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FRESHWATER AMPHIPOD CRUSTACEANS (GAMMARIDAE) FROM CHISHUI AND ITS ADJACENT REGIONS, CHINA

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ABSTRACT. – Two new species of the genus *Gammarus* are reported from Chishui and adjacent regions in central-southwestern China. These two freshwater gammarids, *G. craspedotrichus*, new species, and *G. accretes*, new species, are described based on specimens from 32 localities in this area. Detailed descriptions and illustrations of the new species are given, including a comparison of related species.

KEY WORDS. – China, Crustacea, Gammaridae, Chishui, freshwater, new species.

INTRODUCTION

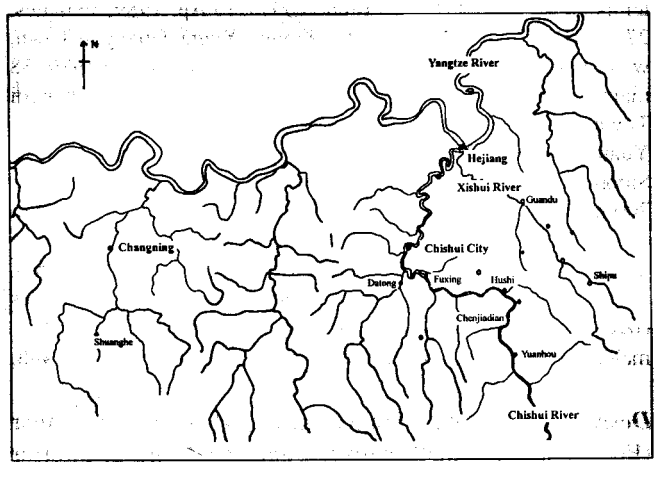
Lying between 105°36′–106°14′ eastern longitude and 28°16′ – 28°45′ northern latitude, Chishui is located in central-southwest China. Forming a transitional zone from Sichuan Basin to Guizhou Plateau, Chishui and adjacent areas are characterized by a great diversity of biotops and eco-systems. For example, *Cyathea spinulosa*, a rare plant known as the "living fossil" is relatively abundant in a large area of evergreen broadleaf tree belt, covering parts of the larger Chishui region. Various endangered mammals, such as tiger, leopard, river deer, bear, rhesus monkey, and serow, are well-preserved in this area.

The species diversity of freshwater invertebrate animals in Chishui is also remarkable. Cai & Yuan (1996) reported 9 species of freshwater atyid shrimps from this area, which represent almost 6% of all Chinese atyid shrimps (Prof. X. - Q. Liang, personal communication). This is believed as result of complex water shed system in Chishui region. As shown in Map 1, the water system of Chishui area includes a number of small streams and springs at altitudes from 221 to 1844 meters above sea level, converging into the mainstreams of some tributaries of the Yangtze River. The remarkable diversity inspired us to investigate the freshwater amphipod fauna of this area. However, after examining specimens from 32 localities in Chishui and adjacent regions, we found that only two species of the genus *Gammarus* distributed in this area. Both species are new to science. In the present paper, a detailed description of *G. craspedotrichus*, new species, and *G. accretes*, new species, is given and differences to related species are discussed.

MATERIALS AND METHODS

Specimens were first examined under a dissecting microscope, and then under a compound microscope after slide mounted appendages were prepared (see Holsinger, 1967). The drawings were made with the aid of a drawing tube mounted on an Olympus BX40 compound microscope.

All holotypes examined are deposited at the Institute of Zoology, Chinese Academy of Sciences (IZCAS). Some of the paratypes are deposited at the Zoological Reference Collection (ZRC) of the Raffles Museum of Biodiversity Research, National University of Singapore.



Map 1. Chishui and adjacent regions with main collecting sites.

TAXONOMY

Gammarus craspedotrichus, new species
(Figs. 1-4)

Material examined. – Holotype – male (IZCAS-I-A0026): 7.5 mm, Shuanghe Town, Changning County (28.6°N, 104.9°E), Sichuan Province, coll. M.- X. Huang, 24 Feb.1982.

Paratypes – 24 males, 5 females, same data as for holotype (IZCAS); 8 males, 5 females (ZRC 2002.0476), Chishui City, coll. S. - L. Yuan.

