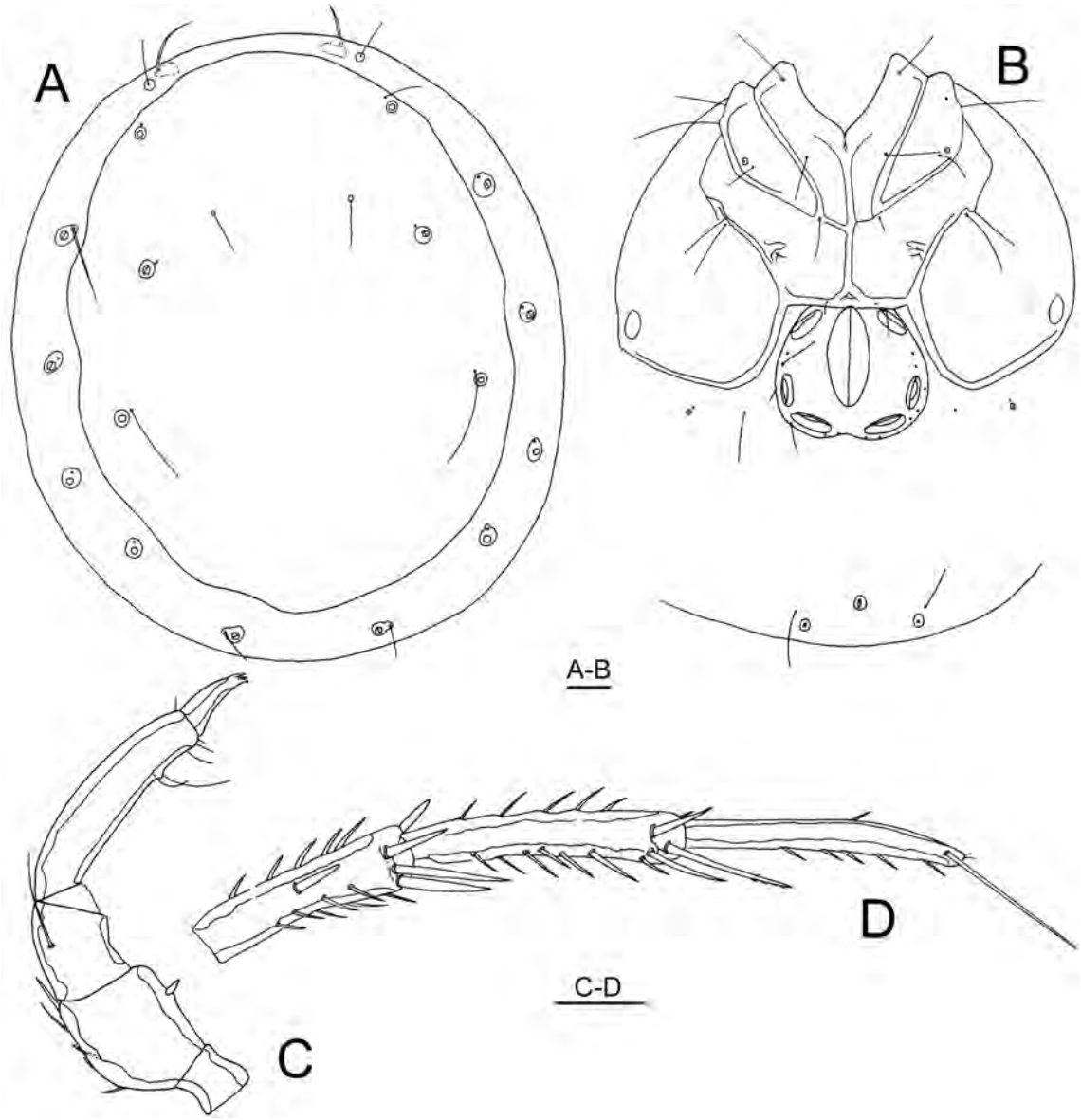


Figure 1 *Limnesia auspexa* Cook, male. A – dorsum; B – venter; C – palp; D – IV-leg-4-6. Scale bars = 50 µm.

Limnesia. However, *Limnesia anomala* is preoccupied by *L. anomala* Koenike, 1895. As *L. auspexa* Cook is conspecific with Hopkins's species, this becomes the first available name. According to Hopkins (1967) the holotype is a male, but it is clear that this is a female *Limnesia*. Therefore, the male has not yet been described, and a description is given here.

Limnesia (*Limnesia*) *moanaensis* n. sp.

Zoobank: 4F399537-0128-438C-8429-84E69A989587

(Figures 2A-D)

Material examined. Holotype male, unnamed stream Rakaitane Track, Moana, South Island, New Zealand, 42°34.374′S 171°28.077′E, alt. 78 m asl, 26-iii-2020 (NMNZ).

Diagnosis. Dorsal shield with two (three?) pairs of glandularia, gnathosoma attached to a protrusible tube.

Description. Male: Idiosoma dorsally 535 long and 446 wide, ventrally 591 long. Integu-

ment lineated, brownish. Dorsal shield 454 long and 352 long, with two pairs of glandularia and the postocularia. However, as the dorsal shield is not fully developed yet, very likely three pairs of glandularia will be incorporated. Dorsal furrow with five pairs of glandularia. Gnathosomal bay with a medial cleft, gnathosoma attached to a protrusible tube. Cx-I medially fused, Medial margin of Cx-III straight, Cxgl-4 on Cx-III near suture line of Cx-III/IV. Anterior to insertions of fourth legs a ridge. Genital field with three pairs of acetabula. Gonopore 98 long, nearly as long as genital field. Length of P1-5: 24, 76, 66, 104, 44. P2 ventrally with a short seta, P4 ventrally with a very small setal tubercle. Length of I-leg-4-6: 88, 110, 128 (till tip of segment). Length of IV-leg-4-6: 109, 121, 130; seta of IV-leg-6 62 long. Fourth leg with numerous stout setae. Excretory pore not incorporated in ventral shield.

Female: Unknown.

Etymology. Named after the town of Moana at Lake Brunner.

Remarks. The male of *L. auspexa* has three pairs of glandularia on the dorsal shield too (assuming that fully-grown *L. moanaensis* has a dorsal shield with the same number of glandularia), but the gnathosoma of *L. auspexa* is not attached to a protrusable tube, the acetabula are elongated and narrow and a ridge is lacking anterior to the insertions of the fourth legs.

Limnesia (*Limnesia*) *pseudozelandica* n. sp.

Zoobank: 5D994176-715A-4CEE-ACA4-614B050A85D8

(Figures 3A-D)

Material examined. Holotype male, Hapiata Stream, interstitial, Okiwi Bay, South Island, New Zealand, 41°06.167′S 173°40.763′E, alt. ± 50 m asl, 28-ii-2020 (NMNZ).

Diagnosis. Dorsum with eight pairs of glandularia, six of these on the dorsal shield. Cx-III with a relatively long, straight medial margin. Gnathosoma attached to a protrusible tube. Acetabula of separate genital plates.

Description. Male: Idiosoma dorsally 571 long and 389 wide, ventrally 591 long. Integument lineated, eyes and integument without pigment. Dorsal shield with six pairs of glandularia and the postocularia, dorsal furrow with two pairs of glandularia. Gnathosomal bay pointed posteriorly, Cx-I fused medially. Cxgl-4 on Cx-III, near suture line of Cx-III/IV. No ridge present anterior to insertion of fourth legs. Genital field 118 wide, gonopore 34 long, with three pairs of glandularia, these lying on curved, indistinct genital plates. Gnathosoma elongated, attached to a protrusible tube. Length of P1-5: 20, 64, 60, 90, 40. Palp segments dorsal without stout setae, P2 ventrally with a short, relatively stout seta. Length of I-leg-4-6: 76, 98, 131. Length of IV-leg-4-6: 84, 90, 92; IV-leg-6 with a terminal seta, 62 long. Excretory pore incorporated in ventral shield.

Etymology. Named for its superficial resemblance to *L. zelandica* Cook, 1983.

Remarks. With the key of Cook (1983) the new species keys out as *L. testacea* Hopkins, 1969. Differences with the latter species (in brackets) are the long medial margin of Cx-III (short), no ridge anterior to insertion of fourth legs (with ridge) and the gonopore is shorter. A second species with the dorsal shield with six pairs of glandularia is *L. zelandica* Cook, 1983. This species has the gnathosoma attached to a protrusible tube too. Differences with the new species (in brackets) are the presence of three pairs of glandularia in the dorsal furrow (two pairs), the presence of a ridge anterior to the insertions of the legs (no ridge), rounded medial margins of Cx-III (straight), and the integument is pigmented (not pigmented).

Limnesia (*Limnesia*) *quinqueglandulosa* n. sp.

Zoobank: 6F6B77E9-7EA0-4B5E-A21B-B7101B0EA8DB

(Figs. 4A-D)

Material examined. Holotype female, Nelson Creek Right Branch, Moana, South Island, New Zealand, 42°30.047′S 171°41.617′E, alt. 321 m asl, 2-iv-2020 (NMNZ). Paratype:

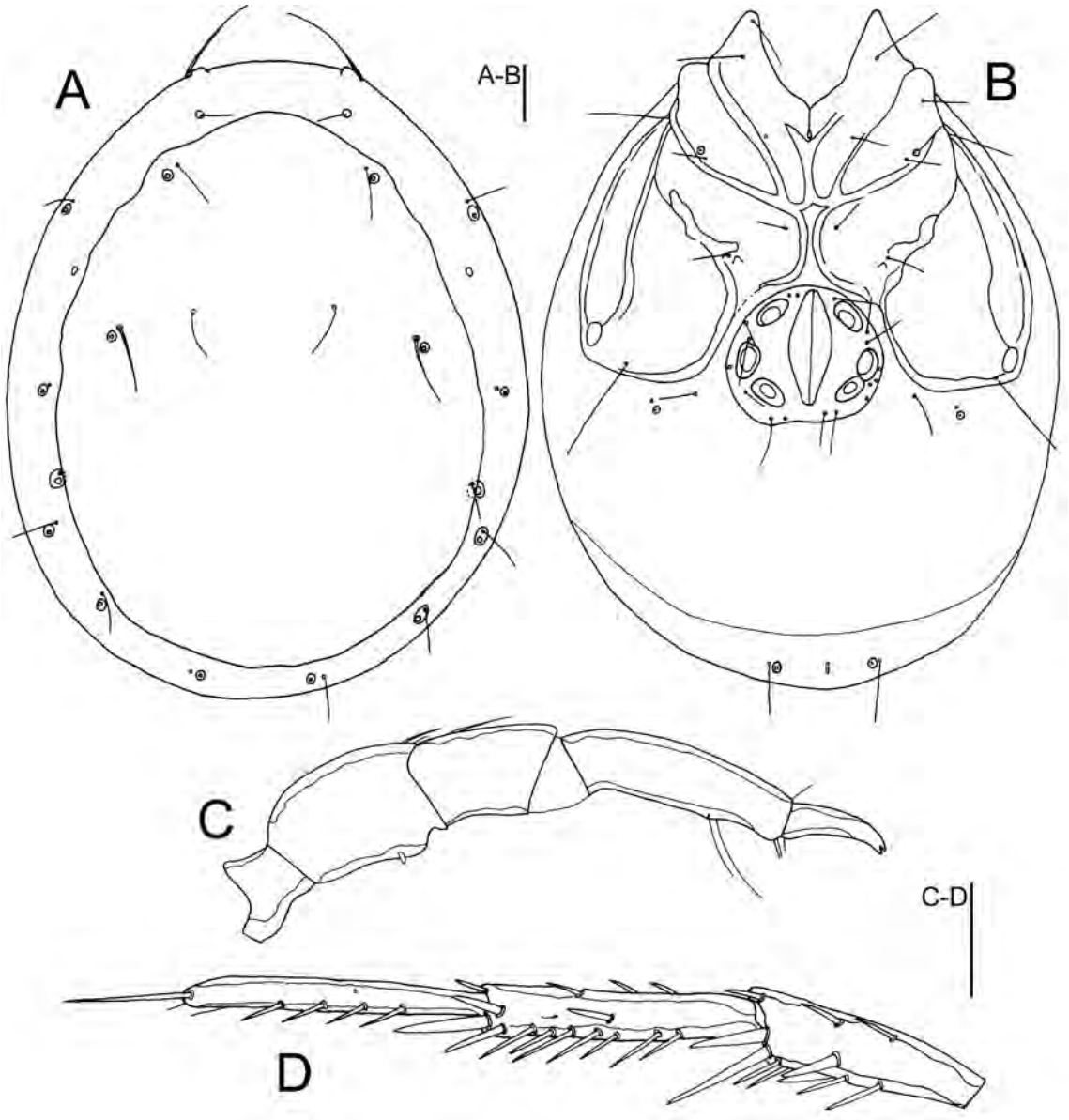


Figure 2 *Limnesia moanaensis* **n. sp.**, holotype male. A – dorsum; B – venter; C – palp; D – IV-leg-4-6. Scale bars = 50 μm.

one female, unnamed stream crossing Bell Hill Road, Moana, South Island, New Zealand, 42°35.657′S 171°34.883′E, alt. 129 m asl, 25-iii-2020 (RMNH).

Diagnosis. Female: Dorsal shield with five pairs of glandularia, dorsal furrow with three pairs of glandularia, gnathosoma not attached to a protrusible tube, Cxgl-4 not on coxae but posterior to Cx-III, its associated setae in the middle of Cx-III.

Description. Female: Idiosoma dorsally 608 (567) long and 502 (456) wide, ventrally 656 (608) long. Integument lineated, eyes and integument without pigment. Dorsal shield 575 (526) long and 421 (373) wide, with five pairs of glandularia and the postocularia. Dorsal furrow with three pairs of glandularia. Gnathosomal bay posteriorly ending in a slit, gnathosoma elongated, not attached to a protrusible tube. Cx-I fused medially, Cx-III with the accompanying setae of Cxgl-4 lying in the middle, Cxgl-4 not on the coxae but posterior to Cx-III. A ridge present anterior to insertion of fourth legs. Genital field 162 long and 156 wide, with three pairs of acetabula. Length of P1-5: 20, 80, 53, 114, 30. P2 ventrally with a pointed seta, P3

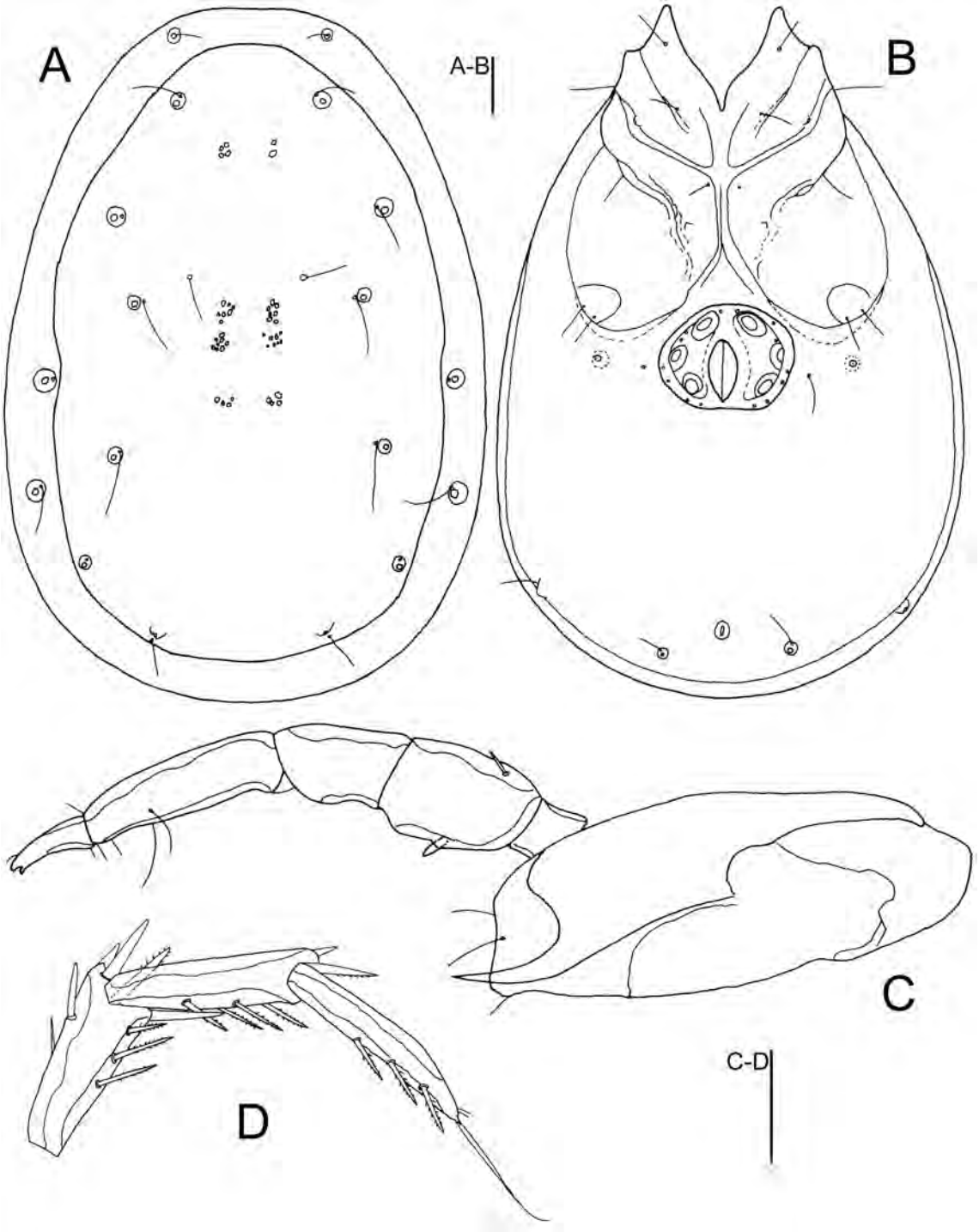


Figure 3 *Limnesia pseudozelandica* **n. sp.**, holotype male. A – dorsum; B – venter; C – gnathosoma and palp; D – IV-leg-4-6. Scale bars = 50 µm.

anteroventrally with a long seta, P4 ventrally with a small setal tubercle with a curved seta. Length of I-leg-4-6: 84, 52, 108 (till tip of segment). Length of IV-leg-4-6: 104, 127, 126. Fourth leg with numerous stout setae, terminal seta of IV-leg-6 76 long. Excretory pore not incorporated in ventral shield.

Male: Unknown.

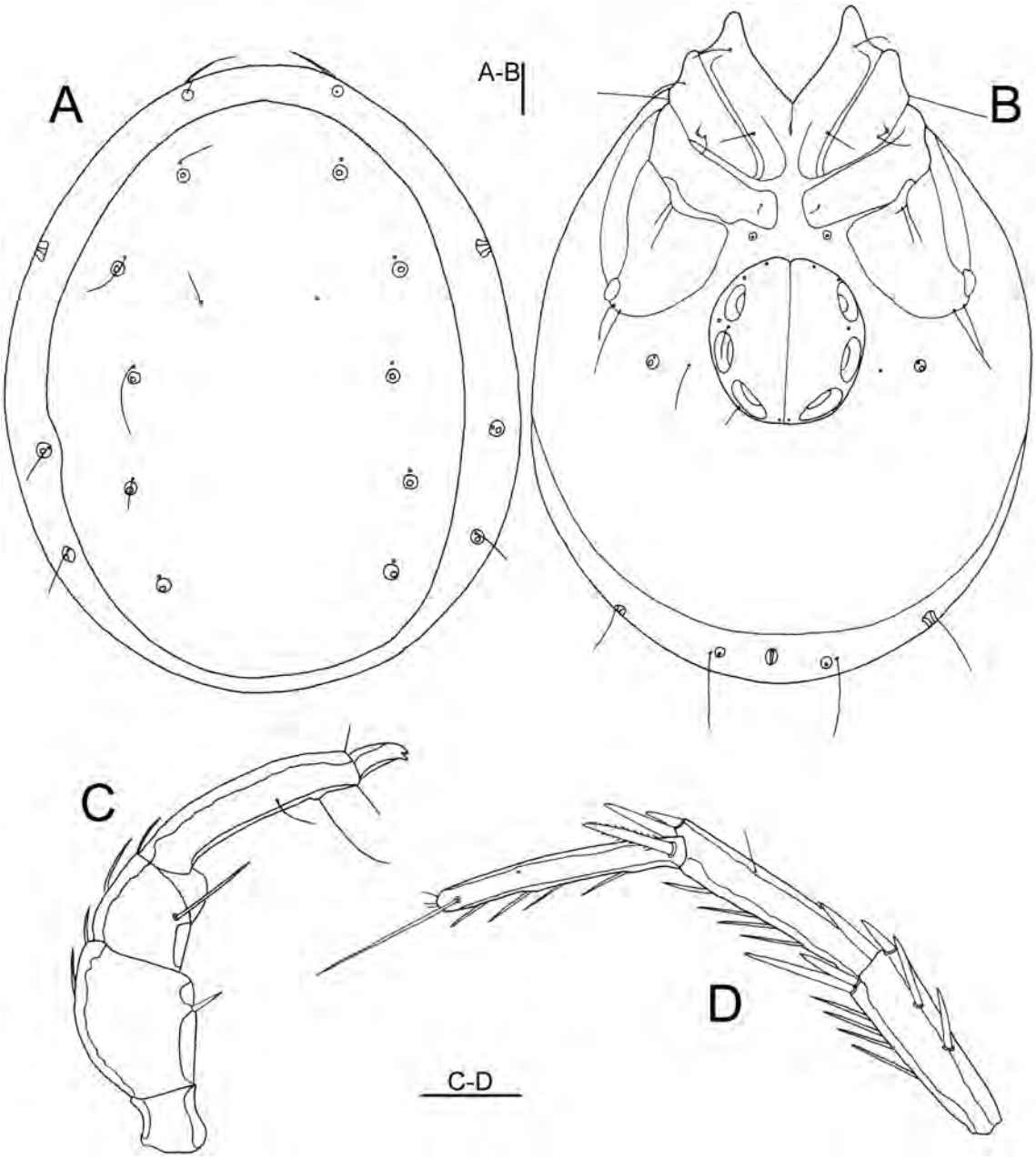


Figure 4 *Limnesia quinqueglandulosa* **n. sp.**, holotype female. A – dorsum; B – venter; C – palp; D – IV-leg-4-6. Scale bars = 50 µm.

