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Revision of the *Siriella brevicaudata* species group (Crustacea: Mysida: Mysidae) from the West Indo-Pacific

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Abstract. The *Siriella brevicaudata* species group from the West Indo-Pacific, defined and designated by Murano & Fukuoka (2008), previously contained five nominal species. In this study we describe five new species in the *brevicaudata* group: *S. bassi* sp. nov. from the Bass Strait, southern Australia, *S. occulta* sp. nov. from the Arabian Gulf, *S. muranoi* sp. nov. from the coast of Northern Territory, Australia, *S. tabaniocula* sp. nov. from Ningaloo Reef of Western Australia and Lodestone Reef off Queensland, and *S. talbotae* sp. nov. from Lizard Island, Queensland, Australia. Furthermore, *Siriella hanseni* W.M. Tattersall, 1922 from India and *S. vincenti* W.M. Tattersall, 1927 from South Australia are redescribed based on re-examination of their type material. A re-examination of specimens subsequently attributed to these two species from other geographical regions showed that these were misidentifications, partly representing three of the new species described herein. *Siriella gibbosa* (Ledoyer, 1970), which was previously synonymized with *S. brevicaudata* Paulson, 1875 by Bačescu, is revalidated and included within the *brevicaudata* group. *Siriella lacertilis* Talbot, 2009, from Lizard Island, is placed within the *brevicaudata* group. Diagnostic features for all the members of the group and the group itself are updated. As a result of the present study, the *brevicaudata* group now comprises 12 valid species.

Keywords. Siriellinae, *Siriella*, taxonomy, new species, Indo-Pacific fauna.

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Introduction

The genus *Siriella* Dana, 1850 (Mysida: Mysidae: Siriellinae), which presently contains 80 recognized species (Mees 2009), is one of the largest genera within the family Mysidae (Murano & Fukuoka 2008). The genus was also considered by Ii (1964) to be one of the more difficult groups to distinguish taxonomically. In the most recent and comprehensive taxonomic treatment of *Siriella*, Murano & Fukuoka (2008) subdivided it into nine species groups. Our research, stimulated by recent new collections from the West Indo-Pacific, represents a critical taxonomic review and revision of one of these, the *brevicaudata* group. This study involved the re-examination of type and other previously published material and examination of new museum and other institutional collections containing members of this species group. The outcome of our investigation, which is reported and discussed herein, results in the descriptions of five new species belonging to the *brevicaudata* group, the revalidation of a previously synonymized species, a review of previous research on the group and clarification of misidentifications in the museum and other collections examined.

History of study

Within the genus *Siriella* (Mysida), the *brevicaudata* group, which was established by Murano & Fukuoka (2008), presently contains five species: *S. brevicaudata* Paulson, 1875, *S. hanseni* W.M. Tattersall, 1922, *S. vincenti* W.M. Tattersall, 1927, *S. lingvura* Ii, 1964 and *S. spinula* Panampunnayil, 1995. The group is confined to the West Indo-Pacific and is distinguished from eight other recognized and recently revised groups by having a relatively short telson and a short anterior spine of the labrum (Murano & Fukuoka 2008).

Siriella brevicaudata was briefly described by Paulson (1875a) from the Red Sea; however, no type material appears to be extant. W.M. Tattersall (1922) provided a more detailed description for this species based on specimens from the Gulf of Manaar (India). Subsequently, *S. brevicaudata* was recorded from the Red Sea (W.M. Tattersall 1927a; Băcescu 1973a, 1973b), Arabian Gulf (Murano 1998; Grabe *et al*. 2004) and the Mozambique Channel (Wooldridge & Mees 2003). Based on material from the Arabian Gulf, Murano & Fukuoka (2008) provided additional descriptive information on sexual dimorphism in *S. brevicaudata*. In the same work, they noted that *Siriellerythrops gibbosa* Ledoyer, 1970 from Madagascar, previously synonymized with *Siriella brevicaudata* by Băcescu (1973b), was distinctly different from *S. brevicaudata*; however, Murano & Fukuoka (2008) did not re-establish the specific status of *S. gibbosa*.

A second member of the group, *S. hanseni*, was described from the Gulf of Manaar, India (W.M. Tattersall 1922), and it was subsequently reported by O.S. Tattersall (1960) from Singapore and by Băcescu (1986) from northern Australia. Murano (1998) and Biju (2008) recorded *S. hanseni* based on a damaged specimen and immature specimens, respectively, from the Arabian Gulf and Arabian Sea. Based on a small collection from the Dampier Archipelago, Western Australia, Hanamura (2007) presented a detailed and well-illustrated supplemental description for *S. hanseni*.

Siriella vincenti from South Australia was originally described by W.M. Tattersall (1927b). Dakin & Colefax (1940) reported this species in plankton samples from Broken Bay, New South Wales, Australia and later Fenton (1986) reported it from the Bass Strait off southern Australia. In 2009, Talbot recorded *S. vincenti* from Lizard Island in the Great Barrier Reef, Australia (Talbot 2009).

Ii (1964) described a new species, *S. lingvura*, from the northwestern Pacific waters off Japan. The range of this disjunct species is thousands of kilometers north of those for the other members of the *brevicaudata* group. *Siriella lingvura* has been well-studied and subsequently reported from various sites along the Japanese coast and the adjacent Ryukyu Archipelago by Valbonesi & Murano (1980), Murano (1990), Fukuoka & Murano (1997) and Murano & Fukuoka (2008).

The most recent member of the group, *S. spinula*, was described from off the southwest coast of Australia (Panampunnayil 1995). Information on this species is restricted to its original publication.

Material and methods

Specimens used in this study were supplied by Steve Grabe and Arthur Anker and the following museums or institutions, and/or type material of the new species described herien has been deposited in their collections:

AM = Australian Museum, Sydney, Australia
NHM = Natural History Museum, London, United Kingdom
NMV = Museum Victoria, Melbourne, Australia
NTM = Museum and Art Gallery of Northern Territory, Darwin, Australia
SAM = South Australian Museum, Adelaide, Australia
USNM = National Museum of Natural History, Smithsonian Institution, Washington DC, USA
WAM = Western Australian Museum, Perth, Australia

The previously described and the new species, which are described, redescribed or synonymized herein, were compared to type, topotypic and other material attributed to the *brevicaudata* group, as well as to the original and subsequently published descriptions and illustrations for the group. To update the group status and provide a broader comparison of the characters across the genus, additional descriptions and illustrations of nearly all known *Siriella* species were studied.

Body length was measured using an ocular micrometer from the anterodorsal margin of the carapace to the posterior margin of the telson (excluding terminal spiniform setae). Anterior width of the telson was determined to be the width of the anterior portion of the telson, while the posterior width was considered to be between the first pair of posterolateral spiniform setae. Distal width of the antennal scale was measured from the outer side of the base of the distolateral spine to the distomedial corner of segment 1. When necessary, appendages from type and non-type material were detached and mounted on temporary slides in glycerol to facilitate detailed illustrations. Later, these appendages were permanently mounted on slides in Canada balsam or water-soluble Aquatex© medium. The specimens of *S. muranoi* sp. nov. were studied without dissection. The rest of the material was also studied without dissection. Drawings were made using a camera lucida attached to a stereo microscope (for habitus) or to a compound microscope (for appendages and other parts). The term “seta” was used for thin, smooth, flexible cuticular extensions, “plumose seta” for setae with setules along the axis (feather-like setae), “robust seta” for stronger, but not yet spine-like setae, and “spiniform seta” for spine-like setae with clearly articulated extensions.

Results

Taxonomy

Order Mysida Boas, 1883
Family Mysidae Haworth, 1825
Subfamily Siriellinae Czerniavsky, 1882

Genus ***Siriella*** Dana, 1850

Siriella brevicaudata species group

Diagnosis

Anterodorsal margin of carapace rather short, not protruding beyond tip of subrostral process. Telson rather short, less than 1.1 times as long as last abdominal somite and less than 2.5 times as long as wide. Telson anterior part with more than three (up to six) lateral spiniform setae. Antennular peduncle segment 3 of female with one medial seta. Appendix masculina conical. Male antennule inner flagellum

normal, not dilated or meandering in proximal part. Labrum with short anterior spine, less than 0.3 times as long as rest of labrum. Pereopodal endopods about equally long and rather strong; anterior endopods slightly stronger than posterior. Pseudobranchia of male pleopods 2–4 spirally coiled; pleopod setae not modified. Proximal segment of uropodal exopod armed only with small number (three to six, rarely eight) of distolateral spiniform setae. Medial spiniform setae of uropodal endopod about equally long or slightly increasing in length distally, not forming groups of short and long setae.

Comparison

The *Siriella brevicauda* group is distinguished from other groups of the genus *Siriella* by a shorter labrum spine, which is in certain species very small and barely visible, while in others is rather well-developed, but never longer than 0.3 of the rest of the labrum (0.37–1.0 in other *Siriella* species groups). Species of the group also have a shorter telson, which is as long as or typically slightly shorter than the last abdominal somite, while in some species it can be slightly longer (1.1) than the last abdominal somite (never shorter than the last abdominal somite in other groups; 1.0–1.8). The telson is also less than 2.0 times as long as wide in the majority of *brevicaudata* group species, while it can be slightly more in some species (up to 2.5 in *S. bassi* sp. nov.); this value is never less than 2.0 in other groups of the genus. The *brevicaudata* group is most similar to the *brevirostris* subgroup of *Siriella thompsonii* group, from which it differs, apart from the labrum anterior spine length, by (1) a larger number of

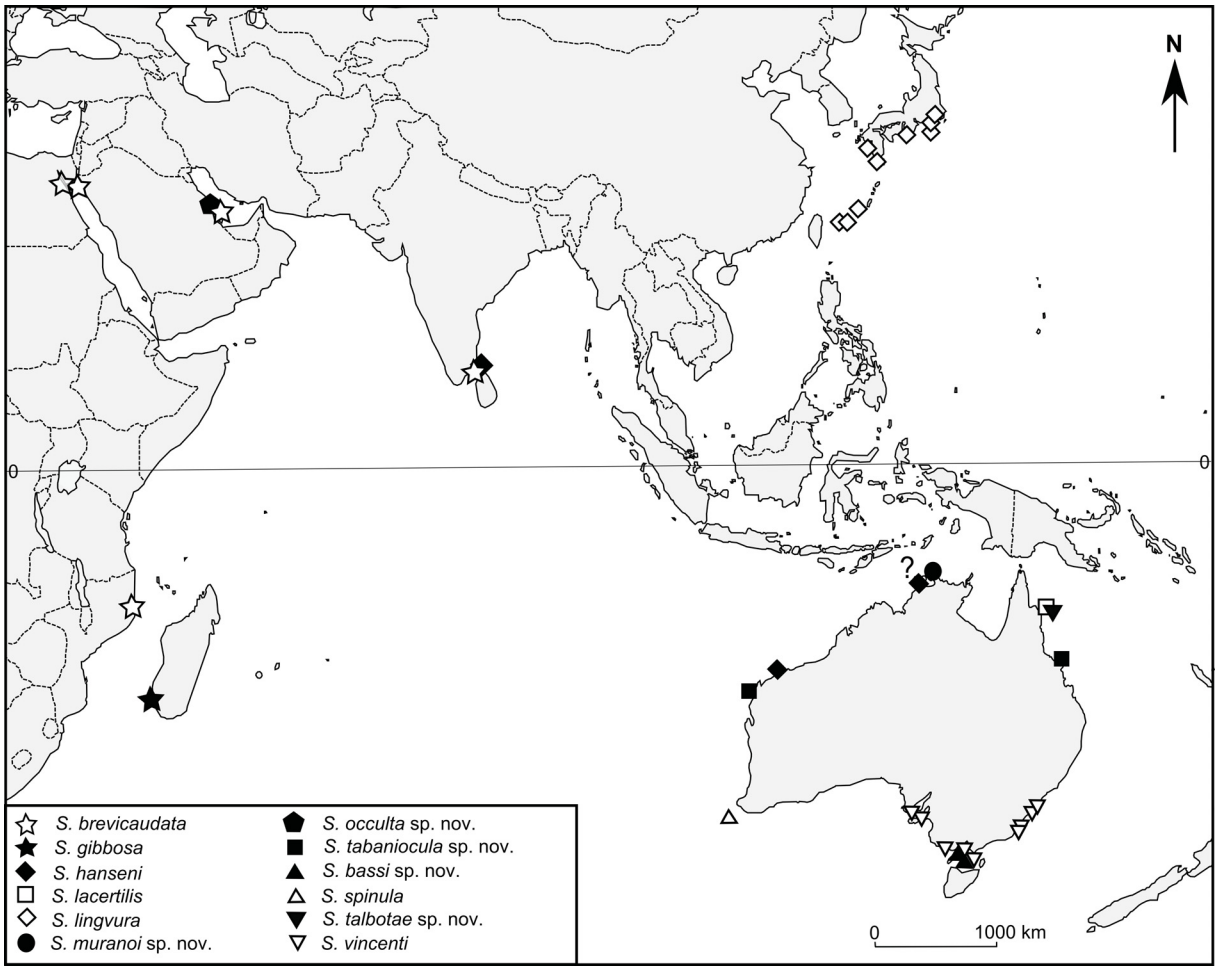

Fig. 1. Distribution of species in the *Siriella brevicaudata* species group. Question mark (?) indicates published record requires verification.

telson anterolateral spiniform setae (three to six as opposed to one or two in the *brevirostris* subgroup) and (2) pereopodal endopods being rather strong and nearly similar in length (slender and with middle pereopodal endopods clearly longer than anterior and posterior ones in the *brevirostris* subgroup).

Distribution and habitat

West Indo-Pacific (Figs 1–2). Shallow-water, not deeper than 100 m (upper sublittoral).

Remarks

We modified the original definition of the group given by Murano & Fukuoka (2008) after the inclusion of six more species into the group. In particular, we modified the description of the anterodorsal margin of the carapace, because in *S. gibbosa*, *S. occulta* sp. nov., *S. bassi* sp. nov., *S. spinula*, *S. talbotae* sp. nov. and *S. vincenti* it is angular, as opposed to broadly rounded in other species. The telson is not always less than twice as long as broad in the anterior part, sometimes being slightly more than twice as long as broad in *S. bassi* sp. nov., *S. spinula*, *S. talbotae* sp. nov. and *S. vincenti*, and quite variable in this characteristic between species. In most of the other groups of the genus *Siriella*, the spiniform setae of the uropodal endopod are different in length along the medial margin, forming groups of shorter and longer ones, which is not the case for the *brevicaudata* group. However, a simpler pattern of uropodal endopod armature is not unique for the *brevicaudata* group. Additional characters common for all species of the group include: telson anterior armature and antennular setation and shape of processus masculinus and flagellae, which have different states in some species from other *Siriella* groups.

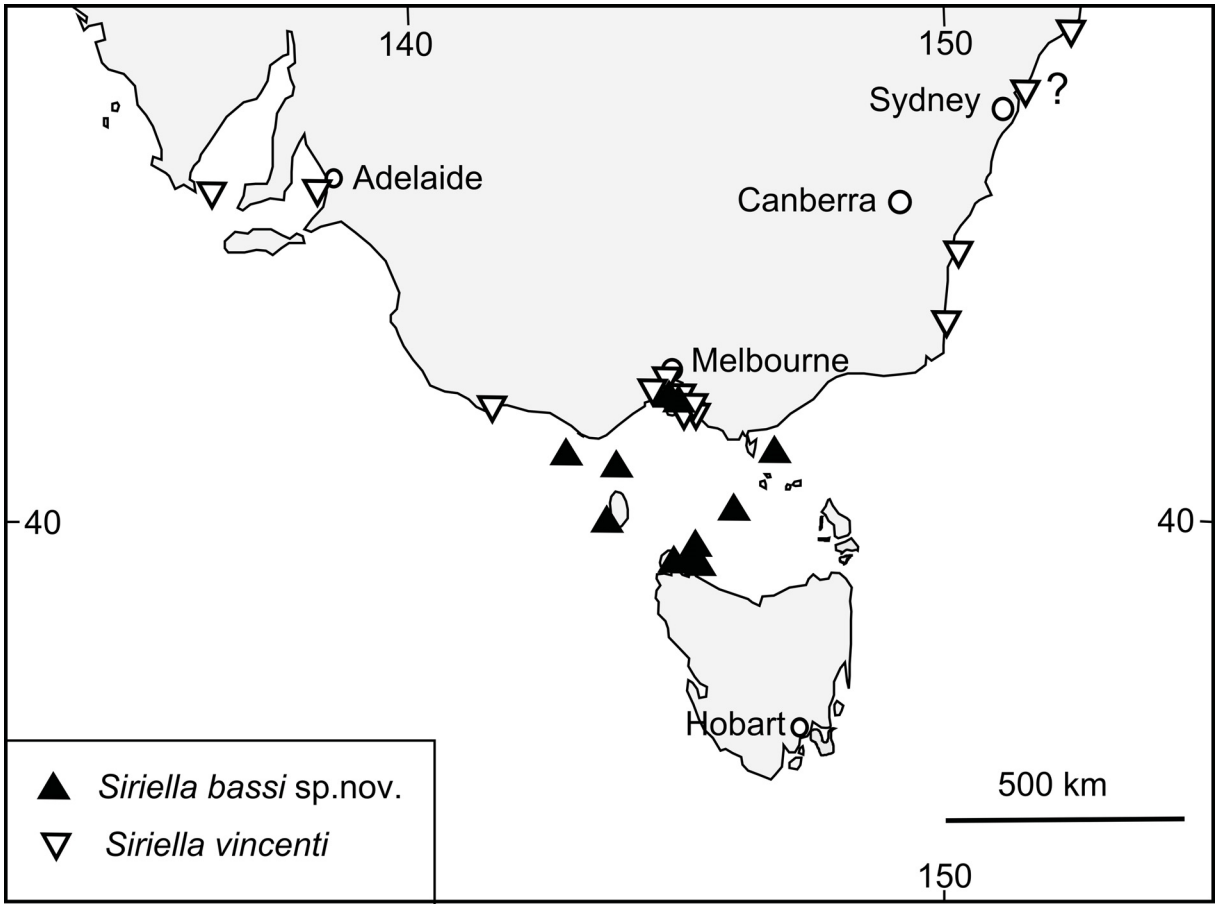

Fig. 2. Distribution of species in the *Siriella brevicaudata* species group along the southern Australian coast.

Composition

The group currently consists of 12 species: *S. bassi* sp. nov., *S. brevicaudata*, *S. gibbosa*, *S. hanseni*, *S. lacertilis* Talbot, 2009, *S. lingvura*, *S. muranoi* sp. nov., *S. occulta* sp. nov., *S. spinula*, *S. tabaniocula* sp. nov., *S. talbotae* sp. nov. and *S. vincenti*.

Siriella bassi sp. nov.

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Figs 3–6

Siriella vincenti – Fenton 1986: 48, partim (part of Bass Strait samples). — Lowry & Stoddart 2003: 469, partim (catalogue).

Diagnosis

Carapace with anterodorsal margin angular, apically rounded; sides concave. At least half of subrostral process covered by carapace. Carapace with slight dorsal cephalic and postcervical elevations, more strongly established in male. Telson 1.0–1.1 times as long as last abdominal somite, 2.35–2.5 times as long as wide and 1.3–1.5 times as wide anteriorly as posteriorly, reaching level of lateral spiniform setae of uropodal exopods, narrowing posteriorly. Lateral margins of telson with three or four anterior and 15 to 20 posterior spiniform setae, graded in length posteriorly in males, and terminal posterolateral pair shorter than subterminal or rarely equal to them in females; terminal posterolateral pair of spiniform setae 0.07–0.08 times as long as telson, 1.0–1.2 times as long as subterminal spiniform setae in male and 0.7–1.0 times in female; subterminal pair of spiniform setae 0.8–1.4 times as long as previous posterolateral pair of spiniform setae. Telson apically without emargination; three apical spinules rather well developed, 0.3–0.5 times as long as posterolateral terminal pair of spiniform setae. Labrum with relatively long anterior spine, about 0.25–0.3 times as long as rest of labrum. Maxilla 1: outer apical spiniform setae of outer ramus serrated. Maxilla 2: endopodal segment 2 with two lateral setae. Pereopodal endopod 1–2 merus 4.3–4.4 times as long as wide. Uropodal exopod 3.8–4.0 times as long as wide; segment 1 with four to eight distolateral spiniform setae, 1.9–2.0 times as long as segment 2. Uropodal endopod with 22 to 29 medial spiniform setae, without sexual dimorphism in number, distributed rather unevenly in median part (often in pairs); apical spiniform seta reaching apex of ramus.

Etymology

This species is named after the British explorer of Australia, George Bass (1771–1803). The name also denotes the type locality of the species, the Bass Strait, named after George Bass as well.

Material examined

Holotype

AUSTRALIA: ♀, 8.5 mm long, Victoria, Western Bass Strait, 44 km SW of Cape Otway, 39°06′18″ S, 42°55′36″ E, 81 m, sandy shell, rock, BSS, NZOI R/V Tangiaroa, cruise 81-T-1, st. 192, bottle 192/14, dredge, 21 Nov. 1981, R.S. Wilson *et al.* leg., previously identified as *S. vincenti* by G. Fenton in 1985 (NMV J5384).

Paratypes

AUSTRALIA: 6 ♀♀, 7–8 mm long, Victoria, Central Bass Strait, 100 km SSE of Cape Liptrap, 39°45′54″ S, 145°33′18″ E, 74 m, BSS, R/V Tangaroa, st. 156, grab, sled, 13 Nov. 1981, R.S. Wilson leg., previously identified as *S. vincenti* by G. Fenton in 1985 (MNV J11242); 2 ♂♂, 8 mm long, Tasmania, Central Bass Strait, 47 km E of Cape Rochon, Three Hummock Island, 40°23′48″ S, 145°32′00″ E, 66 m, mud with shell and sand, FR/V Sarda, cruise 80-Sa-1, st. 113, epibenthic sled, 3 Nov. 1980, M.F. Gomon and G.C.B. Poore leg., previously identified as *S. vincenti* by G. Fenton in 1985 (MNV 5430); 1 ♂,

7.5 mm long, Victoria, Eastern Bass Strait, 43 km SE of Port Albert, 38°53′42″ S (38°53.7′ S), 147°06′30″ E (147°06.5′ E), 58 m, coarse shell, BSS, cruise 81-T-1, NZOI R/V Tangaroa, st. 177, Smith-McIntyre grab, sled or trawl, 18 Nov. 1981, R.S. Wilson leg., previously identified as *S. vincenti* by G. Fenton in 1985 (MNV J5424); 1 ♂, 7.5 mm long, Victoria, Port Phillip Bay, western sandy region, 38°09′55″ S, 144°44′39″ E, 12 m, PPBES-5 114 3, Smith-McIntyre grab, 18 Oct. 1995, R.S. Wilson, S.P. Heislers et al. leg., previously identified as *S. vincenti* by S.P. Heislers in 1996 (NMV J43692); 2 ♂♂, 10 mm long, Tasmania, Ransonnet Bay, 40°40′ S, 145°00′ E, FR/V Sarda, cruise 80-Sa-1, plankton net, 3 Nov. 1980, 01:00, P. Forsyth leg., previously identified as *S. vincenti* by G. Fenton in 1985 (MNV J5428).

Other material

AUSTRALIA: 1 ♀ (broken telson and pereopods), Tasmania, Central Bass Strait, 35 km N of Cape Wickham, King Island, 39°13′36″ S, 143°55′36″ E, 85 m, R/V Tangiaroa, epibenthic sled, 23 Nov. 1981, R.S. Wilson leg., previously identified as *Siriella* sp. by G. Fenton in 1985 (MNV J11237); 1 ♀, 7.5 mm long, 1 ♀ (broken telson), 8 mm long, 1 juvenile (broken telson), 5.5–6.0 mm long, Tasmania, Western Bass Strait, 4 km SSW of Currie, King Island, 40°00′22″ S, 143°49′54″ E, 46 m, very fine sand, BSS, cruise 81-T-1, NZOI R/V Tangaroa, st. 197, bottle 197/9, epibenthic sled, 21 Nov. 1981, R.S. Wilson leg., previously identified as *S. vincenti* by G. Fenton in 1985 (MNV 5447); 1 ♀, 7 mm long, Victoria, Central Bass Strait, 100 km SSE of Cape Liptrap, 39°45′54″ S, 145°33′18″ E, 74 m, R/V Tangaroa, 13 Nov. 1981, R.S. Wilson leg., previously identified as *S. vincenti* by G. Fenton in 1985 (MNV J11218); 2 ♂♂, 7.5–8 mm long (both with broken telsons), 3 ♀♀ (no pereopods), 7–7.5 mm long, 1 subadult ♀, 6 mm long, 1 juvenile, 5 mm long, Tasmania, Central Bass Strait, 23 km E of Cape Rochon, Three Hummock Island, 40°22′12″ S, 145°17′00″ E, 40 m, sand, FR/V Sarda, st. 112, bottle 112/24, epibenthic sled, 3 Nov. 1980, M.F. Gomon and G.C.B. Poore leg., previously identified as *S. vincenti* by G. Fenton in 1985 (MNV J5441); 1 ♂ (broken head), 7.5 mm long, 1 ♀, 7.5 mm long, 1 subadult ♂, Victoria, Eastern Bass Strait, 40 km SSW of Lakes Entrance, 38°18′00″ S, 147°37′00″ E, 55 m, F/V Silver Gull, st. 209, trawl or sled, 31 Jul. 1983, M.F. Gomon and R.S. Wilson leg., previously identified as *S. vincenti* by G. Fenton in 1985 (NMV J11231); 1 ♀, Tasmania, Central Bass Strait, 65 km ENE of Cape Rochon, Three Hummock Island, 40°10′54″ S (40°10.9′ S), 145°44′18″ E (145°44.3′ E), 75 m, bryozoa mud, BSS, cruise 81-T-1, NZOI R/V Tangaroa, st. 157, epibenthic sled (Smith-McIntyre grab), 13 Nov. 1981, R.S. Wilson leg., previously identified as *S. vincenti* by G. Fenton in 1985 (MNV J5448); 2 ♂♂ (1 broken), 5.5–7 mm long, 1 ♀, 6 mm long, Victoria, Southern Port Phillip Bay, southern section, 38°21′00″ S, 144°51′30″ E, 9 m, sand, PPBES, F/V Melita, st. 985, Smith-McIntyre grab, 9 Dec. 1971, G.C. Poore, S.F. Rainer et al. leg., previously identified as *S. vincenti* by G.C. Poore in 1975 (MNV J5468); 2 spec., Tasmania, Central Bass Strait, 20 km NNE of North Point, 40°38′ S, 145°23′ E, 38 m, FR/V Sarda, 4 Nov. 1980, M.F. Gomon and G.C. Poore leg., previously identified as *S. vincenti* by G. Fenton in 1985 (MNV J5391).

Description

Body length 7–10 mm.

Female (holotype)

Carapace. With anterodorsal margin angular, covering more than half of subrostral process; lateral margins slightly concave (Fig. 3A). Carapace with slight cephalic tubercle and postcervical elevation (Fig. 3C).

Telson. 1.1 times as long as last abdominal segment, reaching level of lateral spiniform setae of uropodal exopods, narrowing posteriorly (Fig. 3D), 2.4 times as long as wide anteriorly and 1.3 times as wide anteriorly as posteriorly. Lateral margins slightly convex in middle part, with four anterior and 18

posterior lateral spiniform setae; terminal posterolateral pair 0.7–1.0 times as long as subterminal pair; terminal pair of spiniform setae 0.08 of telson length; subterminal pair of spiniform setae 0.8–1.4 times as long as preceding posterolateral pair of spiniform setae. Telson apically without emargination, with three well-visible spinules (Fig. 3E), 0.3–0.5 times as long as terminal posterolateral pair of spiniform setae, and a pair of long plumose setae flanking them.

Head appendages. Antennular peduncle rather narrow (Fig. 3A, G); distal segment reaching about end of antennal scale and half as long as segment 1, with one medial and four distomedial setae. Antennal scale (Fig. 3H) 3.1 times as long as wide and 1.3 times as long as distance from scale base to base of outer spine. Labrum with relatively large anterior spine, 0.3 times as long as rest of labrum (Fig. 4C). Mandibular palp (Fig. 4B): segment 2 with about 10 inner setae; segment 3 is 0.5 times as long as segment 2, with three medial setae. Right mandible (Fig. 4E): incisor with two lamellar cusps, planes of which perpendicular to each other; lacinia mobilis and molar lamellar. Left mandible (Fig. 4F): triangular, lamellar, with strongly reduced molar. Maxilla 1 (Fig. 4G): outer ramus with 10 apical spiniform setae, among them outer spiniform setae serrated; posterior face with two setae; inner ramus laterally with two setae and apically with four plumose setae. Maxilla 2 (Fig. 5A): endopod of segment 2 with two lateral setae; endites with smooth spiniform setae; exopod with 13 setae.

Maxillipeds. Maxilliped 1 endopod; dactylary unguis strong (Fig. 5B), 1.7 times as long as dactylus. Maxilliped 2 endopod (Fig. 5C): ischium 1.4 times as long as wide and 0.7 times as long as merus; merus 2.3 times as long as wide and as long as carpopropodus; carpopropodus 2.6 times as long as wide; dactylus 1.1 times as long as wide and 0.3 times as long as carpopropodus, with serrated setae; dactylary unguis smooth, 2.1 times as long as dactylus.

Pereopods. Pereopod 1 endopod (Fig. 6A): preischium without setae; ischium 2.3 times as long as wide; merus 4.3 times as long as wide and 1.6 times as long as ischium, with six groups of mostly concentrated setae; carpopropodus without clear articulation, 5 times as long as wide and 0.8 times as long as merus; dactylus 0.2 times as long as carpopropodus; dactylary unguis 1.75 times as long as dactylus. Pereopod 2 (Fig. 6B): preischium without setae; ischium 2.2 times as long as wide; merus 4.4 times as long as wide and 2 times as long as ischium, with four groups of setae; carpopropodus without clear articulation, 3.0 times as long as wide and 0.8 times as long as merus; dactylus 0.2 times as long as carpopropodus; dactylary unguis 1.9 times as long as dactylus; paradactylary setae not extending beyond tip of unguis.

Uropods. Uropodal exopod (Fig. 3D) 3.8 times as long as wide, with clear joint between segments; segment 1 with five distolateral spiniform setae; segment 1 is 1.9 times as long as segment 2. Uropodal endopod with 26 medial spiniform setae, some of them medially in pairs; terminal spiniform seta reaching apex of ramus.

Male

Carapace dorsal surface with rather clearly established cephalic tubercle and postcervical elevation (Fig. 3B). Telson with terminal spiniform setae 1.0–1.2 times as long as subterminal (Fig. 3F). Antennular peduncle rather strong (Fig. 3B); distal segment extending anteriorly beyond antennal scale and about as long as segment 1, rather strong. Appendix masculina conical. Antennular inner flagellum normal, not dilated or meandering in proximal part.

Comparison

Siriella bassi sp. nov. is distinguished from all species within the *brevicaudata* group by having the telson typically longer than the last abdominal somite, 2.35–2.5 times as long as wide anteriorly and with relatively short terminal spiniform setae, less than 0.08 the length of the telson. In all other members

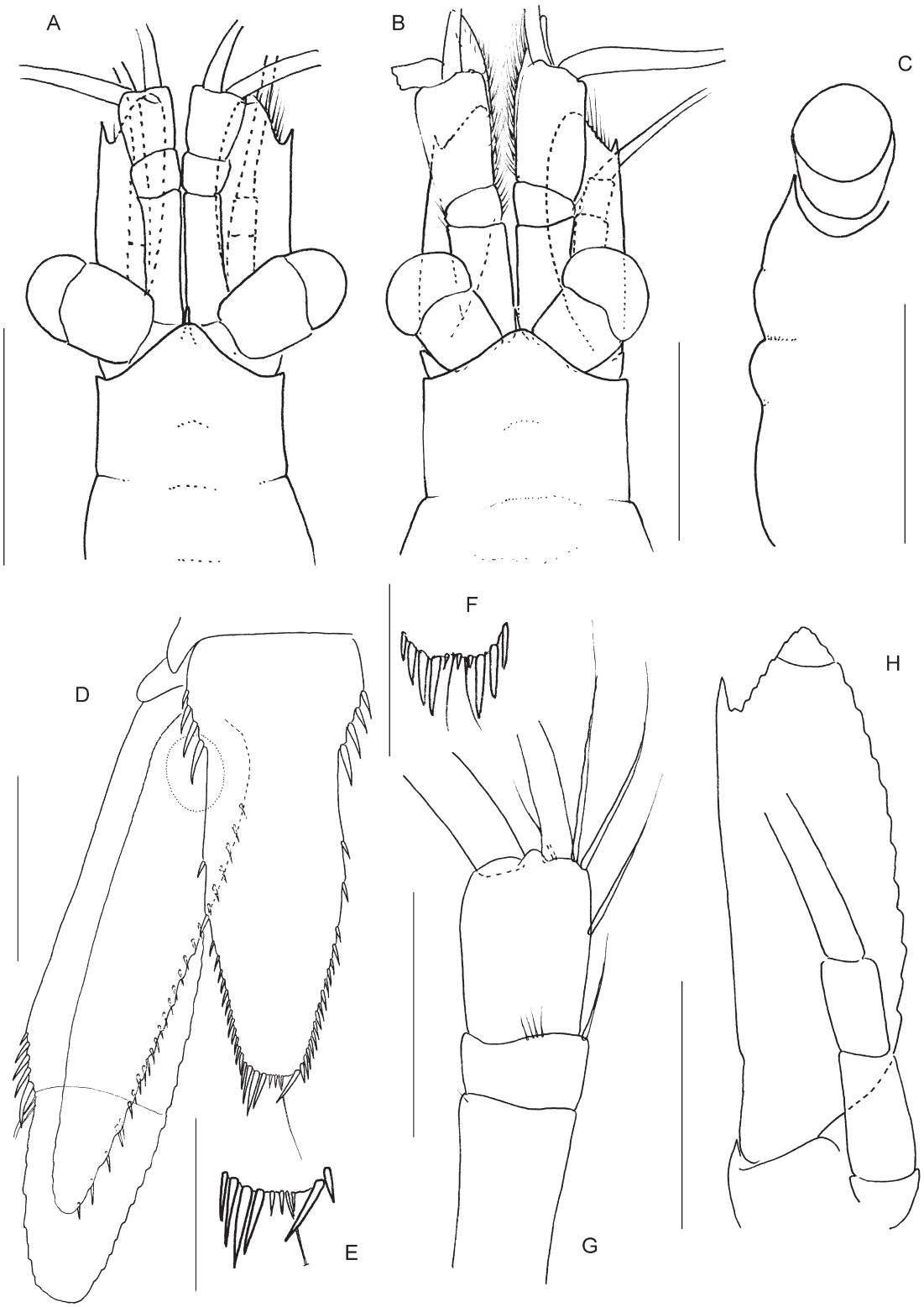

Fig. 3. *Siriella bassi* sp. nov., Australia, Victoria, Western Bass Strait. **A**. ♀, anterior part of body. **B**. ♂, anterior part of body. **C**. Anterior part of carapace, lateral view. **D**. Telson and left uropods. **E**. ♀, posterior part of telson. **F**. ♂, posterior part of telson. **G**. Peduncle of antenna 1, dorsal view. **H**. Antennal scale and peduncle of antenna 2, ventral view. A, C–E, G–H = holotype, ♀, length 8.5 mm; B, F = paratype, ♂, length 7.5 mm. Scale bars: A–C = 1 mm; D, G–H = 0.25 mm; E–F = 0.1 mm.