Others – 50 males, 21 females, 8 juveniles (IZCAS), Shipu Town, under rotten leaves beside a brook, water temperature 16°C, pH 6.0, altitude 400 m, coll. S.- L. Yuan, 31 Aug.1991; 9 males, 6 females (IZCAS), Chishui City (No. 17), Nov.1988; 41 males, 37 females, 14 juveniles (IZCAS), a river near Chenjiadian in *Cyathea spinulosa* Natural Reserve, water temperature 12°C, pH 6.5, altitude 800 m, 17 Jul.1991, coll. S.- L. Yuan; 73 males, 22 females, 13 juveniles (IZCAS), Liming-Xiang, Datong Town, water temperature 14°C, pH 6.0, altitude 500 m, coll. S.- L. Yuan, 25 Jul.1991; 25 males, 20 females, 8 juveniles (IZCAS), a brook near Erlangba, Guandu Town, water temperature 15°C, pH 6.5, altitude 1200 m, coll. S.- L. Yuan, 30 Aug.1991; 16 males, 13 females, 3 juveniles (IZCAS), Chishui City (No. 35), Nov.1988; 1 female (IZCAS), Chishui City (No. 40), Nov.1988; 27 males, 25 females (IZCAS), near a brook from Shizhang Cave Waterfall Group, Liming, Datong Town, water temperature 18°C, pH 6.5, altitude 800 m, 19 Oct.1988; 52 males, 26 females, 8 juveniles (IZCAS), Hongyan village, Tianbai Town, water temperature 20°C, pH 6.0, altitude 500 m, 14 Sep.1991; 17 males, 7 females, 9 juveniles, Shihuixi, Yuanhou county, water temperature 20°C, pH 6.0, altitude 400 m, 18 Jul.1991; 39 males, 34 females, 4 juveniles (IZCAS), Xiangxi river at Lianghehong Town, water temperature 18°C, pH 6.0, altitude 1200 m, 5 Sep.1991; 14 males, 8 females, Qiliba, Changqi Town, water temperature 15°C, pH 6.0, altitude 800 m, Sep.1991; 49 males, 36 females, 2 juveniles, *Cyathea spinulosa* Natural Reserve (another river), water temperature 12°C, pH 6.5, altitude 1000 m, 17 Jul.1991; 44 males, 13 females, 9 juveniles, Longyan-Xiang, Wanglong Town, water temperature 16°C, pH 7.0, altitude 850 m, 27 Oct.1988; 16 males, 2 females (IZCAS), Gaozuo-Xiang, Wanglong Town, water temperature 25°C, pH 6.0, altitude 800 m, coll. S.- L. Yuan, 7 Aug.1989; 12 males, 14 females, 2 juveniles (IZCAS), Guandiangou, Wanglong Town, water temperature 15°C, pH 7.0, altitude 700 m, 19 Apr.1989; 36 males, 27 females, 5 juveniles (IZCAS), Xinhua-Xiang, Guangdu Town, water temperature 4°C, pH 6.2, altitude 850 m, 20 Aug.1989; 38 males, 18 females, 3 juveniles (IZCAS), Wuli-Xiang, Changqi Town, water temperature 4°C, pH 7.0, altitude 400 m, coll. S.- L. Yuan, 4 Oct.1989; 68 males, 21 females, 12 juveniles (IZCAS), Sidonggou, Datong Town, water temperature 16°C, pH 6.5, altitude 700 m, coll. S.- L. Yuan, 21 Jul.1991; 3 males (IZCAS), Chishui City (1988-1989), coll. S.- L. Yuan; 41 males, 31 females, 4 juveniles (IZCAS), Chishui City, water temperature 18°C, pH 6.0, altitude 240 m, coll. S.- L. Yuan, 16 Sep.1991; 3 males, 3 females (IZCAS), Chishui City (No. 18), coll. S.- L. Yuan, Nov.1988; 1 male, Chishui City (No. 2), coll. S.- L. Yuan (IZCAS), Nov.1988.

Description. – Male 7.5 mm (Fig. 1A). Head subrectangular (Fig. 1B), eyes small, between antenna 1 and 2, inferior antennal sinus deep. Antenna 1 and antenna 2 in length ratio 1 : 0.6; antenna 1 slender (Fig. 1O), peduncular articles 1-3 in length ratio 1: 0.77 : 0.43, all with distal setae; primary flagellum 33-articulate, accessory flagellum 4-articulate. Antenna 2 (Fig. 1N), peduncular articles 3-5 in length ratio 1 : 1.97 : 2.2; articles 4 and 5 armed with 3-4 groups of setae on outer margin, setae as long as article's diameter, inner margin and medial margin armed with long setae, setae as long as three times of the article's diameter; flagellum 11-articulate, each article fringed with 8-12 distal setae; calceoli absent.

