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A New Genus for *Ione indecora* Markham, 1988, a Second Record for that Species, and a New Congeneric Species from Australia (Crustacea: Isopoda: Bopyridae: Ioninae)

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ABSTRACT

The new genus *Albunione* is described, with *Ione indecora* Markham, 1988, as the type species. It includes *A. indecora*, which infests the albuneid anomuran *Albunea paretii* Guérin-Méneville in the Caribbean, and the new species *A. aus-*

traliana, which infests *Albunea microps* Miers off the coast of Queensland, Australia. These species of *Albunea* are the only members of the anomuran superfamily Hippoidea known to bear bopyrid parasites.

INTRODUCTION

Bopyrid parasites of two species of the anomuran genus *Albunea* Weber, 1795 (Decapoda: Hippoidea) were found by one of us (CBB) during the course of revisionary work on the Albuneidae. One isopod pair was obtained from a Caribbean host species and the other from a northeastern Australian host species. Examination of the parasites indicated that they were congeneric, with the Ca-

ribbean material representing *Ione indecora* Markham, 1988, and the Australian material being an undescribed species. Examination of the former showed that this species did not properly belong in *Ione* Latreille, 1817, or any other described genus. Thus, we are creating a new genus for these two species, presenting new material of *Ione indecora*, and describing a new congeneric species.

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Material for this study came from the collections of the American Museum of Natural History (AMNH) and the Museum of Victoria, Australia (MOV). The type and only other known specimens of *Ione indecora*, formerly in the collections of the Allen Hancock Foundation (AHF), are now in the Los Angeles County Museum (LACM). The abbreviation CL is used for the carapace length of the host crabs, as measured from the median anterior margin to the median of the posterior concavity. The reader should refer to Markham (1988) for a more detailed explanation of some of the morphological terms (barbula and plectron, for example) used in the descriptions.

ACKNOWLEDGMENTS

Drs. Gary C. B. Poore and Elycia Wallis (MOV) kindly furnished the specimen of *Albunea microps* and information on its collection. Drs. Brian Kensley (United States National Museum) and John McDermott (Franklin & Marshall College) kindly reviewed the manuscript. The estate of Mamie L. Markham made available facilities at the Arch Cape Marine Laboratory, of which this is publication number 31.

FAMILY BOPYRIDAE

RAFINESQUE-SCHMALTZ, 1815

SUBFAMILY IONINAE H. MILNE EDWARDS, 1840

Albunione, new genus

TYPE SPECIES: *Ione indecora* Markham, 1988.

DIAGNOSIS: *Female*. Body somewhat longer than broad, only slightly distorted, subquadrilateral in outline. Head greatly expanded into lateral flap; barbula with two processes on each side. Maxilliped with nonarticulating prominent palp and long slender plectron. Oostegite 1 with tuberculate internal ridge and broad, curved posterolateral projection. Brood pouch closed. Pereopods 1–4 all about same size, pereopods 5–7 progressively larger, pereopod 7 with very long basis. Pleon with six distinct pleomeres: pleomeres 1–5 produced into long slender biramous pleopods and uniramous lateral plates; pleomere 6 with biramous uropods.

Male. Body more than three times as long as broad. Head distinct from pereon, not abruptly narrower than pereon. Second antennae long and extended beyond margin of head. No midventral tubercles on pereon or pleon. Pereopods all about the same size, but dactyli smaller and bases larger from anterior to posterior. Pleon of six pleomeres, either all separated and progressively narrower or only first three separated and progressively narrower with final three fused and greatly extended into complex lateral plates. No pleopods or uropods. *Hosts*. In albuneid genus *Albunea*.

ETYMOLOGY: Derived from genus name of only host known for its species, *Albunea* + bopyrid genus name *Ione*. The gender is feminine.

