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Two New Species of Water-mite (Acari, Hydrachnellae) from New Zealand

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Abstract

THE new genus *Zelandobates* is proposed and the type *Zelandobates crinitus* n.sp. described. It is a member of the widespread family Hygrobatidae. *Stygomomonia torquipes* n.sp., belonging to the family Momoniidae, is also described. *Z. crinitus* is widespread in the Wellington area as far north as the Ohau River system. It has not been looked for elsewhere. Only one individual of *S. torquipes* has been taken and the possibility of its being an inhabitant of interstitial waters is noted.

INTRODUCTION

NUMEROUS genera of the family Hygrobatidae have been described from all the major land areas of the world. The family is now found to be represented in New Zealand, initially by the new genus *Zelandobates.*

This paper also describes the new species *Stygomomonia torquipes,* a member of the family Momoniidae. In contrast to the Hygrobatidae, the Momoniidae encompass very few genera, though these are sufficiently diverse to be contained by three sub-families.

Material was stored in a fluid containing acetic acid, glycerine and water. Before dissection it was cleared in lactic acid. Dissection was done in glycerine jelly and the parts were mounted in the same medium.

Family HYGROBATIDAE

Subfamily HYGROBATINAE

Genus ZELANDOBATES n.gen.

MATERIAL: The description is based on adult specimens now lodged in the Dominion Museum, Wellington. Dimensions of two males and two females are given in Table I and parts are illustrated in Text-fig. 1.

Holotype male, dated 10.2.1965. Dominion Museum catalogue number DM 4/343.

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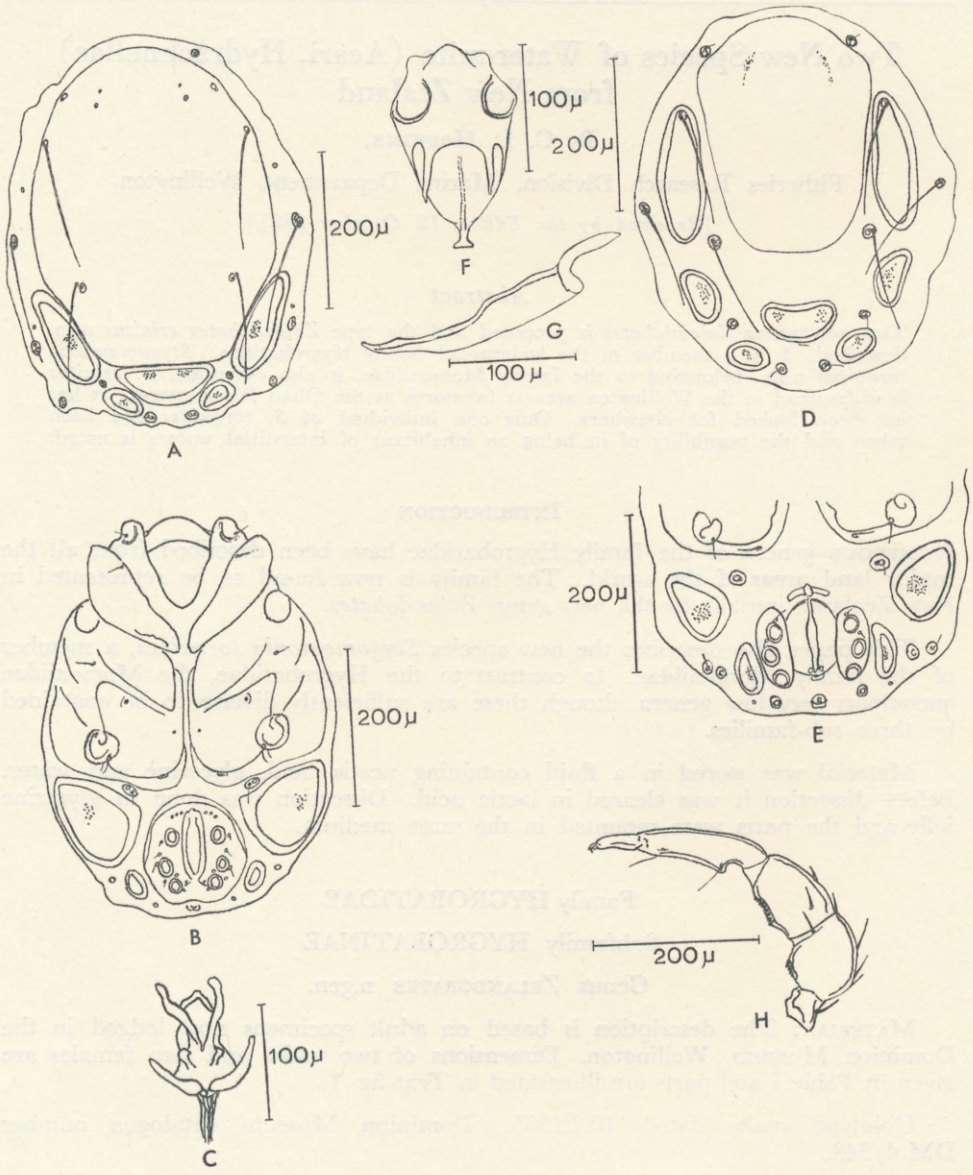
Allotype female, dated 10.2.1965. Dominion Museum catalogue number DM 4/344.

