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Revision of the genus *Oxyarcturus* (Isopoda, Valvifera, Antarcturidae), with a description of a new deep-sea species from Argentina

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Abstract

A new antarcturid isopod, *Oxyarcturus holoacanthus* **sp. nov.**, is fully described based on seven specimens collected in the Mar del Plata submarine canyon at 2950 m depth, during the "Talud Continental III" expedition on board the Argentinian RV "Puerto Deseado". *Oxyarcturus holoacanthus* **sp. nov.** is closely related to *O. spinosus* (Beddard, 1886), from which it can be distinguished by the body spine pattern. The penial plate, a novel character for the genus *Oxyarcturus*, as well as for the family Antarcturidae, is described in detail. The species *O. dubius* (Kussakin, 1967) and *O. beliaevi* (Kussakin, 1967) are considered as *incertae sedis* until further morphological and molecular data can clarify their taxonomic position. An update of the geographic and bathymetric records of the genus *Oxyarcturus* is provided.

Key Words

Mar del Plata submarine canyon, *Oxyarcturus beliaevi* (Kussakin, 1967), *Oxyarcturus dubius* (Kussakin, 1967), *Oxyarcturus holoacanthus* sp. nov., Southwest Atlantic

Introduction

The valviferan isopod family Antarcturidae Poore, 2001 is one of the most diverse families of the suborder in the deep-sea (Poore and Bruce 2012). Currently, it contains approximately 100 nominal species, assigned to 17 genera, most of them distributed in the Southern Hemisphere (Poore 2001; Boyko et al. 2008; Pereira et al. 2019). In particular, the genus *Oxyarcturus*, which is herein studied, was erected by Brandt (1990) to include three species from the Subantarctic Region and off South Africa (Beddard 1886; Kussakin 1967; Kensley 1977, 1978; Brandt 1990).

The deep-sea fauna off the Argentine coast is still scarcely known. Ten species of Antarcturidae were reported from this area during the 19th and 20th centuries; all these species were collected by foreign surveys, and each one reported from a single station (Beddard 1886; Kussakin 1967; Kussakin and Vasina 1998; Doti et al. 2020). In 2012 and 2013 the Argentine RV "Puerto Deseado" carried out three expeditions to the Mar del Plata submarine canyon (Talud Continental I–III). These surveys resulted in a remarkable improvement in our knowledge of the benthic invertebrates from this area, i.e., cold-water corals, echinoderms, crustaceans, etc. (Martinez et al. 2014; Doti 2017; Pereira and Doti 2017; Bernal et al. 2018; Risaro et al. 2020; Flores et al. 2021; Pereira et al. 2021; Roccatagliata 2023; among others). In particular, for the family Antarcturidae, three species collected by the above mentioned surveys were recently described: *Xiphoarcturus kussakini* Pereira, Roccatagliata & Doti, 2019, *X. carinatus* Pereira, Roccatagliata & Doti, 2019, and *Fissarcturus argentinensis* Pereira, Roccatagliata & Doti, 2020, bringing to 13 the number of species of Antarcturidae recorded off Argentina (Pereira et al. 2019, 2020).

In the current contribution a new deep-sea species of the family Antarcturidae, *Oxyarcturus holoacanthus* sp. nov.

is fully described and illustrated based on seven specimens collected in the Mar del Plata submarine canyon. In addition, *O. dubius* (Kussakin, 1967) and *O. beliaevi* (Kussakin, 1967) are considered as *incertae sedis* until their taxonomic status is resolved. Finally, the geographic and bathymetric distributions of the genus are updated.

Material and method

The specimens were obtained with a bottom otter trawl during the "Talud Continental III" expedition on board the RV "Puerto Deseado", in 2013. Afterwards, the material was fixed in 96% ethanol.

The described specimens were stained with Chlorazol Black E, and the appendages were dissected and temporarily mounted in glycerol. Drawings of the whole animal were prepared with a Leica MZ8 stereoscopic microscope, those of the dissected appendages were prepared using a Carl Zeiss (Axioskop) compound microscope, both equipped with a camera lucida. Line drawings were rendered in a digital format using a Wacom tablet and the Adobe Illustrator program (Coleman 2003).

For the sake of clarity, in those appendages with a large number of setae, some of them were omitted in the figures. Therefore, the number of setae drawn may not match with the numbers mentioned in the text.

Habitus photographs were taken with a digital camera Nikon D7500 equipped with a macro lens Sigma 105 mm f2.8 EX. Appendages' photographs were taken with a digital camera Sony Cyber-shot DSC-WX1 mounted on the compound microscope.

Total body length was measured in dorsal view from the frontal margin of head to the tip of the pleotelson (in flexed specimens, total length was estimated by the sum of individual body parts). Appendage lengths were measured after Hessler (1970). For the terminology of the body parts, spines and setae, see Pereira et al. (2019). The eye size was estimated by the ratio between the eye diameter (e) and the distance between the eye and the anterior margin of the head (d) following Pereira et al. (2020).

The geographic distribution of the *Oxyarcturus* species was charted using the PanMap software v.0.9.6 (Diepenbroek et al. 2002), on a map generated by the GeoMapApp software v.3.6.15 (www.geomapapp.org) / CC BY (Ryan et al. 2009).

The type material is deposited in the Invertebrate collection of the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" (**MACN**), Buenos Aires.

Results

Suborder Valvifera Sars, 1883
Family Antarcturidae Poore, 2001

Genus *Oxyarcturus* Brandt, 1990

Oxyarcturus Brandt, 1990: 73–74;– Wägele 1991: 138;– Poore 2001: 224.

Type species. *Arcturus spinosus* Beddard, 1886.

Diagnosis (modified from Brandt 1990). Body slender and geniculate; dorsal surface covered with many spines. Head with two long supraocular spines, followed by two (or more) long posterior supraocular spines. Eyes well developed, lateral, rounded or rather oval. All pleonites fused with pleotelson, pleonites 1–3 separated by transverse grooves. Pleotelson with two long caudolateral spines, and a single subterminal medial spine in between. Antenna longer than body, flagellum multiarticulate with at least 8 articles. Pereopod I developed into a strong subchela, dactylus not swollen. Pereopods II–IV, dactylus without filter setae.

Remarks. Brandt (1990) in a comprehensive work of the Antarctic Valvifera revised the old genus *Antarcturus* zur Strassen, 1902, and transferred 17 of the species previously placed in this genus to *Acantharcturus* Schultz, 1981, *Chaetarcturus* Brandt, 1990, *Litarcturus* Brandt, 1990, *Tuberarcturus* Brandt, 1990 and *Oxyarcturus* Brandt, 1990. Brandt (1990) erected the genus *Oxyarcturus* to include three species: *O. spinosus* (Beddard, 1886), *O. dubius* (Kussakin, 1967) and *O. beliaevi* (Kussakin, 1967); and stated that members of this genus have "caudal margin of pleotelson with 3 acute spines, two long laterocaudal ones and one shorter medial spine"; being this the only feature characterizing the genus. Although this medial spine is evident in *O. spinosus* (type species) and *O. holoacanthus* sp. nov. (see Beddard (1886); current study Figs 1A, B, 2C), the presence of this spine in *O. dubius* and *O. beliaevi* is uncertain. Unfortunately, Kussakin (1967) did not include figures in dorsal view of *O. dubius* and *O. beliaevi*. However, he wrote that *O. dubius* has "very small, weakly expressed spinules, largest of which were disposed in midline near posterior margin of pleotelson". Regarding *O. beliaevi*, although Kussakin (1967) did not mention the presence of a medial spine in this species, Kensley (1977, 1978) reported this spine in specimens from South Africa. However, Wägele (1991) and Kussakin and Vasina (1995) questioned Kensley's identification.

