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A NEW GENUS OF EPACTERISCID CALANOID COPEPOD FROM AN ANCHIALINE SINKHOLE ON NORTHWESTERN AUSTRALIA

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ABSTRACT

Bunderia misophaga gen. et sp. nov. is described from an anchialine cenote located on the Cape Range peninsula, northwestern Australia. This is the first epacteriscid calanoid known from Australia and represents the third genus of this family of mainly stygobiont copepods recorded in the Indo-Pacific region. Ordinary phenetic analysis points to the monotypic *Enantronoides* Fosshagen, Boxshall, and Iliffe, from an anchialine cave on the Bahama Islands, as the closest relative of the new genus. This suggests an ancient, relictual status for the new taxon. The predatory habits of the family Epacteriscidae are confirmed after the gut contents of *Bunderia* yielded remains of a not-yet-described misophrioid copepod.

An extraordinary anchialine crustacean assemblage including remipeds (Yager and Humphreys, 1996), thermosbaenaceans (Poore and Humphreys, 1992), cirolanid isopods (Bruce and Humphreys, 1993), hadziid amphipods (Bradbury and Williams, 1995), atyid shrimps (Holthuis, 1959; Humphreys and Adams, 1991), thaumatocypridid ostracods (Danielopol, Baltanás, and Humphreys, 2000), and speleophriid misophrioid and pseudocyclopiid calanoid copepods (Jaume and Humphreys, personal observation) has been revealed recently by the junior author from the Cape Range peninsula, an anticline of limestones of Late Oligocene to Middle Miocene age located on the northwest coast of Australia. This faunistic assemblage is biogeographically very significant, because its members belong to genera whose general distributions fit completely into the so-called "Tethyan" track, a broad circumtropical distribution pattern coincident with the regions flooded by the Late Mesozoic seas. This pattern is shared by a numerous and taxonomically heterogeneous array of anchialine crustaceans worldwide, all being strictly cavernicolous in tropical or warm-temperate regions, displaying reduced potential for dispersal, and with very disjunct and localized distributions. These features have led biogeographers to consider them as relicts of the shallow, warm-water fauna of the ancient seas of the Mesozoic era (Stock, 1993). The presence in the northwestern portion of Australia of a cluster of crustaceans of this type lends additional credence to former statements suggesting a relationship between this region and the Tethyan realm (Yeates *et al.*, 1987).

The present paper describes, from the same region of Australia, another member of a typically anchialine taxon of higher rank: the family Epacteriscidae Fosshagen, 1973, within the calanoid copepods. Being monotypic, the new genus and species described herein cannot provide any conclusive biogeographic information, but the location of its closest relative in the Antillean region suggests an old, relict status for it. In addition, the analysis of its gut content has permitted the confirmation of the suspected predatory habits for the family.

MATERIALS AND METHODS

The copepods studied were collected in Bundera sinkhole, an anchialine cenote located 1.7 km inland from the Indian Ocean in Cape Range peninsula, northwestern Australia. A detailed description of the cave can be found in Yager and Humphreys (1996), its detailed environment in Humphreys (1999), and some effects of diving on the environment in Humphreys *et al.* (1999). The animals were found under a pycnocline placed at about 8-m depth in oligoxic waters (oxygen < 1 mg l^{-1}) of near-marine salinity (33–34‰) below sulphidic layers and collected by SCUBA-diving using hand-held nets and bottles.

Drawings were prepared using a *camera lucida* on an Olympus BH–2 microscope equipped with Nomarski differential interference contrast. Terminology used in descriptions follows Huys and Boxshall (1991). The material is deposited in the Western Australian Museum, Perth, Australia (WAM). Material preserved on permanent glass slides is mounted in lactophenol sealed with nail varnish. The BES numbers are field collection numbers.

DESCRIPTION

Subclass Copepoda H. Milne Edwards, 1830

Order Calanoida G. O. Sars, 1903

Family Epacteriscidae Fosshagen, 1973

Subfamily Epacteriscinae Fosshagen, Boxshall, and Iliffe, in press

Bunderia, new genus

Diagnosis.—Body slender, with first pedigerous somite completely separate from cephalosome. Urosome 4-segmented in female, 5-segmented in male. Female genital double-somite produced ventrally. Caudal rami and 7 caudal setae symmetrical, unmodified in both sexes except seta I, extremely reduced. Rostrum well developed, bifurcate with pointed corners bearing pair of short, thick subapical filaments. Rostral windows absent. Female antennule 24-segmented, with failure to express articulations between ancestral segments II–IV, X–XI (partially expressed), and XXVII–XXVIII; segment XIX lacking aesthetasc. Male right antennule geniculate, 22-segmented, with failure to express articulations between segments II–IV, XIX–XX, XXI–XXIII, XXIV–XXV, and XXVII–XXVIII; anterodistal corner of double-segment XXIV–XXV with long spinous process. Most setae on segments I to VII of antennules modified in both sexes, flattened proximally and with filament-like distal portion. Antenna with endopod clearly shorter than exopod; proximal endopodal segment slightly longer than distal. Labrum broad, globular, not projected anteroventrally, with sclerotized dentate distal margin. Mandible directed ventrally, with coxal gnathobase cutting edge bearing bifid, hypertrophied ventralmost tooth. Palp with basis furnished with single seta and with no trace of endopod; none of exopodal setae unusually elongate. Paragnaths sclerotized distally, bearing row of simple teeth plus isolated anteriormost larger tooth with serrate anterior margin. Maxillule lacking outer basal seta, with unsegmented endopod. Maxilla with complete failure to express articulation between praecoxa and coxa; basis with rectangular aspect, about twice as long as wide; endopod 2-segmented, proximal segment provided with 6 setae, 4 of them implanted on endite corresponding to ancestral endopodal segment I; endopodal setae stout, spinous, apparently well suited for holding prey. Maxilliped powerfully developed, with endopodal segment I not incorporated into basis but into segment II forming double-segment; tiny segment VI almost completely incorporated into segment V; stout spinous endopodal setae with characteristic spoon-shaped tip. Leg 1 with distal spine on outer margin of third exopod segment flagellate; rami unmodified. Legs 3 and 4 with 3 outer spines on third exopodal segment. Female fifth legs unmodified, with 3-segmented rami, displaying inner seta on first segment and 3 outer spines on third segment of exopod. Leg 4 and female leg 5 with sharp denticle near insertion of outer basal seta. Male fifth legs asymmetrical, relatively unmodified, with 3-segmented rami. Basis of left and right legs lacking both inner process and patch of spinules; that of left leg with inner distal corner produced into lobe partially covering anterior surface of first endopodal segment. Exopods asymmetrical, with greatest modifications in distal segment. Rounded process subdistally on medial margin of first segment of left exopod. Third segment of left exopod with 3 small processes of dissimilar shape plus 2 ordinary spines distally; right counterpart with long, falcate distal process fused to segment at base flanked by 2 unequal spines.