Description of Genus: Body somewhat flattened, oval. Skin thin and finely ridged. One large sclerotised shield and several smaller plates on the dorsal surface. Small sclerotised plates on the ventral surface near the genital area. Epimera moderately large. First epimera fused to each other behind the maxillary organ. Genital area large, near hind end of ventral surface, lying well away from the epimera. Genital opening slit-shaped, flanked by distinct genital plates carrying acetabula.

Maxillary organ with its basal plate produced backwards as a stem.



Text-fig. 1.—*Zelandobates crinitus*. A, Male dorsal. B, Male ventral. C, Penis skeleton. D, Female dorsal. E, Female posterior ventral. F, Maxillary organ dorsal. G, Mandible. H, Male right palp.

Palp with short, wide 2nd and 3rd segments carrying numerous denticles ventrally, 4th and 5th segments slender. Small, wide-based, pointed projection near proximal end of ventral surface of 4th segment.

Legs without swimming hairs. Claws double-toothed.

TABLE I.—Dimensions of *Zelandobates crinitus* (μ).

	♂	♂	♀	♀
Greatest length	455	451	574	550
Greatest width	345	366	444	403
Palp Segment I	43	30	40	38
II	98	75	94	100
III	98	73	98	105
IV	160	84	127	151
V	55	53	55	66
Mandible	190	138	176	180
Mandibular claw	50	42	50	54
Maxillary organ	150	145	175	195
Leg I	525	520	613	598
II	460	449	522	525
III	498	478	553	584
IV	630	621	752	786

Zelandobates crinitus n.sp.

Description of Male: Dorsum largely covered by a sclerotised shield, rounded anteriorly and with a straight posterior border; posterior corners cut away. Five small plates embracing the hind part of the shield disposed so that an elongate plate lies across each cut-away corner and one across the mid-line behind the shield; between each corner plate and the posterior central plate lies a smaller oval plate. On each side of the dorsum three long spines arise from gland pores, two of them on the shield and one to one side.

Epimera occupying approximately half the ventral surface and disposed as two blocks on each side of the mid-line. The two anterior blocks (1st and 2nd epimera) are joined by fusion of the 1st epimera behind the maxillary organ. The two posterior blocks narrowly separated down the mid-line. They press against the anterior blocks but are not fused to them.

The large external genital area lies posterior to the epimera. Genital opening slit-shaped and moderately long, bordered on each side by a plate carrying a row of three acetabula. The two plates fuse around each end of the genital opening and carry several small gland pores. A large, triangular sclerotised plate extends from the genital area to the flank of the ventral surface on each side, with a much smaller plate close to the posterior half of the genitalia.

Penis skeleton narrow with four slender, curved projections, similar to that of other Hygrobatinae.

Excretory pore immediately behind the genitalia, within a sclerotised ring.

Palp as described for the genus. A thin hair rises from the ventral tooth of the 4th segment and another rises ventrally from the distal end of the segment.

Maxillary organ short and wide with a short stem projecting posteriorly from the basal plate. Mandible slender, the claw more or less straight and finely corrugated dorsally.

Legs without swimming hairs and with relatively few spines.