In addition, Kussakin (1967) stated that *O. dubius* has numerous long setae on the internal margin of the five distal articles (ischium to dactylus) on the pereopods II–IV. Within Antarcturidae, the presence of filter setae on the dactyli of the pereopods II–IV is characteristic of the species of the genera *Chaetarcturus* Brandt, 1990, *Mixarcturus* Brandt, 1990, *Caecarturus* Schultz, 1981 and *Glaberarcturus* Kussakin & Vasina, 1998 (Schultz 1981; Brandt 1990; Kussakin and Vasina 1998).

O. dubius (Kussakin, 1967) is clearly not a member of *Oxyarcturus*, and *O. beliaevi* (Kussakin, 1967) probably neither. Therefore, these two species are herein removed from the genus *Oxyarcturus* and placed as *incertae sedis*, until further morphological and molecular data can clarify their taxonomic position.

On the other hand, the specimens from South Africa identified by Kensley (1977) as *Antarcturus beliaevi* most probably belong to a new species of *Oxyarcturus*. If confirmed to be a new species, its description should be completed, one specimen should be designated as holotype, and a formal name should be adopted.

Species included. *O. spinosus* (Beddard, 1886); *O. holoacanthus* sp. nov., and probably *Antarcturus beliaevi* Kussakin, 1967 *sensu* Kensley 1977.

Oxyarcturus holoacanthus sp. nov.

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Figs 1–10

Type material. ***Holotype*** adult ♂ (30.7 mm). "Talud Continental III" expedition, Sta. 47 (38°06.58'S, 53°42.83'W), 2950 m, bottom otter trawl, 06 Sep. 2013, RV "Puerto Deseado", I. Chiesa & A. Martinez leg. MACN-In 44318.

Paratypes 4 adult ♂♂ (31.3–35.4 mm); 1 adult ♂ broken; 1 ovigerous ♀ (38.9 mm). Same data as holotype. MACN-In 44319.

Diagnosis. Head with 2 long supraocular spines and 6 posterior supraocular spines. Eyes large (e/d ratio = 1.6). Pereonite 1 with 6 submedial, 2 sublateral and 4 lateral long spines. Pereonites 2–4 with 4 submedial, 2 sublateral and 2 lateral long spines. All four pereonites with additional small spines. Pereonites 5–7 with 2 submedial spines, and sublateral and lateral spines. All pleonites fused with the pleotelson, pleonite 1 indicated by transverse groove. Pleonites 1–3 with 2 submedial spines, and sublateral and lateral spines. Pleotelson, dorsal surface and lateral margins with long spines. Uropod, external surface of protopod with many short spines.

Description. Adult male (habitus based on the holotype MACN-In 44318; appendages based on the paratype MACN-In 44319-a).

Body (Figs 1A, B, 2A, B) cylindrical and geniculate. Head with 2 long supraocular spines, 6 long posterior supraocular spines, 2 long lateral spines. Eyes large (e/d ratio = 1.6). Pereonite 1 with 6 submedial, 2 sublateral and 4 lateral long spines. Pereonites 2–4 with 4 submedial, 2 sublateral and 2 lateral long spines. All four pereonites with additional small spines. Pereonites 5–7 with 2 submedial spines, and sublateral and lateral spines. All pleonites fused with pleotelson, pleonite 1 indicated by transverse groove. Pleonites 1–3 with 2 submedial spines, and sublateral and lateral spines; pleonite 3 with 2 long lateral spines. Pleotelson with 2 long caudolateral spines, and 1 short subterminal medial spine in between; dorsal surface with long spines; lateral margins with spines.

Antennula (Fig. 3A, B) peduncle of 3 articles; article 1 widest, with 1 feather-like seta distally, setules on both margins, and cuticular combs; article 2 longest, with 8 feather-like setae (some of them broken); article 3 0.79× article 2 length, with 2 simple setae (broken). Flagellum of 3 articles; article 1 very short, ring-like and glabrous; article 2 longest, with 22 groups of 1–3 aesthetascs and 0–2 long simple setae each; article 3 minute, knob like, with 1 aesthetasc and 3 simple setae.

Antenna (Figs 1A, C, 2A, B, 3C) peduncle of 5 articles; article 1 short and wide, glabrous; article 2 subequal in width to article 1, with 3 distal spines and 5 simple setae on ventral margin; article 3 0.38× article 5 length, with 2 distal spines and 8 simple setae; article 4 0.88× article 5 length, with 2 distal spines; article 5 longest, with 1 distal spine. Flagellum of 8 articles, last article minute, claw-like (flagellum broken in the paratype drawn).

Mandibles (Fig. 3D, E) asymmetrical, without palp. Incisor processes with 4 strong sclerotized teeth. Molar processes with grinding surface and indented margins; right molar process narrower than left one, and with 9 setae on lower surface. Left *lacinia mobilis* with 3 rounded teeth and 1 stout serrate seta; right *lacinia mobilis* with 4 acute teeth and a few small setae.

Maxillula (Fig. 4A) lateral lobe with 10 stout setae distally. Mesial lobe with 3 setulate long setae distally (1 of them broken). Both lobes with simple setae marginally.

Maxilla (Fig. 4B) outer lobe with 6 serrate setae distally. Mesial lobe with 4 serrate setae distally. Inner lobe with 22–23 setulate setae distally. Surface and margins of outer, mesial and inner lobes covered with setules.

Maxilliped (Fig. 4C) basal endite short and broad, with 18 setulate setae on distal and lateral margins. Palp of 5 articles; article 1 0.4× article 3 length, with 11 simple setae; article 2 0.6× article 3 length, with 24–25 simple setae; article 3 longest, with 40 simple and serrulate setae on inner margin, and 4 long setae (3 of them broken) on outer distal angle; article 4 0.9× article 3 length, with 30 simple and serrulate setae on inner margin, and 8 long simple and serrulate setae along outer margin; article 5 shortest, with 12 simple and serrulate setae. Epipod long, oval, surpassing distal margin of palp article 1, with few simple setae on ventral surface and inner margin. Basis and epipod, ventral surfaces with small setae and cuticular combs.

Pereopod I (Fig. 4D) shorter and stouter than pereopods II–IV. Basis short, with 1 short proximal spine (broken); ischium, merus and carpus 0.6, 0.4 and 0.3× propodus length, respectively; propodus longest article; dactylus 0.6× propodus length (excluding claws), with 2 distal claws, ventral claw 0.4× dorsal claw length. Distal corner of basis and flexor margin of ischium with long simple setae. Flexor margins of merus to dactylus, and mesial face of propodus with serrulate setae (for sake of clarity, these latter setae were not drawn in Fig. 4D).

Pereopods II–IV (Fig. 5) alike, pereopod IV longest. Bases gradually changing from short and smooth (pereopod II) to long and with spines (pereopod IV). Note: spines are broken or worn out in the specimen drawn. These spines are better preserved in the holotype (see Figs 1A, 2A). Ischium, merus and carpus with 1 long distal spine (except on carpus of pereopod IV). Distal corner of flexor margin of basis and flexor margins of ischium to propodus with two rows of filter setae. Dactylus (excluding claws) 0.2–0.3× propodus length, with 2 distal claws, ventral claw 0.4–0.6× dorsal claw length (see Fig. 5C).

Pereopods V–VII (Fig. 6) alike, shorter than pereopods II–IV, pereopod V longest (pereopod VI broken at merus level). Bases longest article, with spines and 0–4 feather-like setae on extensor margin.