Type species.—*Bunderia misophaga* gen. et sp. nov., here designated.

Etymology.—The generic name refers to the local name of the sinkhole, the only known location of the genus.

Bunderia misophaga, new species

Figs. 1–6

Material Examined.—Bundera Sinkhole (Australian Karst Index number C–28), Cape Range peninsula, northwestern Australia. Coordinates: 22°25′S 113°46′E. Holotype: adult ♀ 1.47 mm completely dissected and mounted on 6 slides [WAM reg. no. C24432] (BES no. 3956); collected by A. Poole, S. Eberhard, and W. F. Humphreys, 22 September 1997 at about 25 m depth in vial. Paratypes: adult ♀ 1.37 mm [WAM reg. no. C24433] (BES no. 4715), and adult ♂ 1.73 mm [WAM reg. no. C24434] (BES no. 4729). ♀ paratype preserved in 70% ethanol. ♂ paratype partially dissected, with right legs 3 and 4, plus fifth legs, mounted

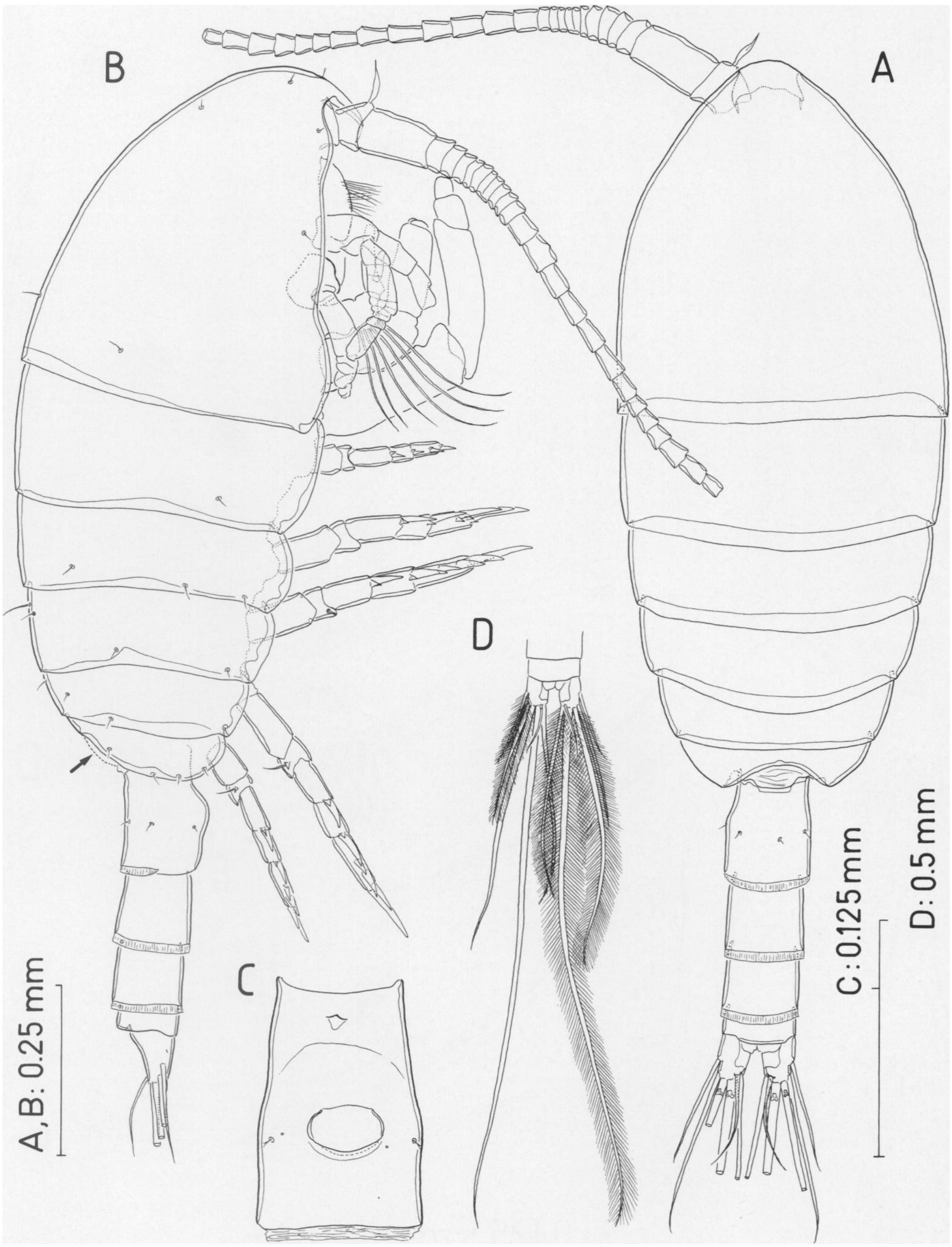

Fig. 1. *Bunderia misophaga* gen. et sp. nov., holotype ♀: A, body, dorsal aspect; B, same, right lateral aspect (arrow pointing to raised left dorsolateral margin of fifth pedigerous somite (dotted line), slightly taller than right counterpart); C, genital double-somite, ventral; D, detail of caudal rami showing relative lengths of caudal setae, dorsal.