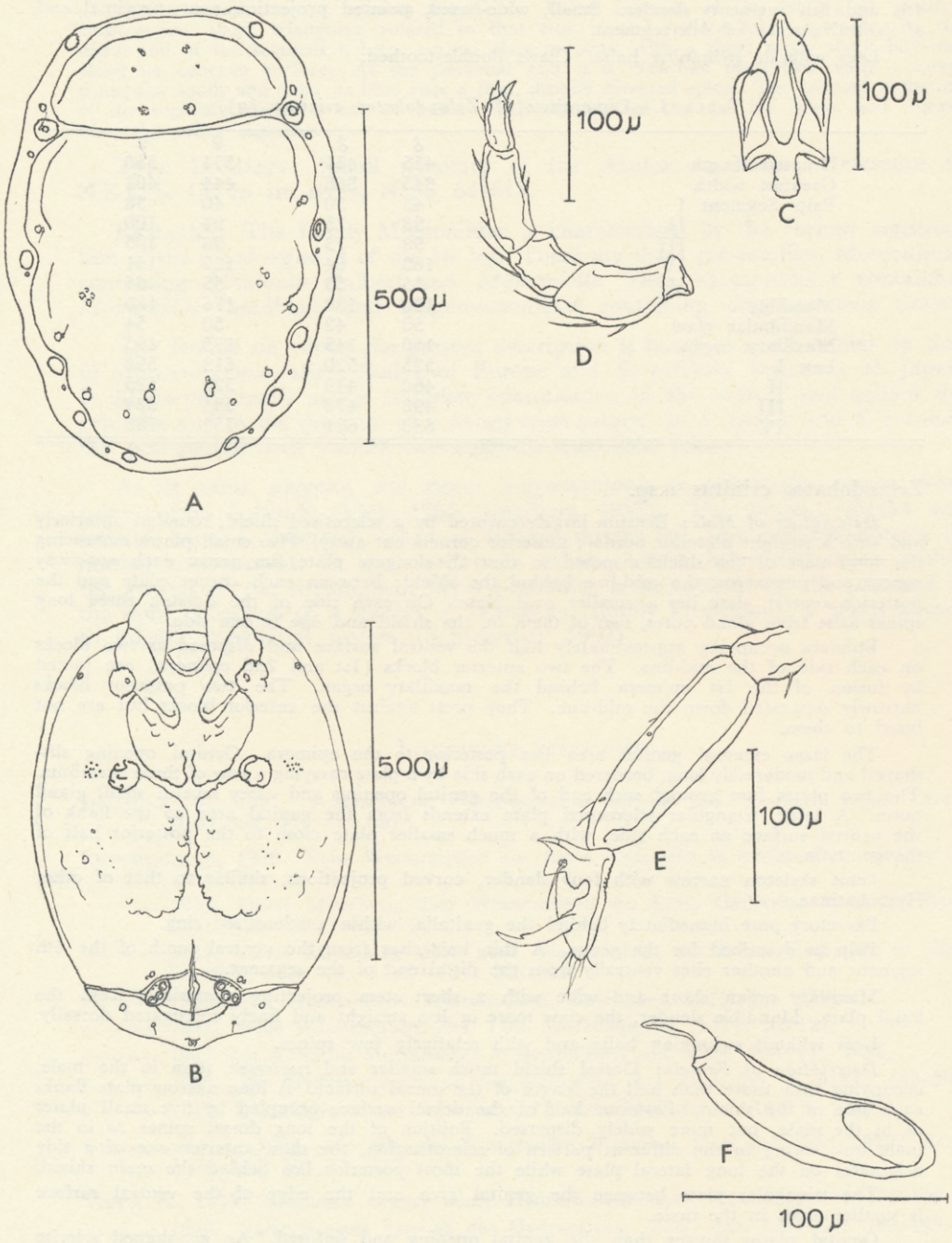
Description of Female: Dorsal shield much smaller and narrower than in the male, occupying little more than half the length of the dorsal surface. A long narrow plate flanks each side of the shield. Posterior half of the dorsal surface occupied by five small plates as in the male, but more widely dispersed. Position of the long dorsal spines as in the male but, owing to the different pattern of sclerotisation, the most anterior one of a side originates on the long lateral plate while the most posterior lies behind the main shield.

The triangular plate between the genital area and the edge of the ventral surface is smaller than in the male.

Genital plates shorter than the genital opening and unfused. An arc-shaped sclerite lies across the anterior end of the opening and a small, rectangular sclerite across the posterior.

In other respects the female is similar to the male.

TYPE LOCALITY: Makahika Stream, a tributary of the Ohau River. Reference in N.Z.M.S. 1in to 1m series, N152, 921024.