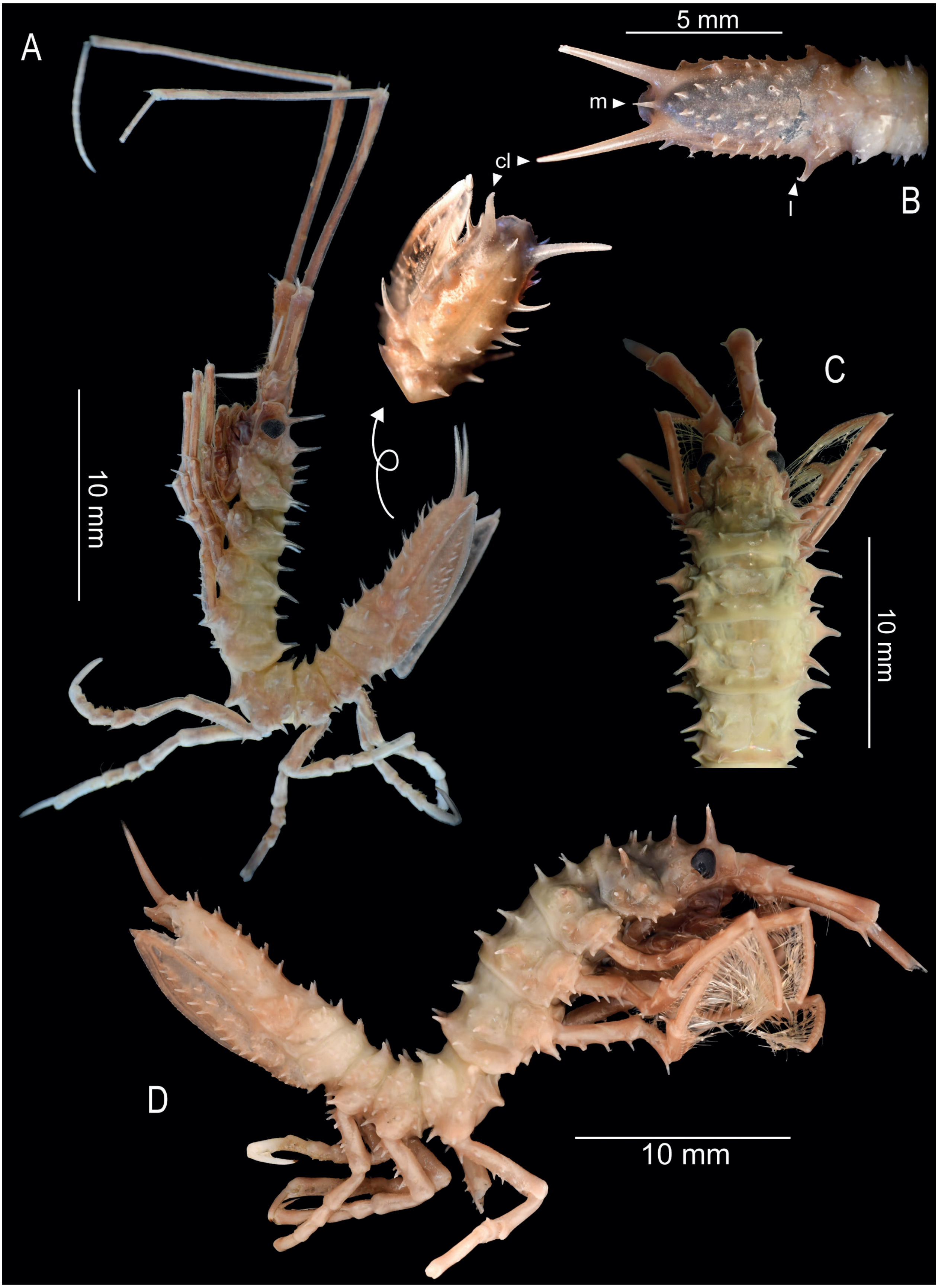

Figure 1. *Oxyarcturus holoacanthus* sp. nov. Photographs. Holotype male (MACN-In 44318). **A.** Habitus, lateral view. Paratype male (MACN-In 44319-a); **B.** Pleon, dorsal view. Paratype female (MACN-In 44319-b); **C.** Head and pereonites 1–4, dorsal view; **D.** Habitus, lateral view. **cl** – caudolateral spine; **m** – medial spine; **l** – lateral spine.

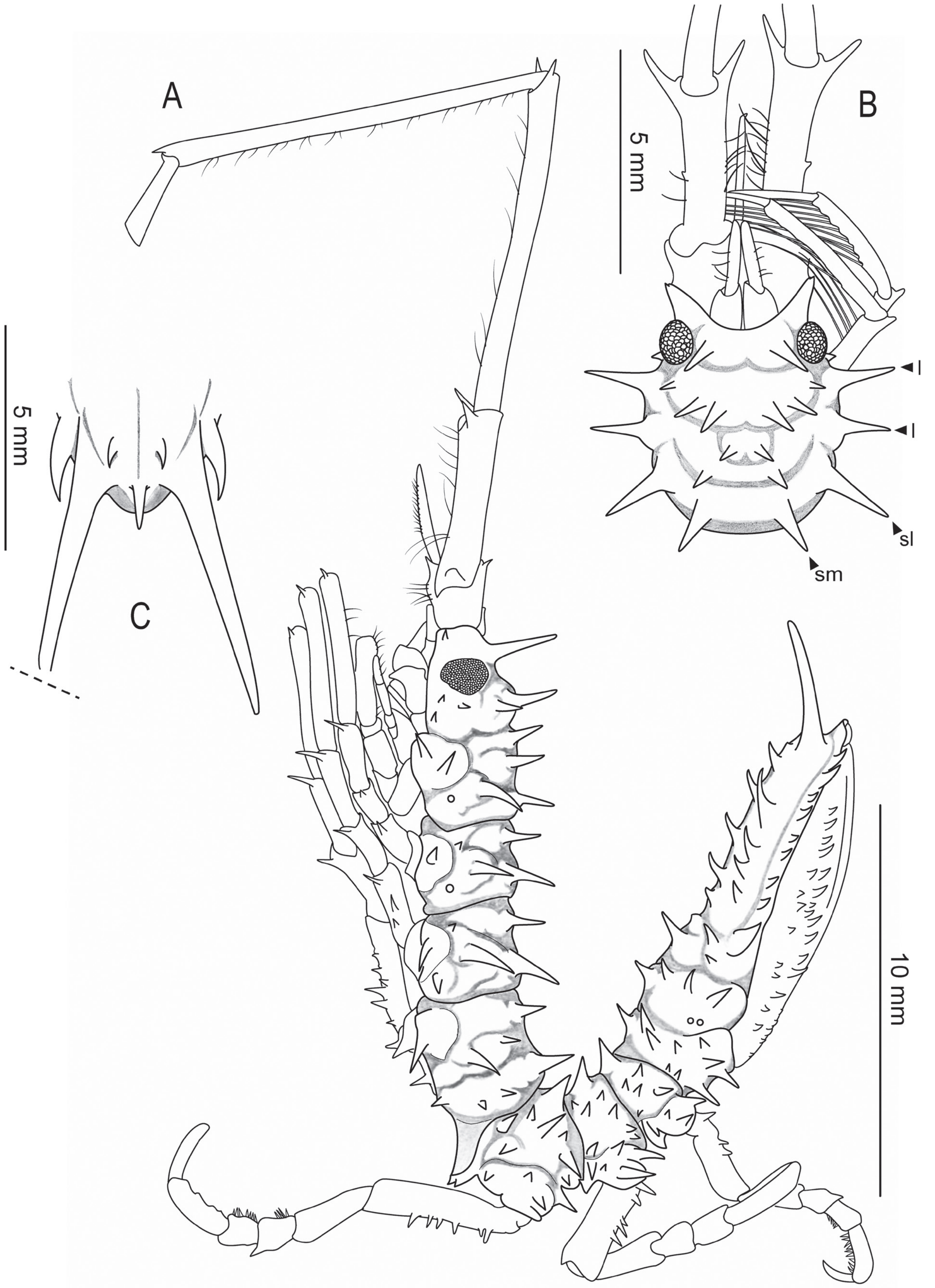

Figure 2. *Oxyarcturus holoacanthus* sp. nov. Holotype male (MACN-In 44318). **A.** Habitus, lateral view; **B.** Head and pereonite 1dorsal view (arrowhead point pereonite 1 spines). Paratype male (MACN-In 44319-a); **C.** Tip of pleotelson, dorsal view. **sm** – submedial spine; **sl** – sublateral spine; **l** – lateral spine.