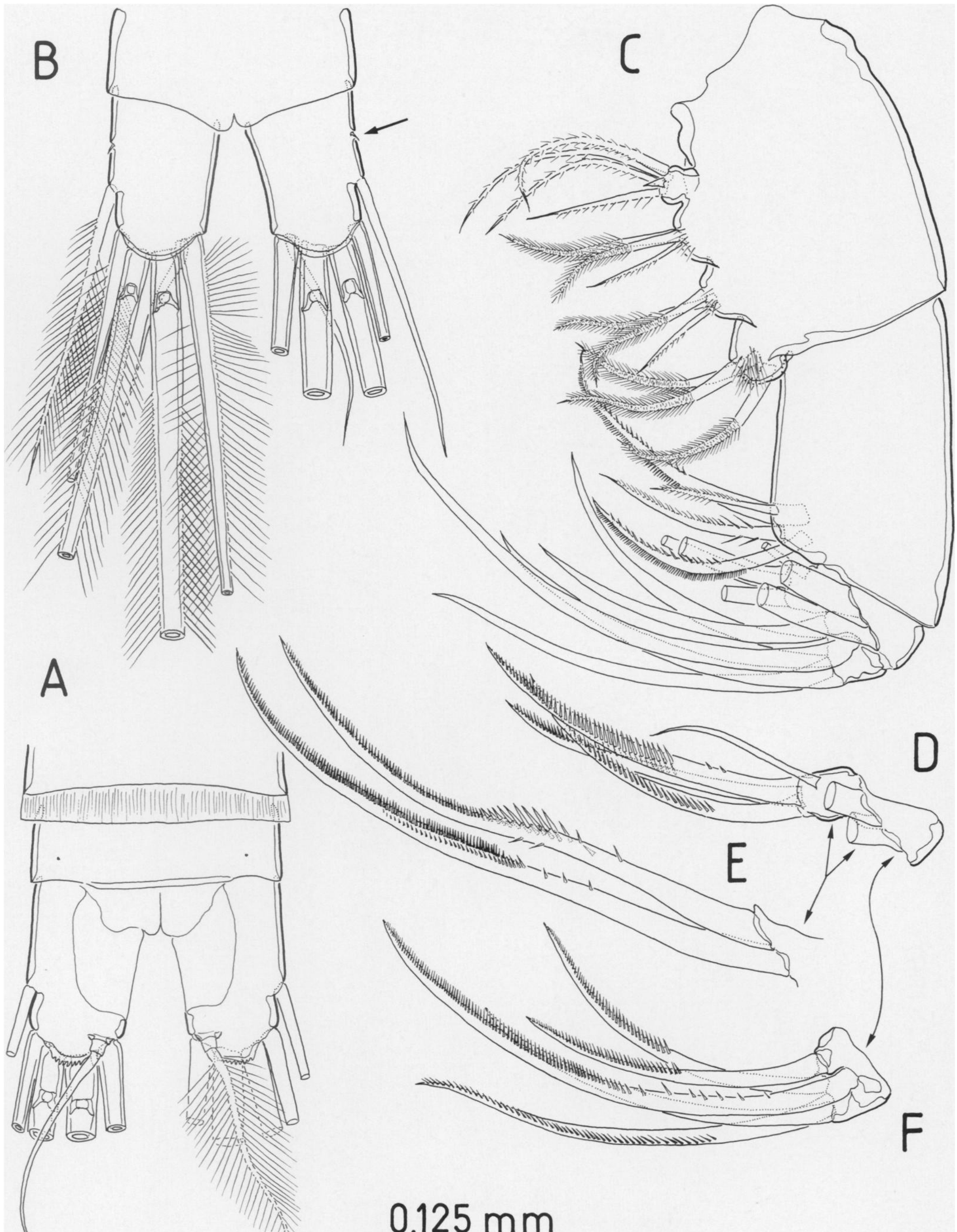

Fig. 2. *Bunderia misophaga* gen. et sp. nov., holotype ♀: A, detail of anal somite and caudal rami, dorsal; B, same, ventral (arrow pointing to reduced caudal seta I); C, maxilla (setae on proximal endopodal segment and ornamentation of setae of distal endopodal segment omitted); D, detail of first endopodal segment (pair of setae corresponding to armature of ancestral segment I omitted); E, detail of two setae omitted in D; F, detail of second endopodal segment.

Fig. 3. *Bunderia misophaga* gen. et sp. nov., holotype ♀: A, rostrum, labrum and paragnaths; B, maxilliped.