Etymology. Named for the presence of five pairs of glandularia on the dorsal shield.

Remarks. The only other species with five pairs of glandularia on the dorsal shield is *L. conroyi* Cook, 1983, but this species has four pairs of glandularia in the dorsal furrow, the gnathosoma is attached to a protrusible tube and Cxgl-4 is lying near the suture line of Cx-III/IV.

Limnesia (*Limnesia*) *rotoruaensis* Smit, 2002

New record. **North Island**. 17/18/3/, Lake Rotorua at Rotorua, 38°07.801′S 176°15.920′E, alt. 285 m asl, 7-xii-2014.

Distribution. Known from the type locality only, i.e. Lake Rotorua.

Limnesia (*Limnesia*) *zelandica* Cook, 1983

New records. **North Island**. 0/1/0, Small stream ± 1 km north of Pureora (Waimiha Stream?), 38°30′34.61″S 175°33′44.96″E, 17-x-2000; 0/1/0, Makahi River at Eketahuna, 40°38′43.15″S 175°41′59.60″E, 19-x-2000. **South Island**. 0/1/0, Ronga River at confluence with Brown River, Rai Valley, 41°13′5.96″S 173°35′13.30″E, 23-x-2000; 0/1/0, Dip Creek at crossing with Lindiss Pass Road, 44°36.583′S 169°37.595′E, alt. 507 asl, 21-xii-2014; 0/1/0, Cache Creek at crossing with Haast Pass Road, Mt Aspiring National Park, 43°58.122′S 169°13.799′E, alt. 42 m asl, 25-xii-2014; 0/1/0, Six Mile Creek, N of Middlemarch, 45°27.337′S 170°07.729′E, alt. 290 m asl, 2-i-2015; 1/0/0, Wangapeka River, interstitial, at Siberia Flat, Kahurangi National Park, 41°26.495′S 172°35.025′E, alt. 282 m asl, 2-iii-2020; 0/1/0, unnamed stream crossing Lillburn Valley Road, W of Clifden, 45°59.452′S 167°23.351′E, alt. 164 m asl, 13-iii-2020.

Distribution. Previously known from three localities from North and South Island.

Family Oxidae K. Viets

Genus *Oxus* Kramer, 1877

A genus occurring worldwide with numerous species.

Oxus (*Flabellifrontipoda*) *crameri* Cook, 1983

New record. **South Island**. 0/1/0, unnamed stream crossing Bell Hill Road, Moana, 42°35.657′S 171°34.883′E, alt. 129 m asl, 25-iii-2020; 1/0, unnamed stream Rakaitane Track, Moana, 42°34.374′S 171°28.077′E, alt. 78 m asl, 26-iii-2020.

Distribution. Previously known from two localities from North Island, and here reported for the first time from South Island.

Oxus (*Flabellifrontipoda*) *lacustris* Cook, 1983

New records. **North Island**. 5/10/0, Lake Okareka, Western side, 38°10′34.84″S 176°20′53.90″E, 15-x-2000. **South Island**. 4/1, Lake Ianthe, 43°02.965′S 170°38.232′E, alt. 26 m asl, 24-xii-2014.

Distribution. Previously known from the type locality only, i.e. Lake Ianthe, and here reported for the first time from North Island.

Oxus (*Flabellifrontipoda*) *ladifolius* (Cook, 1983)

New records. **South Island**. 1/0/0, Nelson Creek Right Branch, Moana, 42°30.047′S 171°41.617′E, alt. 321 m asl, 2-iv-2020.

Distribution. Previously known from three localities from North Island, and here reported for the first time from South Island.

Oxus (*Flabellifrontipoda*) *mastigophorus* Cook, 1983

New record. **Stewart Island**. 1/0/3, Mill Creek at Fern Gully, 46°53.616′S 168°06.412′E, alt. 32 m asl, 29-xii-2015.

Distribution. Previously known from two localities from North and South Island, and here reported for the first time from Stewart Island.

Oxus (*Flabellifrontipoda*) *zelandicus* (Hopkins, 1975)

New records. **North Island**. 0/1/0, Kakekino Stream, crossing Taihape-Napier Road, 39°24.426′S 176°18.231′E, alt. 502 m asl, 90-xii-2014. **South Island**. 1/0, Mineral Reserve Creek 1 upper course, Taipare Bay, 41°01.404′S 173°43.663′E, alt. 198 m, 21-xii-2018; 1/1/0, unnamed stream beyond end of Haupiri Amuri Road, Moana, 42°33.483′S 171°56.563′E, alt. 262 m asl, 29-iii-2020; 0/1/0, Nelson Creek Right Branch, Moana, 42°30.047′S 171°41.617′E,

alt. 321 m asl, 2-iv-2020; 1/0/0, unnamed stream Flagstaff Road, Moana, 42°29.105′S 171°43.719′E, alt. 267 m asl, 4-iv-2020.

Distribution. Previously known from three localities from North Island, and here reported for the first time from South Island.

Family Sperchontidae Thor

Subfamily Apeltosperchontinae Besch

Genus *Apeltosperchon* Besch, 1964

A small genus with two species known, one from Chile (Besch 1964) and one from New Zealand.

Apeltosperchon zelandicus Cook, 1983

(Figs. 5A-E)

New records. **North Island**. 0/1/0, Manganuiateao River at crossing with road Ruatiti-Orautoha, 39°18′36.54″S 175°12′22.45″E, 18-x-2000. **South Island**. 2/0/0, Dip Creek at crossing with Lindiss Pass Road, 44°36.583′S 169°37.595′E, alt. 507 asl, 21-xii-2014; 0/1/2, Monro Creek, 30 km N of Haast, 43°42.882′S 169°16.138′E, alt. 17 m asl, 22-xii-2014; 0/1/0, Douglas Creek at Culvert 2, crossing West Coast Road, 43°41.637′S 169°31.458′E, alt. 31 m asl, 24-xii-2014; 0/2/0, Cache Creek at crossing with Haast Pass Road, Mt Aspiring National Park, 43°58.122′S 169°13.799′E, alt. 42 m asl, 25-xii-2014; 1/1/1, Six Mile Creek, N of Middlemarch, 45°27.337′S 170°07.729′E, alt. 290 m asl, 2-i-2015; 2/2/0, Shag River crossing road Ranfurly-Palmerston, 45°10.663′S 170°23.703′E, alt. 564 m asl, 3-i-2015; 1/0/0, Askews Hill NE Creek upper course, Taipare Bay, 41°01.119′S 173°42.807′E, alt. 179 m asl, 2-1-2019; 1/0/0, Hapiata Stream, Okiwi Bay, 41°06.167′S 173°40.763′E, alt. ± 50 m, 28-ii-2020; 0/2/0, Coal Creek, Seddonville, 41°33.444′S 172°00.011′E, alt. 12 m asl, 4-iii-2020; 0/1/0, Harris Creek crossing Haast Pass Road, 43°56.019′S 169°06.884′E, alt. 27 m asl, 7-iii-2020; 1/0/0, Lindiss River N of Lindiss Valley, 44°43.105′S 169°30.266′E, alt. 374 m asl, 17-iii-2020; 4/2/0, Parsons Creek near Lake Ohau, 44°14.962′S 169°49.118′E, alt. 534 m asl, 18-iii-2020; 0/1/0, unnamed stream crossing Lake Ohau Road, 44°12.292′S 169°48.981′E, alt. 550 m asl, 18-iii-2020; 0/1/0, Waihi River, Waihi Gorge Scenic Reserve, 44°00.126S, 171°09.297′E, alt. 295 m asl, 19-iii-2020; 2/1/2, unnamed stream crossing Braemer Road, W of Lake Tekapo, 43°58.623′S 170°19.760′E, alt. 811 m asl, 19-iii-2020; 1/0/0, Duffers Creek at crossing with West Coast Road, 43°01.887′S 170°39.266′E, alt. 79 m asl, 22-iii-2020; 1/2/0, Little Hohonu River, S of Lake Brunner, 42°38.398′S 171°17.638′E, alt. 97 m asl, 23-iii-2020; 0/1/0, unnamed stream crossing Palmer Road, at Palmer Rd Culvert, Springs Junction, 42°22.043′S 172°08.132′E, alt. 472 m asl, 28-iii-2020; 0/2/0, Tributary of Nelson Creek West Branch, Moana, 42°30.158′S 171°40.835′E, alt. 308 m asl, 2-iv-2020; 1/0/0, Crooked River at crossing with Bell Hill Road, Moana, 42°37.817′S 171°35.820′E, alt. 119 m asl, 3-iv-2020; 0/1/0, Deep Creek at crossing with Bell Hill Road, Moana, 42°33.071′S 171°36.014′E, alt. 245 m asl, 4-iv-2020.

Remarks. Thus far, the male was unknown and a description is given below.

Description. Male: Idiosoma 500 long. Dorsum and venter as described for the female. Coxal field 284 long and 317 wide. Genital field 88 long and 73 wide, pregenital sclerite small. Length of P1-5: 19, 57, 34, 53, 31. Palp as in female, but anteroventral extension of P2 more distinct. Length of I-leg-4-6: 72, 86, 95. Length of IV-leg-4-6: 113, 114, 122.

Distribution. Previously know from three specimens from three locations only. From the quite large number of locations given above, it can be concluded that the species is rather common.

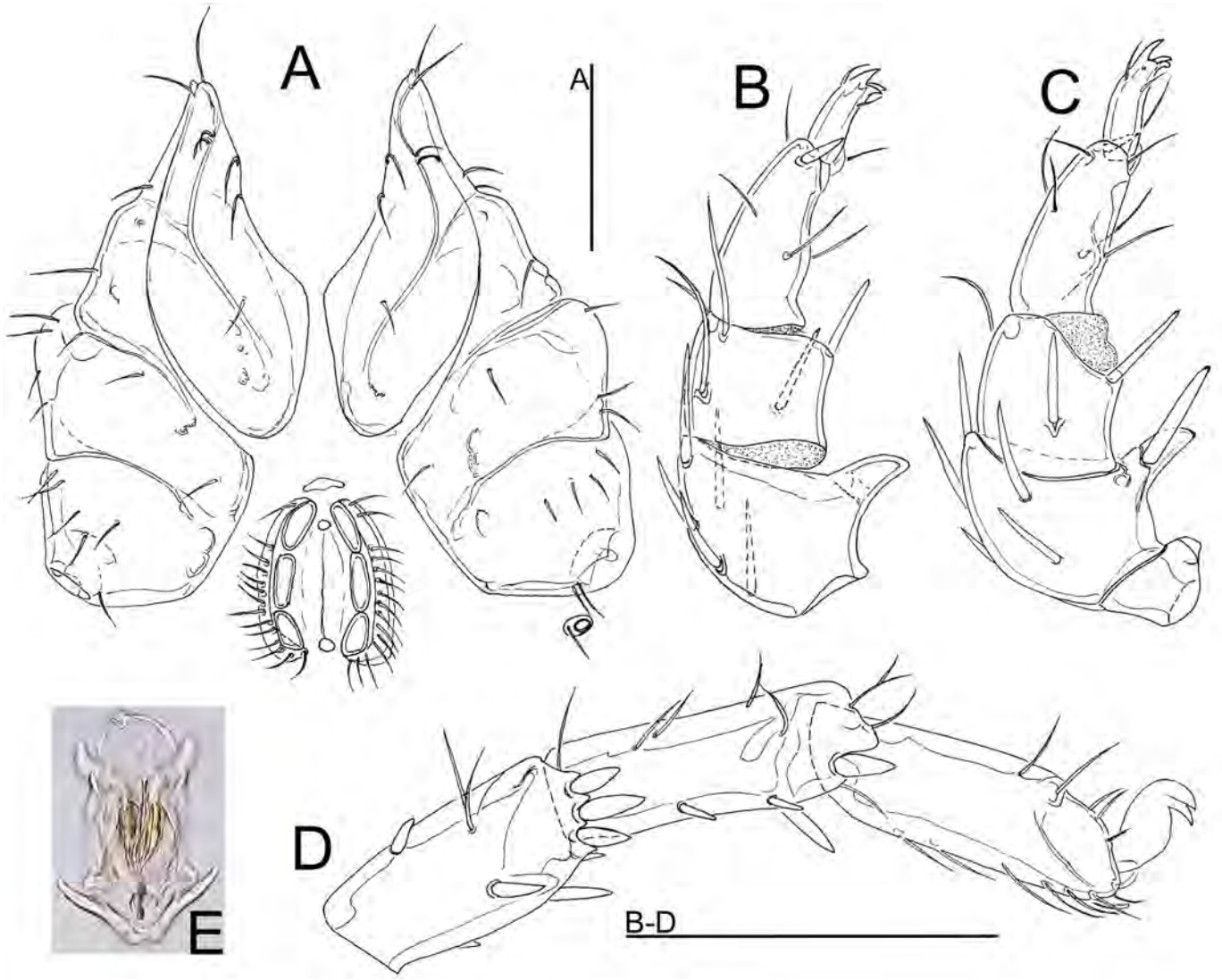


Figure 5 *Apeltosperchon zelandicus* Cook, male, Shag River (A-D, drawings; E, photograph): A – coxal and genital field; B – palp (P1 lacking); C – palp; D – I-leg-4-6; E – ejaculatory complex. Scale bars = 100 µm.

Family Hygrobatidae Koch

Genus *Aciculacarus* Hopkins, 1975

A small genus with two species known from New Zealand.

Aciculacarus amalis Cook, 1983

New record. 0/1/0, **South Island**. Cedar Creek, Westland National Park, 43°25.216′S 170°04.430′E, alt. 31 m asl, 24-xii-2014.

Distribution. Previously known from the type locality from North Island only, and here reported for the first time from South Island.

Aciculacarus papillosus Hopkins, 1975

New records. **North Island**. 1/0/0, Kiriwhakapapa Stream, Tararua Forest Park, 40°48.490′S 175°32.726′E, alt. 313 m asl, 13-i-2019. **South Island**. 2/0/0, Small tributary of Catlins

River, Catlins Forest Park, 46°25.090′S 169°26.681′E, alt. 160 m asl, 28-xii-2014; 1/0/0, Bob's Peak Creek North 1, Papawai Bay, 41°00.499′S 173°44.825′E, alt. 124 m asl, 2-i-2019; 2/0/0, Foundary Creek, SW of Onekaka, 40°46.288′S 172°42.111′E, alt. 255 m asl, 5-i-2019; 0/1/0, Upper course Askews Hill NE Creek, Taipare Bay, 41°01.119′S 173°42.807′E, alt. 179 m asl, 25-ii-2020; 1/0/0, Frank Stream, Catlins Forest Park, 46°26.527′S 169°28.237′E, alt. 148 m asl, 15-iii-2020; 1/0/0, unnamed stream crossing Bell Hill Road, Moana, 42°35.657′S 171°34.883′E, alt. 129 m asl, 25-iii-2020; 1/0/0, Tributary of Nelson Creek West Branch, Moana, 42°30.158′S 171°40.835′E, alt. 308 m asl, 2-iv-2020.

Distribution. Previously known from four localities from North and South Island.

Genus *Aspidiobates* Lundblad, 1941

A genus with a typical Gondwanan distribution, with numerous species known from Australia, New Zealand, New Caledonia, South Africa and Chile. From New Zealand one species is known.

Aspidiobates orbicularis Hopkins, 1975

New records. **North Island**. 4/2/0, Small stream ± 1 km north of Pureora (Waimiha Stream?), 38°30′34.61″S 175°33′44.96″E, 17-x-2000. **Stewart Island**. 3/2/0, Mill Creek at Fern Gully, 46°53.616′S 168°06.412′E, alt. 32 m asl, 29-xii-2015; 1/2/0, unnamed creek near junction Back Road-Hicks Road, Oban, 46°53.202′S 168°07.041′E, alt. 30 m asl, 30-xii-2014.

Distribution. Previously known from the type locality from North Island only.

Genus *Australiobates* Lundblad, 1941

A genus with a Gondwanan distribution, with numerous species known.

Australiobates (*Australiobates*) *setipalpis* Cook, 1983

Australiobates lacustris Smit, 1996 – new syn.

New records. **South Island**. 6/8/0, Lake Brunner at Moana, 42°34.559′S 171°28.225′E, alt. 89 m asl, 26-iii-2020; 1/0/5, unnamed stream Rakaitane Track, Moana, 42°34.374′S 171°28.077′E, alt. 78 m asl, 26-iii-2020.

Remarks. The illustrations of Cook (1983) show the male with an oval-shaped gonopore and the genital field anteriorly with flexible setae. However, examination of a picture of the holotype (see https://collections.tepapa.govt.nz/object/125042#open-iiifViewer) shows a gonopore which becomes narrower anteriorly, and the anterior margin has long, more or less stiff setae. The description of *Australiobates lacustris* was based on the latter characteristics. Recent studies on hygrobatids, based on morphological and molecular evidence, have shown that lake and stream forms might belong to different species (Martin *et al.* 2010, Pešić *et al.* 2019). However, based on the morphology, we conclude that *A. lacustris* is a synonym of *A. setipalpis*. All previous records were from streams.

Distribution. Many records from North and South Island.

Australiobates (*Australiobates*) *solomis* Cook, 1983

(Figures 6A-D)

New records. **South Island**. 0/2/0, Dizzy Creek at crossing with Haast Pass Road, 43°57.738′S 169°09.498′E, alt. 35 m asl, 25-xii-2014; 9/0/0, Dizzy Creek at crossing with Haast Pass Road, 43°57.738′S 169°09.498′E, alt. 35 m asl, 7-iii-2020.

Description. Male: Idiosoma ventrally 1050 long and 869 wide. Coxal field 619 long and 850wide. Genital field 244 long and 269 wide; gonopore 178 long. Length of P1-5: 44, 141, 1119, 208, 66. P3 dorsally with a row of curved setae in anterior part. Length of I-leg-4-6: 353, 372, 325. Length of IV-leg-4-6: 444, 488, 494. Number of swimming setae: III-leg-4 5, III-leg-5 5, IV-leg-4 5, IV-leg-5 9.

Distribution. The male of this species has not been described. Previously known from four localities on North and South Island.

Australiobates (*Australiobates*) *vietsi* Cook, 1983

New record. **North Island**. 1/1/0, Small forest stream near Sapphire Springs, 37°35.011′S 175°52.650′E, alt. 91 m asl, 20-i-2019; 1/0/1, Tarahuehue Stream, SW of Coroglen, Coromandel Peninsula, 36°56.435′S 175°40.206′E, alt. 61 m asl, 22-i-2019.

Distribution. Previously known from two localities from North Island.

Genus *Hopkinsobates* Cook, 1983

A monotypic genus known from New Zealand only.

Hopkinsobates suzannae Cook, 1983

New records. **North Island**. 0/1/0, Makakahi River crossing Kaiporo Road, interstitial, 40°42.869′S 175°35.867′E, alt, 335 m asl, 13-i-2019. **South Island**. 0/1/0, Twin Creek, Arthur's Pass National Park, 42°54.715′S 171°33.535′E, alt. 877 m asl, 23-xii-2014; 0/1/0, Pariwhakaoho River, interstitial, at start of Parapara Peak Track, 40°48.534′S 172°43.115′E, alt. 80 m asl, 9-i-2019; 0/1/0, Hapiata Stream, Okiwi Bay, 41°06.167′S 173°40.763′E, alt. ± 50 m asl, 28-ii-2020; 0/1/0, unnamed stream crossing Haupiri Road, Moana, 42°34.273′S 171°45.735′E, alt. 187 m asl, 20-iii-2020; 1/1/0, Tributary of Nelson Creek West Branch, Moana, 42°30.158′S 171°40.835′E, alt. 308 m asl, 2-iv-2020.

Distribution. Previously known from three locations from South Island (Schwoerbel 1984).

Genus *Zelandobates* Hopkins, 1966

A genus with three species from New Zealand.

Zelandobates clevatus Cook, 1983

New record. **North Island**. 0/1/0, Whirinaki River, Urewera National Park, 38°34.008′S 176°46.402′E, alt. 296 m asl, 8-xii-2014; 0/6/0, Mangapae Stream, Urewera National Park, 38°38.072′S 176°52.500′E, alt. 476 m asl, 8-xii-2014; 2/9/1, Kuripango River, 39°23.658′S 176°19.701′E, alt. 458 m asl, 9-xii-2014; 0/18/0, Waikare River crossing Wairoa-Napier Road, 39°07.731′S 176°59.841′E, alt. 7 m asl, 9-xii-2014; 0/4/0, Mangateitei Stream, Ohakune, 39°25.189′S 175°24.188′E, alt. 586 m asl, 11-xii-2014; 0/1/0, Tributary of Wairere Stream, Tongariro National Park, 39°11.834′S 175°32.785′E, alt. 1103 m asl, 12-xii-2014; 0/1/1, Whakapapanui River, upstream of visitors centre, Tongariro National Park, 39°12.364′S 175°32.492′E, alt. 1150 m asl, 12-xii-2014.

Distribution. Previously known from three localities from North and South Island.

Zelandobates tongariro n. sp.

Zoobank: 594FF421-330B-4AC6-8E58-6938146A254F

(Figures 7, 8A-E)

Material examined. Holotype male, Waihohonu River below Waihohonu Hut, Tongariro National Park, North Island, New Zealand, 39°12′32.36′'S 175°40′49.97′'E, 3-iii-1990, leg. A. Ballot (NMNZ).

Diagnosis. Male: Dorsum with a large unpaired plate with concave lateral margins, a smaller unpaired posterior plate and five pairs of platelets, two of these platelets without glandularia; venter with a pair of large platelets posterior to Cx-IV.