DISCUSSION: The genus most similar to *Albunione* is *Ione* Latreille, as redescribed by Richardson (1905) and Bourdon (1968), to which the type species of *Albunione* was originally assigned. In both genera, the females have suboval to subquadrilateral bodies with nearly straight axes; heads with long lateral extensions, well-developed coxal plates and tergal projections on all pereomeres; and long slender pleonal lateral plates and pleopods extending far to each side. Females of *Ione* differ from those of *Albunione* in having barbulae with three, not two, projections on each side; maxillipedal palps tiny and anteriorly placed, not prominently extended from anterolateral corners; first oostegites without posterolateral extensions; all pereopods about same size, rather than last ones much longer than others; uniramous (not biramous) pleopods, their margins deeply digitate to foliose, not smooth to slightly tuberculate; and with large smooth clublike uropods. Males of both genera have bodies more than twice as long as broad; all body regions separate; antennae 2 extending beyond sides of head; no pereonal midventral tubercles; pereopods moderately large but not extending conspicuously. Males of *Ione* have pleomeres fused, not partly to completely separated; and long slender extended pleopods on all pleomeres and similar uropods.

The genus *Ione* Latreille, one of the oldest in the family Bopyridae, contains seven described species, after removal of *I. indecora*.

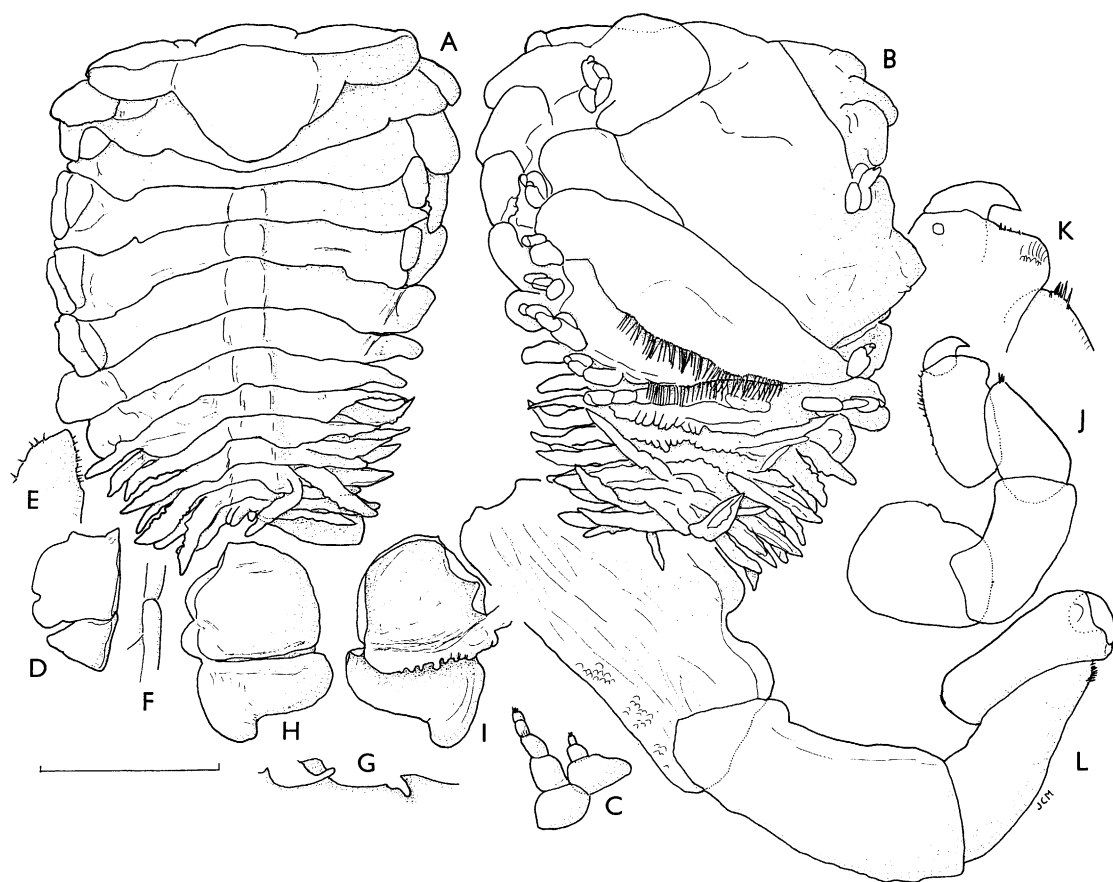


Fig. 1. *Alburnione indecora* (Markham, 1988), new combination, female (AMNH 17723). **A.** Dorsal view. **B.** Ventral view. **C.** Right antennae. **D.** Right maxilliped. **E.** Palp of same. **F.** Plectron of same. **G.** Barbula, right side. **H.** Right oostegite 1, external. **I.** Same, internal. **J.** Right pereopod 1. **K.** Distal region of same. **L.** Right pereopod 7. Scale: 4.0 mm for A, B; 2.0 mm for D, E, F, H, I; 1.0 mm for C; 0.8 mm for G, J, K.