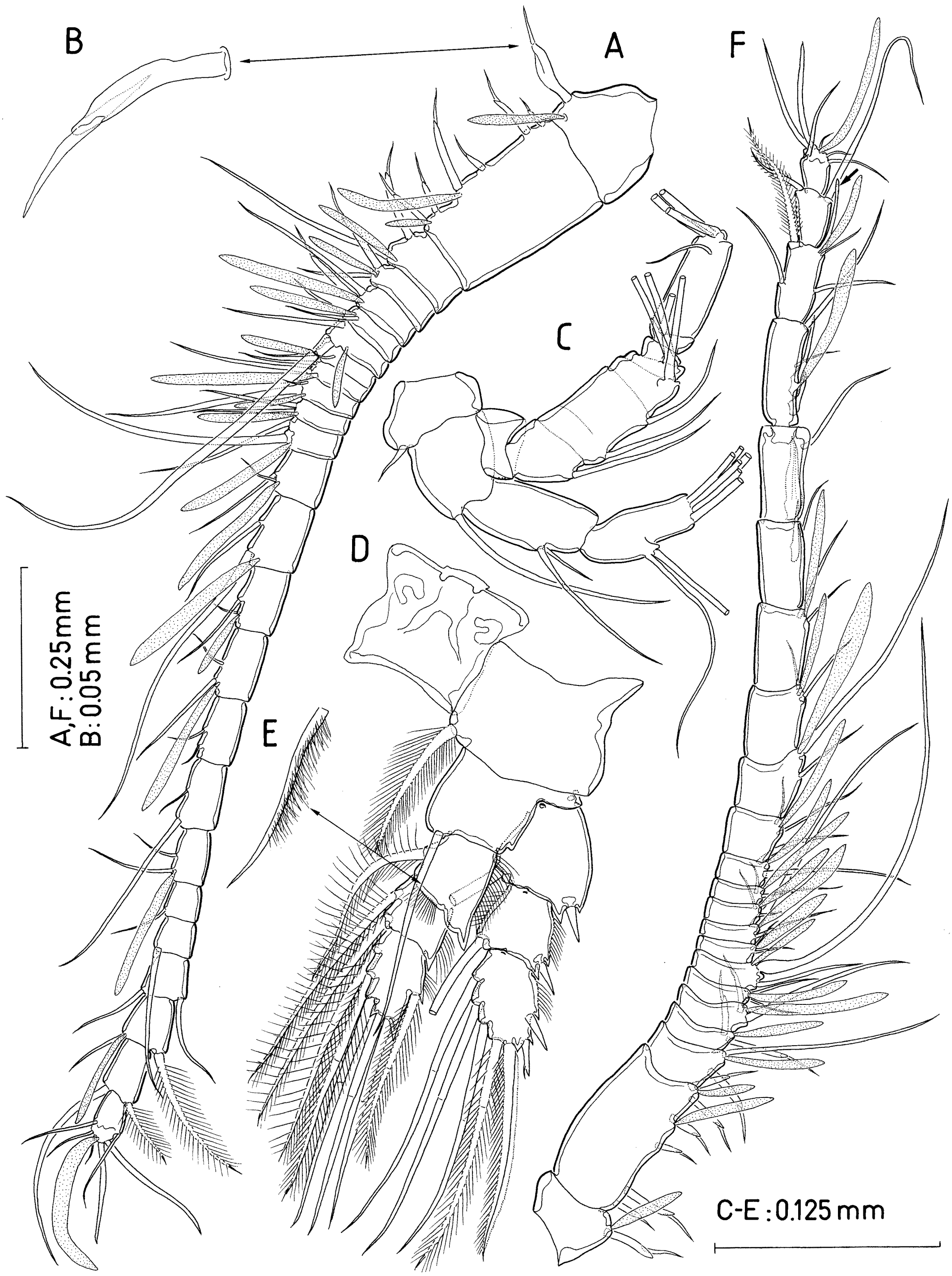

Fig. 4. *Bunderia misophaga* gen. et sp. nov., holotype ♀: A, antennule, ventral view; B, detail of modified seta on first segment; C, antenna; D, first leg, anterior view; E, detail of posterior surface of inner basal seta of former; F, right antennule of male paratype, ventral view (arrow pointing to anterodistal spinous process on segment 20).

on single slide; rest of body preserved in 70% ethanol. Both paratypes collected by A. Poole, S. Eberhard, and W. F. Humphreys, 23 September 1997 between 20–30 m depth using diver-towed plankton net.

Description of Female.—Body (Fig. 1A, B) slender, with [prosome : urosome] length ratio [2.3:1]. Prosome oval in dorsal aspect, comprising cephalosome plus 5 free pedigerous somites. Prosomal somites, except fifth pedigerous somite, displaying evenly rounded posterolateral margins. Fifth pedigerous somite asymmetrical, with left margin slightly raised relative to right counterpart (arrow in Fig. 1B). Rostrum (Fig. 3A) well developed, broadly bifurcate with pointed corners, each with short, stout filament subdistally on medial margin; no trace of rostral windows. Nauplius eye absent.

Urosome 4-segmented. Genital double-somite produced ventrally, slightly asymmetrical in dorsal aspect, with right margin straight and left margin slightly convex; hyaline frill along posterodorsal margin only; genital operculum located medially about two-thirds of distance along ventral surface of somite (Fig. 1C); internal genital apparatus unresolved. Abdominal somites with hyaline frill on posterior margin. Anal somite short, about 46% length of preceding somite, lacking anal operculum. Caudal rami (Fig. 2A, B) symmetrical, about 1.3 times longer than wide, with 7 symmetrical caudal setae. Seta I very reduced; seta V longest. Relative lengths of setae as in Fig. 1D.

Antennules (Fig. 4A) 24-segmented, surpassing posterior margin of cephalosome. Articulations between ancestral segments II to IV and XXVII–XXVIII not expressed; that between segments X–XI partially expressed, with segments showing short connection on posterior side. Segmentation pattern and armature as follows: segment 1 (corresponding to ancestral segment I) 1 seta + aesthetasc; segment 2 (ancestral II–IV) 6 + 2 ae; segments 3 to 7 (ancestral V to IX) 2 + ae each; segment 8 (X–XI) 4 + 2 ae; segments 9 to 15 (XII to XVIII) 2 + ae each; segments 16 and 17 (XIX and XX) 2 setae each; segment 18 (XXI) 2 + ae; segments 19 and 20 (XXII and XXIII) 1 seta each; segments 21 to 23 (XXIV to XXVI) 1 + 1 setae each; segment 24 (XXVII–XXVIII) 6 + ae. Setae on segments 1 to 5 (I to VII) modified, flattened proximally and with thinner, filament-like distal portion (Fig. 4B); degree of modification of setae decreasing progressively from segment 1 to 5. Distal seta on segment 7 (IX) hypertrophied.

Antenna (Fig. 4C) biramous, with exopod clearly longer than endopod. Coxa and basis separate, each with 1 seta, that on coxa reduced. Exopod indistinctly 7-segmented, implanted on pedestal; setal formula (1,(1 + 1),1,1,1),1,(1 + 3). Endopod 2-segmented, proximal segment slightly longer than compound distal segment; setal formula 2,(2 + 6).

Labrum (Fig. 3A) wide, rounded, with clusters of spinules and setules distributed as figured; free distal margin sclerotized, dentate.