Fig. 4. *Siriella bassi* sp. nov., holotype, ♀, length 8.5 mm, Australia, Victoria, Western Bass Strait. **A**. Distal part of mandibular palp, medial view. **B**. Mandibular palp, lateral view. **C**. Labrum, ventral view. **D**. Labium (left side not shown), posterior view. **E**. Right mandible. **F**. Left mandible. **G**. Maxilla 1, posterior view. Scale bars: A, C–G = 0.1 mm; B = 0.25 mm.

Fig. 5. *Siriella bassi* sp. nov. Australia, Victoria, Western Bass Strait. **A**. Maxilla 2, anterior view. **B**. Endopod of maxilliped 1, posterior view. **C**. Endopod of maxilliped 2, posterior view. **D**. Pleopod 4. A–C = holotype, ♀, length 8.5 mm; D = paratype, ♂, length 7.5 mm. Scale bars: 0.25 mm.

of the group, the terminal spiniform setae are more than 0.08 times the telson length. *Siriella bassi* sp. nov. attains the largest reported body length (10 mm) and has a larger number of spiniform setae on the posterolateral margin of the telson, the distolateral margin on the proximal segment of the uropodal exopod, and the medial margin of the uropodal endopod than any in other species within the *brevicaudata* group.

Although in the past it has been confused with *Siriella vincenti* (Fenton, 1986), *S. bassi* sp. nov. appears most similar to *S. spinula*, which is known from the southwest coast of Australia. In addition to its longer telson and associated terminal spiniform setae, *S. bassi* sp. nov. is distinguished from *S. spinula* by having (1) the labrum apparently with a longer spine (0.25–0.3 against 0.15 of the rest of the labral length in *S. spinula*), (2) the telson with a greater number of posterolateral spiniform setae (15 to 20 against 12 to 14 in *S. spinula*), (3) a cephalic tubercle and a postcervical elevation (absent in *S. spinula*) and (4) the uropodal exopod with a longer proximal article (1.9–2.0 times as long as the distal article in *S. bassi* sp. nov. compared to 2.5 times as long in *S. spinula*).

Occasionally *S. bassi* sp. nov. occurs sympatrically with *S. vincenti*. Besides its distinctive telson and lengths of its terminal spiniform setae, the new species can be distinguished from *S. vincenti* by (1) a cephalic tubercle present in both sexes (absent in males of *S. vincenti*), (2) labrum anterior spine rather long (relatively short, about 0.2 times as long as the rest of the labrum in *S. vincenti*), (3) maxilla 1 having the outer ramus with serrated robust setae and (4) endopod of maxilla 2 with the distal article having two lateral setae (three to four on that of *S. vincenti*). Furthermore, the male telson of *S. bassi* sp. nov. has a subterminal posterolateral pair of spiniform setae that is shorter than or about as long as the terminal pair of spiniform setae (terminal spiniform setae shorter or rarely as long as the subterminal

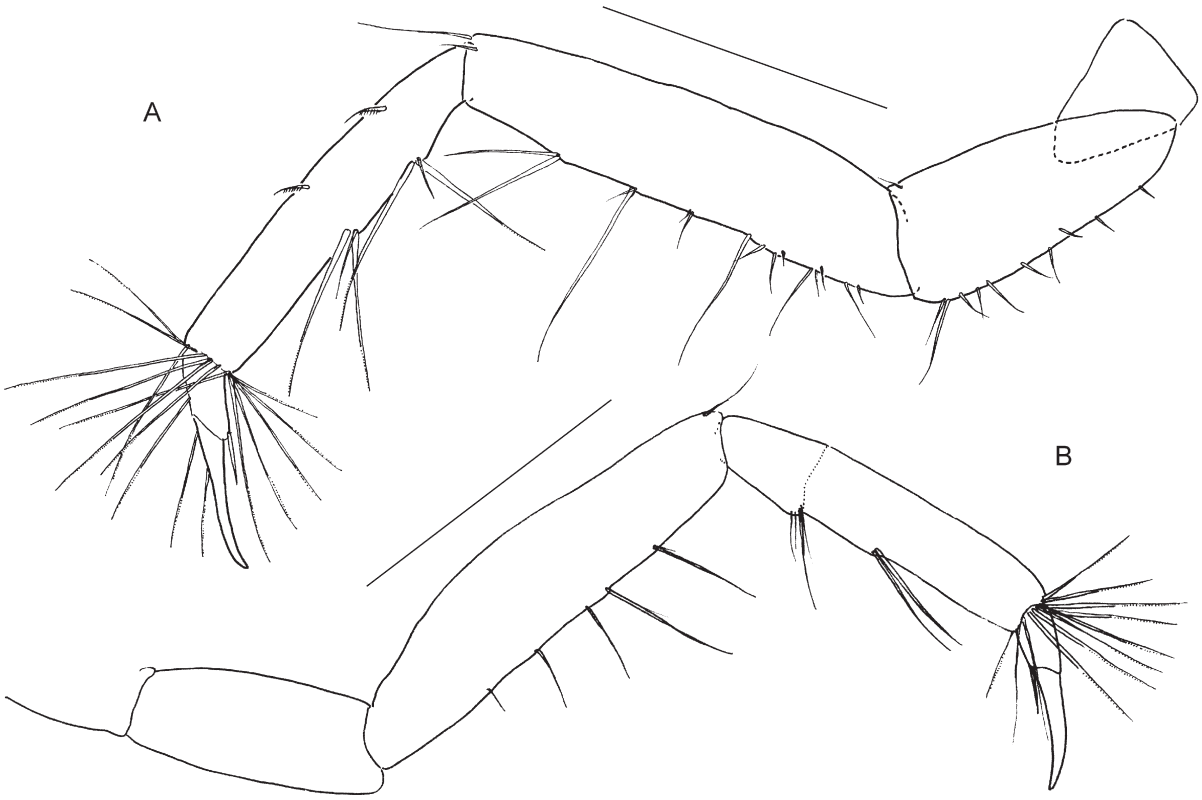

Fig. 6. *Siriella bassi* sp. nov., holotype, ♀, length 8.5 mm, Australia, Victoria, Western Bass Strait. **A**. Endopod of pereopod 1, posterior view. **B**. Endopod of pereopod 2, posterior view. Scale bars: 0.25 mm.

setae on the telsons of both sexes in *S. vincenti*). For more specific characters distinguishing *S. bassi* sp. nov. from the other members of the group, we refer to Table 1 and the dichotomous key herein.

Distribution

Numerous type and additional collections come from the Bass Strait between the Australian continent and the island of Tasmania, adjacent to Port Phillip Bay (continental side) and Ransonnet Bay (insular side) (Figs 1–2). Not known beyond the Bass Strait region.

Habitat

Based on depth records from the sampling localities, the species is found in the Bass Strait from depths of 38 to 85 m, and only in two cases, in Port Phillip Bay, at 9–12 m. In this respect it is seemingly distinguished from *S. vincenti*, found only in coastal areas at depths shallower than 20 m.

Remarks

The Museum Victoria (NMV) possessed 21 samples from Southern Australia, collected during Port Phillip Bay Environmental Study (PPBES, 1969–1973), Westernport Bay Environmental Study (WBES, 1973–1974) of the Australian Ministry of Conservation, and Bass Strait Survey of the Victoria Insitute of Marine Science (BSS, 1980, 1981, 1983), identified previously and deposited as *S. vincenti*. We re-examinated this material and recovered, apart from *S. vincenti* itself (see material in the relevant species section), a number of samples of a new species described here as *S. bassi* sp. nov., as well as *S.* cf. *australis* from the *thompsonii* group and damaged specimens of *Doxomysis* sp., which are not treated here.

Siriella brevicaudata Paulson, 1875
Figs 7–10

Siriella brevicaudata Paulson, 1875a: 123, pl. 20, fig. 1a–m.

Siriella brevicaudata – Paulson 1875b: 30, pl. 1, figs 15–16. — Czerniavsky 1882: 95; 1887: 32. — W.M. Tattersall 1922: 450, figs 3–4; 1927a: 187. — Illig 1930: 561 (key). — Coifmann 1937: 19, pl. 7, fig. 11a–p (illustrations of W.M. Tattersall 1922). — Gordan 1957: 378 (catalogue). — Băcescu 1973a: 173; 1973b: 645, fig. 1l. — Mauchline & Murano 1977: 76 (checklist). — Almeida Prado-Por 1980: 189. — Müller 1993: 34 (catalogue). — Ariani *et al*. 1993: 396. — Murano 1998: 45, fig. 2a. — Wooldridge & Mees 2003: 32. — Grabe *et al*. 2004: 2323. — Murano & Fukuoka 2008: 33, fig. 13. — Anderson 2010: 22 (checklist). — Naser *et al*. 2012: 379 (list).

Siriella brevicauda – Pillai 1965: 1682 (lapsus calami), 1691 (lapsus calami), fig. 12.

Diagnosis

Carapace with anterodorsal margin rounded. Subrostral process not covered by carapace in male and covered in female. Carapace with dorsal cephalic tubercle and postcervical elevation, particularly well-established in female. Eye cornea black. Telson 0.9 times as long as last abdominal somite; posterior margin truncated; length 1.5–1.7 times anterior width; anterior width 1.5–1.7 times posterior width. Lateral margins of telson with three anterior and four to seven posterior spiniform setae, among latter three to four short and two to three apical pairs very long; terminal posterolateral pair of spiniform setae 0.36–0.53 times as long as telson and 1.2–1.6 times as long as subterminal pair; subterminal spiniform setae 1.4–3.1 times as long as preceding pair of posterolateral spiniform setae. Telson apically with slight emargination, bearing three small, dorsally invisible spinules, 0.03–0.08 times as long as terminal spiniform setae. Labrum with very short, barely visible, anterior spine, <0.1 times as long as rest of labrum. Maxilla 1: outer ramus robust setae smooth. Maxilla 2: endopod with five lateral setae. Endopod of pereopods 1–3, merus 3.0–3.3 times as long as wide. Uropodal exopod 3.1–3.4 times as long as wide; segment 1 is 2.8–3.0 times as long as segment 2, with three to five distolateral spiniform setae. Uropodal

Table 1. Comparison of diagnostic morphological characters among species of the *Siriella brevicaudata* group (bold type indicates unique character states).

Characters	Species (in alphabetical order)					
	S. bassi sp. nov.	*S. brevicaudata*	*S. gibbosa*	*S. hanseni*	*S. lacertilis*	*S. lingvura* sp. nov.
Anterior margin of carapace:						
- shape	angular; apically rounded; sides concave	rounded	angular; **apically acute**; sides concave	rounded	rounded	rounded
- frontal extension (coverage of subrostral process)	covering at least half of process ♂**: not covering;** ♀**: covering**	covering	not covering	not covering	not covering	
Cephalic tubercle	present; larger in ♂	present; larger in ♀	present	absent	present	absent
Postcervical elevation	present; larger in ♂	present; larger in ♀	present	absent	present	absent
Eye corneal color	unknown	black	unknown	unknown	**red-brown**	**dark purple**
Telson:						
- length / last abdominal somite length	1.0–1.1	0.9	unknown	1.0–1.1	**0.7**	0.9
- length / anterior width	**2.35–2.5**	1.5–1.7	**1.3**	1.6–1.9	1.7	1.6–1.8
- anterior width / posterior width*	1.3–1.5	1.5–1.7	**2.3**	1.3–1.6	1.4	1.45–1.5
- N of anterolateral spiniform setae	3–4	3	3	3–4	3	**5–6**
- N of posterolateral spiniform setae	**15–20**	4–7	4	10–16	9	9–11
- terminal spiniform setal length / telsonal length	**0.07–0.08**	**0.36–0.53**	**0.31**	0.09–0.13	**0.25**	0.13–0.14
- terminal spiniform setal length / subterminal setal length	♂: 1.0–1.2; ♀: 0.7–1.0	1.2–1.6	**3.1**	1.0–1.2	1.1–1.2	1.2–1.6
- subterminal spiniform setal length to preceding posterolateral	0.8–1.4	1.4–**3.1**	1.2–1.8	1.0–1.2	1.8–2.0	1.1–1.4

* Posterior width of telson is considered to be between the first pair of posterolateral spiniform setae.

Characters	Species (in alphabetical order)					
	S. bassi sp. nov.	*S. brevicaudata*	*S. gibbosa*	*S. hanseni*	*S. lacertilis*	*S. lingvura* sp. nov.
Telson:						
- pattern of posterior spiniform setae	graded, except terminal in most of ♀♀	**very long 2–3 last graded pairs against 3–4 short preceding**	**very long one pair against 3 short preceding**	**nearly equal 3–6 last pairs, gradually grading into posterolateral**	**very long 2 last graded pairs against 7 short preceding**	graded
- emargination	absent	present	absent	absent	absent	absent
- apical spinules	small, dorsally visible	very small, dorsally invisible	small, dorsally visible	small, dorsall visible	small, dorsally visible	small, dorsally visible
- length of apical spinules / terminal spiniform setae	0.3–0.5	0.03–0.08	0.09	0.2–0.3	0.13–0.16	0.19–0.23
Labral anterior spine length / rest of labral length	0.25–0.3	< 0.1	**absent** (?)	< 0.1	0.1–0.15	0.15
Maxilla 1, outer ramus robust setae	serrated	smooth	smooth	smooth	serrated	smooth
Maxilla 2, N of endopod lateral setae	2	5	2	3–4	4	3–4
Pereopods 1–3, meral length / width ratio	4.3–4.4	3.0–3.3	3.2	3.5–4.4	4.1	3.5
Uropods:						
- exopod length / width ratio	3.8–4.0	3.1–3.4	2.9	3.8–4.0	3.9	3.6–3.7
- N of exopodal spiniform setae	**4–8**	3–5	4–5	3–6	3	4–5
- ratio of length of exopodal segments	1.9–2.0	2.8–3.0	2.7	1.9–2.3	1.4–1.5	1.8–2.2
- N of endopodal spiniform setae	22–29	10–12	**3**	10–13	14–15	15–16
- pattern of endopodal spiniform setae	along entire margin, terminal reaching apex; medially in pairs	along almost entire margin, not reaching apex	**along proximal half of margin**	along almost entire margin, not reaching apex	along almost entire margin, not reaching apex	along almost entire margin, not reaching apex

Table 1. Comparison of diagnostic morphological characters among species of the *Siriella brevicaudata* group (continuation).

Characters	Species (in alphabetical order)					
	S. muranoi sp. nov.	*S. occulta* sp. nov.	*S. spinula*	*S. tabaniocula* sp. nov.	*S. talbotae* sp. nov.	*S. vincenti*
Anterior margin of carapace:						
- shape	rounded	angular; sides straight	angular, apically rounded; sides concave	rounded	weakly angular or nearly rounded	angular, apically rounded; sides concave
- frontal extension (coverage of subrostral process)	not covering	covering	covering at least half of process	not covering	not covering	covering at least half of process
Cephalic tubercle	present; weak	absent	absent	present; weak	absent	present in ♀
Postcervical elevation	present	present	absent	present	present	present in ♀
Eye corneal color	unknown	unknown	unknown	**white; three golden-yellow horizontal stripes**	**brown-gold**	black
Telson:						
- length/last abdominal somite length	0.9	0.9	1.0	0.9	1.0	1.0–1.1
- length/anterior width	1.6–1.7	1.6–1.7	2.0–2.1	1.5–1.7	2.0–2.1	2.0–2.1
- anterior width/posterior width*	1.5	1.5	1.4	1.5	1.3–1.4	1.3
- N of anterolateral spiniform setae	3	3–4	3	3–4	4	3–4
- N of posterolateral spiniform setae	10–16	9–13	12–14	11–13	14–17	10–16
- terminal spiniform setal length/telsonal length	0.13–0.14	0.20–0.23	0.13–0.14	0.18–0.19	0.09	0.11–0.13
- terminal spiniform setal length/subterminal setal length	1.0–1.1	1.1–1.3	♂: 1.2; ♀: 0.8	1.3–1.4	1.3–1.4	0.9–1.0
- subterminal spiniform setal length to preceding posterolateral	1.2	1.1–1.2	♂: 1.2; ♀: 1.4–1.5	1.4	1.1–1.2	1.1–1.2

* Posterior width of telson is considered to be between the first pair of posterolateral spiniform setae.

Characters	Species (in alphabetical order)					
	S. muranoi sp. nov.	*S. occulta* sp. nov.	*S. spinula*	*S. tabaniocula* sp. nov.	*S. talbotae* sp. nov.	*S. vincenti*
Telson:						
- pattern of posterior spiniform setae	**2 equal pairs longer than preceding**	graded	graded, except terminal in ♀	graded	graded	**terminal shorter than or equal to subterminal**
- emargination	absent	present	absent	absent	absent	absent
- apical spinules	small, dorsally visible	very small, dorsally invisible	small, dorsally visible	small, dorsally visible	small, dorsally visible	small, dorsally visible
- length of apical spinules/ terminal spiniform setae	0.25–0.3	0.1	0.2–0.3	0.2	0.4	0.2–0.3
Labral anterior spine length/rest of labral length	0.2	< 0.1	0.15	< 0.1	0.25–0.3	0.2
Maxilla 1, outer ramus robust setae	smooth	smooth	serrated	smooth	smooth	smooth
Maxilla 2, N of endopod lateral setae	3–4	5–6	2	3–4	2	3–4
Pereopods 1–3, meral length/width ratio	3.8–4.1	3.1–3.3	4.2–4.8	3.1–3.4	3.4–3.5	4.6–5.0
Uropods:						
- exopod length/width ratio	**4.2**	3.6	4.0	3.9–4.0	3.5–3.7	3.6–3.9
- N of exopodal spiniform setae	3–5	4–6	3–4 in ♀; 4–5 in ♂	3–5	4–6	3–4 in ♀; 4–6 in ♂
- ratio of length of exopodal segments	1.7	2.5–3.0	2.5	1.8–1.9	1.7–1.8	1.8–1.9
- N of endopodal spiniform setae	11–14	15–20	19–27 in ♀; 15–21 in ♂	10–13	17–18	19–25 in ♀; 15–22 in ♂
- pattern of endopodal spiniform setae	along almost entire margin, not reaching apex	along almost entire margin, not reaching apex	along entire margin, terminal reaching apex	along almost entire margin, not reaching apex	along entire margin, terminal not reaching apex	along entire margin, terminal reaching apex

endopod with 10 to 12 medial spiniform setae in both sexes, along almost entire margin, with terminal spiniform seta not reaching apex of ramus.

Type material

Syntypes

UNKNOWN COUNTRY: 9 specimens, Red Sea (Zoological Museum of the University of Kiev, Ukraine; Czerniavsky 1887). The specimens, as well as the entire collection of Paulson were lost during World War II (Bidzilya, museum curator, pers. comm.).

Material examined

BAHRAIN: 9 ♂♂, 3 ♀♀, 4–4.5 mm long, 2 juveniles, 3.5 mm long, Arabian Gulf, Tubli Bay, st. 16, 1991 (exact date unknown), J. A. Mansoor and H. Sulman leg. (USNM 1459141); 1 ♂ (+ slide), 4.5 mm long, 1 ♀ (+ slide), 4 mm long, same collection data as for preceding (USNM 1459142); 4 ♂♂, 5–5.5 mm long, 11 ♀♀, 5.5–6.5 mm long, Arabian Gulf, Tubli Bay, st. 73, 1991 (exact date unknown), J.A. Mansoor and H. Sulman leg. (USNM 1459143); 2 subadult specimens with parasitic Isopoda, Arabian Gulf, Tubli Bay, st. 29, 1991 (exact date unknown), J. A. Mansoor and H. Sulman leg. (USNM 1459144).

Type locality

The exact type locality in the Red Sea is unknown.

Description

Body length of males 4–5.5 mm, of females 4–6.5 mm.

Male (Arabian Gulf)

Carapace. With anterodorsal margin rounded (Fig. 7B). Subrostral process visible from under carapace. Cephalic part of carapace with slight, barely visible dorsal tubercle.

Telson. Slightly shorter than last abdominal somite (0.88 times as long) (Fig. 7A), trapezoidal (Fig. 7E), 1.5–1.7 times as long as wide anteriorly and 1.5–1.7 times as wide anteriorly as posteriorly; lateral margins with three anterior and four to five posterior spiniform setae, among latter two apical pairs especially long; terminal pair of posterolateral spiniform setae 1.4–1.6 times as long as subterminal; subterminal pair 1.9–3.1 times as long as preceding posterolateral pair of spiniform setae; apically with slight emargination, bearing three small, dorsally invisible spinules (Fig. 7F), 0.03–0.04 times as long as terminal posterolateral pair of spiniform setae, and a pair of long plumose setae flanking them.

Head appendages. Eyes protruding beyond carapace sides (Fig. 7B), 1.3 times as long as wide and 0.6 times as long as width of anterior part of carapace; peduncle slightly wider than long; cornea slightly wider than peduncle. Peduncle of antenna 1 about twice as long as peduncle of antenna 2; segment 3 swollen dorsally, 1.2 times as long as segment 1, with short conical posterior processus masculinus, slightly advanced forward and covered by fine setae (Fig. 8A). Antennular inner flagellum normal, not dilated or meandering in proximal part. Antennal scale not reaching distal margin of antenna 1 peduncle (Fig. 7B), with or without distal joint (sometimes in same specimen); 2.7–2.8 times as long as wide; 1.3 times as long as distance from scale base to base of outer spine (Fig 8C). Labrum with very short, barely visible, anterior spine, <0.1 times as long as rest of labrum (Fig. 8E). Mandibular palp (Fig. 8F): segment 1 without setae; segment 2 with 10 to 12 medial and four to eight lateral setae, about as long as width of segment; among medial setae, longer alternating with shorter; segment 3 is 0.6–0.7 times as long as segment 2, with three lateral, two long distal, seven to eight rather long and robust serrated

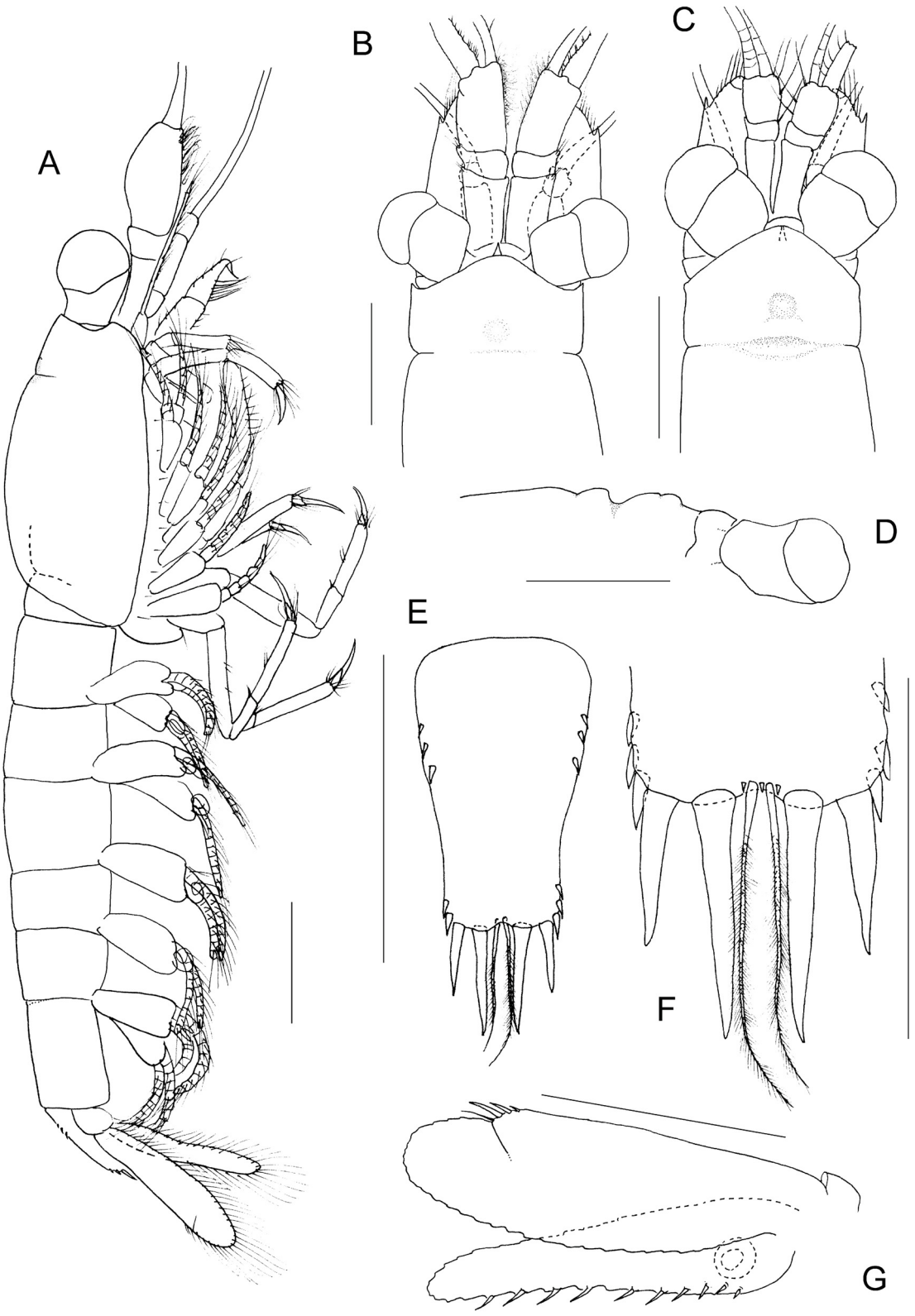

Fig. 7. *Siriella brevicaudata* Paulson, 1875, Arabian Gulf, Bahrain. **A**. Habitus. **B**. ♂, anterior part of body. **C**. ♀, anterior part of body. **D**. Anterior part of carapace, lateral view. **E**. Telson. **F**. Posterior part of telson, ventral view. **G**. Uropod, ventral view. A–B, E–G = ♂, length 4.5 mm; C–D = ♀, length 4 mm. Scale bars: A–E, G = 0.5 mm; F = 0.25 mm.

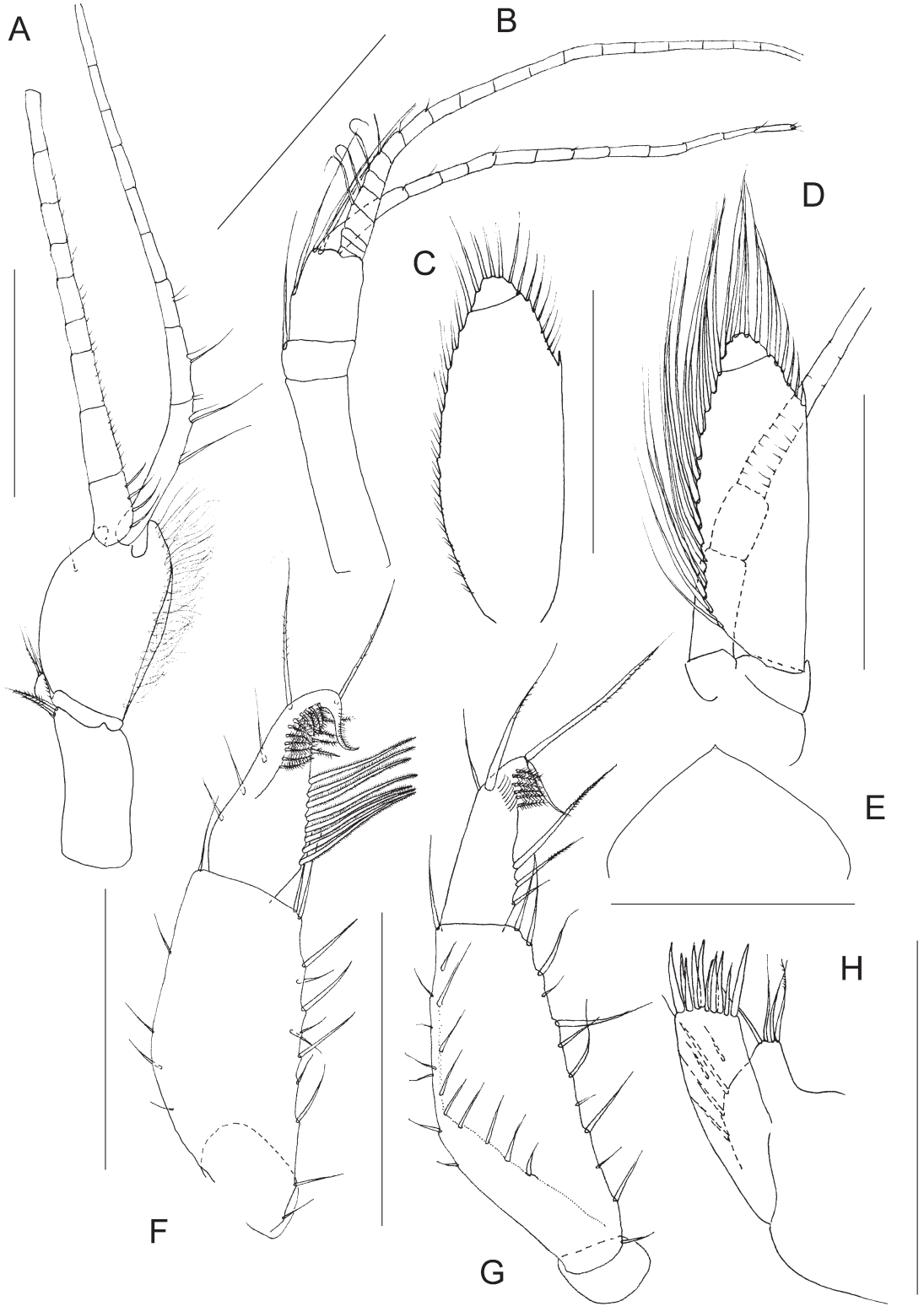

Fig. 8. *Siriella brevicaudata* Paulson, 1875, Arabian Gulf, Bahrain. **A**. Antenna 1, lateral view. **B**. Antenna 1, dorsal view. **C**. Antennal scale. **D**. Antenna 2 (peduncle and antennal scale), ventral view. **E**. Labrum. **F**. Mandibular palp, lateral view. **G**. Mandibular palp, medial view. **H**. Maxilla 1, anterior view. A, C, E–F, H = ♂, length 4.5 mm; B, D, G = ♀, length 4 mm. Scale bars: A–D, F–G = 0.5 mm; E, H = 0.25 mm.

proximomedial, five to seven distomedial setae and 10 or 11 distal anterior plumose setae. Maxilla 1 (Fig. 8H): inner process with three lateral and four apical setae; outer process with about 10 robust smooth apical setae. Maxilla 2 (Fig. 9A): exopod narrowly oval, 2.5 times as long as wide, with 12 plumose setae; segment 2 of endopod about as long as and as wide as exopod, with five lateral setae and many robust medial setae; apical medial setae distally finely serrated; endites with robust setae; apical setae of distal endite distally finely serrated.

Maxillipeds. Thoracopodal exopod 9-segmented (Fig. 9B). Maxilliped 1 endopod (Fig. 9C): bases of preischium and ischium with rudimentary endites; merus widest and longest segment, nearly as long as wide; carpopropodus with anterior bunch of four serrated setae; dactylus with strong unguis, 2.7 times as long as dactylus. Maxilliped 2 endopod (Fig. 9D): ischium as wide as merus; merus 1.5 times as long as wide; carpopropodus slightly longer and narrower than merus, with three medial bunches of setae; dactylus rather small, with four anteromedial serrated setae and four posteromedial long setae; dactylar unguis 4.5 times as long as dactylus.

Pereopods. Carpopropodus segments separated by clear articulation; proximal segment 0.3–0.5 times as long as distal. Dactylus with strong unguis and subungulary robust seta. Pereopod 1 (Fig. 10A): ratio of ischium, merus, carpopropodus and dactylus (including unguis) length 1.3 : 2.3 : 2 : 1; ischium 1.7 times as long as wide, with one–two lateral and multiple short medial setae; merus 3.0 times as long as wide, with multiple medial setae; carpopropodus with clear proximal joint, five times as long as wide; paradactylary setae slightly shorter than unguis. Pereopod 2 (Fig. 10B): ratio of ischium, merus, carpopropodus and dactylus length 1.5 : 2.2 : 2 : 1; ischium 1.9 times as long as wide, with three lateral and multiple short and long medial setae; merus 3.3 times as long as wide; carpopropodus with clear proximal joint, five times as long as wide, and 0.9 times as long as merus; paradactylary setae slightly shorter than unguis. Pereopods 5 and 6 thinner than pereopods 1–4. Pereopod 5 (Fig. 10C): ratio of ischium, merus, carpopropodus and dactylus length 1.1 : 2 : 2.1 : 1; ischium 2.5 times as long as wide, with distomedial bunch of setae and distolateral seta; merus five times as long as wide, with about eight medial setae in proximal half; carpopropodus with clear proximal joint, six times as long as wide; paradactylary setae reaching half of unguis. Pereopod 6 (Fig. 10D): ratio of ischium, merus, carpopropodus and dactylus length 1 : 2.5 : 2.7 : 1.2; ischium with distomedial bunch of setae; merus about 5.5 times as long as wide, with four medial setae; carpopropodus about nine times as long as wide, proximal joint barely visible; paradactylary setae reaching only half unguis. Penis cylindrical, with 2 long, thick apical setae (Fig. 10E).

Pleopods. Pleopods 2–4 (Fig. 10F, H): pseudobranchia spirally coiled; rami 10–11 segmented; proximal segments wider than longer; distal setae not modified. Pleopod 5 (Fig. 10G) with 11-segmented rami; proximal segments of rami about as long as wide; pseudobranchia not coiled.

Uropods. Uropodal exopod (Fig. 7G) with joint, visible only in lateral half, 3.1–3.4 times as long as wide; segment 1 about three times as long as segment 2, with three–four distolateral spiniform setae. Uropodal endopod with 10 about equally long medial spiniform setae along almost entire margin, with terminal one not reaching apex of ramus.

Female (Arabian Gulf)

Anterodorsal margin of carapace covering subrostral process (Fig. 7C). Carapace with dorsal cephalic tubercle and high postcervical elevation (Fig. 7D). Peduncle of antenna 1 shorter and narrower than in male; segment 3 is 0.5 times length of segment 1, with one medial and three rather long medial setae (Figs 7C, 8B). Antennal scale reaching distal margin of antenna 1 peduncle, with distal joint; total length 3.1 times width (Figs 7C, 8D). Mandibular palp (Fig. 8G): segment 3 is 0.5 times as long as segment 2, with three rather long and robust serrated proximomedial setae.