Upper lip convex with minute setae (Fig. 1H). Left mandible (Fig. 1I), incisor 5-dentate, lacinia mobilis with 4 weak dentitions; molar triturative; article 2 of palp about 1.5 times as long as article 3, article 2 with marginal setae, densely setose distally; article 3 with setae formula = A4, B4, D13, E4 (cf. Cole, 1980). Incisor of right mandible 4-dentate (Fig. 1L), lacinia mobilis bifurcate with many weak dentitions, molar with 1 long seta. Lower lip (Fig. 1E), with marginal setae, inner lobe absent. Maxilla 1 asymmetrical (Figs. 1G, J, K), inner plate with 13 plumose setae and some short setae; outer plate with 11 serrated spines; article 2 of left palp with 8 slender spines and 3 stiff setae; article 2 of right palp with 5 blunt spines and 2 stiff setae. Maxilla 2 (Fig. 1M), inner plate with oblique row of nine plumose setae. Maxilliped (Fig. 1F), inner plate with 3 stout apical spines; outer plate with lateral spines and 5 apical setae; palp article 2 stout, article 3 truncated distally.

Coxal plates 1-3 subrectangular (Figs. 2A, B, 3C), with 2 setae and 1 short seta on anterior and posterior distal margins. Coxal plate 4 with concave excavation (Fig. 3B), bearing 2 and 5 setae on anterior and posterior margins. Coxal plates 5 and 6 bilobate (Figs. 3E, G, 4A, B), with 1 seta on posterior corner. Coxal plate 7, lower margin ovate (Figs. 3F, 4C), with 2 posterior marginal setae. Coxal gills 2-7 sac-like, coxal gill 7 shortest.

Gnathopod 1 (Figs. 2A, C), propodus slightly longer than carpus; carpus triangular-shaped; propodus palm oblique with 1 medial and 5 posterior spines. Gnathopod 2 (Figs. 2B, D), carpus parallel-sided, about 88% length of propodus; palm of propodus transverse, with 1 medial and 4 posterior spines.

Pereopods 3 and 4 subequal, articles 4 and 5 with some groups of long straight setae. Pereopod 3 (Figs. 3A, C), article 2 narrow, with long marginal setae; article 4 with 1 anterior spine and 7 groups of straight setae on posterior margin; article 5 with 3 spines and 4 groups of straight setae on posterior margin; article 6 with 3 marginal spines. Pereopod 4 (Figs. 3B, D), article 4 with 5 groups of straight setae on posterior margin; article 5 with 4 posterior marginal spines; article 6 with 3 marginal spines; dactylus short.

Pereopods 5-7 subequal, but pereopod 5 shorter than pereopods 6 and 7, pereopod 6 longer than pereopod 7 (Figs. 4A-C, K-M). Bases with slightly convex anterior margins, bearing 7 short, single spines and a few setae; posterior margins with rows of about 10 short setae; posterodistal lobes weak. Articles 4-5 with 3 groups of 1-3 spines and a few setae on their anterior and posterior margins, setae longer or as long as diameters of articles. Dactylus short and curved, reaching about 28% of length of article 6.