All are parasites of species of *Callianassa* Leach, 1814 (Crustacea: Thalassinidea), and closely related callianassid genera on both sides of the Atlantic and Pacific Oceans and in the western Indian Ocean. Five of the species occur in temperate waters, one of which, *I. thoracica* (Montagu, 1808), occurs throughout Europe (Bourdon, 1968) and as far south as Nigeria (Olaosebikan, 1986). Two species are known only from their type localities in the tropics (Bourdon, 1976; Markham, 1995). *Ione* is the type genus of the bopyrid subfamily Ioninae H. Milne Edwards, all of whose species outside of *Alburnione* infest thalassinideans and brachyurans (Markham, 1986). Of the four other bo-

pyrid subfamilies known to have anomuran-infesting representatives, three are exclusively parasites of anomurans while the fourth, Pseudioninae, is also known from carideans, thalassinideans, and astacideans (Markham, 1986). Thus five of the ten bopyrid subfamilies, two of which are monotypic, are now known to include anomuran-infesting species.

Alburnione indecora (Markham, 1988),
new combination
Figures 1, 2

Ione indecora Markham, 1988: 3, 4, 30–33, 56;
figs. 12, 13; tab. 1 [Rio Bueno Bay, Jamaica,

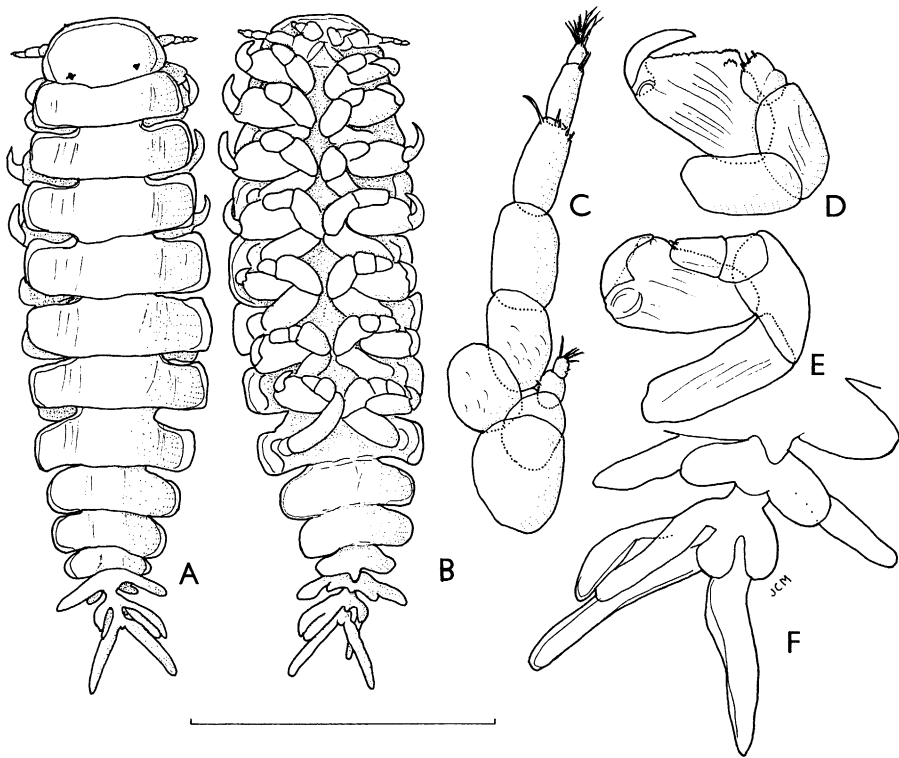


Fig. 2. *Albunione indecora* (Markham, 1988), new combination, male (AMNH 17723). A. Dorsal view. B. Ventral view. C. Right antennae. D. Right pereopod 1. E. Right pereopod 7. F. Posterior part of pleon, ventral. Scale: 1.0 mm for A, B; 0.4 mm for C–F; 0.2 mm for G.

infesting *Albunea paretii* Guérin-Méneville, 1853].—Markham, 1995: 86.