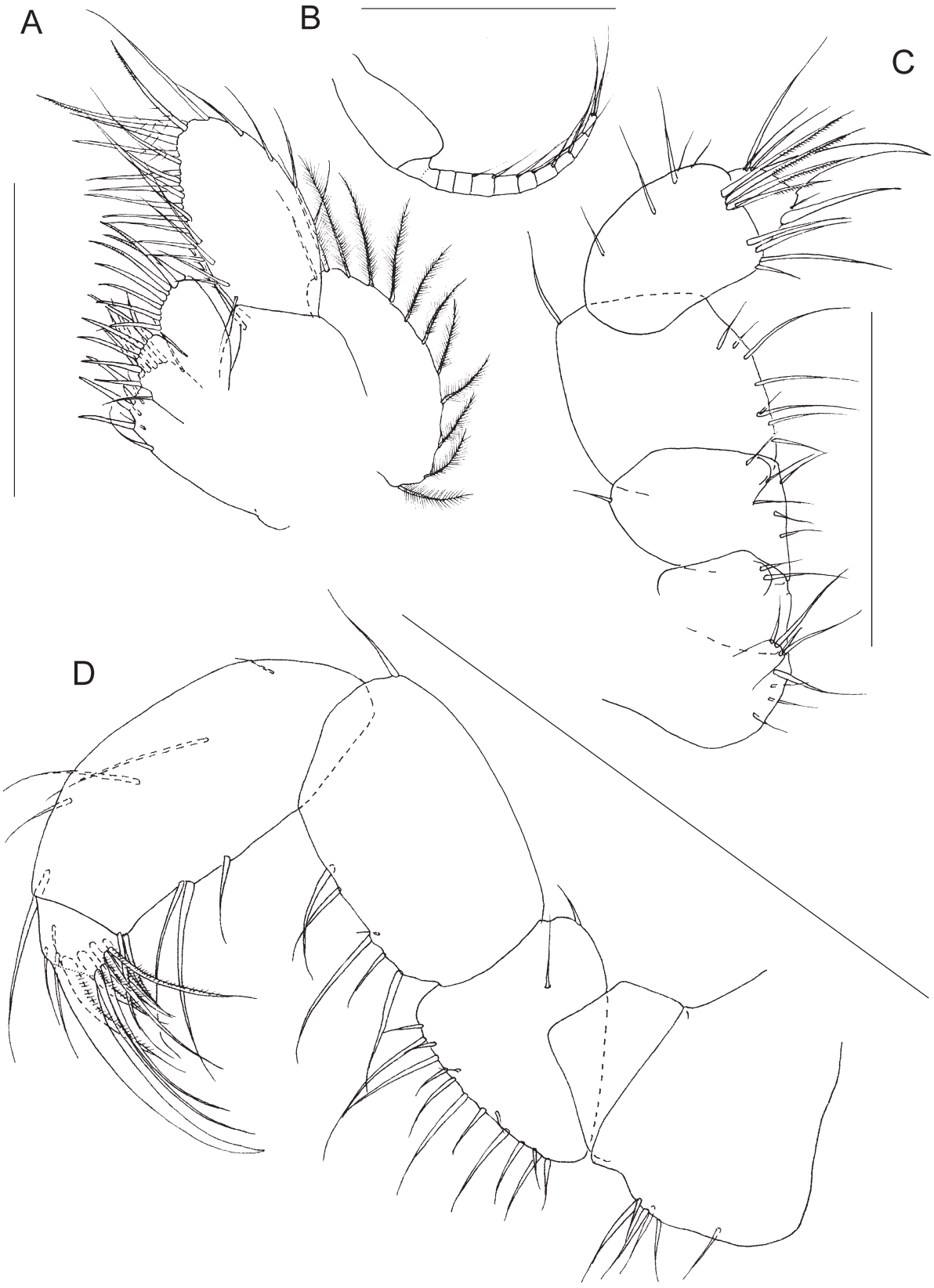

Fig. 9. *Siriella brevicaudata* Paulson 1875, ♂, length 4.5 mm, Arabian Gulf, Bahrain. **A**. Maxilla 2, anterior view. **B**. Exopod of maxilliped 1. **C**. Endopod of maxilliped 1, posterior view. **D**. Endopod of maxilliped 2, anterior view. Scale bars: A, C–D = 0.25 mm; B = 0.5 mm.

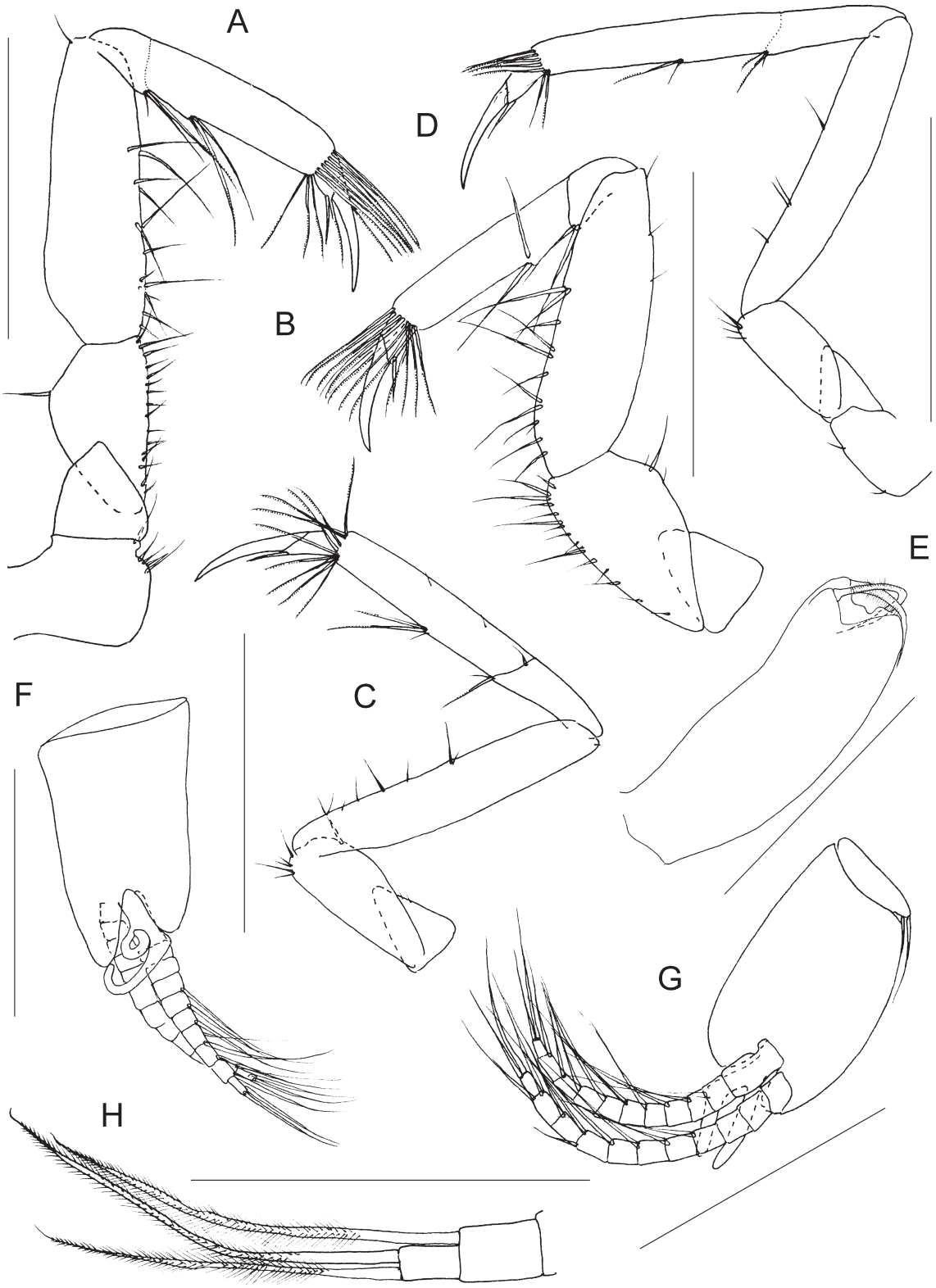

Fig. 10. *Siriella brevicaudata* Paulson, 1875, ♂, length 4.5 mm, Arabian Gulf, Bahrain. **A**. Endopod of pereopod 1, anterior view. **B**. Endopod of pereopod 2, posterior view. **C**. Endopod of pereopod 5, posterior view. **D**. Endopod of pereopod 6, posterior view. **E**. Penis. **F**. Pleopod 2, posterior view. **G**. Pleopod 5, anterior view. **H**. Distal setae of pleopod 4. Scale bars: A–D, F–G = 0.5 mm; E, H = 0.25 mm.

Comparison

Siriella brevicaudata is readily distinguished from all species of the *brevicaudata* group by having a telson with the longest terminal spiniform setae, which can sometimes be as long as half of the telson length, as well as by the general pattern of posterior armature of the telson: three to four short and two to three very long pairs of setae, and terminal setae distinctly longer than subterminal. In addition, the distinction between the subterminal pair of spiniform setae and the preceding posterolateral setae is the greatest (up to three times as long) for any species in the group. Unique also is the sexual dimorphism of the anterodorsal margin of the carapace, which covers the subrostral process in females, but not in males.

Siriella brevicaudata is most closely related to *S. gibbosa* (see differences in the comparison section for *S. gibbosa*); these two species have telsons with the fewest posterolateral spiniform setae (four to seven compared to 9 to 20 in other species of the group) and the widest uropodal exopods (3.1–3.4 times as long as wide, compared to about 4 times as long as wide for other species). *Siriella brevicaudata* is also similar to *S. occulta* sp. nov. (see differences in the comparison section of *S. occulta* sp. nov.). For additional morphological differences between *S. brevicaudata* and other species in the group, see Table 1.

Geographic variation

In the Red Sea, judging from the original illustrations (cf. Paulson 1875a) and the illustrations of Băcescu (1973b), the telson of *S. brevicautada* is armed with five to seven posterior lateral spiniform setae, including three long terminal ones; while in the Arabian Gulf (cf. Murano 1998; Murano & Fukuoka 2008; our data) and Gulf of Manaar (cf. W.M. Tattersall 1922), it is armed with four to five posterior lateral spiniform setae, including two long terminal ones. Also, the terminal spiniform setae of the telson are 1.2–1.3 times as long as the subterminal ones in the Red Sea, 1.4–1.6 in the Arabian Gulf, and 1.3–1.5 in the Gulf of Manaar; the subterminal spiniform setae are 1.4–1.8 times as long as the preceding posterolateral pair of spiniform setae in the Red Sea, 1.9–3.1 in the Arabian Gulf and 1.4–1.9 in the Gulf of Manaar. The uropodal exopod has five distolateral spiniform setae in the Red Sea and Gulf of Manaar, as opposed to three–four spiniform setae in the Arabian Gulf. And last, W.M. Tattersall (1922) reported 10 to 12 spiniform setae on the uropodal endopod, and at least 10 can be counted on Paulson's illustrations; however, a maximum of 10 was found in the Arabian Gulf.

Distribution

Red Sea (type locality) (Paulson 1875a): Ras-el-Kanisa Gulf (Băcescu 1973a), Gulf of Aqaba, Eilat (Băcescu 1973b; Ariani *et al*. 1993); Suez Canal and nearby Lake Timsah and Great Bitter Lake in Egypt (W.M. Tattersall 1927a); Arabian Gulf: Bahrain (Grabe *et al*. 2004), Tarut Bay (Saudi Arabia) (Murano 1998); Mozambique Channel: Nacala Bay (Wooldridge & Mees 2003); Gulf of Mannar (India) (W.M. Tattersall 1922) (Fig. 1).

Habitat

Upper sublittoral species, found among seaweeds, seagrasses and sand at depths of 0.5–7 m. Salinity 42‰ (Red Sea, Gulf of Aqaba; Ariani *et al*. 1993).

Remarks

Based on specimens from the Arabian Gulf, Bahrain, earlier reported by Grabe *et al*. (2004), we provide here a detailed description of *S. brevicaudata*, comparing specimens with the original illustrations from the type locality, the Red Sea. The original description by Paulson (1875a) contains little information, but the illustrations allow recognition of the species. Despite the loss of the type specimens, the designation of a neotype is not, therefore, necessary for the time being. In our specimens, we did not confirm

the sexual dimorphism of the antennal scale mentioned by Murano & Fukuoka (2008). The described geographical variation in telson armature in the existing fragmentary material may indicate some level of differentiation between different populations.

Bibliographic note

There is confusion concerning placement of the original description of *S. brevicaudata* either in Paulson (1875a) or Paulson (1875b) (cf. Murano 1998; Murano & Fukuoka 2008). We were able to obtain both rare works. The species was described in detail and illustrated in Paulson (1875a), which is the author's doctoral dissertation on the crustaceans of the Red Sea, but the exact date of this publication was not found. In the same book Paulson (1875a: 124) noted the mistake in his illustration of the penis and referred to an update of the figure and a more detailed description of the penis in another work (Paulson 1875b). The latter publication includes only the supplementary description of the statocyst and penis of *S. brevicaudata*. Paulson (1875b), as well as other papers of the same issue, were published on 8 Jun. 1875, but the volume was not combined until 1876, as indicated on the front page of the cover. Discussing the development of the statocyst, Paulson (1875b: 31) referred to his study of the brachyuran cuticle in his dissertation (Paulson 1875a) and gave the exact page number, implying, probably, that it had been published previously. Therefore, this dissertation (Paulson 1875a), with the detailed description of *S. brevicaudata*, is most likely the original description of the species. Murano (1998) remarked that he did not see both works, although he gave the correct order of publications and page references. Murano & Fukuoka (2008) stated that they did not see Paulson 1875b, which they put as the first original work, but were able to obtain a translation of Paulson (1875a), though they gave erroneous reference pages and general pagination (probably coming from the translation).

Siriella gibbosa (Ledoyer, 1970) stat. rev.

Siriellerythrops gibbosa Ledoyer, 1970: 223, figs 1–2.

Siriella brevicaudata – Băcescu 1973b: 645, partim. — Murano & Fukuoka 2008: 33, partim.

Diagnosis

Carapace with anterodorsal margin angular, apically acute; sides concave. Subrostral process seemingly covered entirely by carapace. Carapace with dorsal cephalic tubercle and slight postcervical elevation. Eye cornea narrower than eye stalk. Telson considerably narrowed posteriorly, anterior width 2.3 times posterior width, apically truncated, 1.3 times as long as wide anteriorly. Lateral margins of telson with three anterior and four posterior spiniform setae; among posterior spiniform setae, anterior three pairs short and one terminal pair long, 0.31 times as long as telson and 3.1 times as long as subterminal pair of spiniform setae; subterminal 1.2–1.8 times as long as preceding posterolateral spiniform setae. Telson apically without emargination, with three minute, but clearly visible spinules, about 0.09 times as long as posterolateral terminal spiniform setae. Labrum seemingly without anterior spine. Maxilla 1: outer ramus robust setae smooth. Segment 2 of maxilla 2 endopod with two lateral setae. Endopod of pereopods 1–3, merus 3.2 times as long as wide. Uropodal exopod 2.9 times as long as wide, with four or five distolateral spiniform setae; exopod of segment 1 is 2.7 times as long as segment 2. Uropodal endopod with three spiniform setae in both sexes, broadly set, along proximal half of inner margin. Body length of male 6 mm, female 5.5 mm (Ledoyer 1970).

Type material

Ledoyer (1970) did not designate any types from his large amount of material, consisting of 81 specimens. It is not known whether the original specimens still exist in any museum collection, but they are absent in the National Museum of Natural History, Paris (MNHN), Endoume Marine Station, Marseille, where Michel Ledoyer worked, and the Verona Museum of Natural History, where he deposited many amphipod

types. However, Ledoyer described in detail and figured well-recognisably a 5.5 mm long adult female from "station 24" (Ledoyer 1970: 223–225, figs 1–2), and a 6 mm long male, providing a figure of its antennular peduncle (Ledoyer 1970: 225, fig. 1d'). No further material on the species is known so far.

Type locality

Madagascar, Toliara.

Comparison

Siriella gibbosa is distinguishable from other species of the *brevicaudata* group by having (1) the carapace with an apically acute anterodorsal margin, (2) the telson being narrow apically (less than twice as wide anteriorly as posteriorly in other members of the group), (3) the telson with the longest terminal pair of spiniform setae in relation to the subterminal ones (more than three times as long as the subterminal setae compared to less than 1.6 in other members of the group), (4) the uropodal endopod with three medial spiniform setae (other members of the group with 10 or more setae) and (5) the labrum lacking a spine, a unique feature among *Siriella* species. Notwithstanding, this last character requires confirmation using additional specimens, because this small spine is sometimes broken in other species. The terminal spiniform setae of the telson, which are about ⅓ of its length, are the second longest compared to telson length after those of *S. brevicaudata*.

Siriella gibbosa appears to be most closely related to *S. brevicaudata*. Apart from the previously mentioned characters unique to *S. gibbosa*, it differs from *S. brevicaudata* by having (1) the cornea of the eye narrow (wider than the eye stalk in *S. brevicaudata*), (2) endopod of maxilla 2 with two lateral setae (five in *S. brevicaudata*) and (3) the telson with a pair of long apical spiniform setae (two or three pairs in *S. brevicaudata*), well-developed apical spinules, and lacking a posterior emargination.

Distribution

South-West Madagascar, Toliara (Ledoyer 1970) (Fig. 1).

Habitat

Seagrass (Ledoyer 1970).

Remarks

Synonymising *Siriellerythrops gibbosa* soon after its original description, Băcescu (1973b) did not provide any comments about his comparisons and decision. The original description (Ledoyer 1970) and illustrations of this species were detailed; comparing them with *S. brevicaudata*, one can easily find multiple differences between the two species, particularly in the shape of the anterodorsal margin of the carapace, shape and armature of the telson, setation of maxilla 2, armature of uropodal endopods and eye shape. Supporting the opinion of Murano & Fukuoka (2008) about significant difference of *S. gibbosa* from *S. brevicaudata*, we re-establish the species here. At the same time, we synonymise the genus name *Siriellerythrops* Ledoyer, 1970 with *Siriella* Dana, 1850 and include *S. gibbosa* in the *brevicaudata* group.

Siriella hanseni W.M. Tattersall, 1922
Figs 11–13

Siriella hanseni W.M. Tattersall, 1922: 448, figs 1–2.

Siriella hanseni – Illig 1930: 561 (key). — Gordan 1957: 379 (catalogue). — Ii 1964: 577. — Pillai 1965: 1691. — Mauchline & Murano 1977: 76 (checklist). — Băcescu 1986: 19 (identity questionable). — Müller 1993: 38 (catalogue). — Lowry & Stoddart 2003: 467 (catalogue). — Hanamura 2007: 35, fig. 1. — Anderson 2010: 22 (checklist). — Naser *et al*. 2012: 379 (list). — Sawamoto 2014: 4 (list).

Non *Siriella hanseni* – O.S. Tattersall 1960: 167. — Murano 1998: 46, fig. 2b.

Diagnosis

Carapace with anterodorsal margin almost evenly rounded, well exposing subrostral process. Carapace dorsal surface not elevated. Telson 1.0–1.1 times as long as last abdominal somite; length 1.6–1.9 times anterior width; anterior width 1.3–1.6 times posterior width; lateral margins with three or four anterior and 10 to 16 posterior spiniform setae, gradually increasing in length, except for three to six terminal, which are nearly equal in length; terminal pair sometimes slightly longer than subterminal. Telson with terminal posterolateral pair of spiniform setae 0.08–0.13 times as long as telson and 1.0–1.2 times as long as subterminal. Subterminal pair of spiniform setae 1.0–1.2 times as long as preceding posterolateral pair. Telson apically without emargination, bearing three small and clearly visible spinules, about 0.2–0.3 times as long as posterolateral terminal spiniform setae. Labrum with very short anterior spine, barely visible, < 0.1 times as long as rest of labrum. Maxilla 1 with apical robust smooth setae. Maxilla 2 endopod segment 2 with three or four distolateral setae. Pereopod 1–3 merus 3.5–4.4 times as long as wide. Uropodal exopod 3.5–4.4 times as long as wide; segment 1 is 1.9–2.3 times as long as segment 2, with three to six distolateral spiniform setae in both sexes. Uropodal endopod with 10 to 13 medial spiniform setae in both sexes, along almost entire margin, with terminal spiniform seta not reaching apex of ramus.

Type material

Lectotype (here designated)
INDIA: ♂, 5.5 mm long, "*Siriella Hanseni* WMT, Pambon, Rammad District" (NHM 1921.12.19.9; appendages on slide NHM 1921.12.19.9).

Paralectotypes
INDIA: 2 ♂♂, 5.5 mm long, 2 ♀♀, 5.5 mm long, 1 ♀ (broken, immeasurable), same label data as for lectotype (NHM 1921.12.10–13); 2 ♂♂, 4.5–6.0 mm long, 1 ♂ (broken, immeasurable), 1 ♀, 5.5 mm long, 2 ♀♀ (broken, unidentifiable, immeasurable), "*Siriella hanseni* WMT, Pambon, Rammad District, 0–2 fms" (NHM 1964.1.21.6186–6190). All specimens more or less damaged, without appendages; some broken parts and embryos in the same tubes. W.M. Tattersall (1922) mentions 60 type specimens, 4–7 mm long. Only 12 specimens were deposited in the NHM, and the fate of other type material is unknown. A lectotype is designated here from a relatively well-preserved specimen to stabilize the nomenclature of the species.

Type locality

Indian Ocean, Laccadive Sea, Gulf of Manaar, India, Ramanathapuram District, Pamban (modern geographical names specified here).

Description

Body length 4–7 mm (W.M. Tattersall 1922). Males 4.5–6.0 mm long, females 5.5 mm long (available types). Specimens from Dampier Archipelago, Western Australia, 7.5 mm long (Hanamura 2007).

Male (lectotype)
Carapace. Anterior part slightly wider than abdominal somite 1; anterior margin broadly and almost evenly rounded (Fig. 11A); dorsal surface smooth; posterior margin exposing three thoracic somites. Subrostral process spiniform, well-exposed.

Telson. About 1.0 times as long as last abdominal somite and 0.7 times as long as uropodal endopod, with slightly tapering lateral margins (Fig. 11C); 1.9 times as long as wide anteriorly and 1.6 times as wide anteriorly as posteriorly; lateral margins with four anterior and nine short and four about equally long

(three on the right side broken) posterior spiniform setae after gap; apically with three short spinules and two (one broken) long plumose setae, longer than spiniform setae flanking them, and about 0.3 times as long as subterminal spiniform setae. Telson apically not emarginated. Terminal posterolateral spiniform setae of telson 0.13 times as long as telson and 1.1–1.2 times as long as subterminal. Subterminal pair of spiniform setae 1.1 times as long as preceding pair of posterolateral.

Head appendages. Eyes 1.5 times as long as wide and 0.7 times as long as width of anterior part of carapace. Peduncle of antennae 1 (Fig. 11E) more robust than in female, about twice as long as peduncle of antenna 2; segment 1 is 1.7 times as long as wide; segment 3 twice as long as wide and 1.2 times as long as segment 1; male process along posteromedial margin of segment 3, conical, distally produced part 0.4 times as long as segment 3. Antennular inner flagellum normal, not dilated or meandering in proximal part. Antennal scale shorter than peduncle of antenna 1, reaching half-length of peduncle segment 3 (Fig. 11A), and 1.5 times as long as peduncle of antenna 2; scale 3.8 times as long as wide, 1.2 times as long as distance from scale base to base of outer spine (Fig. 11F). Labrum with very small, barely visible anterior spine, <0.1 times as long as rest of labrum (Fig. 11G). Mandible (Fig. 11I–J): incisor with two lamellar cusps, with planes perpendicular to each other; lacinia mobilis and molar lamellar; medial spines short, odontoid; palp segment 2 with about 10 setae along medial margin and six setae along lateral margin; palp segment 3 is 0.3 times as long as segment 2, with five long plumose proximal and seven short palmar setae (Fig. 11H). Maxilla 1 (Fig. 12A): outer ramus with about 10 smooth robust apical setae; inner ramus with 4 simple apical setae. Maxilla 2 (Fig. 12B): exopod oval, with 13 plumose, equally long setae; endopod segment 1 with two medial plumose setae; endopod segment 2 oval, larger than exopod, with three lateral setae and about 10 medial strong setae with setules, interspersed with simple long setae; endites with multiple, strong setae.

Maxillipeds. Exopod of thoracopods 8–9-segmented. Maxilliped 1 endopod (Fig. 12C–D) without endites; segments short and strong; basis with one medial and a group of distomedial setae; preischium with one seta; ischium with three medial setae; merus, the largest segment, 1.2 times as long as wide, with seven medial and two distolateral setae; carpopropodus with distomedial and distolateral setae; dactylus with strong smooth unguis, four strong weakly serrated setae and about five simple setae. Maxilliped 2 endopod (Fig. 12E–F): basis with proximal medial seta and distal medial group of setae; preischium with one medial seta; ischium, the widest segment, 1.3 times as long as wide, with numerous setae along medial margin; merus two times as long as wide and 1.3 times as long as ischium, with three medial groups of two setae and two distolateral setae; carpopropodus 2.3 times as long as wide, with three distolateral setae, medial bunch of three long setae and distomedial bunch of three short setae; dactylus slightly longer than wide and 0.3 times as long as carpopropodus, with strong smooth unguis, four medial and three distal strong serrated setae; unguis 1.7 times as long as dactylus.

Pereopods. Pereopodal endopods (Figs 12G, 13A–D): preischium with one or two setae; ischium about half as long as merus; medial and paradactylary setae of carpopropodus distally serrated; carpopropodus secondary joint present, with 2 medial bunches of long setae; dactylus 1.3 times as long as wide and 0.2 times as long as carpopropodus; dactylus with strong unguis, 2.8 times as long as dactylus, and subungulary robust seta about half as long as unguis; dactylus together with unguis 0.5 times as long as carpopropodus; paradactylary setae exposing nearly half of unguis. Pereopods 1–3: basis with distomedial bunch of setae; ischium laterally strongly convex, about 2.5 times as long as wide, with one lateral seta and many short and long medial setae; merus 3.5–4.4 times as long as wide, with five medial groups of long and short setal bunches; carpopropodus about five times as long as wide and 0.9 times as long as merus. Pereopod 6 (paralectotypes) (Fig. 13D): ischium with parallel margins, 3.3 times as long as wide, with three medial setae and distomedial bunch of setae; merus about six times as long as wide, with three bunches of one or two setae; carpopropodus about 6.5 times as long as wide. Penis rather thin, slightly curved, with apical setae only (Fig. 13E).

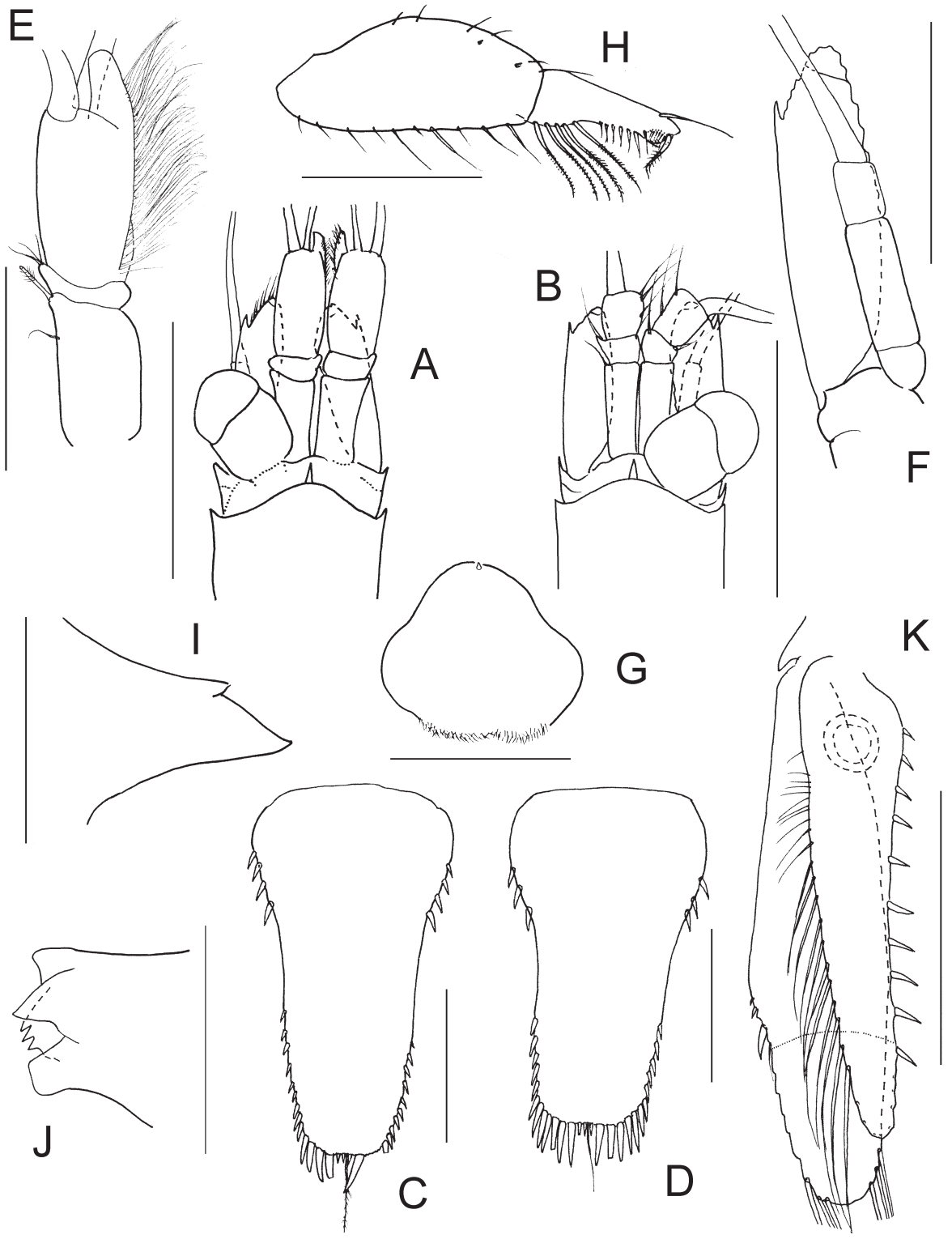

Fig. 11. *Siriella hanseni* W.M. Tattersall, 1922, Laccadive Sea, Gulf of Manaar, India. **A**. Anterior part of body (right eye not shown). **B**. Anterior part of body (left eye not shown). **C**. Telson (two posterolateral subterminal spiniform setae missing). **D**. Telson, paralectotype. **E**. Antenna 1 peduncle, dorsal view. **F**. Antenna 2, lectotype, ventral view. **G**. Labrum. **H**. Mandibular palp, lateral view. **I**. Left mandible. **J**. Right mandible. A, C, E–J = lectotype, ♂, length 5.5 mm; B, D = paralectotype, ♀, length 5.5 mm. Scale bars: A–B = 1 mm; E–F, K = 0.5 mm; C–D, G–H = 0.25 mm; I–J = 0.1 mm.

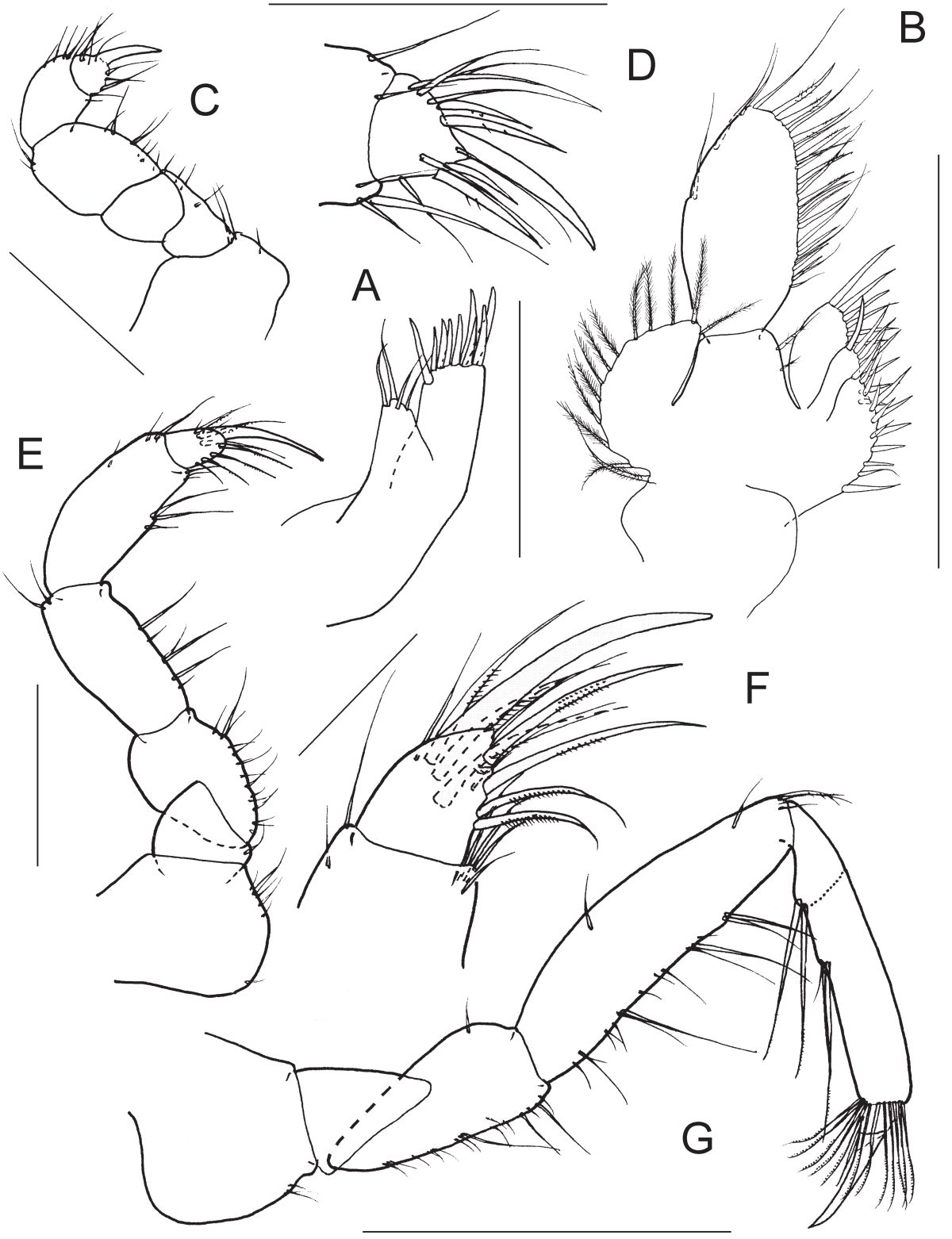

Fig. 12. *Siriella hanseni* W.M. Tattersall, 1922, lectotype, ♂, length 5.5 mm, Laccadive Sea, Gulf of Manaar, India. **A**. Maxilla 1, posterior view, **B**. Maxilla 2, posterior view. **C**. Endopod of maxilliped 1, posterior view. **D**. Dactylus of maxilliped 1, posterior view. **E**. Endopod of maxilliped 2, posterior view. **F**. Dactylus of maxilliped 2, posterior view. **G**. Endopod of pereopod 1, posterior view. Scale bars: A–C, E, G = 0.25 mm; D, F = 0.1 mm.

