7. APPENDICES

APPENDIX 7.1 - Revision of the Patagonspididae (Syncarida: Crustacea).

Introduction

The Patagonaspididae is a monospecific family of moderate sized, groundwater Anaspidacea that has been recorded only from southern, central Argentina in southern South America. The family currently includes only one species, *Patagonaspides sandroruffoi* Grosso & Peralto 2002. It is the largest of the South American Syncarida reaching over 7mm in length and is an obligate groundwater species as indicated by being entirely blind and unpigmented. Unlike all other South American syncarids which occur in the hyporheic environments of rivers, Patagonaspides was collected from a groundwater bore, although no details are given of the aquifer type. Nothing is known of their biology although the ecosystem from which they were collected from had a high groundwater biodiversity of stygobitic species such as Protojaniridae Isopoda and Bogidiellidae Amphipoda.

This paper presents a revision of the taxonomy of the Patagonaspididae. The illustrations presented are intended to give a representation of the features of this family.

Taxonomy

Family PATAGONASPIDIDAE Grosso & Peralto 2002

Diagnosis

Modified from Grosso & Peralto 2002

Medium sized Stygocaridacea; small bilobed rostrum articulated below anterior margin of cephalic capsule; eyes absent; bilobed telson, with setose quadrangular lobes remarkably separated; anus ventral; mandible without palp or processus incisivus accessorius; mandibular masticating surface setose; maxillula without palp ; lateral endite with a row of denticles and a huge terminal denticles; maxilla with only three endites and a setiferous row with an elongate medial margin of medial lobes; maxilliped eight segmented; coxa and praeischium with expanded setose medial lobe, without epipodites or exopodites; unisegmented exopodites of thoracopods 2-6 with appearance of a ribbon with eight elongate terminal setae; two epipodites on Thoracopod 2-7; pleopods 1-5 with vestigial exopodites only; uropod protopod with a setose row and elongate medial margin; exopodite with two segments shorter than unisegmented endopodite.

Remarks

The presence of a bilobed or deeply cleft telson is unique among adult Anaspidacea although a very similar telson structure is seen in the newly hatched *Anaspides* which also possesses a similar number of stout setae on the posterior margin. This is, therefore considered as a transition adaptation to inhabiting the interstitial environment as pointed out by Schminke's (1981a) 'Zoea Theory' in which interstitial syncarids

such as the Bathynellacea and Stygocarididae limit development and size and retain larval features. This feature of the Patagonaspididae therefore is suggested to be a transitional feature between the full telson of Psammaspididae and the reduced or absent telson of the Stygocarididae.

Genus *Patagonaspides* Grosso & Peralto 2002

Patagonaspides Grosso, L.A. & Peralto, M. 2002. Patagonaspides gen. n.; P. sandroruffoi n. sp (Crustacea, Syncarida). First phreatobite species of a new anaspidacean family discovered in Patagonia with cladistic analysis of Stygocaridinea (Anaspidacea). Bullettino del Museo Civico di Storia Naturale di Verona, Botanica Zoologia. 26: 105-118, Figs, 1-30, [106]. .

Type species

Patagonaspides sandroruffoi Grosso & Peralto 2002

Diagnosis

Generic diagnosis is the same as Family at this time.

Species Composition

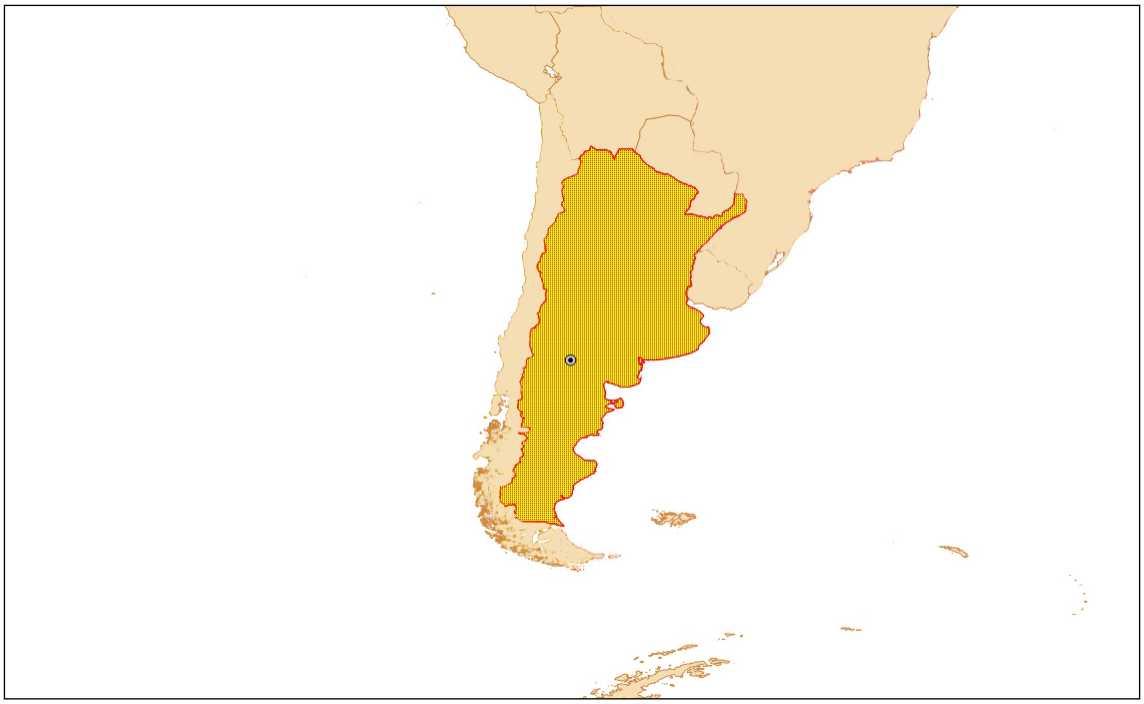
Patagonaspides sandroruffoi Grosso & Peralto 2002

Patagonaspides sandroruffoi Grosso & Peralto 2002

Patagonaspides sandroruffoi Grosso, L.A. & Peralto, M. 2002. Patagonaspides gen. n.; P. sandroruffoi sp.n. (Crustacea, Syncarida). First phreatobite species of a new anaspidacean family discovered in Patagonia with cladistic analysis of Stygocaridinea (Anaspidacea). Bullettino del Museo Civico di Storia Naturale di Verona, Botanica Zoologia. 26: 105-118, Figs, 1-30, [107]. .

Type Locality

Allen, Rio Negro, Argentina, Patagonia, South America.



Map 7.1.1 Distribution of the Patagonaspididae in Argentina, South America.

Type Material

(FML 00391), In a well at 12m, Allen, Rio Negro, Argentina, Patagonia., South America, Alt 253m, Zone 19, 599558.55m E, 5680744.81m S, Sheehan, K., 01-May-1998. Deposited in the Museo Civico di Storia Naturale di Verona, Italia and Fundaciòn Miguel Lillo, Argentina.

Diagnosis

Species diagnosis is the same as genus at this time.

Habitat

Collected from a well at 12m depth in the phreatic zone of a shallow, alluvial, unconfined aquifer. Associated fauna includes Protojanirdae (Isopoda) and Bogidiellidae (Amphipoda)

Distribution

Only occurs in type locality. It is found in only one location in a well near Allen, on the Rio Negro, in Argentina, Patagonia, and South America.

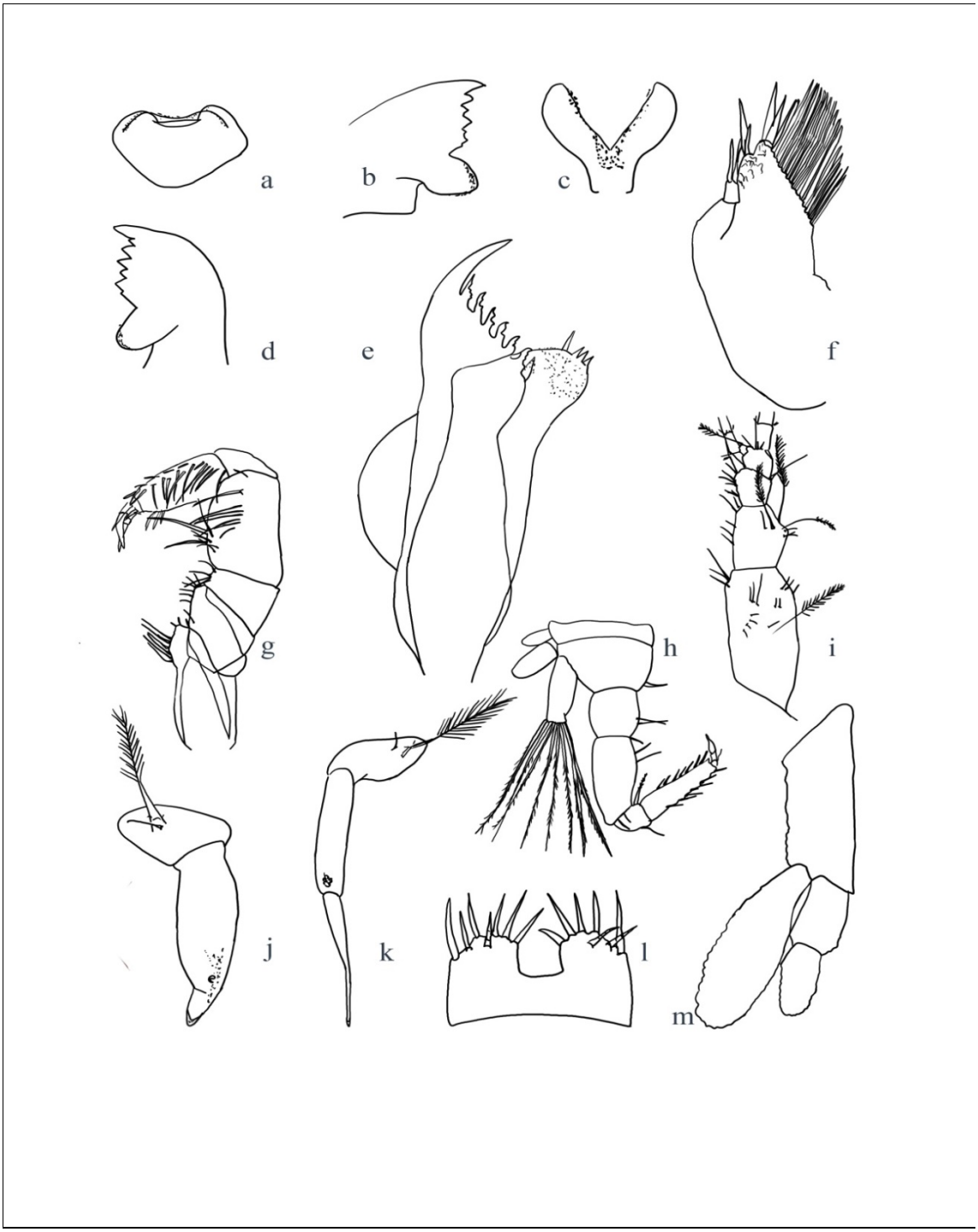


Figure 7.1.1. Patagonaspididae. Reproduction of *Patagonaspides sandroruffoi* from Grosso & Peralto 2002: a- labrum; b- right mandible; c- paragnath; d- left mandible; e- maxillula; f- maxilla; g- maxilliped; h- thoracopod 2; i- base of antennula; j- male pleopod 1; k- male pleopod 2; l- telson; m- uropod.

APPENDIX 7.2 - Revision of the Stygocarididae (Syncarida: Crustacea) with new records from Tasmania, Australia.

Introduction

The Stygocarididae are a small family of tiny, groundwater Stygocaridacea that have been recorded from southern South America, New Zealand, and the south east region of Australia (Schminke 1982). The family currently includes ten described species in four genera. They are characteristically small, ranging in size between about 1.4 and 4.2 mm long, and are highly adapted stygobites (obligate groundwater fauna). They occur in the cool, entirely freshwater subterranean waters of alluvial aquifers, limestone caves and most commonly in the interstitial, hyporheic zone habitats of groundwater fed steams. Almost nothing is known of their biology although they probably have similar feeding habits to the Bathynellacea (Schminke 1982) such as the consumption of detritus and, possibly, bacteria and fungi. Their intercontinental distribution and the primitive elements of their morphology demonstrate that they represent an ancient group of crustaceans that predate the breakup of Gondwanaland. The advance adaptation of their morphology for an obligate subterranean existence suggests that they colonised the subterranean interstitial habitats at an early these adaptations are comparable in degree to those of the older cosmopolitan groundwater Syncarida, the Bathynellacea, and includes significant reductions and modifications of appendages such as the reduction in pleopods, antennal segments and the complete loss of eyes. Their very small size and the general lack of specialised sampling of appropriate habitats has no doubt contributed to the small number of described species for a group that spans three major landmasses.

This paper presents a revision of the taxonomy and classification of the Stygocarididae and presents the first records of Stygocarididae discovered in Tasmania. Three new genera are also established to separate the South American, Australian and New Zealand taxa. These include: *Tasmanocaris*, a new genus encapsulating the Australian species *T. giselae* and four new species locations in Tasmania; *Argentocaris, a* new genus from South America now comprising *A.hugofernandezi, A. clapsi* and *A. schminkei*; and *Zealandocaris, a* new genus with *Z. townsendi* from New Zealand. The illustrations presented are not intended to demonstrate every species of Stygocarididae but instead give a representation of the features of each genus using one species.

Figure 7.2.1. Stygocarididae, *Tasmanocaris* n. sp. from Tasmania.

Abbreviations

Institutional Abbreviations

Prefixes of registration or catalogue numbers for the Institutions referred to in the text, tables and figures.

FML - Museo Civico di Storia Naturale di Verona, Italy and Fundaciòn Miguel Lillo, Argentina.

QVM - Queen Victoria Museum and Art Gallery, Launceston, Australia.

Taxonomy

Classification of the Stygocarididae and Patagonaspididae

Table 7.2.1. Checklist of Species

Superorder SYNCARIDA Packard 1885
Order STYGOCARIDACEA Noodt 1965
Family Stygocarididae Noodt 1963
Argentocaris n. gen.
Argentocaris hugofernandezi (Grosso & Peralto 1997)
Argentocaris clapsi (Grosso & Peralto 1997)
Argentocaris schminkei (Grosso & Peralto 1997)
Oncostygocaris Schminke 1980
Oncostygocaris patagonica (Noodt 1963)
Parastygocaris Noodt 1963
Parastygocaris andina Noodt 1963
Parastygocaris goerssi Noodt 1963
Stygocarella Schminke 1980
Stygocarella pleotelson Schminke 1980

Stygocaris Noodt 1963

Stygocaris gomez-millasi Noodt 1963

Tasmanocaris n. gen.

Tasmanocaris giselae (Schminke 1980)

Zealandocaris n. gen.

Zealandocaris townsendi (Morimoto 1977)

Family STYGOCARIDIDAE Noodt 1963b

Diagnosis

Modified from (Noodt 1963b).

Small to minute (<5mm), slender stygocaridacean; eyes absent; rostrum present; thin integument; telson reduced to furcal rudimentary; telson and uropods not forming a flattened fan; seminal receptaculum in females small; antennula statocycts with two large, ball setae; antenna without scaphocerite; mandible with penicillate setae between the molar and incisor processes; maxilla with four segments; thoracopods 2-7 with two epipodites; thoracopod 2-6 exopodites reduced or absent; pleopods 2-5 reduced; uropod exopodite biramous; male pleopod 2 distal segment of endopodite ≥ to the proximal segment with a laterally hooked or spear shaped terminal point; male pleopod 2 distal segment blade shaped with a thick ridge on the medial margin and lateral margin tapering to a fine edge; uropod rami consists of a one to two segment lateral and single segment medial appendages.

Key to the Genera of the Stygocarididae

1. Stygocaridaceans of minute size (0.5-3mm), blind, white or translucent, telson reduced to a rudimentary furca and two rounded anal lobes, antennula medial flagellum with two or three segments, thoracopod exopodites 2-6 absent or cylindrical uniramous with two terminal setae, exopodite or exopodite of uropod 1-2 segments, and endopodite or endopodite one segmented.

Family Stygocarididae. **2.**

2. Rostrum, single lobe, tongue shaped. **4.**

3. Rostrum single lobe with medial cleft or bilobed**.** **12.**

4. Rostrum distally rounded, flattened or rectangular. **6.**

5. Rostrum distally pointed. **8.**

6. Thoracopod exopodites absent, male pleopod 1 two segmented with distal segment vertically bilobed with sub-terminal distal hooks, distal segment medially directed with a laterally tapered distal margin at midline and an acutely pointed apex.

Argentocaris **7.**

7. Thoracopod exopodites single tubular segment with plumose setae, male pleopod 1 single segment vertically bilobed without distal hooks and laterally directed with a blunt apex.

Parastygocaris.

8. Male pleopod 2 with two segments subequal in length **10.**

9. Male pleopod 2 segments unequal (proximal segment much shorter than distal segment **11.**

10. Male pleopod 1 with one segment, no medial groove and an acutely pointed spine on the distomedial corner, male pleopod 2 segments subequal in length, proximal segment with subdistal coupling hooks and a distal segment with a broad, laterally tapered edge and harpoon-like distolateral**.**

Stygocaris.

11. Male pleopod 1 with two segments, a medial groove on distal segment and no spine on the distomedial corner, proximal segment with medial coupling hooks and distal segment an elongate stylet with an acutely pointed distal knob.

Stygocarella.

12. Rostrum single lobe with small medial cleft, male pleopod 1 with two to three segments, distal segment with medial groove, uropod exopodite single segment.

Tasmanocaris. **13.**

13. Rostrum anterior margin with deep cleft, male pleopod 1 with two segments, distal segment an elongate, medially directed triangle with a serrate medial margin, uropod exopodite two segments, uropod exopodite proximal segment without shield-like extension, distal rami with one long seta and one short, hook-shaped seta, pleonite 5-6 posterior margin without a row of short setae.

Oncostygocaris. **14.**

14. Rostrum bilobed, male pleopod 1 horizontally bilobed, uropod lateral two segments, proximal rami with dorsal shield-like extension, distal rami without hook-shaped setae, pleonite 5 and 6 posterior margin with a row of short, robust setae. ***Zealandocaris.***

Remarks

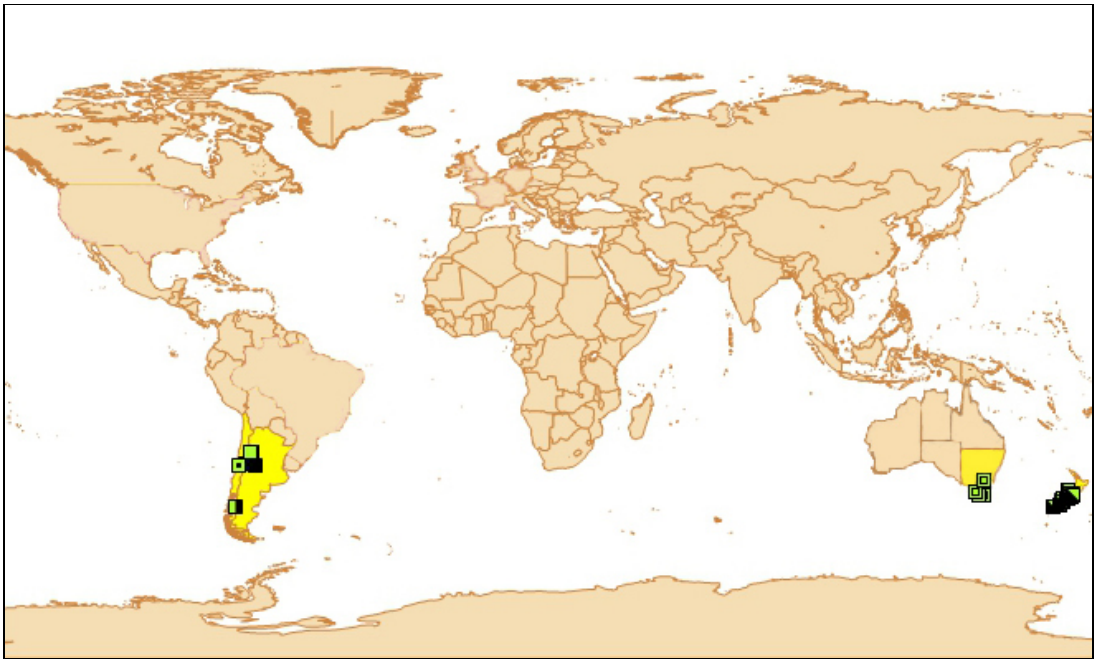
The first species of the Stygocarididae was originally assigned by Noodt (1963b) to the family Stygocaridae although the exact systematic position was unclear to him at the time. The creation of a new family was necessary to accommodate *Stygocaris gomez-millasi* Noodt 1963b as its characters did not clearly correlate with any of the known species of Syncarida at the time. He tentatively placed it with the Anaspidacea. In 1965, Noodt erected a new order to accommodate this new family, the Stygocaridacea Noodt 1965, and subsequently in the same publication renamed the family Stygocaridae to Stygocarididae to conform to proper Latin construction. The original family name Stygocaridae is however, sometimes still found in more recent publications (Camacho & Valdecasas, 2008). Noodt described a lacinia mobilis as a diagnostic character however this was discussed by Gordon (1964) who changed the interpretation of this feature to represent a part of the spine row and not the lacinia mobilis. She refers to them as penicillate setae.

Biology

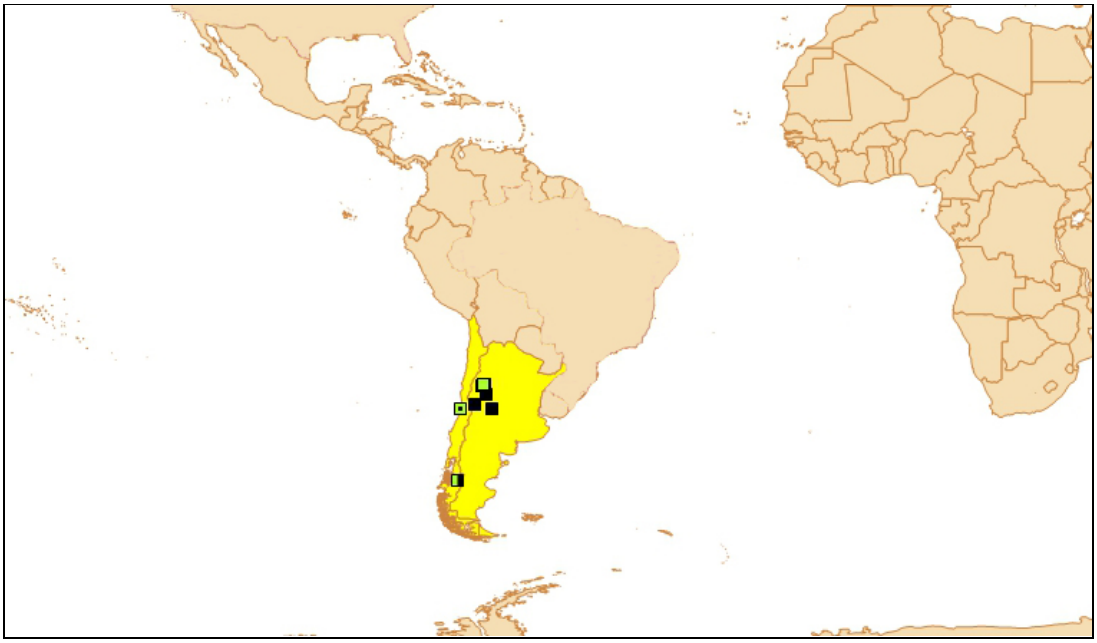
Stygocarids are probably algal/diatom/ bacterial grazers on sand grains. They occur in the surface and interstitial/hyporheic water of groundwater dependent wetlands, streams, and karsts/caves. There is very little none about the biology of this group.

Geographic Distribution

The Stygocarididae are currently known from South America, Australia and New Zealand. Previously only one species was recorded from Australia from one site in northern Victoria however, new species are now also known from northern Tasmania with all species being grouped within the same genus, *Tasmanocaris.* There is no doubt that further surveys of groundwater and riverine hyporheic zones will reveal many more species particularly along the southeast and eastern regions of Victoria and the central highlands of Tasmania.

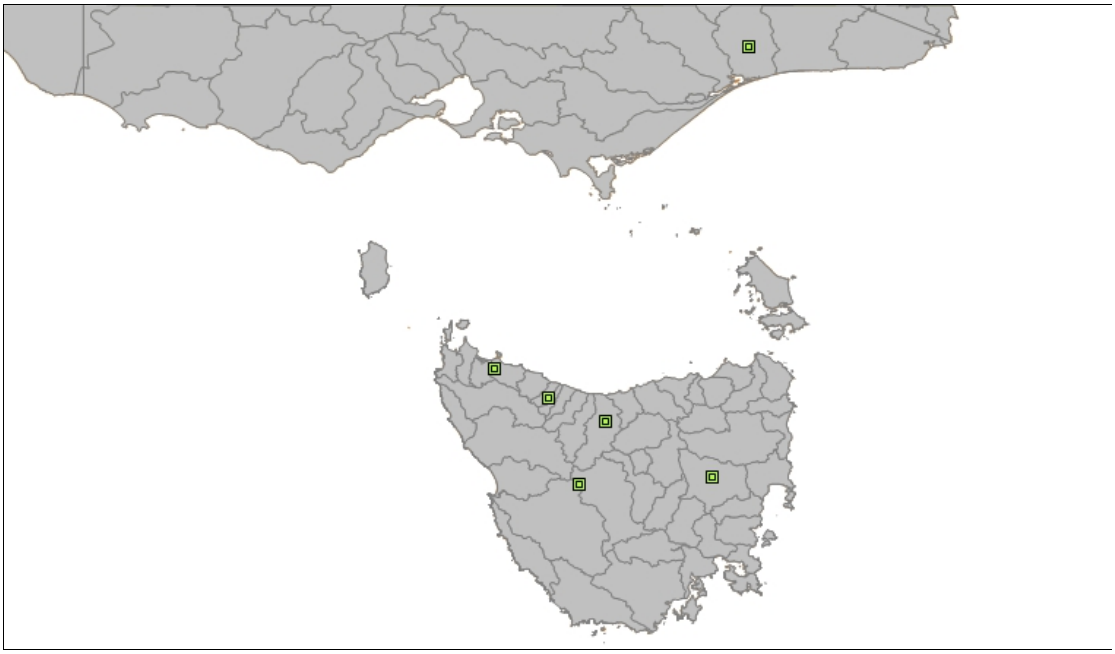


Map 7.2.1. World distribution of the Stygocarididae. For genus legend see in below maps.