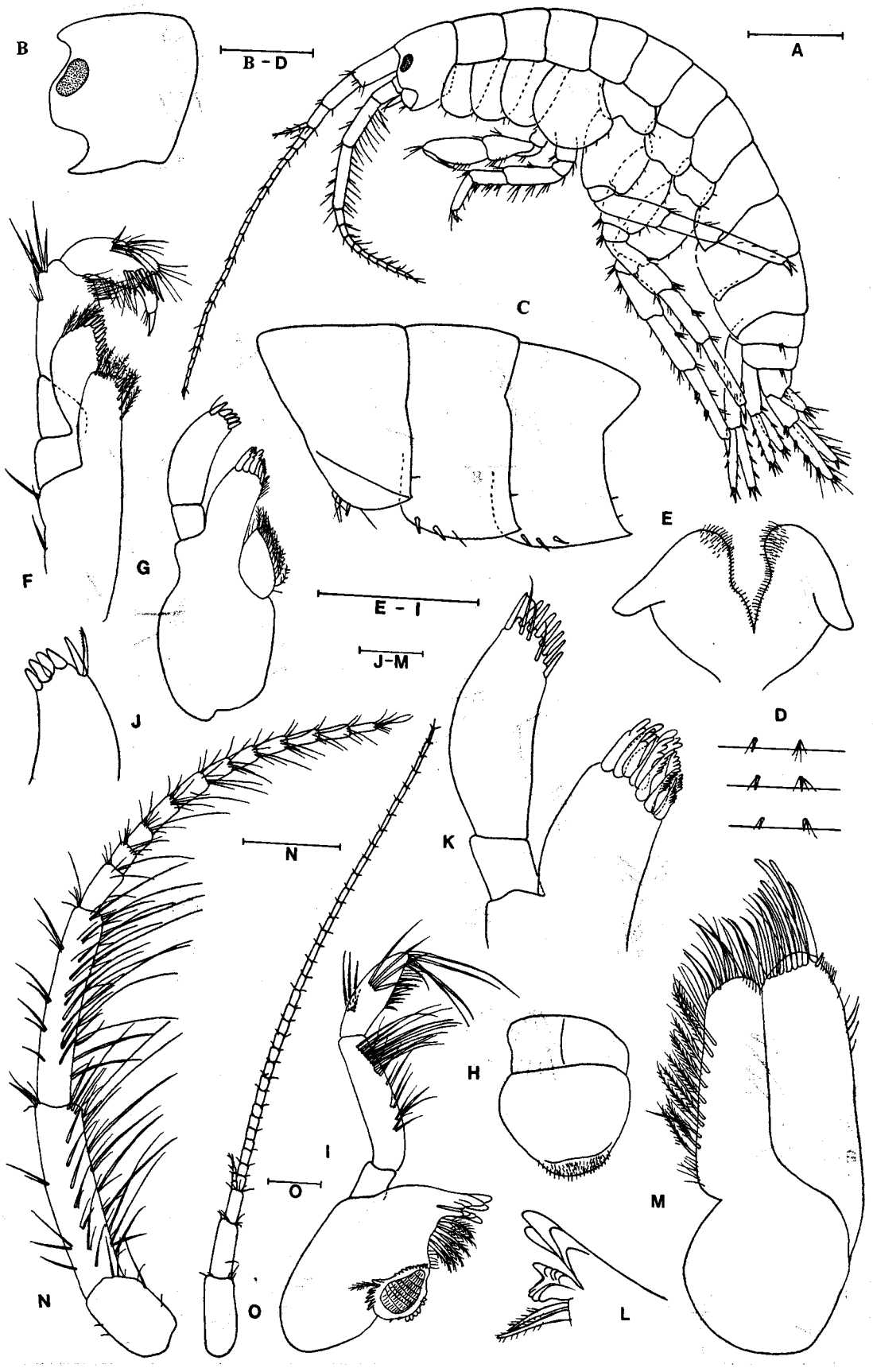


Fig. 1. *Gammarus craspedotrichus*, new species, holotype, male. A. body (lateral view), B. head, C. epimeral plates 1-3, D. urosomites 1-3 (dorsal view), E. lower lip, F. maxilliped, G. right maxilla 1, H. upper lip, I. left mandible, J. palp of right maxilla 1, K. left maxilla 1, L. incisor of right mandible, M. maxilla 2, N. antenna 2, O. antenna 1. Scales: A = 1 mm; B-I, N, O = 0.5 mm; J-M = 0.1 mm.