Mandible strongly developed, raptorial, with coxal gnathobase cutting edge (Fig. 6A) bearing row of 4 multicuspidate, subsimilar teeth, plus larger sharp, bicuspidate ventralmost tooth, and pinnate dorsalmost spine. Patch of short spinules implanted subdistally close to teeth row. Mandibular palp (Fig. 6B) uniramous, with elongate basis bearing single long, plumose seta about midway along segment. Exopod indistinctly 5-segmented, setal formula (1,1,1,1,2); one of distal setae very reduced.

Paragnaths (Fig. 3A) bulbous, sclerotized distally, bearing 3 sharp, simple teeth plus isolated anteriormost larger tooth with serrate anterior margin.

Maxillule (Fig. 6C) somewhat reduced, with well-developed praecoxal arthrite bearing 13 sharp marginal spines distally, ornamented as figured. Coxal epipodite with row of 6 long setae; coxal endite with 2 unequal setae. Outer basal seta lacking; proximal basal endite discrete, elongate, with 2 setae; no trace of distal basal endite. Exopod unsegmented, long and slender, slightly constricted about midway; armature consisting of 3 setae, distalmost ordinary, long, 2 proximal setae extremely reduced. Endopod elongate, unsegmented, setation formula 1 + 1 + 4.

Maxilla (Fig. 2C–F) 4-segmented, robust, raptorial. Praecoxa and coxa completely incorporated forming syncoxa. Syncoxal endites discrete, with armature 5,3,3,3; one of armature elements on proximal (praecoxal) endite short and spiniform; patch of spinules on 3 each of distal endites; ornamentation of enditic setae as figured. Basis elongate, about as long as syncoxa, rectangular (about twice as long as wide), with 4 unequal setae ornamented as figured, positioned distally on inner margin; basal endite not developed. Endopod condensed, 2-segmented, with setal formula 6,5. Proximal segment bearing well-defined endite representing ancestral segment I, armed with 3 stout pectinate setae and 1 smooth slender seta (Fig. 2D), plus 2 hypertrophied pectinate setae (corresponding to armature of ancestral segment II; Fig. 2E). Distal segment (Fig. 2F) corresponding to incorporated ancestral segments III and IV, bearing 5 stout pectinate setae.

Maxilliped (Fig. 3B) 6-segmented, powerfully developed (see Fig. 1B), raptorial. Syncoxal endites hardly developed except distalmost, produced into lobe with microtuberculate distal surface; endite formula 1,2,4,4; shortest seta on distal endite brush-like proximally; rest of setae on endites ornamented as figured. Basis about as long as syncoxa, with 3 unequal setae, 1 brush-like proximally, plus submarginal row of spinules along proximal half of inner margin. Endopod 4-segmented. First segment corresponding to partially incorporated ancestral endopodal segments I and II, with armature formula 2 + 4. Second and third segments corresponding to ancestral III and IV, with 4 and 3 setae, respectively. Distal segment corresponding to incorporated ancestral segments V and VI, bearing 7 setae. Three of setae on first segment (1 pertaining to armature of ancestral segment I, other 2 corresponding to 2 distalmost setae of ancestral segment II), plus 2 distalmost setae on segments 2 and 3, and 3 distalmost setae on segment 4, each powerfully developed, pectinate, with expanded, spoon-like tip. One of short setae on first segment (1 of 2 setae corresponding to armature of ancestral segment I), plus 1 of short setae on segment 2 (ancestral segment III), brush-like proximally.

Legs 1 to 5 (Figs. 4D, E, 5, 6D) symmetrical, unmodified, biramous, both rami 3-segmented. Presence of praecoxa on leg 1 unconfirmed. Spine and seta formula as follows:

	Coxa	Basis	Endopod segment 1	2	3	Exopod segment 1	2	3
Leg 1	0–1	0–1	I–1;	I–1;	II,1,4	0–1;	0–2;	1,2,3
Leg 2	0–1	0–0	I–1;	I–1;	II,I,5	0–1;	0–2;	2,2,4
Leg 3	0–1	1–0	I–1;	I–1;	III,I,5	0–1;	0–2;	2,2,4
Leg 4	0–1	1–0	I–1;	I–1;	III,I,5	0–1;	0–2;	2,2,3
Leg 5	0–0	1–0	I–1;	I–1;	III,I,4	0–1;	0–1;	2,2,2

Leg 1 (Fig. 4D) with reduced exopodal spines, lacking hyaline frill, distalmost bearing subterminal flagelliform process. Distal seta on exopod with outer margin fringed with hyaline frill, inner margin plumose. Distolateral margin of first endopodal segment produced into stout denticle. Inner basal seta displaced anteriorly, with posterior surface brush-like (Fig. 4E). Legs 2 to 4 (Fig. 5) each with distal exopodal spine with outer margin fringed with hyaline frill, inner margin plumose; rest of exopodal spines with hyaline frill along both margins. Outer basal seta of leg 3 short and stout, positioned posteriorly. Legs 4 and 5 (Figs. 5C, 6D) both with sharp denticle near insertion of outer basal seta. Distal spine on exopod of leg 5 roughly "S"-shaped, with tip bent towards outer side; outer margin of spine pinnate, inner margin plumose. Rest of exopodal spines of leg 5 apparently lacking hyaline frill.

Description of Male.—Similar to female except for geniculate right antennule, 5-segmented urosome, and fifth legs. Genital somite with single genital aperture located posterolaterally at posterior rim on right side.

Right antennule (Fig. 4F) 22-segmented, with articulations between ancestral segments II–IV, XXI–XXIII, XXIV–XXV, and XXVII–XXVIII not expressed. Geniculation between segments 18 (XX) and 19 (XXI–XXIII). Anterodistal corner of segment 20 (double-segment XXIV–XXV) bearing long, spinous process (arrow in Fig. 4F). First 16 segments, corresponding to first 15 of female, similar in segmentation and setation to female except for completely separate segments 8 (X) and 9 (XI). Segments 17 and 18 (corresponding to ancestral XIX and XX) each with 1 spinous process proximally and 1 seta distally; segment 19 (XXI–XXIII) with 2 spinous processes, 2 setae, plus 1 aesthetasc; segment 20 (XXIV–XXV) 2 + 2 + ae; segment 21 (XXVI) 1 + 1 + ae; segment 22 (XXVII–XXVIII) 6 + ae.