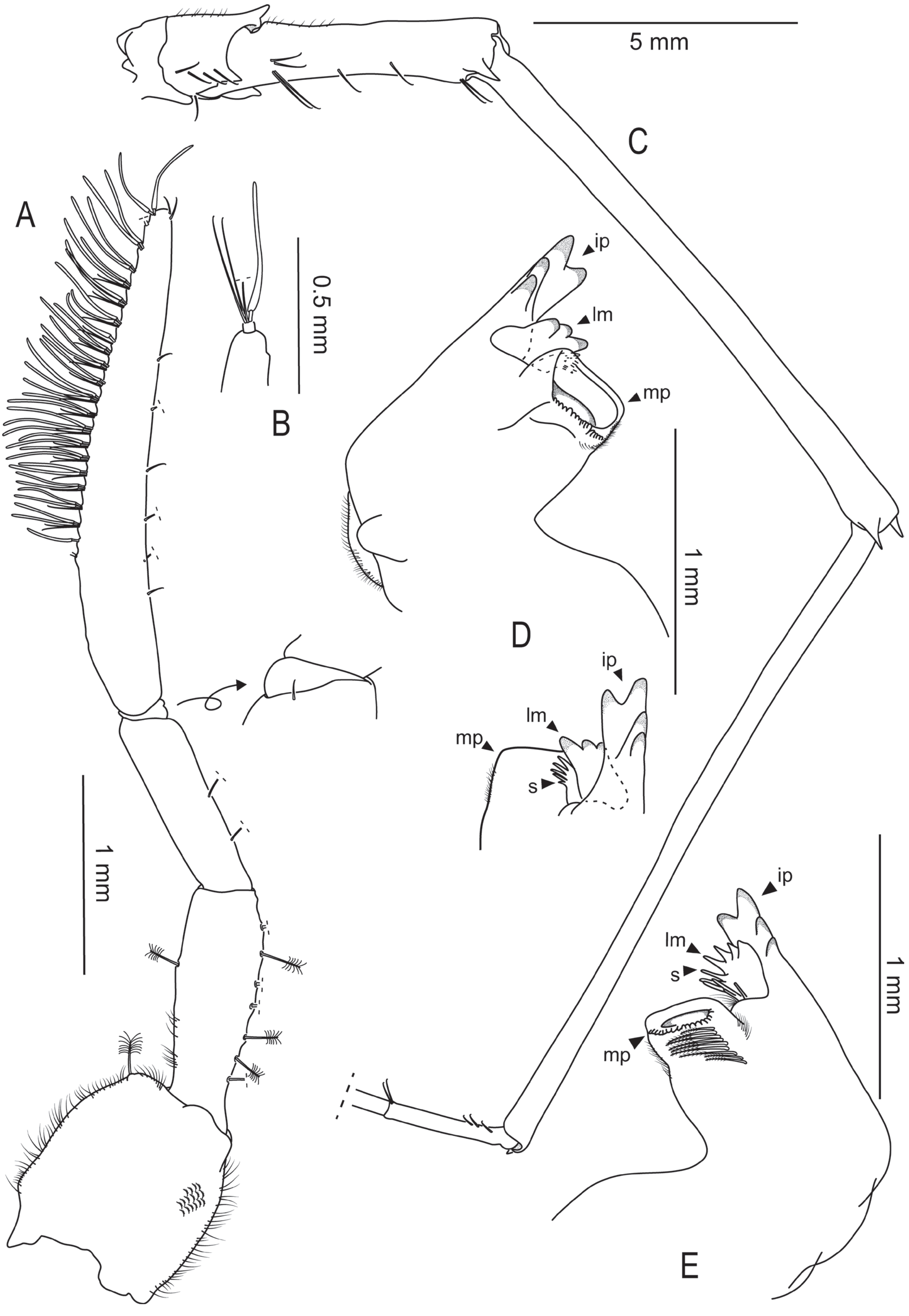

Figure 3. *Oxyarcturus holoacanthus* sp. nov. Paratype male (MACN-In 44319-a). **A**. Left antennula (last article missing), with detail of first flagellar article; **B.** Right antennula, last article; **C.** Left antenna; **D.** Left mandible, different views; **E.** Right mandible. **ip** – incisor process; **lm** – *lacinia mobilis*; **mp** – molar process; **s** – seta.

Figure 4. *Oxyarcturus holoacanthus* sp. nov. Paratype male (MACN-In 44319-a). **A.** Left maxillula; **B.** Left maxilla, with detail of setulate seta; **C.** Left maxilliped, with detail of endite and serrulate seta; **D.** Left pereopod I, with details of dactylus and a serrulate seta.

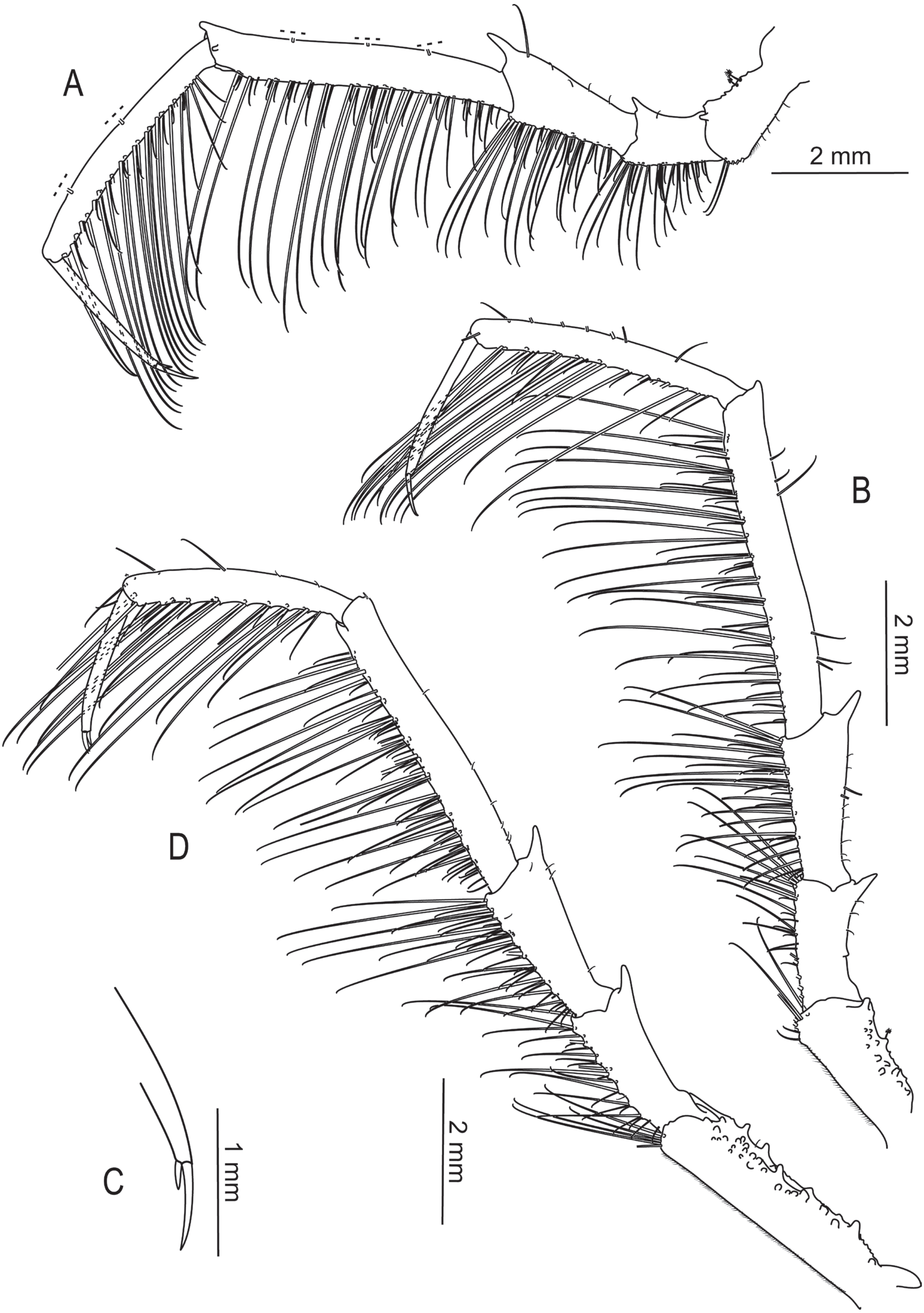

Figure 5. *Oxyarcturus holoacanthus* sp. nov. Paratype male (MACN-In 44319-a). **A.** Left pereopod II; **B.** Left pereopod III; **C.** Distal claws of right pereopod III; **D.** Left pereopod IV.