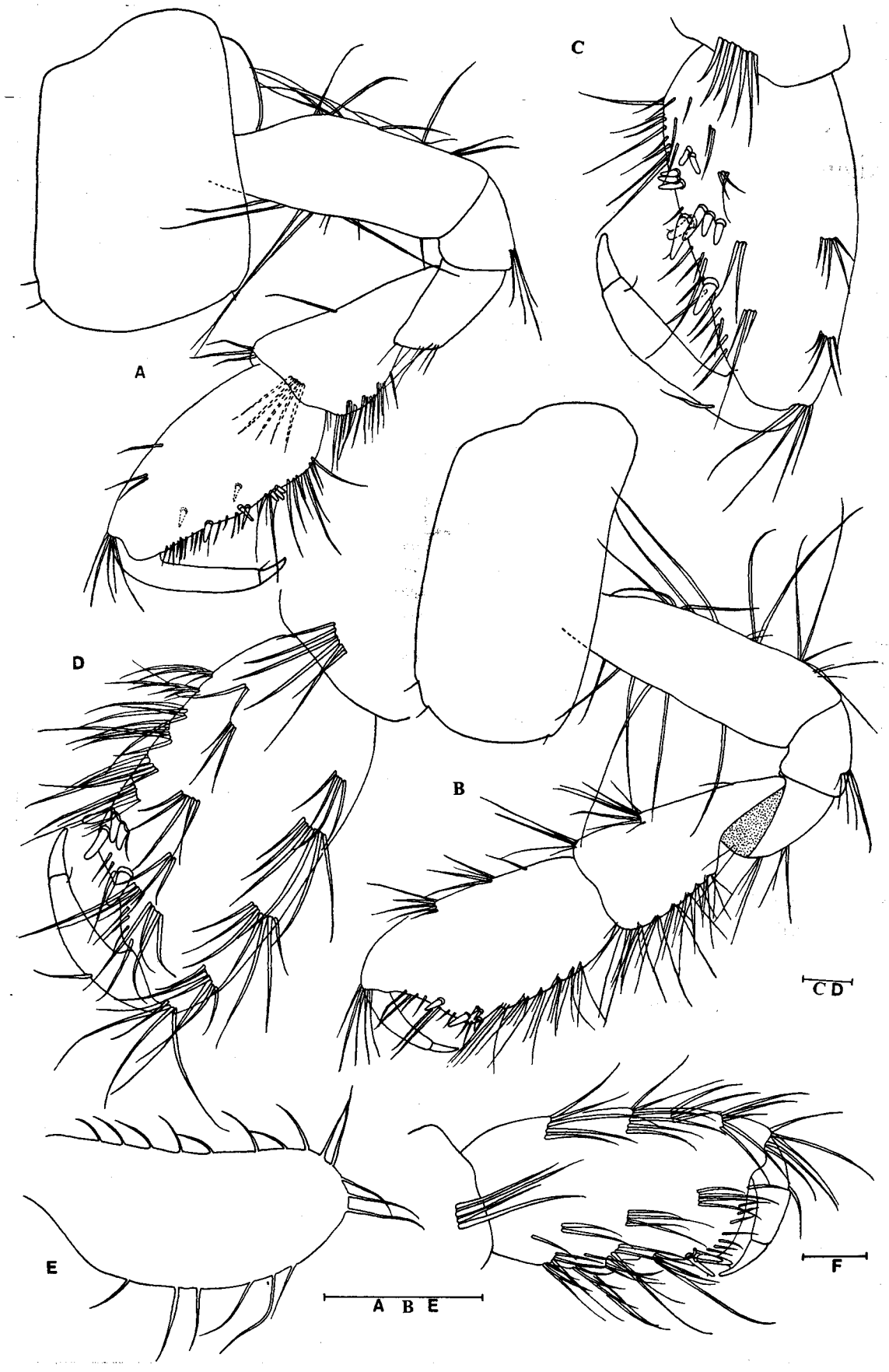


Fig. 2. *Gammarus craspedotrichus*, new species, male: A-D, female: E, F. A. gnathopod 1, B. gnathopod 2, C. propodus of gnathopod 1 (inner face), D. propodus of gnathopod 2 (inner face), E. oostegite of gnathopod 2, F. propodus of gnathopod 2 (female). Scales: A, B, E = 0.5 mm; C, D, F = 0.1 mm.