MATERIAL EXAMINED: Infesting *Albunea paretii* Guérin-Méneville (female, 10.8 mm CL, AMNH 5464). Andros Island, Bahamas, March–April 1908, coll. B. E. Dahlgren & H. Müller, C. B. Boyko, determination of host: 1 female, 1 male, AMNH 17723.

DISCUSSION: This female (fig. 1), which infests the same host species as the type specimens (AHF 1653-02), matches the original description of the holotype (Markham, 1988) except for a few minor details. Its coxal plates (fig. 1A) are somewhat less developed; its antennae (fig. 1C) have proportionately smaller proximal articles; its maxilliped (fig. 1D–F) has a narrower and more setose palp and a slightly broader plectron; its first oostegite (fig. 1H, I) has a more irregular internal ridge and a more extended posterolateral projection; and its seventh pereopod (fig. 1L) has a longer

and narrower basis. The new male (fig. 2) is also very similar to the allotype. It differs only slightly in having more nearly parallel sides (fig. 2A, B); in having slightly more setose antennae (fig. 2C), each of which has an extra article; in having slightly smaller pereopodal bases; and in having its last three pleomeres (fig. 2A) dorsally fused, not separated, and produced into dorsally directed midventral projections (fig. 2B, F). All of these differences are probably well within the ranges of expected intraspecific variation, though so far only two pairs of *A. indecora* are known. Both parasite records are from nearby localities relative to the large range of the host species, which is known in the west Atlantic from North Carolina, USA, throughout the Caribbean, and south to Santa Catarina, Brazil, and in the east Atlantic from the Cape Verde Islands south to Senegal and Ghana (Williams, 1984).