Description. Male: Idiosoma papillate, dorsally 631 long and 456 wide, ventrally 706 long. Dorsum with a large unpaired anterior plate, 400 long, 278 wide, with a pair of postocularia, covering more than half the dorsum, and a smaller unpaired posterior plate, 114 long, 146

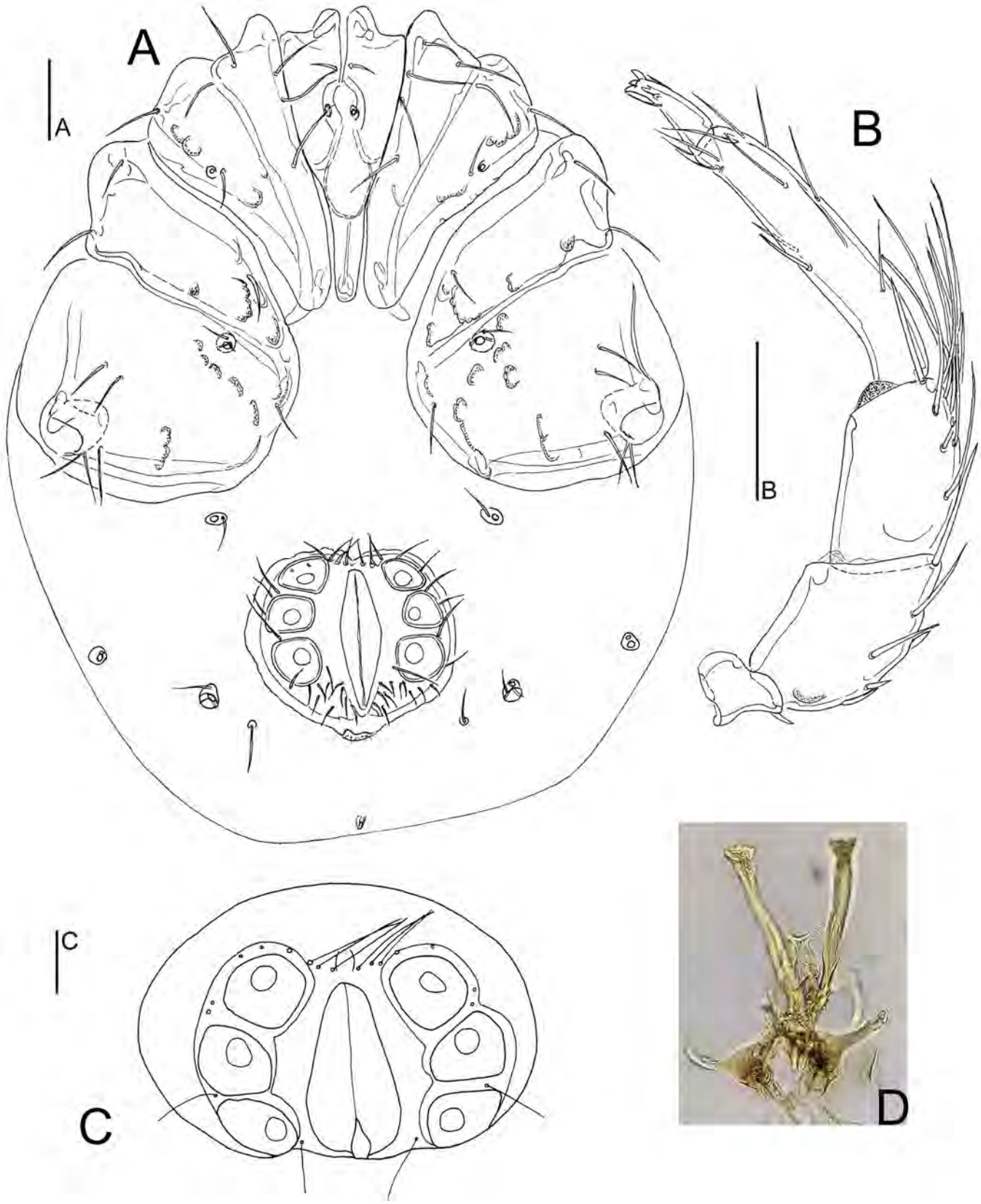


Figure 6 *Australiobates solomis* Cook, male. A – venter; B – palp; C – genital field, unmounted; D – ejaculatory complex. Scale bars: A, B = 100 μm, C = 50 μm.

wide. Moreover, dorsum with five pairs of platelets, anterolateral platelets located lateral to anterodorsal plate and with 1-2 glandularia, and four pairs of smaller platelets, two of these without glandularia. Venter with three groups of coxae, coxal field 425 long and 498 wide, Cx-I+II fused medially. Cxgl-4 located near suture line of Cx-III/IV. Posterior to Cx-IV a pair of large platelets. Cxgl-3 close to the latter platelets but not fused. Genital field, 163 long and 156 wide, with three pairs of acetabula, gonopore 72 long. Lateral to genital field a pair of small, elongated platelets. Vgl-2 and excretory pore immediately posterior to genital field. Length of P1-5: 23, 89, 86, 111, 50. P2 and P3 with many small papillae, P4 with a large ventral projection. Length of I-leg-4-6: 119, 125, 125. Length of IV-leg-4-6: 167, 171, 147.

Female: Unknown.

Etymology: Named after the national park where the species was found; the name is a noun in apposition.

Remarks. The only other *Zelandobates* species with a very large anterodorsal plate is *Z. crinitus* Hopkins, but this species has very large dorsal glandularia setae. Moreover, in the male the lateral margin of the unpaired anterodorsal plate is straight (concave in the new species). For a comparison with *Z. occidentalis* **n. sp.** see there.

Zelandobates occidentalis n. sp.

Zoobank: E6BB51BF-DA49-46F7-9166-1EBB0DB43748

(Figures 9, 10A-D, 11A-D, 28A)

Material examined. Holotype male, Duffers Creek at crossing with West Coast Road, South Island, New Zealand, 43°01.887′S 170°39.266′E, alt. 79 m asl, 22-iii-2014, leg. H. Smit (NMNZ). Paratypes: 2/1/0, same data and location as holotype (NMNZ); 9/5/0, Duffers Creek at crossing with West Coast Road, South Island, New Zealand, 43°01.887′S 170°39.266′E, alt. 79 m asl, 24-xii-2014, leg. H. Smit (RMNH).

Diagnosis. Dorsum with a large unpaired anterior plate, with three pairs of glandularia in male, this plate in female without glandularia.

Description. Male: Idiosoma smooth, dorsally 575 long and 425 wide, ventrally 684 long. Dorsum with a large unpaired anterior plate, 381 long, 318 wide, with three pairs of glandularia and the postocularia, covering more than half of the dorsum. Posterior to the large anterior dorsal plate a smaller unpaired platelet, 111 long, 147 wide, a pair if small platelets and three pairs of glandularia platelets. Coxae in three groups, coxal field 411 long, 500 wide, Cx-I+II fused medially. Cxgl-4 located near suture line of Cx-III/IV. Posterior to Cx-IV a pair of large platelets, Cxgl-3 fused with these platelets. Genital field, 181 long, 150 wide, with three pairs of acetabula, gonopore 91 long. Excretory pore fused with posterior margin of genital field. Lateral to genital field a pair of platelets, each with two glandularia. Length of P1-5: 33, 77, 78, 98, 55. P2 and P3 with many papillae, these not extending onto medial margin; P4 stocky with a large ventral projection. Length of I-leg-4-6: 120, 122, 133. I-leg-5 anteroventrally with a pointed stout seta. Length of IV-leg-4-6: 161, 158, 125.

Female: Idiosoma dorsally 744 long and 544 wide, ventrally 788 long. Dorsum with a large unpaired anterior plate, 456 long, 286 wide, with the postocularia, and a smaller unpaired posterior plate, 141 long, 186 wide. Moreover, dorsum with five pairs of platelets, two of these pairs without glandularia. Anterolateral platelets 275 long, located lateral to large anterior platelet, each with a glandularium. Coxae in three groups, coxal field 488 long, 531 wide, Cx-I+II fused medially. Cxgl-4 located near suture line of Cx-III/IV. Posterior to Cx-IV a pair of large platelets. Cxgl-3 on small platelets, not fused with the latter large platelets. Genital field with three pairs of acetabula, length of genital field (from anterior margin of pregenital sclerite to posterior margin of postgenital sclerite) 209, width of genital field 194, genital plate 138 long. Pregenital sclerite 150 wide, gonopore 138 in length. Lateral to genital field two pairs of small platelets. Cxgl-2 and excretory pore immediately posterior to genital field. Length of P1-5: 34, 100, 103, 125, 59; palp as in male. Length of I-leg-4-6: 128, 134, 131. I-leg-5 anteroventrally with a blunt, stout seta. Length of IV-leg-4-6: 175, 188, 153.

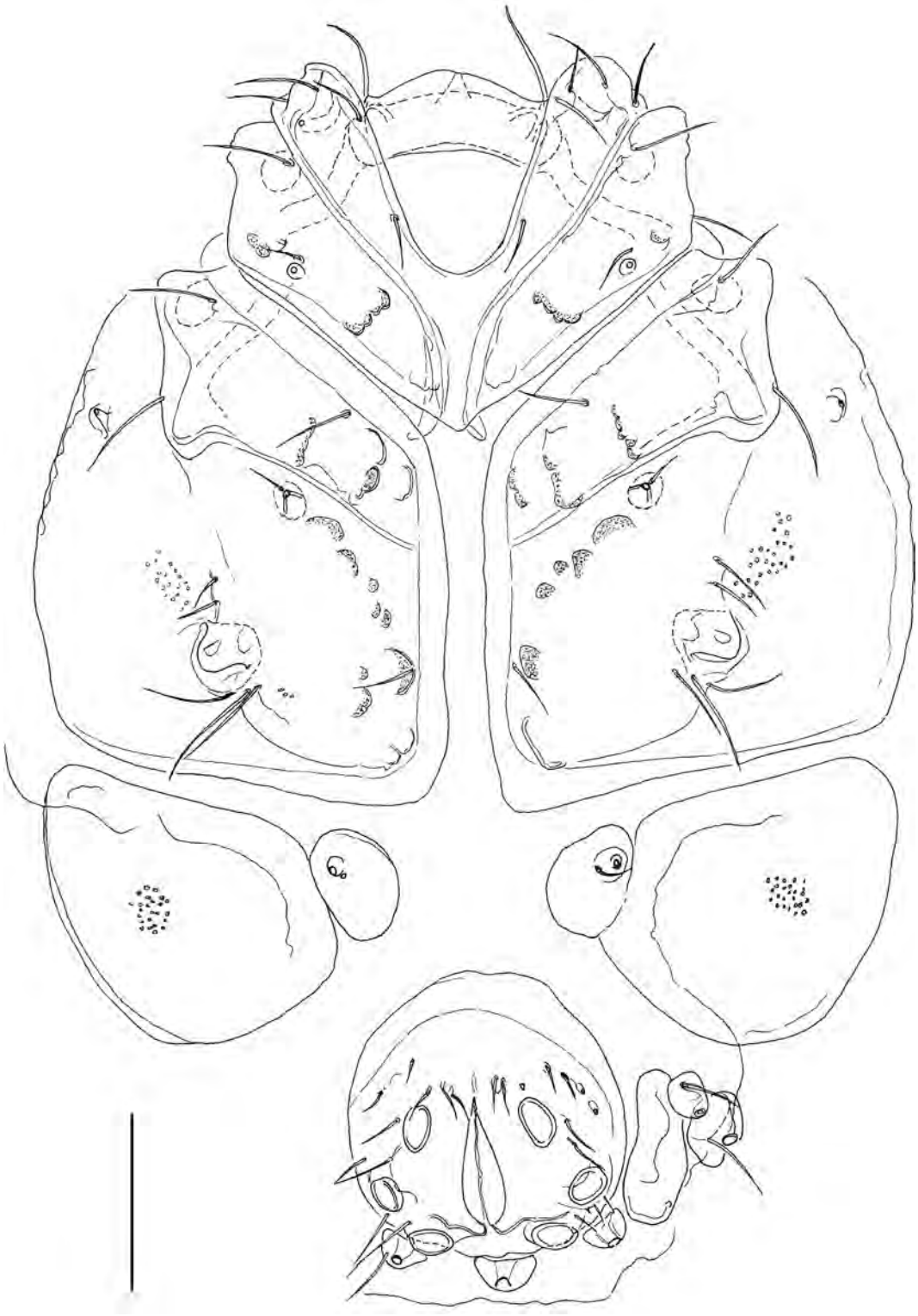


Figure 7 *Zelandobates tongariro* **n. sp.**, holotype male, venter. Scale bar = 100 µm.

Etymology. Named for its western occurrence in South Island.

Remarks. The new species differs from *Z. crinitus* in the absence of large dorsal glandularia setae. Moreover, in the male the unpaired anterodorsal plate has three pairs of glandularia (none

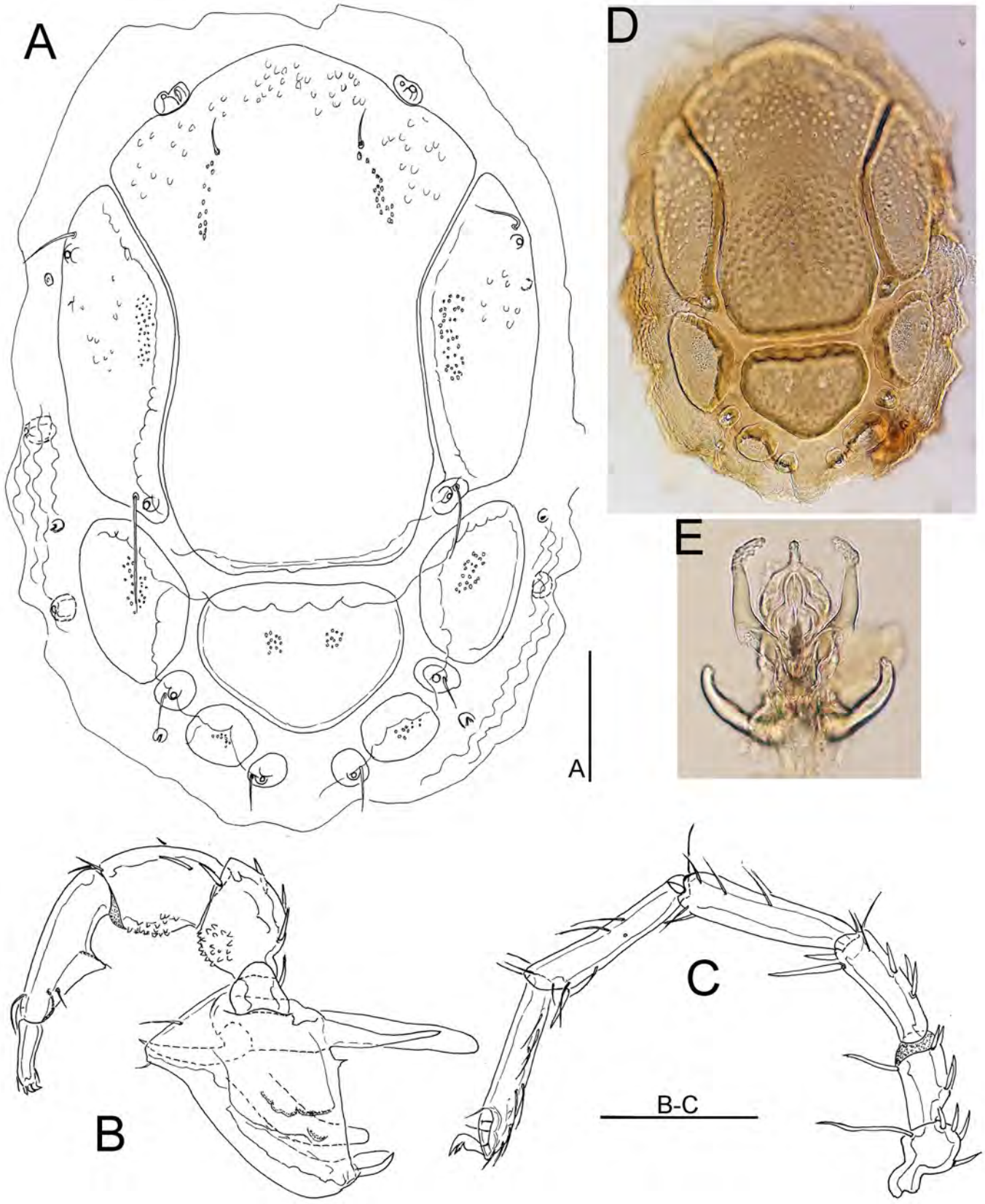


Figure 8 *Zelandobates tongariro* **n. sp.**, male holotype (A-C drawings, D-E photographs). A, D – idiosoma, dorsal view; B – gnathosoma and palp; C – I-leg; E – ejaculatory complex. Scale bars = 100 µm.

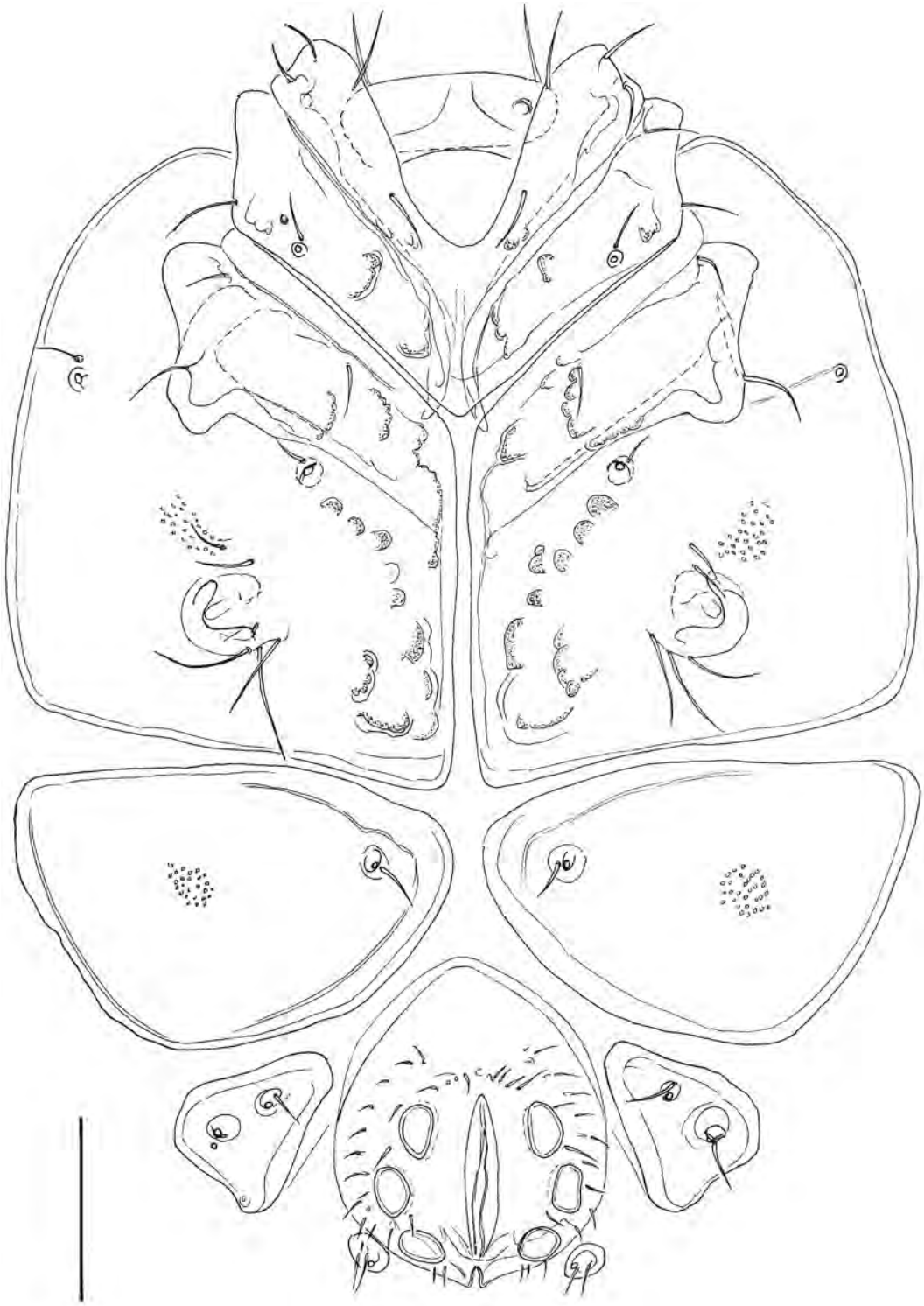


Figure 9 *Zelandobates occidentalis* **n. sp.**, male holotype, venter. Scale bar = 100 µm.

in *crinitus*), in the female the unpaired anterodorsal plate has no glandularia (three pairs in *crinitus*). The male differs from *Z. tongariro* n. sp. in the presence of three pairs of glandularia on the anterodorsal unpaired plate (none in *tongariro*) and excretory pore fused with genital field (unfused in *tongariro*).