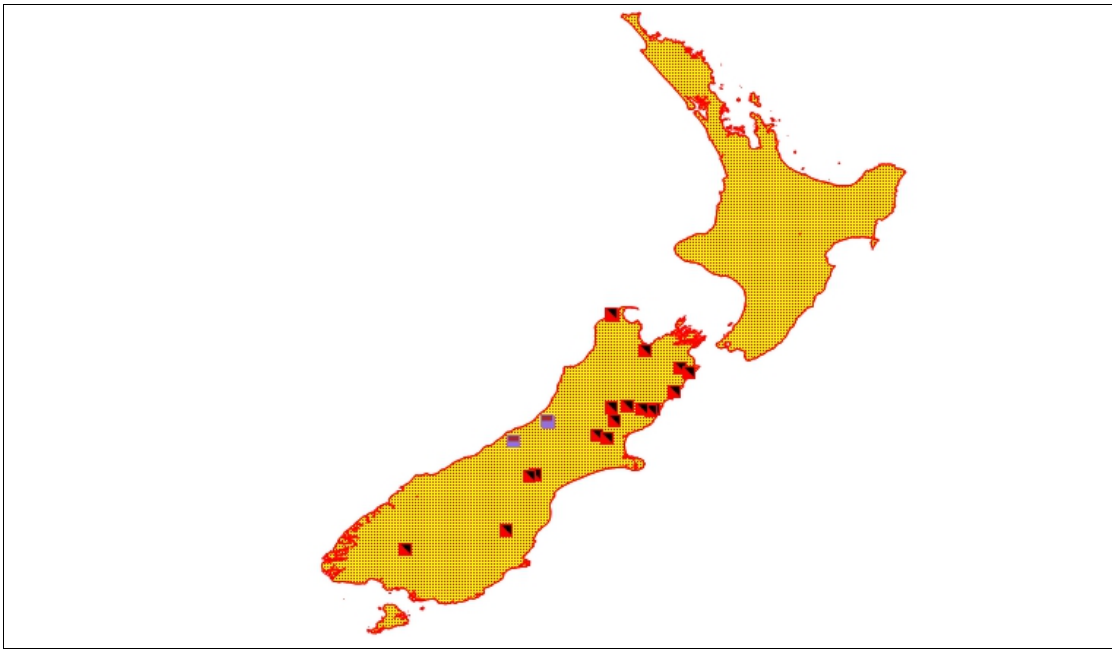


Map 7.2.2. Distribution of the Stygocarididae in South America.

Legend symbols: *Argentocaris* - ☐ hollow square; *Parastygocaris* - ■ black box*; Stygocaris* - ⊡ hollow box with black central dot; *Oncostygocaris* - vertical half hollow and half black square.



Map 7.2.3. Distribution of Stygocarididae in Australia.
Legend symbols: *Tasmanocaris* - Hollow box with white central dot.



Map 7.2.4. Distribution of Stygocarididae in New Zealand.
Legend symbols: *Stygocarella* - square with horizontal half black/half blue; unidentified Stygocarididae - square with diagonal half black/half red.

Argentocaris n. gen

Type species

Parastygocaris clapsi Grosso & Peralto 1997

Etymology

Named after the country, Argentina, South America, in which the first species P. clapsi was recorded.

Diagnosis

Rostrum single square or tongue shaped with one small setule on each lateral margin.

Right mandible with one lateral bicuspid denticle, three large subequal denticles and a medial row of four smaller denticles either subequal of with the outer ones slightly larger; spine row with one to two bifid plumose setae.

Maxillula medial endite with four subequal, short pectinate spines, medial spine may be shorter.

Maxilla with four subequal lobes; maxilla medial endite with a row of 8-10 elongate plumose setae along entire medial margin; paragnath two segmented, elongate, distally rounded with a horizontal suture.

Maxilliped basis with distomedially extended lobe with plumose setae on apex and subapically on medial margin.

Male pleopod 1 a single spatulate, elongate, sharply triangular appendage with 2 lobes; dorsal lobe longer than ventral lobe with medially truncated distal tip with small notches on the distolateral margin; ventral lobe with an acute apex, two strongly curved, acutely pointed posteriorly directed hooks, and with a small medial endite near midline with a single spine or one to two elongate coupling hooks.

Male pleopod 2 with two to three narrow, elongate segments with an acutely pointed apex; proximal segment is elongate, basally broad and truncated distally with one subdistal spine or elongate coupling hook on medial margin; the distal segment forms a narrow elongate stylet with a laterally tapered, blade - like edge and a sharp, harpoon-like distolateral extension terminating in a diagonal straight edge to the apex.

Telsonic plate has a sinuous distal margin, but does not cover the lateral and distal margin of the lateral lobes; each laterodistal corner has 1 small spine; anal lobes have no dorsal are raised mounds with three robust, serrate laterodistal spines; the lateral spine is 2x length of medial spines; uropod exopodite with two segments.

Species Composition

Argentocaris clapsi

Argentocaris hugofernandezi

Argentocaris schminkei

Remarks

One of the taxonomic issues with the Stygocarididae has been the differentiation of the segmentation of the appendages of the male petasma. Although the structures are almost identical between the species both appendages have been variously illustrated with differing numbers of segments. This can be seen in the pleopod 1 dorsal lobe in *A. hugofernandezi* and pleopod 2 in *A. clapsi*. This ambiguity can create issues particularly if the number of segments is used diagnostically to distinguish between, for example a plesiomorphic or apomorphic condition. In this case this feature has essentally been left out in grouping these three species, with the overall shape of structure being used instead.

New terminology is presented here (as mentioned in Chapter 1) to describe the telson/anal operculum (telson or telsonic plate) region. The telsonic plate has a sinuous distal margin, but does not cover the lateral and distal margin of the lateral lobes. The anal lobes is a new term to describe the broad lobes positioned under the telsonic plate with each subdivided into an anal 'lobula globosa', which are positioned on each side of the anal opening and the 'lobular rudimenta', which are raised mounds that bear lateral setae.

Argentocaris clapsi (Grosso & Peralto 1997)

Synonymy

Parastygocaris clapsi Grosso, L.A. & Peralto, M. 1997. Parastygocaris clapsi n. sp., a new syncaride Stygocarididae from the hyporheic zone of the Aicuna river (La Rioja, Argentina). Neotropica (La Plata). 43(109-110): 27-34,Figs. 1-14, [28].

Type locality

Aicuna River, Sierras de Famatina, La Rioja, Argentina, South America

Type Material

Holotype: FML. 00437, 1 male. Aicuna River, Sierras de Famatina, La Rioja, Argentina, South America , Alt 1163m, Zone 19, 586669.99m E, 6731188.35m S, Grosso, L. , 22-August-1980. Deposited in the collection of invertebrates from the Fundaciòn Miguel Lillo.
Paratypes: FML. 00450, 1 female; FML. 00451, 260 juveniles from type locality.

Diagnosis

Rostrum quadrangular length = width; sexual dimorphism in the medial flagellum of the antennula; statocyst with no extermal setae; labrum with a medial concavity on posterior surface; left mandibular molar areabwith a denticle and two pectinate setae in the diastema; medial endite of maxillula clearly

shorter that the lateral one; pleopod 2 three segmented with the distal segment forming a narrow elongate stylet with a laterally tapered, blade -like edge and a sharp, harpoon-like distolateral extension terminating in a diagonal straight edge to the apex; maxilla medial endite with low numbers of spines; maxilliped basis-praeischium with low numbers of spines; male pleopod 1 ventral lobe with 1 pair of coupling hooks and no other setae; uropods with low numbers of spines.

Redescription

Based on illustrations from Grosso & Peralto (1997)

Body size of male 1.16mm; colouration white when preserved and translucent or colourless when alive.

Rostrum quadrangular with slight median concavity on anterior margin; one simple setae in posterolateral corner.

Antennula peduncle of three segments; basal segment as elongate as the two successive segments; statocyst with two ball setae; statocyst opens in a slit in the middle of the dorsal surface directed posteriorly; lateral flagellum with eight segnents; medial flagellum with three segments.

Antenna peduncle with four subequal segments; flagellum with eight segments.

Labrum ovoid with shallow dorsomedial concavity; anterior surface covered with short fine setules.

Mandibles consists of an incisor process, two lobes/spine row and a grinding molar process; molar process consists of elongate grinding surface composed of short setae; spine row consists of two spines connected at the proximal margin each with fine setae covering the apex; small patch of elongate fine setae on the dorsal surface between the molar process and the spine row; right incisor process with six triangular denticles consisting of one small denticle on dorsolateral margin below first lateral incisor denticle; two large lateral denticles with the second denticle larger; three smaller subequal denticles; left incisor with nine denticled that consist of three large subequal lateral denticle, two subequal broad denticles and four smaller subequal denticles.

Paragnath with two separate lobes; each lobe is oval shaped and articulated on a quadrangular protopod; fine setae covering the anterior medial margin and corner.

Maxillula medial endite rounded distally with four short, robust spines and elongate fine simple setae slightly elongate than the spines; patch of fine setae on the medial margin; lateral lobe with 9-10 short stout spines on apical surfacE.

Maxilla with five lobes; lateral lobe with one sundistal lateral serrate setae and two elongate apically serrate setae; second lobe with three elongate apically serrate setae; third lobe with two elongate apically serrate setae; fourth lobe with two elongate apically serrate setae; fifth (medial) lobe with two elongate apically serrate setae; fifth lobe medial margin with a row of eight serrate setae each with a globular proximal margin.

Maxilliped with 7 segments; coxa with extended quadrate ventrodistal lobe; lobe with elongate hirsute setae on ventral margin opposite coxal- basis joint; lobe apical margin with six short robust hirsute setae; basis broad with12 short robust hirsute setae; ischium square with two short robust hirsute setae on

distoventral corner; merus twice as elongate as wide with one short robust hirsute setae on subdistal ventral margin and four simple setae on medial surface; carpus triangular with one short robust hirsute setae on disto ventral corner and one simple setae on distodorsal corner; propodus twice as elongate as wide with two robust hirsute setae on ventral margin, three elongate simple setae on subdistal dorsal margin; dactylus with two claws and a fine simple setae between thwem on medial margin.
Thoracopods 2-7 coxa with two epipodites, distal one twice size of the other; thoracopods 2-6 basis with one expopod and one subdistoventral plumose setae; exopodite with two apical elongate plumose-setae; thoracopods dactylus 2 -4 with two unequal claws; thoracopods dactylus 5-7 with one claw.
Male pleopod 1one spatulate; apex sharply pointed with two subdistal posteriorly directed hooks; two coupling setae ¾ along on each medila margin.
Male pleopod 2 divided into three segments; segment 1 (protopod) elongate length to width ratio approximately 5:1; two coupling setae 5/6 along on each medila margin; second segment length to width 2:1 with three striae on lateral margin; segment three styliform with broad serrations and groove along most of medial margin; terminal end spear shaped and sharply pointed with subapical denticle in medial margin.

Habitat

Collected from the hyporheic zone a coarse sand and gravel bed river.

Distribution

Known only from type location.

Argentocaris hugofernandezi (Grosso & Peralto 1999)

Synonymy

Stygocaris hugofernandezi Grosso, L.A. & Peralto, M. 1999. First Stygocaris species (crustacea, syncarida) discovered at Eastern Andes. S. hugofernandezi n. sp. Physis Secciones (Buenos Aires) 57(132-133): 39-44, figs. 1-19, [39].

Type locality

Rio Miranda, La Rioja, Argentina, South America.

Type Material

Holotype male (FML 00458), 10 paratypes females and 10 paratype males (FML 00459) and 47 juveniles (FML 00460), Rio Miranda, La Rioja, Argentina, South America (29 ° 23'S, 67 ° 42'W). Water temperature 8 ° C, pH -6, collected 3/7/1985. Deposited in the collection of Invertebrates, the Fundaciòn

Miguel Lillo. Interstitial material collected by Fernandez, H with the Karaman-Chappuis method.

Diagnosis

Rostrum quadrilateral length< width; labrum medial posterior margin round; statocyst with one plumose setae externally; male pleopod 1 with a small medial endite near midline with one simple spine and numerous short, robust plumose setae; male pleopod 2 with two narrow, elongate segments with an acutely pointed apex; proximal segment is elongate, basally broad and truncated distally with one subdistal spine or elongate coupling hook on medial margin; the distal segment forms a narrow elongate stylet with a laterally tapered, blade -like edge and a sharp, harpoon-like distolateral extension terminating in a diagonal straight edge to the apex.

Redescription

Based on illustrations from Grosso & Peralto (1999)

Male body length 1.09 mm and female maximum length: 1.12mm; cephalon and all body segments with one and two pairs of dorsal setae and one and two setae on ventral margin of each epimera; one large lateral plumose spine on pleonites 2-5; telson/anal operculum lobes rounded, with three robust spines, the lateral insertion simple and superior to the other two, the median simple and longest and the medial with a small section of spinules in the middle area.

Rostrum subrectangular, anterior margin entire; one short, simple setae on each latero-posterior margin. Antennula with three peduncle segments; lateral flagellum with six segments; peduncular segment 1 less than or equal to the following two segments; statocyst with one elongate plumose latero-dorsal insertion; three elongate simple distal spines and one dorsal simple spine on distal margin of segment, three short simple spines, inserted lateral the same height as the dorsal spine; peduncular segment 2 with a distolateral, irregular extension a robust dorsal setae , the medial elongate and pectinate, transversely aligned, and 2 distal medial spines simple; peduncular segment 3 with one distolateral simple setae, one simple distal medial setae and four distomedial simple spines; flagellum segment 1 wider than elongate, distal margin with three simple spines; flagellum segment 2 distal margin with one simple lateral and three distal medial spines; flagellum segment 3 with one aesthetasc pedunculate and simple segmented distal spine and one medial; flagellum segment 4 with one distolateral spine mediodistal, with one, two and four distal simple spines and medial aesthetascs; 5th segment with one distal simple spine; 6th segment with one aesthetasc and four simple terminal spines, one elongate; medial flagellum segment 1 with two laterodistal spines, one dorsal and two singles and one distal medial plumose spine; medial flagellum segment 2 with two mediodorsal simple spines and four elongate simple terminal spines; antenna peduncle with four segments; flagellum with three segments; peduncular segment 1and 2without spines; peduncular segment 2 and 3 of equal length, elongate than the first; peduncular segment 3 with two lateral medium simple spines and four medial simple; peduncular segment 4 with one robust spine which reaches the end of the second flagellum segment and one distal lateral simple spine, distomedial margin with five simple spines and two ventral

spines groups with three dorsodistal spines and a group of four distal medial spines, three elongate ventral spines in distal third and two spines on the medial margin; flagellum segment 2 with three distal lateral spines and five distal medial simple spines; flagellum segment 3with five terminal simple spines.
Left mandible with nine denticles on the incisor process, with the three distal denticles on the same plane, perpendicular to the remaining six; one bifid spine in the diastema; one robust denticle on the margin of the box next to the diastema; right mandible with six denticles on the incisor process, the three proximal minors; one pectinate spine in the diastema, oblique to the molar area.
Maxillula medial endite rounded, which reaches the medial corner of lateral lobe; four distal spines and fine silks hair on the lateral margin; lateral endite with nine robust spines with broad-proximal margins, five lateral and four medial finely denticled and pectinate; two groups of fine setae on the medial margin.
Maxilla endite 1with four, the lateral margin with five spines, the medial most and outermost spines very short; endite 2 with four spines including three simple and one pectinate; endite 3 with four spines, two simple, one spinose and one finely denticulate; endite 4 with spine row of 10 spines.
Paragnath lobes oval, distal margin covered with fine setae dorsally.
Labrum triangular with fine setules on the anterior and medial surfaces.
Maxilliped with seven segments, without epipodites or exopodites; coxa with distomedial extension; coxa extension with six distal, short, robust, plumose spines; coxa extension with three medial spines; basis-preischium widened; medial margin with row of eight robust spines with three interspersed plumose setae; ischium with three elongate plumose spines on medial distal angle; merus with seven ventral spines; carpus with one elongate plumose spine on lateral distal margin reaching the distal end of the protopod; protopod ventral surface with two robust, plumose spines next to medial margin, lateral margin with one plumose spine and two distal, elongate, simple spines; dorsal surface with three robust, plumose spines; dactylus with two robust claws.
Thorcapods 2-6 with three distal segments directed backwards; coxa with two oval epipodites; remaining segments with one to three spines simple or plumose setae; thoracopod 2 dactylus with two claws; thoracopods 3-6 dactylus with one claw; thoracopod 7 with three distal segments pointing forward; coxae without epipodites, the remaining segments with setation similar to that of the preceding thoracopods; dactylus with one claw.
Male pleopod 1 two segmented consisting of basis and exopodite; basis unisegmented; proximal margin widely separated, truncated distally, with the acutely pointed and three large, proximally directed hooks on the subdistal lateral margin; two robust spines on medial margin extension, with a row of fine setae extending distally ¼ length of segment; exopodite soft bisegmented, distal segment with a row recurved pectinate on the medial margin.
Male pleopod 2 with two segments of equal length; proximal segment truncated with one short, distally directed, robust spine on the subdistal medial margin and a hemispherical row of minute simple setae on the subdistal ventral surface; distal segment tapering to an acute point with a lateral groove forming from third length to the distal apex; lateral margin of groove with a serrated margin.

Uropod protopod with spine row of four short, robust serrated spines on the distomedial half; one short, robust spine on the distolateral and distomedial corners; endopodite unisegmented, with three short and three elongate robust pectinate spines on the medial margin; three elongate, spines on the distal margin; two elongate, spines on the distolateral margin; exopodite bisegmented; proximal segment length to width ratio 1.6, segments next 1.6 times; three elongate, robust, pectinate spines on distolateral margin; distal segment rounded, and elongate than wide with four distal, elongate, pectinate spines and one distolateral pectinate spine;

Habitat

Inhabiting the hyporheic zone of course sand and gravel river beds.

Distribution

Known only from the Type locality.

Argentocaris schminkei Grosso & Peralto 1996

Synonymy

Parastygocaris schminkei Grosso, L.A. & Peralto, M. 1996. Discovery of a new Stygocarididae in an ancient area of endemism. *Parastygocaris schminkei* n. sp. (Crustacea, Syncarida). Physis (Buenos Aires). 54(126-127): Seccin B: 21-26, figs. 1-16, [21].

Type locality

Cuestas las Trancas, Cuestas de Miranda, La Rioja, Argentina, South America.

Type Material

Holotype male (FML - 00452) ; 26 paratypes (11 females, 15 males) (FML – 00438); Cuestas las Trancas, Cuestas de Miranda, La Rioja, Argentina, South America, Alt 1480m, Zone, 19, 628674.76m E, 6753931.31m S, collected by Fernandez, H, 04-July-1986. Deposited in the Invertebrate collection of the Fundacion Miguel Lilo.

Diagnosis

Rostrum distally rounded and length> width; labrum medial posterior margin flat; statocyst with several simple setae externally; male pleopod 1 with a small medial endite near midline with one simple spine and numerous small simple setules; male pleopod 2 with two narrow, elongate segments with an acutely pointed apex; proximal segment is elongate, basally broad and truncated distally with one subdistal spine

or elongate coupling hook on medial margin; the distal segment forms a narrow elongate stylet with a laterally tapered, blade -like edge and an acutely pointed apex.

Redescription

Based on illustrations from Grosso & Peralto (1996)

Male body lengh 1.09mm and female body length 0.58-1.36mm; cephalon rounded distally, elongate than wide; two lateral setae on the proximal third of lateral margin; telson/anal operculum (telson or telsonic plate) has a sinuous distal margin, but does not cover the lateral and distal margin of the lateral lobes; laterodistal corner with two small spines; anal lobes with no dorsal setae anal lobes (new term) are broad lobes positioned under the telsonic plate with each subdivided into an anal 'lobula globosa', which are positioned on each side of the anal opening and the 'lobular rudimenta', which are raised mounds that bear lateral setae; three robust, serrate laterodistal spines; the lateral spine is 2x length of medial spines.

Antennula total length of peduncle slightly less that length of flagellum; peduncle basal segment slightly larger than second and third combined, with a statocyst with two ball setae and with 2 spines in distal lateral entrance; medial margin with a shallow median depression in which distal margins have three to four simple setae; lateral margin convex with a robust, elongate spine in half of its length, other two small spines and a elongate spine on dorsolateral surface; peduncle second segment; distolateral margin a row of four simple spines and two elongate spines at the mediodistal margin; peduncle third segment; with three spines on medial margin , one on the lateral margin and one on distal margin; lateral flagellum with eight segments, with aesthetascs on the third, sixth and eighth segments; medial flagellum of three segments; peduncle segment 1 much broader than the second and third.

Antenna with four peduncular segments; flagellum with four segments; first antenna very short, spineless; second and third and fourth longest antennal articles, expanded on the lateral margins and has one or two elongate spines; fourth distal spine segment is pectinate and has a length equal to 2/3 the rest of the antenna; medial margin of third and fourth antennas provided three to four elongate spines, the rest of the antennas with two to five distal spines.

Labrum trapezoidal; front margin slightly concave, covered with fine setules on median triangular dorsal surface.

Left mandible; incisor process with nine denticles, three distal to the same plane and perpendicular to the remaining denticles; molar process, elongate, truncated with a robust molar denticle and triangular denticles nearest the diastema, which has one robust bifid spine with fine setae on apical margin; the nine denticle is made up of four from the incisor accessory process and five main denticles; right mandibular incisor process with six denticles; molar area with very small denticles oblique portion and one thick pectinate spine in the diastema.

Paragnath with two segments; oval with a cover of fine setae on medial and distal margin.

Maxillula medial endite glabose and shorter than the lateral lobe, with four robust, short spines with apical apex with setules hair, decreasing medially; lateral lobe with nine robust spines in apical margin and fine

setules on the distal third; maxilla with four lobes; lateral endite with five terminal spines, displaced; the next endite similar equipped with four spines; the third endite with three spines, two of which with robust setae; medial endite terminals equipped with four spines, and a spine row of seven robust lateral spines. Maxilliped with seven segments; coxa with a blunt mediodistal extension with five short, robust, plumose spines and three elongate plumose spines at the proximal margin of the extension; basis with small mediodistal extension with 10 plumose spines on mediodistal margin; merus with four plumose spines on the medial margin; propodus with four to five plumose spines on the mediodistal margin; dactylus with two claws and one simple spine.

Thoracopods 2-5 coxae with two oval epipodites; exopodite elongate, one segmented, with two terminal elongate plumose setae (very similar to *Patagonaspides*); the remaining segments with one or two spines each; thoracopod 2 dactylus with two claws; thoracopod 2-6 with one dactyl claw; thoracopod 7 coxa with two epipodites; no exopodite, the rest of the segments of spiny armour; dactylus with one claw; thoracopod 8 coxa without epipodites; no exopodite; dactylus with one claw.

Male pleopods 1 unisegmented elongate and sharply pointed; medial groove developed in distal half forming two lobes; dorsal lobe elongate than ventral lobe, forming elongate spatulate lobe with round apex; ventral lobe 2/3 length of other lobe, acutely pointed with two large lateral, anterior directed hooks below apex; medial margin of groove and medial margin of ventral lobe covered in fine setules; small ventral lobe 2x elongate than wide, anterior to beginning of bifurcation, with small stout spine on ventral subdistal surface.

Male pleopod 2 with two segments, with both segments of equal length. (coxa maybe missing); proximal segment 6x elongate than wide with two short simple seta in position where coupling hooks would be; the distal segment has a glabose laterodistal, concave groove extending from 1/4 length of segment to the apex with a acutely pointed scalpel shaped apex; medial margin of the groove is serrate; uropods protopod with six serrate spines on mediodistal margin, and two elongate spines on the laterodistal margin; exopodite segment 2 x elongate than the distal, with three robust spines in the middle; feathery margin and end angle with two plumose spines on medial distal angle; rami equal in length; exopodite 2 segmented; proximal segment with two robust plumose setae on laterodistal margin; distal segment with four very elongate, terminal, plumose spines; endopodite single segment with six very elongate plumose spines on the apex; four short, stout plumose setae on median middle margin.

Habitat

Inhabiting the hyporheic zone in a course sand and gravel bed river.

Distribution

Known only from type locality.

Remarks

One of the characteristic features of the Stygocarididae is the extended, quadrate, ventrodistal lobe of the coxa of the maxilliped. Morimoto (1977) and all previous authors including Noodt (1963a) in the original description, considered this feature a basal endite. This would imply that it was articulated off the coxa however, on closer examination it clearly shows it is simply an extension of the cuticle.

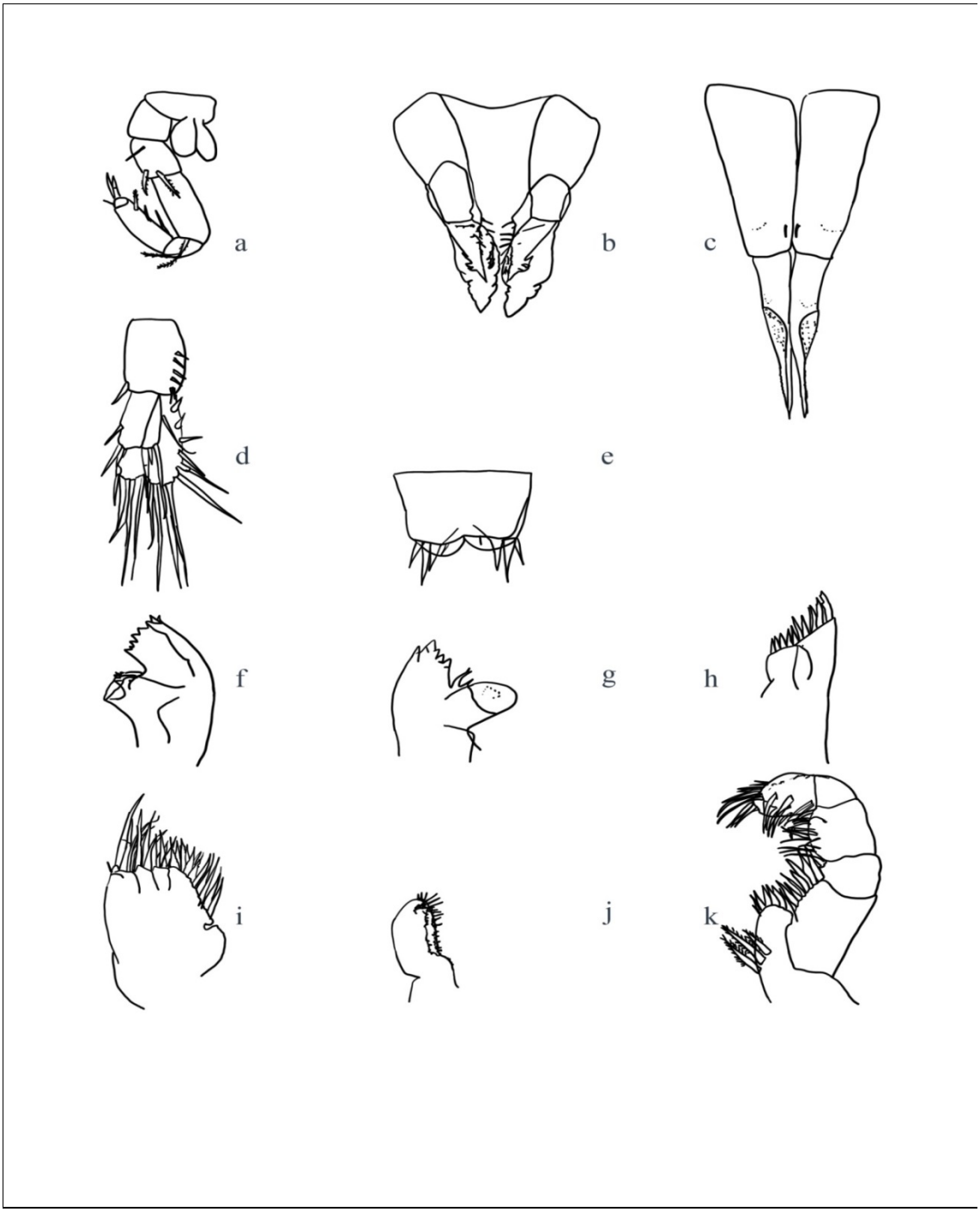


Figure 7.2.2. *Argentocaris* n. gen. Reproduction of *A. hugofernandezi*, from Grosso & Peralto 1997: a- thoracopod 2; b- male pleopod 1; c- male pleopod 2; d-uropod ; e- telson; f- left mandible; g- right mandible; h- maxillula; i- maxilla; j- paragnath; k- maxilliped.