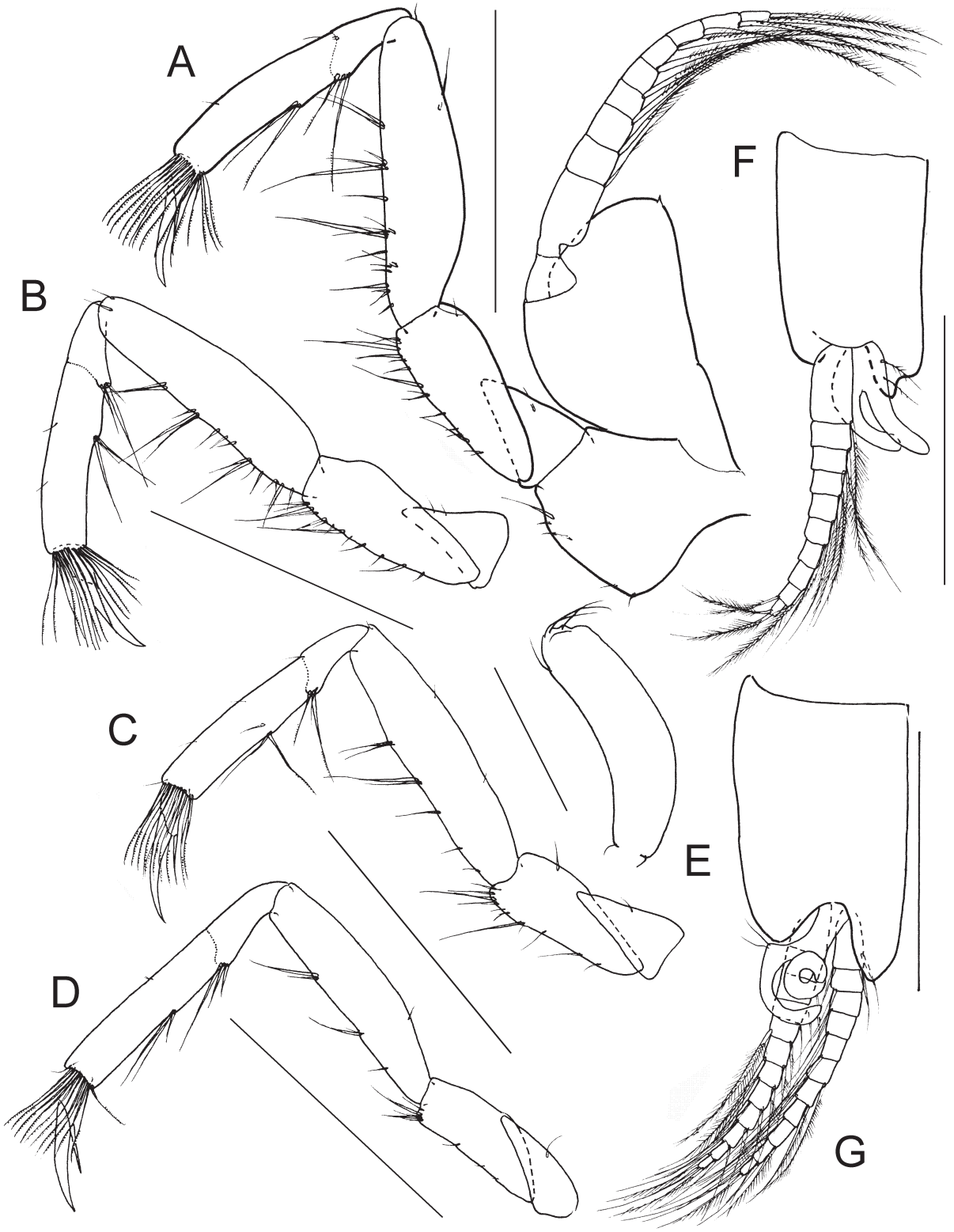

Fig. 13. *Siriella hanseni* W.M. Tattersall, 1922, Laccadive Sea, Gulf of Manaar, India. **A**. Pereopod 2, anterior view. **B**. Endopod of pereopod 3, anterior view. **C**. Endopod of pereopod 5, anterior view. **D**. Endopod of pereopod 6, anterior view. **E**. Penis. **F**. Pleopod 1, anterior view. **G**. Pleopod 4, posterior view. A–C, E–G = lectotype, ♂, length 5.5 mm; D = paralectotype, ♂, length 5.5 mm. Scale bars: A–D, F–G = 0.5 mm; E = 0.25 mm.

Pleopods. Pleopod 1 uniramous (Fig. 13F); ramus 10-segmented; pseudobranchiae bilobate, nearly straight, with two basal setae. Pleopods 2–5 biramous (Fig. 13G); rami 11–12-segmented; pseudobranchiae bilobate, spirally coiled, with four basal setae. Terminal setae of pleopod rami not modified. Proximal segments of pleopod rami 0.6–0.8 times as long as wide.

Uropods. Uropodal exopod 1.1–1.2 times as long as endopod and 3.8 times as long as wide; exopod segment 1 is 2.2 times as long as segment 2, with four distolateral spiniform setae (Fig. 11K). Uropodal endopod with 10 medial broadly set spiniform setae of about equal length, extending almost to ramus apex.

Female

Antennae 0.3 times as long as body. Peduncles of antenna 1 thin (Fig. 11B); segment 1 slightly longer than segments 2 and 3 together, with two distolateral bunches of one and two plumose setae; segment 2 with two distolateral and one distomedial plumose setae; segment 3 with bunch of two short lateral setae and two distomedial bunches of one and three long plumose setae. Segment 2 of antenna 2 peduncle 2.2 times as long as segment 3. Antennal scale about as long as peduncle of antenna 1. Marsupium with two pairs of oostegites. Pleopods reduced, uniramous.

Comparison

Siriella hanseni differs from all other species of the *brevicaudata* group by the armature of the posterior part of the telson: three to six nearly equally long apical spiniform setae, gradually transitioning into posterolateral spiniform setae. It most closely resembles *S. lingvura* and *S. tabaniocula* sp. nov., but differs from the former species, found only in Japan, by (1) telson length, which is 1.0–1.1 times as long as last abdominal somite (0.9 in *S. lingvura*), (2) telson armature (terminal posterolateral pair of spiniform setae clearly longer than subterminal and other posterolateral in *S. lingvura*), (3) labrum with shorter median spine (about 0.15 times as long as the rest of the labrum in *S. lingvura*), (4) narrower pereopodal endopods (merus of pereopods 1–3 is 3.5 times as long as wide in *S. lingvura*), (5) slightly narrower uropodal exopod (3.6–3.7 times as long as wide in *S. lingvura*), (6) telson with three or four anterior lateral spiniform setae (against five or six in *S. lingvura*) and (7) uropodal endopod with fewer spiniform setae (10 to 13 against 15 to 16 in *S. lingvura*). Differences from *S. tabaniocula* sp. nov. can be seen in the comparison section for that species. Previously, *S. hanseni* was confused with *S. muranoi* sp. nov. (see differences in comparison section for *S. muranoi* sp. nov.). For comparisons of *S. hanseni* with other species of the *brevicaudata* group, see Table 1.

Variation (other than diagnostic)

Eyes 1.2–1.5 times as long as wide. Antennal scale 3.3–3.8 times as long as wide.

Distribution

Except from the type locality in Laccadive Sea, Gulf of Manaar (W.M. Tattersall 1922), the only confirmed record is from the Dampier Archipelago, Western Australia (Hanamura 2007). Considering the revised status of the species, a record from Channel Island, Beagle Gulf, Northern Australia (Băcescu 1986), still requires verification, because no information on the specimens was provided (Fig. 1).

Habitat

Seagrasses, 0–12 m.

Remarks

The original description (W.M. Tattersall 1922) was not specifically detailed enough to adequately distinguish this species from the other members of the *brevicaudata* group. Based on examination of

the type specimens in the Natural History Museum in London, we present a detailed redescription of *S. hanseni* herein.

Tattersall's description did not include such structures as the labrum, maxillae, anterior pereopods and others, which later proved to be taxonomically important (Ii 1964; Murano & Fukuoka 2008; this study). He also failed to notice the joint between the segments of the antennal scale, the carpopropodus of the pereopodal endopods and between the dactylus and dactylary unguis of pereopod 1 (W.M. Tattersall 1922: fig. 1). Hence, Ii (1964), judging from Tattersall's figures, considered the structure of the antennal scale and pereopods as diagnostic for *S. hanseni* in comparison with *S. lingvura* from Japan. The study of more material showed that it is not differentiated from *S. lingvura* by its telson width and the number of posterior lateral spiniform setae on the telson, as considered previously (Ii 1964; Murano & Fukuoka 2008). Meanwhile, additional characters are reported here in the diagnosis distinguishing the two species.

A damaged specimen from the Arabian Gulf, partly described and figured by Murano (1998) and also mentioned in Murano & Fukuoka (2008) is distinguished from *S. hanseni* by the structure of the uropods and telson. In particular, the distal segment of the uropodal exopod is relatively shorter than in *S. hanseni*, the telson is shorter, and the terminal spiniforom setae of the telson longer (see details in Murano 1998). A similar structure of the uropod and telson can be found in an immature specimen from the Gulf of Kutch, northwest Indian coast of the Arabian Sea, illustrated by Biju (2008). The armature of the telson in both above mentioned cases is more similar to that in *S. occulta* sp. nov., but the distal segment of the uropodal exopod is 0.31–0.35 times as long as proximal segment (0.25–0.30 in *S. occulta* sp. nov.), and is, in fact, the shortest in the entire *brevicaudata* group. In addition, the illustrated specimen from the Gulf of Kutch lacks a subrostral process (not mentioned by Biju), as if it is covered by the carapace, also as in *S. occulta* sp. nov.

Specimens attributed to *S. hanseni* from Port Essington and the vicinity of Darwin in the Northern Territory during the late 1980s were deposited in the Museum and Art Gallery of Northern Territory, Australia (NTM). Based on our comparison of these specimens with the type material of *S. hanseni*, they are attributed to a new species, *Siriella muranoi* sp. nov. within the *brevicaudata* group (described below).

Specimens from the Singapore Strait, identified as *S. hanseni* by O.S. Tattersall (1960), appear to be an identification error and belong to *S.* cf. *chaitiamvongae* Murano & Fukuoka, 2008 of the *brevirostris* group (see supplementary observations below). Thus, knowledge about *S. hanseni* is limited to the type locality and recent record from Dampier Archipelago (Hanamura 2007).

Siriella lacertilis Talbot, 2009

Siriella lacertilis Talbot, 2009: 26, figs 16–18.

Siriella lacertilis – Anderson 2010: 22 (checklist).

Diagnosis

Carapace with anterodorsal margin almost evenly rounded, not covering subrostral process. Carapace dorsal surface with slight cephalic tubercle and postcervical elevation. Eyes red-brown. Telson about 0.7 times as long as last abdominal somite and barely reaching level of distolateral spiniform setae of uropodal exopod, 1.7 times as long as wide anteriorly and 1.4 times as wide anteriorly as posteriorly; apically truncated, with tapering lateral margins. Telson lateral margins with three anterior and nine posterior spiniform setae; among the latter anterior seven spiniform setae short and two posterior long; terminal posterolateral pair of spiniform setae 1.1–1.2 times as long as subterminal and 0.25 times as long as telson; subterminal pair of spiniform setae 1.8–2.0 times as long as preceding posterolateral.

Telson apically with three minute, but clearly visible central spinules, about 0.13–0.16 times as long as posterolateral terminal pair of spiniform setae; without emargination. Labrum with anterior spine short, but well-established, about 0.1–0.15 times as long as rest of labrum. Maxilla 1 with apical robust serrate setae. Maxilla 2 endopod segment 2 with four distolateral setae. Pereopod 1–3 merus 4.1 times as long as wide. Uropodal exopod 3.9 times as long as wide; segment 1 is 1.4–1.5 times as long as segment 2, with three distolateral spiniform setae in both sexes. Uropodal endopod with 14 or 15 medial spiniform setae in both sexes; terminal not reaching apex of ramus.

Material examined

Holotype

AUSTRALIA: ♂, Queensland, Lizard Island, near Research Point, reef at NW edge of lagoon, 14°40′ S, 145°28′ E, above sand near reef, overnight, STL-78-F4, fixed trap, 13–14 Jan. 1978, M.S. Talbot leg. (AM P.74061).

Paratype (labeled as allotype)

AUSTRALIA: ♀, Queensland, Lizard Island, lagoon centre, 14°40′ S, 145°28′ E, 0 m, surface plankton tow, STL-78-N7, 8 Jan. 1978 (23:42), M.S. Talbot leg. (AM P.74062).

Other material

AUSTRALIA: 1 immature ♂, Queensland, Lizard Island, lagoon, 14°40′ S, 145°28′ E, 24 Sep 1977, P. Slattery leg., previously identified as *S. vincenti* by M.S. Talbot 1978 (AM P.34340).

Comparison

Siriella lacertilis is distinguished from all other species of the *brevicaudata* group by having the shortest telson in relation to the last abdominal somite (>0.8 times as long as the last abdominal somite in other species) and uropodal exopod with the longest segment 2 (about half as long as segment 1 in other species). Also the pattern of posterior spiniform setae on the telson is specific, with two long graded apical spiniform setae followed by seven distinctly shorter ones. In fact, the terminal spiniform setae of the telson, which constitute 0.25 of its length, are the third longest after those of *S. gibbosa* and *S. brevicaudata*. Talbot (2009) also compared *S. lacertilis* with the species that are currently included in the *brevicaudata* group but were previously a part of the *thompsoni* group of Ii (1964); she found it to be most closely related to *S. brevicaudata*. However, we found that *S. lacertilis* is most similar to the newly described *S. muranoi* sp. nov. (see differences in the comparison section for that species). Body length of male 5.0–6.7 mm, females 5.0–6.3 mm (Talbot 2009).

Distribution

So far known only from the type locality, Lizard Island (Great Barrier Reef, Queensland, Australia) (Talbot 2009) (Fig. 1).

Habitat

Reefs and lagoon bottom (Talbot 2009).

Remarks

Studying the mysid fauna of the Great Barrier Reef around Lizard Island in the late 1970s to early 1980s, Talbot (2009), together with the material described here as *S. talbotae* sp. nov., found and described *S. lacertilis*. Probably unfamiliar with the work of Murano & Fukuoka (2008), where the *brevicaudata* group was established, and which was published at about the same time, Talbot included the species in the *thompsonii* group, following the previous view of Ii (1964). Here, *S. lacertilis* is transferred to the *brevicaudata* group. Talbot (2009) also provided a rather broad diagnostic description of *S. lacertilis*,

and we have attempted here to single out those characters which distinguish it from other species of the group (see the Diagnosis above and Table 1).

Siriella lingvura Ii, 1964

Siriella lingvura Ii, 1964: 78, figs 17–18.

Siriella lingvura – Mauchline & Murano 1977: 76 (checklist). — Valbonesi & Murano 1980: 212, fig. 1. — Murano 1990: 191, fig. 2. — Müller 1993: 40 (catalogue). — Fukuoka & Murano 1997: 521, fig. 2c–e. — Murano & Fukuoka 2008: 35. — Anderson 2010: 22 (checklist). — Yamada *et al*. 2011: 336.

Diagnosis

Carapace with anterodorsal margin almost evenly rounded, not covering subrostral process. Carapace with smooth dorsal surface. Eyes dark purple. Telson 0.9 times as long as last abdominal somite and barely reaching level of distolateral spiniform setae of uropodal exopod, 1.6–1.8 times as long as wide anteriorly and 1.45–1.5 times as wide anteriorly as posteriorly; lateral margins slightly tapering, with four to six anterior and 9 to 11 posterior spiniform setae, gradually increasing in length towards apex; terminal posterolateral pair of spiniform seta 0.13–0.14 times as long as telson and 1.2–1.6 times as long as subterminal; subterminal pair of spiniform setae 1.1–1.4 times as long as preceding posterolateral. Telson apical margin with three minute, but clearly visible central spinules, about 0.19–0.23 times as long as terminal pair of spiniform setae. Telson apically without emargination. Antennal scale 2.8–3.4 times as long as wide. Labrum with anterior spine rather short, but developed, about 0.15 times as long as rest of labrum. Maxilla 1 with apical robust smooth setae. Maxilla 2 endopod segment 2 with three or four distolateral setae. Pereopod 1–3 merus 3.5 times as long as wide; carpopropodus 0.8 times as long as merus. Uropodal exopod 3.6–3.7 times as long as wide; segment 1 is 1.8–2.2 times as long as segment 2, with four–five distolateral spiniform setae in both sexes. Uropodal endopod with 15 or 16 medial spiniform setae in both sexes; distal terminal spiniform seta not reaching apex of ramus.

Type material

Syntypes (no clear statement in the original description)
JAPAN: 2 ovigerous ♀♀, 7 mm long (one female), Nagatsuro, Kamo District, Shizuoka Prefecture, night, plankton net with light, 17 Aug. 1943, donated by Y. Okada (Ii's collection, 432a). The specimens are probably lost (Fukuoka and Murano, pers. comm.).

Type locality

Central Japan, Izu Peninsula, Sagami Bay off Nagatsuro.

Comparison

Siriella lingvura is characterised by the largest number of anterolateral spiniform setae of the telson (five or six) in the group, which is three or four in other species. It is evidently most closely related to *S. tabaniocula* sp. nov. (see differences in the comparison section for that species). *Siriella lingvura* is also closely related to *S. hanseni* and *S. muranoi* sp. nov. From *S. hanseni* it is distinguished by the pattern of posterior setation of the telson: 9 to 11 gradually increasing in length apically, with the terminal pair clearly distinguished from the subterminal, while represented by four to nine short and three to six nearly equally long apical spiniform setae in *S. hanseni*. It is also distinguished by the clearly established, though small, spine of the labrum and the larger number of inner spiniform setae on the uropodal endopod (15 or 16 against 10 to 13 in *S. hanseni*). Differences from *S. muranoi* sp. nov. can be seen in the corresponding comparison section. Body length of male 4–6.5 mm, female 4–7 mm (Ii

1964; Valbonesi & Murano 1980; Murano 1990; Murano & Fukuoka 2008), with specimens from the Ryukyu Archipelago (southern part of the species range) generally smaller than those from mainland Japan (Murano & Fukuoka 2008).

Geographic variation

In mainland Japan the terminal posterolateral pair of spiniform setae is 1.5–1.6 times as long as the subterminal (as depicted by Ii 1964); however, the ratio is 1.2–1.3 in the Ryukyu Archipelago (as in Murano 1990).

Distribution

Siriella lingvura is the northernmost species in the group, found so far exclusively in Japanese waters: mainland and nearby islands – Sagami Bay (type locality), Tanabe Bay (Valbonesi & Murano 1980), Kozu Island, Nomo of Nagasaki, Tanegashima Island (Murano & Fukuoka 2008), Tokyo Bay (Yamada *et al*. 2011); Ryukyu Archipelago – Akajima Island (Murano 1990; Murano & Fukuoka 2008), Iriomote Island (Fukuoka & Murano 1997; Murano & Fukuoka 2008), Ishigaki Island (Murano & Fukuoka 2008) (Fig. 1).

Siriella muranoi sp. nov.

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Figs 14–17

Diagnosis

Carapace with anterodorsal margin rounded, not covering subrostral process. Carapace with slight tubercle and postcervical elevation. Telson 0.9 times as long as last abdominal somite, 1.6–1.7 times as long as wide anteriorly and 1.5 times as wide anteriorly as posteriorly. Telson lateral margins with three anterior and 10 to 16 posterior spiniform setae after gap; last two posterolateral pairs of about same length, longer than preceding posterolateral. Telson with terminal posterolateral pair of spiniform setae 0.13–0.14 times as long as telson and 1.0–1.1 times as long as subterminal. Subterminal pair of spiniform setae 1.2 times as long as preceding posterolateral. Telson apically without emargination, with small, but well-visible spinules, 0.25–0.3 times as long as posterolateral terminal pair of spiniform setae. Labrum with small, but well-developed anterior spine, about 0.2 times as long as rest of labrum. Maxilla 1 with distal robust smooth setae. Maxilla 2 endopod segment 2 with three or four lateral setae along entire margin. Pereopod 1–3 merus 3.8–4.1 times as long as wide. Uropodal exopod 4.2 times as long as wide; exopod segment 1 is 1.7 times as long as segment 2, with three to five distolateral spiniform setae. Uropodal endopod with 11 to 14 medial spiniform setae, extending nearly to ramus apex.

Etymology

The species is dedicated to the distinguished Japanese mysid taxonomist Masaaki Murano for his outstanding contributions to the study of the Indo-Pacific fauna.

Material examined

Holotype

AUSTRALIA: ♂, 5.5 mm long, Northern Territory, Port Essington, Table Head, 11°14.8′ S, 132°11.2′ E, low water, CP/45, 11 May 1983, A.J. Bruce leg., previously identified as *Siriella hanseni* by M. Murano (NTM Cr018984).

Paratypes

AUSTRALIA: 2 ♂♂, 5.5–6.5 mm long, 3 ♀♀, 3.5–7.0 mm long, 3 subadult ♀♀, 4 juveniles, Northern Territory, Port Essington, Table Head, 11°14.8′ S, 132°11.2′ E, low water, CP/45, 11 May 1983,

A.J. Bruce leg., previously identified as *Siriella hanseni* by M. Murano (NTM Cr012269); 1 ♂, 6 mm long, 1 ♀, 6.5 mm long, Northern Territory, Darwin, East Point, Dudley Point Reef, 12°25.2′ S, 130°49.1′ E, AJB/4, LWS, poison, 6 Sep. 1982, A.J. Bruce leg., previously identified as *Siriella hanseni* by M. Murano (NTM Cr012248); 1 ♂ (appendages and telson in same vial), 6.5 mm long, 1 ♀, 6 mm long, 2 subadult ♀♀, 5.0 mm long, Northern Territory, Darwin, Dudley Point Reef, AJB/3, 19 Sep. 1981, A.J. Bruce leg., previously identified as *Siriella hanseni* by A. Udrescu (NTM Cr000109); 1 juvenile, Northern Territory, Darwin, Nightcliff Beach, 12°24.0′ S, 130°51.0′ E, AJB/35, LWS, rotenone, 11 Sep. 1987, D. Sachs leg., previously identified as *Siriella hanseni* by M. Murano (NTM Cr012258).

Description

Body length of males 5.5–6.5 mm, of females 3.5–7.0 mm.

Male (holotype)

Carapace. Anterior part slightly wider than abdominal somite 1. Carapace anterodorsal margin rounded, not covering spiniform subrostral process (Fig. 14B). Posterior margin of carapace exposing three thoracic somites dorsally.

Telson. Telson 0.9 times as long as last abdominal somite (Fig.14A), 0.6 times as long as uropodal endopod, 1.6 times as long as wide anteriorly and 1.5 times as wide anteriorly as posteriorly (Fig. 14D). Apical margin of telson with three rather small spinules, clearly visible in dorsal view, 0.3 times as long as posterolateral terminal pair of spiniform setae, and two long plumose setae, longer than spiniform setae flanking them. Lateral margins of telson, with three anterior and 12 and 14 posterior spiniform setae after gap, with groups of shorter spiniform setae followed by longer, but generally increasing in length towards apex. Terminal posterolateral pair of spiniform setae 0.14 times as long as telson and about as long as subterminal pair of spiniform setae; subterminal spiniform setae 1.2 times as long as preceding posterolateral.

Head appendages. Eyes 1.1–1.2 times as long as wide and 0.6 times as long as width of anterior part of carapace. Peduncle of antennae more robust than in female, about twice as long as peduncle of antenna 2; segment 1 about twice as long as wide; segment 3 is 1.9 times as long as wide and as long as segment 1; male process along posteromedial margin of segment 3, conical, distal advanced part 0.4 times as long as segment 3 (Figs 14B, 15A). Antennal scale with clear distal articulation, shorter than peduncle of antenna 1 and 1.5 times as long as peduncle of antenna 2; scale 3.3 times as long as wide, 1.3 times as long as distance from scale base to outer spine base; maximal width 1.3 times distal width; distal segment with five setae (Figs 14B, 15B). Labrum with small, but well-established anterior spine, about 0.2 times as long as rest of labrum (Fig. 15E). Mandible (Fig. 15C–D): palp segment 2 is 1.7 times as long as wide with long setae along margins; segment 3 is 0.7 times as long as segment 2, with six long proximomedial, six short distomedial and three long distolateral setae. Distal robust setae of maxilla 1 smooth (Fig. 15F). Maxilla 2 exopod oval, with 13 setae along outer margin; endopod segment 2 with four lateral setae along entire margin and multiple medial setae and stronger, finely serrated setae flanking them; endites with strong, spiniform setae.

Maxillipeds. Exopod of thoracopods 8–9-segmented. Maxilliped 1 without endites; segments short and strong; basis with a group of distomedial setae; preischium with one seta; ischium with seven medial setae; merus, the largest segment, 1.2 times as long as wide, with about 10 medial and one distolateral setae; carpopropodus with three lateral and four distomedial setae; dactylus with strong smooth unguis; dactylary setae about as long as unguis; unguis more than twice as long as dactylus (Fig. 15G). Maxilliped 2: basis with proximal medial seta and distal medial group of setae; preischium with one medial seta; ischium, the widest segment, 1.1–1.2 times as long as wide, with numerous setae along medial margin and one lateral seta; merus 1.9 times as long as wide and 1.7 times as long as ischium,

with three medial groups of two–three setae and two distolateral setae; carpopropodus 2.3 times as long as wide, with seven distal anterolateral setae, two medial bunches of two or three long setae, and three short distal posteromedial setae; dactylus longer than wide, 0.3 times as long as carpopropodus, with strong smooth unguis, three anterior and three lateral bunches of thin, strong smooth setae; unguis 2.1 times as long as dactylus (Fig. 16A).

Pereopods. Pereopodal endopods (Figs 16B–D, 17A–C): ischium about 0.6–0.7 times as long as merus; carpopropodus without secondary joint. Pereopod 1 (Fig. 16B): preischium with one seta; ischium laterally convex, twice as long as wide, with one lateral seta and many short and long medial setae; merus 3.9 times as long as wide, with about 10 medial groups of long and short setae, three lateral setae and distolateral bunch of two setae; carpopropodus about 5 times as long as wide and 0.8 times as long as merus; dactylus 0.18–0.2 times as long as carpopropodus and 2.2 times as long as wide; dactylar unguis 1.7–1.8 times as long as dactylus; paradactylary setae nearly reaching ungual apex. Pereopods 2–4 show slight reduction in width of segments (except for pereopod 2) and number of setae; paradactylary setae not reaching ungual apex (Figs 16C–D, 17A). Pereopods 5–6 (Fig. 17B–C): preischium with one–two setae; ischium 2.8–2.9 times as long as wide, with nearly parallel margins, one or two medial setae and distomedial bunch of two setae; merus 3.9–4.3 times as long as wide, with two–three medial groups of one–three setae; carpopropodus 7.0 times as long as wide; dactylus 3.7 times as long as wide; dactylary unguis 1.8 times as long as dactylus; paradactylary setae not reaching half-length of unguis. Penis cylindrical, curved, with two long subapical setae, directed posteriorly (Fig. 17D).

Pleopods. Pleopod 1 uniramous. Pleopods 2–5 biramous; rami 11-segmented; pseudobranchiae bilobate, spirally coiled in pleopods 2–4 and straight in pleopod 5 (Fig. 17E–G). Terminal setae of pleopod rami not modified.

Uropods. Uropodal exopod 1.2 times as long as endopod and 4.2 times as long as wide; exopod segment 1 is 1.7 times as long as segment 2, with four distolateral spiniform setae (Fig. 14D). Uropodal endopod with 12 medial spiniform setae, distally not becoming longer, occupying almost entire ramus length, though not extending to apex.

Female

Peduncle of antenna 1 slender and longer than in male; segment 1 about 3 times as long as wide and 1.2 times as long as segments 2 and 3 together, with five short distal dorsolateral setae; segment 2 with five short distal dorsolateral and one long plumose distomedial setae; segment 3 is 1.2 times as long as wide, with one medial and four long plumose distomedial setae. Segment 3 of mandibular palp with three or four proximomedial setae. Pereopods 5 and 6 each with oostegite. Pleopods lamelliform, setose.

Comparison

Siriella muranoi sp. nov. has a distinct pattern of posterior spiniform setae on the telson: terminal and subterminal pairs are nearly equal in length and longer than preceding posterolateral spiniform setae. It most closely resembles *S. lacertilis*, *S. lingvura* and *S. tabaniocula* sp. nov., differing from the first species by (1) the telson with a shorter terminal posterolataral pair of spiniform setae (rather long, 0.25 times as long as telson and twice as long as preceding posterolateral in *S. lacertilis*), (2) the telson with possibly a greater number of posterolateral spiniform setae (only nine were reported in *S. lacertilis*), (3) maxilla 1 with smooth distal setae (serrated in *S. lacertilis*) and (4) the uropodal exopod with slightly shorter distal segment (proximal 1.4–1.5 times as long as distal segment in *S. lacertilis*).

Siriella muranoi sp. nov. is distinguished from *S. lingvura* by having (1) a cephalic tubercle, (2) a telson with fewer anterolateral spiniform setae (five or six in *S. lingvura*), (3) a telson with a shorter terminal posterolateral pair of spiniform setae (clearly longer than subterminal in *S. lingvura*), (4) slightly

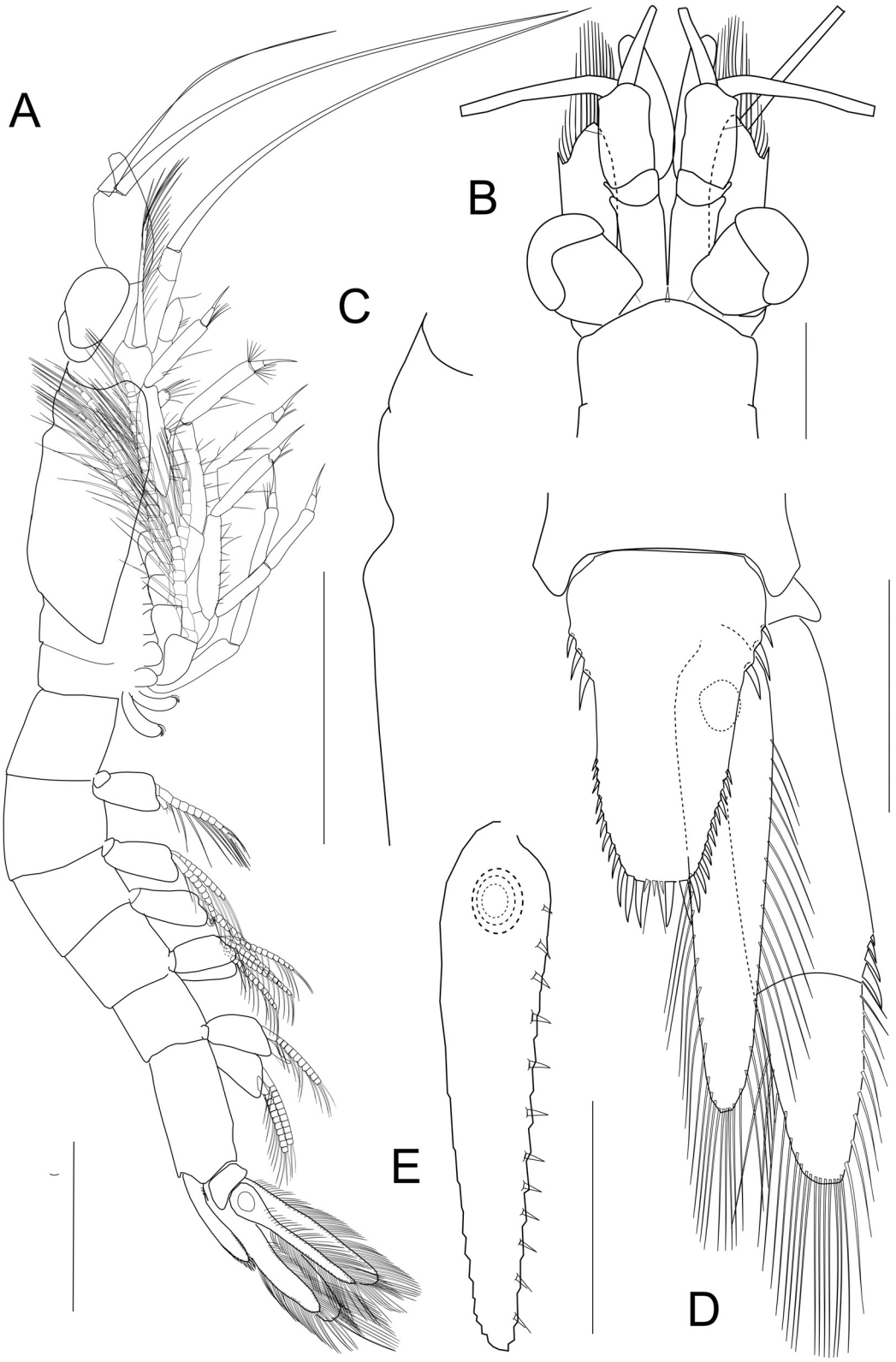

Fig. 14. *Siriella muranoi* sp. nov., holotype, ♂, length 5.5 mm, Port Essington, Arafura Sea, Northern Territory, Australia. **A**. Habitus. **B**. Anterior part of body. **C**. Anterior part of carapace, lateral view. **D**. Posterior part of body (left uropods not shown). **E**. Uropodal endopod, ventral view. Scale bars: A, C = 1 mm; B, D–E = 0.5 mm.

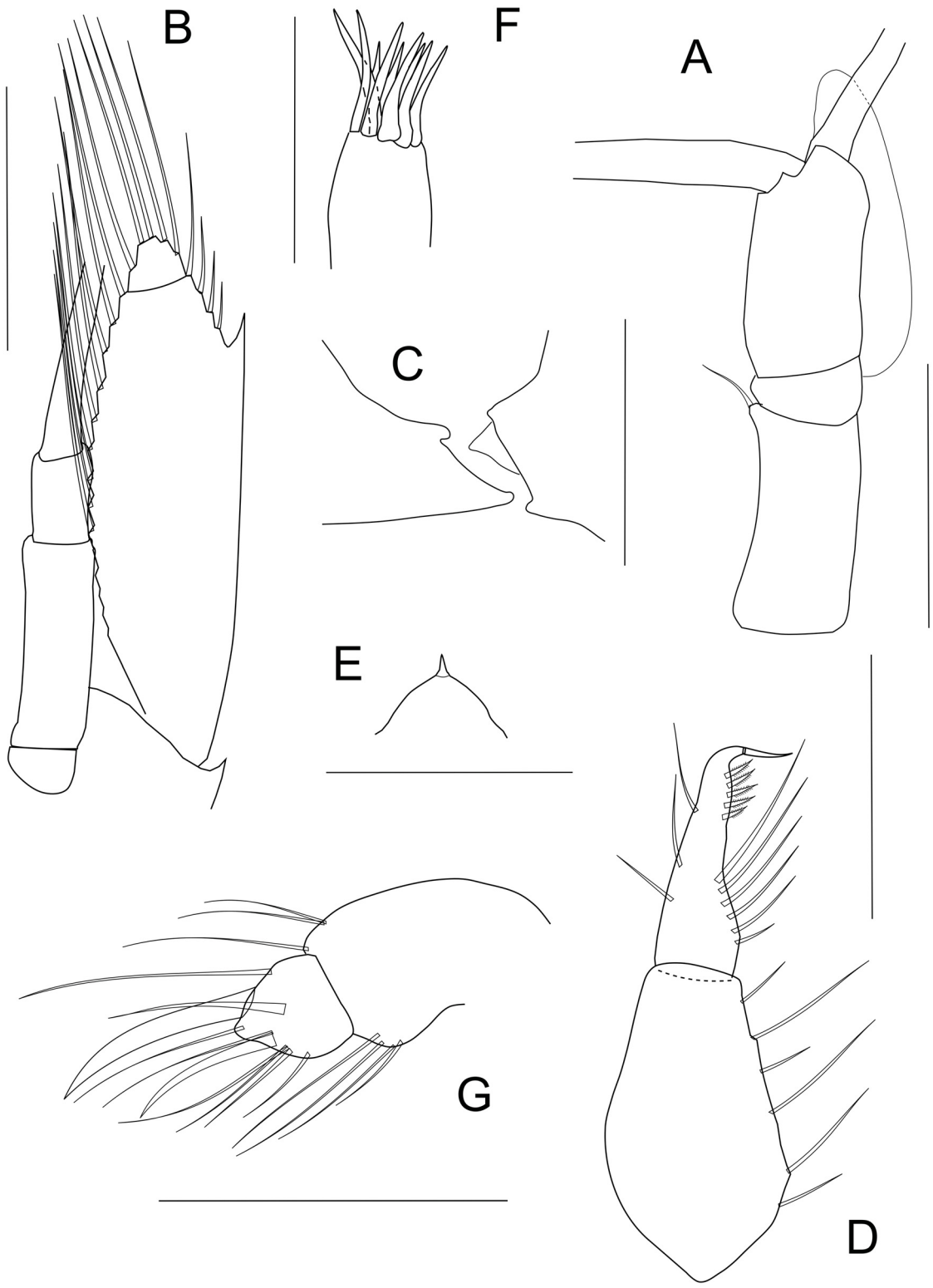

Fig. 15. *Siriella muranoi* sp. nov., holotype, ♂, length 5.5 mm, Port Essington, Arafura Sea, Northern Territory, Australia. **A**. Antenna 1 peduncle, dorsal view. **B**. Antenna 2 (peduncle and antennal scale), ventral view. **C**. Mandibles, left and right. **D**. Mandibular palp, lateral view. **E**. Labrum. **F**. Inner ramus of maxilla 1, posterior view. **G**. Distal part of maxilliped 1, posterior view. Scale bars: A–B, D = 0.25 mm; C, E–G = 0.2 mm.