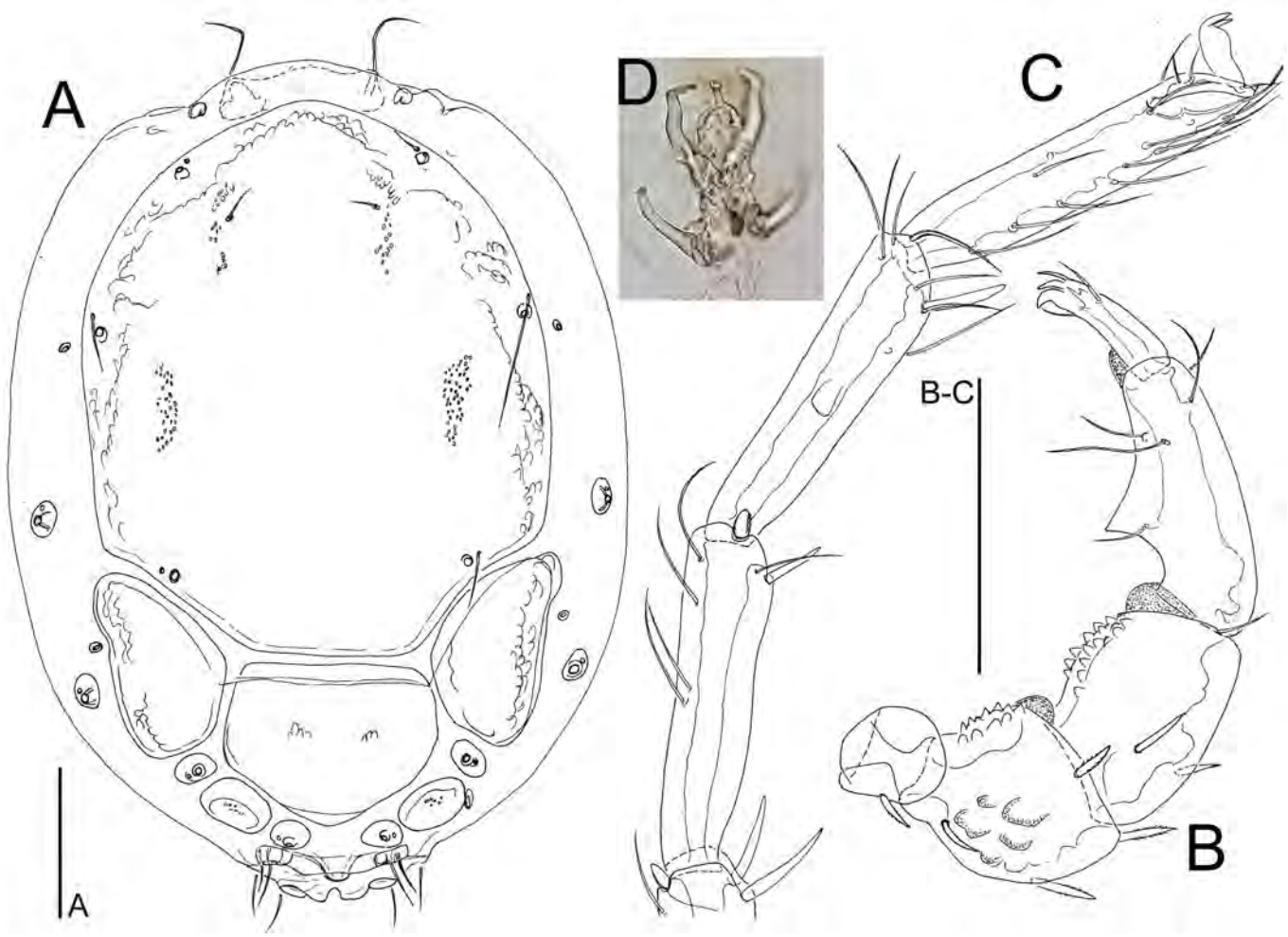


Figure 10 *Zelandobates occidentalis* **n. sp.**, male holotype (A-C, drawings; D, photograph). A – idiosoma, dorsal view; B – palp; C – I-leg-4-6; D – ejaculatory complex. Scale bars = 100 µm.

Moanabates n. gen.

Zoobank: 736BA860-45B5-49DC-BA2E-5BC0CF74112F

Diagnosis. Idiosoma rugose. Cx-II and Cx-III elongated posteriorly, apodemes large exceeding Cx-1+2 caudal margin especially in male; male gonopore slit-like; P2 with a large ventral projection with large papillae, P3 without papillae, P4 stocky with a long, whip-like seta (longer in female than in male), P5 with a pair of ventrally situated spatulate setae in the both sexes.

Type species: *Moanabates moanaensis* **n. sp.**

Etymology. Named for its occurrence near the town of Moana.

Remarks. The new genus belongs to a group of genera called by Cook (1983) the *Corticacarus*-like mites. This group comprises of *Zelandobates*, *Procorticacarus* K.O. Viets from Australia and *Corticacarus* Lundblad from the New World. The new genus shares a number of characters with *Zelandobates*, but differs in the elongated Cx-II and Cx-III, P2 with a ventral projection and P4 with a long whip-like seta; all these palp characters absent in *Zelandobates*. Species of the genus *Procorticacarus* K.O. Viets have P2 with a ventral projection, but lack a long whip-like setae of P4. Moreover, male *Procorticacarus* species do not have a slit-like gonopore. *Corticacarus* species have specialized dorsal glandularia, which

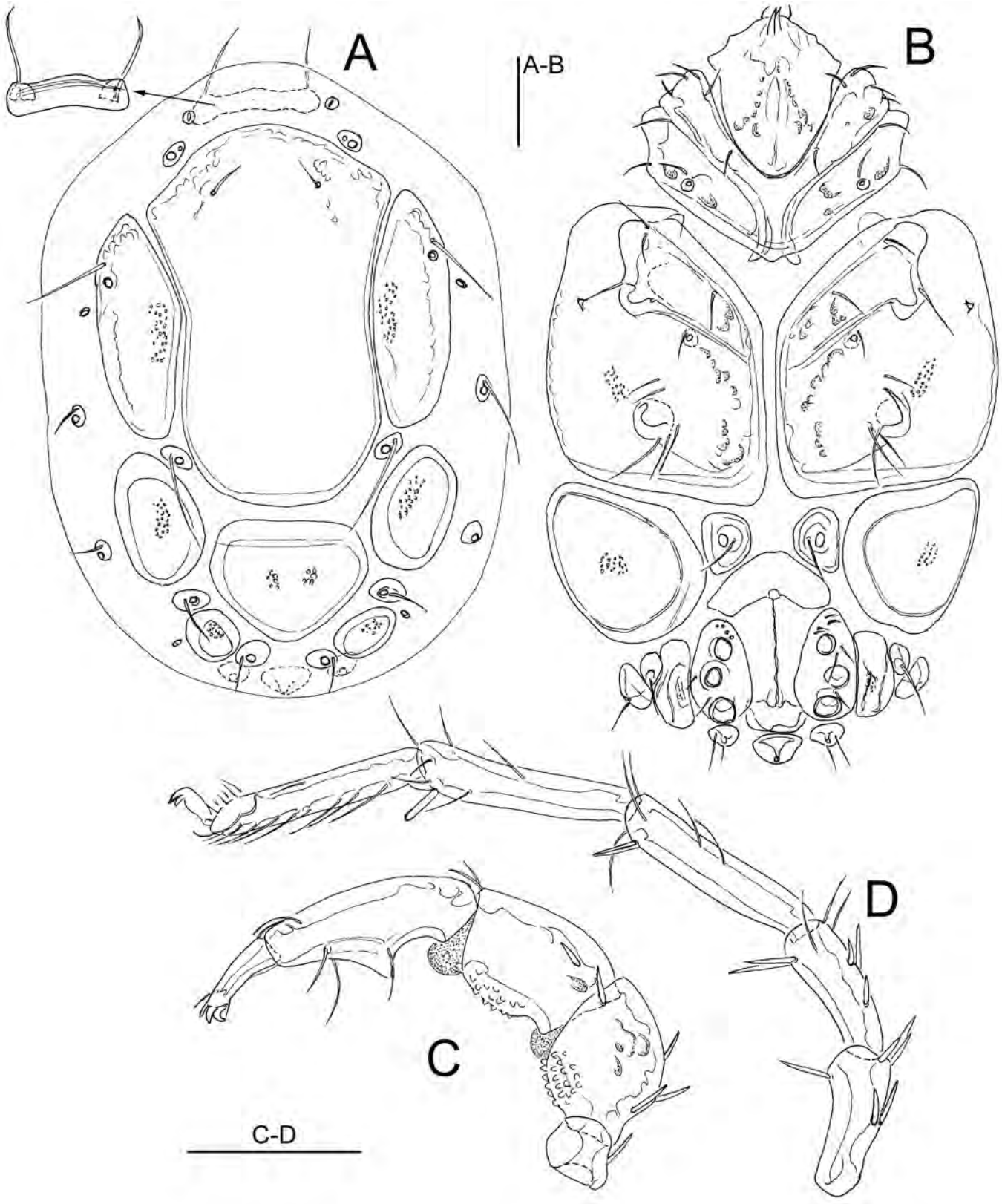


Figure 11 *Zelandobates occidentalis* **n. sp.**, paratype female, Duffers Creek: A – idiosoma, dorsal view; B – idiosoma, ventral view; C – palp; D – I-leg. Scale bars = 100 µm.

are absent in the new genus, and *Corticacarus* species do not have a slit-like gonopore and lack the long whip-like seta of P4.

Moanabates moanaensis n. sp.

Zoobank: 28E07C58-1AFB-4B8D-9151-59C49600817C

(Figures 12, 13A-D, 14A-G, 28B)

Material examined. Holotype male, unnamed stream crossing Flagstaff Road, Moana, South Island, New Zealand, 42°29.105′S 171°43.719′E, alt. 267 m asl, 4-iv-2020 (NMNZ). Paratypes: 0/2/0, same data as holotype (NMNZ, RMNH).

Diagnosis. As given for the genus.

Description. Male: Idiosoma rugose, dorsally 638 long and 484 wide, ventrally 677 long. Dorsum with a large unpaired, papillose anterior plate, 394 long, 363 wide, with three pairs of glandularia and a smaller posterior plate, 138 long and 175 wide. Posterior to the anterior dorsal plate four pairs of platelets, two of these with glandularia. Coxae in three groups, Cx-I+II fused medially. Cx-II and Cx-III elongated, extending halfway medial margin of Cx-IV. Cxgl-4 located near suture line of Cx-III/IV. Posterior to Cx-IV a pair of large platelets, Cxgl-3 not fused with the latter platelets. Genital field on a plate, 202 long, with three pairs of acetabula. Gonopore slit-like, 81 long. Posterolateral to genital field four pairs of platelets, three of these with glandularia. Excretory pore sclerotized posterior to genital field. Length of P1-5: 34, 78, 75, 70, 60. P2 with a large ventral extension with papillae, P4 stocky with a long, whip-like seta and a truncate ventral extension, P5 as in female. Length of I-leg-4-6: 102, 105, 103. I-leg-5 anteroventrally with a somewhat blunt, stout seta. Length of IV-leg-4-6: 133, 136, 134.

Female: Idiosoma dorsally 750 long and 659 wide, ventrally 822 long. Dorsum with a large unpaired plate, 444 long, 291 wide with a pair of postocularia, and a small unpaired posterior plate, 166 long and 188 wide. Moreover, dorsum with six pair of platelets, two of these without glandularia. Anterolateral pair of platelets 275 long, lateral to unpaired anterior plate. Coxae in three groups, Cx-I+II fused medially. Cx-II and to a lesser extent Cx-III elongated, apodemes of anterior coxae extending almost halfway medial margin of Cx-IV. Cxgl-4 located near suture line of Cx-III/IV. Posterior to Cx-IV a pair of large platelets, Cxgl-3 not fused with the latter platelets. Genital field with three pairs of acetabula, 269 long (from anterior margin of pregenital sclerite to posterior margin of postgenital sclerite), 261 wide; genital plate 186 in length. Pregenital sclerite 166 wide, gonopore 144 long. Lateral to genital field four pairs of platelets, three of these with glandularia. Excretory pore sclerotized, posterior to genital field. Length of P1-5: 34, 101, 94, 94, 73. Palp as in male, but whip-like seta of P4 much longer than in male and with a truncate ventral extension, and P5 with a pair of spatulate setae located ventrally. Length of I-leg-4-6: 119, 111, 109. I-leg-5 anteroventrally with a somewhat blunt, stout seta. Length of IV-leg-4-6: 148, 153, 144.

Etymology. Named after the town of Moana.

Family Unionicolidae Oudemans

Genus *Unionicola* Haldeman, 1842

Unionicola longiseta Walter, 1915

New record. **North Island**. 2/1/0, Lake Rotorua at Rotorua, 38°07.801′S 176°15.920′E, alt. 285 m asl, 7-xii-2014.

Distribution. Known only from one old record from Lake Waikare, North Island (Schröder 1935, Arndt & Viets 1938). This species has a wide distribution, and is known from New Caledonia (Walter 1915) and Australia (Cook 1986).

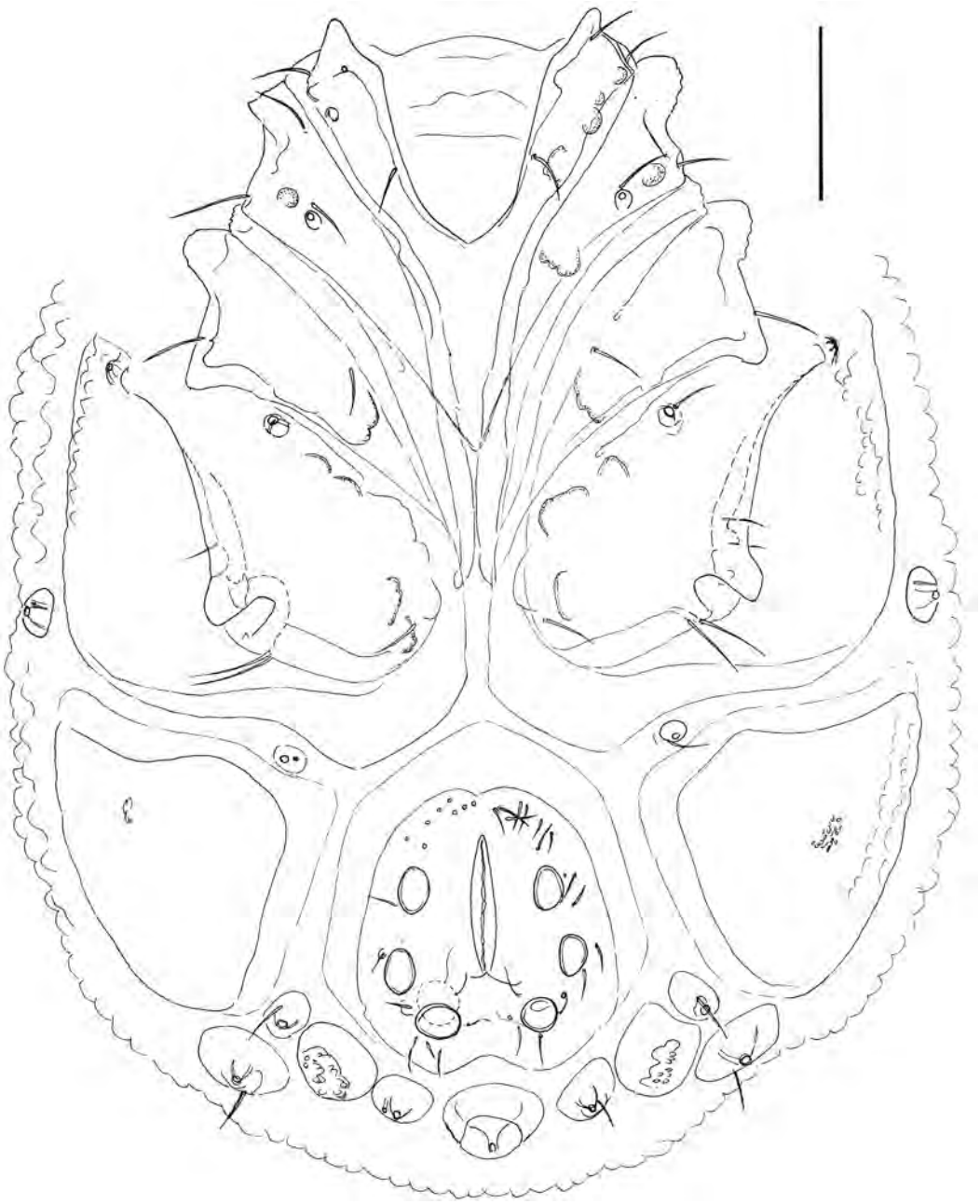


Figure 12 *Moanabates moanaensis* **n. sp.**, male holotype, venter. Scale bar = 100 µm.

Family Aturidae Thor

Subfamily Notoaturinae Besch

Genus *Abelaturus* Cook, 1983

A monotypic genus known from New Zealand only.

Abelaturus cornophorus Cook, 1983

New records. **North Island**. 1/0/0, Kiriwhakapapa Stream, interstitial, Tararua Forest Park, 40°48.490′S 175°32.726′E, alt. 313 m asl, 13-i-2019; 1/0/0, Tributary of Urarima Stream,

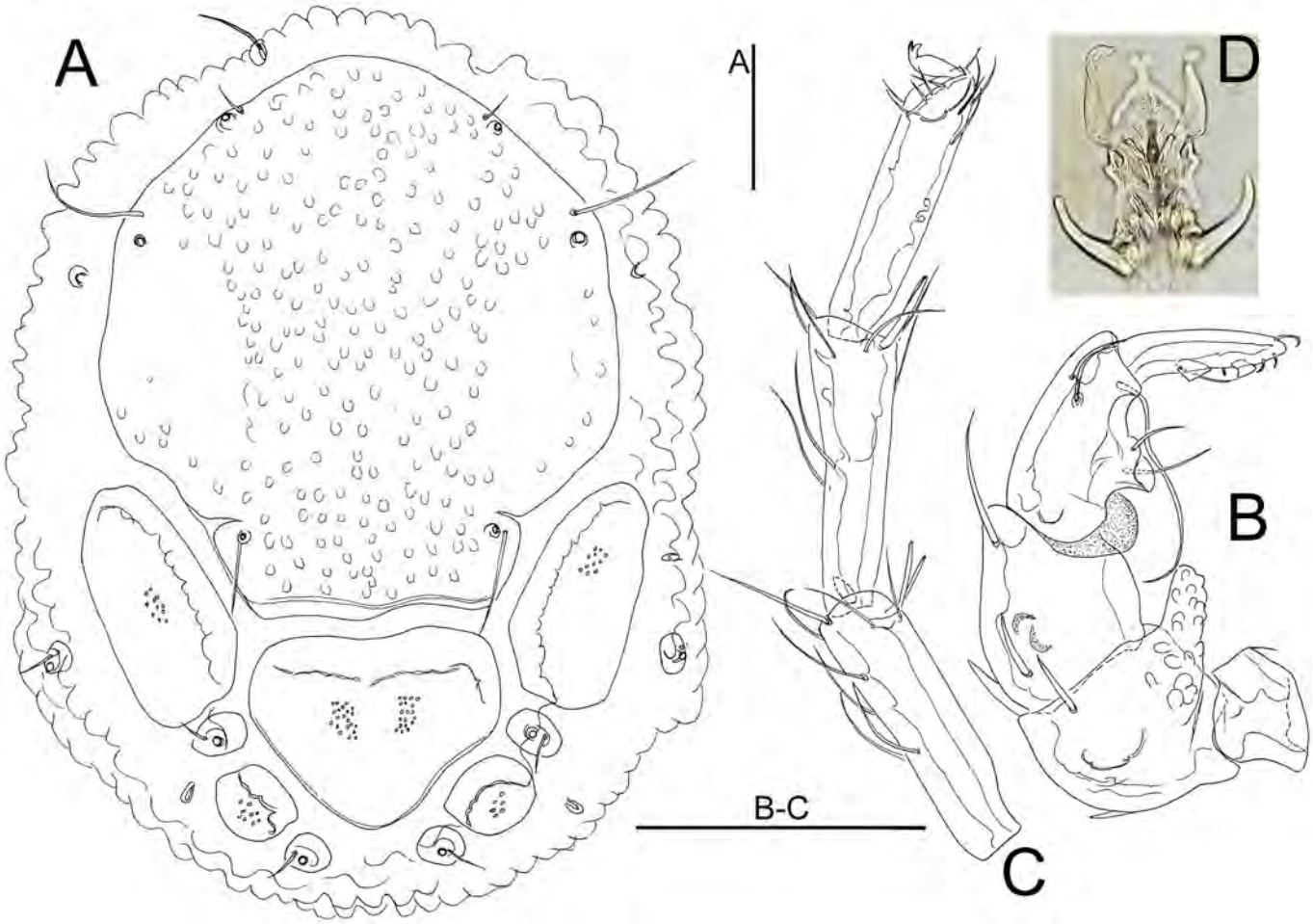


Figure 13 *Moanabates moanaensis* **n. sp.**, male holotype (A-C, drawings; D, photograph). A – idiosoma, dorsal view; B – palp; C – I-leg-4-6; D – ejaculatory complex. Scale bars = 100 µm.

interstitial, N of Coromandel Town, 36°34.812′S 175°24.554′E, alt. 12 m asl, 21-i-2019. **South Island**. 0/1/0, Fifteen Mile Creek, interstitial, Aorere Valley, 40°48.443′S 172°31.378′E, alt. 69 m asl, 7-i-2019; 0/1/0, Deep Creek, interstitial, at crossing with Bell Hill Road, Moana, 42°33.071′S 171°36.014′E, alt. 245 m asl, 4-iv-2020; 0/1/0, Taipare Creek, interstitial, Taipare Bay, 41°00.977′S 173°43.504′E, alt. 9 m asl, 1-i-2-019; same location, 24-ii-2020; 0/1/0, Eliot Creek, interstitial, Aorere Valley, South Island, New Zealand, 40°49.897′S 172°28.309′E, alt. 110 m asl, 8-i-2019.

Distribution. Previously known from four localities from North and South Island.

Asperaturus n. gen.

Zoobank: 49B9CA35-68FB-4483-8D00-39FBC82EF146

Diagnosis. Integument rugose. Dorsum with a pair of "free" glandularia, anterolateral platelets with a pair of glandularia, posterolateral platelets without glandularia. Frontal margin of dorsum concave, posterior margin with a petiole-like extension. Venter posteriorly with a triangular extension.

Type species: *Asperaturus petiolatus* n. sp.

Etymology. Named for the very rugose integument.