Oncostygocaris Schminke 1980

Oncostygocaris Schminke, H.K. 1980. Zur systematik der Stygocarididae und Beschreibung zweier neuer arten (*Stygocarella pleotelson* gen. n., n. sp und *Stygocaris giselae* sp. n). Beaufortia. 30(6): 139-154.

Type species

Stygocaris patagonica (Noodt 1963).

Diagnosis

Modified from Schminke 1980

Rostrum elongate, triangular with straight sides and deeply divided to 2/3 length of rostrum with two minute setae at apex; right mandible with one lateral bicuspid denticle, three large, subequal denticles and a medial row of three smaller, subequal, spine row with one penicillate plumose setae; paragnath two segmented, elongate and distally rounded with diagonal suture; maxilliped basis with acutely pointed distomedially extended lobe with plumose setae on apex and subapically on medial margin; maxillula medial endite with three to four subequal, short pectinate spines; maxilla with four subequal lobes; maxilla medial endite with a row of three elongate plumose setae along entire medial margin; thoracopods without exopodite; thoracopods 2-8 with one claw; male pleopod 1 a single elongate, sharply triangular blade-shaped, medially directed lamella lobe; the lobe is acutely pointed and medially tapered to a sharp medial edge with a row eight broad, low serrations on the medial margin; no coupling hooks; male pleopod 2 very elongate with two segments; appendage is basally broad and evenly tapered to a narrow, acute apex; proximal segment is short length 2x width, and truncated distally with several subdistal coupling hooks on medial margin; the distal segment forms a very narrow elongate stylet with tapered, blade -like on each side and terminating in a needle-like point; uropods protopod narrow; protopod medial margin with row of seven short, stout spines and two large spines on mediodistal corner; exopodite slightly longer than endopodite; endopodite narrow, single segment;; apex and distolateral margin with three elongate, fine plumose setae; exopodite narrow, with two segments; proximal segment with no setae on medial margin, two simple setae on distolateral margin and two simple setae on distal margin; distal segment narrow with one elongate, fine plumose setae and a terminal short, stout hook setae; lateral margin without setae.

Species Composition

Oncostygocaris patagonica (Noodt 1963).

Remarks

This genus was erected by Schminke in 1980 to distinguish the genus listing of this species from the previously described *Stygocaris* Noodt 1963 because of the differences listed above.

Oncostygocaris patagonica Noodt 1963

Synonymy

Stygocaris patagonica Noodt, W. 1963c. Anaspidacea (Crustacea, Syncarida) in der südlichen Neotropis. Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien 1962: 568-578, Abb. 1d, 5d, [577].

Type locality

Simpson River, 34km above Puerto Aysen, and near Coyhaique, Chile, South America

Type Material

Type material unknown. Simpson River, 34km nr Puerto Aysen, and near Coyhaique, Chile, South America, Alt 115m, Zone 18, 713423.18m E, 4959656.36m S, Noodt, W, 14-February-1961. Type material in pers. coll. Noodt.

Diagnosis

Species diagnosis is the same as the genus at this time.

Redescription

Based on illustrations from Noodt, (1963b).

Body size, female aproximately 1.6 mm; rostrum bilobed almost to the frontal proximal margin; telson sublobula globosa bearing three latero-distal spins.

Antennula total length of peduncle slightly length of flagellum; peduncle basal segment slightly shorter than second and third combined, with a statocyst with two ball setae; lateral flagellum with six segments; medial flagellum of six segments; peduncle segment 1 broader than the second and third; antenna with four peduncular segments; flagellum with seven segments. Thoracopods without exopodite; thoracopods 2-8 with 1 claw.

Male pleopod 1 unisegmented, elongate, truncated with sharply pointed apex; no division of segment into lobes; medial margin serrate, convex for length of segment; dorsomedial groove elongate most of segment. Male pleopod 2 with three segments (including small coxa); proximal segment 3.5x elongate than wide; coupling hooks present on subdistal medial margin; distal segment very elongate, narrow with length to width ratio of 11.66 with pointed apex; no distinct lateral groove.

Uropods protopod narrow with length to width ratio of 2.0; protopod medial margin with row of seven short, stout spines and two large spines on mediodistal corner- protopod lateral margin with one short, fine setae; exopodite slightly longer than endopodite; endopodite narrow, single segment; length to width ratio of 3.6; medial margin with three stout simple spines; apex and distolateral margin with three elongate, fine plumose setae; exopodite narrow, with two segments; proximal segment broad with length to width ratio of 3.75; proximal segment with no setae on medial margin, two simple setae on distolateral margin and two

simple setae on distal margin; distal segment narrow with length to width ratio of 3.0; distal margin with one elongate, fine plumose setae and a terminal short, stout hook setae; lateral margin without setae.

Habitat

Inhabiting the hyporheic zone of a course sand and gravel bed river.

Distribution

Known only from the type locality

Remarks

The diagnosis given by Noodt (1963) was very limited and he only illustrated the Pleopods 1 and 2 and the uropod as in P. goerssi Noodt 1963. A complete revision of the type material is required.

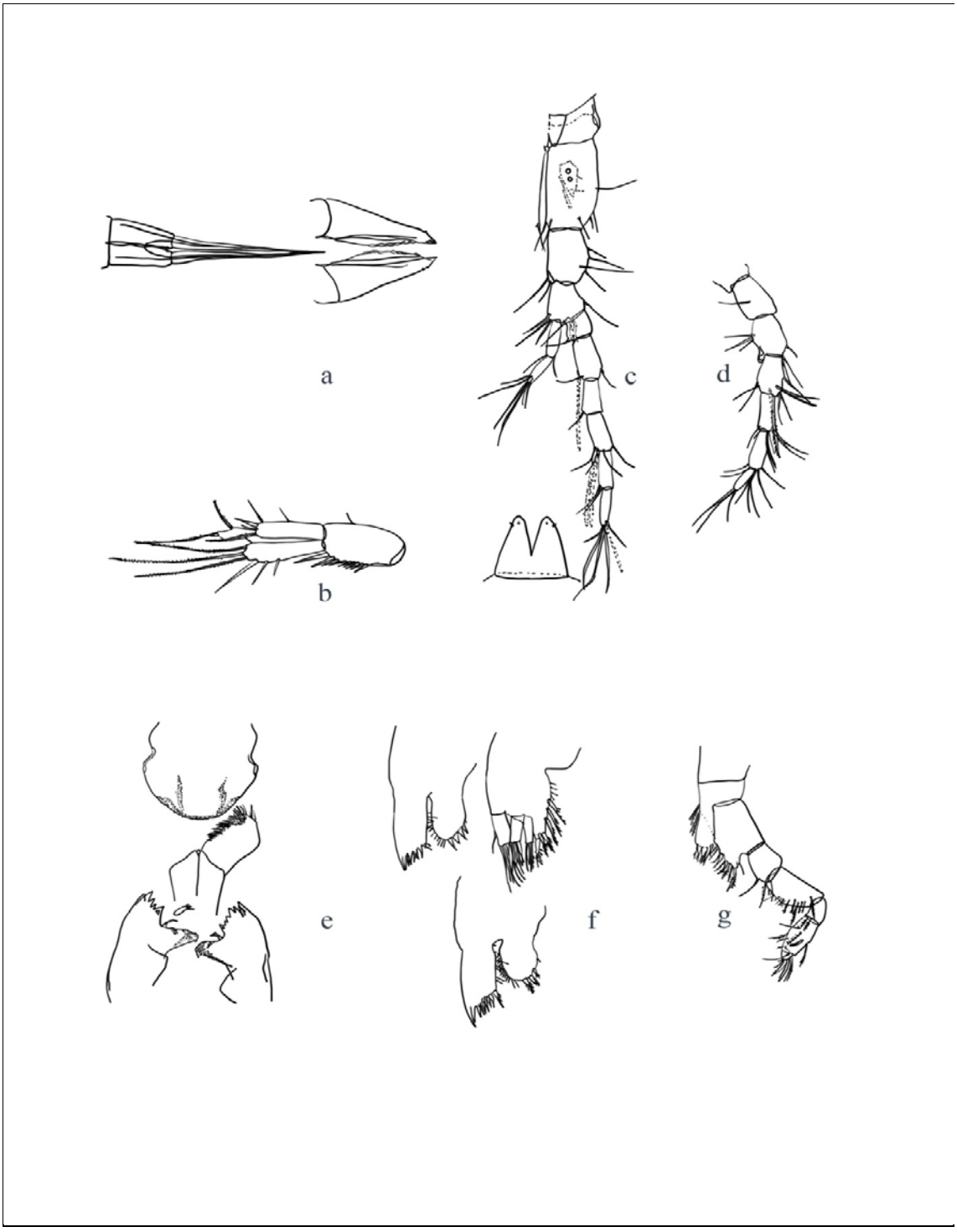


Figure 7.2.3. *Oncostygocaris*. Reproduction of *O. patagonica* from Noodt 1963: a- male petasma (pleopods 1+2); b- uropod; c- antennula with rostrum on lower left side; d- antenna; e- mouthparts -labrum (top), paragnath, mandibles; f- maxillla (left top + bottom + maxillula top right); g- maxilliped.

Parastygocaris Noodt 1963

Parastygocaris Noodt, W. 1963c. Anaspidacea (Crustacea, Syncarida) in der südlichen Neotropis. Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien 1962: 568-578, Abb. 1d, 5d, [576].

Type species

Parastygocaris andina Noodt 1963c.

Diagnosis

Based on Noodt (1970).

Rostrum single, tongue shaped with one small setule on each lateral margin; right mandible with one lateral bicuspid denticle and three large subequal denticles and a row of three very small, flat, subequal, denticles with one outer ones slightly larger; spine row with two penicillate setae; left mandible with one lateral bicuspid denticle, three large subequal denticles; maxillula medial endite with four subequal, short pectinate spines, medial spine may be shorter; maxilla with four subequal lobes; maxilla medial endite with a row of 7-14 elongate plumose setae along entire medial margin; labrum posteriorly rounded with a semi-circular row of fine setules on the posterolateral corners of the anterior surface; paragnath two segmented, elongate, distally rounded with a diagonal suture; maxilliped basis with a distally rounded, distomedially extended lobe with plumose setae on apex and subapically on medial margin; ischium with a pointed distomedial lobe; thoracopod exopodites with single articles and two long, plumose setae; male pleopod 1 a single spatulate, elongate, sharply triangular appendage with two lobes; dorsal lobe longer than ventral lobe with medially truncated distal tip with small notches on the distolateral margin; ventral lobe with a very narrow acute apex, up to five short, fine, posteriorly directed setae on the lateral margin and three on the medial margin, and with a small medial endite near midline with may short stout setae; male pleopod 2 with two narrow, elongate segments with an acutely pointed apex; proximal segment is elongate, basally broad with a proximolateral extension and truncated distally without spines or coupling on medial margin; the distal segment forms a narrow elongate stylet with a laterally tapered, blade -like edge and a small, smooth, rounded distolateral extension terminating in a diagonal, round edge to the apex; uropods protopod broad with medial margin with row short, stout plumose spines and one large plumose spine on mediodistal corner; protopod lateral margin with row of four short, stout plumose spines genus specific; rami sub equal in length with exopodite slightly elongate; endopodite single segment; exopodite 2 segmented with small round distal segment articulated with a straight diastema.

Species Composition

Parastygocaris andina Noodt 1963c,

Parastygocaris goerssi Noodt 1963c

Remarks.

Noodt 1963c described two species as examples of the new genus *Parastygocaris* he was proposing (one from each locality) that are all more or less closely related. Interestingly, they arrange themselves in a morphological series, by sharing certain reductions and specializations (which may be an adaptation to the living in different sediments sizes). The most primitive species lives in the hyporheic zone of a cobble bed river in the headwaters west of the Andes in Upsallata at a pass in the mountains of the Mendoza Province, Argentina, followed by the Pampa species to the West near San Luis. In his 1963c paper Noodt only illustrated what he regarded as the genus diagnostic features of *Parastygocaris andina* and only the male Pleopods 1 and 2 and one uropod of each of the other two species. As he did not give a detailed description of each of the four species, and as such it is necessary for completeness to give a revised description of *Parastygocaris andina*. This revised description will be based on the illustrations presented by Noodt (1970) as the original specimens could not be obtained at this time.

Noodt (1963c) was in no doubt they are a very old relic group because of the primitive features present that were combined with the specializations found. He regarded the following features as primitive: the structure of the rostrum, the antennula with statocyst, the presence of 2 epipodites on the thoracopod coxa and a reduced exopodites on the basis and two segmented exopodite of the uropod.

Noodt (1963c) also described the maxilliped with a basal endite; however, it is not clear from the illustration whether he is referring to the ventro-distal extension of the coxa. He noted the general reduction of the extremities including a reduction in antennal lengths and setation and suggested that some of this reduction was probably just the result of decreasing body size in order to inhabit the coarse gravel subterranean environment.

Parastygocaris andina Noodt 1963c

Parastygocaris andina Noodt, W. 1963c. Anaspidacea (Crustacea, Syncarida) in der südlichen Neotropis. Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien 1962: 568-578, Abb. 2, 3, 4a, 5a [570].

Type locality

Uspallata, Mendoza, Argentina, South America.

Type Material

Type material unknown. Uspallata, Mendoza, Argentina, South America, Alt 1882m, Zone 19, 467016.54m E, 6394128.56m S, Noodt, W, 1958.

Other Records

P.60891, 4 specimens, Rio Uspallata, Uspallata, Mendoza, Argentina, interstitial; among river sediment, Argentina, South America , Alt 704m, Zone 19, 662396.40m E, 6575235.87m S, Grosso, L. & Peralto, M., 17-June-1999.

Redescription

Based on illustrations from Noodt, W. 1963c.)

Body size, male 2.6mm; colouration colourless and translucent when alive.

Rostrum length to width ratio 0.89; broadly rounded anterior margin with small flat median margin approximately third width of rostrum; two lateral setae on the anterior third of lateral margin.

Telson/anal operculum (telson) with rounded medial extension on posterior margin, with dentition on each side and one fine, simple setae on lateral corner of dentition; laterodistal corner with two small spines with no dorsal setae; anal operculum (telson) does not cover anal lobes; anal lobes are subdivided into the anal opening and the sublobula globosa; anal opening consists of two posteriorly directed roundly pointed lobes divided medially by a deep cleft; sublobula globosa bearing three latero-distal spins with two fine simple setae, one between each spine; medial spine third elongate than other spines.

Antennula total length of peduncle slightly length of flagellum; peduncle basal segment slightly shorter than second and third combined, with a statocyst with two ball setae; lateral flagellum with 16 segments, medial flagellum of three segments; peduncle segment 1 broader than the second and third.

Antenna with four peduncular segments; flagellum with five segments.

Left mandible; incisor process with five main denticles; incisor accessory process (incisor process accessorius) with three minor denticles and one terminal denticle; molar process, elongate, truncated with small molar denticles and one small triangular denticle nearest the diastema; two penicillate setae and two to three rows of fine setules between penicillate setae and molar process.

Maxillula medial endite glabose and shorter than the lateral lobe, with four equal sized robust, short spines with setules on apical apex and two to three rows of fine setae on lateral and medial surface; lateral lobe with eight robust plumose spines and four short, robust, triangular spines in apical margin.

Maxilla with four lobes; lateral endite with five terminal plumose spines; the next endite similar equipped with five terminal plumose spines; the third endite with four terminal plumose spines; medial endite consisting of a small terminal lobe with three terminal plumose spines; a subdistal lobe with three terminal plumose spines; medial margin spine row of 15 plumose spines extending the length of lobe.

Maxilliped with seven segments; coxa with a blunt ventro-distal extension with three terminal short, robust, plumose spines and one subdistolateral and one subdistomedial; seven elongate plumose spines at the proximal margin of the extension diagnostic; basis with very minor ventro-distal extension with 18 plumose spines elongate entire length of mediodistal margin. diagnostic; ischium with four plumose setae on the distal margin and two plumose setae on ventro-distal corner; merus with three plumose setae on the

mediodistal margin and six simple setae on surface; carpus with one large plumose spine on ventro-distal corner; propodus with three plumose setae on surface; dactylus with two claws and four simple spine. Thoracopod 5 with single segment exopodite with two elongate terminal plumose setae 2x elongate than exopodite (very similar to *Patagonaspides*); coxae with two oval epipodites; basis to carpus with two setae; propodus with four equally spaced plumose setae on ventral margin and three simple setae on dorsal margin; dactylus with one claw and no setae; thoracopod 7 coxa without epipodites; no exopodite; dactylus with one claw.

Male pleopod 1with one segment; one segmented elongate and bluntly pointed and smooth medial margin medial groove developed in distal half forming two lobes; dorsal lobe slightly elongate than ventral lobe, forming elongate spatulate lobe with round apex; ventral lobe bluntly pointed with 2 large lateral, anterior directed hooks below apex; medial margin of groove of ventral lobe covered in fine setules; small ventral lobe 2x elongate than wide, anterior to beginning of bifurcation.

Male pleopod 2 proximal segment 8x elongate than wide; no coupling hooks; the distal segment has a glabose latero- distal, concave groove extending from third length of segment to the apex with a bluntly pointed apex; uropods protopod broad with length to width ratio of 1.12; protopod medial margin with row of 12 short, stout plumose spines and one large plumose spine on mediodistal corner- species specific; protopod lateral margin with row of four short, stout plumose spines genus specific; rami sub equal with exopodite slightly elongate; endopodite single segment; medial margin with nine stout plumose spines; apex and distolateral margin with nine elongate, fine plumose setae; exopodite 2 segmented; proximal segment broad with length to width ratio of 1.6; proximal segment with four fine plumose setae on distomedial margin and six stout plumose spines on distolateral margin; distal segment round with length to width ratio of 1.14; distal ½ margin with 12 elongate, fine plumose setae.

Habitat

Inhabiting the hyporheic zone of course sand and gravel bed river.

Distribution

Known only from type locality

Remarks

Although *Parastygocaris andina* was designated by Noodt 1963c as the genotype species for the genus *Parastygocaris* Noodt 1963, the species was never actually described as a species or given a specific diagnosis. Instead, the author gives the more detailed diagnosis as a generalised description of the genus using *P. andina* as an example. The other two new species *Parastygocaris goerssi* Noodt 1963 and *Stygocaris patagonica* Noodt 1963 are descibed as a diagnosis of the features that separate them from *P. andina*.

Parastygocaris goerssi Noodt 1963

Parastygocaris goerssi Noodt, W. 1963c. Anaspidacea (Crustacea, Syncarida) in der südlichen Neotropis. Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien 1962: 568-578, Abb. 4b, 5b, [576].

Type locality

7km E of San Luis, Argentina, South America

Type Material

Type material unknown, 7km E of San Luis, prov. San Luis, Argentina, South America, Alt 583m, Zone 19, 738210.77m E, 6306524.69m S, Noodt, W, 18-November-1959.

Redescription

Based on illustrations from Noodt (1963)

Body size, female aproximately 1.95 mm; colouration colourless, translucent when alive.

Rostrum broadly rounded anterior margin with small flat median margin approximately third width of rostrum; two lateral setae on the anterior third of lateral margin; colouration colourless, translucent when alive; telson not described.

Antennula total length of peduncle slightly length of flagellum; peduncle basal segment slightly shorter than second and third combined, with a statocyst with two ball setae; lateral flagellum with nine segments, medial flagellum of two segments; peduncle segment 1 broader than the second and third; antenna with four peduncular segments; flagellum with seven segments.

Male pleopods 1 segmented, elongate, truncated and bluntly pointed and smooth medial margin; medial groove developed in distal half forming two lobes; dorsal lobe elongate than ventral lobe, forming elongate truncated, spatulate lobe with small round apex; ventral lobe sharply pointed with a row of anteriorly directed setules below apex on lateral margin; ventral lobe medial margin of groove of covered in fine setules; small ventral lobe 3x elongate than wide, anterior to beginning of bifurcation.

Male pleopod 2 with two segmented; proximal segment 8x elongate than wide; distolateral corner slightly extended posteriorly with a very short stout spine on the corner; no coupling hooks; the distal segment has a glabose latero- distal, concave groove extending from third length of segment to the apex with a sharply pointed apex; uropods protopod broad with length to width ratio of 1.36; protopod medial margin with row of six short, stout plumose spines and no large plumose spine on mediodistal corner- species specific; protopod lateral margin with row of four short, fine setae decreasing anteriorly; rami sub equal with exopodite slightly elongate; endopodite single segment; medial margin with five stout plumose spines; apex and distolateral margin with 10 elongate, fine plumose setae; exopodite two segmented; proximal segment broad with length to width ratio of 1.87; proximal segment with two fine plumose setae on

distomedial margin and five stout plumose spines on distolateral margin; distal segment round with length to width ratio of 1.33; distal half margin with nine elongate, fine plumose setae.

Habitat

Inhabiting the hyporheic zone of course sand and gravel bed river.

Distribution

Known only from type locality.

Remarks

The original diagnosis is limited as the one given by Noodt 1963c was very brief and he only illustrated the Pleopods 1 and 2 of the male and the uropod. A complete revision of the type material is required.

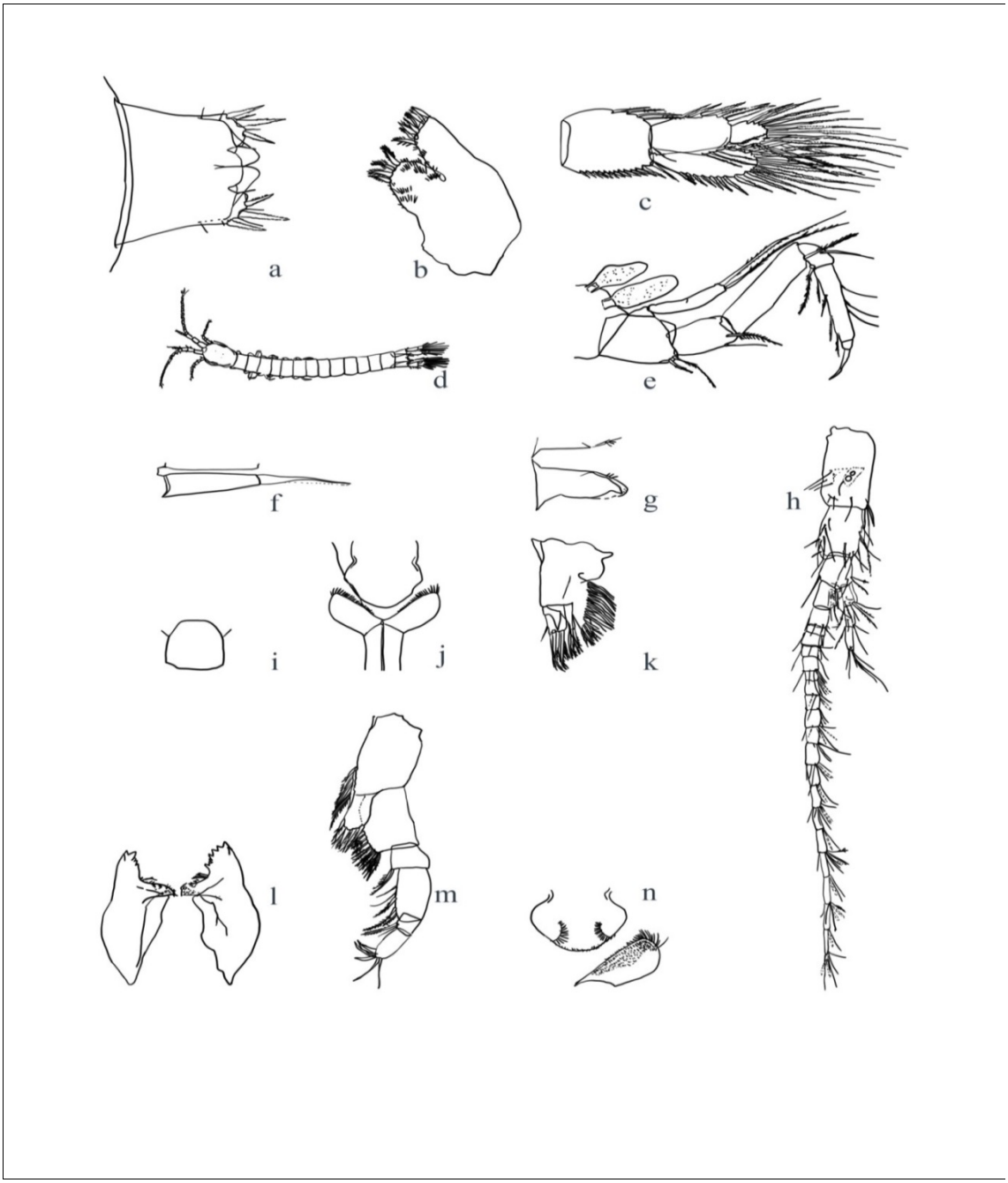


Figure 7.2.4. *Parastygocaris*. Reproduction of *P. goerssi* from Noodt 1963c: a- telson; b-maxillula ; c- uropod ; d- whole body, dorsal view; e- thoracopod 2; f- male pleopod 2; g- male pleopod 1; h- antennula; i- rostrum; j- labrum (top) & paragnath; k- maxilla; l- mandibles; m- maxilliped; n- labrum with setules (left) & paragnath.

Stygocarella Schminke 1980

Stygocarella Schminke, H.K. 1980. Zur systematik der Stygocarididae und Beschreibung zweier neuer arten (*Stygocarella pleotelson* gen. n., n. sp und *Stygocaris giselae* sp. n). Beaufortia. 30(6): 139-154, [141].

Type species

Stygocarella pleotelson Schminke 1980.

Diagnosis

Modified from Schminke (1980).

Stygocarididae with pleotelson and five free pleonites; rostrum single, triangular, acutely pointed with round lateral margins and one small setule on each lateral margin; telson/anal operculum margin with a medial concavity, but does not cover the lateral and distal margin of the lateral lobes with four robust, serrate, subequal, laterodistal spines; the lateral spine is 2x length of medial spines; right mandible with one lateral bicuspid denticle and three large subequal denticles and a row of two very small, flat, subequal, denticles with one outer ones slightly larger; spine row with two penicillate setae; left mandible with one large lateral bicuspid denticle, one large denticle and three small subequal denticles; maxillula medial endite with four subequal, short pectinate spines; maxilla with two subequal, articulated lobes and two fused, non-articulated medial lobes; maxilla medial endite with a row of eight elongate plumose setae along entire medial margin; labrum posteriorly rounded with only a row of fine setules on the distal margin; paragnath one segmented, elongate, distally rounded with a horizontal suture; maxilliped basis with a distally rounded, distomedially extended lobe with plumose setae on apex and subapically on medial margin; ischium with a distally round distomedial lobe; thoracopods without exopodite; thoracopod 7 coxa in males with one plumose seta on medial margin; male pleopod 1 with two segments; a short square protopod and spatulate, elongate, roundly lamella appendage with a longitudinal groove formed by a medial and lateral ridge, each lined with fine setules; male pleopod 2 very elongate with two segments; appendage is basally broad and evenly tapered to a narrow, acute apex; proximal segment is short length 2x width, and truncated distally with several subdistal coupling hooks proximal to the midline on the medial margin; the distal segment forms a very narrow elongate stylet tapered, with blade -like expansion on the distal third on each side and terminating in an acutely pointed nob; uropod with a short row of setae on distomedial margin of protopodite; uropodal endopodite and exopodite uniramous and exopodite shorter than endopodite.