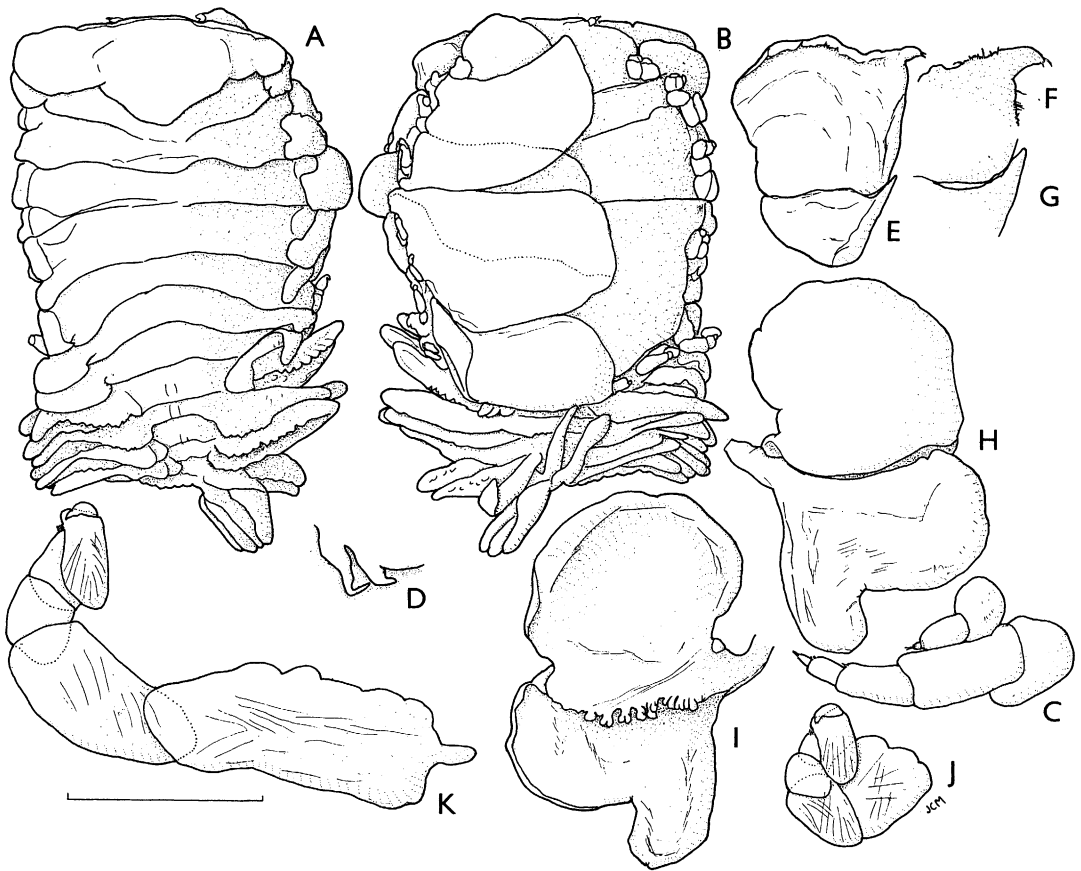


Fig. 3. *Alburnione australiana*, new species, holotype female (MOV J40129). A. Dorsal view. B. Ventral view. C. Right antennae. D. Barbula, right side. E. Right maxilliped. F. Palp of same. G. Plectron of same. H. Right oostegite 1, external. I. Same, internal. J. Right pereopod 1. K. Right pereopod 7. Scale: 4.0 mm for A, B; 2.0 mm for D, E, H, I; 1.0 mm for C; 0.8 mm for F, G, J, K.

***Alburnione australiana*, new species**

Figures 3, 4

MATERIAL EXAMINED: Infesting *Albunea microps* Miers, 1878 (female, 15.7 mm CL, MOV J40128). Rudder Reef, off Mossman, Queensland, Australia, 16°11'S, 145°40'E, 30 m, 21 October 1973, sand dredge, coll. R. J. Plant, C. B. Boyko, determination of host: 1 female, holotype (MOV J40129); 1 male, allotype (MOV J40130).

DESCRIPTION OF HOLOTYPE FEMALE (fig. 3): Body length 9.6 mm, maximal width 6.1 mm, head length 2.2 mm, head width 5.6 mm, pleon length 2.7 mm. Body distortion 8°. Body outline subquadrilateral. All body regions and most pereomeres separated (fig. 3A, B).

Head produced into broad lateral expansions reaching almost as far out as sides of pereon. No eyes present. Antennae (fig. 3C) of three and five articles, respectively, distal articles of both slightly setose. Barbula (fig. 3D) with two prominent posterolateral projections on each side, outer one longer and narrower, both bent pointing medially. Maxilliped (fig. 3E) with anterior article longer and broader than posterior one; nonarticulating falcate palp (fig. 3F) extending far medially, with it and adjacent region of maxilliped only slightly setose; prominent plectron (fig. 3G) long and sharply pointed.

Pereon broadest across pereomere 3, pereomere 4 longest, others somewhat shorter. Coxal plates on sides of pereomeres 1–5