Fifth legs (Fig. 6E) asymmetrical, each with tiny remnant of praecoxa, separate coxa, and basis, and 3-segmented rami. Basis asymmetrical; that of left leg with distomedial corner produced into lobe partially covering anterior surface of proximal endopodal segment; lobe hardly developed on right leg. Basis of both legs with reduced, slender seta posterolaterally. Endopods unmodified, slightly asymmetrical due to second and third segments on left ramus wider than right counterparts; armature formula 0–1 (0–0 on left leg, although tiny notch on inner margin of

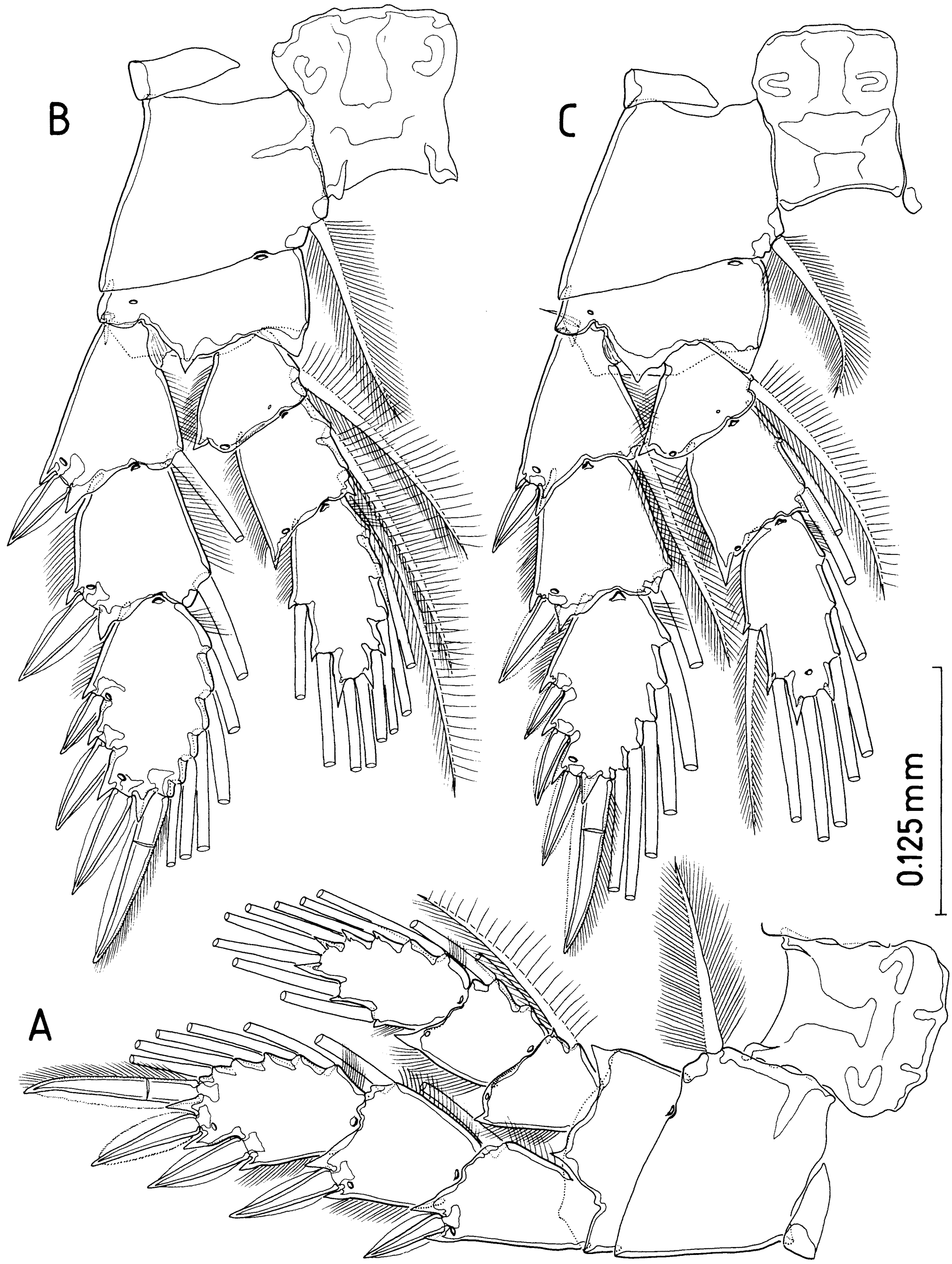

Fig. 5. *Bunderia misophaga* gen. et sp. nov., holotype ♀: A, second leg, anterior; B, third leg, anterior; C, fourth leg, anterior.

segment in homologous position to insertion of tiny seta on right leg might indicate that seta could have been accidentally lost in the only specimen available); 0–1; 2,2,2. Exopods relatively weakly transformed, asymmetrical, with greatest modifications in distal segment. First and second segments each with outer spine, but both rami differing in presence of rounded process subdistally on medial margin of first segment of left exopod,