Remarks. The new genus shares the rugose integument with *Evidaturus* Cook, 1983. The

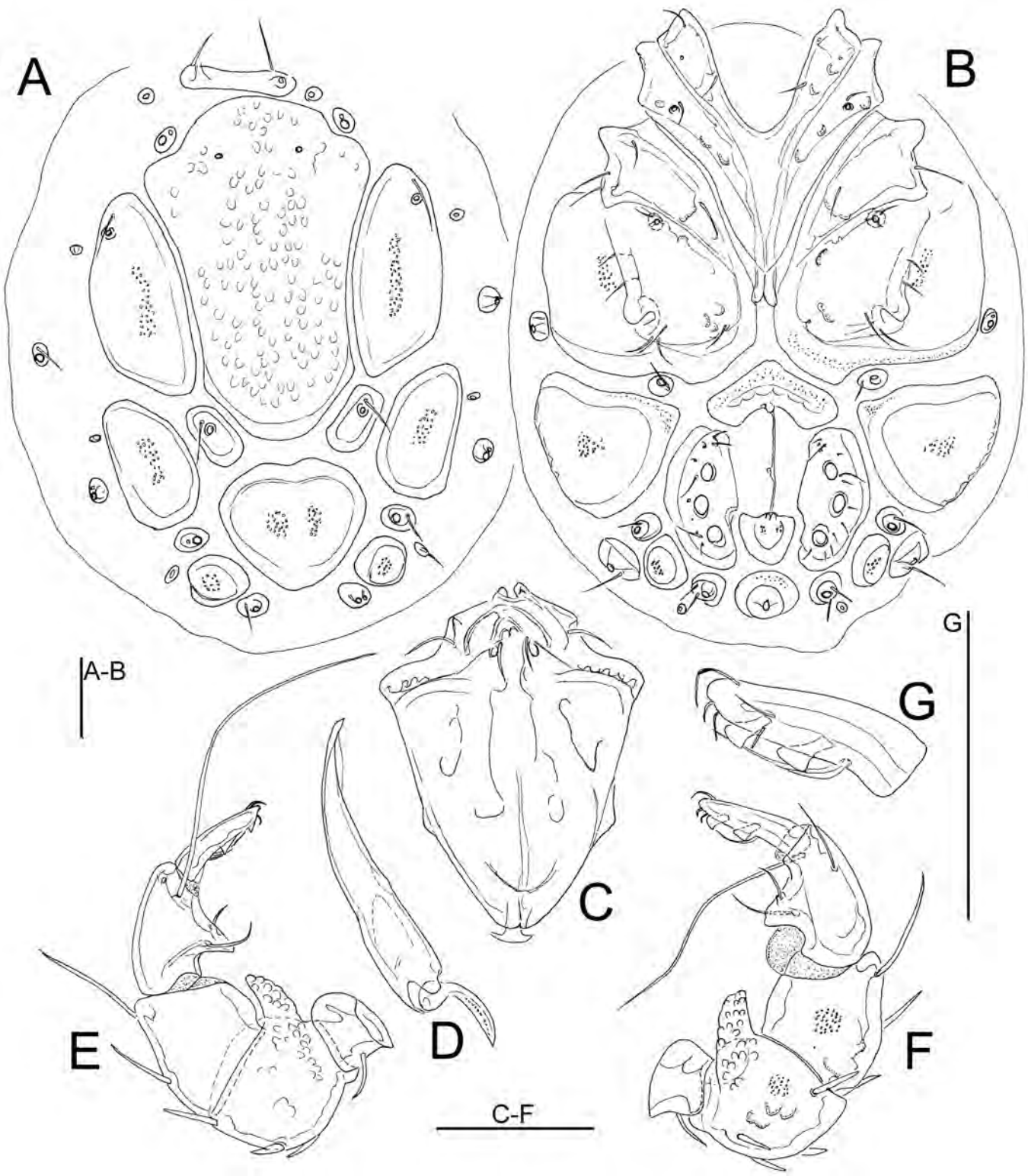


Figure 14 *Moanabates moanaensis* **n. sp.**, paratype female, unnamed stream crossing Flagstaff Road. A – idiosoma, dorsal view; B – idiosoma, ventral view; C – gnathosoma; D – chelicera; E-F – palp; G – P5. Scale bars = 100 µm.

latter genus has no free glandularia (with the exception of one aberration), has the posteromedial dorsal plate with a tripartite ridge, the posterior extension of the dorsum is rugose and bearing the excretory pore, the acetabula are along the posterior margin of the venter, P2 is without denticles and P4 is without a ridge.

Asperaturus petiolatus n. sp.

Zoobank: 10B3979D-A5B4-481C-A52A-1E79B7682351

(Figures 15A-B, 16A-E)

Material examined. Holotype male, Deep Creek at crossing with Bell Hill Road, Moana, South Island, New Zealand, 42°33.071′S 171°36.014′E, alt. 245 m asl, 4-iv-2020 (NMNZ).

Description. Male: Idiosoma dorsally 486 long and 365 wide, ventrally 543 long. Integument rugose, frontal margin of dorsum concave, posterolaterally with two large triangular tubercles. Dorsal shield 365 long and 324 wide, with unpaired antero- and posteromedial plates and two pairs of lateral platelets, anterolateral platelets with a pair of glandularia, posterolateral platelets without glandularia. Anteromedial plate with a pair of postocularia, 154 long and 219 wide. A pair of "free" glandularia located between lateral platelets and posteromedial plate, the latter with two pairs of glandularia. Dorsum posteriorly with a petiolus-like elongated extension. Suture lines of coxae incomplete, Cxgl-2 near suture line of Cx-III and Cx-IV. Posterior margin of Cx-IV indistinct and partly obsolete. Projections associated with insertions of fourth legs truncate. Gonopore 42 long, relatively wide, genital field with 10-12 pairs of acetabula lateral to the gonopore. Posterior margin of venter with a triangular, somewhat hyaline extension. Excretory pore dorsally, posterior to the dorsal shield. Length of P1-5: 30, 53, 31, 61, 28. P2 anteroventrally with a number of teeth, P4 ventrally somewhat bulging and a ridge in anterior half of segment. Length of I-leg-4-6: 68, 70, 68. I-leg-6 with a long ventral seta. Length of IV-leg: 109, 77, 59, 73, 84, 73. IV-L-2 with a distoanterior extension.

Female: Unknown.

Etymology. Named for the presence of a petiole-like structure.

Genus *Colobaturus* Cook, 1991

A small genus with two species known from New Zealand.

Colobaturus selwynus Pesic & Smit, 2010

New records. **South Island**. 0/1/0, Selwyn River at White Cliffs, interstitial, 43°27.656′S 171°53.586′E, alt. 296 m asl, 21-iii-2020.

Distribution. Known from the Selwyn River only.

Genus *Evidaturus* Cook, 1983

Evidaturus exilis Cook, 1983

(Figure 17)

New record**.** **South Island**. 0/1/0, unnamed stream crossing Haupiri Road, Moana, 42°34.273′S 171°45.735′E, alt. 187 m asl, 20-iii-2020.

Remarks. The examined female matches the original description by Cook (1983) except in more truncate gnathosomal bay (Fig. 17).

Distribution. Previously known from five localities from South Island (Smit 2017).

Genus *Kritaturus* Cook, 1983

Nine species known from New Zealand only.

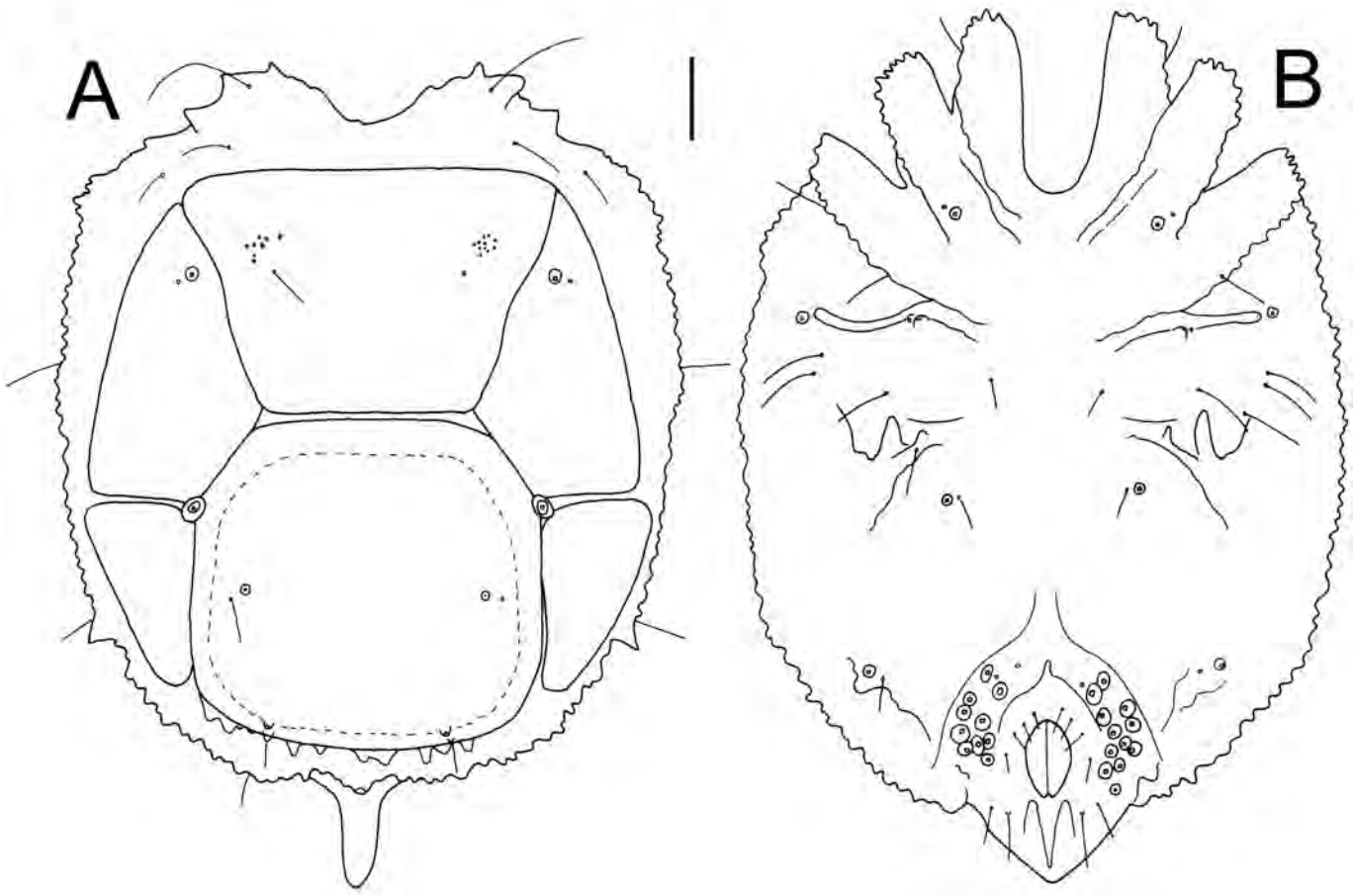


Figure 15 *Asperaturus petiolatus* **n. sp.**, male holotype. A – idiosoma, dorsal view; B – idiosoma, ventral view. Scale bar = 50 µm.

Kritaturus (*Kritaturus*) *dornarus* Cook, 1983

New record. 0/1/0, unnamed stream crossing Haupiri Road, Moana, 42°34.273′S 171°45.735′E, alt. 187 m asl, 20-iii-2020.

Distribution. Previously known from two localities from North and South Island.

Kritaturus (*Caudaturus*) *uncipalpis* Cook, 1983.

(Figure 18A-B)

Material examined. 0/1/0, Parsons Creek near Lake Ohau, interstitial, 44°14.962′S 169°49.118′E, alt. 534 m asl, 18-iii-2020.

Remarks. The female of this study has a palp which differs from the typical *uncipalpis* palp (Fig. 18A). The specimen might belong to a new species, but due to the absence of a male, we refrain from describing it.

Distribution. Known from North and South Island.

Kritaturus (*Kritaturus*) *vinnulus* Cook, 1983

(Figures 19A-D, 28E)

New record. **North Island**. 0/2/0, Kaupokonui Stream, at crossing with Opunaki Road, S of Mt Egmont, 39°23.393′S 174°07.974′E, alt. 380 m asl, 13-xii-2014 **South Island**. 1/1/0, Frank Stream, Catlins Forest Park, 46°26.527′S 169°28.237′E, alt. 148 m asl, 15-iii-2020.

Remarks. Thus far, the male was unknown, and therefore a description is given below.

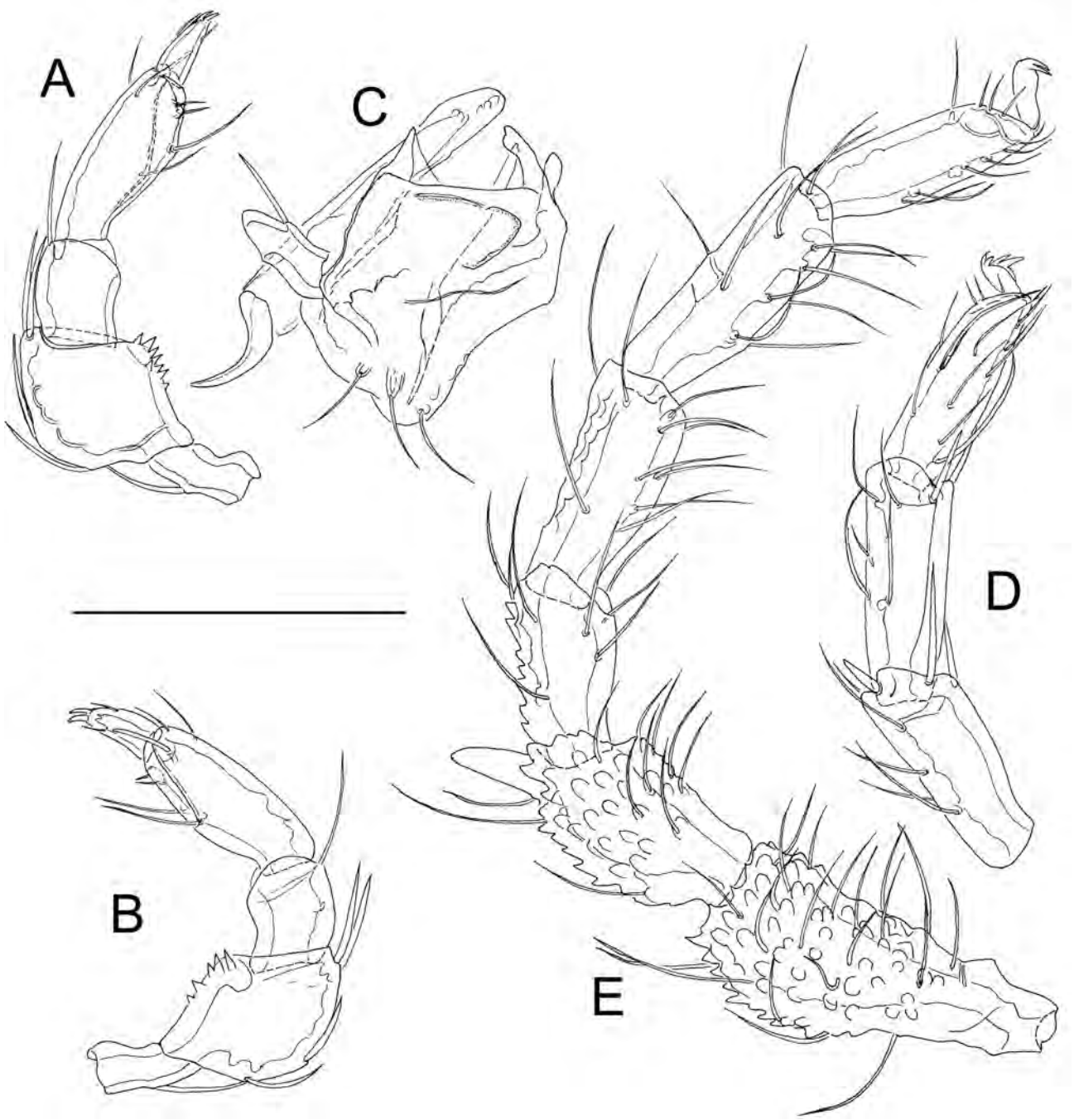


Figure 16 *Asperaturus petiolatus* **n. sp.**, male holotype. A-B – palp; C – gnathosoma and chelicera; D – I-leg-4-6; E, IV-leg. Scale bar = 100 μm.

Description. Male: Idiosoma dorsally 331 long and 250 wide, ventrally 363 long. Dorsum typical for the genus *Kritaturus*. Unpaired anterodorsal plate 128 long, 166 wide, unpaired posterodorsal plate somewhat longer than anterodorsal plate, 178 long, 166 wide; anterolateral platelet 147 long. Projections associated with insertions of fourth legs rounded. Genital field with numerous acetabula, gonopore 25 long, somewhat quadratic with concave lateral margins and anteriorly indented. Length of P1-5: 20, 56, 34, 81, 44. P4 without a median ridge, ventral setae close to each other. Length of I-leg-4-6: 56, 66, 80. I-leg-5 anteroventrally with two

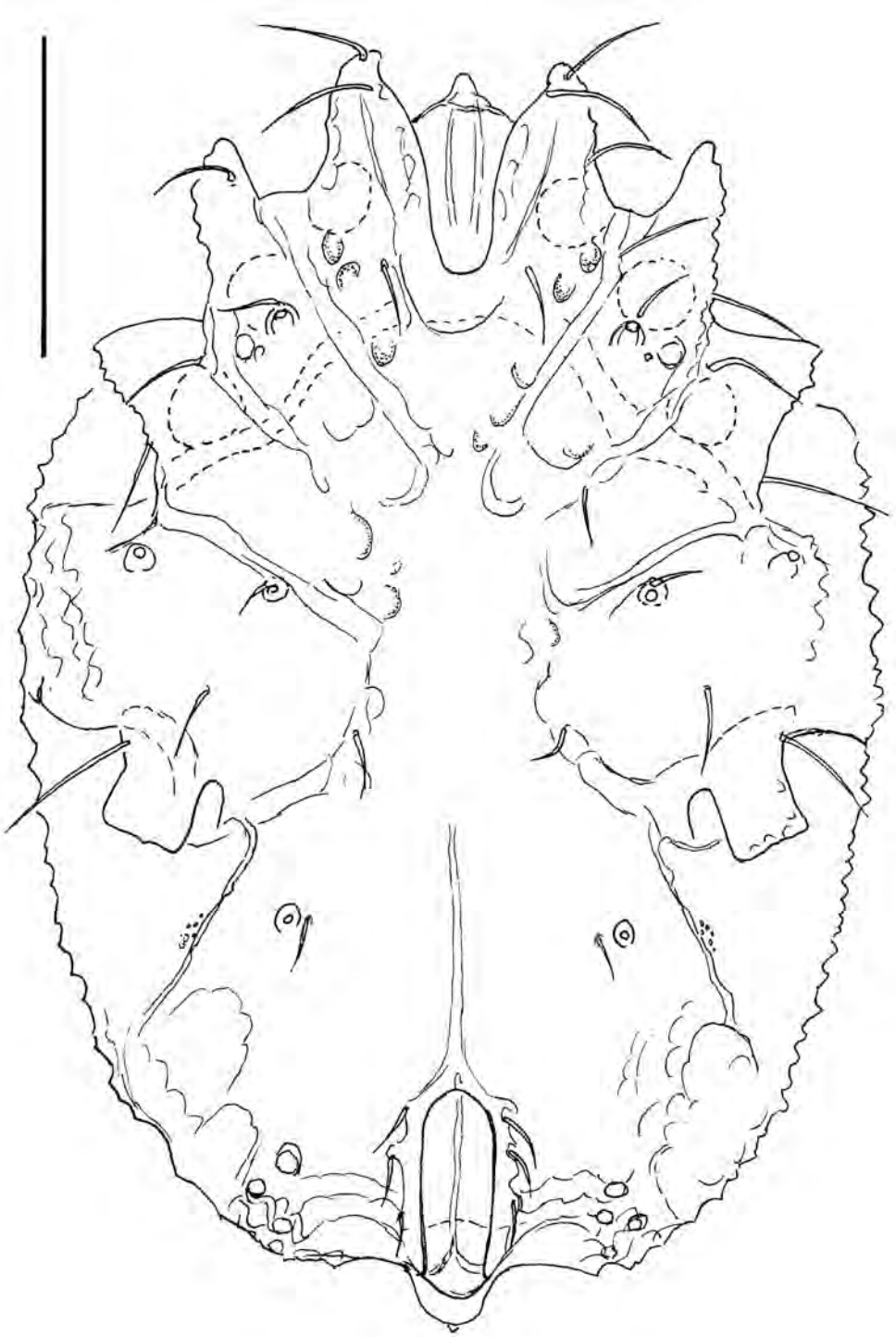


Figure 17 *Evidaturus exilis* Cook, female, ventral view. Scale bar = 100 µm.

short, stout setae. Length of IV-leg-4-6: 67, 75, 88.

Distribution. Previously known from two localities on South Island, and reported here for the first time from North Island.