Text-fig. 2.—*Stygomomonia torquipes*, female. A, Dorsal. B, Ventral. C, Maxillary organ. D, Left palp. E, First leg, segments 5 and 6. F, Mandible.

REMARKS: The form of the 4th segment of the palp, with its ventral tooth-like process, distinguishes the new genus from most other members of the Hygrobatinae. Other genera possessing this character are listed below with features which distinguish them from *Zelandobates*. *Corticacarus* Lundblad and *Corticacarides* Lundblad have the male genital opening Y, T or heart-shaped and the genital plates triangular. The skin is thick. *Subcorticacarus* Lundblad has the whole ventral surface sclerotised and the epimera fused to the plate so formed. *Stylohygrobates* Viets has the maxillary organ elongated into a rostrum. *Crenohygrobates* Lundblad has the male maxillary organ fused to the 1st epimera and the genital plates carry many acetabula.

TABLE II.—Dimensions of *Stygomomonia torquipes* (μ).

	♀
Greatest length	676
Greatest width	449
Palp I	20
II	54
III	50
IV	73
V	27
Mandible	98
Mandibular claw	24
Maxillary organ	115
Leg I	466
II	461
III	494
IV	708

Family MOMONIIDAE

Subfamily STYGOMOMONIINAE

Genus STYGOMOMONIA Szalay, 1943

Stygomomonia torquipes n.sp.

MATERIAL: One female now lodged in the Dominion Museum, Wellington. Parts illustrated in Text-fig. 2 and dimensions shown in Table II.

Holotype female, dated 26.10.1964. Dominion Museum Catalogue number DM4/345.

DESCRIPTION: Body flattened, oval, entirely sclerotised apart from a narrow band of soft skin separating the dorsal from the ventral plate. A suture crosses the anterior half of the dorsum dividing the dorsal plate into two. A suture passes across the ventral surface, interrupted centrally by the external genitalia.

Epimera fused to the sclerotised ventral surface and occupying rather more than half of it, their inner borders clearly outlined.

Genital area lying in a gap in the sclerotised ventral surface, well behind the epimera. The gap takes the form of an oval lying transversely across the body and its hind border is strongly thickened. At each end of the oval is a small, obliquely placed genital plate carrying three acetabula. Genital opening a longitudinal slit.

Excretory opening on the sclerotised area behind the genitalia.

Palp moderately slender. Ventral surface of 2nd and 3rd segment concave, of 4th segment slightly convex. Two short spines approximately half way along ventral surface of 4th segment.

Maxillary organ small with short rostrum. A tongue-shaped stem projects posteriorly from the basal plate. Mandible short with the claw slightly curved and corrugated ventrally

Legs lacking swimming hairs. Second to fourth legs of normal shape and each claw carrying a dorsal, curved, spinous projection. Distal segment of the 1st leg of peculiar construction, short, triangular, rotated so that true ventral surface faces upwards. At the distal end of the segment a long, curved claw projects, with a short tooth about half-way along its concave surface. At the proximal end is a claw-like projection with a large, triangular tooth and from its base rises a thin, distally directed spine. The pointed extremity of the segment carries a tuft of hairs. Fifth segment of the 1st leg larger and thicker than the other segments.

TYPE LOCALITY: Small tributary of the Akatarawa River. Reference in N.Z.M.S. 1in to 1m series, N156, 642619.

REMARKS: The family Momoniidae is characterised by the curious construction of the distal segment of the 1st leg. There are three sub-families, Momoniinae containing *Momonia* Halbert and *Momoniella* Viets, Momonidinae containing *Momonides* Lundblad, and Stygomomoniinae containing *Stygomomonia* Szalay.

The female on which the present description is based is quite similar to that of *Stygomomonia latipes* Szalay of Europe and *S. rotunda* Imamura of Japan. It differs principally in the complete sclerotisation of the ventral area behind the genitalia and in the presence of a dorsal cross suture. In *S. latipes* and *S. rotunda* the post-genital area carries two separate sclerotised plates.

As its name suggests, the genus *Stygomomonia* is principally known from subterranean habitats (Viets 1955, Imamura 1957). The present species was isolated from a collection taken in surface waters but was perhaps outside its normal environment. It may well be a member of an interstitial fauna within the gravels of the stream bed. This possibility is heightened by the presence in the same collection of a species of *Wandesia* (family Protziidae), a genus known to inhabit interstitial waters (Schwoerbel, 1962).

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