Species Composition

Stygocarella pleotelson Schminke 1980.

Remarks

Schminke (1980) described this species as having a pleotelson formed by the fusion of the telson and pleonite 6. A re-examination of the type material is needed to confirm this. Although other groups of crustaceans such as the Isopoda and a number of species of Bathynellacea exhibit variable degrees of fusion of the pleonites with the telson, the case with *Stygocarella* is singular among the Anaspidacea.

A comparison has to be made between *Stygocarella* and *Oncostygocaris* in terms of the structure of male pleopod 2. These structures appear to be almost identical, except for the placement of the basal coupling hooks and the shape of the apex. These two are definitely closely related and potentially could be placed within a higher level of classification. The current differences however, are adequate to retain the current genera. The major differences are in the reduction of external structures.

Stygocarella pleotelson Schminke 1980

Stygocarella pleotelson Schminke, H.K. 1980. Zur systematik der Stygocarididae und Beschreibung zweier neuer arten (*Stygocarella pleotelson* gen. n., n. sp und *Stygocaris giselae* sp. n). Beaufortia. 30(6): 139-154, Abb. 2-24, [141].

Type locality

Waitangi River, 350m upstream from a bridge on Highway 6, Westland, South Island, New Zealand.

Type Material

Holotype. 1male. Allotype. 1 female, Probe L 144, Waitangi River, 70cm depth., 350m upstream from Highway 6, Westland, South Island, New Zealand, New Zealand, Alt 71m, Zone 59, 451782.50m E, 5207030.56m S, Schminke, H.K., 26-November-1967. Types deposited in the Zoological Museum of the University of Kiel. Paratypes. 2 females, 1 male, type locality.

Other Material

Unassigned, 1females/1females juveniles, Probe L 140, Toaroha River, 50cm depth, at the junction with Kokatahi River, Westland, South Island, New Zealand, Alt 61m, Zone 59, 510340.92m E, 5250892.47\m S, Schminke, H.K., 25-November-1967. Unassigned, 1males, Probe L 142, Styx River at the junction with Kokatahi River, Westland, South Island, New Zealand, Alt 29m, Zone 59**,** 508811.59m E, 5252046.70m S, Schminke, H.K., 26-November-1967.

Diagnosis

Species diagnosis is the same as the genus diagnosis at this time.

Redescription

Based on illustrations from Schminke (1980).

Male body length of 1.43mm; female body length 1.12mm (site L -140); 10 x as elongate as the maximum width; 1.1 wider than high; cephalothorax length to width ratio1 9; colouration colourless and translucent when alive; rostrum elongate, and rounded triangular, with small distal projection; one lateral simple setae on each side; eyes absent.

Pleonite 6 and telson fused forming a pleotelson; anal operculum projects past the opening of the anus; pleonite 6 with six even spaced robust, simple setae across dorsal surface; telson posterior margin sinuous with a medial concavity and one robust, simple setae on each lateral corner of the concavity; anal operculum rectangular with slight medial extension; lobula globosa bearing 3 lateral, robust, simple setae.

Antennula peduncle with three segments; lateral flagellum with seven segments; medial flagellum with two segments; lateral flagellum; statocycts present with two round sensory organs; statocyst with external seta; peduncular segment 1 with two setae on medial margin setae; dorsal surface with two rows of three setae from medial corner to the lateral margin with two ventro-lateral setae; peduncular segment 2 with two setae on medial margin, one dorsal setae, one dorso-lateral setae, and a series of dorsal setae along the proximal margin from the medial to the lateral margin, one ventro-lateral penicillate setae; peduncular segment 3.with two setae on medial margin, one ventro-medial setae, one dorsal setae; one setae on lateral margin; flagellum segment 1 with small posterior extension with three dorso-medial penicillate setae and two simple setae; flagellum segment 2. with one dorso-medial setae and one dorsal setae; flagellum segment 3 with two aesthetascs on margin, one dorsal and one ventro-medial seta; flagellum segment 4 with one aesthetasc on margin: one dorso-medial setae; flagellum segment 5 with two distomedial, elongate, simple setae; flagellum segment 6 with two elongate, simple setae on margin; flagellum segment 7 with five terminal setae and one aesthetasc; medial flagellum; flagellum segment 1 with one dorsal seta, one dorso-medial seta, one ventro-lateral seta on margin; flagellum segment 2 with three terminal setae, two dorsal setae.

Antenna with four peduncular segments and three flagellum segments; length of A1 to length of A2, 0.65; peduncular segment 1without setae; peduncular segment 2 with one dorsolateral seta adjacent to mid lateral margin; peduncular segment 3 with one seta on the lateral margin, one dorso-and one ventro-lateral setae on proximal margin, two setae on distal medial margin; peduncular segment 4 with one seta and one very elongate dorsolateral and one ventrolateral setae, one short lateral seta on distal third of lateral margin; flagellum segment 1 with one dorsal setae on proximal margin, three medial setae, two groups of three short ventro-medial setae, one ventral setae on proximal margin; flagellum segment 2 with one dorsal seta; one setae on lateral margin, one elongate dorsolateral seta and one short ventral setae on proximal margin; flagellum segment 3 with four terminal setae.

Paragnath of two lobes, distal segment with elongate pubescence from apical margin to medial half; each lobes rounded dorsal margin; dorsal margin with row of fine setae.
Right mandible incisor process with six denticles; left mandible incisor process with 10 denticles, including five main denticles and an accessory process with five smaller denticles; mandible without palp; molar process with many small triangular denticles on grinding surface and small group of fine setae on mediodistal apex; diastema between molar process and incisor process with three robust brush setae on left mandible and two on the right mandible.
Maxillula medial endite with four short, robust plumose setae and fine setules dorsal surface and lateral margin; lateral lobe with nine robust medially directed spines and three groups of fine setules on medial margin.
Maxilla with four lobes, consisting of two medial lobes fused to form one lobe; medial endite1 apically slender with two apical robust setae and medial spine row of seven robust, plumose setae and adjacent row of fine setules; lobe 2 apically slender with three apical, robust plumose setae; lobe 3 apically slender with three apical; lobe 4 with five apical robust setae robust setae with one short subdistolateral setae.
Maxilliped with seven-segments and without epipodite and exopodite; coxa with elongate distomedial extension with five distal, robust spines, and three elongate setae on medial margin parallel to articulation; basis with rounded distomedial extension with spine row of eight robust setae on medial margin and four robust setae of distomedial margin; one robust setae on subdistolateral surface; ischium with four elongate setae on distolateral corner; merus with for elongate setae on medial margin, one seta on ventral margin and 12 seta on dorsal margin; carpus with one seta on distolateral corner and one seta on distomedial corner; propodus with three setae on dorsal surface, three seta on ventral surface and three seta on subdistolateral margin; dactylus with two claws and three distal, slender, elongate setae.
Thoracopods 2-7 with two epipodites at the coxa; no exopodite; basis and ischium each with two distomedial simple setae; thoracopod 2 propodus and dactylus with three setae; all thoracopod dactylus with two unequal claws; thoracopod 7 coxa with one robust plumose setae on distomedial corner adjacent to one robust plumose setae on pereonite; thoracopod 8 without epipodite and exopodite; basis with lateral denticle-like extension on mid lateral margin; ischium mid lateral margin with small extension with terminal elongate , simple setae.
Pleonites 3-5 without pleopods.
Male pleopod 1 exopodite absent; pleopod 1 with two segments articulated medially; proximal segment with simple seta on mid lateral margin; distal segment spatulate, distally pointed with medial groove extending length of segment; medial margin lined with fine setules; two coupling hooks on mid dorsal, medial margin.
Male pleopods 2 with three segments; coxa with lateral setae; coxa length to width ratio 0.5; medial segment length to width ratio 1.4; medial segment with two coupling hooks on proximal third of medial margin; distal segment length to width ratio 0.12; distal segment elongated tapered to acutely pointed lobed

apex; lobed apex with small setules on lateral margin; distal third with lateral and medial grooves with no setae.

Uropod protopod length to width ratio 1.7; distomedial margin with a row four equal robust, simple spines and one seta on distolateral margin; exopodite distally tapered, unisegmented length to width ratio 2.7; exopodite length to width of endopodite ratio 0.71; distal margin with four elongate plumose setae; distolateral margin with three short plumose setae; distolateral margin without obvious notched halfway indicating point of fusion; endopodite unisegmented length to width ratio 3.2; distal margin with three elongate, plumose setae; distolateral margin with two short plumose setae; distomedial margin with a row of eight short simple setae; dorsal margin with six penicillate setae; male spermatophore tubular, extending through pereonite viii to pleonite 1, where it narrows into a stalk and exits into a broader adhesive disc; spermatophore is lined with two layers;

Female characters: Spermatheca lobes simple and small; coxa of thoracopod 7 without the medial margin setae; basis of thoracopod 8 without denticle-like projection; ischium with one lateral seta but without the extension; no obvious sexual dimorphism.

Habitat

Inhabiting the hyporheic zone of course sand and gravel bed river.

Distribution

Known from type locality in Waitangi River, as well as the Toaroha River, Kokatahi River, Styx River in the area of Westland, South Island, New Zealand.

Remarks

Schminke (1980) described this species with a pleotelson. Although the segments are fused, the previous position of the articlation is delineated by the line of setae along the dorsal surface. The line of setae is normaly positioned anterior to the pleonite 6/telson articulation in other stygocarids as well as in other anaspidacean families such as the Psammaspididae and Anaspididae for example . The fusion of these two segments and the absence or significantly reduced in articulation is suggested to be a highly derived, apomorphic adaptation to interstitial life. As it does not appear in any other Anaspidcaea it would support the argument that the pathway of Stygocarididae evolution, and by implication that of the Anaspidacea, is from west to east i.e. from South America to New Zealand.

Figure 7.2.5. *Stygocarella.* Repreduction of *S. pleotelson* from Schminke 1980: a- rostrum; b- antennula; c- labrum; d- paragnath; e- maxillula; f- maxilla; g- maxilliped; h- right mandible; i- left mandible; j- male pleopod 1; k- male pleopod 2; l- uropod; m- telson; n- thoracopod 2.

Stygocaris Noodt 1963

Stygocaris Noodt, W. 1963b. Estudios Sobre Crustaceos de Aguas Subterraneas III. Crustacea Syncarida de Chile Central. Investigaciones Zoologica Chilenas. 10:151-167, [157].
Genus diagnosis by Schminle 1980. Schminke, H.K. 1980. Zur systematik der Stygocarididae und Beschreibung zweier neuer arten (*Stygocarella pleotelson* gen. n., n. sp und *Stygocaris giselae* sp. n). *Beaufortia*. **30(6)**: 139-154.

Type species

Stygocaris gomez-millasi Noodt 1963 by original designation.

Diagnosis

Modified from Schminke (1980).

Rostrum single, elongate tongue shaped, i.e. length 1.60 width, with straight lateral margins and a triangular slightly, rounded apex; antennula medial flagellum second segment, sexual dimorphic in males; right mandible incisor process with one lateral bicuspid denticle, three large subequal denticles and a medial row of four smaller denticles with the central two small and subequal with the lateral and medial ones slightly larger; left mandible incisor process with one lateral bicuspid denticle , one large denticle and three smaller, subequal denticles; spine row with one penicillate setae; maxillula medial endite with three subequal, short pectinate spines, medial spine may be shorter; maxilla with four lobes with the three lateral lobes basally fused and the medial endite free; maxilla medial endite with a row of elongate plumose setae along entire medial margin; paragnath one segmented, elongate, distally rounded with a horizontal suture; maxilliped coxa enlarged with a distomedially extended lobe with plumose setae on apex with apex extending to the distal margin of the basis, and a subapically on medial margin; basis with distomedially extended lobe with plumose setae on ape; thoracopods without exopodites; thoracopods 2-7 with two epipodites each; male pleopod 1 with one to two segments and a longitudinal groove on the ventral surface; proximal segment elongate and rectangular with a distomedial expansion and large narrow, acutely pointed spine on the distomedial corner; no coupling hooks; male pleopod 2 with two narrow, elongate segments with an acutely pointed apex; proximal segment is elongate, basally broader and slightly truncated distally with one subdistal patch of coupling hooks on medial margin; the distal segment forms a narrow but stout, elongate stylet with a laterally tapered, blade -like edge and a sharp, harpoon-like distolateral extension terminating in a diagonal straight edge to the apex; telson very short with a broadly rounded posterior margin and a short, distally rounded lobe on each distolateral corner with one small, simple spine on the apex; telson partially covers the lateral and distal margin of the lateral lobes; anal lobes produced into two lobes, an extended distomedially with no spines and a distolateral lobe with three robust, spines; the middle spine is 2x length of medial spines; uropod rami with single segment; endopodite single segment; exopodite two segmented, sometimes with distal hook; (this is not the case in *s. giselae* as the exopodite is

fused); exopodite elongate than endopodite; uropod rami single segments with uropods protopod length 1.85 width; protopod medial margin with row of nine short, stout spines and one simple setae on mediodistal corner; exopodite slightly longer than endopodite with a subdistal restriction on both margins indication location of segment fusion; endopodite narrow, single segment.

Species Composition

Stygocaris gomez millasi Noodt 1963

Remarks. The species *S gomez-millasi* is a difficult taxon to place definitively into a specific genus without diluting the diagnosis of any of the other established genera, even though its has close affinities with *Argentocaris* (previously *Stygocaris/Parastygocaris*- see above). Although it shares close autapomorphies with the above genus, particularly *A. schminkei*, such as a similar tongue shape rostrum, pleopod 2 with a harpoon shaped distal segment and the mandible molar process terminating medially with a row of small denticles to name a few, the differences in *Stygocaris* such as the shape of pleopod 1 with it's medial needle -like spine, the fusion of the lateral rami of the uropod, and the hook-shaped medial flagellum of the male antennnule for example are sufficient to warrant separating the two genera. The second segment of the male antennula peduncle is modified as a prehensile organ that Noodt regarded as a sense organ. It is a hook shaped structure that is suggested to be used for grasping and not as sense organ. It is suggested that it is more likely to be used for holding the female during copulation or for fighting other males; the female appears to also have the first two segments of the lateral flagellum of the antennula modified for being grasped.

Stygocaris gomez-millasi Noodt 1963

Stygocaris gomez-millasi Noodt, W. 1963b. Estudios Sobre Crustaceos de Aguas Subterraneas III. Crustacea Syncarida de Chile Central. Investigaciones Zoologica Chilenas. 10:151-167, fig. 20-42, [158].

Type locality

Quebrada de Cordoba (2km of the sea), near El Tabo, San Antonio, Santiago, Central Chile, South America

Type Material

Holotype, 1 male, C-1 (24-8-1958); Allotype, 1 female, C-27 (3-12-1958); Paratype, C-27 (3-12-1958) 25 females/21 males, C-83 (5-8-1959) 11 females/9 males/15 juveniles. Quebrada de Cordoba (2km of the sea), near El Tabo, San Antonio, Santiago, Central Chile, South America, Alt 47m, Zone 19, 253502.87m E, 6296766.19m S, Noodt, W**,** 03-December-1958.

Diagnosis

Species diagnosis is the same as genus diagnosis at this time.

Redescription

Based on illustrations from Noodt (1963b).

Body length 1.70mm in males; elongate, almost uniformly cylindrical; abdomen thicker than head and thorax from the torso to the fork.

Cephalon extended anteroventrally with a lateral concavity at the point of insertion of the mandibles dorsally ending in a thin tongue-shaped rostrum; cephalon fused with first thoracopod; suture of maxilla is a faint crease to the dorsal side, which may represent the rest of the segmental boundary between the first thoracopod and the head (or the fold of the carapace).

Telson is well differentiated ventrally with a dorsal flap; anus terminal with two convex lobes, which may represent the rudimentary furca; the medial vertex of each lobe with a terminal fork protrudes and the medial most has three spines.

Male antennula peduncle has three segments, with the first two segments being very large and robust compared to the size of the cephalon; lateral flagellum has eight segments; medial flagellum has three segments; first segment with large distomedial serrate spine on antero-medial corner which complements the second segment; second segment is modified as a prehensile hook shaped structure; female antennula medial flagellum with the first two segments of the lateral flagellum of the antennula modified for being grasped during copulation.

Antennula peduncle statocyst with two ball setae; terminal five segments of the lateral flagellum has aesthetascs.

Antenna flagellum has six segments and lacks the exopodite.

Labrum of a margin shaped in lateral view and oval in ventral view; dorsal margin covered in fine setules.

Mandible incisor process has six and nine denticles; molar process has a row of large denticles; lacinia mobilis consist of single elongate lobe with fine apical setae different to *Parastygocaris*.

Maxillula consists of two lobes; a proximal lobe and lateral lobe with 10 short stout spines, which includes of six simple lateral spines, and a medial margin with four serrate setae.

Paragnath tongue-shaped with distal and medial margins densely covered with fine.

Maxilla consists of four lobes; lobes 1-3 moderately fused; lobe 4 articulated separately; lateral lobe with one small subapical lateral simple setae and five apical elongate simple setae; two middle lobes fused below apex; second lobe with two apical elongate serrate setae; third lobe with four apical elongate serrate setae; fourth lobe elongate with three simple setae on apex and four elongate, robust, simple setae on medial margin.

Maxilliped coxa twice width of other segments with elongate antero ventral spatulate extension reaching anterior margin of basis; spatulate extension with five digitate apical lobes, each with two simple setae;

basis with elongate antero ventral spatulate extension reaching past anterior margin of basis; spatulate extension with six robust setae on apical margin; without exopodite or epipodite.
Thoracopod 2 shortest; thoracopods 2 - 8 are very similar to each other; coxae have two epipodites; basis to carpus without setae except for single simple setae on each segment; these consist of a robust stem and a thin-skinned oval appendix; the proximal epipodite is medial than the terminal; all thoracopods are directed backward except for thoracopod 8 which is directed forward; thoracopods size decreases posteriorly.
Male pleopod 1 wide, elongate, forms a medial groove and is divided into two spines anteriorly; proximal spine is small, needle-like, dorsal, directed anteriorly; distal spine is broad, digitate, with a ventral bend anteriorly with possible segmentation post proximal spine.
Male pleopod 2 consists of two segments; proximal segment length to width ratio of ~ 6:1 with coupling setae subapical on medial margin; distal segments styliform narrowing after third length to laterally curved needle-like stylet with harpoon like distal apex; pleopods 3-6 absent except for a raised mound with a small, simple setae on each side.
Uropods protopod broad with length to wide ratio of 2:1; protopod with row of nine equal setae on medial margin; rami unisegmented leaf-shaped and horizontally compressed; exopodite single lobe with fused lobe divided into broad proximal section with five lateral setae and narrower distal section with two lateral setae and two apical setae; endopodite single lobe 6 setae on medial margin increasing in size posteriorly and four elongate setae on apex.

Habitat

Inhabiting the hyporheic zone of coarse sand bed rivers.

Distribution

Only know from type locality

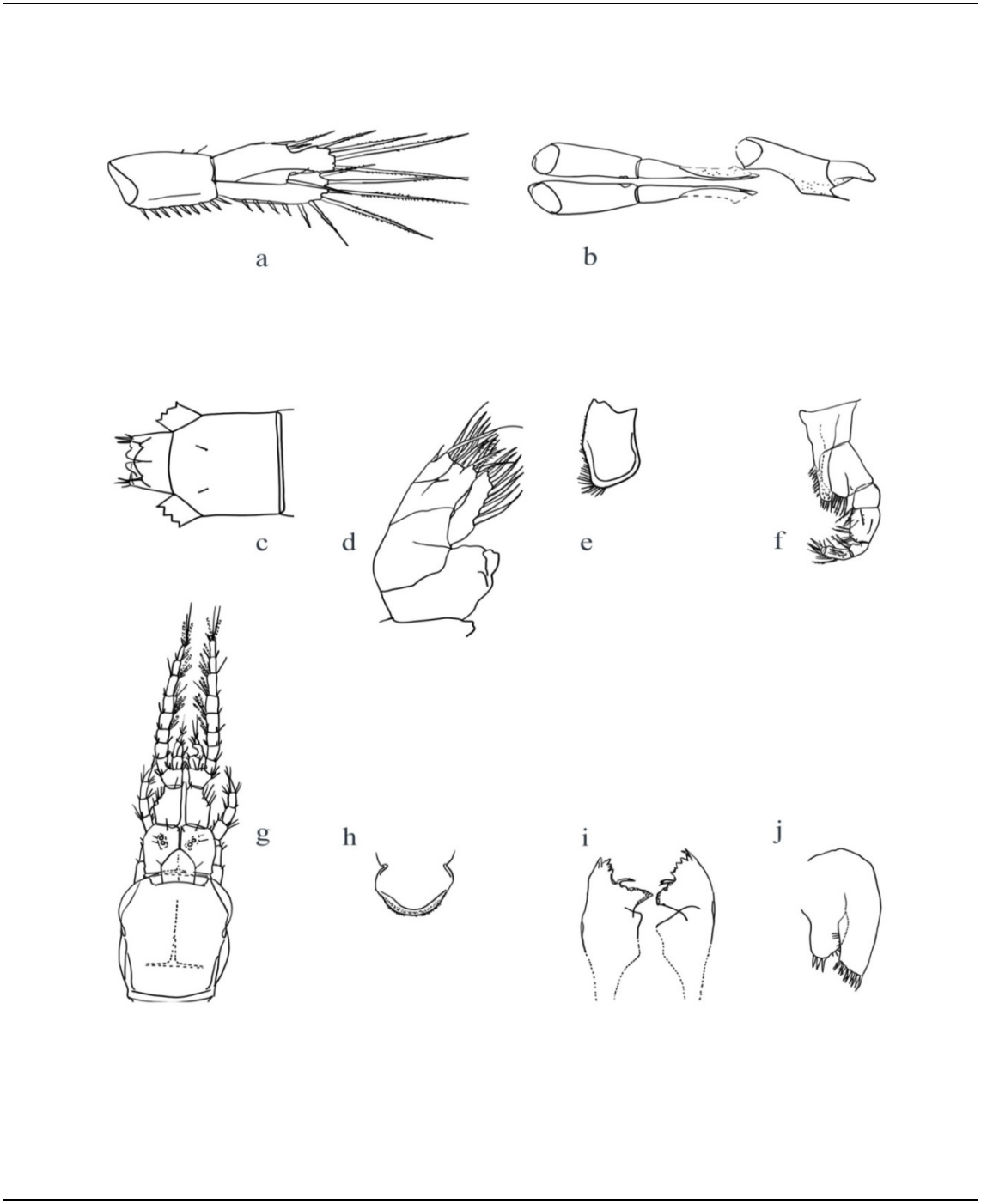


Figure 7.2.6. *Stygocaris*. Reproduction of *S gomez millasi* from Noodt 1963: a- uropod; b- male petasma (pl2+ pl1); c- telson; d- maxilla; e- paragnath; f- maxilliped; g- cephalon; h- labrum; i- mandible; j- maxillua.

Tasmanocaris n. gen

Type species

Tasmanocaris giselae. (Schminke 1980)

Etymology

The genus name is a combination of Tasmania, where the new species have been collected and its affinities with the genus *Stygocaris* Noodt.

Diagnosis

Rostrum rounded, subtriangular with a deep apical incision; proximolateral margin with one seta on both sides; telson distal margin posteriorly rounded; telson distal margin has one robust, simple seta on the lateral side of opening with no dorsal setae; lobular rudimenta reduced bearing three laterodistal spines; labrum dorsally rounded with fine setules on the dorsal margin; mandibles without palp; right mandible incisor process, with one lateral bicuspid denticle, one equally large denticle and four smaller, subequal denticles; left mandible incisor process, with one lateral bicuspid denticle, four equally large denticle and four smaller denticles and a moderate terminal denticle; molar process with many small triangular denticles on grinding surface and one fine setae on medioposterior apex; diastema between molar process and incisor process with two robust penicillate setae on each mandible; maxillula medial endite with four short, robust pectinate setae on the apex and fine setules on medial margin; maxilla with four distinct lobes with lateral three fused and the medial endite free; medial endite1 apically slender with three apical robust setae and medial margin spine row with six robust, pectinate setae; maxilliped seven-segmented without epipodite and exopodite; coxa with elongate distomedial extension with six distal, robust spines, and two elongate setae on medial margin parallel to articulation; basis with small distomedial extension with pointed apex and a double spine row of 11 robust setae on medial margin and one slender setae of distomedial margin; male pleopod with three segments including a coxa, protopod and rami; coxa segment length 0.5 width with one ventral simple setae; proximal segment length 2.0 width; distal segment length 2.62 width; pleopod medially converging at distal rami so that the rami are parallel to each other and form a tube; pleopod 1 rami connected by two coupling hooks proximal to middle; dorsal and ventral ridges for a longitudinal trough-shaped groove; ridge margins are lined with fine setules; pleopods 2 evenly tapered to an acute point with three segments; coxa with one ventral, simple seta setae; coxa segment length to width ratio.0.25; proximal segment length to width ratio 2.0; distal segment length to width ratio 7.5; proximal segment rectangular with two coupling hooks on mid medial margin; distal segment elongated and narrowly tapering to an acute, round point; distal rami with a laterally tapered, blade-like distal groove length of groove to length of segment ratio 0.33; groove lateral surface with a few minute setules; uropod with two single segment rami; uropod protopod length to width ratio 1.4; distomedial margin with a row of

eight equal robust, simple spines, one large seta on distomedial corner; exopodite with a middle restriction or notched indicating point of fusion.

Species Composition

Tasmanocaris giselae (Schminke 1980)

4 new undescribed species

Remarks

In addition to *T. giselae* in SE Victoria, four new locations are recorded in Tasmania. This is the first record of Stygocarididae present in Tasmania and the first new record of this family for Australia for approximately 30 years. This marks a significant increase in our knowledge of the Stygocarididae distribution and diversity and holds the promise of many more species being discovered, not only in Tasmania but throughout SE Australia as well. In Tasmaniae *Tasmanocaris* has been collected in an arc from bores in the central Midlands up to the central north and western north coast of Tasmania. The description of these species will be left for a future paper due to space and time constraints. An examination of the specimens from each location has identified that each location has its own endemic species.

A fifth location is recorded on the map from a literature record of one specimen collected by Dr. Stefan Eberhard from Sphagnum peat on the edges of Shadow Lake, near Lake St Clair, Central Plateau., Tasmania (Whinam, J., Eberhard, S., Kirkpatrick, J., & Moscol., 05-January-1988). This specimen or collection however, could not be located and therefore could not be confirmed. If however, this record is correct and stygocarids were at this locality, it would significantly extend the range of the family's distribution and habitats within Tasmania. It also suggests that, as there is a plethora of upland sphagnum swamps throughout this region there could, therefore, potentially be many new species of Stygocarididae yet to be discovered.