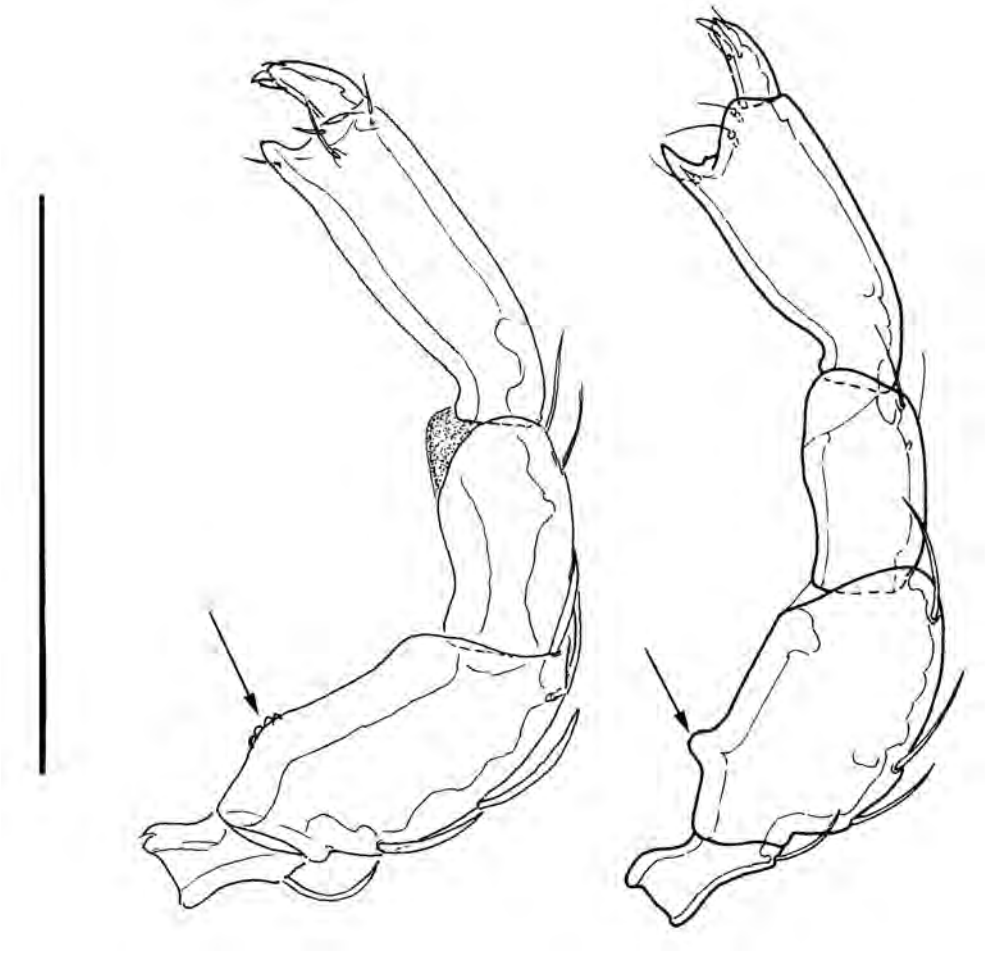


Figure 18 *Kritaturus* (*Caudaturus*) *uncipalpis* Cook, palp female. A – palp from Parsons Creek; B – palp after Cook (1983). Scale bars = 100 µm.

Minyaturus n. gen.

Zoobank: 29BB87F8-B3C9-42B4-90DB-B041561C4B3A

Diagnosis. Dorsum with two unpaired plates and two pairs of platelets, anterolateral platelets each with one glandularium, a "free" pair of glandularia present between posterior unpaired plate and the lateral platelets; the pair of glandularia between insertion of fourth legs and genital field closer to genital field; male gonopore trilobed.

Type species: *Minyaturus minutulus* **n. sp.**

Etymology. Named for its small size, from the Greek *minys*.

Remarks. The new genus shares many characters with *Pseudotryssaturus*, like the dorsum with one pair of free glandularia. *Pseudotryssaturus* species usually have a ridge extending posteriorly from the insertion of the fourth leg (lacking in the new genus), although some species have a very short ridge or a ridge is lacking. Most *Pseudotryssaturus* species have the dorsum with some sort of ornamentation, but, as in the new genus, some species lack such ornamentation. But all male *Pseudotryssaturus* species have an ellipsoid or rounded gonopore, unlike the trilobed gonopore of the new species. Moreover, the idiosoma shape of *Pseudotryssaturus* species is elongated and not broad and tapering posteriorly as in the new genus. The pair of glandularia between the insertion of the fourth legs and the genital field are located halfway, and not closer to the genital field.

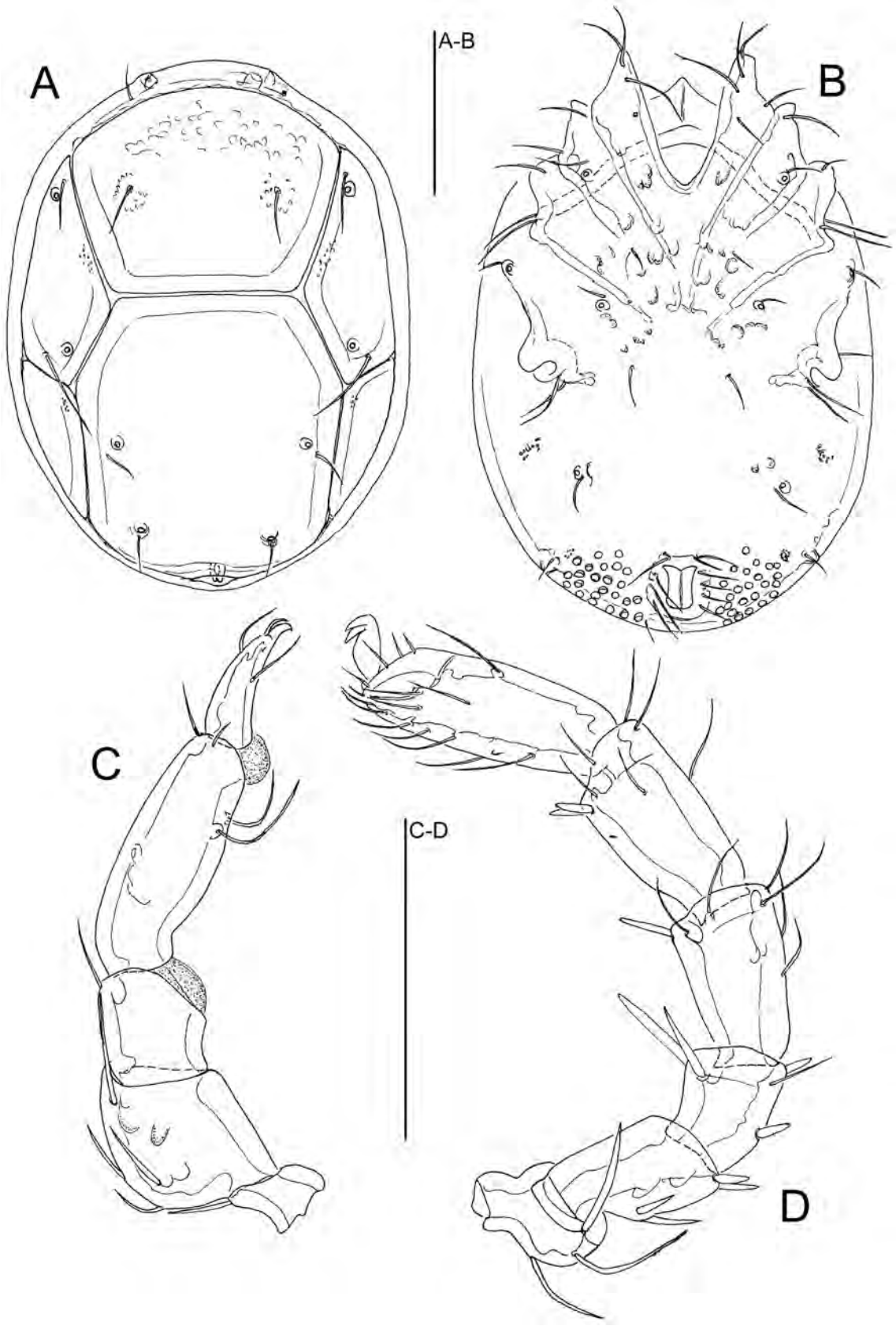


Figure 19 *Kritaturus* (*Kritaturus*) *vinnulus* Cook, male, Frank Stream: A – idiosoma, dorsal view; B – idiosoma, ventral view; C – palp; D – I-leg. Scale bars = 100 µm.

Minyaturus minutulus n. sp.

Zoobank: 94187ED2-98E7-45D5-87DC-6F91A865105D

(Figures 20A-F, 21A-E, 28D)

Material examined. Holotype male, unnamed stream Te Kinga Track, Te Kinga, South Island, New Zealand, 42°37.292′S 171°30.055′E, alt. 114 m asl, 9-iv-2020 (NMNZ). Paratypes: one female, same data as holotype (NMNZ); 0/2/0 (0/1/0 dissected and slide mounted) (RMNH, NMNZ), unnamed stream crossing Palmer Road, at Palmer Rd Culvert, Springs Junction, South Island, New Zealand, 42°22.043′S 172°08.132′E, alt. 472 m asl, 28-iii-2020; 0/1[juvenile!]/0, unnamed stream crossing Haupiri Road, Moana, South Island, New Zealand, 42°34.273′S 171°45.735′E, alt. 187 m asl, 30-iii-2020 (RMNH).

Diagnosis. As for genus.

Description. Male: Idiosoma smooth, dorsally 313 long and 259 wide, ventrally 353 wide, tapering posteriorly. Dorsum with a large unpaired anterior plate with the postocularia, 144 long, 197 wide, and a slightly smaller unpaired posterior plate, 134 long, 163 wide. Moreover, dorsum with a pair of elongated lateral platelets, the anterior platelets 134 long and each with a glandularium. A "free" pair of glandularia present between posterior unpaired plate and the lateral platelets. Suture lines of coxae incomplete, posterior margin of Cx-IV obliterated. Cxgl-4 located near suture line of Cx-III/IV. Projections associated with fourth legs relatively broad and rounded. Between the insertions of the fourth legs and the genital field a pair of glandularia located much closer to the latter. Genital field not set off from venter, with numerous acetabula along the posterior margin of venter; gonopore trilobed, 14 long. Length of P1-5: 15, 38, 22, 40, 20. P2 with a few papillae. P4 with a short ridge in anterior half. Length of I-leg-4-6: 48, 50, 61. I-leg-5 anteroventrally with a somewhat blunt, stout seta. Length of IV-leg-4-6: 60, 63, 65.

Female: Idiosoma dorsally 336 long and 291 wide, ventrally 377 long. Dorsum as in male, unpaired anterior plate 156 long, 217 wide, unpaired posterior plate 152 long, 183 wide, anterolateral platelet 145 long. Venter as in male, gonopore near posterior idiosoma margin, 34 long. Length of P1-5: 16, 38, 20, 47, 23. P4 with a short ridge in anterior half. Length of I-leg-4-6: 50, 56, 61. I-leg-5 anteroventrally with a somewhat blunt, stout seta. Length of IV-leg-4-6: 64, 69, 65.

Etymology. Named for its small size.

Genus *Neotryssaturus* Cook, 1983

A small genus with two species known from New Zealand.

Neotryssaturus pallidus Cook, 1983

New records. **South Island**. 0/1/0, Frank Stream, Catlins Forest Park, 46°26.527′S 169°28.237′E, alt. 148 m asl, 15-iii-2020.

Distribution. Previously known from two localities on South Island.

Genus *Paratryssaturus* Cook, 1983

A genus with four species known from New Zealand. A fifth species is described below.

Paratryssaturus stewartensis Smit, 2017

New records. **South Island**. 2/2/0, Frank Stream, Catlins Forest Park, 46°26.527′S 169°28.237′E, alt. 148 m asl, 15-iii-2020; 0/1/0, Catlins River, Catlins Forest Park, 46°26.845′S 169°27.490′E, alt. 93 m asl, 27-xii-2014.

Distribution. Previously recorded from the type locality on Stewart Island only.

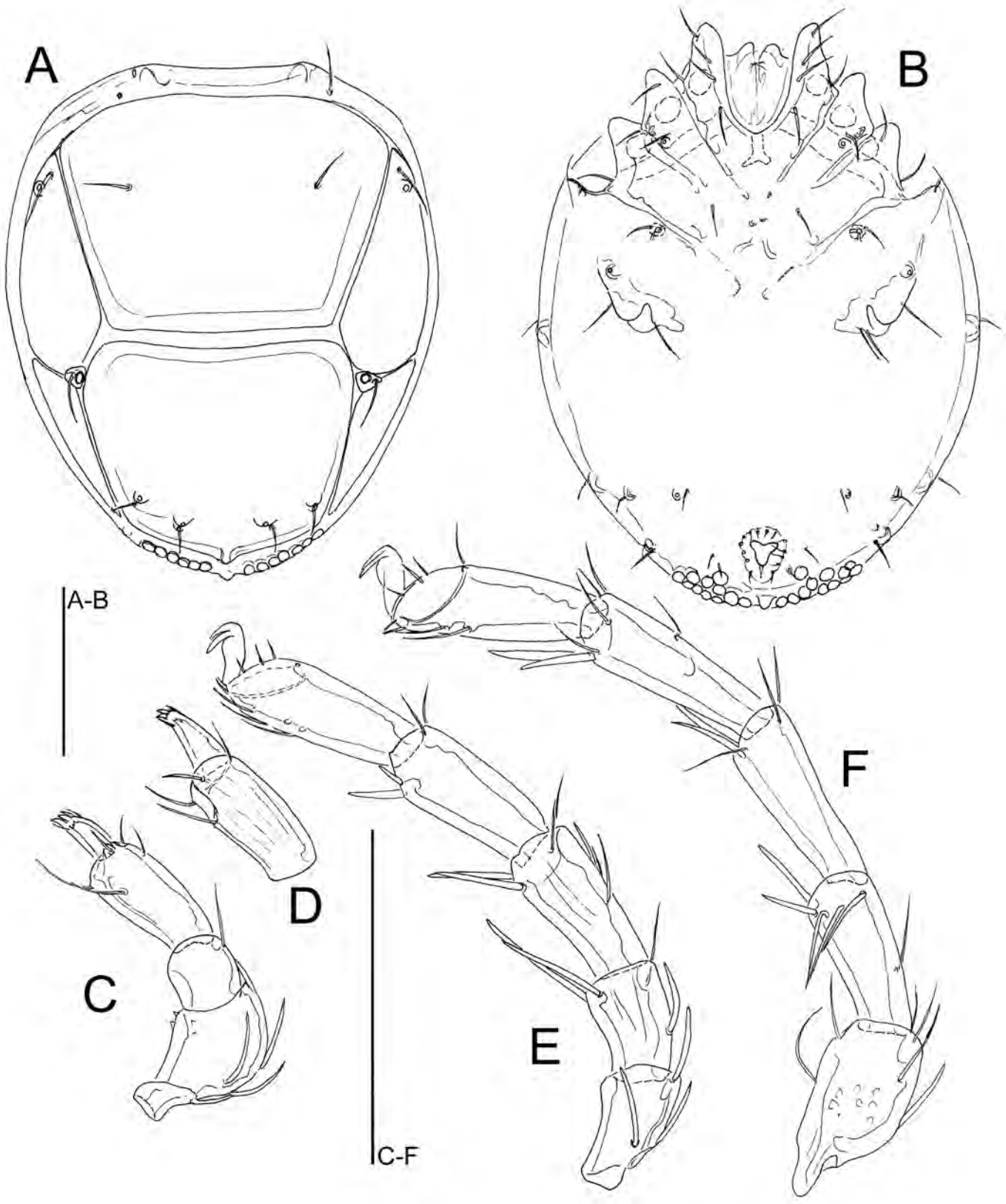


Figure 20 *Minyaturus minutulus* **n. sp.**, male holotype. A – idiosoma, dorsal view; B – idiosoma, ventral view; C – palp; D – P5-6; E – I-leg-2-6; F – IV-leg-2-6. Scale bars = 100 µm.

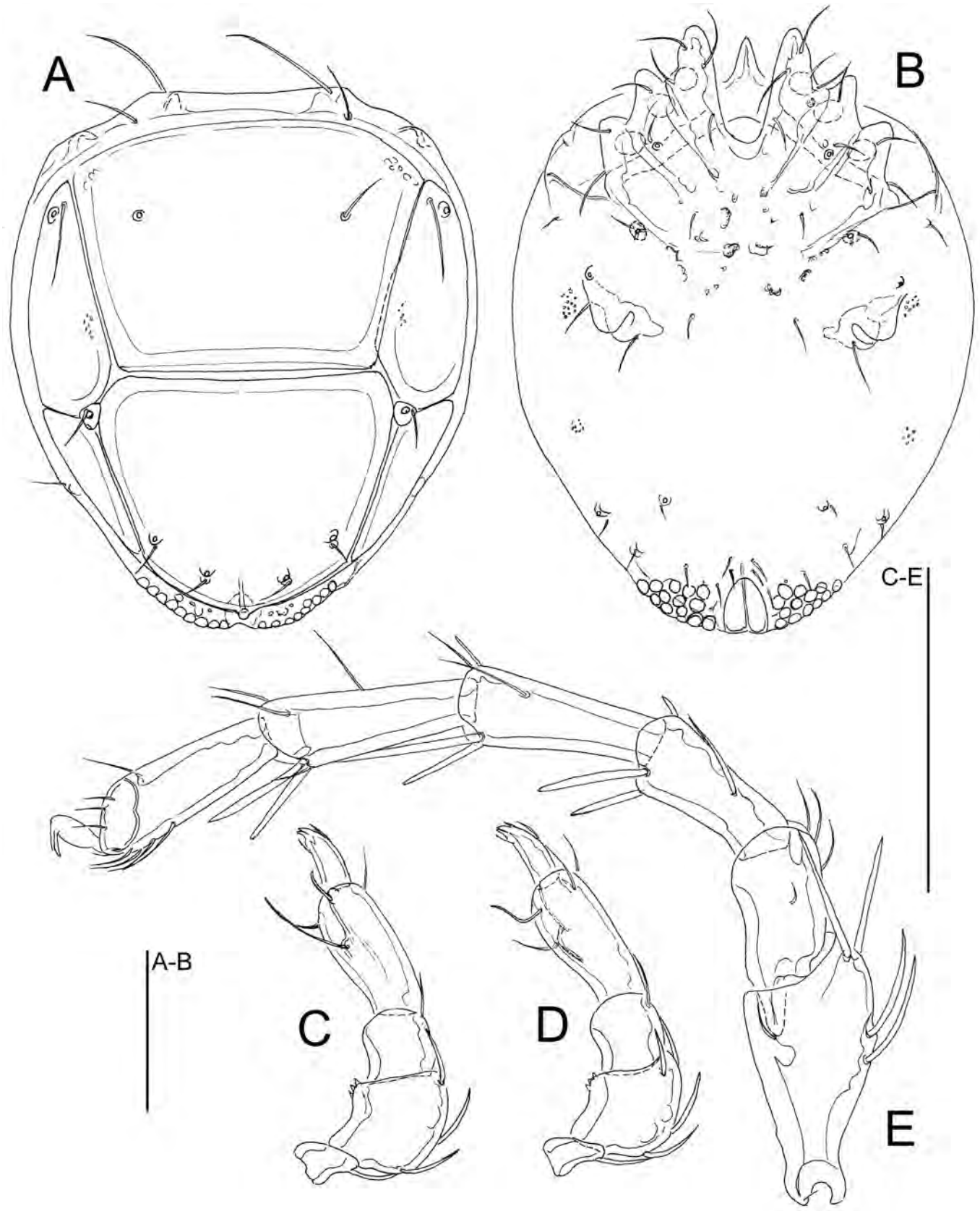


Figure 21 *Minyaturus minutulus* **n. sp.**, paratype female, unnamed stream crossing Palmer Road: A – idiosoma, dorsal view; B – idiosoma, ventral view; C-D – palp; E – IV-leg-1-6. Scale bars = 100 µm.

Paratryssaturus montanus n. sp.

Zoobank: E55CF9EC-93AA-4CFD-8513-9A4C9729AC37

(Figures 22A-F, 23A-E)

Material examined. Holotype male, Twin Creek, Arthur's Pass National Park, South Island New Zealand, 42°54.715′S 171°33.535′E, alt. 877 m asl, 5-iii-2020 (NMNZ). Paratypes: three females (NMNZ), two females, (RMNH), same data as holotype.

Diagnosis. Gonopore of male narrow and tapering posteriorly, IV-leg-5 of male with a dorsal angular hump. Idiosoma of female relatively broad, gonopore slender.

Description. Male: Idiosoma reticulate without papillae, dorsally 353 long and 264 wide, ventrally 409 long. Dorsum with a large unpaired and reticulated, anterior plate with the postocularia, 125 long, 163 wide, and a somewhat large posterior plate with two pairs of glandularia, 161 long and 170 wide. Moreover, dorsum with two pairs of lateral platelets, anterolateral platelets each with a glandularium, 137 long. Between posterior dorsal plate and laterodorsal platelets a pair of "free" glandularia. Cxgl-4 located near suture line of Cx-III/IV. Posterior margin of Cx-IV incomplete. Projections associated with insertions of fourth leg relatively large and rounded. Between insertions of fourth legs and genital field a pair of glandularia. Genital field large with numerous acetabula. Gonopore 31 long, narrow and tapering posteriorly. Excretory pore ventrally. Length of P1-5: 21, 47, 23, 55, 30. P2 anteroventrally with a few small papillae, P4 with a ridge in anterior half of segment. Length of I-leg-4-6: 55, 63, 77. Length of IV-leg-4-6: 66, 72, 78. IV-leg-5 stocky, with a dorsal angular hump, anteroventrally with a spoon-shaped seta.

Female: In most characters similar as male, except genital field and fourth leg. Idiosoma dorsally 403 long and 300 wide, ventrally 456 long. Length/width of anterodorsal plate 134/175, length/width of posterodorsal plate 205/193 length of anterolateral platelet 153. Gonopore 54 long, somewhat elongated, distanced from posterior idiosoma margin. Excretory pore ventrally near posterior idiosoma margin. Length of P1-5: 20, 48, 23, 55, 30. Palp as in male. Length of I-leg-4-6: 55, 61, 73. Length of IV-leg-4-6: 68, 77, 81. IV-leg-5 not modified.

Etymology. Named for its occurrence in the mountains.

Remarks. The male of the new species is distinguished easily from other *Paratryssaturus* species by the shape of IV-leg-5, in the other three species IV-leg-5 is rounded dorsally and not angular. The female of the new species is most similar to *P. minutus* (Hopkins) due to the position of the excretory pore near the posterior idiosoma margin, but the idiosoma of the new species is less slender, and the gonopore is more slender. However, the female of *P. zodelus* Cook is not known with certainty.

Paratryssaturus sp.

(Figures 24A-E)

Material examined. **South Island**. 0/1/0, Shag River at crossing with road Ranfurly-Palmerston, 45°10.663′S 170°23.703′E, alt. 564 m asl, 3-ii-2015.