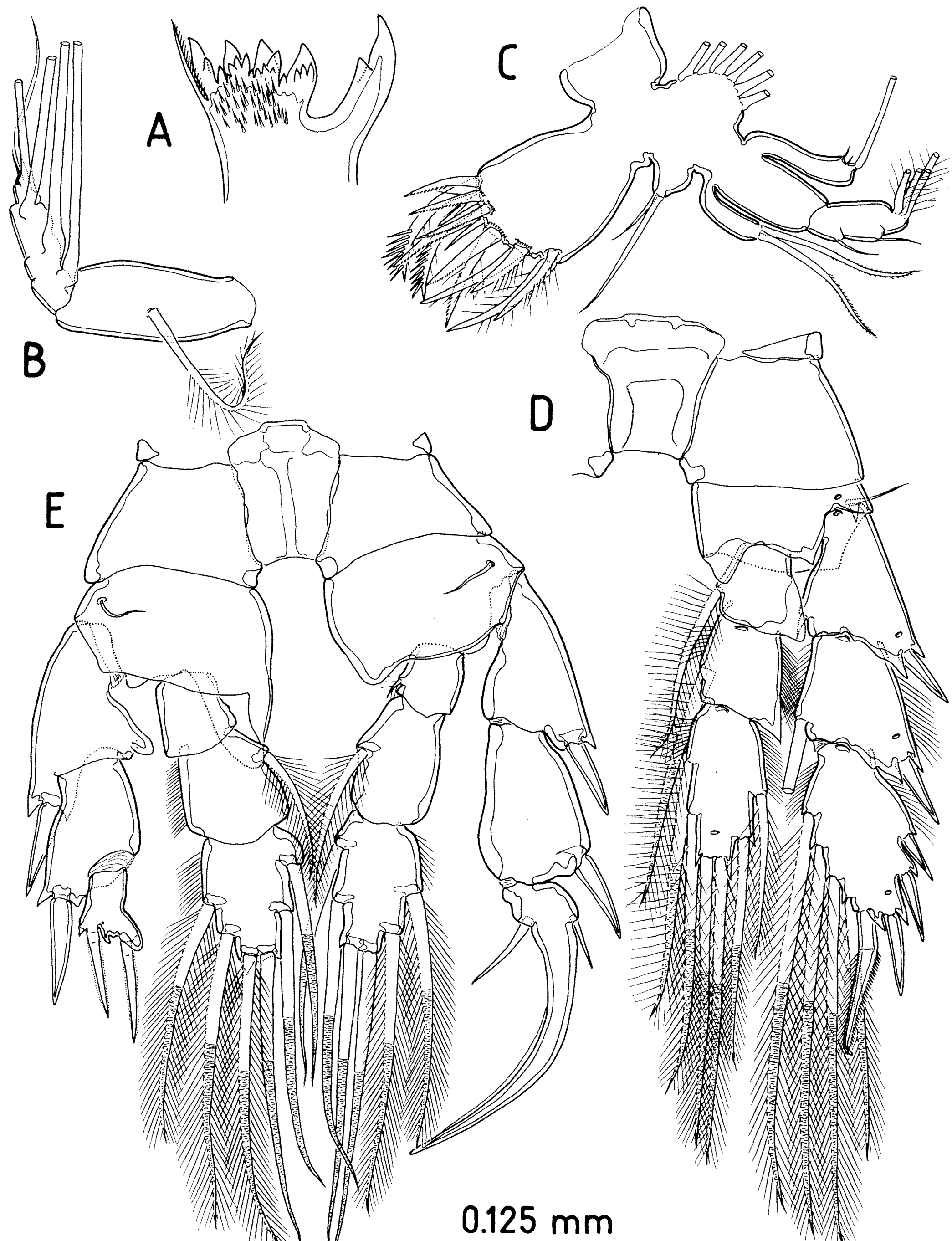

Fig. 6. *Bunderia misophaga* gen. et sp. nov., holotype ♀: A, cutting blade of mandible coxal gnathobase; B, mandibular palp; C, maxillule; D, left fifth leg, anterior; E, fifth legs of male paratype, posterior.

and in absence of pointed processes flanging insertion of outer spine on second segment of right exopod. Third segments small, highly asymmetrical; that of left exopod with 3 small processes of dissimilar shape plus 2 ordinary spines distally; right counterpart with long, falcate distal process fused to segment at base, flanked by 2 unequal spines; falcate process with hyaline frill along inner margin.

Etymology.—The specific name is a combination of *misophrioid* and the Greek *phagein* (= to eat) and refers to the habit of predating upon misophrioid copepods exhibited by the new taxon.

Remarks.—Most outstanding characters differentiating between epacteriscid genera are based on the morphology of the male fifth legs, which can vary from being relatively weakly transformed—with modifications affecting only the third exopod segment—to being highly transformed and complex. *Bunderia* gen. nov. shows a close resemblance to *Enantronoides* Fosshagen, Boxshall, and Iliffe, in press, a monotypic genus inhabiting the Bahama Islands known only from the male, in the relatively simple fifth legs, having the right third exopod segment modified with a slender, long and curved spiniform process flanked by 2 short spines. Nevertheless, they differ in many other characters that support their placement in separate genera and that are sufficient to justify the erection of a new genus for the Australian taxon. Thus, in *Bunderia* gen. nov. the rostrum is prominent, with well-developed lobes; the first pedigerous somite is completely separate from the cephalosome; the caudal setae V are symmetrical, none being unusually elongate; the articulation between the left antennulary ancestral segments III–IV is completely expressed; the distal segment of the antennary endopod is only slightly shorter than the proximal segment; the ventralmost tooth of the mandibular coxal gnathobase is bicuspid; the maxilliped endopodal setae have an unusual, spoon-shaped tip; only the distal exopodal spine of leg 1 has a flagelliform tip; and the left leg 5 exopod bears 3 reduced unequal processes and only 2 ordinary spines distally on the third segment, plus the first segment bears a rounded process on the inner margin. In contrast, in *Enantronoides* the rostrum is short and broad, not prominent; the first pedigerous somite is incompletely separate dorsally from the cephalosome; the left caudal seta V is unusually elongate, more than twice the length of the corresponding seta on the right ramus; the articulation between the left antennulary ancestral segments III–IV is not expressed; the distal segment of the antennary endopod is clearly shorter than the proximal segment; the ventralmost tooth of the mandibular coxal gnathobase is unicuspid; the maxilliped endopodal setae have ordinary tips; all the exopodal spines on the first leg have a flagelliform tip; and the left leg 5 exopod carries 3 spines on the third segment but no processes, plus the first segment has an ordinary inner margin.