An analogous habitat and situation where small, hydrologically isolated upland swamps fed by groundwater seepage have been demonstrated to be hotspots of anaspidacean biodiversity is the studies conducted by the Sydney Catchment Authority in the Upper Nepean River area of Kangaloon (SMEC 2006, Hose 2008). The second study (Hose 2008) to collect material from this area demonstrated via genetic analysis that each upland swamp had its own short range endemic species of Psammaspididae. Although the Shadow Lake specimens could not be examined the species will be tentatively placed within this genus due to its proximity to the other records of this genus.

Tasmanocaris n. gen. shares a number of features with the New Zealand genus *Stygocarella* which indicate a close relation between the two countries as well as a distinct separation for the South American genera.

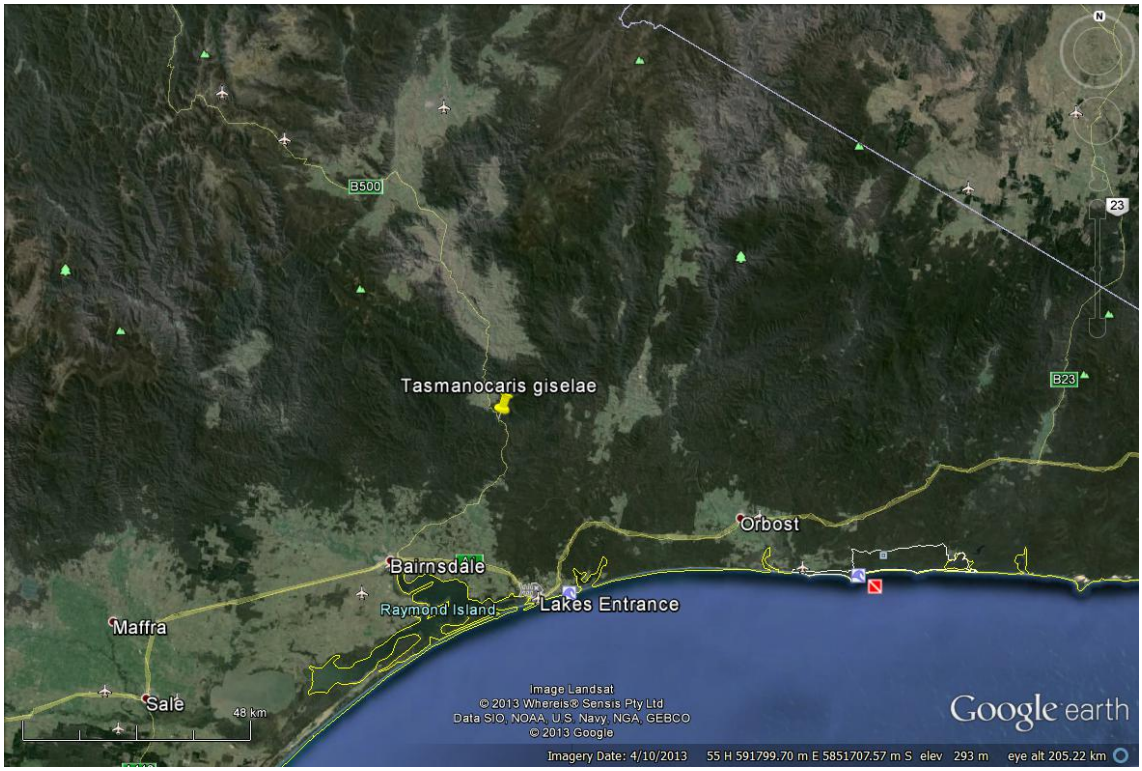
Tasmanocaris giselae Schminke 1980

Synonymy

Stygocaris giselae Schminke, H.K. 1980. Zur systematik der Stygocarididae und Beschreibung zweier neuer arten (Stygocarella pleotelson gen. n., n. sp und Stygocaris giselae sp. n). Beaufortia. 30(6): 139-154, Abbs. 25-44, [147].

Type locality

Tambo River, near Battle Point (about 27km N from Bruthen on Omeo Hwy), 65cm depth, Victoria, Australia.



Map 7.2.5. Regional location of *Tasmanocaris giselae*, in SE Victoria, Australia.

Type Material

Holotype, 2 females, ZMK; Allotype, 1 male, ZMK; Paratypes, 3 males and 6 females, ZMK. Tambo River, near Battle Point (27km N from Bruthen on Omeo Hwy), 65cm depth, Victoria, Australia. Probe AL 7, 90cm depth in gravel, Australia, Alt 127m, Zone 55, 576741.39m E, 5843601.56m S, Schminke, H.K., 10/4/1968. The type specimen of this species were provisionally in the collection of the author but were later deposited in the zoological collection of the Zoological Museum, University of Kiel (ZMK).

Diagnosis

Species diagnosis the same as the genus at this time.

Redescription

Modified from Schminke 1980

Male body length of 1.38mm and female body length 1.34, 1.43mm; length to width ratio 10; width to height ratio.1.2.

Rostrum rounded, subtriangular with a deep apical incision; proximolateral margin with one seta on both sides.

Telson distal margin posteriorly rounded; telson distal margin has one robust, simple seta on the lateral side of opening with no dorsal setae; lobular rudimenta reduced bearing three laterodistal spines.

Antennula with three peduncular segments; lateral flagellum with eight segments in males and seven segments in females; medial flagellum with two segments; peduncular segment one coxa with a statocyst and two setae on medial margin, one dorsal seta, two rows of three penicillate setae and one ventro-lateral seta; peduncular segment 2 with two setae on medial margin; one dorsal setae; one row of four setae on proximal margin; one penicillate seta on ventrolateral margin; peduncular segment 3 with two setae on medial margin; one robust dorsal seta and one seta on lateral margin; flagellum segment 1 with three penicillate and three small simple setae on distomedial margin; flagellum segment 2 with one dorso-medial setae, one dorsal seta, one ventral and one lateral setae; flagellum segment 3 with one dorso-medial setae; flagellum segment 4 with two aesthetascs on the medial margin, one mediodorsal seta; one dorsal seta, one ventral seta and one setae on the lateral margin; flagellum segment 5 with one aesthetasc on medial margin, one dorso-and one ventro-medial seta; flagellum segment 6 with two distomedial setae; flagellum segment 7 with two setae on medial margin; flagellum segment 8. with: aesthetasc with six terminal setae; medial flagellum segment 1 with two setae on medial margin, one dorso-medial setae, and one ventro-lateral setae; flagellum segment 2 with five terminal setae.

Antenna seven segmented; peduncular segment 1with no setae; peduncular segment 2 with one dorso-lateral setae in the proximal third; peduncular segment 3 with two short, penicillate setae and one simple seta on mid lateral margin; three penicillate setae and two simple setae on distomedial margin; peduncular segment 4 with a row of six simple setae and one penicillate setae on distomedial margin; flagellum segment 5 with one setae on proximal margin, one dorsal seta and three ventro-medial and three medial setae on medial margin; flagellum segment 6 with row of four simple setae on distomedial margin and one penicillate setae and 21 simple setae on distolateral margin; flagellum segment 7 with four terminal simple setae.

Labrum dorsally rounded with fine setules on the dorsal margin; mandibles without palp.

Right mandible incisor process, with six denticles; left mandible incisor process, with 10 denticles; including six main denticles and an accessory process with four smaller denticles; molar process with

many small triangular denticles on grinding surface and one fine setae on medioposterior apex; diastema between molar process and incisor process with two robust penicillate setae on each mandible.
Paragnath of two lobes, distal segment with elongate pubescence from apical margin to medial half.
Maxillula medial endite with four short, robust pectinate setae on the apex and fine setules on medial margin; lateral lobe with nine robust medially directed spines and five groups of fine setules on medial margin.
Maxilla with four distinct lobes with lateral three fused and the medial endite free; medial endite1 apically slender with three apical robust setae and medial margin spine row with six robust, pectinate setae and adjacent row of fine setules; lobe 2 apically slender with three apical, robust plumose setae; lobe 3 apically slender with five apical, robust plumose setae; lobe 4 with five apical robust setae robust setae with one short, robust, subdistal setae on lateral margin.
Maxilliped seven-segmented without epipodite and exopodite; coxa with elongate distomedial extension with six distal, robust spines, and two elongate setae on medial margin parallel to articulation; basis with small distomedial extension with pointed apex and a double spine row of 11 robust setae on medial margin and one slender setae of distomedial margin; one plumose setae on subdistolateral surface; ischium with four elongate setae on distolateral corner; merus with three elongate setae on medial margin, three seta on ventral margin and one seta on lateral margin; carpus with one simple seta on distolateral corner and one plumose seta on subdistomedial corner; propodus with three setae on the medial margin, and one seta on mid lateral margin; dactylus with two claws and three distal, slender, elongate setae.
Thoracopod 2-7 with two epipodites at the coxa; without exopodite; all thoracopods with two simple setae on distomedial corner of basis and ischium; all thoracopods with one simple setae on the distomedial corner of merus and on mid lateral margin of carpus; thoracopod 2 propodus with two distomedial setae and one distolateral seta; thoracopod 2dactylus with two claws, one distal setae and one mid lateral seta; thoracopod 3-8 dactylus with one claw, and one small distal seta; thoracopod 2-7 carpus with a right angled depression on medial margin; thoracopod 8 without epipodite and exopodite without a right angled depression on medial margin.
Female spermatheca between thoracopod 7 and 8; spermatheca lobes rectangular in lateral view and clearly visible.
Male pleopod 1 coxa segment length to width ratio 0.5; proximal segment length to width ratio 2.0; distal segment length to width ratio 2.62; endopodite of pleopod 1 three segmented; coxa with one ventral simple setae; coxa widely spaced with width of diastema between coxa to width of coxa 2.0; pleopod medially converging of distal segments, so that the distal segments are parallel to each other and form a tube; pleopods connected by two coupling hooks; the ventral margins of this trough-shaped segments are lined with fine setules.
Male pleopods 2 with three segments; coxa with one ventral, simple seta setae; coxa segment length to width ratio 0.0.25; proximal segment length to width ratio 2.0; distal segment length to width ratio 7.5; proximal segment rectangular with two coupling hooks on mid medial margin; distal segment elongated

and tapering to a blunt point; distal segment with a distal ventral dorsal groove length of groove to length of segment ratio 0.33; groove lateral surface with a few minute setules.
Uropod protopod length to width ratio 1.4; distomedial margin with a row eight equal robust, simple spines, one large seta on distomedial corner; distolateral margin with two slender, simple setae; distolateral margin with obvious notched halfway indicating point of fusion; exopodite distally tapered, unisegmented length to width ratio3.37; exopodite length to endopodite length ratio 1.05; distal margin with four elongate plumose setae; distolateral margin with two short plumose setae, two simple setae; endopodite unisegmented length to width ratio 2.7; distal margin with four elongate, plumose setae; distolateral margin with one short penicillate setae; distomedial margin with a row of three short simple setae; dorsal margin with six penicillate setae; telson length to width 1.5.

Habitat

Freshwater interstitial hyporheos.

Distribution

Known only to occur in type locality:

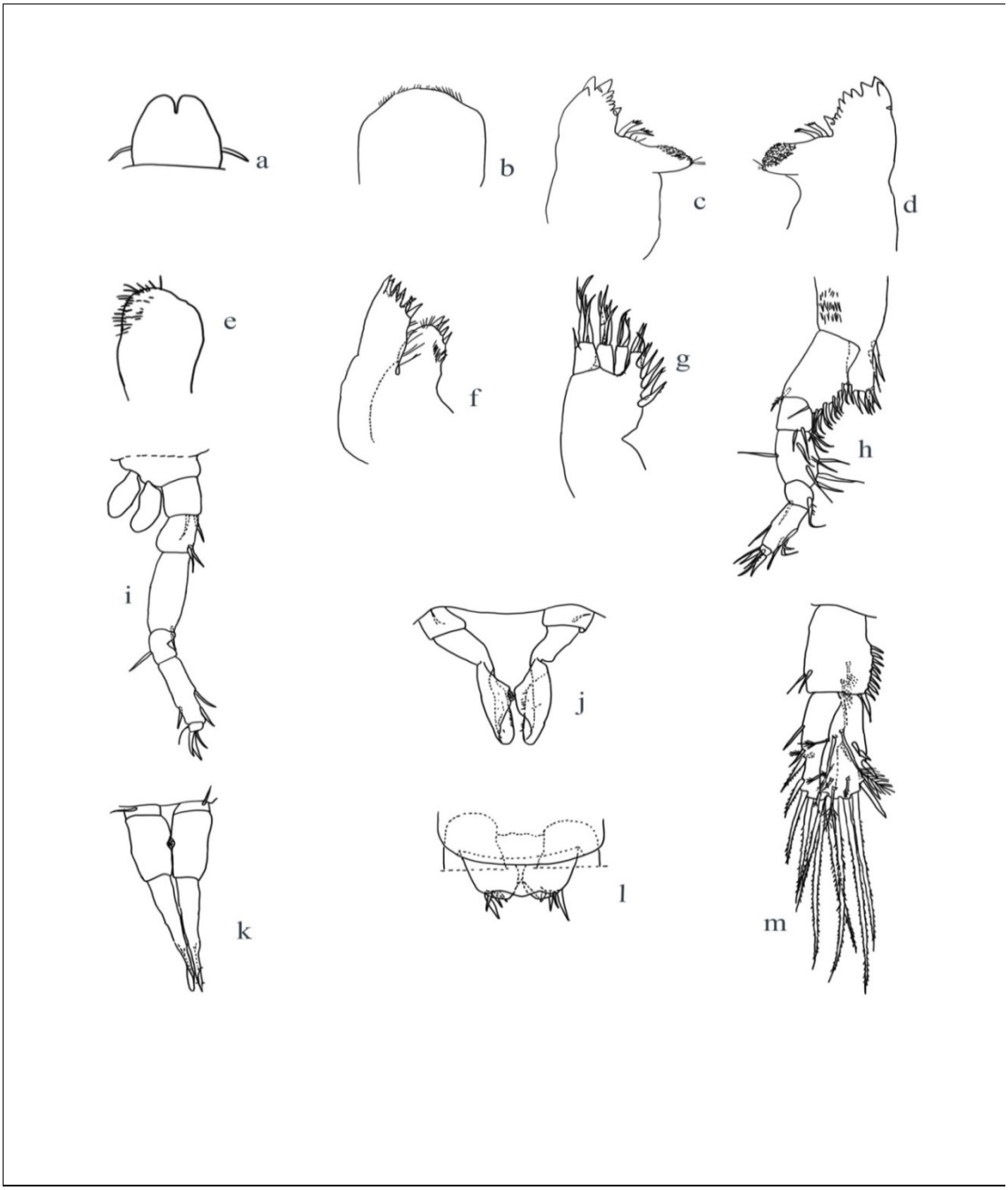


Figure 7.2.7. *Tasmanocaris* n. gen. Reproduction of *T. giselae* from Schminke 1980: a- rostrum; b- labrum; c- right mandible; d- left mandible; e- paragnath; f- maxillula; g- maxilla; h- maxilliped; i- thoracaopd 2; j- male pleopod 1; k- male pleopod 2; l- telson; m- uropod.

Zealandocaris n. gen

Type species

Zealandocaris townsendi Morimoto, Y. 1977

Etymology

The genus name is a combination of New Zealand, where the species has been collected and their affinities with the genus *Stygocaris* Noodt.

Diagnosis

Each thoracic and abdominal pereonites with several setae on either side; colouration, colourless and translucent when alive; rostrum bilobed and depressed on dorso- anterior margin; pleonite 6 with row of six simple setae (3 each side subposteriorly to posterior margin; telson furcate processes of telson vestigial, each with two spines; actually telson has four spines on each side including one on subapical dorsal surface half way between medial and lateral margin; one on subdorsal posterior apex on lateral corner; two on subventral posterior apex on lateral corner; anus opens posteriorly; antennula statocyst containing three ball setae in the basal segment; labrum in the form of a cupola with a small notch on the anteromedial margin; paragnath of two lobes with diagonal suture; left mandible (only left mandible illustrated) with one bicuspid lateral denticle, three large, subequal denticles, four small, subequal denticles in a concave row, one larger terminal denticle; diastema with three penicillate setae; maxilla with four free lobes; lateral lobe round; maxilla medial endite tripartite, lateral two portions each with a pectinate seta, medial most portion large, bearing on the apical margin a row of six short setae and on the medial margin a row of seven pectinate setae; basis with broad, diagonal margin on large distomedial endite with 12 pectinate spines; pleopods ventral surface of each pleonite with one setae in position of each pleopod; male pleopod 1 and 2 both procurved; male pleopod 1 biramous; lateral lobe elongate and incurved with a row of numerous hairs on the medial basal margin; medial endite forming a small process, with a row of hairs on the medial margin; male pleopod 2 of two segments; distal segment stylet shaped becoming compressed and ventrally lamellae towards apex, and bearing a row of minute hairs along the ventro-lateral margin near apex; no coupling hooks; no pleopods in females; uropod peduncle armed with a row of nine spines on the distal medial margin and two setae on the distal lateral margin; endopodite broad, distally dilated, provided with seven spine-like setae on the apical medial margin; four short setae on the dorsal surface and four elongate plumose setae on the apical margin; exopodite with two segments; proximal segment with one distomedial simple setae and five setae on distolateral margin; distal segment articulated at the ventral side of the apex of proximal segment ; proximal segment with dorsal shield-like extension that partially covers the joint of the two exopodite and the proximolateral corner of the endopodite; this is an autapomorphic feature of this species that has not been recorded in any other anaspidacean; five elongate plumose setae on apical margin.

Species Composition

Zealandocaris townsendi (Morimoto, Y. 1977

Remarks

Zealandocaris n. gen. has a distinct combination of derived features that are not seen in any other Stygocarididae, let alone the Anaspidacea. The combination of a fused pleotelson, digitate male pleopod 2 and the additional lobe/plate covering the uropodal lateral rami as well as the anteromedial plates on the cephalon is proposed to be sufficient to raise this genus to subfamily status as these features are incomparable among the Anaspidacea.

Zealandocaris townsendi (Morimoto 1977)

Synonymy

Stygocaris townsendi Morimoto, Y. 1977. A New Stygocaris (Syncarida, Stygocarididae) from New Zealand. Bulletin of the National Science Museum, Series A. (Zoology). 3(1), [19].

Type locality

Twin Forks Cave, Paturau, NW corner of South Island, New Zealand.

Material Examined

Type Material

Holotype and allotype from Twin Forks Cave, Paturau, NE corner of South Island, New Zealand. Collected by S, Uéno, Y. Morimoto, and J.I. Townsend. 11.5°C, pH 7.6, 15/1/1975. Type material deposited partly in the Entomology Division, Mt. Albert Research Centre, D.S.I.R., Auckland, N.Z., partly in the collection of the National Science Museum (Nat. Hist.), Tokyo, Japan.

Paratypes: 6m, 9f, I juv from type locality.

Other Records.

8 males, 5 females, 1 juvenile from Kennedy's Cave. Near Sharks Head, Te Hapu, about 7 km NE of Type locality: 14.5°C, pH 7.6. 15/1/1975 collected by S, Uéno, Y. Morimoto, J.I. Townsend. Collected from filtering groundwater bailed out of shallow pits dug in sandy banks of underground streams.

Diagnosis

Species diagnosis is the same as the genus diagnosis at this time.

Redescription

Based on illustrations from Morimoto (1977).

Body elongate; body length 1.95mm male (holotype), 2.44mm female allotype, 1.00-2.25mm (paratypes); pereon about 1.3 times as elongate as the pleon; each body segment with several setae on either side; cephalothorax nearly as elongate as the second and third thoracic pereonites together; colouration colourless and translucent when alive.

Rostrum bilobed and depressed on dorso- anterior margin; pleonite 6 with row of six simple setae (3 each side subposteriorly to posterior margin).

Telson furcate processes of telson vestigial, each bearing two spines; actually telson has four spines on each side including one on subapical dorsal surface half way between medial and lateral margin; one on subdorsal posterior apex on lateral corner; two on subventral posterior apex on lateral corner; anus opens posteriorly, antennula slender, about 3.5 times as elongate as the antenna.

Antennula consisting of 15 segments in the holotype and 17 in the allotype; containing three ball setae in the basal segment; medial flagellum with two segments on the third peduncle segment.

Antenna consists of seven segments.

Labrum in the form of a cupola with a small notch on the anteromedial margin, stout and broad being covered with fine setules around the frontal and front medial margin.

Paragnath of two lobes with diagonal suture; distal joint with elongate pubescence from apical margin to medial half.

Left mandible (only left mandible illustrated) with one bicuspid lateral denticle, three large, subequal denticles, four small, subequal denticles in a concave row, one larger terminal denticle; diastema with three penicillate setae; molar process sclerotized; proximal part with three stout bifurcate setae.

Maxillula with two endites; medial endite with four pectinate spines at apex, six short hairs on the medial apical side, and a row of eight short hairs on the lateral apical margin.

Maxilla with four free lobes; lateral lobe round with apical setae, three of which are elongate and pectinate second endite with three elongate pectinate apical setae third endite somewhat divided at apex and with two apical pectinate setae fourth; maxilla medial endite tripartite, lateral two portions each with a pectinate seta, medial most portion large, bearing on the apical margin a row of six short setae and on the medial margin a row of seven pectinate spines.

Maxilliped coxa with large, elongate, distomedial endite with five pectinate spines and one seta on the apical medial margin and one pectinate seta on the apical lateral margin; basis with broad, diagonal margin on large distomedial endite with 12 pectinate spines; ischium with four setae; merus obviously elongate than ischium, with three pectinate spines and four setae; carpus small, with one pectinate spine and one pectinate seta; propodus slender with two pectinate spines, one pectinate seta and four simple setae; dactylus very small with two terminal claws.

Thoracopods 2-8 no exopodites; each coxa of thoracopoda 2-7 with two epipodites; in pairs 2-8, basis, ischium, and carpus each with two setae; merus elongate with one seta; propodus elongate, usually more slender merus, with three setae in pair 2 but with only two setae in pairs 3-8; dactylus very small though elongate than wide, bearing two terminal claws in pairs 2 and one terminal claw in all others.
Pleopods 3-5 represented by one setae on the lateral side of the ventral surface of each pleonite.
Male pleopod 1 and 2 both procurved; male pleopod 1 biramous; lateral branch elongate and incurved with a row of numerous hairs on the medial basal margin; medial branch forming a small process, with a row of hairs on the medial margin.
Male pleopod 2 of two segments; distal segment becoming compressed and ventrally lamellae towards apex, and bearing a row of minute hairs along the ventro-lateral margin near apex; no coupling hooks recorded; no pleopods in females.
Uropod peduncle armed with a row of nine spines on the distal medial margin and two setae on the distal lateral margin; endopodite broad, distally dilated, provided with seven spine-like setae on the apical medial margin; four short setae on the dorsal surface and four elongate plumose setae on the apical margin; exopodite with two segments; proximal segment with one distomedial simple setae and five setae on distolateral margin; distal segment articulated at the ventral side of the apex of proximal segment ; proximal segment with dorsal shield-like extension that partially covers the joint of the two exopodite and the proximolateral corner of the endopodite; this is a autapomorphic feature of this species that has not been recorded in any other anaspidacean; five elongate plumose setae on apical margin.

Habitat

Inhabits the hyporheic zone of fine grained sediments within limestone caves.

Distribution

Known from two limestone caves in the northwestern corner of the South Island of New Zealand.

Remarks

Schminke inferred that the specimens collected from Kennedy's cave are the same species. It is suggested that that as these two caves systems appear not to tbe connected hydrologically due to their locality and distance, it is likely that they bare two separate species. A recollection of new material or a re-examination of the type material is needed to confirm this.

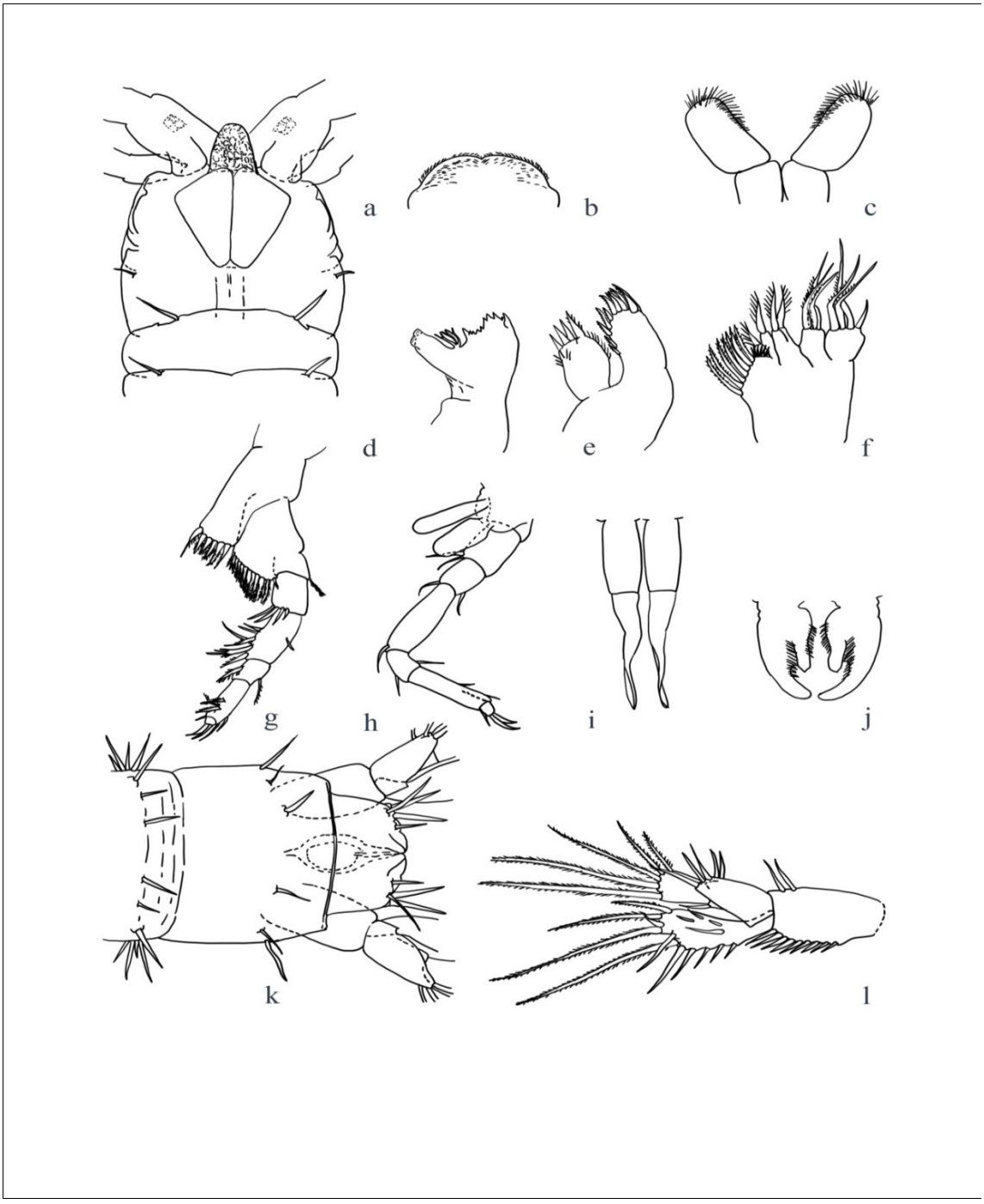


Figure 7.2.8. *Zealandocaris* n. gen. Reproduction of Z. *townsendi* from Morimoto (1977): a- cephalon, dorsal view; b- labrum; c- paragnath; d- left mandible; e-maxillula; f-maxilla; g- maxilliped; h- thoracopod; i- male pleopod 2; j- male pleopod 1; k- pleotelsdon; l- uropod.