Description. Female: Idiosoma dorsally 380 long and 295 wide, ventrally 409 long; caudal margin indented. Dorsum with a large unpaired and reticulated, anterior plate with the postocularia, 117 long, 169 wide, and a somewhat large posterior plate with two pairs of glandularia, 187 long and 203 wide. Moreover, dorsum with two pairs of lateral platelets, anterolateral platelets each with a glandularium, 159 long. Between posterior dorsal plate and laterodorsal platelets a pair of "free" glandularia. Cxgl-4 located near suture line of Cx-III/IV. Posterior margin of Cx-IV incomplete. Projections associated with insertions of fourth leg relatively large and rounded. Between insertions of fourth legs and genital field a pair of glandularia. Gonopore somewhat elongated, 50 long, distanced from posterior idiosoma margin. Excretory pore ventrally near posterior idiosoma margin. Length of P1-5: 19, 38, 20, 53, 23. P2 anteroventrally with a few small papillae, P4 with a ridge in anterior half of segment. Length of I-leg-4-6: 50, 52, 63. Length of IV-leg-4-6: 67, 73, 66.

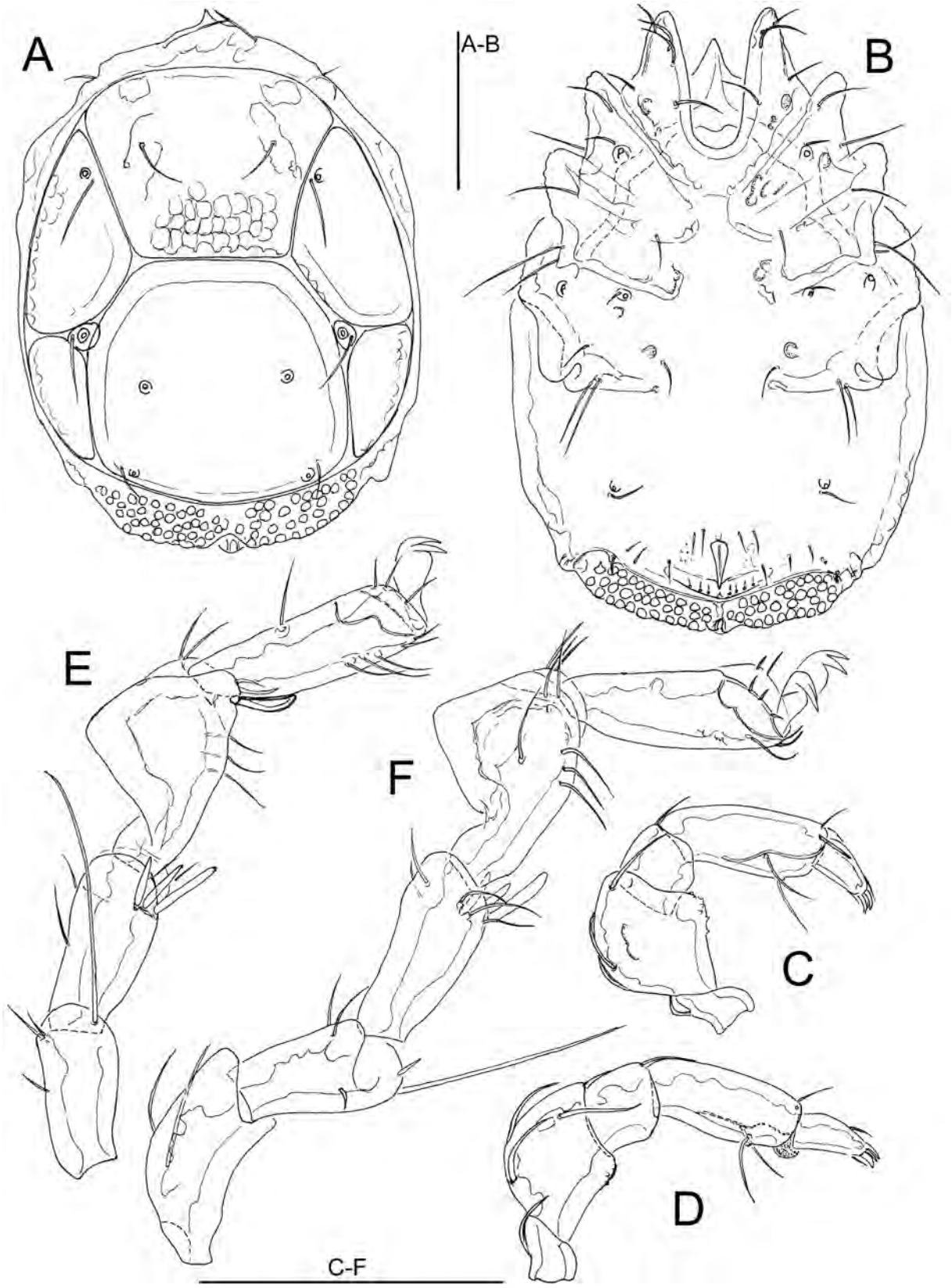


Figure 22 *Paratryssaturus montanus* **n. sp.**, male holotype. A – idiosoma, dorsal view; B – idiosoma, ventral view; C-D – palp; E – IV-leg-3-6; F – IV-leg. Scale bars = 100 µm.

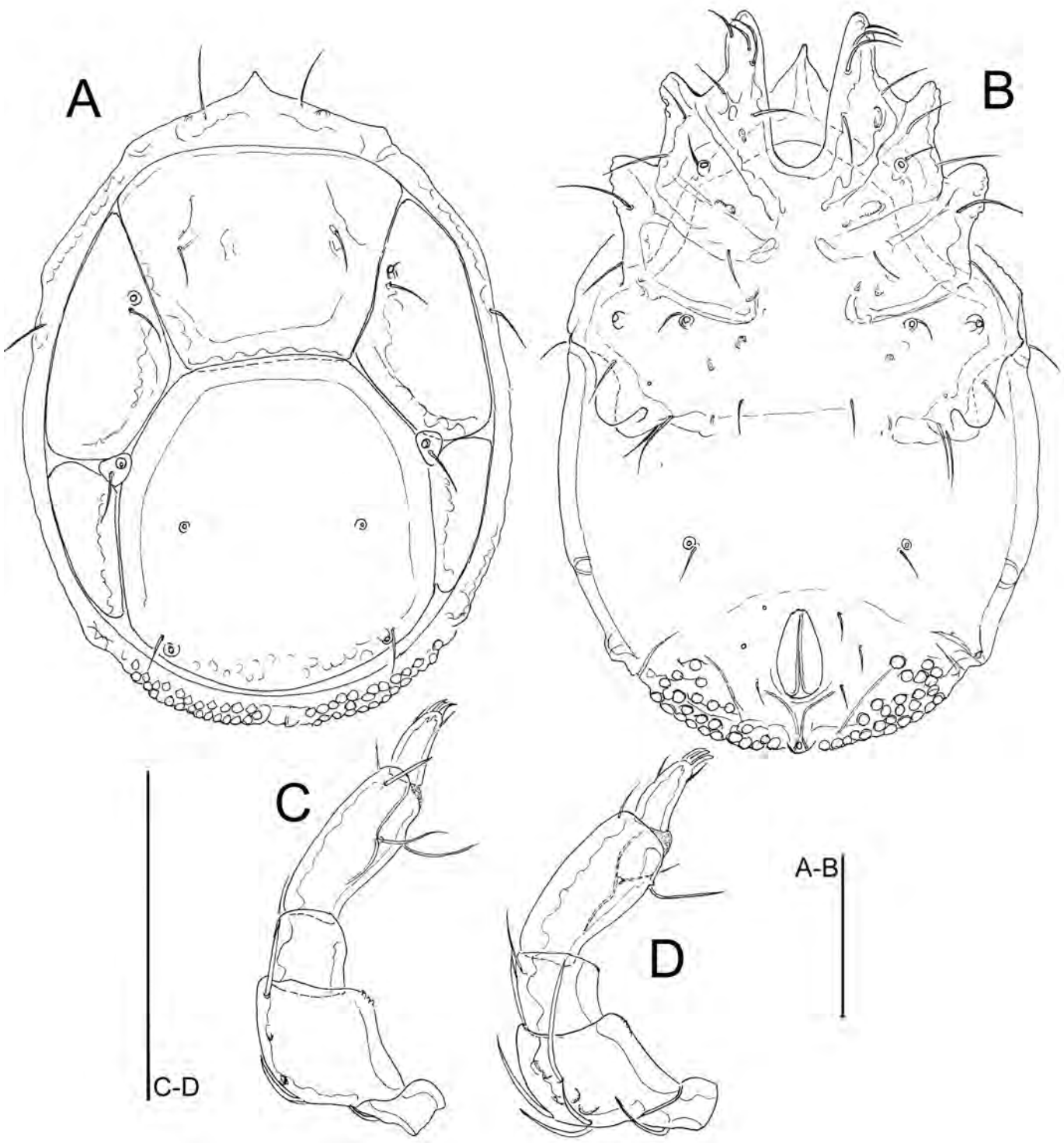


Figure 23 *Paratryssaturus montanus* **n. sp.**, paratype female, Twin Creek. A – idiosoma, dorsal view; B – idiosoma, ventral view; C – palp; D – I-leg-4-6; E – IV-leg. Scale bars = 100 μm.

Remarks. The female described here might belong to a new species. However, due to the absence of a male, we refrain from naming it.

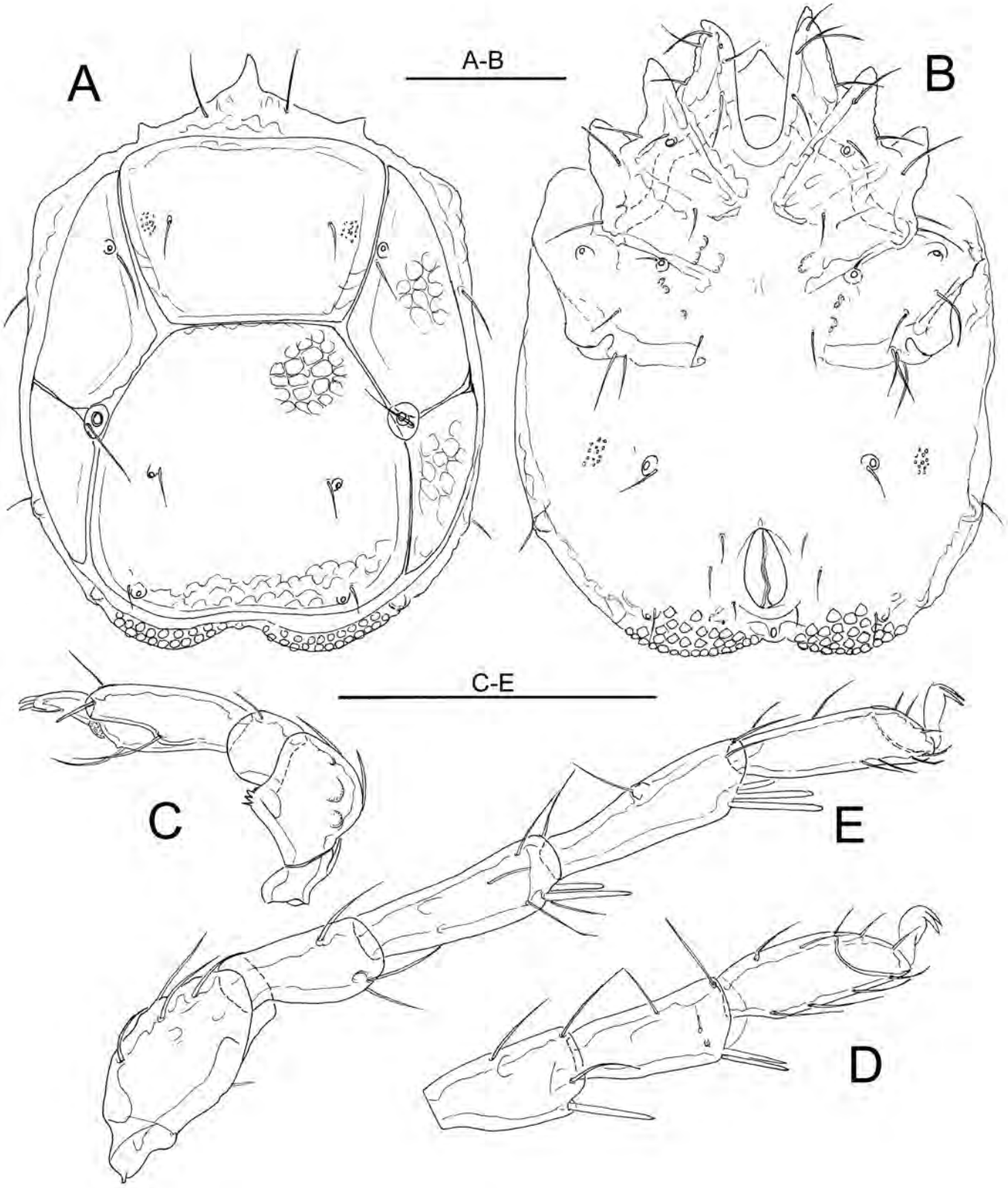


Figure 24 *Paratryssaturus* sp., female, Shag River. A – idiosoma, dorsal view; B – idiosoma, ventral view; C – palp; D – I-leg-4-6; E – IV-leg-2-6. Scale bars = 100 µm.

Paratryssaturus cf. zodelus Cook, 1983

New records. **South Island**. 0/1/0, Graham River near outflow in Motueka River, 41°12.76′S 172°50.0′E, alt. 61 m asl, 10-i-2019.

Remarks. We identified this female based on the absence of papillae on the dorsum. However, due to the absence of a male, the identification is not certain.

Distribution. Previously recorded from the type locality on North Island only.

Genus *Pilosaturus* Cook, 1982

A monotypic genus known only from New Zealand.

Pilosaturus villosus (Hopkins, 1967)

New records. **South Island**. 0/1/0, Bob's Peak Creek North 3, Papawai Bay, 41°00.394′S 173°45.248′E, alt. 96 m asl, 27-ii-2020.

Distribution. Previously known from three specimens from two locations (North and South Island), but Hopkins (1967) mentioned other localities without giving the details.

Genus *Planaturus* Cook, 1983

A genus with four species known from New Zealand.

Planaturus pileatus Smit, 2017

New records. **South Island**. 0/1/0, Waihi River, interstitial, Waihi Gorge Scenic Reserve, 44°00.126*S*, 171°09.297′E, alt. 295 m asl, 19-iii-2020; 0/1/0, Crooked River at crossing with Bell Hill Road, Moana, 42°37.817′S 171°35.820′E, alt. 119 m asl, 3-iv-2020.

Distribution. Previously known from the type locality from South Island only.

Planaturus serratus Smit, 2017

New record. **South Island**. 0/1/0, Seventeen Mile Creek, interstitial, Aorere Valley, 40°49.324′S 172°29.479′E, alt. 99 m asl, 8-i-2019.

Distribution. Previously known from the type locality from North Island only.

Genus *Schwoerbelaturus* Smit, 2019

A monotypic genus, known only from New Zealand.

Schwoerbelaturus aturoides (Schwoerbel, 1984)

(Figures 25A-F)

New record. **North Island**. 0/1/0, Five Miles Bay, Lake Taupo, 17-v-1967, leg. K.H. Schminke.

Remarks. Thus far, the female was unknown, and therefore a description is given below.

Description. Female: Idiosoma very weakly sclerotized, dorsally 234 long and 168 wide, ventrally 288 long. Dorsum with a large unpaired anterior plate with the postocularia, 93 long, 108 wide, and a slightly longer unpaired posterior plate with two pairs of glandularia and the excretory pore, 123 long and 109 wide. Moreover, dorsum with two pairs of lateral platelets, each platelet with a glandularium. Anterolateral platelet 116 long, posterolateral platelet 53 long. Cx-I projecting far anteriorly. Cxgl-4 located near suture line of Cx-III/IV. Posterior margin of Cx-IV obliterated. Projections associated with insertions of fourth legs rounded. Between insertions of fourth legs and genital field two pairs of glandularia, these more distanced from each other than in male. Genital field with numerous acetabula, one anterior pair distanced from the other acetabula; gonopore near posterior idiosoma margin, 27 long. Length of P1-5: 18, 34, 27, 63, 27. P2 without papillae, P4 ventrally bulging. Length of

I-leg-4-6: 42, 45, 55. I-leg-5 anteroventrally with two-pointed, stout seta, leg segments stocky. Length of IV-leg-4-6: 44, 52, 53.

Remarks. The female matches the description of the genus well, only the leg segments of the fourth leg are less slender compared to the male. The location of this record, a large lake, seems atypical for the species. Very likely the species is hyporheic. There are several streams flowing into the lake, which may explain its occurrence in the lake.

Genus *Taintaturus* Cook, 1983

A genus with more than a dozen species known from New Zealand.

Taintaturus hopkinsi Cook, 1983

New records**. South Island.** 2/0/0, Eliot Creek, interstitial, Aorere Valley, New Zealand, 40°49.897′S 172°28.309′E, alt. 110 m asl, 1-iii-2020; 0/1/0, Selwyn River at White Cliffs, interstitial, 43°27.656′S 171°53.586′E, alt. 296 m asl, 21-iii-2020**;** 0/2/0, Waihi River, interstitial, Waihi Gorge Scenic Reserve, 44°00.126′S, 171°09.297′E, alt. 295 m asl, 19-iii-2020.

Distribution. Previously known from North and South Island.

Taintaturus abditus Cook, 1983

New records. **South Island**. 0/1/0, Little Hohonu River, S of Lake Brunner, 42°38.398′S 171°17.638′E, alt. 97 m asl, 23-iii-2020; 1/0/0, 0/1/0, Hapiata Stream, Okiwi Bay, 41°06.167′S 173°40.763′E, alt. ± 50 m asl, 28-ii-2020; 1/0/0, Old Homestead Creek, downstream, interstitial, Taipare Bay, 41°00.867′S 173°43.155′E, alt. 10 m asl, 24-ii-2020.

Distribution. Known from South Island only.

Taintaturus longipileatus Smit, 2017

(Figures 26A-F, 28C)

New records. **North Island**. 0/2/0, Makakahi River crossing Kaiporo Road, interstitial, 40°42.869′S 175°35.867′E, alt, 335 m asl, 13-i-2019. **South Island**. 0/1/0, Avalanche Creek Arthur's Pass National Park, 42°56.421*S*171°33.747′E, alt. 10 m asl, 23-xii-2014; 0/2/0, Parsons Creek near Lake Ohau, 44°14.962′S 169°49.118′E, alt. 534 m asl, 18-iii-2020; 1/2/0, Twin Creek, Arthur's Pass National Park, 42°54.715′S 171°33.535′E, alt. 877 m asl, 23-xii-2014; 2/0/0, Crooked River at crossing with Bell Hill Road, Moana, 42°37.817′S 171°35.820′E, alt. 119 m asl, 3-iv-2020.

Remarks. Thus far, the male was unknown and a description is given below. The male matches the description of the female well, but P4 has a ridge which was not mentioned by Smit (2017) for the female.

Description. Male: Idiosoma dorsally 431 long and 272 wide, ventrally 431 long. Dorsum as typical for the genus. Anterodorsal margin of ventral shield with a few serrations. Length/width of anterodorsal plate 141/181, length/width of posterodorsal plate 156/124, length of anterolateral dorsal plate 169. Projections associated with insertions of fourth leg truncate. A ridge present posterior to the insertions of the fourth leg. Posterior margin of venter with a large indentation, gonopore not visible in ventral view. Length of P1-5: 22, 41, 27, 53, 20. P2 with a short anteroventral extensions without papillae (one pennate seta located dorsally on P2), P4 with a ridge over almost its entire length. Length of I-leg-4-6: 50, 58, 57. Length of IV-leg: 55, 93, 41, 51, 50, 64. Fourth leg typical for the genus, with IV-leg-2 being the longest segment.

Distribution. Previously known from the type locality on South Island only, and reported here from North Island as well.

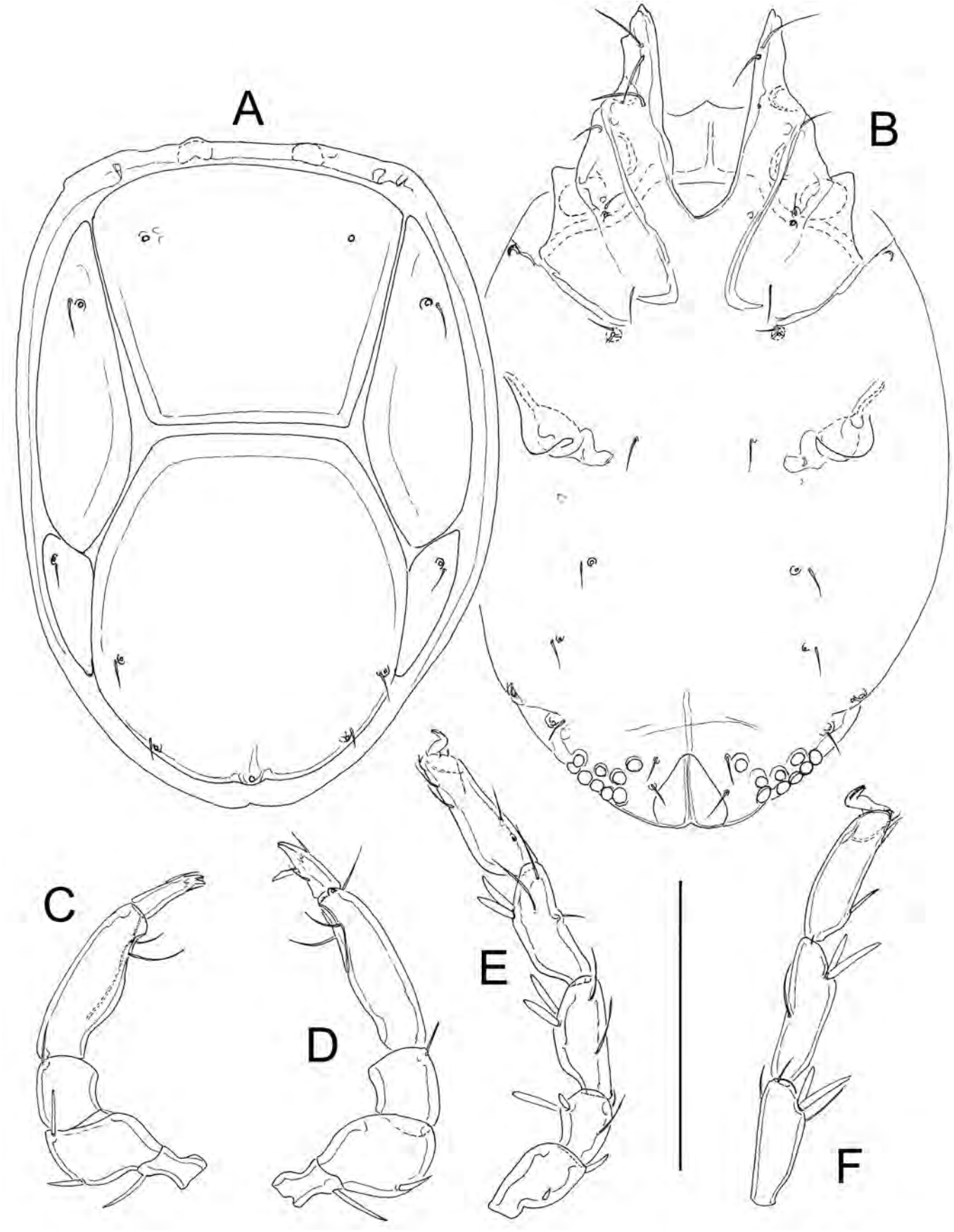


Figure 25 *Schwoerbelaturus aturoides* (Schwoerbel), female, Lake Taupo: A – idiosoma dorsal view; B – idiosoma, ventral view; C-D – palp; E – I-leg-2-6; F – IV-leg-4-6. Scale bars = 100 µm.