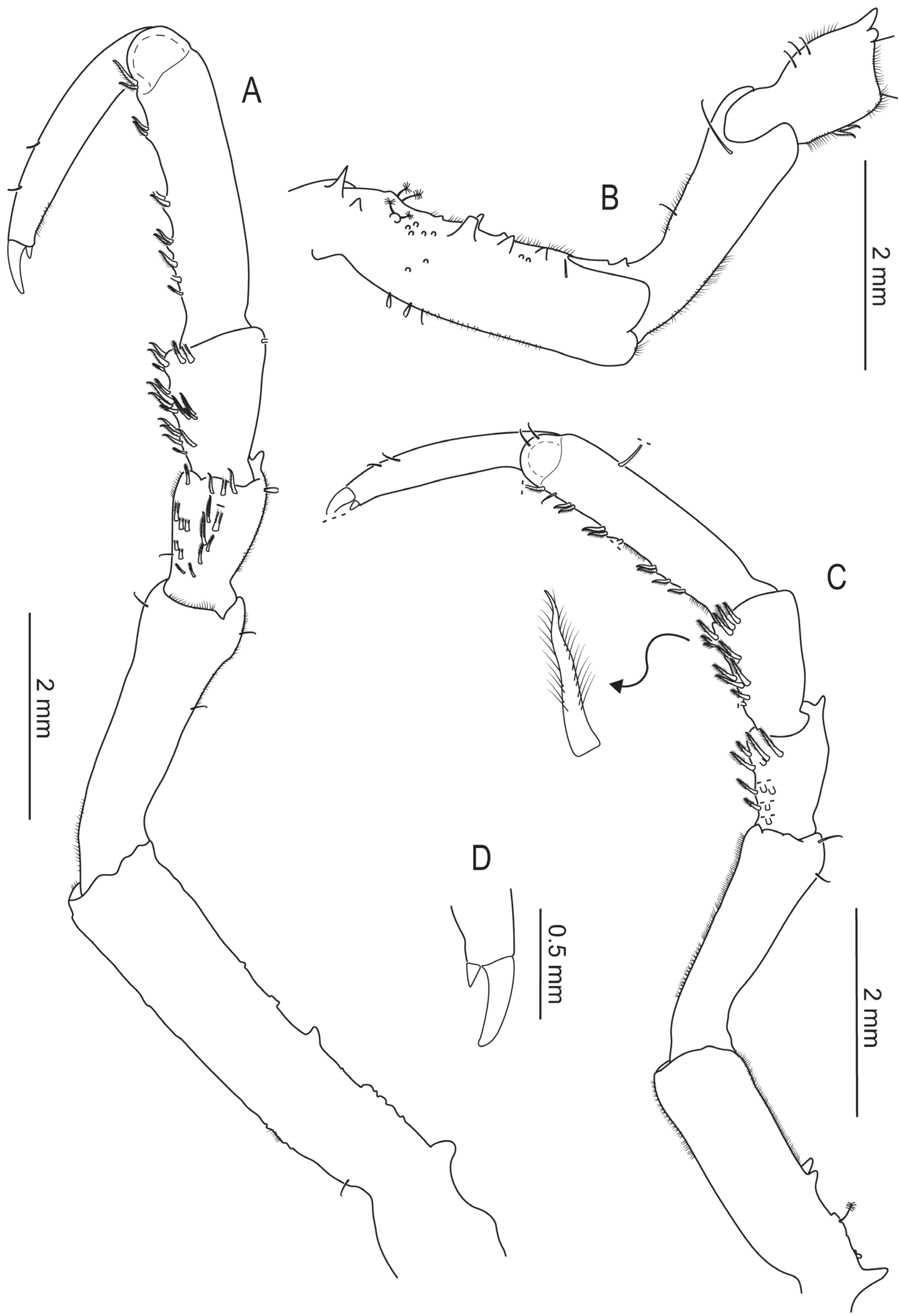

Figure 6. *Oxyarcturus holoacanthus* sp. nov. Paratype male (MACN-In 44319-a). **A.** Left pereopod V; **B.** Left pereopod VI, basis to merus only (remaining articles broken); **C.** Left pereopod VII, with detail of a spine-like seta; **D.** Distal claws of right pereopod VII.