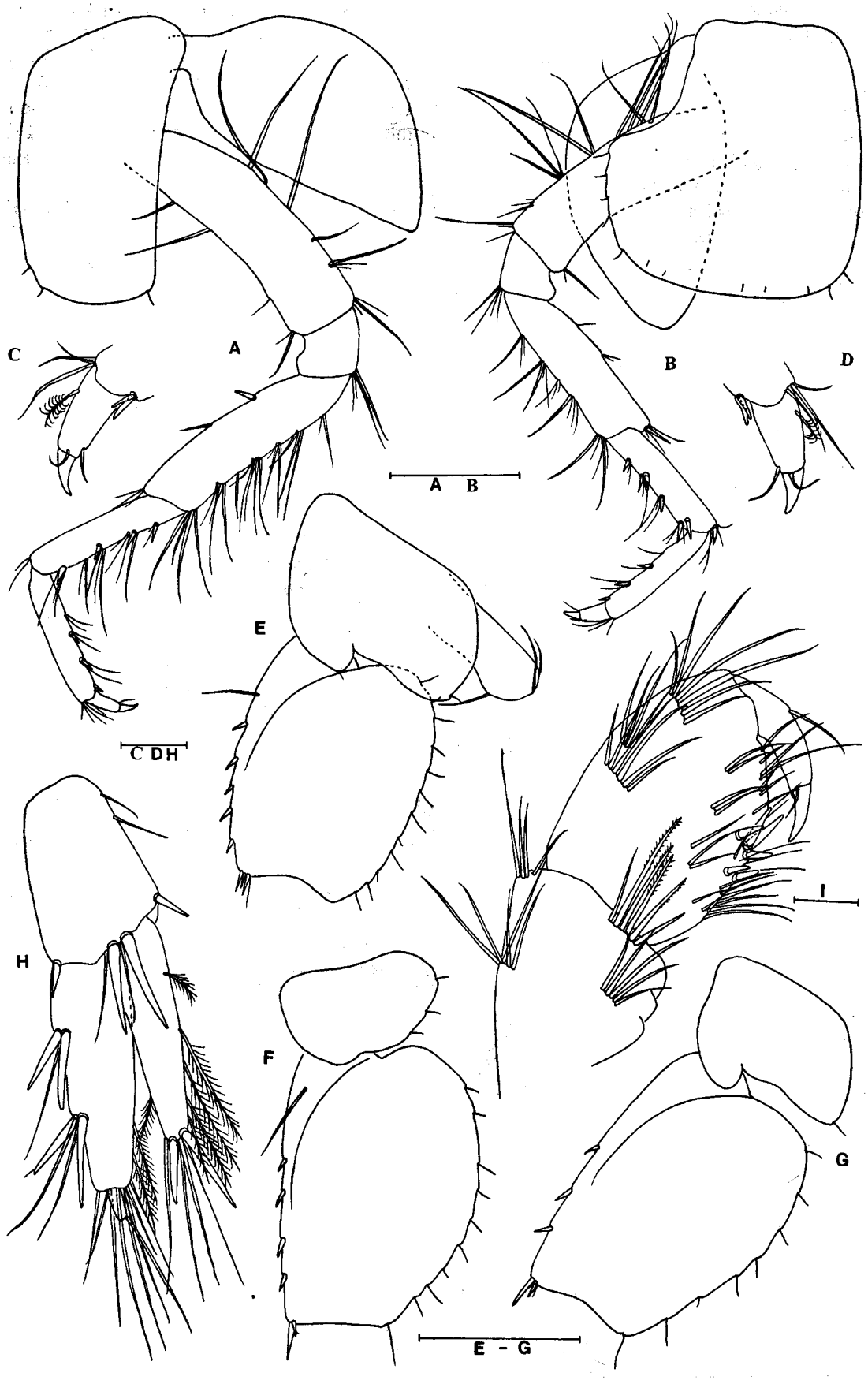


Fig. 3. *Gammarus craspedotrichus*, new species, male: A-D, female: E-I. A. pereopod 3, B. pereopod 4, C. dactylus of pereopod 3, D. dactylus of pereopod 4, E. basis of pereopod 5, F. basis of pereopod 7, G. basis of pereopod 6, H. uropod 3, I. propodus of gnathopod 1. Scales: A, B, E-G = 0.5 mm; C, D, H, I = 0.1 mm.