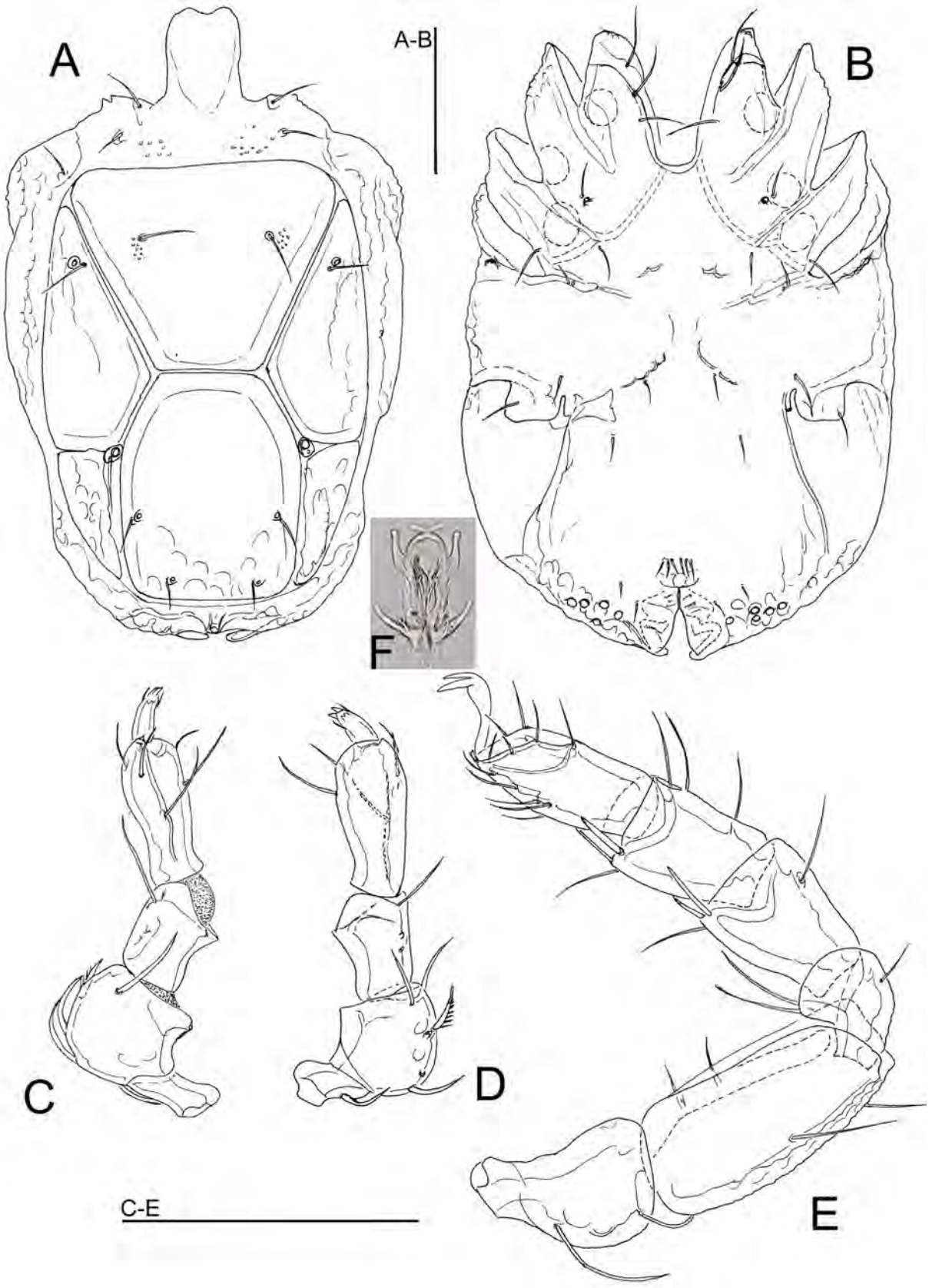


Figure 26 *Taintaturus longipileatus* Smit, male, Crooked River (A-E, drawings; F, photograph). A – idiosoma, dorsal view; B – idiosoma, ventral view; C-D – palp; E – IV-leg; F – ejaculatory complex. Scale bars = 100 µm.

Genus *Zelandalbia* Imamura, 1978

A small genus with four species known from New Zealand.

Zelandalbia longipalpis Pesic & Smit, 2010

New record. **South Island**. 1/0/0, Monro Creek, interstitial, 30 km N of Haast, 43°42.882′S 169°16.138′E, alt. 17 m asl, 22-xii-2014; 1/0/0, Taipare Creek, interstitial, Taipare Bay, 41°00.977′S 173°43.504′E, alt. 9 m asl, 1-i-2-019.

Distribution. Previously known from several location in the Selwyn River.

Genus *Zelandopsis* Imamura, 1977

A genus with one species known from New Zealand.

Zelandopsis morimotoi Imamura, 1977

New records. **South Island**. 0/1/0, Upper course Askews Hill NE Creek, Taipare Bay, 41°01.162′S 173°42.881′E, alt. not measured, 25-ii-2020; 0/1/0, Upper course Watercreek, Taipare Bay, 41°01.122′S 173°43.889′E, alt. 128 m asl, 25-ii-2020; 0/1/0, unnamed stream crossing Palmer Road, at Palmer Rd Culvert, Springs Junction, 42°22.043′S 172°08.132′E, alt. 472 m asl, 28-iii-2020.

Distribution. Previously known from streams east of Nelson and the Marlborough Sounds area (Smit 2019), and here reported from a stream near Springs Junction also.

Family Arrenuridae Thor

Genus *Arrenurus* Dugès, 1834

A very large genus with numerous species occurring worldwide.

Arrenurus (*Truncaturus*) *zelandicus* Cook, 1983

New record. **South Island**. 0/1/0, Taipare Creek, interstitial, Taipare Bay, 41°00.977′S 173°43.504′E, alt. 9 m asl, 1-i-2-019.

Distribution. Previously known from four localities, i.e. wells and interstitial habitats around Nelson.

Family Mideopsidae Koenike

Subfamily Guineaxonopsinae Imamura

Genus *Guineaxonopsis* Imamura, 1983

A genus with six species known from New Guinea, New Zealand and Australia (Imamura 1983, Cook, 1983, 1986, Schwoerbel 1984, Pesic & Smit 2009). From New Zealand three species are known.

Guineaxonopsis serratipalpis (Cook, 1983)

New records. **North Island**. 0/1/0, Makotuku Stream, Horopito, 39°20.796′S 175°22.686′E, alt. 563 m asl, 10-xii-2014; 0/1/0, Makakahi River crossing Kaiporo Road, interstitial, 40°42.869′S 175°35.867′E, alt, 335 m asl, 13-i-2019. **South Island**. 1/0/0, Monro Creek, interstitial, 30 km N of Haast, 43°42.882′S 169°16.138′E, alt. 17 m asl, 22-xii-2014; 2/0/0, Dizzy Creek at crossing with Haast Pass Road, 43°57.738′S 169°09.498′E, alt. 35 m asl, 25-xii-2014; 0/1/0, Waimate Creek at Kelceys Bush, interstitial, 44°42.057′S 170°56.156′E, alt. 197 m asl, 4-i-2015; 1/1/0, Hapiata Stream, Okiwi Bay, 41°06.167′S 173°40.763′E, alt. ± 50 m asl, 28-ii-2020; 1/0/0, Dizzy Creek at crossing with Haast Pass Road, 43°57.738′S

169°09.498′E, alt. 35 m asl, 7-iii-2020; 1/2/0, Nelson Creek Right Branch, interstitial, Moana, 42°30.047′S 171°41.617′E, alt. 321 m asl, 2-iv-2020.

Distribution. Previously known from two localities (North and South Island).

Family Momoniidae K. Viets

Genus *Momonia* Halbert, 1906

A genus with several species known from Europe, North America and Asia. From New Zealand one species is known.

Momonia (*Zelandomomonia*) *hopkinsi* Schwoerbel, 1984

New record. **South Island**. 0/1/0, Fifteen Mile Creek, interstitial, Aorere Valley, 40°48.443′S 172°31.378′E, alt. 69 m asl, 1-iii-2020.

Distribution. Previously known from three localities from North and South Island.

Subfamily Mideopsinae Koenike

Genus *Penemideopsis* Cook, 1986

A small genus, with three species known from Australia (Cook 1986, Harvey 1996).

Penemideopsis novaezelandica n. sp.

Zoobank: 3D067EDF-D91C-40B9-88DF-57A990EE7687

(Figures 27A-C)

Material examined. Holotype male, Eliot Creek, interstitial, Aorere Valley, South Island, New Zealand, 40°49.897′S 172°28.309′E, alt. 110 m asl, 1-iii-2020 (NMNZ). Paratype: Male, Dizzy Creek at crossing with Haast Pass Road, Mt Aspiring National Park, South Island, New Zealand, 43°57.738′S 169°09.498′E, alt. 35 m asl, 7-iii-2020 (RMNH).

Diagnosis. Idiosoma slender, dorsally with a short medial extension; P4 with a large ventral spatulate extension; gonopore bulging near first two pairs of acetabula.

Description. Male: Idiosoma slender, dorsally 454 (442) long and 300 (300) wide, ventrally 495 (493) long. Dorsal shield with three pairs of glandularia and the postocularia, 405 (397) long and 267 (270) wide. Frontal margin of idiosoma with a short medial extension. First coxae extending beyond anterior idiosoma margin. Suture lines of coxae distinct except posterior margin of Cx-IV, anterior pairs of suture line not touching medially. Posterior margin of Cx-IV at an angle to idiosoma axis. Cxgl-4 located far posterolaterally. Genital field 66 long, with three pairs of acetabula. Gonopore bulging outwards near region of first two pairs of acetabula. Length of P1-5: 22, 57, 28, 36, 35. P4 stocky, with a large spatulate ventral extension with a tiny seta, this extension with a short suture line separating a larger seta. Length of I-leg-4-6: -, 58, 84. Length of IV-leg-4-6: 70, 106, 86. Leg segments stocky, swimming setae absent.

Female: Unknown.

Etymology. Named for its occurrence in New Zealand.

Remarks. In the shape of P4 the new species is most close to the *Penemideopsis phreatica* from eastern Australia, with the seta nearly fused with the extension, only separated by a suture line. The two species from Western Australia have the seta of P4 distinct set off from the extension. The new species differs from the two species from Western Australia in a more bulging gonopore, a less far extending frontal margin and a straight posterior margin of Cx-IV (rounded in the two species from Western Australia). *Penemideopsis phreatica* Cook, 1986 has the idiosoma widened anteriorly (not widened in the new species) and Cxgl-4 are lying much closer to the genital field than in the new species.

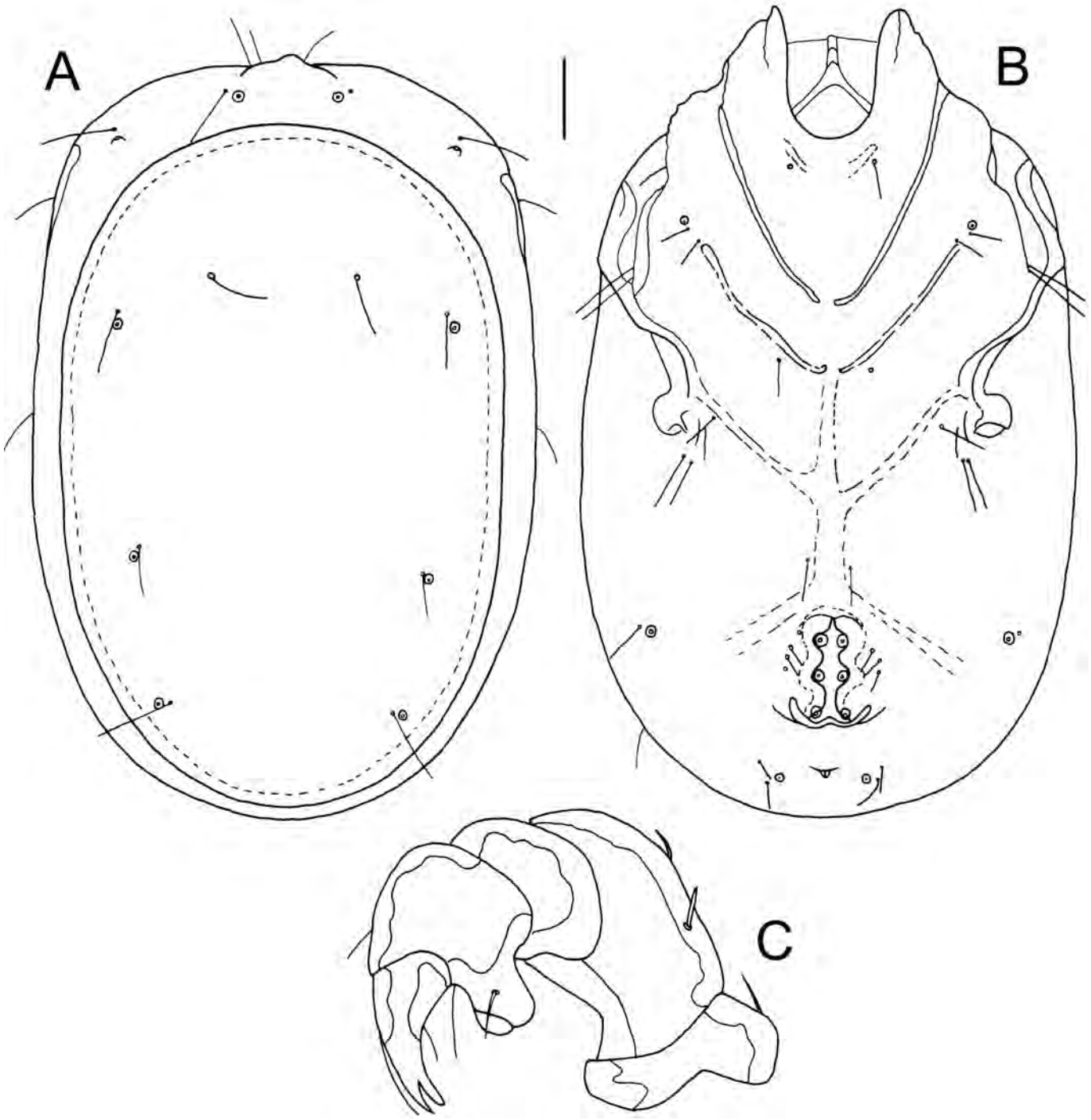


Figure 27 *Penemideopsis novaezelandica* **n. sp.**, holotype male. A – idiosoma, dorsal view; B – idiosoma, ventral view; C – palp. Scale bars = 50 µm.

Family Nudomideopsidae I.M. Smith

Genus *Nudomideopsis* Szalay, 1945

A genus with many species known from the Holarctic, Japan, New Caledonia (Smit 2009) and New Zealand. From the latter country four species are known.

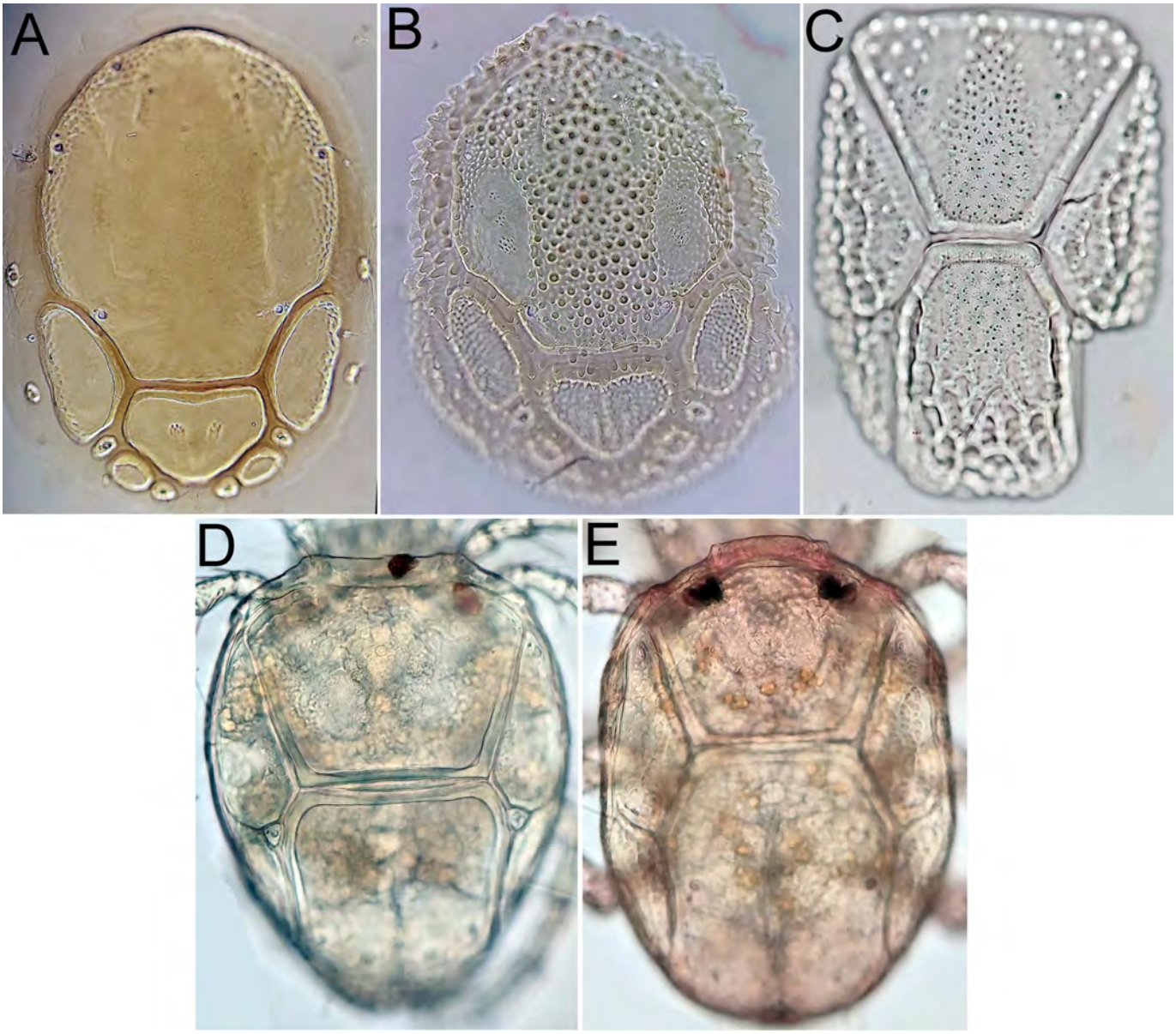


Figure 28 Photographs of selected species (A-C, dissected specimens, D-E, conserved specimens). A – dorsum of *Zelandobates occidentalis* **n. sp.**, holotype male; B – dorsum of *Moanabates moanaensis* **n. sp.**, holotype male; C – dorsal shield of *Taintaturus longipileatus* Smit, male; D – dorsum of *Minyaturus minutulus* **n. sp.**, female paratype; E – dorsum of *Kritaturus vinnulus* Cook, male.

Nudomideopsis forkensis (Imamura, 1977)

New records. **South Island**. 1/0/0, Mineral Reserve Creek 2 upper course, Taipare Bay, 41°01.410′S 173°43.447′E, alt. 232 m asl, 31-xii-2018; 1/0/0, unnamed stream, Taipare Bay, 41°00.502′S 173°44.620′E, alt. 104 m asl, 2-i-2019.

Distribution. Previously known from two localities, one from North and one from South Island.

Family Athienemanniidae K. Viets

Subfamily Athienemanniinae K. Viets

Genus *Anamundamella* Cook, 1992

A monotypic genus known from New Zealand only.

Anamundamella zelandica Cook, 1992

New records. **South Island**. 0/2/0, Askews Hill Creek NE, lower course, Taipare Bay, 41°00.867′S 173°43.155′E, alt. 10 m asl, 3-i-2019; 5/1/0, Selwyn River at White Cliffs, interstitial, 43°27.656′S 171°53.586′E, alt. 296 m asl, 21-iii-2020.

Distribution. Previously known from two wells near Nelson and from the Selwyn River.

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