Following the key to genera of the Epacteriscidae provided by Fosshagen, Boxshall, and Iliffe (in press), the new Australian taxon would fall into *Enantronoides*. An emended key to epacteriscid genera is presented below to solve this problem.

Feeding Habits.—Epacteriscids are considered to be specialised predators mainly due to their raptorial mouthparts (i.e., powerful mandibular gnathobase provided with long, sharp teeth; stout elongate spinous setae on distal parts of both maxillae and maxillipeds well suited for catching and holding prey) and to the fact that representatives of the 12 (now 13) known genera except *Enantiosis* Barr, 1984, seem not to be attracted by baited traps (Fosshagen and Iliffe, 1985, 1994; Fosshagen, Boxshall, and Iliffe, in press). Nevertheless, these putative predatory habits had not been explicitly demonstrated yet. The gut contents of the holotype of *Bunderia misophaga* gen. et sp. nov. has yielded remains of the swimming legs of a yet-to-be-described, new species of speleophriid misophrioid copepod belonging to the genus *Speleophria* Boxshall and Iliffe, 1986. The other 2 individuals had an empty gut. Additional potential prey—they were collected in the same samples as *Bunderia*—might include other small-sized copepods such as a new species of pseudocyclopiid calanoid copepod belonging to the genus *Stygocyclopia* Jaume and Boxshall, 1996, an unidentified cyclopoid belonging to the genus *Halicyclops* Norman, 1903, plus an unidentified harpacticoid.

Biogeography.—The Epacteriscidae is a small family of calanoid copepods almost exclusively found in groundwater marine/anchialine habitats in tropical or subtropical latitudes. Twenty species of epacteriscids were known until now, distributed in 12 genera, 10 of them being monotypic and restricted to either side of the Atlantic (Caribbean region, Bermuda, and the Canary Islands). Only *Enantiosis* Barr, 1984, and *Epacteriscus* Fosshagen, 1973, are polytypic and have representatives living outside caves. Both genera are represented in the Indo-Pacific region, with four stygobiont species of *Enantiosis* distributed as follows: *E. galapagensis* Fosshagen, Boxshall, and Iliffe, in press, on Santa Cruz and Floreana (Galápagos Islands), *E. dicerata* Fosshagen, Boxshall, and Iliffe, in press, on Vatulele (Fiji); *E. conspinulata* Fosshagen, Boxshall, and Iliffe, in press, on Ngeruktabel; and *E. longiprocessa* Fosshagen, Boxshall, and Iliffe, in press, on Ngermeuangel (last 2 islands in Palau, Western Caroline Islands). In addition, there is a report of unassigned *Enantiosis* females captured in emergence traps in the Philippines (Barr, 1984). Regarding *Epacteriscus*, unassigned specimens were gathered by the same method in the Indo-Pacific region (Philippines?) by Walter (1986). Both genera display a typically Tethyan pattern, with vicariants located in the Caribbean region.

The discovery of *Bunderia* gen. nov. raises to three the number of genera present in the region and, although it is a monotypic taxon and thus cannot provide any conclusive biogeographic information, its closest relationship with the monotypic *Enantronoides* Fosshagen, Boxshall, and Iliffe, in press, from the Bahama Islands advocates for an ancient, Tethyan relict status for it as well.

KEY TO EPACTERISCID GENERA

1. Articulation between antennulary ancestral segments II–III expressed 8
– Articulation not expressed 2
2. Articulation between antennulary ancestral segments III–IV expressed 6
– Articulation not expressed 3
3. Rostrum hardly developed; rounded process on antennulary segment IX; mandibular palp with 1 extremely long seta distally . . . . *Oinella* Fosshagen, Boxshall, and Iliffe, in press
– Rostrum well developed; rest of characters absent 4
4. Gnathobase of mandible strongly modified, projecting frontally . . . . . *Epacteriscus* Fosshagen, 1973
– Gnathobase unmodified 5
5. Mandible endopod 1-segmented; proximal segments of male left fifth leg exopod strongly modified . . . . *Enantiosis* Barr, 1984
– Endopodal segments of mandible unexpressed; proximal segments of male left fifth leg exopod unmodified . . . . *Bunderia* gen. nov.
6. Articulation between antennulary ancestral segments I–II expressed; caudal rami of similar length . . . 7
– Articulation not expressed; caudal rami unequal . . . *Gloinella* Fosshagen, Boxshall and Iliffe, in press
7. Mandibular palp with no trace of endopod; first pedigerous somite incompletely separate dorsally from cephalosome . . . . . . *Enantronoides* Fosshagen, Boxshall, and Iliffe, in press
– Mandibular palp with 1-segmented endopod; first pedigerous somite completely separate from cephalosome . . . . *Enantronia* Fosshagen, Boxshall and Iliffe, in press
8. Legs 3 & 4 with 3 outer spines on third exopodal segment 10
– Only 2 outer spines on segment 9
9. Caudal rami each with 6 terminal setae; leg 2 with strong outer spine on basis . . . . *Erebonectes* Fosshagen, 1985
– Caudal rami with only 5 setae; leg 2 with basis unarmed . . . . *Erebonectoides* Fosshagen, Boxshall, and Iliffe, in press
10. Articulation between antennulary ancestral segments XXVI and double-segment XXVII–XXVIII expressed; female urosome apparently 3-segmented due to reduced anal somite being entirely concealed beneath posterior rim of preceding abdominal somite . . *Edaxiella* Fosshagen, Boxshall, and Iliffe, in press
– Articulation not expressed; female urosome conspicuously 4-segmented, with well developed anal somite . . . 11
11. Antenna with endopod longer than exopod . . *Balinella* Fosshagen, Boxshall, and Iliffe, in press
– Endopod shorter than exopod 12
12. Endopod of maxilliped with long flexible setae . . . *Bomburiella* Fosshagen, Boxshall, and Iliffe, in press
– Endopod with strong claw-like spines . . . . *Bofuriella* Fosshagen, Boxshall, and Iliffe, in press

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