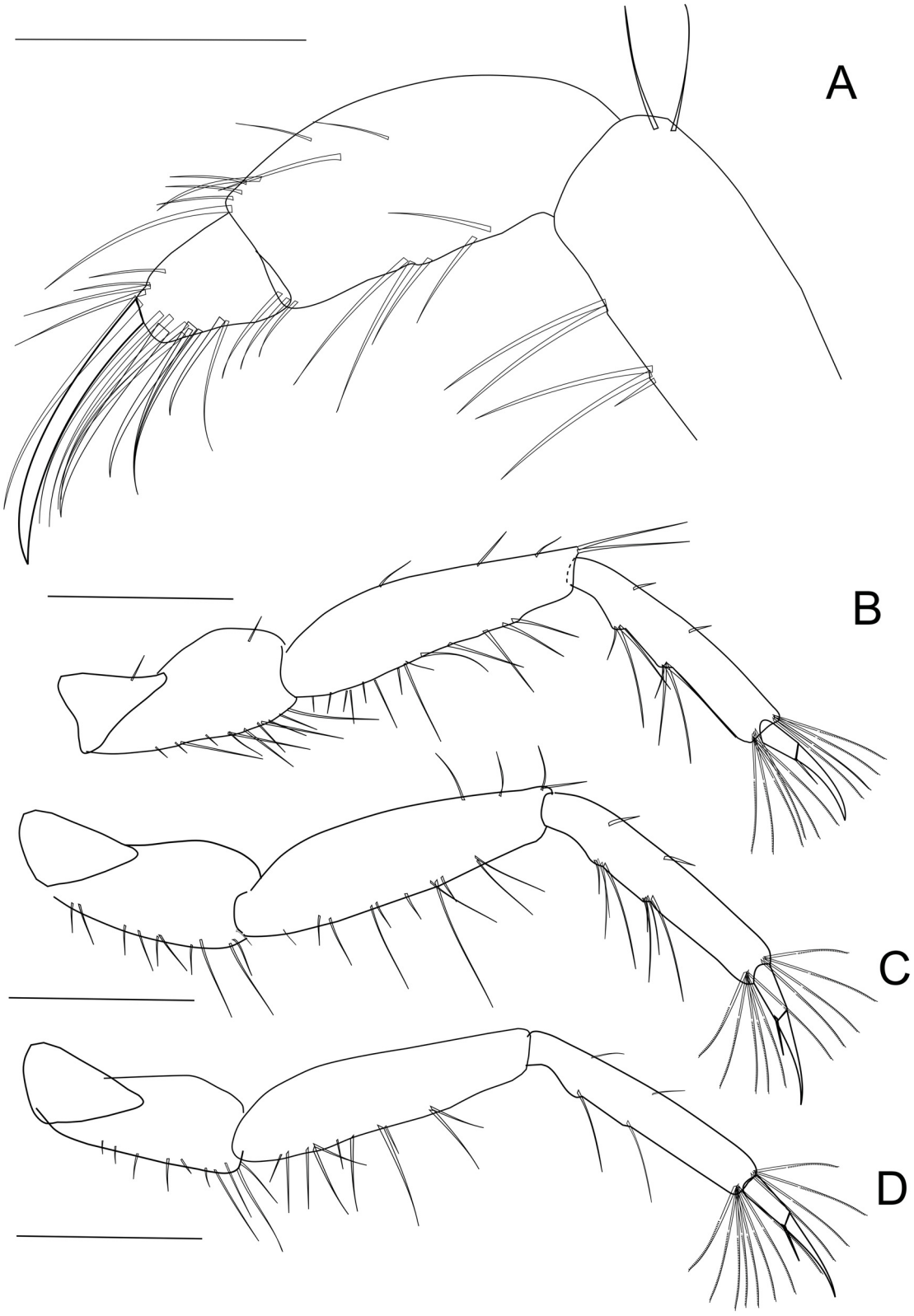

Fig. 16. *Siriella muranoi* sp. nov., holotype, ♂, length 5.5 mm, Port Essington, Arafura Sea, Northern Territory, Australia. **A**. Anterior part of maxilliped 2, posterior view. **B**. Endopod of pereopod 1, posterior view. **C**. Endopod of pereopod 2, posterior view. **D**. Endopod of pereopod 3, posterior view. Scale bars: A = 0.2 mm; B–D = 0.25 mm.

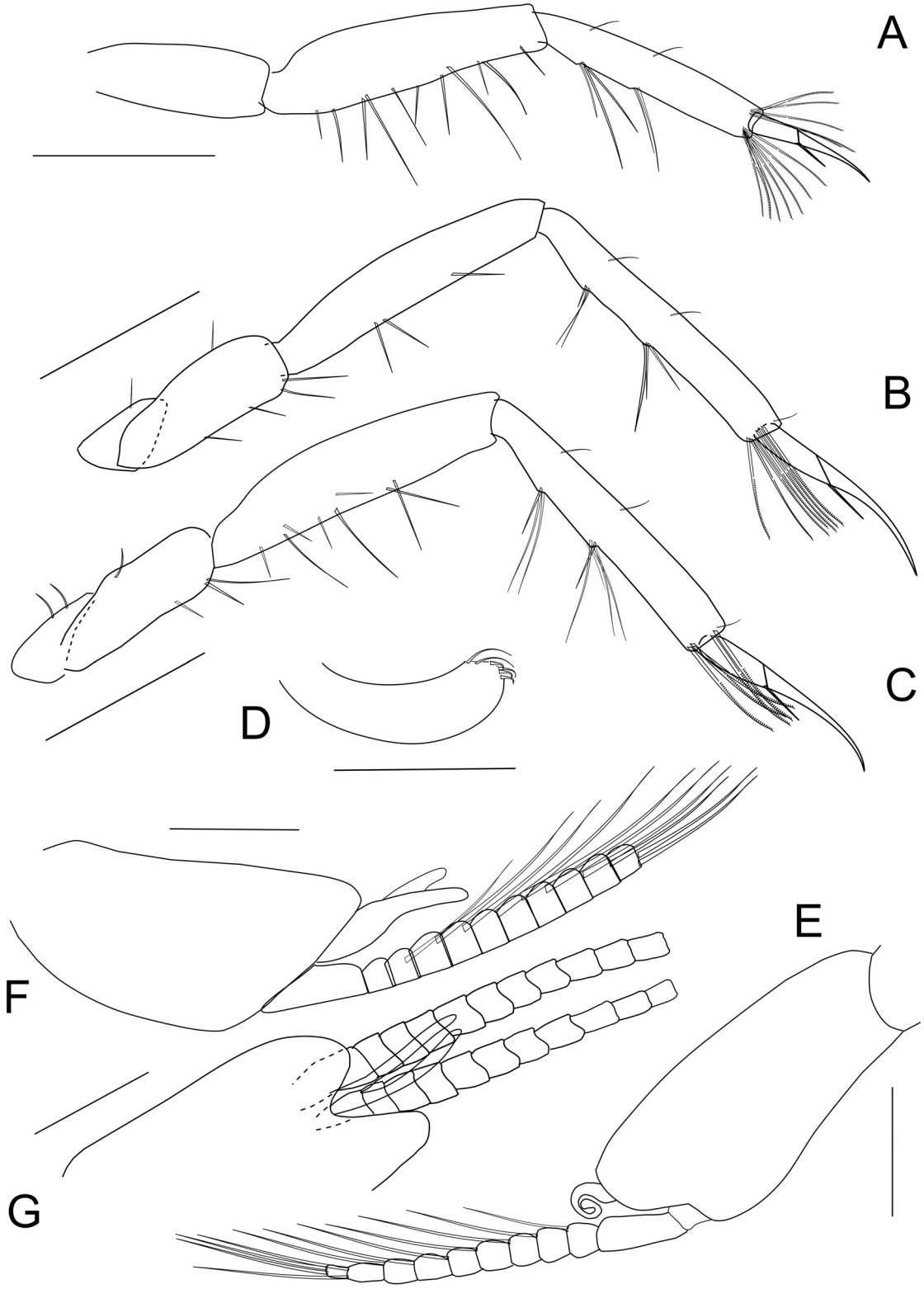

Fig. 17. *Siriella muranoi* sp. nov., holotype, ♂, length 5.5 mm, Port Essington, Arafura Sea, Northern Territory, Australia. **A**. Endopod of pereopod 4, posterior view. **B**. Endopod of pereopod 5, posterior view. **C**. Endopod of pereopod 6, posterior view. **D**. Penis. **E**. Pleopod 3 (endopod not shown), lateral view. **F**. Pleopod 5 (endopod not shown), lateral view. **G**. Pleopod 5 (rami setae not shown), anterior view. Scale bars: A–D = 0.5 mm; E–G = 0.2 mm.

narrower pereopodal endopods (merus of pereopods 1–3 is 3.5 times as long as wide in *S. lingvura*) and (5) a uropodal endopod with fewer spiniform setae (15 or 16 in *S. lingvura*). For differences from another closely related species, *S. tabaniocula* sp. nov., see its corresponding section.

Previously, *S. muranoi* sp. nov. was confused with *S. hanseni*, from which it is, in fact, distinguished by a large set of characters: (1) carapace with dorsal cephalic tubercle and postcervical elevation (absent in *S. hanseni*), (2) shorter telson, which is about as long as or slightly longer than the last abdominal somite in *S. hanseni*, (3) pattern of telsonal posterior spiniform setae (three to six terminal nearly equal in length in *S. hanseni*), (4) labrum with quite well-established anterior spine (with very short, barely visible, < 0.1 times as long as the rest of the labrum in *S. hanseni*) and (5) uropodal exopod with slightly longer distal segment (proximal segment 1.7 times as long as distal, which is 1.9–2.3 in *S. hanseni*).

Distribution

Australia: Northern Territory, Arafura Sea (Fig. 1). Type locality: Port Essington inlet.

Habitat

Shallow water.

Remarks

The specimens which formed the type series of *S. muranoi* sp. nov. were identified by various scholars as *S. hanseni*, because the latter species was not originally described in sufficient detail to distinguish it from other related species. After redescription of the type material of *S. hanseni* (in this study; see above), it was determined that the specimens from the Northern Territory diverged in a number of characters and should be considered a new species.

Siriella occulta sp. nov.
urn:lsid:zoobank.org:act:B96BA8A6-EE2D-4660-8680-08B32FEC18BF
Figs 18–21

Siriella sp. A – Grabe *et al*. 2004: 2321, fig. 3c.

Diagnosis

Carapace with anterodorsal margin angular, well-produced, nearly covering subrostral process; apically rather narrow, but not acute; sides straight. Carapace with postcervical elevation more strongly developed in female. Telson slightly shorter than last abdominal somite, 1.6–1.7 times as long as wide anteriorly and 1.5 times as wide anteriorly as posteriorly. Telson apically with slight emargination, almost bilobate, with small ventral spinules, not visible dorsally, about 0.1 times as long as posterolateral terminal pair of spiniform setae. Lateral margins of telson with three or four anterior and 9 to 13 posterior spiniform setae after gap, gradually increasing in length towards apex. Telson terminal posterolateral pair of spiniform setae 0.20–0.23 times as long as telson and 1.1–1.3 times as long as subterminal spiniform setae. Subterminal pair of spiniform setae 1.1–1.2 times as long as preceding posterolateral. Labrum with very small, barely visible anterior spine, < 0.1 times as long as rest of labrum. Maxilla 1 with distal robust smooth setae. Maxilla 2 endopod segment 2 with five or six lateral setae along entire margin. Pereopod 1–3 merus 3.1–3.3 times as long as wide. Uropodal exopod 3.6 times as long as wide; exopod segment 1 is 2.5–3.0 times as long as segment 2, with four to six distolateral spiniform setae. Uropodal endopod with 15 to 20 medial spiniform setae, not extending to ramus apex.

Etymology

From the Latin word *occulta* (feminine), meaning ‘hidden, secret’, referring to the hidden, barely visible subrostral process and telson emargination spinules of the species.

Material examined

Holotype

SAUDI ARABIA: ♂ (+ slide), 6.5 mm long, Arabian (Persian) Gulf, 82-005A, site 8, 61.5°F (16.4°C), 40‰, larval + trawl, 2 Apr. 1982, H. McElroy leg. (USNM 1459145).

Paratypes

SAUDI ARABIA: 4 ♂♂, 5.5–6.5 mm long, 4 ♀♀, 6.0–6.5 mm long, same label data as for the holotype (USNM 1459146); 6 ♂♂, 4.5–5 mm long, 5 ♀♀, 4.5–5 mm long, 1 immature ♀, Arabian Gulf, 720611B/11m, site 2, date unavailable, Skimmer, Zaal leg. (USNM 1459147).

BAHRAIN: 1 immature ♀, E coast, Arabian Gulf, st. 40, 1991, J.A. Mansoor and H. Sulman leg. (USNM 1459148); 3 ♀♀ (1 broken), 4–4.5 mm long, 3 juveniles, all damaged, E coast, Arabian Gulf, st. 103, 1991, J.A. Mansoor and H. Sulman leg. (USNM 1459149); 1 juvenile (broken), E coast, Arabian Gulf, st. 105, 1991, J.A. Mansoor and H. Sulman leg. (USNM 1459150); 1 ♀ (+ slide), 5 mm long, 1 immature ♂, E coast, Arabian Gulf, st. 110, 1991, J.A. Mansoor and H. Sulman leg. (USNM 1459151); 1 immature ♂, 1 immature ♀, E coast, Arabian Gulf, st. 117, 1991, J.A. Mansoor and H. Sulman leg. (USNM 1459152); 5 ♂♂ (2 broken), 4–4.5 mm long, 3 ♀♀ (2 broken), 5.5 mm long, 1 immature ♂, 3 immature ♀♀, 4 juveniles (2 broken), E coast, Arabian Gulf, st. 125, 1991, J.A. Mansoor and H. Sulman leg. (USNM 1459153).

Description

Body length of males 4.5–6.5 mm, of females 4.5–6.5 mm.

Male (holotype)

Carapace. With anterior part slightly wider than abdominal somite 1. Carapace with anterodorsal margin broadly angular, nearly covering spiniform subrostral process; apically rather narrow, but not acute; sides straight (Fig. 18A, C). Carapace posterior margin exposing three thoracic somites.

Telson. Barely shorter than last abdominal somite, 0.6 times as long as uropodal endopod, 1.6 times as long as wide anteriorly and 1.5 times as wide anteriorly as posteriorly (Fig. 18D). Telson apically with slight emargination, bilobate, with three rather small ventral spinules, not visible in dorsal view, 0.1 times as long as posterolateral terminal pair of spiniform setae; with two long plumose setae, longer than spinules flanking them (Fig. 18E). Telson lateral margins slightly tapering, with three anterior and 12 and 13 posterior spiniform setae after gap, increasing in length towards apex. Terminal pair of spiniform setae 0.23 times as long as telson and 1.3 times as long as subterminal pair of spiniform setae, which is 1.2 times as long as preceding posterolateral spiniform setae.

Head appendages. Eyes 1.4 times as long as wide and 0.6 times as long as width of anterior part of carapace. Peduncle of antennae 1 more robust than in female, about twice as long as peduncle of antenna 2; segment 1 is 2.2 times as long as wide; segment 3 is 1.7 times as long as wide and as long as segment 1; male process along posteromedial margin of segment 3, conical, its distal protruding part 0.3 times as long as segment 3 (Fig. 18A–B, F). Male antennule inner flagellum normal, not dilated or meandering in proximal part. Antennal scale with clear distal articulation, only slightly shorter than peduncle of antenna 1 and 1.6 times as long as peduncle of antenna 2; scale 3.0 times as long as wide, 1.3 times as long as length from scale base to base of outer spine; maximum width 1.4 times its distal width; distal segment with five setae (Fig. 18A, G). Labrum with very small, barely visible anterior spine, <0.1 times as long as rest of labrum (Fig. 18H). Mandible (Fig. 18I): palp segment 2 is 2.3 times as long as wide with short setae along margins; segment 3 half as long as segment 2, with 11 long proximomedial, 11 short distomedial and six long distolateral setae. Distal robust setae of maxilla 1 smooth (Fig. 18J). Maxilla 2 exopod oval, with 16 setae; endopod segment 1 with two medial setae; endopod segment 2

with six lateral setae along entire margin and multiple medial setae and stronger, finely serrated setae flanking them; endites with robust, finely serrated setae (Fig. 18K).

Maxillipeds. Exopod of thoracopods 8–9-segmented (Fig. 19E). Maxilliped 1 without endites; segments short and strong; basis with group of distomedial setae; preischium with one seta; ischium with seven medial setae; merus, the largest segment, 1.2 times as long as wide, with 11 medial and one distolateral setae; carpopropodus with five lateral, eight anterodistal and two distomedial setae; dactylus with strong smooth unguis, five lateral, three medial and four anterior setae; dactylary setae about as long as unguis; unguis slightly longer than dactylus (Figs 18L, 19A). Maxilliped 2 (Fig. 19B–C): basis with proximal medial seta and distal medial group of setae; ischium, the widest segment, 1.1 times as long as wide, with numerous setae along medial margin and one lateral seta; merus 1.9 times as long as wide and 1.7 times as long as ischium, with three medial groups, each with two setae and two distolateral setae; carpopropodus 2.1 times as long as wide, with five distal anterolateral setae, three medial bunches of one or two long setae, short distal posteromedial seta and distal anteromedial bunch of four serrated setae; dactylus wider than longer, 0.15 times as long as carpopropodus, with strong smooth unguis, four medial, four anterior strong serrated setae and three thin lateral setae; unguis 4.0 times as long as dactylus.

Pereopods. Pereopodal endopods (Fig. 19D, F): ischium about half as long as merus; medial and paradactylary setae of carpopropodus distally serrated; carpopropodus with secondary joint, two medial bunches of three–four long setae and three short lateral setae; dactylus with strong unguis. Pereopods 1–3 (Fig. 19D): basis with distomedial bunch of setae; preischium without setae; ischium laterally convex, 1.7 times as long as wide, with one–two lateral setae and many short and long medial setae; merus 3.1–3.3 times as long as wide, with four–six medial groups of long and short setal bunches, two–three lateral setae and distolateral bunch of one–three setae; carpopropodus 4.4–4.7 times as long as wide and 0.7 times as long as merus; dactylus 0.15–0.17 times as long as carpopropodus and about as long as wide; dactylar unguis 1.5–1.8 times as long as dactylus; paradactylary setae not reaching ungual apex. Pereopod 6 (Fig. 19F): preischium with four setae; ischium 1.8 times as long as wide, with nearly parallel margins, two medial setae and distomedial bunch of four setae; merus 4.3 times as long as wide, with four medial groups of one or two setae and four lateral setae; carpopropodus 6.3 times as long as wide; dactylus 1.5 times as long as wide; dactylary unguis 2.3 times as long as dactylus. Penis cylindrical, with two long apical setae, directed posteriorly (Fig. 19G).

Pleopods. Pleopod 1 uniramous; ramus 10-segmented; pseudobranchiae bilobate; inner lobe nearly straight, with apical seta, outer lobe L-shaped, with 3 lateral setae (Fig. 20A). Pleopods 2–5 biramous; rami 11-segmented; pseudobranchiae bilobate, spirally coiled, with four lateral setae (Fig. 20B). Terminal setae of pleopod rami not modified. Proximal segments of pleopod rami 0.3–0.4 times as long as wide.

Uropods. Uropodal exopod 1.2 times as long as endopod and 3.6 times as long as wide; exopod segment 1 is 2.2 times as long as segment 2, with six distolateral spiniform setae (Fig. 20D). Uropodal endopod with 19–20 medial spiniform-setae, distally becoming longer, occupying almost entire ramus length, though not extending to apex (Fig. 20C).

Female

Carapace with dorsal median elevation behind pleurocervical fissure (Fig. 21A–B). Peduncle of antenna 1 slender and longer than in male; segment 1 about 3 times as long as wide and 1.2 times as long as segments 2 and 3 together, with five short distal dorsolateral setae; segment 2 with five short distal dorsolateral and one long plumose distomedial setae; segment 3 is 1.2 times as long as wide, with one medial and four distomedial setae (Fig. 21B–C). Segment 3 of mandibular palp with three–four proximomedial setae (Fig. 21D). Pereopods 5 and 6 each with oostegite. Pleopods lamelliform, setose.

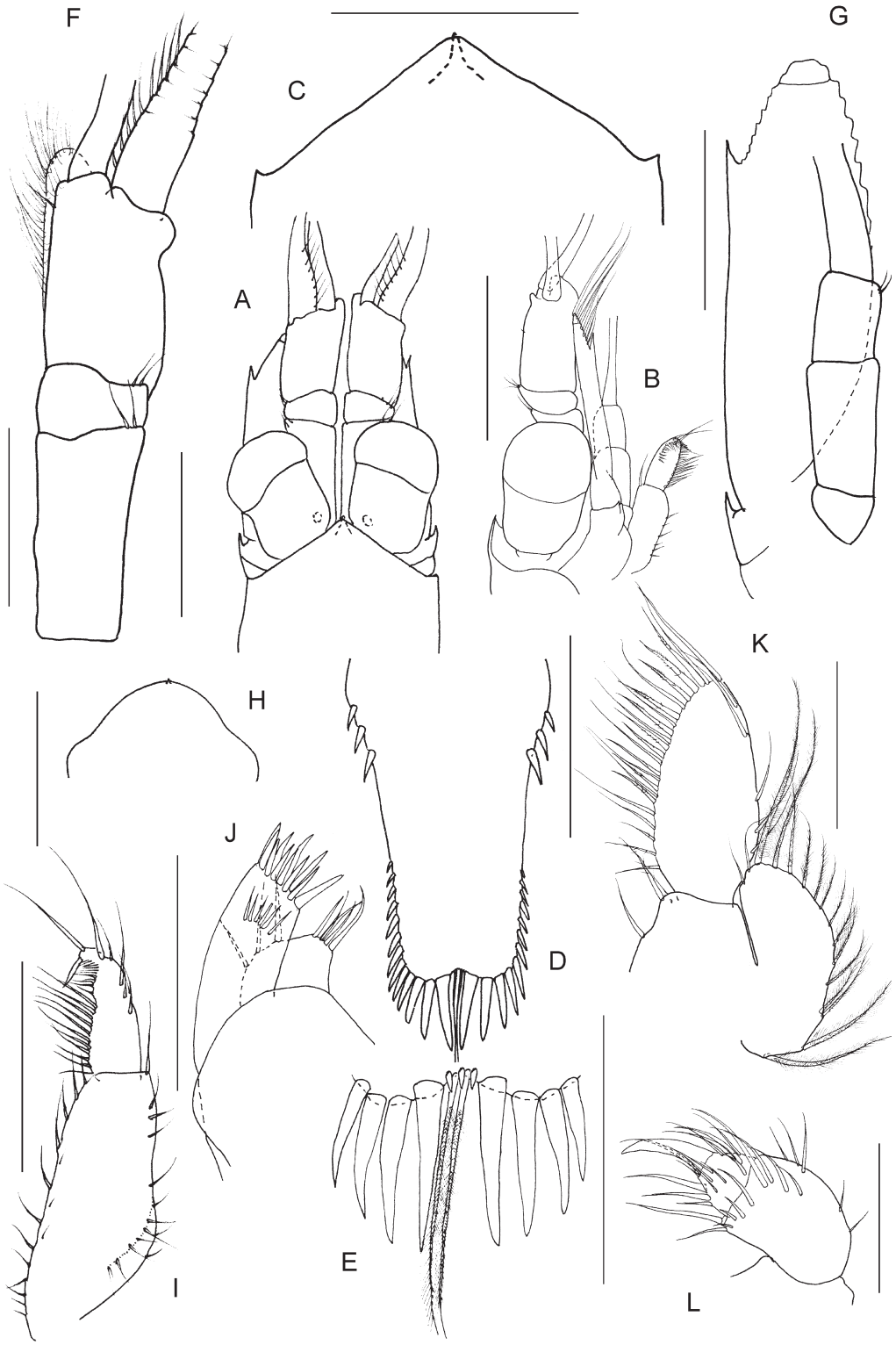

Fig. 18. *Siriella occulta* sp. nov., holotype, ♂, length 6.5 mm, Arabian Gulf, Saudi Arabia. **A**. Anterior part of body, dorsal view. **B**. Anterior part of body, lateral view. **C**. Anterodorsal margin of carapace. **D**. Telson. **E**. Posterior part of telson, ventral view. **F**. Peduncle of antenna 1, dorsal view. **G**. Antennal scale and peduncle of antenna 2, ventral view. **H**. Labrum. **I**. Mandibular palp, medial view. **J**. Maxilla 1, posterior view. **K**. Maxilla 2 (endites not shown), anterior view. **L**. Distal part of maxilliped 1, anterior view. Scale bars: A–B = 0.5 mm; C, E, H, J–L = 0.1 mm; D, F–G, I = 0.25 mm.

Fig. 19. *Siriella occulta* sp. nov., holotype, ♂, length 6.5 mm, Arabian Gulf, Saudi Arabia. **A**. Maxilliped 1, anterior view. **B**. Maxilliped 2, anterior view. **C**. Dactylus of maxilliped 2, anterior view. **D**. Endopod of pereopod 1, anterior view. **E**. Exopod of pereopod 1. **F**. Endopod of pereopod 6, anterior view. **G**. Penis. Scale bars: A–B, D–G = 0.25 mm; C = 0.1 mm.

Comparison

Compared to other species of the *brevicaudata* group, *S. occulta* sp. nov. has a telson with the most gradually increasing posterolateral spiniform setae. It most closely resembles *S. brevicaudata*, but differs by having (1) the head without a cephalic tubercle, (2) the carapace with an angular anterodorsal margin (rounded in *S. brevicaudata*), (3) the telson with more numerous, gradually increasing in length posterior spiniform setae (three or four short and two or three distinctly long in *S. brevicaudata*), (4) the telson with relatively shorter terminal posterolateral pair of spiniform setae (0.36–0.53 times telson length in *S. brevicaudata*), (5) a narrower uropodal exopod (3.1–3.4 times as long as wide in *S. brevicaudata*) and (6) the uropodal endopod with a greater number of medial spiniform setae (10 or 11 in *S. brevicaudata*). A number of additional characters distinguish *S. occulta* sp. nov. from different species of the group (Table 1).

Distribution

Arabian (Persian) Gulf: Saudi Arabia and Bahrain (Fig. 1). Type locality: Saudi Arabia.

Habitat and life history

In one case found in April at a water temperature of 16.4°C and salinity 40‰. Other habitat data were not recorded for this species. Larvigerous females from July to February. Number of larvae 3 to 15 (see detailed account in Grabe *et al*. 2004).

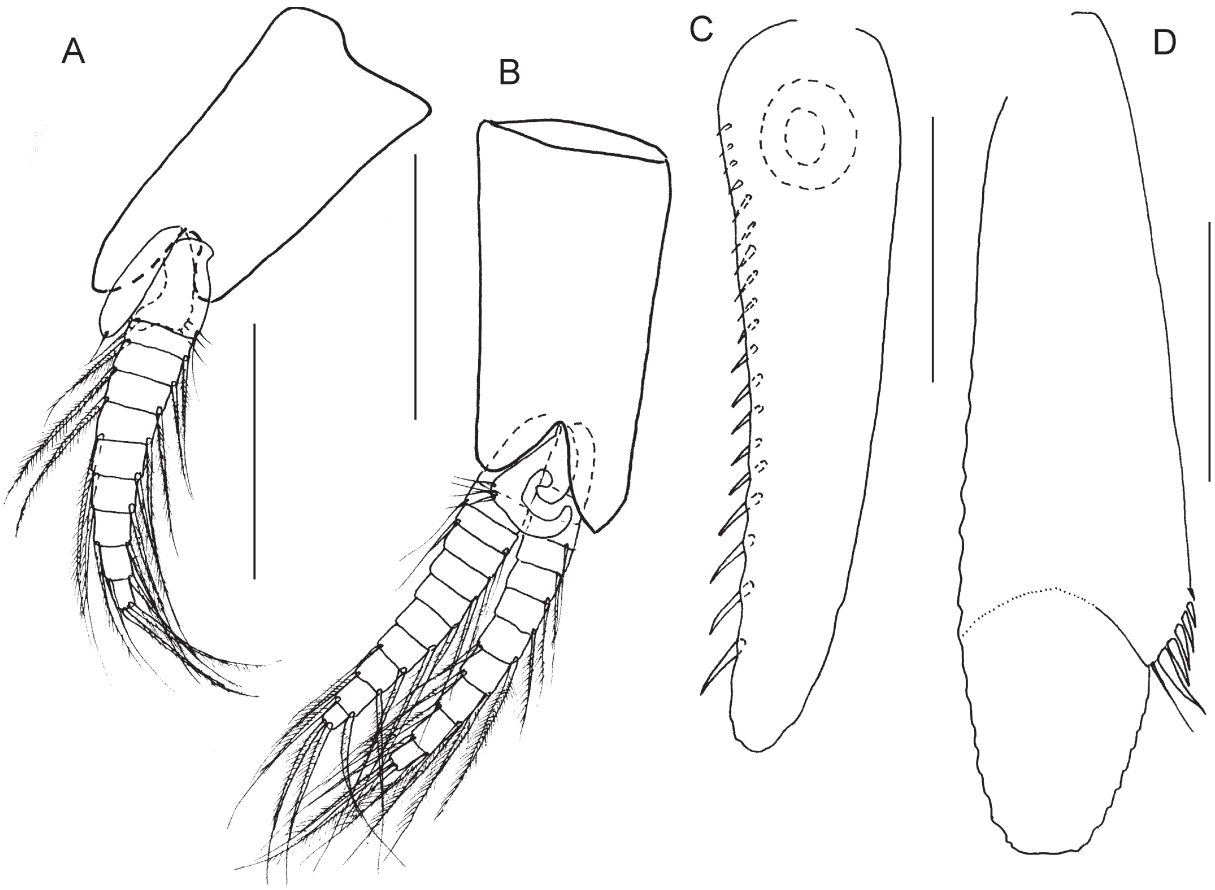

Fig. 20. *Siriella occulta* sp. nov., holotype, ♂, length 6.5 mm, Arabian Gulf, Saudi Arabia. **A**. Pleopod 1, posterior view. **B**. Pleopod 4, posterior view. **C**. Uropodal endopod, dorsal view. **D**. Uropodal exopod, dorsal view. Scale bars: 0.25 mm.

Remarks

During the survey of penaeid shrimps in Tubli Bay of the Arabian Gulf, together with the previously mentioned *S. brevicaudata* and other mysids reported by Grabe *et al*. (2004), an unknown species of *Siriella* was collected, which we describe here as *S. occulta* sp. nov. and include in the *brevicaudata* group.

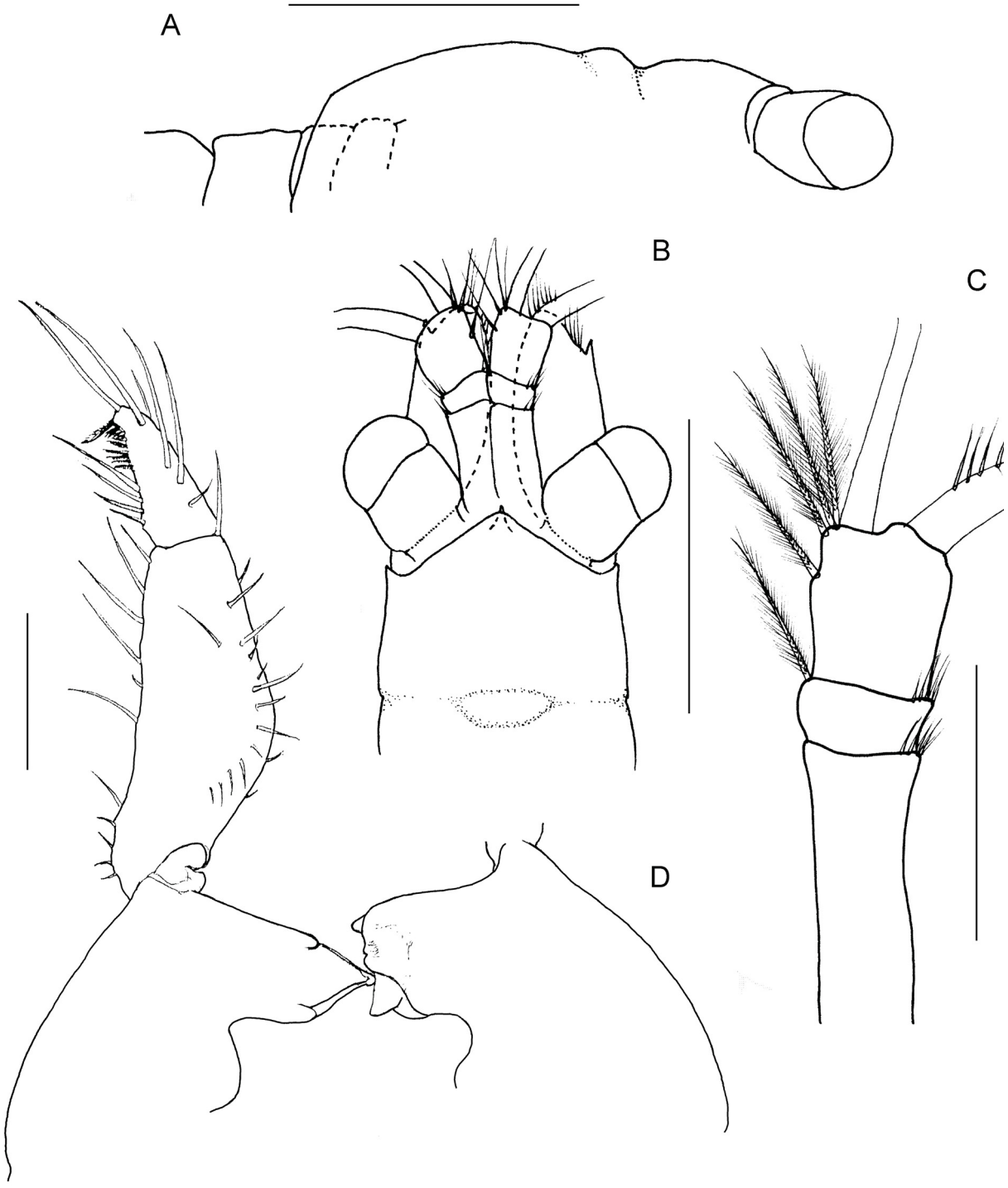

Fig. 21. *Siriella occulta* sp. nov., paratype, ♀, length 5 mm, Arabian Gulf, Saudi Arabia. **A**. Dorsal part of carapace, lateral view. **B**. Anterior part of body, dorsal view. **C**. Peduncle of antenna 1, dorsal view. **D**. Mandibles with mandibular palp, posterior view. Scale bars: A–B = 1 mm; C = 0.5 mm; D = 0.1 mm.