APPENDIX 7.3 - Taxonomic Descriptions of the Palaeocaridacea

Order Palaeocaridacea Brooks 1962

Diagnosis (after Schram 1986, modified by Perrier et al. 2006)
Fossil syncarids with eight free thoracic segments and six abdominal segments; telson and uropods developed as a fan-like structure with strong lobate uropods; rostrum formed by anteromedial extension of cephalic plate; eyes on articulated stalks when present, antennula statocyst unknown; antenna longer than antennula; antenna endopodite (when present) modified into scaphocerite (scale-like feature); first thoracopod modified (typically reduced) as a maxilliped; all thoracic segments with five components; uropods with one endopodite and one exopodite; exopodites of uropods usually with diastema (axial cuticular thickening or a line of articulation defining the second rami segment).

Family Minicarididae Schram 1984

Thoracic exopodites unisegmental; pleopods unisegmental; first thoracomere larger, not reduced nor fused to cephalon.

Genus *Minicaris* Schram 1979a

Peduncles of antennules and antennae subequal (in length); at least first pleopod present and well developed; uropods narrow and bladelike.

Minicaris brandi Schram 1979

Body length – 8.00mm the same as for genus; small body – body length; antennular peduncle 3 jointed; proximal most joint one-half total length of peduncle, distal 2 joints progressively shorter; antennal protopod distal joint twice the proximal; scaphocerite oval with distal tip pointed and setose; proximal 2 flagellum joints peduncular; thoracomeres with rounded pleura, posterior corners acute; thoracopod exopodites narrow; all thoracopods appear equal, ischium long, merus and carpus short, propodus moderate, dactylus short; abdominal pleura rounded; telson not sharply sutured from sixth pleomere. Telson spade-like, setose; uropods blade-like, setose, possibly with diastema (articulation).

Genus *Erythrogaulus* Schram 1984

Posterior corners of pleomere pleura serrate; telson distally spinose; uropodal exopodite distally serrate.

Erythrogaulus carrizoensis Schram 1984

Body length 9.7mm; thoracomeres subequal, pleura rounded, except eighth which is posteriorly serrate; pleomeres subequal; posterior corners serrate; telson rectangular; developed distally with 2 sets of tooth-like spines, medial distal set larger than the lateral proximal pair; uropodal rami blade-like and subequal, slightly longer than telson; exopodite with distal tooth-like spines on lateral margin just anterior to where diastema might be endopodite finely setose.

Family Acanthotelsonidae Meek and Worthen 1865

Thoracic exopodites unisegmented and flaplike; anterior thoracopods raptorial; pleopods biramous and flap-like.

Genus *Acanthotelson* Meek and Worthen 1865

Thoracopods markedly reduced; Second and third thoracopod raptorial; telson styliform; uropods styliform.

Acanthotelson stimpsoni Meek and Worthen 1865

Body length - 32mm; cephalon with short rostrum; cervical grooves; precervical grooves – not identified before; eyes small and stalked; antennular peduncle 3 segmented, proximal and distal joints large; medial segment short; flagella well developed with inner branch shorter than outer branch; antennal protopod with short proximal segment bearing nephropore and long distal segment; no scaphocerite; very long flagellum with proximal 2 joints peduncular; antennules and antennae with setose inner peduncular margins; mandible massive, palp well developed; maxillule with 3 segmented palp; maxilla with at least proximal segment of palp; first thoracomere reduced in length;

second through to fourth thoracomeres progressively longer than first; last 4 thoracomeres subequal; last 3 thoracomeres have anterior margins with raised ridge; thoracic pleura simple; first thoracopod reduced possibly as short maxilliped; second and third thoracopods biramous; endopodites large, spinose and raptorial in form; five posterior thoracopods of ambulatory form; with epipodites; exopodites of single segment (flap-like); endopodites with short ischium and dactylus, long merus, carpus and propodus pleomeres similar in size to posterior thoracomeres; first through to fifth pleura with posteroventral corners serrate; fifth and sixth pleomeres posterior margins serrate; sixth pleomere not elongate; pleopods as biramous setose paddles telson as long spike with margins with alternating spines and setae; uropodal rami as blades; margins with alternating spines and setae.; spikes or uropods and telson reinforced with medial ridges; segments of antennular peduncle subequal telson subtriangular but long and narrow, shorter than uropods; antennules well developed; peduncle with 3 subequal segments; equal in size to peduncle of antennae; antennal peduncular segments short; no scaphocerite; all pleomeres about equal in length; last 3 with paired longitudinal dorsal ridges; dorsal posterior margin of sixth pleomere concave; telson triangular, narrow with dorsal median ridge; margin furrowed and setose; distal setae more strongly developed; uropodal rami styliform, each with reinforcing rib flanked by slight furrows, exopodite margins with strong setae (especially laterally); endopodite margins finely setose.

Genus *Pleurocaris* Calman 1911a

Cephalon small; 2 cephalic grooves not joined laterally; tergites decorated with lateral ridges; thoracic pleura very large; Teslon and uropodal rami styliform.

Tentative assignment to this family (as suggested by Schram 1984)

Pleurocaris annulatus Calman 1911a

Body length – 16mm; cephalon short; rostrum small; stalked compound eyes; eyes small and rounded; details of antennules and antennae uncertain; first thoracomere short. ½ length of others; all thoracomeres with 2 laterally directed ridges on tergites; pleura very large, rounded, set off from tergites as lappets; 2-8thy thoracopods with well-developed endopodites with long merus; carpus short; other joints unknown; pleomeres decorated dorsally with lateral ridges as thoracomeres; pleura decrease to pleomeres 4 and disappear; telson styliform; margins with 5 pair of movable spines; pleopods possibly flaplike; uropods as blades; exopodites straight, serrated laterally and less so medially; endopodite curved medially; lateral margin faintly spine; medial margin distinctly spine.

Pleurocaris juengeri Schöllman 1999

Cephalon short with two lateral lobes; rostrum elongate and narrow with three terminal spines with central spine longer than lateral spines eyes unknown; antennules well developed; peduncle segment 1 twice as long as segments 2-3; peduncle segments 2-3 subequal in length;
Equal in size to peduncle of antennae antennal peduncular segments short; no scaphocerite; first thoracomere short. ½ length of others; all 8 thoracomeres decorated with 1-2 lines of small turbicles; thoracomeres with very large, rounded pleura, set off from tergites as lappets; pleomeres 1-2 with very large, rounded pleura, set off from tergites as lappets; pleomeres decorated medially with 1-2 lines of small turbicles; pleomeres 3-6 with distally directed spine like pleura set off from tergites; pleomeres 4-6 subequal in length; telson styliform margins with 5 pair of movable spines; uropods uniramous blades; exopodites straight, no serrations laterally; endopodite curved medially; lateral margin faintly spined; medial margin distinctly spined.

Genus *Uronectes* Bronn, 1850 (= Gampsonychus Burmeister 1855)

No rostrum; first thoracomere moderately reduced; second thoracopod raptorial; telson and uropods broad and rounded; uropods with straight diastema; broad tailfan formed from overlapping elements.

Uronectes fimbriatus Jordan 1847

Body length – 28mm; cephalon with faint cervical groove; no rostrum; antennule peduncles 3 segmented; proximal segment very long; distal 2 joints short; flagellum moderately developed; antennal protopod with 2 subequal segments; scaphocerite oval; flagellum moderately long with proximal 2 segments peduncular;

first thoracomere moderately reduced; thoracic pleura simple, with slight furrow along margins; sixth thoracomere somewhat longer dorsally than others; second thoracopod large, spinose and raptorial; second through to eighth thoracopods ambulatory, ischium very short; merus through propodus moderate; dactylus very small; first 5 pleomeres with finely serrate posterior margins, pleura acuminate anteriorly with slight furrow on margins; sixth pleomere elongate; telson rounded, margins setose; uropods flaplike, margins setose, exopodite with straight diastema and reinforced with lateral thickened rib.

Uronectes kinniensis Schram & Schram 1979

Body length – 17.5; fourth thoracomere moderately reduced; eight thoracomere with lateral semicircular ridges; cephalon apparently undecorated; no rostrum; no eyes; antennal protopod of 2 subequal segments; scaphocerite subtriangular and setose; proximal most joint of flagellum peduncular; first and fourth thoracomere moderately reduced; all thoracomeres except weight undecorated, pleura simple; eighth thoracomere with small lateral, paired, semicircular ridges; thoracomeres 3-8 subequal; pleopods with finely serrate posterior margins; fifth pleomere elongate; telson rectangular, rounded distally, and distally serrate; uropods as broad flaps; exopodite with straight diastema; endopodites setose.

Uronectes palatinus Uhl and Raisch 1999

Cephalon anterior margin rounded; rostrum absent; second antennae 1.5 - 2 cm long; scaphocerite setose; thoracomere 1 is not fused to cephalon and is shorter than the others. Thoracomeres 2-8 are subequal in length; thoracomeres 3-5 anterior margins are the of; thoracomeres 5-8 posterior margins also coarsely serrated; thoracomere 5 anterior and posterior margins are serrated. Thoracopods modified. Remains of the modified thoracopods bear flap-like exopodites. Pleomeres 1-5 posterior margins are coarsely serrated pleopods are flap-like. Telson is tongue-shaped with delicately serrated margins. Uropods are spatulate with delicately serrated margins.

Genus *Palaeosyncaris* Brooks 1962b

Fist thoracomere very reduced; second thoracomere moderately reduced;
2-3 thorcapods raptorial; telson oval with spinose margins; uropodal exopodites laterally spinose

Palaeosyncaris dakotensis Brooks 1962b

Body length – 25mm; all segments with transversely striate decoration; abdominal pleura with posterior margins serrate.; eyes small; eye stalk long; antennules with 3 segment peduncle; proximal joint equal to distal 2 joints; flagella well developed; scaphocerite small oval; proximal joints of flagellum peduncular with median margins setose, ; flagellum well developed; first thoracomere greatly reduced; second thoracomere moderately reduced; second and all other somites with transverse striae, ; pleura rounded and ventral margins with furrow; first thoracopod apparently reduced; 2-8 thoracopods robust; merus longer than other segments; other segments subequal; merus in 2-3 thoracopod inflated dactylus long and pointed; 2-3 thoracopods raptorial; eight thoracic pleon posteriorly extended and margins serrate; all tergites with marginal furrows, especially prominent on pleura abdominal pleura anteriorly rounded, posteriorly pointed with margins serrate; last pleomere somewhat elongate;; telson long oval and marginally spinose tergal median spines reduced in comparison to adjacent members in series; uropodal exopodite laterally spinose; endopodite margins finely setose

Palaeosyncaris micra Schram 1984

Body length – 21.5mm; segments smooth, no decoration; abdominal pleura not serrate;; telson with spinose setae increasing in size distally cephalon with short rostrum; antennules with 3 subequal joints in peduncle; antennae with small scaphocerite; first thoracomere greatly reduced second moderately reduced;; 3-8 thoracomere subequal with anterior corners rounded; first thoracopod reduced, about ½ length of other thoracopods; 2-3rd thoracopod robust, raptorial; dactyli with well-developed terminal spines; 3rd-8th thoracopod ambulatory; merus and carpus long; ischium, propodus and dactylus short, subequal; exopodites flaplike; abdominal pleura anteriorly and posteriorly reduced forming broad round points; sixth pleomeres somewhat longer than anterior pleomeres; telson oval; medial margins with spinose setae, with setae increasing in size distally; uropods setose; exopodites lateral margin setae spinose; exopodites reinforced with medial rib and possessing an oval diastema.

Family Palaeocarididae Meek and Worthen 1865

(Schram 1984)
Thoracic exopodites flap-like, pleopods annulate - important delineation from other palaeocaridaceans/anaspidaceans; (Brooks 1962) Palaeocaridacea with none of the thoracic endopodites modified as raptorial appendages; uropod rami lobate; telson spatulate; modified after Schram 1984 by Perrier *et al.*, 2006 palaeocaridaceans with thoracic appendages bearing leaf-like exopodites; pleopods with multi-articulated exopodites and endopodites

Genus *Monicaris* Stomberg 2000

Could not be located.

Monicaris rudnicensis Stomberg 2000

Could not be located.

Genus *Palaeocaris* Meek and Worthen 1865

Mandibles massive; first thoracomere greatly reduced; sixth pleomeres posterior margin deeply concave; uropodal rami margins very setose; exopodites with pronounced diastema; exopodites distinctly longer than endopodite; endopodite distinctly longer than telson; telson oval; margins bearing stout setae/spines

Palaeocaris typus Meek and Worthen 1865

Body length – 23.7mm; cephalic shield smooth, except for slight lateral groove at level of mandible; optic notch prominent; rostrum small; ventral margin of cephalic shield rounded and whole; eyes moderate in size; stalk with prominent (pericarid like) papilla.; head length to thorax length ratio 1:4; antennular peduncle 3 segmented; proximal most joint as long as distal 2 joints; medial margin setose; inner flagellum shorter than outer flagellum; outer flagellum about 1/3 body length; antennal protopod with short proximal joint and large distal joint; scaphocerite oval, setose and longer than the two peduncular segments of antennal flagellum; basal flagellum joints peduncular; medial margins of peduncular joints setose; flagellum length equal to body length; mandible massive, prominently projecting below cephalic shield margin; palp at least 2 segments; maxillule and maxilla with palps (details uncertain; first thoracomere markedly reduced; sixth thoracomere larger dorsally than any other thoracomere; thoracic pleura broadly rounded anteriorly, posterior margin straight; first thoracopod about ½ the size of succeeding appendages; thoracopods 2-8 subequal; epipodites present (details unknown); exopodites broadly flap-like, setose; endopodites with short ischium ; dactylus, merus, and carpus long and subequal; propodus ½ length of carpus; pleomeres with posterior margins finely setose; pleura 1-5 as in thoracomeres; pleopods annulate (not flap-like as reported by Brooks 1962) uropodal diastema slightly curved to straight; outer margins of exopodites with widely spaced spinose setae along its length terminating in 3 spines just anterior to diastema; telson ovoid but wider proximally than distally; margins with spinose setae; a uropods flap-like; with faint median reinforcing rib on setose rami; exopodites with lateral margins spinose; setae distally developed as 3 small spines just anterior of straight curved diastema.

Palaeocaris secretanae Schram 1984

Modified after Schram 1984 by Perrier *et al.*, 2006
Cephalon shield smooth and triangular, with no ornamentation; rostrum short and pointed and overhangs; deep optic notch (eye socket); basal part of a1 with 3 segments; cephalon with medial groove at level of mandible; rostrum small to moderate in size; optic notch prominent; eyes large, pear shaped; eye stalk conical, short (1mm); antennular (a1) peduncle with 3 subequal segments; median margins setose; flagella well developed (undetermined length; antennal (a2) protopod quadrangular with median margins setose and a spine of lateral anterior margin; scaphocerite represents the exopodites of A2; scaphocerite is oval, small in size and setose; flagellum1/2 length of body;
2 proximal-most joints of flagellum peduncular and very large; labrum trapezoidal in shape; mandible ovoid in shape with large incisor process and molar process; well-developed palp (at least 2 articles) ; distal article elongate and blade-like; thoracic and abdominal pleura with gently rounded corners and well developed posterior corners; head length to thorax length ratio1:4.6; trunk has eight thoracic segments and 6 abdominal segments; first thoracomere very reduced; all other thoracomeres subequal; thoracopod 1

reduced as a maxilliped; 2-8 thoracopods coxa with long cylindrical epipodites; exopodites on basis are large and flap-like with setose margins; exopodites have 2 segments; one proximal short segment and one elongate distal; endopodite has 5 segments – ischium, merus, carpus, propodus, dactylus; endopodite ischium, dactylus small; merus and propodus long; carpus moderate in length; pleomeres with spiny posterior margins; rows of small sensory pores on anterior half of each segment; pleopods biramous, annulate and setiferous; uropod rami spatulate; reinforced with strong median ribs; exopodites lateral margin with small spines distally; uropodal diastema circular; outer margin of exopodites armed with small spines distally near diastema; margins of rami with long, dense, setae; rami reinforced with heavy medial ribs; telson slender, sub elliptical in dorsal view, ; margin fringed with long spines and reinforced by medial and lateral ribs; margins armed with 50spines; the 2 spines adjacent to the longitudinal axis of telson are reduced; digestive tract has a uniform cylindrical shape.; it starts behind the oesophagus and runs parallel to the midline of the body and terminates at the anus on the ventral side of the telson; eggs are small (300µm) spherical.

Palaeocaris retractata Calman 1932

Body length – 20mm; cephalic shield smooth, slight lateral groove at level of mandible; premandibular portion of cephalon as long or longer than the posterior region; rostrum small; optic notch slight; eyes small to medium in size; eye stalk short; antennula peduncle with 3 subequal joints, the most proximal with an optic fossa; antennal protopod with distal joint long; scaphocerite small and oval; 2 basal most joints of flagellum peduncular; mandible large with prominent incisor process; head length to thorax length ratio 1:2.8 – diagnostic; first thoracomere very reduced; all other thoracomeres subequal;
2-4 thoracic pleura sub quadrangular; posterior pleura broadly rounded anteriorly; all pleura with slightly marginal furrows; 2-8 thoracopods with epipodites flap-like; exopodites moderately flap-like; endopodite joints subequal; 2-6 pleomeres with setose posterior margins; pleopods annulate; uropod diastema is rounded to sigmoidal curve; outer margins of exopodites armed with spines and setose; telson ovoid, margins setose; margins with spinose setae.

Family Squillitidae Schram and Schram 1974

Thoracic exopodites annulate; pleopods annulate and either uni or biramous.

Genus *Squillites* Scott 1938

First thoracomere only slightly reduced; uropods narrow, spatulate and setose; telson subtriangular, armed with moveable spines.

Squillites spinosus Scott 1938

Body length – 12.5mm; eyes small and spherical; eye stalks moderately long; antennule with 3 segment peduncle; flagellum long; antennal protopod with only 1 segment observed; scaphocerite oval an setose; flagellum very long with proximal 2 segments large and peduncular; cephalon with marked broad rostrum; lacking cervical grooves; pair of semicircular mid dorsal ridges; thoracomeres with 4 anterior pleura medially pointed and 4 posterior pleura rounded; pair of semicircular ridges mid-dorsal on each thoracomere; first thoracomere slightly shorter than others; thoracopods subequal; ischium short and equal to basis; merus long; carpus to dactylus short; pleomeres variously decorated; 1-5 pleomeres with setose posterior margins 1-2 pleomeres with mid-dorsal paired semicircular ridges; 3-5 pleomeres with large posteriorly directed spines; first pleura rounded; 2-5th pleura with posterior corners denticulate; setose pleopods, robust and uniramous; 6th pleomeres elongate; uropods as oval flaps; margins finely setose; telson subtriangular; with median keel and 17 pairs of movable marginal spines.

Genus *Praenaspides* Woodward 1908

First thoracomere very reduced; pleopods biramous; uropodal exopodites with distinct circular diastema; telson triangular, laterally spinose.

Praenaspides praecursor Woodward 1908

Body length – 34.5mm; antennules with 3 segmented peduncle; middle joint shorter than others; flagellum relatively short; antennae with only single segment visible in protopod; scaphocerite oval non setose;

flagellum very long with proximal 2 joints peduncular; cephalon unornamented, ; slight rostral projection; first thoracomere smooth with no ornamentation; all other segments with 3-4 tergal ridges and rounded pleura; first thoracopod apparently reduced 2-8 thoracopod subequal; ischium and merus longer than carpus and propodus; dactylus unseen; pleopods with exopodites slightly longer then endopodites, rami thin; uropodal exopodites lateral margin spinose; endopodite sub trapezoidal with its longer margin medial; telson rectangular but somewhat bilobed terminally; lateral margin with 12-13 pairs of movable spines.

Genus *Nectotelson* Brocchi 1880

All thoracopods and thoracomeres subequal; pleopods biramous; uropods spatulate; diastema circular; telson oval and spinose.

Nectotelson krejcii Brocchi 1880

Body length – 10.5mm; cephalon lacks prominent rostral extension marked by deep and prominent mid dorsal groove parallel to the posterior margin which shallows as it extends towards ventral margin; eye oval, moderate in size; antennular peduncles subequal, 3 segmented ‘middle joint slightly shorter than others; antennal protopod with short proximal segment and longer distal joint with slight longitudinal ridges scaphocerite short, oval and setose; overlapping 2 proximal-most peduncular segments of flagellum; antennular and antennal flagellum well developed (length undetermined); median margin of antennal peduncle marked by row of short denticulate; mandible large but not apparently heavily sclerotised; incisor process present; maxillule and maxilla with small palps; maxillary palp with several segments; first thoracomere large with fine serrations on posterior margin; thoracic pleura rounded posteriorly; first thoracopod large with moderately long proximal unit followed by short merus, long carpus; 2-8 thoracopods subequal with small epipodites; exopodites, stout and annulate; short coxae, basis and ischium; long merus progressively shorter carpus, propodus and dactylus posterior margins of endopodites with fine setae; pleomeres with acute poster-ventral corners; 2-6th pleomeres with fine serrate posterior margins; 6th pleomeres almost twice as long as any other segment; pleopods with 2 robust, annulate, subequal, setose rami; uropods longer than telson; protopod short, with 2 faint longitudinal ridges; rami spatulate, densely setose and reinforced with sclerotised ribs along most of the lengths; exopodites laterally spinose; diastema circular; distal segment narrow oval; telson elongate and oval; ornamented with stout, short, moveable spines set in sockets.

Family Uncertain

Genus Spinocaris Uhl 1999

First thoracomere only slightly reduced; thoracomeres and pleomeres with very large spines; thoracomeres l-3 spines anterior; thoracomeres 6-8 and all pleomeres spines posterior; uropods elongated.

Spinocaris horribilis Uhl 1999

Body up to 2 cm long; antennule with two flagellate; antennae long; scaphocerite large, oval setose; thoracomere 1 only slightly reduced; thoracomeres 1-3 with large spines at the anterior margins; thoracomeres 6-8 with large spines at the posterior margins; thoracomeres 7-8 larger than the first three thoracomeres; thoracopods 3-6 ambulatory with flaplike exopodites; pleomeres 1-5 with large spines at the posterior margin; uropods elongated with setose margins.

Genus *Williamocalmania* Schram 1984

First thoracomere markedly reduced; second thoracomere longer than first but less than others; thorax shorter than abdomen ratio 0.9:1; telson elongate, sub triangular, distal end rounded; uropodal rami oval and longer than telson.

Williamocalmania vandergrachti (Pruvost) 1912

Body length – 13mm; body moderate to large; antennule peduncle large; scaphocerite large and ovoid; 2-3 proximal segments of flagellum peduncular and very large; rostrum large with prominent optic notch; first thoracomere reduced and closely associated with cephalon; second thoracomere shorter than posterior thoracomeres but larger; all other thoracomere subequal; pleura subtriangular, attenuated along anterior

margin with slight marginal furrows thoracopods subequal; exopodites flaplike; thorax shorter than abdomen; sixth pleomere elongate; telson long, subtriangular with distal end rounded; margin with stout spinose setae; uropodal rami oval; exopodites reinforced proximally with medial rib; diastema slightly curved; exopodite longer than endopodite.

Genus *Brooksyncaris* Schram 1984

First thoracomere only slightly reduced; 6-8th thoracomeres slightly larger than 2-5$^{th;}$ thoracomeres each with 2 transverse grooves.

Brooksyncari canadanensis (Brooks) 1962b

Body length – 13mm; cephalon short (cephalon to thorax ratio 1/5.4; prominent cephalic groove; small post cephalic groove extending in an arc dorsally from posterior margin; antennule and antennal peduncles well developed (but too poorly preserved; first thoracomere only slightly reduced; 2-8th thoracopods ambulatory with large epipodites.

Genus *Palaeorchestia* Zittel 1885

Antennular peduncles smaller than those of antennae; telson rectangular.

Palaeorchestia parallela (Fritsch), 1876

Body length – 19.5mm; body moderate in size; antennular peduncle with 3 subequal segments; medial margin of second segment spinose; flagella well developed; antennal protopod with short proximal segment; scaphocerite large and setose; basal joints of flagellum peduncular with distal segment twice as long as proximal; no rostrum; first thoracomere shorter than others; thorax length more than 1 ½ length of abdomen; sixth pleomeres very long, with faint lateral groove about mid length; telson long, subrectangular, marginally setose; uropodal rami spatulate; with strong medial ribs, margins finely setose; exopodites larger than endopodite; endopodite equal to or shorter than telson; exopodites with circular diastema.

Genus *Clarkecaris* Messalira 1952

Cephalon with well-developed groove; eighth free thoracic segments short; abdominal segments long; sixth pleomeres longest; pleura styliform; telson subtriangular with a narrow bifid terminus.

Clarkecaris brasilicus (Clarke), 1920

Body length – 30mm; cephalon with well-marked groove; antennules long with well-developed peduncles medially serrate and setose; antennae with large oval setose scaphocerite; flagella well developed; thoracomeres short, subequal in length; anterior margins marked with row of papillae;
Pleura rounded; abdominal segments long; sixth longer than all others; pleura various, first rounded; 2-5th with styliform posteriorly directed processes; uropodal protopod with lateral styliform processes; exopodites long and thin; endopodite diaphanous, long and oval; telson shorter than uropod rami ; telson narrow, subtriangular; terminus developed as bifid process.

Family Palaeoanaspididae n.fam.

Cephalon with broad rostrum formed by anterior extension of cephalic shield; no optic notch on anterolateral margin of cephalon; thoracomeres shortened, almost one-half the length of posterior pleonites; sixth pleonite length twice that of any anterior to it; telson long, subtriangular, distally pointed with subdistal pair of robust spines; single uropod exopodite blade like, and reinforced with thick struts along lateral and medial margins.

Genus *Anaspidites* Brooks 1962

Modified from Chilton 1929.
Body length - 38.5mm; cephalon with broad rostrum; no optic notch; prominent cervical groove; thoracomeres shortened, almost one-half the length of posterior pleonites; pleura somewhat rounded; telson long, subtriangular, distally pointed with subdistal pair of robust spines; antennular peduncle large with three subequal segments; flagellum well developed; antennal peduncle with four segments; thoracopods

with short coxae, basis and ischium, elongate merus beyond articulation, elongate carpus and propodus; pleonites smooth; sixth pleonite length twice that of any anterior to it; pleopods long, uniramous, multisegmented; protopods well developed; uropod protopod simple, well developed; single exopodite rami blade like, and reinforced with thick struts along lateral and medial margins.

Anaspidites antiquus Chilton 1929

Species diagnosis is the same as genus at this time.

Family Palaeokoonaspididae n.fam.

Modified from Jell & Duncan 1986

Thoracomeres shorter and less sclerotized than pleonites; eyes large, pedunculate, widely separated; antennae indistinct, extending forward from middle of head for 11mm; thoracopods, slender, extending transversely or slightly anteriorly then turned forward at articulation; abdomen of 6 segments, five anterior pleonites equal in length with pleura rounded; sixth pleonite longer and narrower than others; telson triangular, as long as pleonites 6, with very broad shallow scalloped lateral margins, with distinct border furrow on each side; first and second abdominal segments with endopodites modified as in Anaspides; sixth segment bearing large paddle-like uropods extending well beyond tip of telson and having fine setose margin; single uropod rami.