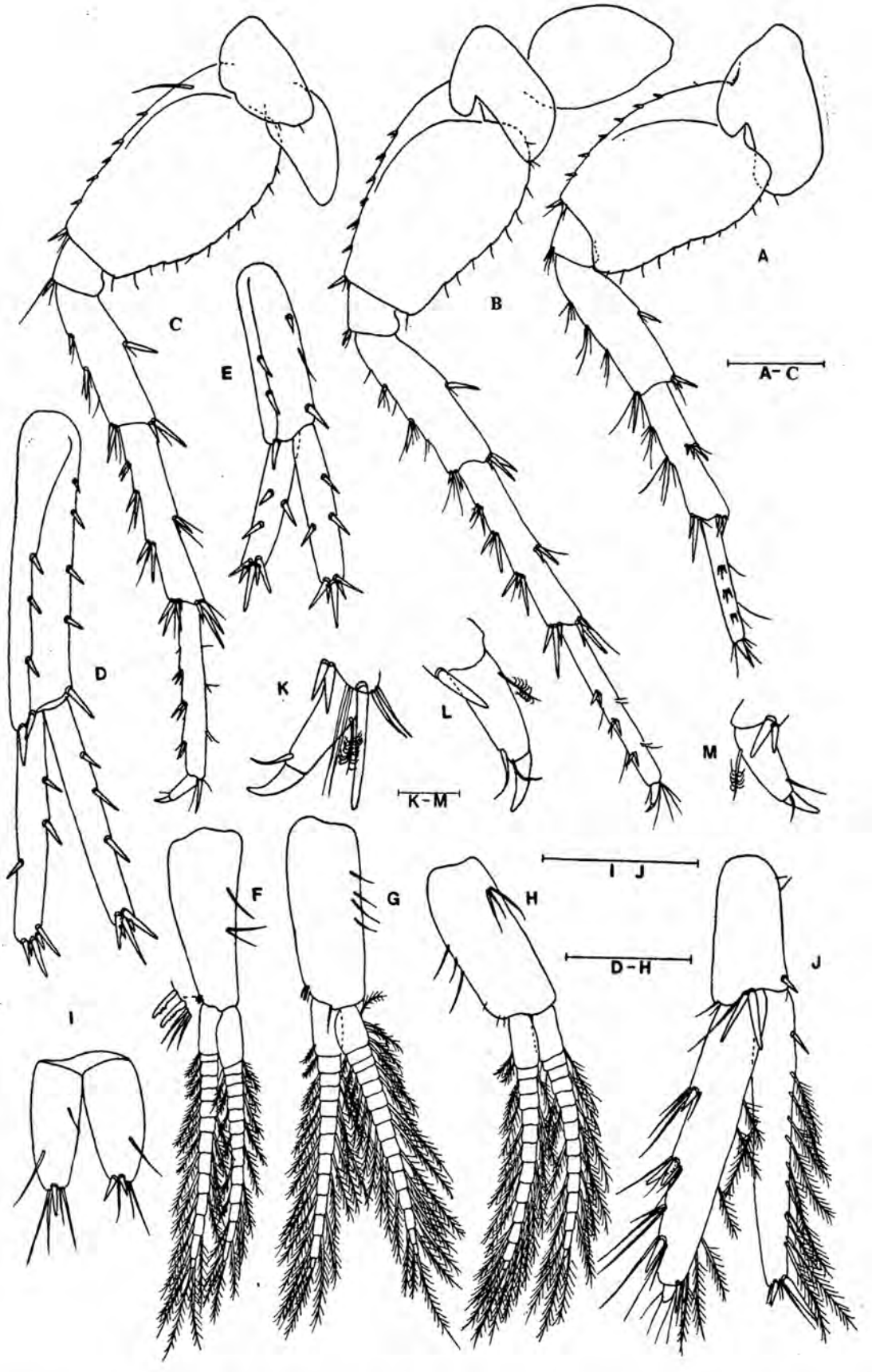


Fig. 4. *Gammarus craspedotrichus*, new species, holotype, male. A. pereopod 5, B. pereopod 6, C. pereopod 7, D. uropod 1, E. uropod 2, F. pleopod 1, G. pleopod 2, H. pleopod 3, I. telson, J. uropod 3, K. dactylus of pereopod 7, L. dactylus of pereopod 6, M. dactylus of pereopod 5. Scales: A-J = 0.5 mm, K-M = 0.1 mm.

Epimeral plates 1-3 progressively acuminate (Fig. 1C), with 1 or 2 short setae on posterior margin. Epimeral plate 1 ventrally rounded, with 1 spine and 4 setae on anterior margin; plate 2 with 2 spines and 1 seta on ventral margin; plate 3 with 3 ventral spines. Pleopods 1-3 subequal (Figs. 4F-H), peduncles progressively shorter, with 2 distal retinaculae accompanied by 2-3 setae; both rami fringed with plumose setae.