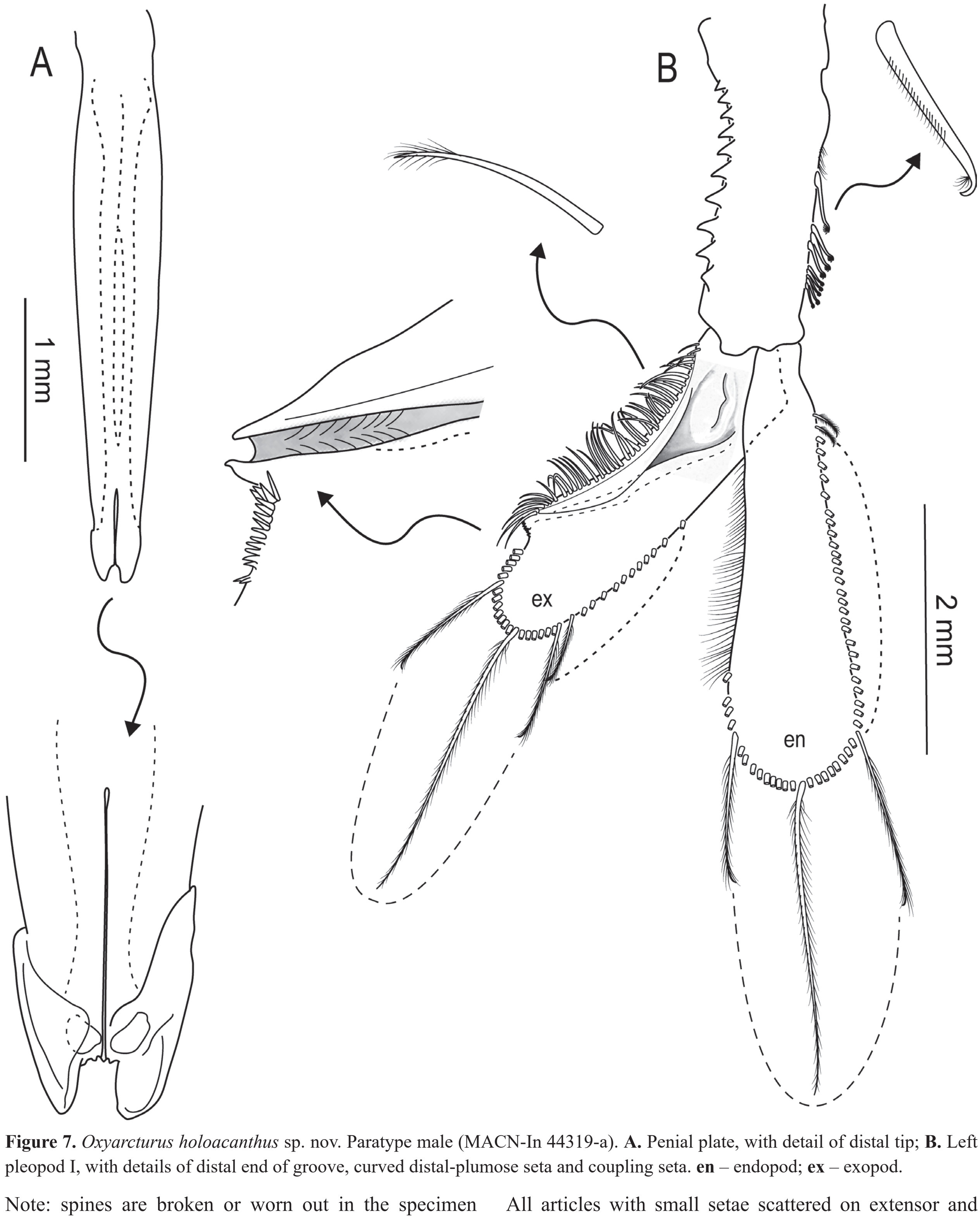

Figure 7. *Oxyarcturus holoacanthus* sp. nov. Paratype male (MACN-In 44319-a). **A.** Penial plate, with detail of distal tip; **B.** Left pleopod I, with details of distal end of groove, curved distal-plumose seta and coupling seta. **en** – endopod; **ex** – exopod.

Note: spines are broken or worn out in the specimen drawn. These spines are better preserved in the holotype (see Figs 1A, 2A). Ischium subequal in length to propodus; merus 0.4× propodus length, with 1 distal spine and 10–16 spine-like setae on flexor margin; carpus 0.5× propodus length, with 13–18 spine-like setae on flexor margin; propodus with 10 spine-like setae on flexor margin; dactylus (excluding claws) 0.8× propodus length, with 2 simple setae on extensor margin and 2 distal claws, ventral claw 0.3× dorsal claw length (see Fig. 6D). All articles with small setae scattered on extensor and flexor margins.

Penial plate (Figs 7A, 8A) fused and elongated, tapering distally; distal end barely slit, with two lateral spoon-like projections (see details).

Pleopod I (Figs 7B, 8B) protopod longer than those of remaining pleopods, with 9 coupling setae on inner margin, and 10 stout spines along outer margin. Endopod 1.1× exopod length, inner and distal margins with 55 plumose setae; outer margin with many setules. Exopod,

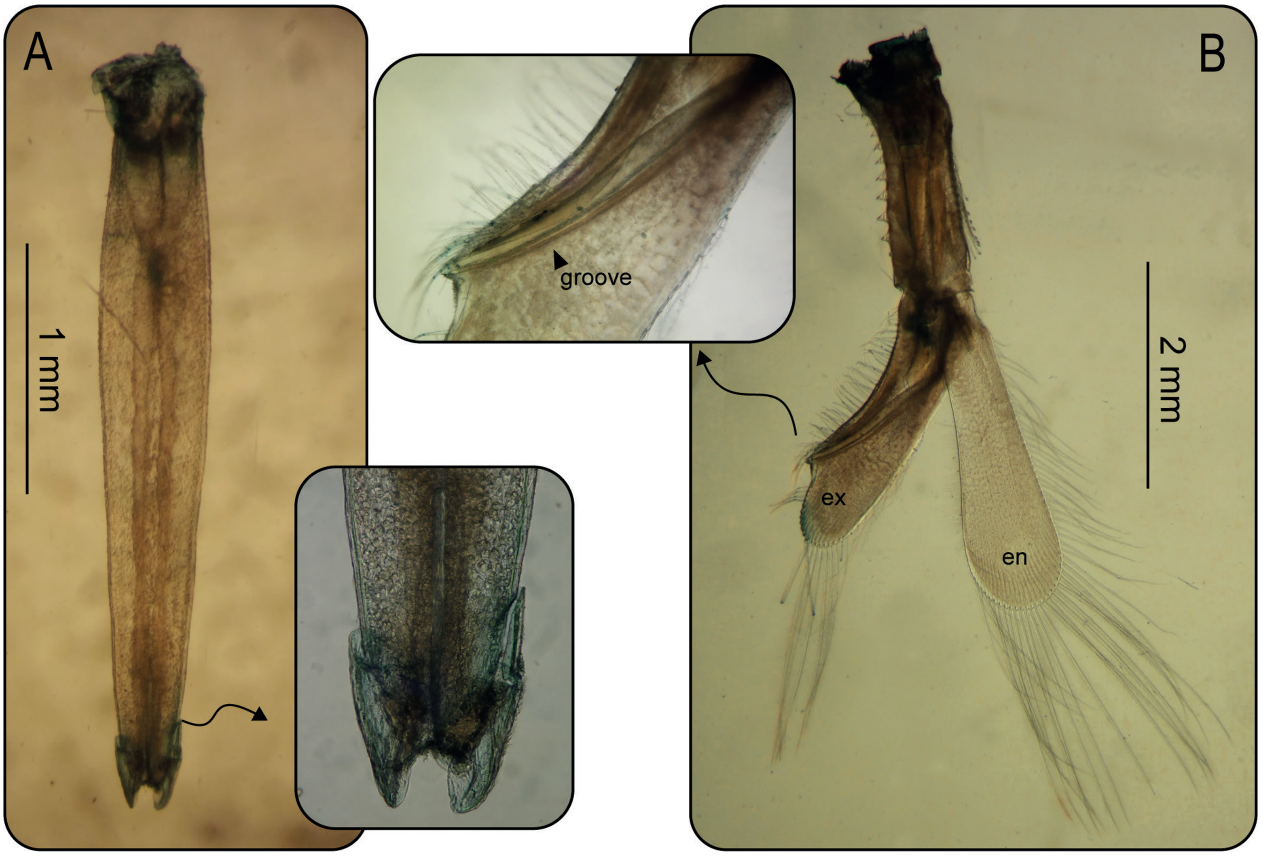

Figure 8. *Oxyarcturus holoacanthus* sp. nov. Light microscope photographs. Paratype male (MACN-In 44319-a). **A.** Penial plate, with detail of distal tip; **B.** Left pleopod I, with detail of posterior groove. **en** – endopod; **ex** – exopod.

inner and distal margins with 33 plumose setae; outer margin with 49–50 short distally plumose setae (some of them arranged in a second row on posterior surface). Posterior surface groove narrowing distally, and ending on lateral margin, overlapped by a thin layer; groove slightly projected distally, followed by a group of tiny setae (see detail). All plumose setae shorter than rami.

Pleopod II (Fig. 9A) protopod quadrangular, with 6 coupling setae on inner margin. Endopod with 63 plumose setae marginally. *Appendix masculina* subequal in length to endopod, tapering distally, with a small, rounded expansion close to distal end (see detail). Exopod subequal in length to endopod, with 90 plumose setae marginally. All plumose setae shorter than rami.

Pleopods III–V (Fig. 9B–D) protopod with 0–2 plumose setae on inner margin. Endopod 0.8–1.0× exopod length, with 2–30 plumose setae and some short simple setae. Exopod with distal setules.

Uropod (Fig. 9E, F) biramous. Protopod, external surface with 16 spines and many stunt tubercles; inner margin with 20 plumose setae (some broken). Endopod with 2 distal setae (both broken). Exopod 0.7× endopod length, glabrous.

Adult female description (habitus and appendages based on paratype MACN-In 44319-b).

As adult male, except for:

Antennula (Fig. 10A) flagellum: article 1 with 3 feather-like setae; article 2 with 16 groups of 1–3 aesthetascs and 2 long simple setae each; article 3 with 2 aesthetascs, 1 feather-like seta (broken) and 2 simple setae.