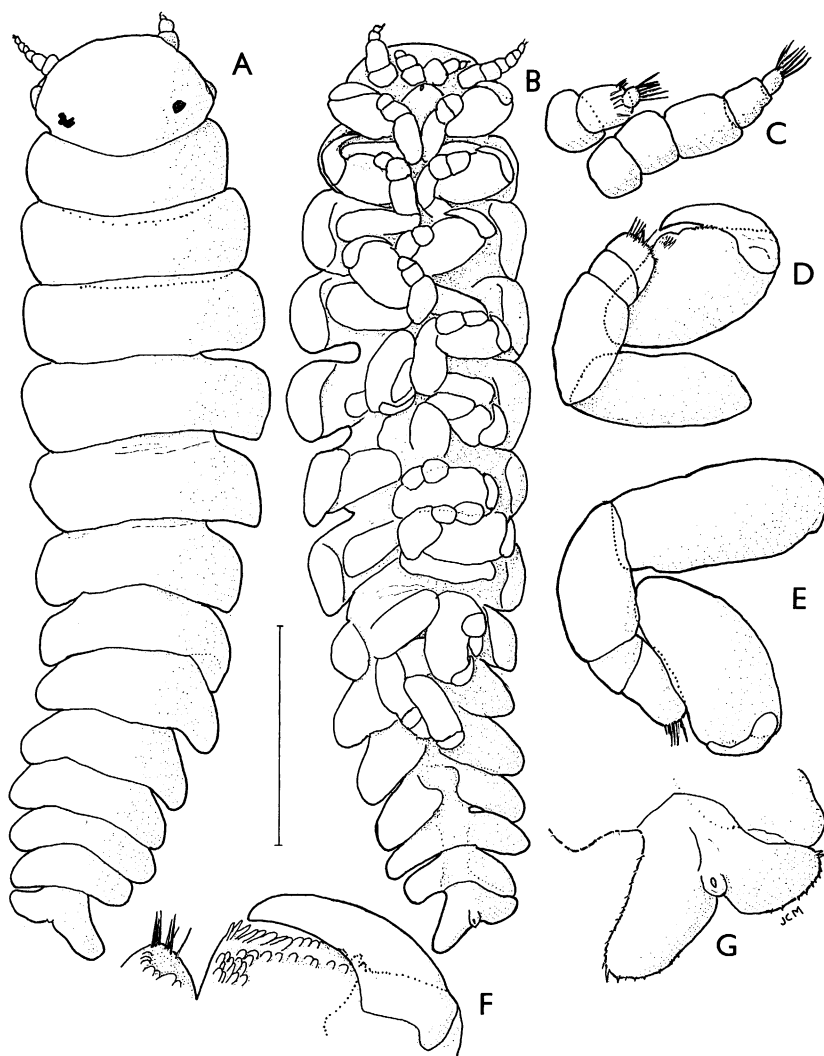


Fig. 4. *Alburnione australiana*, new species, allotype male (MOV J40130). **A.** Dorsal view. **B.** Ventral view. **C.** Right antennae. **D.** Left pereopod 1. **E.** Left pereopod 7. **F.** Distal end of pereopod 3. **G.** End of pleon, ventral view. Scale: 1.44 mm for A, B; 0.5 mm for C, D, E, G; 0.25 mm for F.

small, those on pereomeres 6 and 7 large and clublike. Oostegites completely enclosing brood pouch; first oostegite (fig. 3H, I) with articles about equal in length, internal ridge deeply digitate, posterolateral projection broad and moderately extended. Pereopods 1–4 (fig. 3J) of about same size, pereopods 5–7 (fig. 3K) progressively larger, final ones on both sides with greatly extended bases, though their dactyli and propodi no larger than those of first pereopods.

Pleon divided into six distinct pleomeres

closely pressed together. Sides of pleomeres 1–5 covered by tightly overlapping extended lanceolate biramous pleopods and uniramous lateral plates; pleomere 6 bearing pair of biramous uropods. All pleonal appendages similarly shaped and with tuberculate margins.

DESCRIPTION OF ALLOTYPE MALE (fig. 4): Length 4.1 mm, head length 0.5 mm, head width 0.8 mm, pleon length 1.3 mm. All body regions and segments distinct (fig. 4A, B).

Head suboval, widest slightly in front of back margin. Irregularly shaped dark eyes near posterior edge. Antennae (fig. 4C) of three and five articles, respectively, both distally setose; second antennae extending considerably beyond front margin of head.

Pereon broadest across pereomere 4, tapering only slightly anteriorly and posteriorly. No midventral tubercles. All pereopods (fig. 4D, E) of about same overall size and with all articles separated, but their proportions changing progressively posteriorly, with dactyli becoming smaller and other articles slightly longer; carpus with distal tuft of setae, propodus (fig. 4F) with tiny horny plates densely covering dactylus receptor surface.

Pleon continuing gradual tapering of pereon, but sides of all six pleomeres directed posteriorly. No appendages or midventral tubercles. Final pleomere subtriangular and produced into minute anal tubercle between lateral branches, its edges fringed by tiny setae (fig. 4G).

ETYMOLOGY: The species is named as a member of the fauna of the only region where it has been found, the country and continent of Australia. The gender is feminine.

DISCUSSION: Except for the markedly different pleon of the male, both sexes of *Albunione australiana* are very similar to those of the type species, *A. indecora*, and the generic diagnosis takes both species into consideration. The female of *A. australiana* differs from that of *A. indecora* in having antennae with smaller basal articles, first oostegites more extended posteriorly, seventh pereopods with more slender bases, and the margins of the pleonal appendages more digitate. The male of *A. australiana* is proportionately longer and more nearly parallel-sided; its pereomeres and pleomeres are less deeply separated; and, most conspicuously, its final three pleomeres are not produced into long lateral projections. Both species are parasites of species of *Albunea*, and the only bopyrids known to infest any members of the anomuran superfamily Hippidae.

As is the case with *A. indecora*, this species is known from only a small fraction of the range of its host. *Albunea microps* was previously known from the east coast of Africa across to the Philippines (Thomassin, 1969). This is the first record of the host species from Australia.

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