Genus *Koonaspides* Jell & Duncan 1986

Genus diagnosis is the same as family diagnosis at this time.

Koonaspides indistinctus Jell & Duncan 1986

Species diagnosis is the same as genus at this time.

APPENDIX 7.4 - Anaspidacea and Palaeocaridacea Site Records

Data Source	Order	Family	*Species*	Locality
Swain, Wilson, Hickman & Ong 1970.	Anaspidacea	Anaspididae	*Allanaspides helonomus*	Buttongrass Plain near Lake Pedder, Tasmania
Swain, Wilson, Hickman & Ong 1970.	Anaspidacea	Anaspididae	*Allanaspides helonomus*	Lake Pedder, South West, Paratypes, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Allanaspides helonomus*	Ponds near Hermit Camp (HEC), Gordon Road, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Allanaspides helonomus*	McPartlan Pass, North of road, surface pools among low sedge swamps (buttongrass and Leptocarpus, 0-1m above lake level in muck peat 30-50cm depth, Tasmania
Howitz, P 1988.	Anaspidacea	Anaspididae	*Allanaspides helonomus*	Bonnet Bay, crayfish burrow in dry depressions in sedgelands 1-2m above lake level with peat 20-25cm becoming sandier with depth., Tasmania
Howitz, P 1988.	Anaspidacea	Anaspididae	*Allanaspides helonomus*	Footslopes of Franklin Range, Buttongrass sedgeland, crayfish burrow 1-2m above lake level in peat 0.4m deep over quartzite with 10cm of water in bottom., Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Allanaspides helonomus*	Serpentine Reach, surface pools among low sedge swamps (buttongrass and Leptocarpus, 0-1m above lake level in muck peat 30-50cm depth, Tasmania
Howitz, P 1988.	Anaspidacea	Anaspididae	*Allanaspides helonomus*	Mt Solitary, crayfish burrows in dry depression (no pools) among sedgeland heath, 2m above lake level in muck peat to 50cm deep, Tasmania
Howitz, P 1988.	Anaspidacea	Anaspididae	*Allanaspides helonomus*	Harlequin Hill region, Tasmania
Howitz, P 1988.	Anaspidacea	Anaspididae	*Allanaspides helonomus*	Scotts Peak Region in Old low buttongrass 100m east of Hut, crayfish burrow in small depression
Howitz, P 1988.	Anaspidacea	Anaspididae	*Allanaspides helonomus*	Scotts Peak Region, Tasmania
Howitz, P 1988.	Anaspidacea	Anaspididae	*Allanaspides helonomus*	Old Port Davey Track, Crossing River, SW, Tasmania.
Howitz, P 1988.	Anaspidacea	Anaspididae	*Allanaspides helonomus*	Giblin Bay, crayfish burrows in wet sedgelands 0-1m above lake level with peat 50cm deep., Tasmania
Howitz, P 1988.	Anaspidacea	Anaspididae	*Allanaspides helonomus*	Maria Bay, crayfish burrow in dry depression in old, high sedgeland heath 2-3m above lake level with shallow peat above sandier soil., Tasmania
Howitz, P 1988.	Anaspidacea	Anaspididae	*Allanaspides helonomus*	Pebbly Creek, crayfish burrows in dry depressions or surface pools in low sedgeland heath 0-1m above lake level. Peat 40cm deep with no sand, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Allanaspides hickmani*	Buttongrass Plain, 1 km east of McPartlan Pass, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Allanaspides hickmani*	Lake Pedder, S.W. Tasmania
Swain. R, Wilson & Ong 1971.	Anaspidacea	Anaspididae	*Allanaspides hickmani*	Gordon Lake, Buttongrass Plain, 1km E of McPartlan Pass, on S side of Gordon Lake, Huon, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Bub Hill, Tinys Watch Hole, Cave, Tasmania

Data Source	Order	Family	*Species*	Locality
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Frenchmans Cap, Tasmania
World Heritage Area Reports 1987-89	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Nancy, Frenchmans Cap, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Tahune, Frenchmans Cap, Tasmania
World Heritage Area Reports 1987-89	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Witham, Frenchmans Cap, Tasmania
O'Brien 1990.	Anaspidacea	Anaspididae	*Anaspides sp.*	Paddy's Lake, below Barn Bluff, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Paddy's Lake, Blackburn, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Ida Bay, Entrance Cave, streamway, Ida Bay, S.E. Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	Ida Bay, Exit Cave, from rock Pool in Skeleton Creek, Ida Bay, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Ida Bay, Milkrun Cave, in about 200m from entrance, Ida Bay, S.E. Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Ida Bay, Revelation Cave, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Loons Cave, streamway and pools, Ida Bay, S.E. Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Adamson's Peak, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	creek on Arve Loop Road, Arve Valley, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Judds Cavern, in main streamway, 1.5km from entrance Cracroft River, S.W. Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Hartz Mountains, Hartz Lake, Tasmania
Nicholls, 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Hartz Mountains, Tarns near summit, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Ladies Tarn, Hartz Mountains, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Hastings, King George VI Cave, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Hastings, Newdegate Cave, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Huon River, Kroanna Ck, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Huon River, Tomolah Ck, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Ladies Tarn, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Perry, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Picton, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Pluto, Hastings, Wolfe Hole System, Tasmania
Lake & Coleman 1977.	Anaspidacea	Anaspididae	*Anaspides sp.*	Hastings, Wolfe Hole, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Riveaux, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Sydney, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Precipitous Bluff, Damper Cave, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Bauhaus Cave, Persephone Stream, Precipitous Bluff, S.W. Tasmania

Data Source	Order	Family	*Species*	Locality
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Precipitous Bluff, Persephone S.W. Tasmania. Field No. PB17-6, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Sorell, Alma Tier, Silver Plains Ck, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	The Groves, Oatlands, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Arthurs Lake, Hydro Creek, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Camerons Lagoon, nr creek, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Deep Lake, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	Deloraine, Tasmania
Serov, P. (pers. comms)	Anaspidacea	Anaspididae	*Anaspides sp.*	Top of Meander Valley, stream crossing highway, west of Breona, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	Great Lake, bottom drag at midnight, Tasmania
Nicholls 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Great Lake nr Brandums, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	Great Lake, Breona, Tasmania
Nicholls 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Great Lake, Creek entering N of Rainbow Chalet, Tasmania
Nicholls 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Great Lake, Creek nr N end, Tasmania
Nicholls 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Great Lake, Creeks around E shore, Tasmania
Nicholls 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Great Lake, Creeks around W shore, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Great Lake, Flexmore Creek, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	Great Lake, N end, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	Great Lake, near Reynolds Neck, Tasmania
Nicholls, 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Great Lake, Reynolds Neck, Tasmania
Nicholls, 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Great Lake, Stone Hut Well, Camerons property, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	Stone hut well, 5.5 miles, on Cameron's property, Tasmania
Nicholls, 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Great Lake, Stone Hut Nr Miena, Tasmania
Flynn, 1918	Anaspidacea	Anaspididae	*Anaspides sp.*	Great Lake, Stream on SE side, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Great Western Tiers, Runnel edge nr Pine Lake draining opp way, Tasmania
Williams 1965	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Augusta, Pool nr, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Dudley, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Sales, Tasmania
Nicholls 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Liffey River, Headwaters, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Meander Falls, N. Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Ouse River, Runnels nr Marlborough Hwy, Tasmania

Data Source	Order	Family	*Species*	Locality
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Pine Lake, Creek entering, Tasmania
Nicholls 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Shannon Lagoon, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	Well behind Stewart's house, Breona, Great Lake, Tasmania
Fulton, W., Davies, P.	Anaspidacea	Anaspididae	*Anaspides sp.*	Caveside, Wet Caves nr Caveside, NW Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	Pine Lake, Tasmania
Sloane.T.	Anaspidacea	Anaspididae	*Anaspides sp.*	Pine Tier, in creek under rocks, Tasmania
Tasmanian Monitoring River Health	Anaspidacea	Anaspididae	*Anaspides sp.*	Warra Creek in riffle at Warra Rd, Emu River, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Little Pine River, Stream S side Mackenzie Tier, flowing into Little Pine River, Tasmania. On missing link Rd between Great Lake and Bronte Park about 10 miles from Great lake
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Blue Peaks Lake, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Chalice Lake, Pool entering, Traveller Range, Cradle Mt Park, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Cloister Lagoon, SE end in small pool, Cradle Mt Pk, Tasmania
Nicholls 1947.	Anaspidacea	Anaspididae	*Anaspides sp.*	Du Cane Range, Pools, soaks on Walled Mt, Tasmania
Nicholls 1947.	Anaspidacea	Anaspididae	*Anaspides sp.*	Ironstone Mountain, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Jacks Lake, SW of Lake Mackenzie, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Jaffa Vale at Dixon's Hut, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Julian Lakes, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Junction Lake, Ck draining into Lake on plain from Lake Meston, Tasmania
Nicholls 1947.	Anaspidacea	Anaspididae	*Anaspides sp.*	Kia Ora Ck, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Ada, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Ball, soak to the north, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Butters, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Calvine, Damascus Gate, Runnel Draining into Lake Calvin, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Explorer, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Fanny, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Fox, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Fox, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Fox, west Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Furmage, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Gwendy, Tasmania

Data Source	Order	Family	*Species*	Locality
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Halkyard, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Johnny, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Johnny, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Lunka, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Meander, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Meston, Pool under moraine draining N of Junction Lake, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mole Creek, Cave, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mole Creek, Herberts Pot, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mole Creek, Honeycombe Cave, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mole Creek, Kellys Pot, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mole Creek, Kellys Pot, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mole Creek, Kubla Khan, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Mole Creek, Kubla Khan, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mole Creek, Marakoopa II Cave, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Mole Creek, Marakoopa Cave, Tasmania
Williams 1965	Anaspidacea	Anaspididae	*Anaspides sp.*	Mole Creek, Sassafras Creek, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Cathedral, nr summit, NE summit Cradle Mt Park, Tasmania
World Heritage Area Reports 1987-89	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Doris, Tarn on S side of Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Mount Doris south, runnel crossing Mount Ossa Track,, deep runnel in grassy lawn in alpine shrubbery, Tasmania
Nicholls 1947.	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Ironstone, Ck nr, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Rogoona, Tarns, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Walls of Jerusalem, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Western Tiers, N. Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Zion Gate West, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Zion Vale, pool, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Mackenzie, Central Plateau, Tasmania
Williams 1965	Anaspidacea	Anaspididae	*Anaspides sp.*	Butlers Gorge Power Station, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Cuvier Valley, Mt Olympus, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	King William Range, Crk draining into Richmond outflow, Tasmania

Data Source	Order	Family	*Species*	Locality
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Daphne, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Petrarch, Rainforest ck from Byron Gap to Lake Petrarch, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	stream flowing into Lake St Clair, Mount Rufus, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	tarn below summit of Mount Rufus , Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Arrowsmith, rainforest E, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Ronald Cross, Capricorn, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Rufus, canal near wooden bridge, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Twin Lakes, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Vale of Rasselas, button grass hole, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Vale of Rasselas, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Wentworth Creek, Tasmania
O'Brien 1990.	Anaspidacea	Anaspididae	*Anaspides sp.*	Wentworth Hills, Creek into lagoon, nr Darcy's Bluff, Tasmania
O'Brien 1990.	Anaspidacea	Anaspididae	*Anaspides sp.*	Wentworth Hills, Creek running into Laughing Jack Lagoon, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Wentworth Hills, Darcy's Bluff, Soak into Lagoon nr Darcy's Bluff, Tasmania
World Heritage Area Reports 1987-89	Anaspidacea	Anaspididae	*Anaspides sp.*	Arthur Range, Hanging Lake, Tasmania
World Heritage Area Reports 1987-89	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Ceres, Arthur Range,, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Edgar, Small ck draining in Lake Edgar, Tasmania
World Heritage Area Reports 1987-89	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Fortuna, Arthur Range, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Haven, Western Arthurs, W Tasmania
O'Brien 1990.	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Oberon, Western Arthurs, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Sirona, Western Arthurs, Tasmania
World Heritage Area Reports 1987-89	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Uranus, Arthur Range, Tasmania
World Heritage Area Reports 1987-89	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Venus, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Promontory, Western Arthurs, Tasmania
World Heritage Area Reports 1987-89	Anaspidacea	Anaspididae	*Anaspides sp.*	Promontory Lake, Arthur Range, Tasmania
World Heritage Area Reports 1987-89	Anaspidacea	Anaspididae	*Anaspides sp.*	Square Lake, Arthur Range, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Bill Nelson Cave, in small rocky side stream, Nicholls Range, S.W. Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Kutikina, Franklin, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	Orford ?, E Coast, Tasmania
O'Brien 1990.	Anaspidacea	Anaspididae	*Anaspides sp.*	De Witt Range, Tarn on side of Mt Hean, Tasmania

Data Source	Order	Family	*Species*	Locality
Tasmanian Monitoring River Health	Anaspidacea	Anaspididae	*Anaspides sp.*	Catos Creek at Catos Rd, Tasmania
World Heritage Area Reports 1987-89	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Ooze , Southern Ranges, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Ooze , Southern Ranges, Tasmania
World Heritage Area Reports 1987-89	Anaspidacea	Anaspididae	*Anaspides sp.*	Swallows Nest Lake, Southern Ranges
Australian Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Miena, Stream between Miena & Bothwell, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Paddys Lake, Loongana Range, N.W. Tasmania
World Heritage Area Reports 1987-89	Anaspidacea	Anaspididae	*Anaspides sp.*	Barn Bluff, Lake Will, small runnel, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Cradle Mountain, N.W. Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Gaye, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Holmes & Lake Will, soak between lakes, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Sandra, Tyndall Range, Mt Murchison, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Tyndall, Tyndall Range, Tarn S of Lake Tyndall, Tasmania
Nicholls 1947.	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Ossa, Perrins Bluff, Tasmania
Nicholls 1947.	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Pelion West, Small Ck on slopes, Tasmania
Nicholls 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Read, Tasmania
Williams 1965	Anaspidacea	Anaspididae	*Anaspides sp.*	Twisted Lake, Cradle Mt, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Tyndall Range, Plateau on Tyndall Range, N of Geikie, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Salisbury River, S.E. Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Resurgence Cave, Salisbury River, flood overflow passage, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Florentine Valley, Niggly Cave, Junee, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Florentine Valley, Cauldron Pot Cave, Brew Ch, E series streamway, Maydena, Junee Florentine area, S.E. Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Florentine Valley, Cave, Junee, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Florentine Valley, Cave nr Tiger Range, Junee, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Florentine Valley, Gormenghast, Junee, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Florentine Valley, Settlement Cave, Junee, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Florentine Valley, Unnamed Cave, Junee, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Florentine Valley, Growling Swallet, Junee, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Florentine Valley, Khazad Dum, streamway, Junee Florentine area, S.E. Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Florentine Valley, Pendant Pot, Junee, Tasmania

Data Source	Order	Family	*Species*	Locality
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Florentine Valley, Porcupine Pot, Junee, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Florentine Valley, Rift Cave, Junee, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Florentine Valley, Welcome Stranger, Junee, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Johnstons Tarn, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Denison, at mouth of creek, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Dobson, Stream nr, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Snowy Mountain, Tarn, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	stream flowing into Styx River, Snowy North, Snowy Range, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Snowy South, Small Lake on slope of Snowy South, Tasmania
Nicholls 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Skinner, Snowy Mt, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Field West, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Fenton,Wombat Moor, spring head of small spring fed sphagnum swamp on hillside, Mount Field National Park, Tasmania
Nicholls 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Field, Tarns on Mt Field, Tasmania
Williams 1965	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Field, Lady Barron Ck, Mt Field Nat Park, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Field, Mackenzie Tarn, Tarn Shelf, Tasmania
Serov, P. (pers. comm)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Field, Newdegate Pass, small stream on main road 1km east of carpark, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Field, Nr Backhouse Tarn, Tarn Shelf, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Field, nr James Tarn, Tarn Shelf, Tasmania
Nicholls 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Field, nr summit, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Field, Robert Tarn , Tarn Shelf, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Field, Sitzmark Tarn, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Rodway Range, Pool on W side, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	Weld River, Tasmania
Nicholls 1947	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Pedder, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Rhona, upper Gordon River, below Reeds Peak, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Lake Sanctuary, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Anne Plateau, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Anne, Col-In-Cavern, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Anne, Deep Thought, Tasmania

Data Source	Order	Family	*Species*	Locality
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Anne, Search Camp, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Bowes, Tasmania
Nicholls 1947.	Anaspidacea	Anaspididae	*Anaspides sp.*	Mt Mueller, Creeks, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Pt Davey Track, between Scotts Peak Rd & Damper Inn, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides sp.*	Pt Davey Track, Tributary of Weld River, N of Mt Bowes, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides sp.*	Windy Lake, Tasmania
Tasmanian Monitoring River Health	Anaspidacea	Anaspididae	*Anaspides sp.*	Ewart Creek at Zeehan H'way, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Bothwell, Great Lake, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	Brady's lake, North of Tarraleah
Australian Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	stream near Lake Dobson, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Anaspides sp.*	near Tarraleah, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Anaspides spinulae*	Lake St. Clair, south of Pumping station, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides spinulae*	Lake St Clair, Cynthia Bay, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides spinulae*	Cuvier Valley, plain below Lake Petrarch, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides spinulae*	Cuvier Valley, downstream from Lake Petrarch, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides spinulae*	Lake St Clair, reef opposite Lake Ada, Tasmania
Williams 1965	Anaspidacea	Anaspididae	*Anaspides spinulae*	Lake St Clair, S of pumping station, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides spinulae*	Clarence Lagoon outflow, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides spinulae*	Clarence Lagoon, Brook Trout Stomach, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides spinulae*	Clarence Lagoon, Mooreland pools draining into Clarence lagoon, Tasmania
Inland Fishers Commission, Hobart, Tas	Anaspidacea	Anaspididae	*Anaspides spinulae*	Clarence Lagoon, Tasmania
Nicholls 1947	Anaspidacea	Anaspididae	*Anaspides tasmaniae*	Mt Wellington, Summit Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Anaspides tasmaniae*	Mt Wellington, New Town Creek, NE slope of Mt Wellington, Tasmania
Serov, P. (pers. comm)	Anaspidacea	Anaspididae	*Anaspides tasmaniae*	Mt Wellington, Silver Falls, Brown River above , Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides tasmaniae*	Mt Wellington, New Town Creek, NE slope of Mt Wellington, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides tasmaniae*	Sorell Creek, Myrtle Gully, Collinsvale, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides tasmaniae*	Mt Wellington, Collinsvale, Tasmania
O'Brien 1990.	Anaspidacea	Anaspididae	*Anaspides tasmaniae*	Mt Wellington, Tasmania
Nicholls 1947	Anaspidacea	Anaspididae	*Anaspides tasmaniae*	NW Bay River, Upper part, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Anaspides tasmaniae*	Mt Wellington, Fern Tree Glen, Tasmania

Data Source	Order	Family	*Species*	Locality
Australian Museum	Anaspidacea	Anaspididae	*Anaspides tasmaniae*	Mt Wellington, wishing well, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Anaspides tasmaniae*	Back of Mt Wellington, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Anaspides tasmaniae*	Mt Wellington, St Crispins Well, Tasmania
University of Tasmania (Dr. R. Swain)	Anaspidacea	Anaspididae	*Anaspides tasmaniae*	Mt Wellington, Picnic Point, Tasmania
Chilton 1929	Anaspidacea	Anaspididae	*Anaspidites antiquus*	Brookvale Brick Quarry, Brookvale, New South Wales, Australia
Jell & Duncan 1986	Anaspidacea	Anaspididae	*Koonaspides indistinctus*	Lower Cretaceous Koonwarra Fossil beds on the Koonwarra Formation, 3km east of Koonwarra on South Gippsland Highway
Queen Victoria Museum	Anaspidacea	Anaspididae	*Koonunga smithtoni, n.sp.*	Trowutta Arch, pools in dark, Trowutta, N.W. Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Paranaspides lacustris*	Brandum Bay, Great Lake, level 2, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Anaspididae	*Paranaspides lacustris*	Breona, Great Lake, Tasmania
Australian Museum	Anaspidacea	Anaspididae	*Paranaspides lacustris*	Shannon Lagoon at Miena, Great Lake District, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Paranaspides lacustris*	Swan Bay, Great Lake, From weed on anchor, at 10m depth, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Paranaspides lacustris*	Sand Lake, Arthurs Lakes, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Paranaspides lacustris*	East Lake, south, Arthurs Lakes, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Paranaspides lacustris*	E.L.S. dredge sample, Arthurs Lake, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Paranaspides lacustris*	Woods Lake, Lake River, Central Plateau, Tasmania
Queen Victoria Museum	Anaspidacea	Anaspididae	*Paranaspides lacustris*	Woods Lake, western shore, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Boolarrunga, gippslandica, n.sp.*	8km South of Boolarra, Gippsland, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Drummonunga, n.sp.*	Welshpool, Victoria
Serov, P. (pers. comm)	Anaspidacea	Koonungidae	*Koonunga burgessi, n.sp.*	King Island, Wetland 1 km west of Martha Lavinia Lagoon, pumped from yabby burrows, Tasmania
Serov, P. (pers. comm)	Anaspidacea	Koonungidae	*Koonunga burgessi, n.sp.*	King Island, Swamp on Sea Elephant Bay Road, pholeteros sample, 5km south of Sea Elephant Bay boat ramp, King Island, Tasmania
Serov, P. (pers. comm)	Anaspidacea	Koonungidae	*Koonunga burgessi, n.sp.*	King Island, Swamp on Sea Elephant Road, net sample, Grassy Road, King Island, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga burgessi, n.sp.*	King Island, Grassy River, between road and town, Grassy Road, King Island, Tasmania
Sloane, T. (pers.comm)	Anaspidacea	Koonungidae	*Koonunga burgessi, n.sp.*	King Island, Swan Lagoon, edge sweep, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga colac, n.sp.*	Colac, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga cursor*	Ringwood, Victoria from type locality
Sayce 1907, 1908	Anaspidacea	Koonungidae	*Koonunga cursor*	Ringwood, Mullum Mullum Creek at Ringwood nr Melbourne, Victoria

Data Source	**Order**	**Family**	***Species***	**Locality**
Australian Museum	Anaspidacea	Koonungidae	*Koonunga cursor*	Ringwood, near Melbourne, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga grampianensiss, n.sp.*	Grampians, Jimmy Creek, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga grampianensiss, n.sp.*	Grampians, Wannon River, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga grampianensiss, n.sp.*	Grampians, Victoria Valley, Dwyer Creek, Victoria
Victorian AUSRIVAS EPA	Anaspidacea	Koonungidae	*Koonunga grampianensiss, n.sp.*	Grampians, Wannon River at Dunkeld from Edgewater, Victoria
Queen Victoria Museum	Anaspidacea	Koonungidae	*Koonunga smithtoni, n.sp.*	Main Cave, Entrance, twilight and dark, Montague, N.W. Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga smithtoni, n.sp.*	Smithton, Montagu, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga smithtoni, n.sp.*	Mowbray Swamp nr Mella, 5 km w of Smithton, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Shires Junction, Victoria
Murray Darling Freshwater Research Centre, Albury, John Hawking	Anaspidacea	Koonungidae	*Koonunga sp.*	Albury, Murrumbidgee River, in river gravels, NSW
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Baysworth, Victoria
Drummond, F.H. pers comms. from Hickman, V.V.	Anaspidacea	Koonungidae	*Koonunga sp.*	Dazzler Range, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Little Brown River, Dazzler Range, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Jerrys Creek, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Barlow's Road, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Stony Riser, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Bradford, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Bradford, Victoria
Australian Museum	Anaspidacea	Koonungidae	*Koonunga sp.*	Broadford, 1.36 Km East of Broadford-Kilmore Rd between Broadford and Kilmore, Victoria
Victorian AUSRIVAS EPA	Anaspidacea	Koonungidae	*Koonunga sp.*	Dabyminga Creek at Ennis Road in Riffle, Victoria
Victorian AUSRIVAS EPA	Anaspidacea	Koonungidae	*Koonunga sp.*	Deep Creek at Hotspur-Grassdale Road from Edgewater, Victoria
Victorian AUSRIVAS EPA	Anaspidacea	Koonungidae	*Koonunga sp.*	Devil Bend Creek at Derril Road from Edgewater, Victoria
Victorian AUSRIVAS EPA	Anaspidacea	Koonungidae	*Koonunga sp.*	Faithfull Creek D/S Mogloneby Hall Road from Edgewater, Victoria
Victorian AUSRIVAS EPA	Anaspidacea	Koonungidae	*Koonunga sp.*	Faithfull Creek U/S Pine Lodge Creek from Edgewater, Victoria
Victorian AUSRIVAS EPA	Anaspidacea	Koonungidae	*Koonunga sp.*	Fitzroy River Tributary at Heaths Road from Edgewater, Victoria
Tasmanian Monitoring River Health	Anaspidacea	Koonungidae	*Koonunga sp.*	Geales Creek at Bass H'way Fish Data, Tasmania

Data Source	Order	Family	*Species*	Locality
Sayce 1907, 1908.	Anaspidacea	Koonungidae	*Koonunga sp.*	Greenwald, Southern Victoria, close to SA border, under footbridge over the rivulet at Bullocky Wells, Picnic area, 1.5 km E of Greenwald, Victoria
Tasmanian Monitoring River Health	Anaspidacea	Koonungidae	*Koonunga sp.*	Harcus River at Redbank Road, Tasmania
Tasmanian Monitoring River Health	Anaspidacea	Koonungidae	*Koonunga sp.*	Horsepiss Creek at Harcus River Road, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Lethbridge, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Meredith, Victoria
Victorian AUSRIVAS EPA	Anaspidacea	Koonungidae	*Koonunga sp.*	Mt William Creek at Martang South from Edgewater, Victoria
Victorian AUSRIVAS EPA LJR	Anaspidacea	Koonungidae	*Koonunga sp.*	Salt Creek at Woorndoo from Edgewater, Victoria
Victorian AUSRIVAS EPA	Anaspidacea	Koonungidae	*Koonunga sp.*	Springdallah Creek at Happy Valley Road from Edgewater, Victoria
Victorian AUSRIVAS EPA	Anaspidacea	Koonungidae	*Koonunga sp.*	Surrey River d/s Boiler Swamp Road from Edgewater, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Weerite, "Gowrie Park", Victoria
Queen Victoria Museum	Anaspidacea	Koonungidae	*Koonunga sp.*	Woods Point, South Australia
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Nth Hunter Island, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Redpa, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Marrawah, 8.3 miles from Marrawah shop towards river, Tasmania
Tasmanian Monitoring River Health	Anaspidacea	Koonungidae	*Koonunga sp.*	Un-named trib at Flewin Road, Tasmania
Tasmanian Monitoring River Health	Anaspidacea	Koonungidae	*Koonunga sp.*	Welcome River at Bass Highway, Tasmania
Tasmanian Monitoring River Health	Anaspidacea	Koonungidae	*Koonunga sp.*	Welcome River at Welcome Swamp Road, Tasmania
Sayce 1907	Anaspidacea	Koonungidae	*Koonunga sp.*	Woolnorth, NW Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Baxter, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Beaufort, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Cudgee, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Glenelg, The Ink Pot, Glenelg National Park, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Gorae West, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Moyston, 5 mile SW , Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Portland South, Alcoa Aluminium Smelter, station C1, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Shoreham, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Squattesea Mere, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Taggerty, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Wattle Glen, surface pool under bridge, Victoria