Siriella spinula Panampunnayil, 1995

Siriella spinula Panampunnayil, 1995: 1942, figs 24–47.

Siriella spinula – Lowry & Stoddart 2003: 468 (catalogue). — Murano & Fukuoka 2008: 37. — Anderson 2010: 23 (checklist).

Diagnosis

Carapace with anterodorsal margin angular. At least half of subrostral process covered by carapace. Carapace with cephalic part dorsally smooth. Telson as long as last abdominal somite, reaching level of lateral spiniform setae of uropodal exopods, about twice as long as wide anteriorly and 1.4 times as wide anteriorly as posteriorly. Lateral margins slightly convex in middle part and clearly tapering apically, with three anterior and 12 to 14 posterior spiniform setae, gradually increasing in length apically in male and with terminal posterolateral pair of spiniform setae shorter than subterminal pair in female; terminal spiniform setae 0.13–0.14 times as long as telson, 1.2 times as long as subterminal in male and 0.8 in female; subterminal spiniform setae 1.2 times as long as preceding posterolateral in male and 1.4–1.5 in female. Apically telson with three small, but well-visible spinules, 0.2–0.3 times as long as posterolateral terminal spiniform setae; without emargination. Labrum with rather small, but well-established, articulated anterior spine, about 0.15 times as long as rest of labrum. Maxilla 1: outer ramus with serrated setae. Maxilla 2: endopod segment 2 with two lateral setae. Pereopod 1–3 merus 4.2–4.8 times as long as wide. Uropodal exopod 4.0 times as long as wide; segment 1 is 2.5 times as long as segment 2, with three or four distolateral spiniform setae in female and four or five in male. Uropodal endopod with 19 to 27 medial spiniform setae in female and 15 to 21 in male; tip of terminal spiniform seta reaching apical margin of ramus.

Type material

Holotype

AUSTRALIA: ♂, 6.5 mm long, SW coast between 33° and 35° S, and 114° and 119° E, upper 50 m of the water column, oblique hauls (IOBC 0493-10-50-1994).

Paratype (labelled as allotype)

AUSTRALIA: ♀, 6.6 mm long, same collection data as for holotype (IOBC 0493 A-10-50-1994) (Panampunnayil 1995). Deposited in the Regional Centre of the National Institute of Oceanography, Cochin, India. Not examined here.

Body length

Body length of male 4.9–6.5 mm, of female 5.5–6.6 mm (Panampunnayil 1995).

Comparison

Siriella spinula is most similar to *S. bassi* sp. nov., but is distinguished from it by a number of characters (see differences in the comparison section for that species). Considering the body length measurements of Panampunnayil (1995), *S. spinula* is also smaller in size than *S. bassi* sp. nov., in which the body length is 7–10 mm. However, this requires verification, because the difference may be due to differences in measurement methods, as well as sampling season.

Siriella spinula is distinguishable from another South Australian species, *S. vincenti*, by having (1) the carapace lacking a dorsal cephalic tubercle and postcervical elevation (both present in females of *S. vincenti*), (2) a narrower uropodal exopod (3.6–3.8 times as long as wide in *S. vincenti*), (3) a uropodal exopod with a shorter distal segment (proximal segment 1.8–1.9 times as long as distal in *S. vincenti*), (4) a maxilla 2 endopod with only two lateral setae (three or four in *S. vincenti*), (5) a maxilla 1 outer

ramus with serrated robust setae (smooth in *S. vincenti*) and (6) sexual dimorphism in the length of the telsonal terminal posterolateral pair of spiniform setae (dimorphism absent in *S. vincenti*).

Distribution

Known only from the type locality, SW coast of Australia between 33° and 35° S, and 114° and 119° E (Panampunnayil 1995) (Fig. 1).

Habitat

Collected in <50 m layer of water column (type locality).

Remarks

The species was described rather recently and in good detail by Panampunnayil (1995), and our updated diagnosis and comparison with other species are based on that work. It has not been recorded since the original description.

Siriella tabaniocula sp. nov.
urn:lsid:zoobank.org:act:1952D554-4B1B-4557-8E60-0FC4F540D80A
Figs 22–25

Diagnosis

Carapace with anterodorsal margin almost evenly rounded, not covering subrostral process. Carapace dorsal surface with slight tubercle and clear postcervical elevation. Eye cornea white, with three golden-yellow horizontal stripes. Telson 0.9 times as long as last abdominal somite, not reaching distolateral spiniform setae of uropodal exopod, 1.5–1.7 times as long as wide anteriorly and 1.5 times as wide anteriorly as posteriorly; lateral margins with three or four anterior and 11 to 13 gradually increasing in length posterior spiniform setae. Telson with terminal posterolateral pair of spiniform setae 0.18–0.19 times as long as telson and 1.3–1.4 times as long as subterminal pair; subterminal spiniform setae 1.4 times as long as preceding posterolateral. Telson with apical margin with three minute, but clearly visible central spinules, about 0.2 times as long as posterolateral terminal spiniform setae; without emargination. Labrum with anterior spine short, barely visible, <0.1 times as long as rest of labrum. Maxilla 1 with apical robust smooth setae. Maxilla 2 endopod segment 2 with three or four distolateral setae. Pereopod 1–3 merus 3.1–3.4 times as long as wide. Uropodal exopod 3.9–4.0 times as long as wide; segment 1 is 1.8–1.9 times as long as segment 2, with three to five distolateral spiniform setae. Uropodal endopod with 10 to 13 medial spiniform setae; terminal spiniform seta not reaching apical margin of ramus.

Etymology

The name *tabaniocula* is derived from Latin *tabanus*, meaning 'horsefly', and *oculus*, meaning 'eye', and denotes the unusual striped color of the eye cornea, reminiscent of the eye color in horseflies of the family Tabanidae (Diptera).

Material examined

Holotype

AUSTRALIA: ♀, 6 mm long, Western Australia, Ningaloo Reef, 22.76912° S, 113.70458° E, off Ningaloo CReefs camp, 12 m, AUST-7299, ARMS5, 20 May 2010, A. Fusaro leg., processed by A. Anker (WAM C70257; slide C70257).

Paratype

AUSTRALIA: immature ♀, 5.5 mm long, same collection data as for holotype, parasitized by one large and several small specimens of dajid isopods (WAM C70258).

Other material

AUSTRALIA: 1 immature ♀ (thoracopods missing), 4.5 mm long, Queensland, Lodestone Reef, 10 m, *Pocillopera* head, host for dajid, 1982, P. Dohorty leg., previously identified as *Siriella hanseni* by M. Băcescu (NTM Cr000398).

Description

Female (holotype)

Body length 6 mm.

Carapace. Head about as wide as abdominal segment 1. Anterior margin of carapace almost evenly rounded, not covering subrostral process (Fig. 23B); posterior margin exposing three thoracic segments. Dorsal surface of carapace with slight tubercle and clear postcervical elevation (Fig. 23A).

Telson. Telson 0.88 times as long as last abdominal somite, 1.7 times as long as wide anteriorly and 1.5 times as wide anteriorly as posteriorly; lateral margins slightly tapering, with three anterior spiniform setae and 11 and 12 posterior spiniform setae after gap, gradually increasing in length towards apex; apically with three short dorsally visible spinules and two long plumose setae between them, longer than spiniform setae flanking them (Fig. 23C). Terminal posterolateral pair of spiniform setae of telson 1.4 times as long as subterminal and 0.18–0.19 times as long as telson; subterminal pair of spiniform setae 1.4 times as long as preceding posterolateral.

Head appendages. Eyes large, cylindrical, 1.2 times as long as wide and 0.7 times as long as head width. Antennae 0.3 times as long as body. Peduncle of antenna 1 thin, much longer than peduncle of antenna 2; segment 1 slightly longer than segments 2 and 3 together, with two distolateral bunches of one and two plumose setae; segment 2 with two distolateral and one distomedial plumose setae; segment 3 with bunch of two short lateral setae and two distomedial bunches of one and three long plumose setae (Figs 23B, 24B). Segment 2 of antenna 2 peduncle 1.3 times as long as segment 3 (Fig. 24A). Antennule inner flagellum normal, not dilated or meandering in proximal part. Antennal scale about as long as peduncle of antenna 1, 1.6 times as long as peduncle of antenna 2 and 3.1 times as long as wide; lateral spine in distal part; distal segment with five setae. Total antennal scale length 1.2 of length from scale base to lateral spine base; maximal width 1.3 of distal width (Fig. 24A). Labrum with small, barely visible, anterior spine, <0.1 times as long as rest of labrum (Fig. 24C). Mandibular palp segment 2 with few short and long setae; segment 3 is 0.5 times as long as segment 2, with three proximal medial setae, two–three lateral and one distal setae; palm with four setae (Fig. 24D). Maxilla 1: inner lobe with about 10 smooth apical robust setae (Fig. 24E). Maxilla 2 (Fig. 24F): exopod oval, with 14 plumose setae; endopod segment 1 with three medial setae; endopod segment 2 oval, slightly larger than exopod, 1.7 times as long as wide, with three lateral setae and 13 long medial spiniform setae and simple setae, longer than spiniform setae; endites with strong spiniform setae.

Maxillipeds. Exopod of thoracopods 8–9-segmented (Fig. 24I). Maxilliped 1 without endites; basis, preischium, ischium and merus with medial setae; merus also with 1 long distolateral seta, about as wide as long; carpopropodus and dactylus with medial and lateral setae (Fig. 24G). Maxilliped 2 (Fig. 24H): basis medial margin with one proximal seta and distal bunch of setae; preischium with one medial seta; ischium about as long as wide, with one lateral and numerous medial setae; merus about twice as long as wide and 1.5 times as long as ischium, with distolateral bunch of two long setae and three groups of long and short medial setae; carpopropodus about as long and as wide as merus, with thin lateral, two medial bunches and paradactylary bunch of stronger setae; dactylus 0.25 times as long as carpopropodus, with several simple and strong serrated setae; dactylary unguis long, about 2.5 times as long as dactylus.

Fig. 22. *Siriella tabaniocula* sp. nov., holotype, ♀, length 6 mm, Ningaloo Reef, Western Australia. Color photograph of living specimen. Scale bar: 1 mm.

Pereopods. Pereopodal endopods (Fig. 25A–F): preischium with one seta; ischium about half as long as merus; segment 1 of carpopropodus 0.4 times as long as segment 2, with one–two distal lateral setae and distal medial bunch of long setae; carpopropodus segment 2 four times as long as wide, with two lateral short setae, a bunch of two short distolateral setae and proximal medial bunch of long setae; dactylus twice as long as wide and 0.3 times as long as carpopropodus segment 2, surrounded by blunt setae, serrated in distal half, about twice as long as dactylus (excluding unguis); dactylus with terminal medial seta and strong unguis, 1.5 times as long as dactylus; dactylus together with dactylary unguis about half as long as carpopropodus. Pereopods 1–3 wider than pereopods 4–6; carpopropodus 0.9 times as long as merus (Fig. 25A–C). Pereopod 1 (Fig. 25A): basis with distomedial bunch of long thick setae; merus 3.4 times as long as wide, with six medial groups of setae. Pereopod 2 (Fig. 25B): basis with three thin distomedial setae; merus 3.1 times as long as wide, with rather irregular groups of medial setae. Ischium of pereopods 1–4 laterally strongly convex, with one lateral seta and many short and long medial setae. Merus of pereopods 1–2 with five thin lateral setae and irregularly set short and long medial setae. Pereopod 3 (Fig. 25C): basis with one distal medial seta; merus 3.2 times as long as wide, with two lateral setae and about four irregular groups of medial setae. Pereopods 4–6 (Fig. 25D–F): basis with one proximal and one distal medial setae; merus four times as long as wide. Pereopod 4 (Fig. 25D): ischium lateral margin with one proximal seta, medial margin with three short median setae and two distal groups of bunches with long and short setae; merus lateral margin with 3 median setae and distal bunch of two setae, medial margin with five groups of long setae. Pereopod 5 (Fig. 25E): ischium lateral margin with one proximal and one distal setae, medial margin with two median setae and distal bunch of long setae; merus with three lateral setae and three groups of three–four medial setae. Pereopod 6: ischium with one proximal lateral and one distal medial setae; merus with four lateral setae and two medial bunches of two setae (Fig. 25F).

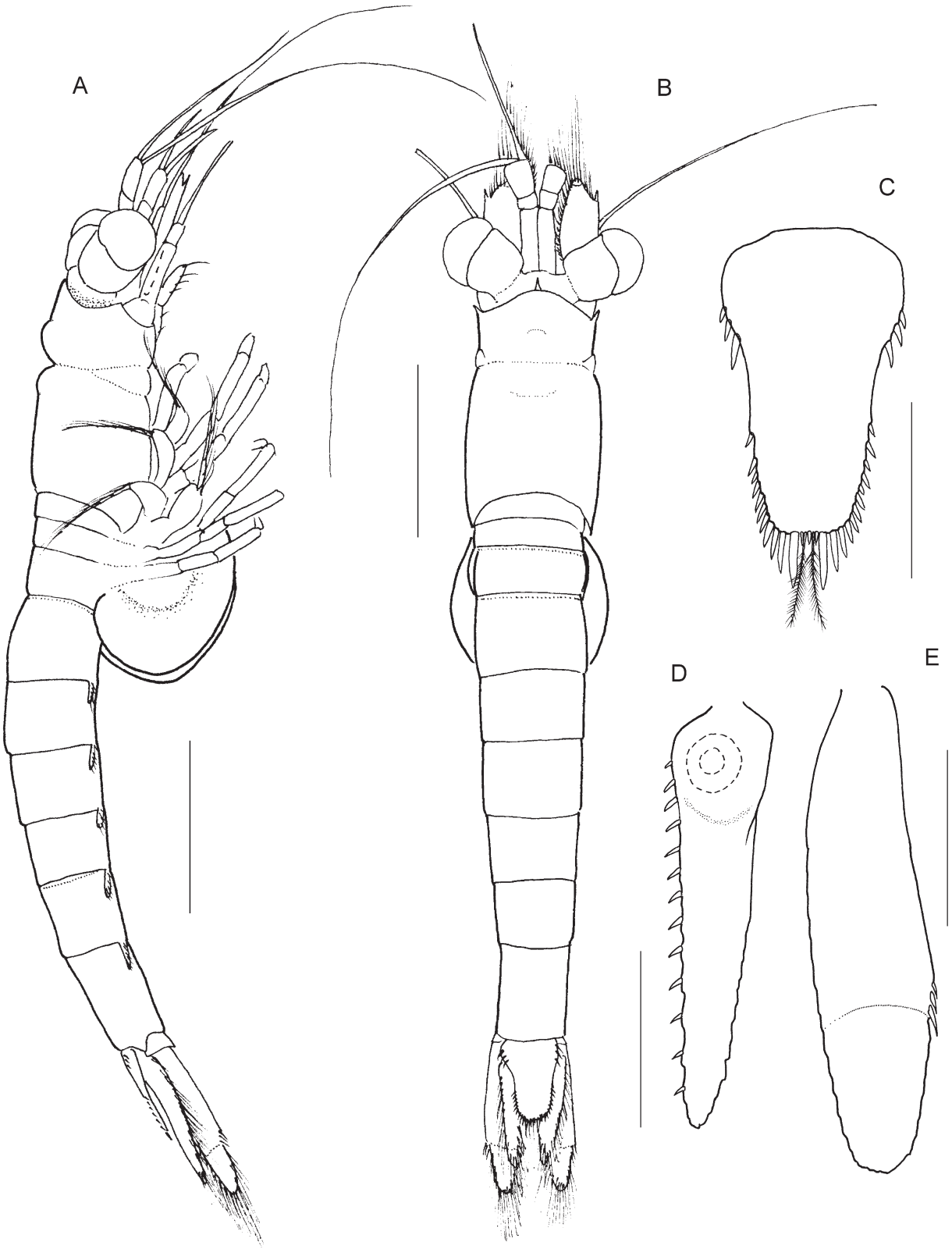

Fig. 23. *Siriella tabaniocula* sp. nov., holotype, ♀, length 6 mm, Ningaloo Reef, Western Australia. **A**. Habitus, lateral view. **B**. Habitus, dorsal view. **C**. Telson. **D**. Uropodal endopod, dorsal view. **E**. Uropodal exopod, dorsal view. Scale bars: A–B = 1 mm; C–E = 0.25 mm.

Uropods. Uropodal exopod 3.9–4.0 times as long as wide, 2-segmented; border between segments barely visible; two flexor muscles of segment 2 present; segment 1 with three to five distolateral spiniform setae, 1.8–1.9 times as long as segment 2 (Fig. 23E). Uropodal endopod shorter than exopod, with 13 broadly set medial spiniform setae, extending almost to apex, distally becoming shorter (Fig. 23D).

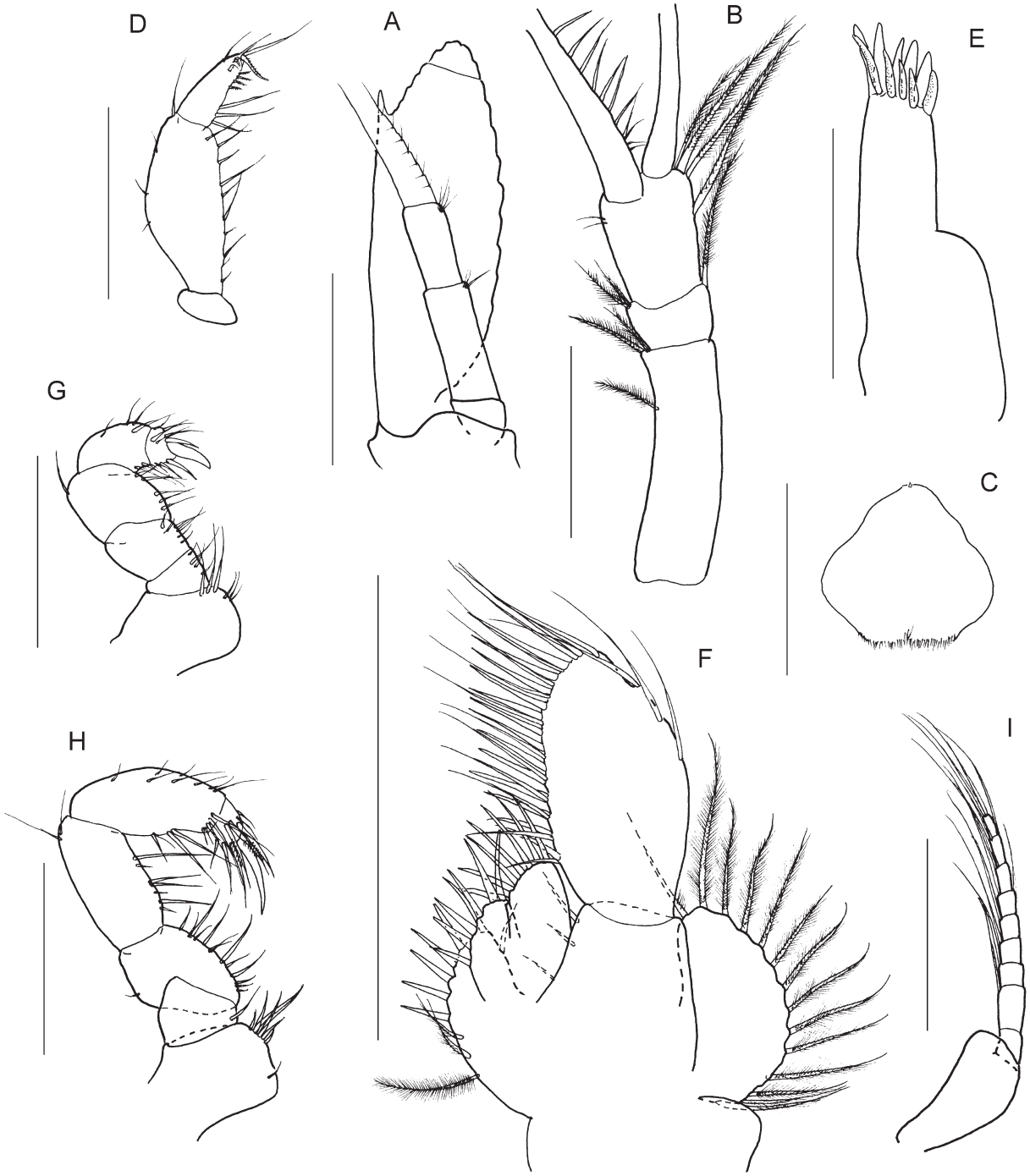

Fig. 24. *Siriella tabaniocula* sp. nov., holotype, ♀, length 6 mm, Ningaloo Reef, Western Australia. **A**. Antennal scale and peduncle of antenna 2, ventral view. **B**. Antenna 1, dorsal view. **C**. Labrum. **D**. Mandibular palp, lateral view. **E**. Maxilla 1 (endite not shown), anterior view. **F**. Maxilla 2, anterior view. **G**. Endopod of maxilliped 1, posterior view. **H**. Endopod of maxilliped 2, posterior view. **I**. Exopod of maxilliped 1. Scale bars: A–D, G–I = 0.25 mm; E–F = 0.1 mm.

Male

Unknown.

Color

Peduncles of antennae, eyestalks, ventral half of cephalothorax, basal part of pereopods, marsupium, posterior half of abdominal somites (entire somite 6), telson (except for apex) and basal part of uropods bloody-red (Fig. 22). Eye cornea white with three golden-yellow horizontal stripes. Antennal flagellae, thoracopods (except for dactyli), dorsal side of cephalothorax, anterior part of abdominal somites (except for somite 6) and uropods (except for basal part) transparent. Thorcopod dactyli and telson apex white.

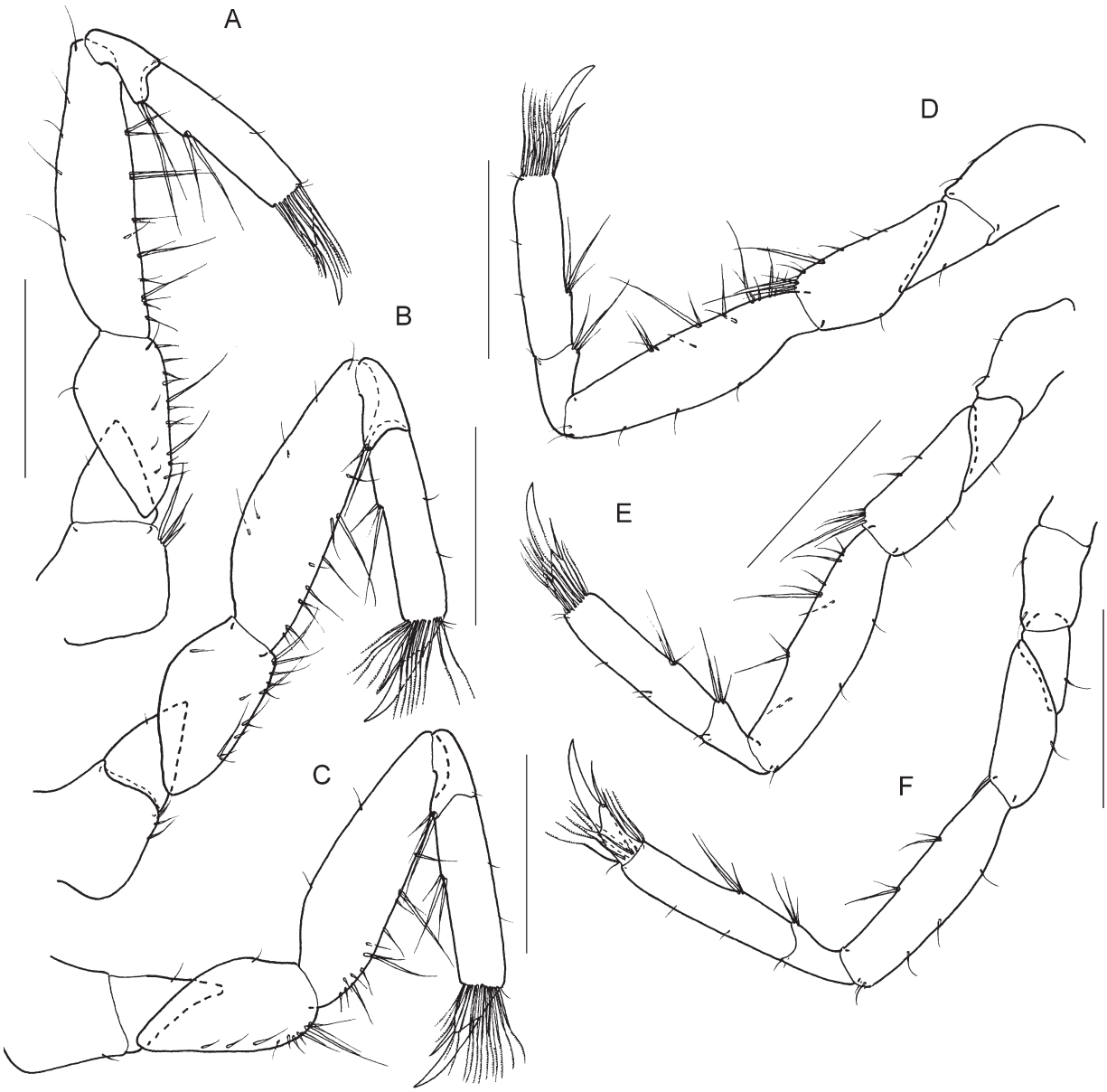

Fig. 25. *Siriella tabaniocula* sp. nov., holotype, ♀, length 6 mm, pereopod endopods, anterior views, Ningaloo Reef, Western Australia. **A**. Pereopod 1. **B**. Pereopod 2. **C**. Pereopod 3. **D**. Pereopod 4. **E**. Pereopod 5. **F**. Pereopod 6. Scale bars: 0.25 mm.

Comparison

Living specimens of *S. tabaniocula* sp. nov. have characteristic eye cornea coloration (hence the name of the species), that is unknown in other species of the *brevicaudata* group. *Siriella tabaniocula* sp. nov. most closely resembles *S. muranoi* sp. nov., from which it differs by (1) the telsonal terminal spiniform setal length (terminal pair about as long as subterminal and 0.14 times as long as telson in *S. muranoi* sp. nov.), (2) labrum with a very small, barely visible anterior spine (small, well-developed, 0.2 times as long as the rest of the labrum in *S. muranoi* sp. nov.) and (3) slightly broader pereopods (merus of pereopods 1–3 is 3.8–4.1 times as long as wide in *S. muranoi* sp. nov.).

The new species is also similar to *S. hanseni*, differing by (1) the presence of a slight cephalic tubercle and postcervical elevation, (2) a shorter telson (about as long as last abdominal somite in *S. hanseni*), (3) the pattern of posterior setation on the telson (graded with terminal posterolateral pair of spiniform setae clearly longer than subterminal pair against graded with three to six apical pairs about equally or nearly equally long in *S. hanseni*) and (4) the telson with longer terminal posterolateral pair of spiniform setae (0.08–0.15 times as long as telson in *S. hanseni*).

In addition, *S. tabaniocula* sp. nov. is rather closely related to the Japanese species *S. lingvura*, but is distinguished from it by (1) the presence of a slight cephalic tubercle and postcervical elevation, (2) a telson with a longer terminal posterolateral pair of spiniform setae (0.13–0.14 times as long as the telson in *S. lingvura*), (3) fewer anterolateral spiniform setae on the telson (five or six in *S. lingvura*), (4) a labrum with a small, barely visible spine (well-developed, 0.15 times as long as the rest of the labrum in *S. lingvura*) and (5) a narrower uropodal exopod (3.6–3.7 times as long as wide in *S. lingvura*).

Distribution

Indian Ocean, Western Australia: Ningaloo Lagoon (type locality); Pacific Ocean, Coral Sea, Queensland: Lodestone Reef (Fig. 1).

Habitat

Depth to 10–12 m, in seagrasses. From our material twice recorded as the host of as yet unidentified dajid isopods.

Remarks

Specimens related to *S. hanseni* found in association with artificial reefs within Ningaloo Lagoon on the coast of Western Australia were compared with the type material and found to represent another new species within the *brevicaudata* group. The new species, *S. tabaniocula* sp. nov., is described herein. An additional specimen of this new species, which was collected from Lodestone Reef in Queensland, Australia, was found in the NTM.

Siriella talbotae sp. nov.
urn:lsid:zoobank.org:act:681E1A77-B712-493A-B05B-606A2E199224
Figs 26–28

Siriella vincenti – Fenton 1986: 48, partim (Lizard Island). — Talbot 2009: 33, figs 21–22.

Diagnosis

Carapace with anterodorsal margin rather shallow, weakly angular or nearly rounded, not covering subrostral process. Telson about as long as last abdominal somite, 2.0–2.1 times as long as wide anteriorly and 1.3–1.4 times as wide anteriorly as posteriorly; lateral margins with four anterior and 14 to 17 gradually increasing in length terminally posterior spiniform setae; terminal posterolateral pair of spiniform setae 0.09 times as long as telson and 1.3–1.4 times as long as subterminal pair of

spiniform setae; subterminal spiniform setae 1.1–1.2 times as long as preceding posterolateral spiniform setae; without emargination. Telson with apically minute spinules rather long, 0.4 times as long as terminal posterolateral pair of spiniform setae. Labral spine rather long, 0.25–0.3 times as long as rest of labrum. Maxilla 1 outer ramus with robust, smooth setae. Maxilla 2 endopod with two distolateral setae. Pereopod 1–3 merus 3.4–3.5 times as long as wide. Uropodal exopod 3.5–3.7 times as long as wide, with four to six lateral spiniform setae; segment 1 is 1.7–1.8 times as long as segment 2. Uropodal endopod with 17 or 18 small medial spiniform setae, distributed rather evenly; apical spiniform seta not reaching apex of ramus.

Etymology

Named after the species collector Mabel Suzette Talbot, for her distinguished contribution to our knowledge of the Australian mysid fauna.

Material examined

Holotype

AUSTRALIA: ♂, 5 mm long, Queensland, Lizard Island, lagoon passage between Palfrey Island and South Island, 14°40′ S, 145°28′ E, on sand, STL 76 L14, light trap, 18 May 1976, M.S. Talbot leg., previously identified as *S. vincenti* by M.S. Talbot in 2006 (Talbot 2009) (AM P.98726).

Paratypes

AUSTRALIA: 2 juveniles, same collection data as for holotype (AM P.74065); 1 ♂ (dissected, cephalothorax and abdominal segment 6 missing; figs 21–22 in Talbot 2009 are probably based on it), 1 juvenile, same collection data as for holotype, STL 76 L13 (AM P.74064).

Description

Male (holotype)

Carapace. Anterodorsal margin of carapace short, weakly angular, with slightly convex lateral margins (Fig. 26A). Subrostral process not covered by carapace. Dorsal surface of carapace deformed in head part, with slight postcervical elevation.

Telson. About as long as last abdominal somite, 2.1 times as long as wide anteriorly and 1.3 times as wide anteriorly as posteriorly; lateral margins with four anterior and 14 and 17 gradually increasing in length terminally posterior spiniform setae; terminal spiniform setae 0.09 times as long as telson and 1.3–1.4 times as long as subterminal spiniform setae; subterminal spiniform setae 1.1–1.2 times as long as preceding posterolateral spiniform setae; without emargination; apically with three minute spinules, 0.4 times as long as terminal spiniform setae (Fig. 26B–C).

Head appendages. Eyes 0.6 times as long as wide and 0.7 times as long as head width. Antennular peduncle same as in other species of the group (Fig. 26A, D). Male process curved medially, conical, with numerous fine, long setae. Antennular inner flagellum normal, not dilated or meandering in proximal part. Antennal scale reaching half of antennular peduncle segment 3, 3.1 times as long as wide. Total antennal scale length 1.3 of length from scale base to lateral spine base; maximal width 1.2 of distal width (Fig. 26E). Labrum with strong anterior spine, about 0.3 times as long as rest of labrum (Fig. 26F). Mandibles typical for the genus (Fig. 27B–C); palp segment 2 is 1.9 times as long as wide and 1.5 times as long as segment 3, with short and long outer setae; palp segment 3 with five proximomedial and seven distomedial setae (Fig. 27A). Maxilla 1 (Fig. 27D): apical robust setae of outer ramus mostly smooth, with occasional, fine serration. Maxilla 2: exopod with 10 setae; endopod segment 2 with two lateral setae.

Maxillipeds. Maxillipeds 1 and 2 as typical for the genus, both with strong dactylar unguis. Maxilliped 2 merus 1.2 times as long as carpopropodus (Fig. 27E).

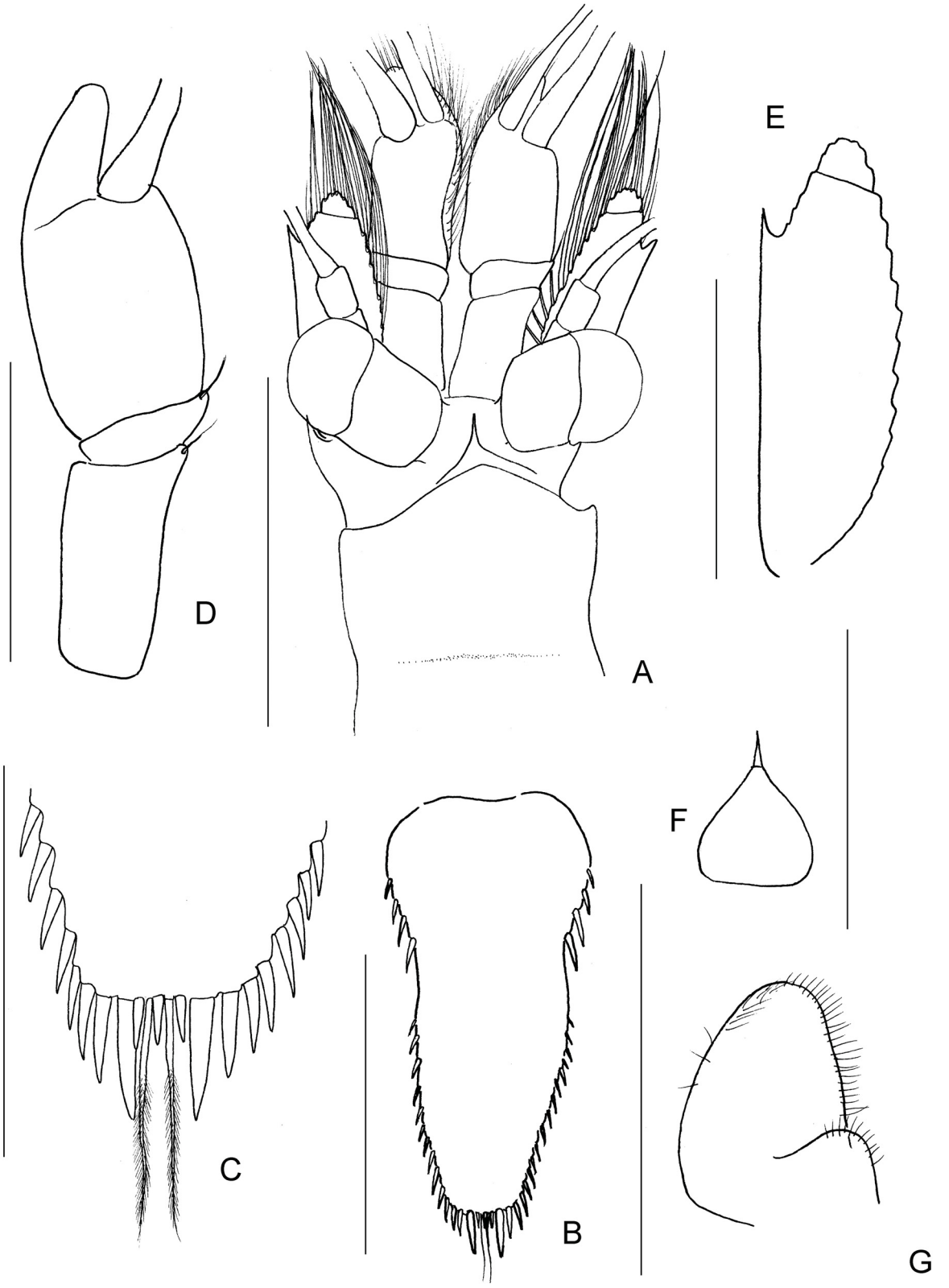

Fig. 26. *Siriella talbotae* sp. nov., holotype, ♂, length 5 mm, Lizard Island, Queensland, Australia. **A**. Anterior part of body. **B**. Telson. **C**. Posterior part of telson, dorsal view. **D**. Peduncle of antenna 1, dorsal view. **E**. Antennal scale. **F**. Labrum. **G**. Labium (left part not shown), posterior view. Scale bars: A = 1 mm; B, D–F = 0.5 mm; C, G = 0.25 mm.