Pleopod I (Fig. 10B) protopod longer than those of remaining pleopods, with 11 coupling setae on inner margin, and 10 stout spines on outer margin. Rami subequal in length. Endopod with 62 plumose setae marginally. Exopod with 79 plumose setae marginally. All plumose setae shorter than rami.

Pleopod II (Fig. 10C) protopod quadrangular, with 7 coupling setae on inner margin, and 4 plumose setae on outer margin (broken). Rami subequal. Endopod with 78 plumose setae marginally. Exopod with 86 plumose setae marginally. All plumose setae shorter than rami.

Etymology. The specific epithet combines two Greek words *holos* = “entire, complete” and *akantha* = “spine”, referring to the many long and acute spines that cover the body surface of this species.

Distribution. Only known from the Mar del Plata submarine canyon, off Buenos Aires Province, Argentina, at 2950 m depth (Fig. 11).

Remarks. *Oxyarcturus holoacanthus* sp. nov. is most similar to *O. spinosus*. Both species have a large number of long spines on body surface. *Oxyarcturus holoacanthus* sp. nov. can be distinguished from *O. spinosus* as follows: head with 6 posterior supraocular spines (2–4 posterior supraocular spines in *O. spinosus*), pereonites 1–4 with 4–6 submedial spines (only 2 submedial spines in *O. spinosus*), pereonites 5–7

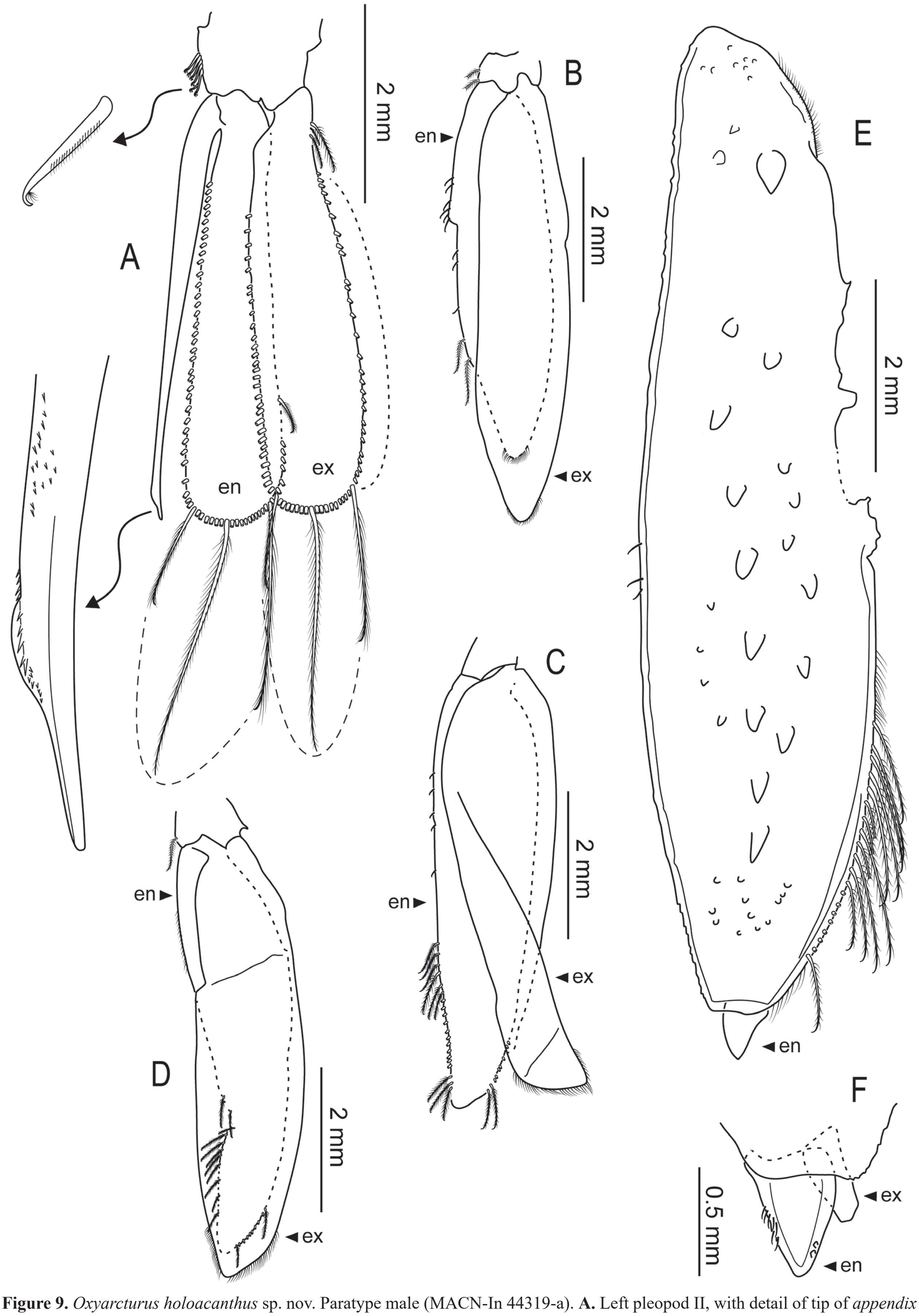

Figure 9. *Oxyarcturus holoacanthus* sp. nov. Paratype male (MACN-In 44319-a). **A.** Left pleopod II, with detail of tip of *appendix masculina* and coupling seta; **B–D.** Left pleopods III–V, respectively; **E.** Left uropod, external view; **F.** Right uropod, detail of rami, external view. **en** – endopod; **ex** – exopod.