Data Source	Order	Family	*Species*	Locality
Museum of Victoria	Anaspidacea	Koonungidae	*Koonunga sp.*	Yanakie, Victoria
Queen Victoria Museum	Anaspidacea	Koonungidae	*Micraspides calmani*	King River, at bridge in drift net, Tasmania
Nicholls 1931.	Anaspidacea	Koonungidae	*Micraspides calmani*	Small stream in King River Valley adjacent to main rd to Hobart, Tasmania
Nicholls 1931.	Anaspidacea	Koonungidae	*Micraspides calmani*	Water draining from Sphagnum filled hollow on side of Mt Lyell, on Queenstown-Lake Margaret Narrow gauge railway line, Upper King River, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Koonungidae	*Micraspides sp.*	Trial Harbour Road, 2.8 miles (4.5 km) from Zeehan, Tasmania
Nicholls 1931.	Anaspidacea	Koonungidae	*Micraspides sp.*	Near Federation Mine on southern side of Mt Heemskirk overlooking Trial Bay. From Engaeus burrows near Lake Cumberland, Tasmania
Queen Victoria Museum	Anaspidacea	Koonungidae	*Micraspides sp.*	Andrew River, W. Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Micraspides sp.*	Giblin River, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Micraspides sp.*	Hardwood River, Rookery Plain, SW Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Micraspides sp.*	Junction of Davey & Crossing River, West coast, Tasmania
Howritz, 1988	Anaspidacea	Koonungidae	*Micraspides sp.*	Mainwaring River, at helipad, in Tea tree next to rainforest, Crayfish burrow in red clay loam (Mt Read Volcanics), Tasmania
Howritz, 1988	Anaspidacea	Koonungidae	*Micraspides sp.*	Modder River, button grass plain above river, crayfish burrow 0.7 deep in peat descending to a terminal chamber in quartz gravel, Tasmania
Howritz 1988	Anaspidacea	Koonungidae	*Micraspides sp.*	Stephens Bay, in crayfish burrow in low flat buttongrass plain, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Micraspides sp.*	Savage River, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Micraspides sp.*	Dip River Falls Road, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Micraspides sp.*	Tributary of Donaldson River, 10.2 mi. from Savage River on pipeline, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Micraspides zeehanensis, n.sp.*	2 miles from Zeehan on Remine Road, Tasmania
Museum of Victoria	Anaspidacea	Koonungidae	*Neonunga minuta, n.sp.*	Carpendeit, from pits by stream, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Neonunga minuta, n.sp.*	East Pomborneit , temporary pool, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Neonunga minuta, n.sp.*	Irrewillipe, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Neonunga minuta, n.sp.*	Cobden, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Pholeteronunga silvani, n.sp.*	Silvan south, in epheral wetland pools, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Pholeteronunga silvani, n.sp.*	Beenak, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Pholeteronunga silvani, n.sp.*	Healesville, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Pholeteronunga silvani, n.sp.*	Sherbrook, Victoria
Museum of Victoria	Anaspidacea	Koonungidae	*Pholeteronunga silvani, n.sp.*	Warramate Hills, Victoria

Data Source	Order	Family	*Species*	Locality
Museum of Victoria	Anaspidacea	Koonungidae	*Pholeteronunga silvani, n.sp.*	Lysterfield, Victoria
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Allendale East, Allendale Sinkhole (L11), centre of Main road, Allendale East, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Allendale East, Hancocks Cave sinkhole, NW of Allendale East, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Allendale East, The Shaft sinkhole, W of Allendale East, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Barnoolut Property, Devils Punchbowl sinkhole, SW of Barnoolut, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Barnoolut property, Rubbish Cave Sinkhole, Barnoolut property, SW of House, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Barnoolut Property, The Bullock Hole Sinkhole on South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Barnoolut property, Unnamed Sinkhole on Barnoolut Property, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Barnoolut property, Woolwash sinkhole on Barnoolut property, between house & 'The Sisters', South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Burleigh, Kilsbys Hole Sinkhole, W of Burleigh, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Mt Gambier, Kilsbys Hole Sinkhole, W of Burleigh, SW of Mt Gambier, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Ewens Ponds, Hereford Stream Cave, E of Ewens Ponds, SSE of Mt Gambier, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Ewens Ponds, Mushroom Cave, E of Ewens Ponds, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Mt Gambier, Benara Sinkhole, nr Benara, WSW of Mt Gambier, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Mt Gambier, Benara Sinkhole, WSW of Mt Gambier, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Mt Gambier, Blue Lake, nr pontoon, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Mt Gambier, Bottlebrush Sinkhole in Caroline Forest, SSE of South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Mt Gambier, Eaglebrects Cave, W side, first tunnel, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Mt Gambier, Gums Rd Cave, NE of Kongorong, SW of Mt Gambier, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Mt Gambier, McKay Shaft Sinkhole, W of Valley Lake, Mt Gambier, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Mt Gambier, Unnamed Sinkhole, in Mt Gambier Forest, NW of Mt Gambier Airport, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Mt Gambier, Walnut Cave, SW of Mt Gambier & W of Mt Schank, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Tantanoola Caves, Alleyns Sinkhole, Tantanoola Forest, SE of Tantanoola Caves, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Tantanoola Caves, Fossil Cave Sinkhole, SE of Tantanoola Caves, Adj to s side of HWY, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Tantanoola Caves, Glencoe west cave, NE of Tantanoola Caves, South Australia

Data Source	Order	Family	*Species*	Locality
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Tantanoola Caves, Iddlebiddy Cave Sinkhole in Tantanoola forest, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Tantanoola Caves, Mudhole Sinkhole, Tantanoola Forest, SE of Tantanoola Caves, South Australia
Tasmanian Museum & Art Gallery	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Tantanoola Caves, sinkhole 3.3 km SE of Tantanoola Caves on Princes Highway, South Australia
Zeidler 1985	Anaspidacea	Koonungidae	*Zeidlerunga crenarum*	Tantanoola Caves, Tank Cave (L230), E of Fossil cave, South Australia
Museum of Victoria	Anaspidacea	Koonungidae	*Zeidlerunga gellibrandi n.sp.*	Gellibrand Rd, Victoria
South Australian Museum	Anaspidacea	Koonungidae	*Zeidlerunga sp.*	Bayswater, 1.28km from Bayswater Railway Station in railway drain, Victoria.
Museum of Victoria	Anaspidacea	Koonungidae	*Zeidlerunga sp.*	Lang Lang, Victoria
Grosso & Peralta 2002.	Anaspidacea	Patagonaspididae	*Patagonaspides sandroruffoi*	In a well at 12m, Allen, Rio Negro, Argentina, Patagonia.
Australian Museum	Anaspidacea	Psammaspididae	*Cavernaspides bowenparkensis*	Bowan Park, Cave BP13-4, NSW.
Australian Museum	Anaspidacea	Psammaspididae	*Cavernaspides cliefdenensis*	Cliefden, CL4-5, Trapdoor Cave, in pool, NSW.
Australian Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	G.-x3-2, Florentine Valley ?, Tasmania
Australian Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	IB104, Ida Bay ?, Tasmania
Australian Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	IB98, Ida Bay ?, Tasmania
Australian Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	IB99, Ida Bay ?, Tasmania
Australian Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	Rum Pot, Gray, Tasmania
Australian Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	Capricorn Cave, MR204-27, Mount Ronald Cross, tiny pools with floc. Silt, Tasmania
Australian Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	Capricorn Cave, MR204-19, Mount Ronald Cross, tiny pools with floc. Silt, Tasmania
Australian Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	Herberts Pot, CV33, Mole Creek, Tasmania
Australian Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	Croesus Cave, MC13, Mole Creek, Tasmania
Australian Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	Pendant Pot near Growling Swallet, Florentine Valley, CV37-2, Tasmania
Queen Victoria Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	Slaughterhouse Pot, seepage pool 30m from entrance, Florentine River, S.E. Tasmania
Australian Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	Wolf Hole Cave, CV34, Tasmania
Australian Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	Damper Cave, Precipitous Bluff, PB1, seeps, streams & mainstream, Tasmania
Australian Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	Cracroft,, Tasmania
Queen Victoria Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	Skyhook Pot Cave, seepage stream, base P2, Ida Bay, S.E. Tasmania
Australian Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	Salt and Pepper, Ida Bay, Tasmania
Australian Museum	Anaspidacea	Psammaspididae	*Eucrenonaspides sp.*	Comet Pot, Ida Bay, Tasmania
Tasmanian Museum & Art Gallery	Anaspidacea	Psammaspididae	*Eucrenonspides oinotheke*	(6) Payton Place, Devonport,Tasmania in a wine cellar., Tasmania

Data Source	Order	Family	*Species*	Locality
Australian Museum	Anaspidacea	Psammaspididae	*Phreatonaspides jenolanensis*	Jenolan Caves, Spider Cave, main stream way-flood pool, NSW
Australian Museum	Anaspidacea	Psammaspididae	*Phreatonaspides jenolanensis*	Jenolan Caves, Imperial Cave, flood plain beyond the barrier at end of Jubilee Cave, in final sump pool, NSW
Australian Museum	Anaspidacea	Psammaspididae	*Phreatonaspides weejasperensis*	Wee Jasper, Dogleg Cave, sand trap pool, WJ10-4, NSW
Australian Museum	Anaspidacea	Psammaspididae	*Phreatonaspides wyanbenensis*	Wyanbene Cave, WY1-1, NSW
Serov, P. (pers. comm)	Anaspidacea	Psammaspididae	*Psammaspides dawitii*	Maules Creek, Upper, 90cm depth on sand/gravel, 100m upstream from junction with Horsearm Creek at Elfin Crossing, Namoi River, NSW
Serov, P. (pers. comm)	Anaspidacea	Psammaspididae	*Psammaspides dawitii*	Horsearm Creek, lower, between 40-90cm depth in sand/gravel, 100m upstream from junction with Maules Creek at Elfin Crossing, Namoi River, NSW
Serov, P. (pers. comm)	Anaspidacea	Psammaspididae	*Psammaspides dawitii*	Middle Creek, Bore in Alistair Todds paddock, Maules Ck Catchment, Namoi River, NSW.
Australian Museum	Anaspidacea	Psammaspididae	*Psammaspides sp.*	Murray Cave, Cooleman Plain, Kosciusko Nat. Park, in first watertrap, NSW.
Australian Museum	Anaspidacea	Psammaspididae	*Psammaspides sp.*	Mares Forest Creek Cave, Wombeyan, NSW.
Hancock. P. (pers.comm)	Anaspidacea	Psammaspididae	*Psammaspides sp.*	Hunter River @ Denman, Arvo, 80cm deep hyporheic sample, sandy river bed, NSW
Hancock. P. (pers.comm)	Anaspidacea	Psammaspididae	*Psammaspides sp.*	Hunter River @ Aberdeen, NSW, 80cm deep hyporheic sample, sandy river bed, NSW
Hancock. P. (pers.comm)	Anaspidacea	Psammaspididae	*Psammaspides sp.*	Hunter River @ Mason Dieu, Arvo, 80cm deep hyporheic sample, sandy river bed, NSW
Watts, Hancock, Leys 2007.	Anaspidacea	Psammaspididae	*Psammaspides sp.*	Monitoring Bore Number 80439, 650m from the Pages River,on a horse stud 17.4 Km east of Scone, 11m depth and slotted from 4.3 to 10.3m, NSW
Watts, Hancock, Leys 2007.	Anaspidacea	Psammaspididae	*Psammaspides sp.*	Monitoring Bore Number 80437, 3.74km west of Scone in the Dart Brook Alluvium from a depth of 13.l8m, NSW
Hose, G.	Anaspidacea	Psammaspididae	*Psammaspides sp.*	NSW Office of Water Monitoringf Bore No. GW075038, off Lackersteens Rd, Mangrove Mt, NSW
Hose, G.	Anaspidacea	Psammaspididae	*Psammaspides sp.*	NSW Office of Water Monitoringf Bore No. GW075039, Mangrove Mt, NSW
Hose, G.	Anaspidacea	Psammaspididae	*Psammaspides sp.*	NSW Office of Water Monitoringf Bore No. GW075040, Mangrove Mt, NSW
Hose, G.	Anaspidacea	Psammaspididae	*Psammaspides sp.*	NSW Office of Water Monitoringf Bore No. GW075041, Mangrove Mt, NSW
Serov, P. (pers. comm)	Anaspidacea	Psammaspididae	*Psammaspides sp.*	Upper Nepean Swamps, Stockyard Swamp, Dudewaugh Creek, 1.8m depth, Bore Number 9M1, NSW
Serov, P. (pers. comm)	Anaspidacea	Psammaspididae	*Psammaspides sp.*	Upper Nepean Swamps, Butlers Swamp, tributary of Nepean River, Upper Nepean Swamps, 1.8m depth, Bore Number 2M1P, NSW
Australian Museum	Anaspidacea	Psammaspididae	*Psammaspides sp.*	Talmo, Cave, NSW

Data Source	Order	Family	*Species*	Locality
Serov, P. (pers. comm)	Anaspidacea	Psammaspididae	*Psammaspides sp.*	Upper Turon River ~ 1km east of Sofala, small cobble and sand stream, 70cmsample depth, NSW.
Australian Museum	Anaspidacea	Psammaspididae	*Psammaspides vincenti*	Wellington Caves, Limekilm Cave, among roots, 4km from Wellington, NSW
Australian Museum	Anaspidacea	Psammaspididae	*Psammaspides vincenti*	Wellington Caves, McCavity Cave, below hanging swamp from pool floor, 1.5 m depth, 4km from Wellington, NSW
Schminke 1974	Anaspidacea	Psammaspididae	*Psammaspides williamsi*	Halls Creek, in gravel on side of stream, tributary of Watsons Creek, NW of Tamworth, New England Tablelands, NSW
Australian Museum	Anaspidacea	Raptornungidae	*Phreatonumga boultoni*	Temagog, Macleay River, NSW
Boulton, A & Cord, J (pers.comm)	Anaspidacea	Raptornungidae	*Phreatonunga neverensis*	Never Never River, at Tallowood Bar, Bellingen, NSW
Boulton, A & Lisle, P. (pers.comm)	Anaspidacea	Raptornungidae	*Phreatonunga neverensis*	Never Never River, Bellingen, NSW
Australian Museum	Anaspidacea	Raptornungidae	*Phreatonunga sp.*	Stormpipe Cave, Willi Willi, Sebastopol, NSW
Serov, P. (pers. comm)	Anaspidacea	Raptornungidae	*Raptornunga sp.*	Halls Creek, tributary of Gwydir River, Bingara, NSW
Australian Museum	Anaspidacea	Raptornungidae	*Raptornunga timorensis*	Timor Caves, Lake Cave, in water table pools, off Isaacs Creek, Timor, Road, NSW. TR3013
Grosso & Peralta 1997.	Anaspidacea	Stygocarididae	*Argentacaris clapsi*	Aicuna River, Sierras de Famatina, La Rioja, Argentina
Grosso & Peralta 1999.	Anaspidacea	Stygocarididae	*Argentacaris hugofernandezi*	Miranda River, La Rioja, Argentina
Grosso & Peralta 1997.	Anaspidacea	Stygocarididae	*Argentacaris schminkei*	Cuestas las Trancas, Cuestas de Miranda, La Rioja, Argentina
Noodt 1963, Schminke 1980.	Anaspidacea	Stygocarididae	*Oncostygocaris patagonica*	Simpson River, 34km nr Puerto Aysen, and nr Coyhaique, Chile
Noodt 1963.	Anaspidacea	Stygocarididae	*Parastygocaris andina*	Uspallata, Mendoza, Argentina
Noodt 1963.	Anaspidacea	Stygocarididae	*Parastygocaris andina*	Rio Uspallata, Uspallata, Mendoza, Argentina, interstitial; among river sediment, Argentina
Noodt 1963.	Anaspidacea	Stygocarididae	*Parastygocaris goerssi*	7km E of San Luis, Argentina
Peralta 2013/14	Anaspidacea	Stygocarididae	*Parastygocaris n.sp.*	San Luis, Argentina
Schminke 1980.	Anaspidacea	Stygocarididae	*Stygocarella pleotelson*	Probe L 142, Styx River at the junction with Kokatahi River, Westland, South Island, New Zealand.
Schminke 1980.	Anaspidacea	Stygocarididae	*Stygocarella pleotelson?*	Probe L 144, Waitangi River, 70cm depth., 350m upstream from Highway 6, Westland, South Island, New Zealand
Schminke 1980.	Anaspidacea	Stygocarididae	*Stygocarella pleotelson?*	Probe L 140, Toaroha River, 50cm depth, at the junction with Kokatahi River, Westland, South Island, New Zealand.
Noodt 1963.	Anaspidacea	Stygocarididae	*Stygocaris gomez-millasi*	Quebrada de Cordoba (2km of the sea), nr El Tabo, San Antonio, Santiago, Central Chile
Depart of Primary Industries & Water, Tasmania.	Anaspidacea	Stygocarididae	*Tasmanocaris ana*	Beulah in a DPIW monitoring bore No. 4290, Tasmania

Data Source	Order	Family	*Species*	Locality
Schminke 1980.	Anaspidacea	Stygocarididae	*Tasmanocaris giselae*	Tambo River, Battle Point (27km N from Bruthen on Omeo Hwy), 65cm depth, Victoria, Australia. Probe 7, 90cm depth in gravel
Depart of Primary Industries & Water, Tasmania.	Anaspidacea	Stygocarididae	*Tasmanocaris sp*	Hampshire, in a DPIW monitoring bore No. 16534, Tasmania
Depart of Primary Industries & Water, Tasmania.	Anaspidacea	Stygocarididae	*Tasmanocaris sp*	Ross, in a DPIW monitoring bore No. 16553, Tasmania
Depart of Primary Industries & Water, Tasmania.	Anaspidacea	Stygocarididae	*Tasmanocaris sp*	South Forest, in a DPIW monitoring bore No. 16527, Tasmania
Whinam, J., Eberhard, S., Kirkpatrick, J., & Moscol, T 1989.	Anaspidacea	Stygocarididae	*Tasmanocaris sp*	Shadow Lake, nr Lake St Clair, Central Plateau, in Sphagnum peat., Tasmania
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 182, Oreti River, 45cm depth, next to Highway 94, South Island, New Zealand
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 168, South Opuha River, 75cm depth, at the Fairle-Sherwood Downs bridge, South Island, New Zealand
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 169, Opihi River, 60cm depth, crossing Highway 8on the road to Lake Tekapo, South Island, New Zealand
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 120, Ashley River, 45cm depth, 200m downstream from Lees valley Road, South Island, New Zealand.
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 164, Garry River, 65cm depth, at the bridge crossing the Oxford-Loburn Road, South Island, New Zealand
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 126, Waitohi River, 55cm depth, Gegend Medbury, South Island, New Zealand.
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 115, Hope River, 55cm depth, near Lewis Pass, South Island, New Zealand.
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 116, Waiau River, 75cm depth, 200m from the Hanmer Springs, South Island, New Zealand.
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 158, Leader River, 65cm depth, at the junction og the Waiau River, South Island, New Zealand
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 159, Mason River, 60cm depth, 300m upstream from the Inland Route to Kaikoura, South Island, New Zealand
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 147, Conway River, 55cm depth, 150m upstream from the Kaikoura-Christchurch road, South Island, New Zealand.

Data Source	Order	Family	*Species*	Locality
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 153, Puhi Puhi River, 50cm depth, the the junction with the Hapuku River, 150m upstream of the junction of the Chiton River, South Island, New Zealand
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 148, Waima River, 55cm depth, South Island, New Zealand
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 149, Medway River, 95cm depth, nr the junction of the Awatere River at the Awatere Valley Road, South Island, New Zealand
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 105, Lee River, 75cm depth, 500m upstream from Wairoa, Nelson, South Island, New Zealand
Schminke 1980.	Anaspidacea	Stygocarididae	*Zealandacaris sp.*	Probe L 174, Kyeburn River, 100cm depth, 150m upstream from the bridge at Highway 85, Otago, South Island, New Zealand
Morimoto 1977.	Anaspidacea	Stygocarididae	*Zealandacaris townsendi*	Twin Forks Cave, Twin Forks Creek, Paturau, NW corner of South Island, New Zealand
Morimoto 1977.	Anaspidacea	Stygocarididae	*Zealandacaris townsendi.c.f*	Kennedy's Cave, nr Sharks Head, Te Hapu, 7km NE of the type locality, New Zealand
Schram 1984	Palaeocaridacea	Acanthotelsonidae	*Acanthotelson kentuckiensis*	Black Oak Coal, Inc. Strip mine, nr Silverville, McCreary County, Kentucky, 2 miles north of Tennessee state line, USA
Meek and Worthen 1865	Palaeocaridacea	Acanthotelsonidae	*Acanthotelson stimpsoni*	Mazon Creek area, Will County, Illinois, USA
Meek and Worthen 1865	Palaeocaridacea	Acanthotelsonidae	*Acanthotelson stimpsoni*	Wabash County, Illinois, USA
Meek and Worthen 1865	Palaeocaridacea	Acanthotelsonidae	*Acanthotelson stimpsoni*	1/2 mile west of Carterville, Williamson County, Illinois, USA
Meek and Worthen 1865	Palaeocaridacea	Acanthotelsonidae	*Acanthotelson stimpsoni*	Abandoned Chieftain Mine, 11.3 km south of Terre Haute, Lower Shelburn Formation, Pennsylvanian Indiana, USA
Jordon 1847	Palaeocaridacea	Acanthotelsonidae	*Uronectes fimbriatus*	Black shale, Kramer Ironworks of Lebach, nr Saarbrucken, Saarland, West Germany.
Jordon 1847	Palaeocaridacea	Acanthotelsonidae	*Uronectes fimbriatus*	Pfeffelbach, near Kusel, Rheilandpfalz, West Germany
Jordon 1847	Palaeocaridacea	Acanthotelsonidae	*Uronectes fimbriatus*	Oberhof (Schweitzerhätte), near Zella-Mehlis, East Germany
Schram and Schram 1979	Palaeocaridacea	Acanthotelsonidae	*Uronectes kinniensis*	Kinney Clay Pit, SE 1/4, Sec. 18, T9N, R6E, Bernalillo County, New Mexico. USA
Uhl 1999	Palaeocaridacea	Acanthotelsonidae	*Uronectes palatinus*	Hofer Hof, Rhineland-Palatinate, Germany.
Brooks 1962	Palaeocaridacea	Family Uncertain	*Brooksyncaris canadensis*	Confluence of Diligent and Ramshead Rivers, south of Diligent River, Cumberland County, Nova Scotia
Clarke 1920	Palaeocaridacea	Family Uncertain	*Clarkecaris brasilicus*	Near Guare'I, Sao Paulo, Brazil, South America.
Fritsch 1876	Palaeocaridacea	Family Uncertain	*Palaeorchestia parallela*	Lisek, NW of Beraun, Czech Republic
Calman 1911	Palaeocaridacea	Family Uncertain	*Pleurocaris annulatus*	Pit No. 9, near Lens, Belgium
Calman 1911	Palaeocaridacea	Family Uncertain	*Pleurocaris annulatus*	Clay Craft open works, Cosely near Dudley, Worcestershire, UK.
Calman 1911	Palaeocaridacea	Family Uncertain	*Pleurocaris annulatus*	Pit No. 4, Vicoigne Mines, Raismes, rue du Mont des Hermits, France.

Data Source	Order	Family	*Species*	Locality
Schöllman 1999	Palaeocaridacea	Family Uncertain	*Pleurocaris juengeri*	Verhalle, Hagen, Westfalen, Germany
Uhl 1999	Palaeocaridacea	Family Uncertain	*Spinocaris horribilis*	Road cut near tbe School Centre in Alsenz, Rhineland-Palatinate, Germany.
Pruvost 1922	Palaeocaridacea	Family Uncertain	*Williamocalmania vandergrachti*	Woensdrecht borehole (1164-1167 m), The Netherlands
Schram 1984	Palaeocaridacea	Minicaridídae	*Eurythrogaulus carrizoensis*	Carrizo Arroyo, Lucero Mountains, southeastern Valencia County, New Mexico, USA
Schram 1979	Palaeocaridacea	Minicaridídae	*Minicaris brandi*	Long Livingston Borehole No. 25, West Lothian, Scotland,
Stamberg 2000	Palaeocaridacea	Palaeocaridídae	*Monicaris rudnicensis*	Honkův Creek, Semily, Příkrý, Czech Republic
Calman 1932	Palaeocaridacea	Palaeocaridídae	*Palaeocaris retractata*	Clay Craft open works, Cosely nr Dudley, Worcestershire, UK.
Schram 1984	Palaeocaridacea	Palaeocaridídae	*Palaeocaris retractata*	West flank of Biberry Hill, Lickey Hills, southwest of Birmingham, Warwickshire, UK.
Anderson *et al*. 1997	Palaeocaridacea	Palaeocaridídae	*Palaeocaris retractata*	Bickenshaw, Lancashire, UK
Schram 1984	Palaeocaridacea	Palaeocaridídae	*Palaeocaris secretanae*	St Louis open cast mine, Montceau-les-Mines, Saône et Loire, France
Meek and Worthen 1865	Palaeocaridacea	Palaeocaridídae	*Palaeocaris typus*	Mazon Creek area, Will County, Illinois, USA
Schram 1984	Palaeocaridacea	Palaeocaridídae	*Palaeocaris typus*	Abandoned Chieftain Mine, 11.3 km south of Terre Haute, Lower Shelburn Formation, Pennsylvanian Indiana, USA
Schram 1984	Palaeocaridacea	Palaeocaridídae	*Palaeocaris typus*	Abandoned strip mine talus, 2.9km west of Winsdor, Missouri, USA
Brooks 1962	Palaeocaridacea	Palaeocaridídae	*Palaeosyncaris dakotensis*	Borehole Casimer Duletski No.1, 8170-8180 feet NW 1/4, NW 1/4, Sec. 16, T139N, R99W, Stark County, North Dakota, USA
Schram 1984	Palaeocaridacea	Palaeocaridídae	*Palaeosyncaris micra*	Mazon Creek area, Will, Crundy, and Kankakee Counties, Illinois, USA
Fritsch 1875	Palaeocaridacea	Squillitidae	*Nectotelson krejcii*	Humboldt Mine, Nýřany, near Pizeň, Bohemia, Czech Republic
Fritsch 1875	Palaeocaridacea	Squillitidae	*Nectotelson krejcii*	Krimitz Mine, Bohemia, Czech Republic (Fritsch, 1901)
Fritsch 1875	Palaeocaridacea	Squillitidae	*Nectotelson krejcii*	Třemošná, Bohemia, Czech Republic (Fritsch, 1901)
Fritsch 1875	Palaeocaridacea	Squillitidae	*Nectotelson krejcii*	Autun, Central France.
Woodward 1908	Palaeocaridacea	Squillitidae	*Praeanaspides praecursor*	Shipley Hall, 1 1/4 mile NW of Ilkeston, Derbyshire, England
Scott 1938	Palaeocaridacea	Squillitidae	*Squillites spinosus*	1/2 mile south of Heath, Fergus County, Montana