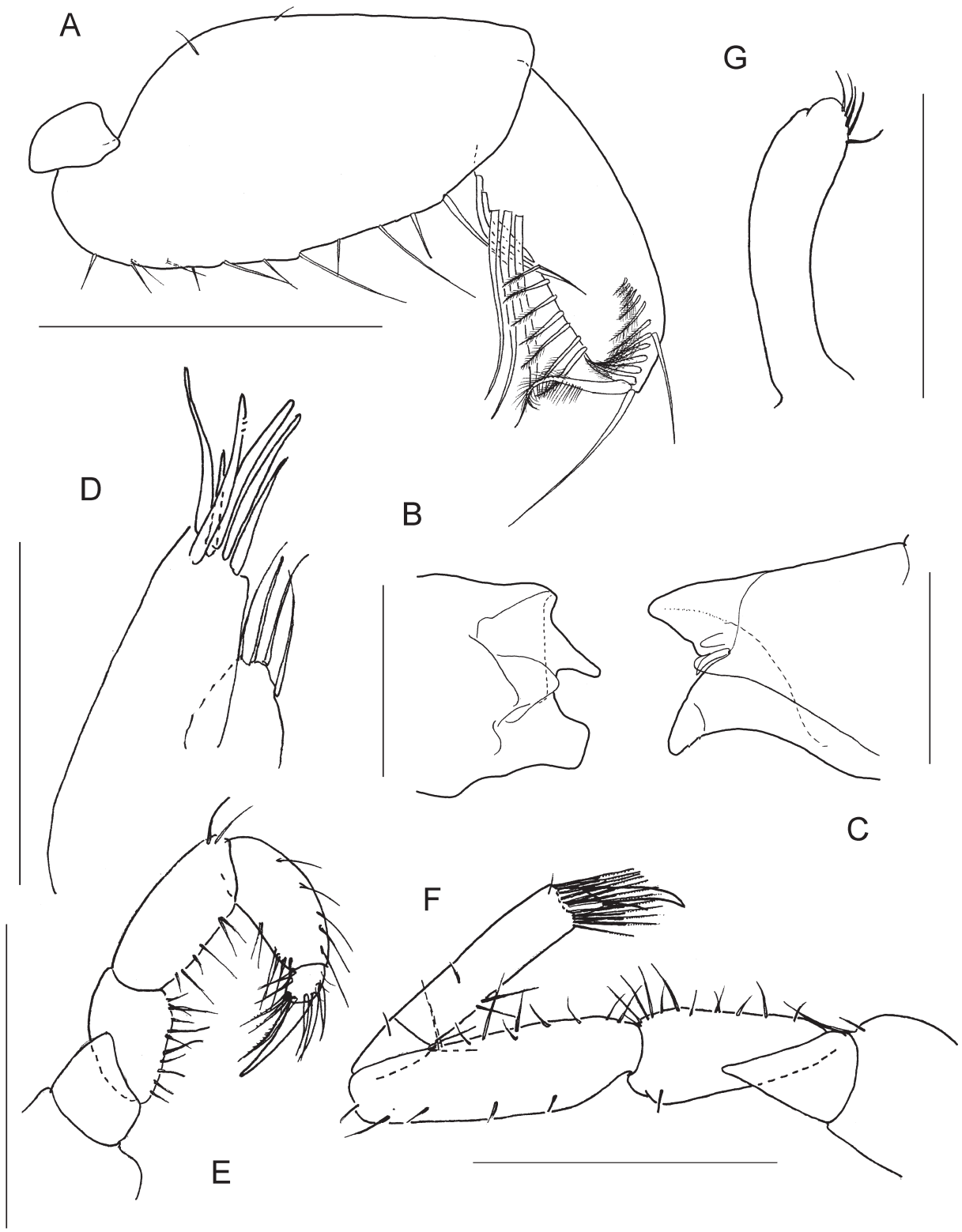

Fig. 27. *Siriella talbotae* sp. nov., holotype, ♂, length 5 mm, Lizard Island, Queensland, Australia. **A**. Mandibular palp, lateral view. **B**. Right mandible. **C**. Left mandible. **D**. Maxilla 1, anterior view. **E**. Endopod of maxilliped 2, posterior view. **F**. Endopod of pereopod 1, posterior view. **G**. Penis. Scale bars: A–D = 0.25 mm; E–G = 0.5 mm.

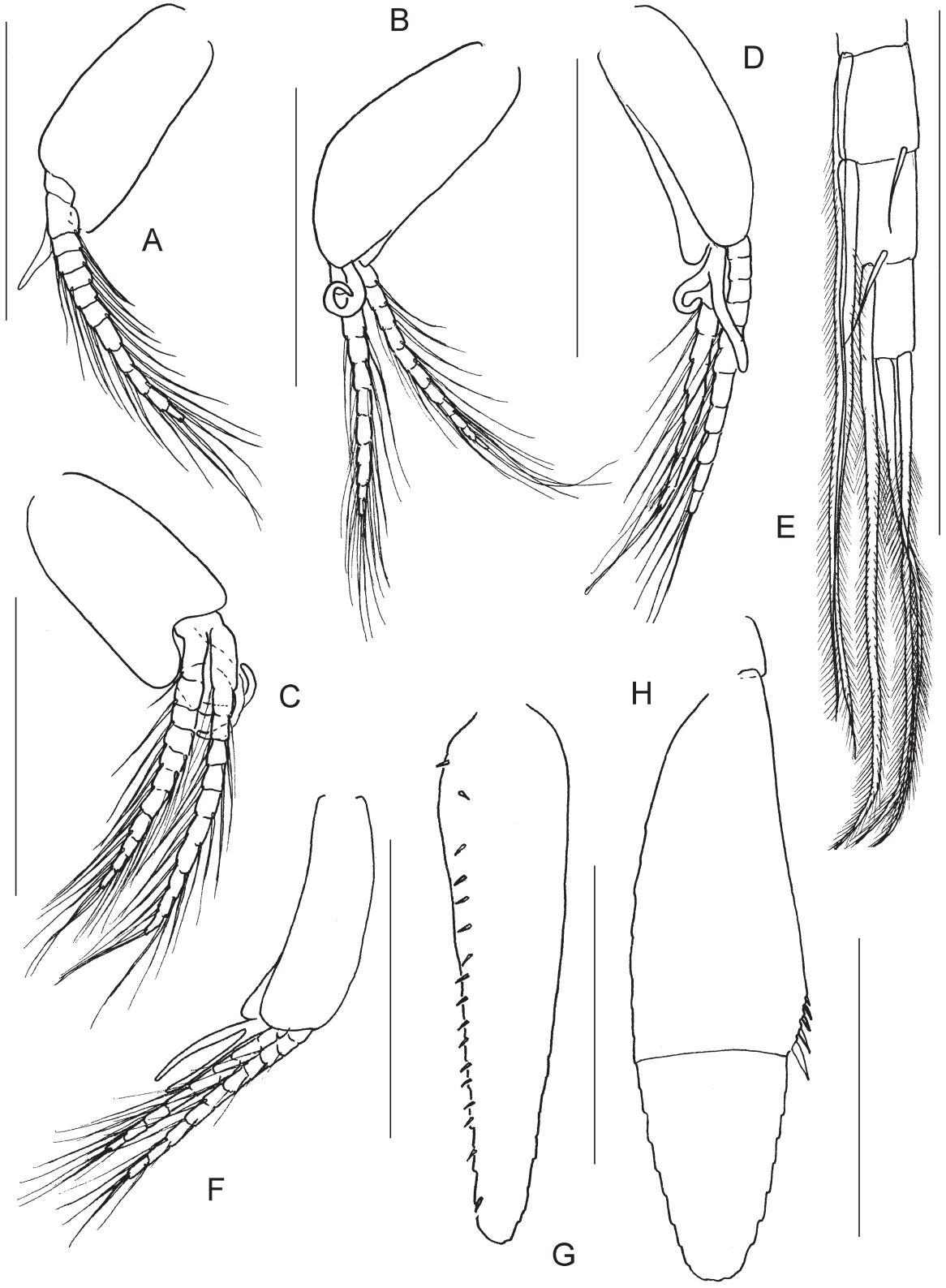

Fig. 28. *Siriella talbotae* sp. nov., holotype, ♂, length 5 mm, Lizard Island, Queensland, Australia. **A**. Pleopod 1, lateral view. **B**. Pleopod 2, lateral view. **C**. Pleopod 3, anterior view. **D**. Pleopod 4, lateral view. **E**. Distal part of pleopod 4. **F**. Pleopod 5, lateral view. **G**. Endopod of uropod, ventral view. **H**. Exopod of uropod, ventral view. Scale bars: A–D, F–H = 0.5 mm; E = 0.25 mm.

Pereopods. Pereopod 1 endopod (Fig. 27F): preischium without setae; ischium 2.1 times as long as wide; merus 3.4 times as long as wide, 1.5 times as long as ischium; carpopropodus 5.4 times as long as wide and 0.9 times as long as merus, its segment 1 is 0.3 times as long as segment 2; dactylus with unguis 0.4 times as long as carpopropodus; paradactylary setae not reaching unguis apex. Penis tubular, curved anteriorly, with four subapical setae (Fig. 27G).

Pleopods. Pleopod 1 uniramous, with linear pseudobranchia (Fig. 28A). Pleopods 2–4 biramous, with spiral pseudobranchia; rami 11-segmented (Fig. 28B–E). Pleopod 5 biramous, with linear pseudobranchia; rami 9–10-segmented (Fig. 28F).

Uropods. Uropodal exopod 3.5 times as long as wide; segment 1 is 1.7 times as long as segment 2, with five distolateral spiniform setae (Fig. 28H). Uropodal endopod with 17 small medial spiniform setae, not reaching apex (Fig. 28G).

Female

Unknown.

Color

According to Talbot (2009), eyes brown-gold.

Comparison

Siriella talbotae sp. nov. was initially confused with *S. vincenti*, from which it differs by (1) the carapace having a shorter, nearly rounded anterodorsal margin, not covering most of the subrostral process (angular, covering almost entire subrostral process in *S. vincenti*), (2) the cephalic tubercle being absent, (3) the eye color, which is brown-gold compared to black in *S. vincenti*, (4) the relative length of the telsonic terminal spiniform setae (shorter than or equal to subterminal and 0.11–0.13 times as long as telson in *S. vincenti*), (5) the telson with longer apical spinules (0.2–0.3 of terminal spiniform setae in *S. vincenti*); (6) labrum with longer anterior spine (about 0.2 times as long as rest of labrum in *S. vincenti*), (7) the maxilla 2 endopod with fewer lateral setae (three or four setae in *S. vincenti*) and (8) by the wider pereopods (merus 4.6–5.0 times as long as wide in *S. vincenti*).

It is not possible to establish a morphological proximity of *S. talbotae* sp. nov. to any known species in the *brevicaudata* group, as this species takes an intermediate position between all of them. On the one hand, it is similar to Southern Australian species like *S. bassi* sp. nov. and *S. vincenti* by having a long telson and a long spine on the labrum, but at the same time, it is similar to all the tropical species by having a rounded anterodorsal margin of the carapace, wider pereopods and a small number of spiniform setae on the uropodal endopods.

Siriella talbotae sp. nov. can occasionally be found together with *S. lacertilis* and is distinguished from it by (1) the absence of a cephalic tubercle (present in females of *S. lacertilis*), (2) a longer telson (shorter than last abdominal somite and 1.7 times as long as wide in anterior part in *S. lacertilis*), (3) a telson with a larger number of posterior spiniform setae (only 9 known in *S. lacertilis*), (4) a telson with a shorter terminal spiniform seta (0.25 times as long as telson in *S. lacertilis*), (5) a telson with shorter subterminal spiniform setae (1.8–2.0 times as long as last posterolateral in *S. lacertilis*) and (6) labrum with a long anterior spine (rather short, 0.1–0.15 times as long as rest of labrum in *S. lacertilis*).

Distribution

The species is so far known only from the type locality Lizard Island of the Great Barrier Reef in the Coral Sea (Fig. 1).

Habitat

Collected with *Anisomysis pelewensis* Ii, 1964, at night above a sandy bottom (Talbot 2009).

Remarks

Talbot (2009) provided a detailed description and illustrations of a male specimen of the species from the type material, and we chose not to illustrate maxilla 2, maxilliped 1 and pereopod 6 here (Talbot 2009: figs 21–22). Though identified as *S. vincenti* from South Australia, she mentioned a number of differences from the original description (W.M. Tattersall 1927b), among them the eye color, carapace shape and other minor meristic variations. As in the case with other species of *Siriella*, the articulation in the distal part of the antennal scale and the proximal part of the pereopodal carpopropodi are not always clearly detected, and therefore cannot serve as distinguishing features, also mentioned by Talbot. After redescribing *S. vincenti* (see below), we noticed a number of additional characters that clearly distinguish it from the Queensland specimens, and describe the latter as *S. talbotae* sp. nov.

Siriella vincenti W.M. Tattersall, 1927
Figs 29–31

Siriella vincenti W.M. Tattersall, 1927b: 239, fig. 97.

Siriella vincenti – Hale 1929: 361, fig. 358 (adopted from Tattersall 1927b). — Illig 1930: 561 (key). — Dakin & Colefax 1940: 131, fig. 221 (questionable record). — Gordan 1957: 381 (catalogue). — Mauchline & Murano 1977: 77 (checklist). — Panampunnayil 1981: 90; 1995: 1949 (table). — Udrescu 1981: 31. — Băcescu & Udrescu 1984: 93. — Fenton 1986: 48, partim, fig. 2.12c–e (adopted from W.M. Tattersall 1927b: fig. 97a, e–f). — Müller 1993: 45 (catalogue). — Currie & Parry 1996: 138. — Parry *et al.* 1997: appendix 2b. — Lowry & Stoddart 2003: 469 (catalogue). — Deprez 2006: 354 (list). — Hanamura 2007: 37. — Yerman & Lowry 2007 (interactive key). — Murano & Fukuoka 2008: 35. — Anderson 2010: 23 (checklist).

Non *Siriella vincenti* – Talbot 2009: 33, figs 21–22 (see *S. talbotae* sp. nov.).

Diagnosis

Carapace with anterodorsal margin angular, apically broadly rounded; lateral sides slightly concave. At least half of subrostral process covered by carapace. Carapace of female with dorsal tubercle and postcervical elevation. Telson 1.0–1.1 times as long as last abdominal somite, 2.0–2.1 times as long as wide anteriorly and 1.3 times as wide anteriorly as posteriorly. Lateral margins with three or four strong anterior spiniform setae and 10 to 15 posterior spiniform setae; terminal posterolateral pair of spiniform setae 0.11–0.13 times as long as telson and 0.9–1.0 times as long as subterminal pair of spiniform setae; subterminal 1.1–1.2 times as long as preceding pair of posterolateral spiniform setae. Apical margin without emargination; three apical spinules rather well-established, 0.2–0.3 times as long as subterminal pair of spiniform setae. Labrum with relatively long anterior spine, about 0.2 times as long as rest of labrum. Maxilla 1, outer ramus with apical smooth spiniform setae. Maxilla 2 endopod with three or four lateral setae. Pereopod 1 merus rather thin, 4.6–5.0 times as long as wide. Uropodal exopod 3.6–3.9 times as long as wide; segment 1 with three to six spiniform setae; segment 1 is 1.7–1.9 times as long as segment 2. Uropodal endopod with 15 to 22 medial spiniform setae in male and 19 to 25 in female; tip of terminal reaching apex of ramus.

Material examined

Syntypes (in total: 2 or 3 ♂♂, 5 ♀♀ (one subadult))
AUSTRALIA: 1 ♂ (without head and pereopodal endopods), 1 ♂ (head without one eye), 1 ♂, ca 7.5 mm long (without carapace and pereopodal endopods), 1 subadult ♀ (without head and pereopods), last abdominal segment with telson and uropods, likely belonging to an ovigerous ♀, 7.5 mm long, 1 ♀ (ovigerous), 7 mm long (with damaged carapace, but one pereopodal endopod left), 1 ♀, 7 mm long (with damaged carapace and without pereopods), 1 ♀, 7.5 mm long (with damaged carapace, but one

endopod of pereopod 1 left), South Australia, "6 mi [miles] off Semaphore, G. [Gulf] of St. Vincent, 6–7 fm [=10–13 m]", H.M. Hale leg. (SAM, C1615). Originally labeled as "types", though Tattersall (1927b) himself called them syntypes. Tattersall also mentioned a total of 3 ♂♂ and 8 ♀♀. Thus, the description was based on an additional two–three specimens with unknown fate.

Other material

AUSTRALIA: **Victoria**: 1 ♂ (pereopod endopods missing), 8.5 mm long, Western Port, 38°29′20″ S, 145°21′37″ E, 6 m, sand-silt-clay, WBES, Benthic Survey, st. 1738, Smith McIntyre Grab, 26 Nov. 1973, Marine Studies Group, Ministry for Conservation and Noel Coleman leg., originally identified by Margaret M. Drummond (MNV J4277); 1 subadult ♀, 5.5 mm long, 3 juveniles, 3.5–4.5 mm long, all in poor condition, Port Phillip Bay, eastern sandy region, 38°01.60′ S, 145°04.88′ E, 7.5 m, PPBES, st. 203.1, Smith MacIntyre Grab, 3 Apr. 1995, R.S. Wilson, G. Walker-Smith and S. Heislers leg., previously indentified by S. Heislers in 1996 (MNV J43916); 1 subadult ♂, 5.5 mm long, Western Port, 38°24′22″ S, 145°14′40″ E, 20 m, sand, WBES, st. 1729, Smith-McIntyre grab, 21 Nov. 1973, Marine Studies Group, Ministry for Conservation and Noel Coleman leg., previously identified by Margaret M. Drummond (MNV J4279); 1 subadult ♀, 6 mm long, Port Phillip Bay, Geelong arm, 38°09′18″ S, 144°29′18″ E, 9 m, sand, PPBES, R/V Melita, st. 952, Smith-McIntyre grab, 11 Jul. 1971, Marine Pollution Studies Group, Ministry for Conservation, Gary C. Poore, Sebastian F. Rainer *et al.* leg., Gary C. Poore det. in 1975 (MNV J5470); 1 ♀, 7 mm long, Western Port, 38°15′19″ S, 145°22′23″ E, 0 m, intertidal, WBES, Benthic Survey, st. 1706, Smith-McIntyre grab, 8 Jan. 1974, Marine Studies Group, Ministry for Conservation and Noel Coleman leg., previously identified by Margaret M. Drummond (MNV J4281); 2 ♀♀ (one without head), 7 mm long, Port Phillip Bay, off Werribee, 38°02′18″ S, 144°44′42″ E, 13 m, sand, PPBES, R/V Melita, st. 922, Smith-McIntyre grab, 10 Jun. 1971, Marine Pollution Studies Group, Ministry for Conservation, Gary C. Poore, Sebastian F. Rainer *et al.* leg., previously identified by Gary C. Poore (MNV J5475); 1 ♂, 6 mm long, 1 juvenile, 3.5 mm long, Western Port, 38°29′18″ S, 145°22′50″ E, 6 m, WBES, st. 1741, Smith-McIntyre grab, 26 Nov. 1973, Noel Coleman leg., previously identified by Margaret M. Drummond (MNV J4275). – **New South Wales**: 1 ♀, 7.5 mm long, N of Burrewarra Point, East Wall, 35°50′01″ S, 150°14′10″ E, 25 m, from macroalga Peyssonelia novahollandiae, bottom temperature 16°C, Invertebrate Biodiversity on Algal Substrates Project, Hermon Slade Batemans Bay Expedition, Investigator, R/V Connemara, st. NSW 1985, by hand during SCUBA, 25 Oct. 2002, G. Wilson, A. Millar and N. Yee leg. (AM P.98725); 2 ♂♂, 9 ♀♀, 7 mm long, 7 subadults, Twofold Bay, Red Point, 37°06′07″ S, 149°57'04″ E, 12 m, algal turf on boulder, st. NSW 1118, airlift, 20 May 1995, K.B. Attwood leg. (AM P.98736); 4 ♂♂, 6–6.5 mm, 6 ♀♀, 6−7.5 mm, 1 juvenile, E of gate between Tollgate Islands, Batemans Bay, 35°45.204′ S, 150°15.745′ E, 18.1 m, 22.2°C, rocky reef formed into ridges by angled bedding planes with gravel filled gutters at 18 m, fewer gutters at shallower depths, gravel, R/V Baragula and R/V Sula, st. NSW 2591, by hand during SCUBA, 26 Mar. 2004, P. Berents, K. Attwood, R. Johnson, S. Keable, S. Kiely, K. Monro, A. Murray, R. Springthorpe and J. Watson leg. (AM P.98744); 1 ♂ (damaged), 5 ♀♀ (damaged), 2 juveniles (damaged), W of Tollgate Island, Batemans Bay, 35°44.827′ S, 150°15.42′ E, 7.8 m, 22.1°C, patches of reef, sand, stones and Ecklonia adiate, brown algae, R/V Baragula and R/V Sula, st. NSW 2648, airlift during SCUBA, 29 Mar. 2004, P. Berents, K. Attwood, R. Johnson, S. Keable, S. Kiely, K. Monro, A. Murray, R. Springthorpe and J. Watson leg. (AM P.98732); 3 ♂♂ (damaged), 7 ♀♀ (5 damaged), 6 mm long, Forster, E of Red Head, 32°3.28′ S, 152°33.23′ E, 12.3 m, low profile rocky reef with sand gutter, encrusted rock surface with sediment and worm tubes, R/V Baragula, st. NSW 2265, airlift, 22 Mar. 2003, P.B. Berents, R.T. Johnson, S.J. Keable, A. Murray and R.T. Springthorpe leg. (AM P.98727).

Description

Body length 5.5–8.5 mm.

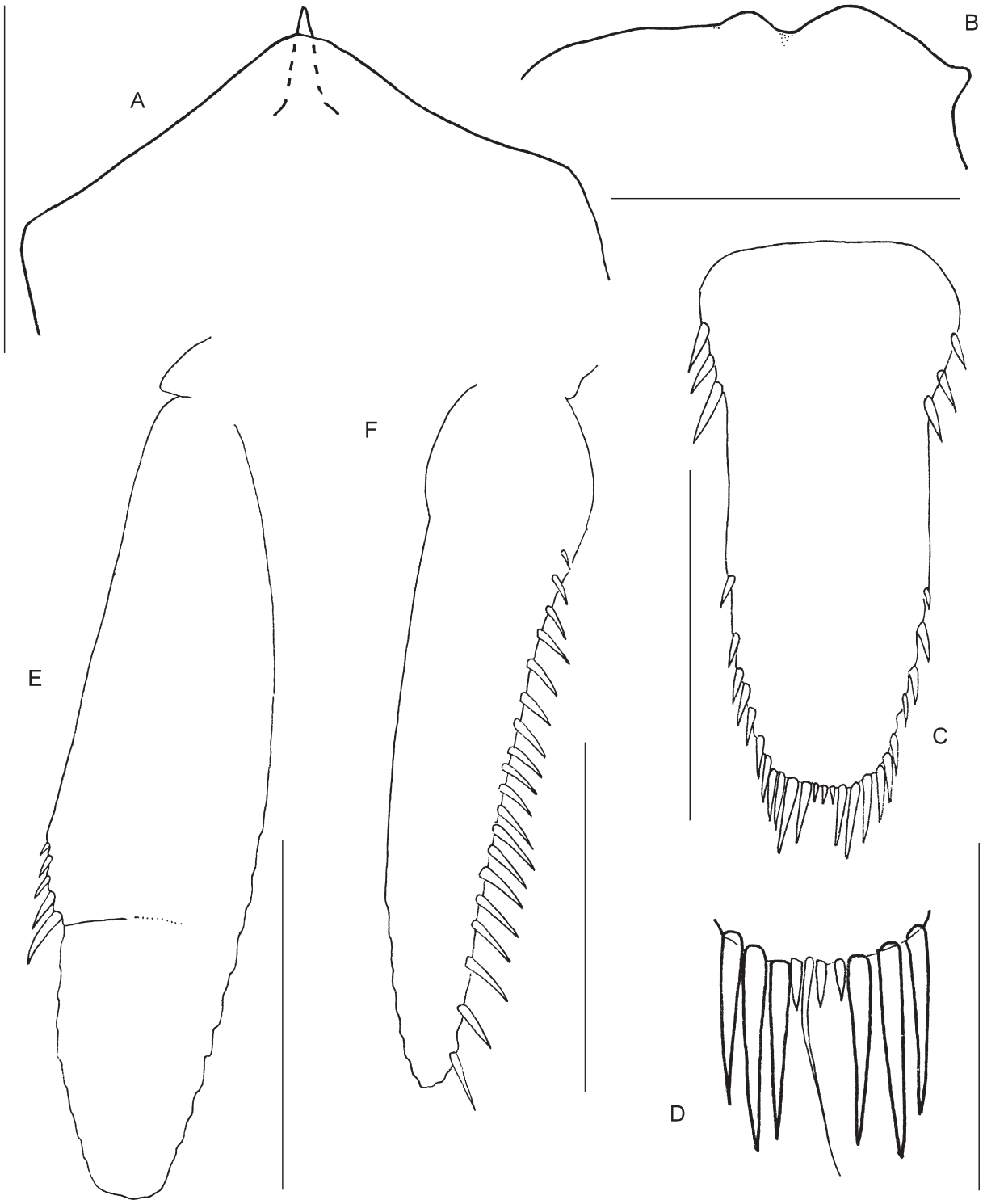

Fig. 29. *Siriella vincenti* W.M. Tattersall, 1927, syntype, ♀, length 7.5 mm, Gulf of St. Vincent, South Australia. **A**. Anterodorsal margin of carapace and subrostral process. **B**. Dorsal part of carapace, lateral view. **C**. Telson. **D**. Apical part of telson, dorsal view. **E**. Uropodal exopod, ventral view. **F**. Uropodal endopod, ventral view. Scale bars: A–C, E–F = 0.5 mm; D = 0.25 mm.

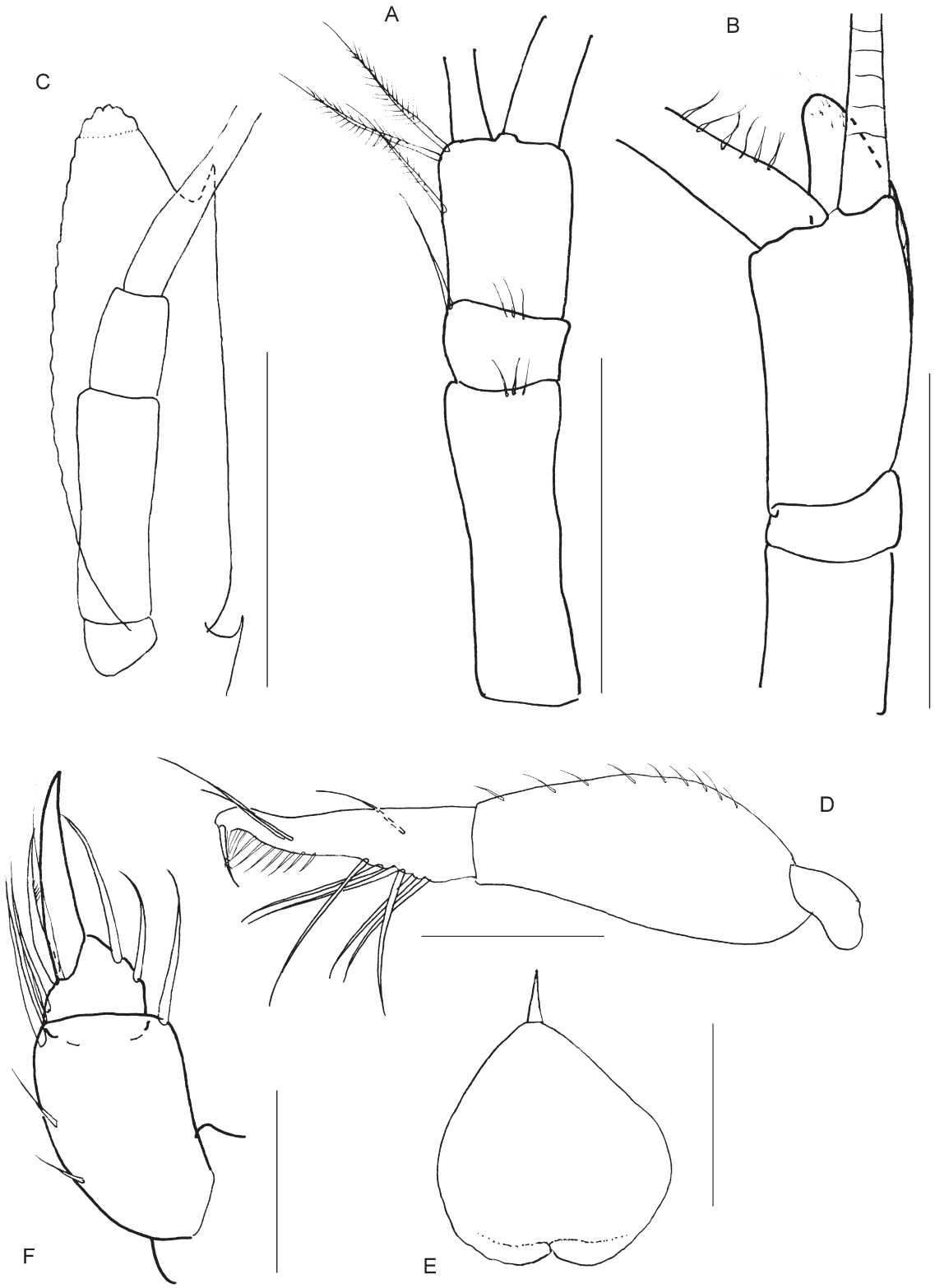

Fig. 30. *Siriella vincenti* W.M. Tattersall, 1927, syntypes, Gulf of St. Vincent, South Australia, Australia. **A**. Antenna 1 peduncle, dorsal view. **B**. Antenna 1 peduncle, dorsal view. **C**. Antenna 2 peduncle and antennal scale, ventral view. **D**. Mandibular palp, medial view. **E**. Labrum. **F**. Distal part of maxilliped 1 endopod, posterior view. A, C–F = ♀; B = ♂, length 7.5 mm. Scale bars: A–C = 0.5 mm; D–F = 0.25 mm.

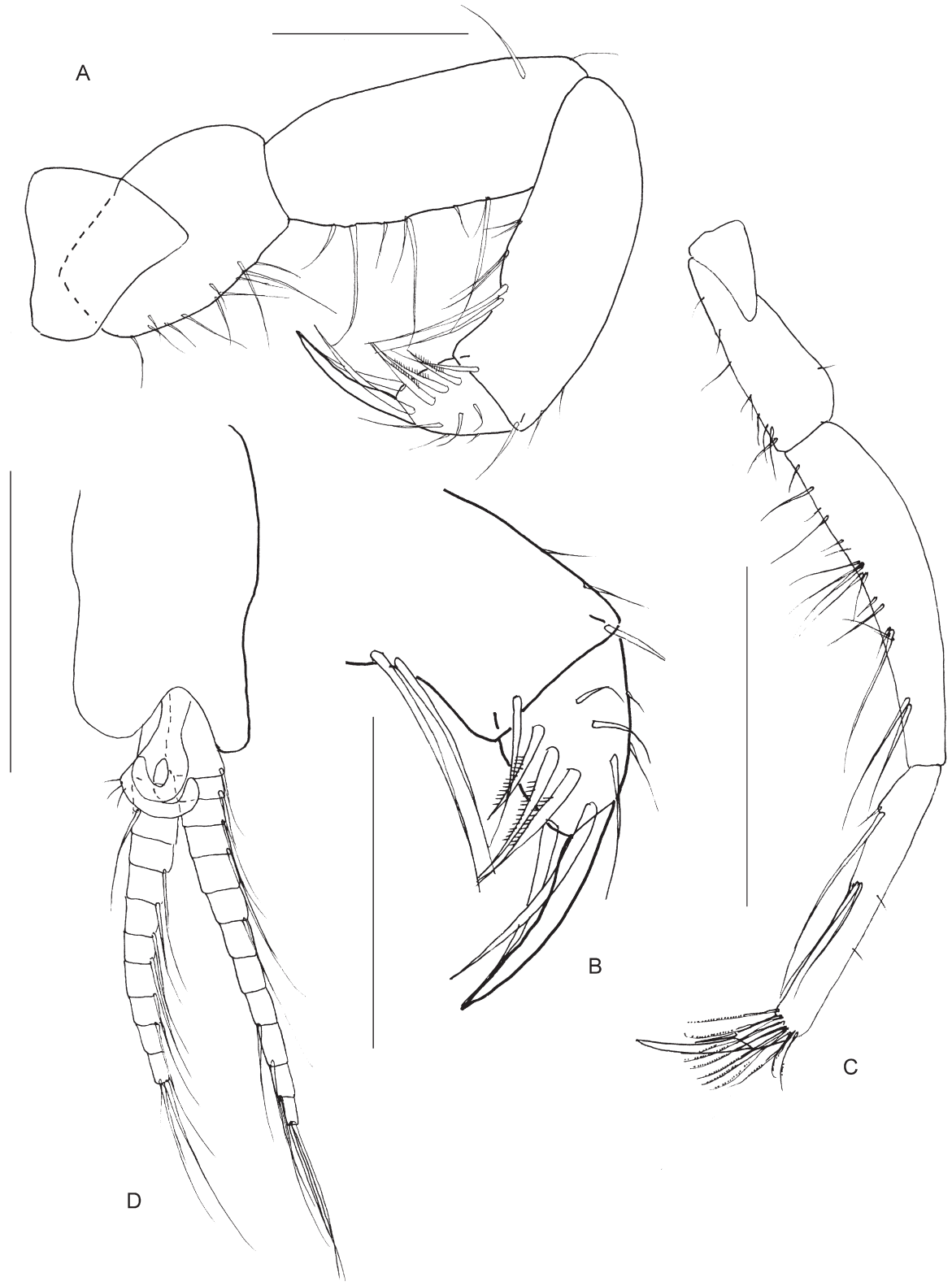

Fig. 31. *Siriella vincenti* W.M. Tattersall, 1927, syntypes, Gulf of St. Vincent, South Australia, Australia. **A**. Maxilliped 2 endopod, posterior view. **B**. Distal part of maxilliped 2 endopod, posterior view. **C**. Pereopod 1 endopod, posterior view. **D**. Pleopod 4, posterior view. A–C = ♀, length 7.5 mm; D = ♂, length 7.5 mm. Scale bars: A, C–D = 0.5 mm; B = 0.25 mm.