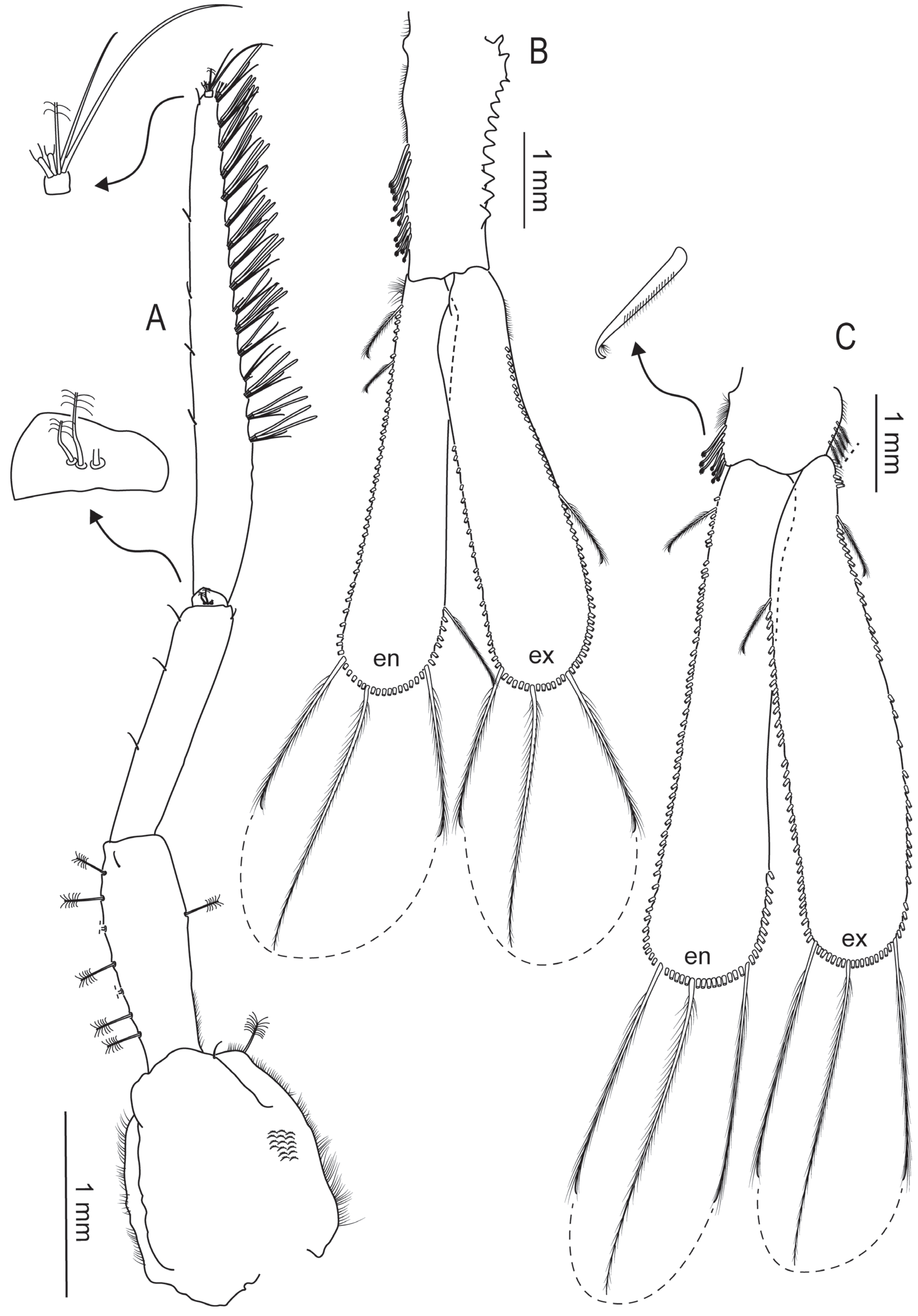

Figure 10. *Oxyarcturus holoacanthus* sp. nov. Paratype female (MACN-In 44319-b). **A.** Antennula, with details of first and third flagellar articles; **B.** Pleopod I; **C.** Pleopod II, with detail of coupling seta. **en** – endopod; **ex** – exopod.

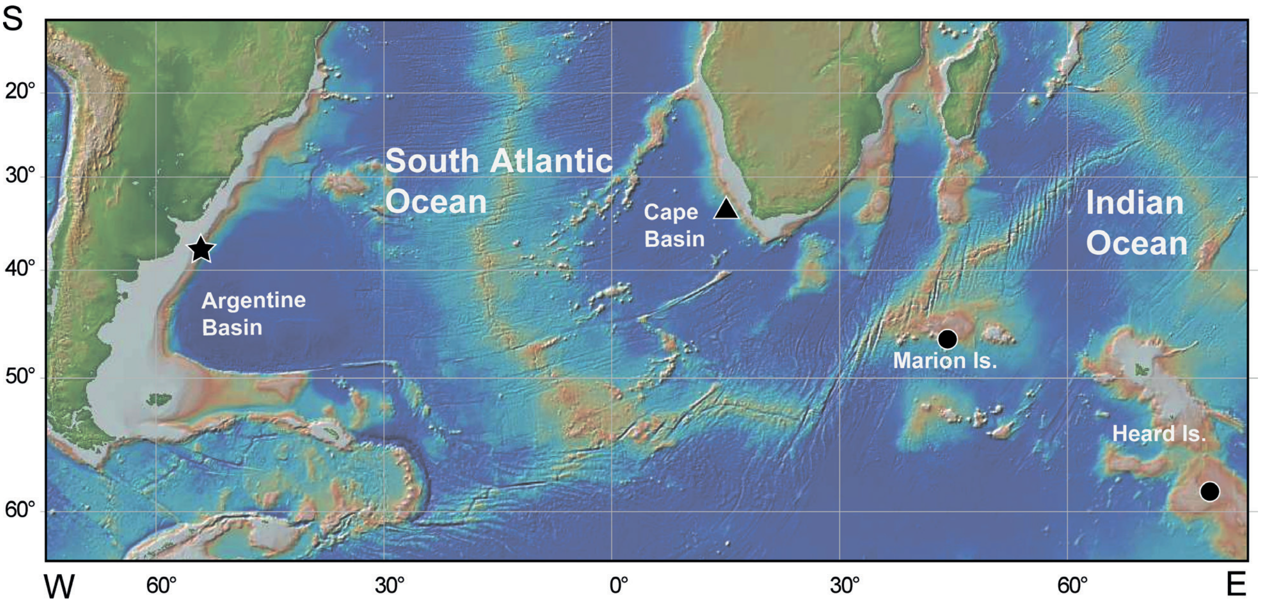

Figure 11. Distribution of *Oxyarcturus* species. (**star**) *O. holoacanthus* sp. nov.; (**circle**) *O. spinosus* (Beddard, 1886); (**triangle**) *Antarcturus beliaevi* Kussakin, 1967 *sensu* Kensley, 1977.

and pleon with many long dorsal spines on both sexes (male with small tubercles and female with small spines in *O. spinosus*).

Discussion

Oxyarcturus is one of the most poorly known genera of the family Antarcturidae. Currently, this deep-sea genus is composed of two nominal species and one probable new species from South Africa, each one with few records and few specimens reported (Beddard 1886; Kensley 1977, 1978; present study). This is also true for the new species herein studied, which was described based on only seven specimens obtained in a single station at the Mar del Plata submarine canyon.

Valviferans occur in 34 of 41 samples examined from the Talud Continental I–III expeditions (Pereira et al., in prep.). The single record of *Oxyarcturus holoacanthus* sp. nov. herein reported may reflect a patchy distribution of this species rather than an artifact of the sampling methods. It is worth noting that among the isopod species, singletons (species recorded only once) have also been reported from other deep-sea areas (Brandt et al. 2005; 2007a, b, 2015; Brix et al. 2018).

Although just a few specimens of *Oxyarcturus holoacanthus* sp. nov. were collected, it was possible to perform a detailed description of the body and appendages. The penial plate, which appears to be atypical for the family, is herein also described (Figs 7A, 8A). Pereira et al. (2020) described the penial plate of *Fissarcturus patagonicus* (Ohlin, 1901) as well, and discussed the importance of this character in the systematics of the family Antarcturidae. These findings suggest that the morphology of the penial plate should be included in future descriptions and phylogenetic studies. However, we are aware that this is not at all times possible, since deep-sea species are usually collected in low numbers of specimens, and adult males are not always available.

The spine pattern of *Oxyarcturus holoacanthus* sp. nov. showed slight variations among the specimens examined. However, since we have few specimens and some of them are damaged, we are not able to confirm whether these differences are related to size and/or sex. It is worth noticing that intraspecific variations in the spine pattern have been reported to some species of Antarcturidae (Nordenstam 1933; Kussakin 1967). Beddard (1886) mentioned that females of *O. spinosus* show more abundant and longer spines than males. Furthermore, sexual variation in the spine pattern has also been reported for other antarcturids, mainly in the genus *Fissarcturus* Brandt, 1990 (Brandt 1990, 2007; Pereira et al. 2020).

The members of the genus *Oxyarcturus* are known only from the Southern Hemisphere (Fig. 11, Table 1) i.e., *O. spinosus* was recorded off Marion Island and off Heard Island, *O. holoacanthus* sp. nov. off Argentina (Mar del Plata submarine canyon, ca. 38°S, 53°W), and *Antarcturus beliaevi sensu* Kensley, 1977 off South Africa. Regarding the bathymetric distribution (Table 1)

Table 1. Geographic and bathymetric distributions of *Oxyarcturus* species.

Species	Localities	Depths (m)	References
O. spinosus	Off Marion Is., between Heard Is. and Davis Sea	1580–2514	Beddard (1886), Kussakin (1967)
O. holoacanthus sp. nov.	Off Argentina (Mar del Plata submarine canyon)	2950	Current study
Antarcturus beliaevi sensu Kensley, 1977	Off South Africa	2500–3000	Kensley (1977, 1978)

all the species of *Oxyarcturus* were collected at deep waters between 1580–3000 m. Thus, the members of *Oxyarcturus* seem to be restricted to the lower slope.

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