Female (syntypes)

Carapace. With anterodorsal margin angular, apically rounded, with slightly concave lateral margins; covering most of subrostral process, except for its very tip (Fig. 29A). Carapace with dorsal cephalic tubercle and postcervical elevation (Fig. 29B). Posterior margin of carapace not covering last two thoracic somites.

Telson. About as long as last abdominal somite and 2.0–2.1 times as long as wide anteriorly; lateral margins with three strong anterior spiniform setae and 11 or 12 (15 in original description) posterior spiniform setae, distally becoming gradually longer; terminal posterolateral pair of spiniform setae 0.11–0.12 times as long as telson and 0.9 times as long as subterminal pair (as long in original illustration), which are 0.13–0.14 times as long as telson (Fig. 29C–D). Telson apically without emargination; three apical spinules rather well-established, with two long plumose setae between them.

Head appendages. Antennular peduncle segment 3 with one medial and three distomedial plumose setae (Fig. 30A). Antennal scale reaching distal margin of segment 3 of antenna 1 peduncle, with clear distal joint (Fig. 30C). Mandibular palp (Fig. 30D): segment 2 with nine dorsomedial setae (ventromedial missing); segment 3 with six long lateral setae, 0.8 times as long as segment 2. Labrum with relatively large anterior spine, 0.22 times as long as rest of labrum (Fig. 30E). Maxilla 1: apical spiniform setae of outer ramus smooth. Maxilla 2: endopod with three–four lateral setae.

Maxillipeds. Maxilliped 1 as typical for the genus (Fig. 30F). Maxilliped 2 (Fig. 31A–B): ischium 1.5 times as long as wide; merus 2.4 times as long as wide; carpopropodus 2.8 times as long as wide and about as long as merus; dactylus 0.3 times as long as carpopropodus, with about five robust, serrated setae; unguis strong, 2.3 times as long as dactylus.

Pereopods. Pereopod 1 (Fig. 31C): preischium without setae; ischium 2.5 times as long as wide, with one lateral and numerous medial setae; merus 4.8 times as long as wide, with long and short medial setae; carpopropodus with barely established joint or without it, 6.3 times as long as wide and 0.9 times as long as merus; dactylus (including unguis) 0.4 times as long as carpopropodus; paradactylary setae thin, longer than dactylus, without serration; unguis with strong medial serration.

Uropods. Uropodal exopod 3.8 times as long as wide. Segment 1 of uropodal exopod with three or four distolateral spiniform setae (Fig. 29E). Segment 2 of uropodal exopod 0.5 times as long as segment 1. Uropodal endopod with 19 to 25 medial spiniform setae; tip of terminal seta stretching beyond apical margin of ramus (Fig. 29F).

Male (syntypes)

Male process of antenna 1 rather long, conical; distally produced part about half as long as antennular segment 3 (Fig. 30B). Antennular inner flagellum normal, not dilated or meandering in proximal part. Antennal scale reaching distal margin of segment 3 of antenna 1 peduncle, without clear distal joint. Pleopods with 11–12-segmented rami (Fig. 31D). Segment 1 of uropodal exopod with five or six distolateral spiniform setae. Uropodal endopod with 19–22 medial spiniform setae.

Comparison

Siriella vincenti is the only species in the *brevicaudata* group in which the telson has a terminal posterolateral pair of spiniform setae that are shorter than (or rarely about as long as) the subterminal pair in both sexes (terminal longer than or occasionally as long as subterminal in at least males of other species). It has been confused with two newly described species, *S. bassi* sp. nov. and *S. talbotae* sp. nov., but is clearly distinguished from both (see relevant comparison sections for differences). *Siriella vincenti* is also distinguished by a number of characters from the related *S. spinula* (see differences in Comparison section for that species).

Distribution

Indian Ocean, South Australia: Gulf of St. Vincent (type locality), Spencer Gulf, the Dangerous Reef (Băcescu & Udrescu 1984); Victoria: Portland Bay (Parry *et al*. 1997), Port Phillip Bay (Fenton 1986, confirmed in this study; Currie & Parry 1996); New South Wales: Twofold Bay, Batemans Bay, near Read Head (Forster) (Figs 1–2), possibly also from Broken Bay (Dakin & Colefax 1940). So far not confirmed from the Tasmanian coast, though mentioned from Margate Beach, North-West Bay and Darlington, Maria Island, by Fenton (1986). The specimens reported by Fenton (1986) and Talbot (2009) from Lizard Island do not belong to *S. vincenti*, but represent a new species, named here as *S. talbotae* sp. nov. (see above).

Habitat

Depth 0–25 m. Bottom with sand, silt and clay (Victoria), on *Peyssonelia novaehollandiae* (Kütz.) Harv., *Ecklonia radiata* (C.Agardh) J.Agardh and other macroalgae, sand, rocks and gravel (New South Wales). This species is seemingly distinguished ecologically from *S. bassi* sp. nov., which was discovered in the Bass Strait, and found at greater depths of 38–85 m (occasionally at 9–12 m).

Remarks

Siriella vincenti was originally described rather in detail (W.M. Tattersall 1927b), but not well enough for an adequate comparison with other related species. Based on the type series, *S. vincenti* is formally redescribed and illustrated in detail herein.

Tattersall (1927b) described the anterodorsal margin of the carapace as evenly rounded. However, judging from the illustration (Tattersall 1927b: fig. 97a) and actual inspection of the syntypes, it appears to be rather angular, though with a rounded apex. The body lengths of the type specimens was originally described as up to 8 mm, which probably also included antennal scales. This evidently caused confusion in the discrimination between *S. vincenti* from *S. spinula* (cf. Panampunnayil 1995; Murano & Fukuoka 2008). The partial illustration of the telson and uropods of *S. vincenti* by Dakin & Colefax (1940) from Broken Bay in New South Wales, Australia, is insufficient to make a decision about the identity of the specimen; however, the terminal spiniform setae of the illustrated specimen are longer than the subterminal ones, thus suggesting that the specimen most probably belongs to another species.

We had an opportunity to examine a large collection from the Bass Strait, which separates the Australian mainland from Tasmania. This collection, which is deposited in the Museum Victoria, Melbourne, was previously identified by various researchers and also included in the dissertation of Fenton (1986) as *S. vincenti*. Besides *S. vincenti*, this collection also contained another undescribed member of the *brevicaudata* group, described herein as *S. bassi* sp. nov.

The specimens from Lizard Island in the Great Barrier Reef, Australia, identified by Talbot (2009) as *S. vincenti*, were compared with the redescribed type collection of *S. vincenti* and found to represent another new species within the *brevicaudata* group, *S. talbotae* sp. nov., described herein.

Key to the species of the Siriella brevicaudata *group*

1. Last (terminal) pair of posterolateral spiniform setae of telson less than twice as long as subterminal. Uropodal endopod with more than nine spiniform setae, occupying entire or almost entire inner margin of ramus 2
– Last (terminal) pair of posterolateral spiniform setae of telson three times as long as subterminal. Uropodal endopod with three spiniform setae, occupying proximal part of the ramus ....***S. gibbosa*** Ledoyer, 1970

2. Telson apically with slight emargination 3
– Telson apically straight or convex 4

3. Telson with 4 to 7 posterolateral spiniform setae, with last pair 0.4–0.5 times as long as telson .....***S. brevicaudata*** Paulson, 1875
– Telson with 9 to 13 posterolateral spiniform setae, with last pair 0.2 times as long as telson ....***S. occulta*** sp. nov.

4. Anterodorsal margin of carapace angular, apically rounded, with straight or slightly concave lateral sides. Terminal spiniform seta on medial margin of uropodal endopod reaching apex of ramus 5
– Anterodorsal margin of carapace smoothly or nearly smoothly rounded. Terminal spiniform seta on medial margin of uropodal endopod not reaching apex of ramus 7

5. Telson rather long and narrow, 2.35–2.5 times as long as wide (at maximum anterior width); its last (terminal) pair of posterolateral spiniform setae 0.07–0.08 times as long as telson. Male carapace with cephalic tubercle .....***S. bassi*** sp. nov.
– Telson <2.1 times as long as wide; its last (terminal) pair of posterolateral spiniform setae 0.11–0.14 times as long as telson. Male carapace without cephalic tubercle 6

6. Carapace without cephalic tubercle. Terminal pair of posterolateral spiniform setae of telson longer than subterminal pair in male .....***S. spinula*** Panampunnayil, 1995
– Female carapace with cephalic tubercle. Terminal pair of posterolateral spiniform setae of telson shorter than or as long as subterminal pair in both sexes .....***S. vincenti*** W.M. Tattersall, 1927

7. Telson as long as or longer than last abdominal somite. Last (terminal) pair of posterolateral spiniform setae of telson <0.13 times as long as telson 8
– Telson shorter than last abdominal somite. Last (terminal) pair of posterolateral spiniform setae of telson >0.13 times as long as telson 9

8. Last three to six pairs of posterolateral spiniform setae of telson nearly equal in length. Anterior spine of labrum very short, barely visible, <0.1 times as long as rest of labrum. Uropodal endopod with 10 to 13 medial spiniform setae .....***S. hanseni*** W.M. Tattersall, 1922
– Last pairs of posterolateral spiniform setae of telson gradually increasing in length, with terminal pair clearly longer than subterminal. Anterior spine of labrum rather long, 0.25–0.3 times as long as rest of labrum. Uropodal endopod with 17 or 18 medial spiniform setae .....***S. talbotae*** sp. nov.

9. Cephalic tubercle absent. Telson with 5 or 6 anterolateral spiniform setae. Uropodal exopod 3.6–3.7 times as long as wide .....***S. lingvura*** Ii, 1964
– Cephalic tubercle present. Telson with 3 or 4 anterolateral spiniform setae. Uropodal exopod 3.9–4.2 times as long as wide 10

10. Last (terminal) pair of posterolateral spiniform setae of telson 0.25 times as long as telson. Last terminal and subterminal spiniform setae of telson about twice as long as preceding posterolateral. Uropodal exopod proximal segment 1.4–1.5 times as long as distal segment ....***S. lacertilis*** Talbot, 2009
– Last (terminal) pair of posterolateral spiniform setae of telson 0.13–0.19 times as long as telson. Last terminal and subterminal spiniform setae of telson 1.2–1.4 times as long as preceding posterolateral. Uropodal exopod proximal segment 1.7–1.9 times as long as distal segment 11

11. Terminal pair of posterolateral spiniform setae of telson about as long as subterminal pair and 0.13–0.14 times as long as telson. Labrum spine short, but well-established, about 0.2 times as long as rest of labrum .....***S. muranoi*** sp. nov.

– Terminal pair of posterolateral spiniform setae of telson clearly longer than subterminal pair and 0.18–0.19 times as long as telson. Labrum spine very short, barely visible, <0.1 times as long as rest of labrum .....***S. tabaniocula*** sp. nov.

Additional observations

Thompsonii group
Brevirostris subgroup

Siriella cf. ***chaitiamvongae*** Murano & Fukuoka, 2008
Figs 32–34

Siriella chaitiamvongae Murano & Fukuoka, 2008: 149, figs 76–78.

Siriella hanseni – O.S. Tattersall 1960: 167.

Material examined

SINGAPORE: 2 subadult ♂♂, 6 mm long, Singapore Strait, 7 miles off shore, st. 5, 1°14′ N, 103°55′ E, Sar 6, 15 Jul. 1955. Wickstead leg., previously identified by O.S. Tattersall as *S. hanseni* (O.S. Tattersall 1960) (NHM 1964.1.21.6185). Badly damaged specimens; 1 ♂ with separate cephalothorax and abdomen, 1 ♂ partly dissected (slide NHM 1964.1.21.6185).

Description

Male (Singapore specimens)

Carapace. Anterodorsal margin widely triangular, sharpened at apex, covering basal parts of eyes and antennular peduncles (Fig. 32A).

Telson. Linguiform, posteriorly rounded, slightly shorter than last abdominal somite and 0.8 times as long as uropodal endopod, 2.6 times as long as wide (Fig. 32B). Lateral margins of telson with two or three anterior and 21 posterior spiniform setae; posterior spiniform setae form four or five gradation groups; terminal posterolateral pair of spiniform setae longest, 1.2–1.3 times as long as preceding spiniform setae and 0.1 times as long as telson. Central apical spiniform seta 1.6 times as long as flanking pair (all three spines of same length in another specimen) and 0.5–0.6 times as long as lateral terminal spiniform setae (Fig. 32C).

Head appendages. Eyes large, nearly rounded, produced beyond sides of anterior part of carapace, 1.1–1.2 times as long as wide and 0.5–0.6 times as long as width of anterior part of carapace. Peduncle of antenna 1 longer than peduncle of antenna 2; segment 3 about as long as segments 1 and 2 together, and 1.2 times as long as wide (Fig. 32A, D). Segment 3 of antenna 2 peduncle 0.4 times as long as segment 2 (Fig. 32E). Antennal scale 1.5 times as long as peduncle of antenna 2, reaching about half of antenna 1 segment 3, 3.2 times as long as wide, with clear distal segment; scale length 1.2 times length from scale base to outer spine base. Labrum with long and strong articulated anterior spine, about half as long as rest of labrum (Fig. 32G). Left mandible only with lamellar single-toothed incisor and lamellar molar, lying in parallel planes (Fig. 33A). Right mandible (Fig. 33B): incisor with two lamellar cusps, with planes perpendicular to each other; lacinia mobilis single-toothed; molar lamellar, lying in plane of anterior cusp of incisor; four medial spines short, odontoid. Palp segment 2 with six setae along medial margin and four setae along lateral margin; palp segment 3 is 0.6 times as long as segment 2, with six long plumose proximal and eight short palmar setae on medial margin (Fig. 32F). Maxilla 1 (Fig. 33C): inner ramus with four setae; outer ramus with about 10 strong robust setae, two apical with slight distal serration. Maxilla 2 (Fig. 33D): exopod oviform, with 11 long plumose setae; endopod segment 1 with one short proximomedial and one long distomedial setae; endopod segment 2 is 1.1 times as long as

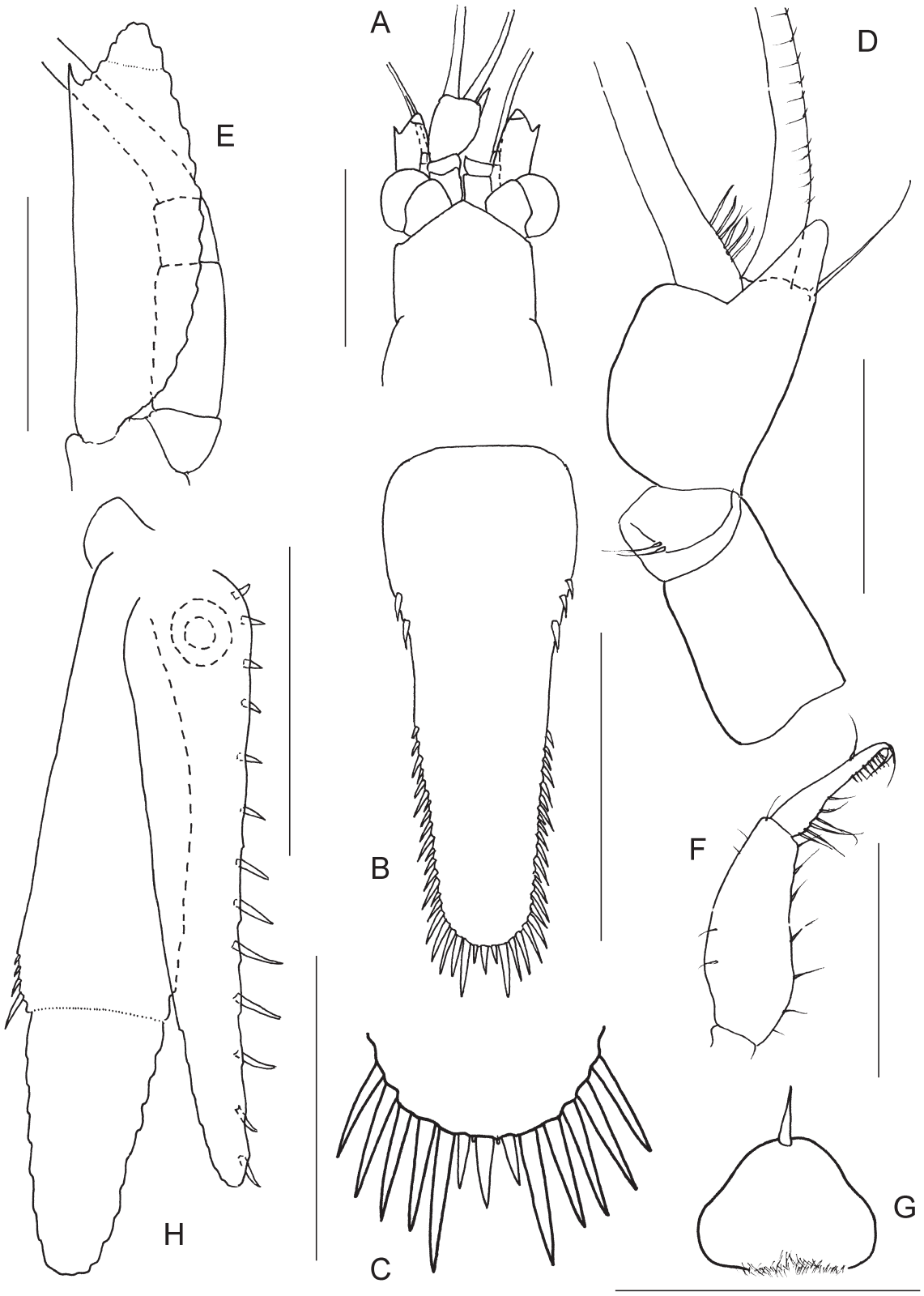

Fig. 32. *Siriella* cf. *chaitiamvongae* Murano & Fukuoka, 2008, subadult ♂, Singapore. **A**. Anterior part of body. **B**. Telson. **C**. Posterior margin of telson, dorsal view. **D**. Antenna 1 peduncle, lateral view. **E**. Antenna 2 peduncle and antennal scale, dorsal view. **F**. Mandibular palp, lateral view. **G**. Labrum. **H**. Uropods, dorsal view. Scale bars: A = 1 mm; B, D–H = 0.25 mm; C = 0.1 mm.

exopod and 3.2 times as long as wide, with one distolateral seta and about 10 medial setae, interspersed by straight stronger setae; endites with three or four strong setae each.

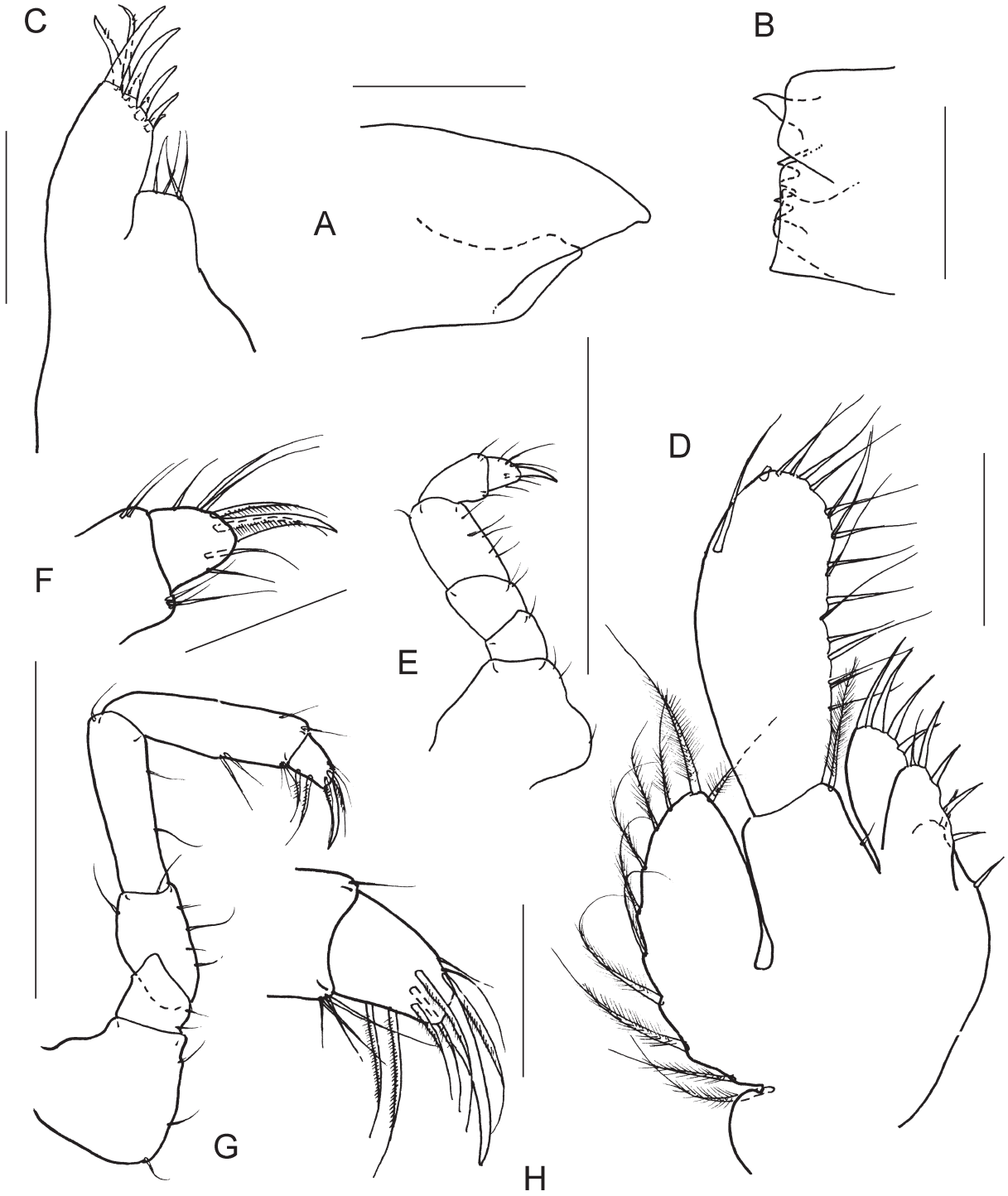

Fig. 33. *Siriella* cf. *chaitiamvongae* Murano & Fukuoka, 2008, subadult ♂, Singapore. **A**. Left mandible. **B**. Right mandible. **C**. Maxilla 1, anterior view. **D**. Maxilla 2, anterior view. **E**. Maxilliped 1, posterior view. **F**. Distal part of maxilliped 1, posterior view. **G**. Maxilliped 2, posterior view. **H**. Distal part of maxilliped 2, posterior view. Scale bars: A–D, F, H = 0.05 mm; E, G = 0.1 mm.

Maxillipeds. Maxilliped 1 (Fig. 33E–F): basis with one proximal and two distal setae; preischium with one distomedial seta; ischium with two distomedial setae; merus as long as preischium and ischium together, 1.8 times as long as wide, with five medial and one distolateral setae; carpopropodus 0.6 times as long as merus, with distomedial and distolateral bunch of setae; dactylus 0.6 times as long as carpopropodus, with long simple and strong finely serrated setae; dactylary unguis 1.1 times as long as

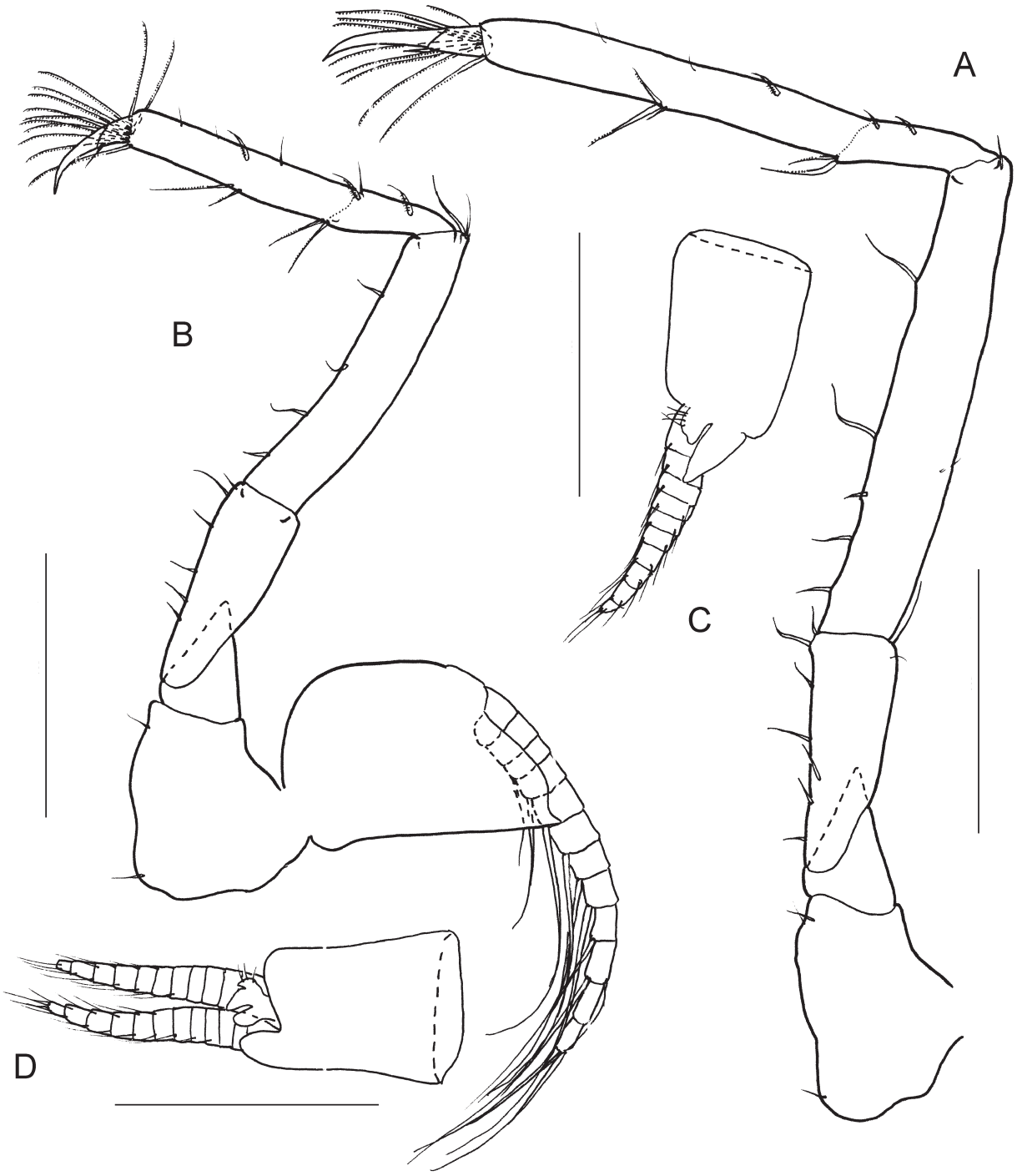

Fig. 34. *Siriella* cf. *chaitiamvongae* Murano & Fukuoka, 2008, subadult ♂, Singapore. **A**. Pereopod 1 endopod, anterior view. **B**. Pereopod 6, anterior view. **C**. Pleopod 1, posterior view. **D**. Pleopod 4, posterior view. Scale bars: 0.25 mm.

dactylus. Maxilliped 2 (Fig. 33G–H): basis with three setae; preischium with two medial setae; ischium 1.7 times as long as wide, with four medial and one distolateral setae; merus 3.5 times as long as wide and 1.6 times as long as ischium, with two medial and one distolateral setae; carpopropodus as long as and as wide as merus, with two medial bunches of setae and two distolateral setae; dactylus conical, 0.3 times as long as carpopropodus, with five–six strong, serrated setae and smooth unguis; unguis about as long as dactylus.

Pereopods. Pereopodal exopods 10-segmented. Endopods thin and long; central pairs longer than anterior and posterior. Setae of endopod ischium and merus short, strong proximally and thin distally, distantly placed, not forming groups or bunches (Fig. 34A–B). Pereopod 1 endopod (Fig. 34A): basis with two setae; preischium without setae; ischium 2.7 times as long as wide, with six medial setae; merus 5.4 times as long as wide, with five medial and two distolateral setae; carpopropodus about as long as merus, 7.5 times as long as wide, with barely visible articulation between segments; carpopropodus segment 1 is 0.4 times as long as segment 2, with distomedial bunch of serrated setae, two lateral serrated falcate setae and one simple distolateral seta; carpopropodus segment 2 with medial bunch of serrated setae, one lateral serrated falcate seta, three simple lateral setae and bunch of paradactylary serrated setae, longer than unguis; dactylus 1.4 times as long as wide, with strong unguis and short seta; dactylary unguis 2.1 times as long as dactylus. Pereopod 2 longer than peropod 1 (Fig. 34B); basis with one proximal and two distal setae; preischium without setae; ischium 2.8 times as long as wide, with seven medial and one distolateral setae; merus 6.1 times as long as wide and 2.1 times as long as ischium, with five medial and one distolateral spiniform setae; carpopropodus slightly longer than merus, 10.5 times as long as wide, with barely visible articulation between segments; carpopropodus segment 1 is 0.3 times as long as segment 2, with distomedial bunch of serrated setae and 2 lateral serrated falcate setae; carpopropodus segment 2 with medial bunch of serrated setae, one lateral serrated falcate seta, two lateral simple setae and paradactylary bunch of serrated setae, as long as unguis; dactylus 2 times as long as wide, with strong unguis and short dactylary seta; unguis 1.9 times as long as dactylus.

Pleopods. Natatory; rami 10-segmented (Fig. 34C–D). Pseudobranchia biramous. Pleopod 1 uniramous. Pleopods 2–5 biramous.

Uropods. Uropodal exopod 4.5 times as long as wide and 1.2 times as long as endopod; proximal segment 1.8 times as long as distal segment, with four distolateral spiniform setae (Fig. 32H). Uropodal endopod with 13 somewhat distantly placed medial spiniform setae; terminal spiniform seta extending to apex (Fig. 32H).

Distribution

Siriella chaitiamvongae is known from the Gulf of Thailand, South China Sea (type locality), Batbatan Island, Sulu Sea and Java Island, Java Sea (Murano & Fukuoka 2008). If the specimens from this study belong to this species, it would constitute the first record from Singapore, and specifically from Singapore Strait.

Remarks

Siriella chaitiamvongae belongs to the *brevirostris* subgroup of the *thompsonii* group (Murano & Fukuoka 2008). The specimens from Singapore have the following characters that are typical for *S. chaitiamvongae*: (1) pereopodal carpopropodus, lacking (or barely visible) proximal articulation, (2) paradactylary setae about as long as dactylar claw and (3) antennular peduncle segment 3 broad, 1.2 times as long as wide. Due to the immature and damaged condition of the specimens it is, however, not possible to identify such diagnostic characters as the presence of a median digitate process on the front of the carapace along its midline.

Several characters of the specimens from Singapore exhibit greater variation than reported in the original description (Gulf of Thailand). The apical spiniform setae of the telson are shorter, more closely resembling those of *S. brevirostris* Nouvel, 1944, although in an immature female paratype (Murano & Fukuoka 2008: fig. 78c), the apical setae were less than half as long as the terminal lateral spiniform setae, i.e., also similar to *S. brevirostris*. In one of the specimens from Singapore the central apical seta is 1.6 times as long as the pair of flanking setae, while in the other specimen all three setae are equal in length. Other morphological differences between specimens from Singapore and the Gulf of Thailand are as follows: (1) mandibular palp second segment with six medial setae (four in male from the type locality), (2) telson lateral margins with two or three anterior and 21 posterior spiniform setae (one or two and 21 to 27, respectively, at type locality), (3) telson with posterior spiniform setae forming groups of three to five (two to five at the type locality) graded setae, (4) antennal scale 3.2 times as long as wide (3.7 at the type locality) and (5) uropodal endopod with 13 spiniform setae (15 or 16 at the type locality).

Both specimens are not fully developed, particularly their penes, pleopods and probably other structures. The small differences mentioned above could partly be connected with the immature age of the specimens from Singapore and partly with the general variability of the species. Thus, the status of the specimens cannot be finally resolved; however, one can be certain that they are not *S. hanseni* as originally identified by O.S. Tattersall (1960).

Discussion

The genus *Siriella* represents one of the largest mysid genera (Murano & Fukuoka 2008) and one of the most difficult ones to study (W.M. Tattersall 1940; Ii 1964). Notwithstanding the five new species described herein and the re-establishment of *Siriella* (= *Siriellerythrops*) *gibbosa*, this genus remains the subject for additional systematic and taxonomic study. Due to the artifacts of sampling (e.g., large areas of the world's oceans remain unsampled) and the misidentification or lack of examination of specimens in extant museum collections, we anticipate that a considerable number of new species of *Siriella* remain to be discovered and properly described. This is especially true for species that may be endemic and specific to subtropical and tropical oceanic areas that remain poorly sampled or unstudied. Present studies on *Siriella* and other mysid genera are now augmented by the utilization of more refined taxonomic and systematic techniques, especially in the field of molecular systematics. Furthermore, based on the results of the research presented on the *brevicaudata* group herein, there is a need for a critical review and an examination of the available type and non-type material for many of the other *Siriella* species groups *sensu* Murano & Fukuoka (2008). The results of such studies should reveal much new information and facilitate a better understanding of the taxonomy and systematics of *Siriella*.

The *brevicaudata* species group, which represents one of nine groups or distinctive species assemblages within the genus *Siriella*, currently includes 12 species. This assemblage is generally distinguished from other groups by having a shorter anterior spine on the labrum and a shorter telson. In particular, the anterior spine of the labrum is not more than 0.3 times the length of the rest of the labrum. In some species, the labral spine is quite reduced and barely visible (i.e., *S. brevicaudata*, *S. gibbosa*, *S. hanseni*, *S. occulta* sp. nov., *S. tabaniocula* sp. nov.). Meanwhile, in species from other groups of the genus this ratio varies from 0.37 to 1.0. The telson is usually shorter than the last abdominal somite in most species of the *brevicaudata* group; however, for a few species it is equal to or even slightly longer, 1.1 times as long as the last abdominal somite (in *S. bassi* sp. nov. and *S. hanseni*). This value varies between 1.0 and 1.8 in other *Siriella* groups, showing a certain overlap with the *brevicaudata* group, but the telson is never shorter than the last abdominal somite. Another telsonic measurement, telson length compared to its anterior width, varies between 1.3 and 2.5 in the *brevicaudata* group, also partly overlapping with other groups (2.0–3.7), where it is never less than 2.0. Thus, only the labral spine length remains fully diagnostic for the group, and the telson, though being shorter than the last abdominal somite and

less than twice as long as wide in most of species, still has certain overlapping values in exceptional cases. This weak morphological distinction of the *brevicaudata* group is not sufficient for sub-generic or generic standing. Notwithstanding, the number of shared characters among all or most of the members of the *brevicaudata* group is rarely found within the other eight groups. These include the rounded anterodorsal margin of the carapace, the small number of distal spiniform setae on the uropodal exopod, the absence of differentiation in spiniform setae of the uropodal endopod, strong and nearly equally long pereopods and the unmodified setae of male pleopods. In addition, certain species within the group possess unique features, not shared with other species of the genus. Among these are (1) a small apical emargination in the telson of *S. brevicaudata* and *S. occulta* sp. nov., bearing minute, barely visible spinules, (2) the uropodal endopod of *S. gibbosa* with only three proximal spiniform setae and (3) the males of *S. bassi* sp. nov. with a more strongly developed cephalic tubercle than in adult females. Because of these and other morphological variables, the use of the term 'groups', rather than formal taxonomic designations (e.g., subgenera), within the genus *Siriella* has had a long-standing history (see review in Murano & Fukuoka 2008). The *brevicaudata* group serves as a model example for these still apparently monophyletic assemblages of species.

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