Urosomites 1-3 (Fig. 1D) with 2 clusters of dorsal spines, respectively. Uropod 1 (Fig. 4D), peduncle longer than rami, without basofacial spines, inner margin with 5 spines, outer margin with 5 spines; inner ramus with 3 marginal and 5 distal spines; outer ramus with 1 spine on outer margin, 2 spines on inner margin and 5 distal spines. Uropod 2 (Fig. 4E), peduncle a little longer than rami, with 3 and 2 spines on outer and inner margins, respectively; inner ramus with 2 spines on outer margin and 1 spine on inner margin and 5 distal spines; outer ramus shorter than inner ramus, armature similar to that of inner ramus. Uropod 3 (Fig. 4J), peduncle shorter than rami, with 3 distal spines and some dorsal setae; inner ramus about as long as article 1 of outer ramus; inner ramus with 1 marginal and 2 distal spines; article 1 of outer ramus with 4 spines on outer margin and 1 distal spine, terminal article very small; both rami with several marginal, plumose setae.

Telson cleft to base (Fig. 4I), bearing 1 facial seta on each lobe; left lobe with 1 distal spine and 4 setae, right lobe with 2 distal spines and 3 setae.

Female – Body 6.3 mm. Gnathopod 1 (Fig. 3I), carpus and propodus short, palm of propodus oblique, with 6 posterior spines. Gnathopod 2 (Figs. 2E, F), carpus and propodus elongate; propodus subrectangular, with 3 palm subangular spines. Pereopods 3 and 4 with straight long setae on posterior margins of articles 3-6. Basis of pereopod 7 (Fig. 3F) expanded. Armature of uropods 1-3 different from that of male. Outer ramus of uropod 1 with 2 inner, marginal spines. Uropod 2, peduncle with 2 spines on outer margin and 1 spine on inner margin; inner ramus with 1 mid-marginal spine and 5 distal spines; outer ramus with 2 marginal and 5 distal spines. Uropod 3 (Fig. 3H), rami stout; inner ramus reaching about 85% of length of outer ramus article 1, bearing 2 distal spines; article 1 of outer ramus with 4 marginal spines, terminal article small; both rami with a few long setae.

Etymology. – The epithet *craspedotrichus* refers to a row of long setae on antenna 2.

Remarks. – *Gammarus craspedotrichus* is a medium-sized species that can be distinguished from other gammarids by the following characters: antenna 1 relatively long, about half length of body; peduncular articles 4 and 5 of antenna 2 armed with rows of comb-like, long setae, calceoli absent; pereopods 3 and 4 with a few straight setae on posterior margins of articles 3-6; pereopods 5-7 with slender spines accompanied by a few long setae; urosomites 1-3 only with 2 clusters of dorsal spines; peduncle of uropod 1 without basofacial spine; inner ramus of uropod 3 about as long as article 1 of outer ramus; article 2 of outer ramus short, both rami with a few marginal setae; telson deeply cleft, armed with a few facial setae.

The new species *G. craspedotrichus* belongs to the *G. balcanicus*-group defined by Karaman & Pinkster (1987). *Gammarus craspedotrichus* can be easily distinguished from other species of the *G. balcanicus*-group by having a second antenna with rows of comb-like setae, and urosomites 1-2 bearing dorsally only 2 clusters of short spines, respectively.

Gammarus accretus, new species
(Figs. 5-8)

Material examined. – Holotype – male (IZCAS-I-A0028): 9.6 mm, Shaba, Hushi Town, water temperature 16°C, pH 6.5, altitude 80 m, coll. S. - L. Yuan, 30 Aug.1991.

Paratypes – 13 males, 9 females, same data as holotype (IZCAS); 10 males, 10 females (ZRC 2002.0475), Chishui City (No. 26), Nov.1988.

Others – 27 males, 22 females, 2 juveniles (IZCAS), Gaozhu village, Hushi Town, water temperature 6°C, coll. Y.- S. Yuan, 31 Aug.1991; 2 males, 3 females (IZCAS), Chishui City (No. 18), Nov.1988; 5 males, 2 females (IZCAS), Chishui City (No. 2), Nov.1988; 1 male (IZCAS), Chishui City (No. 44), Nov.1988; 13 males, 9 females, 2 juveniles (IZCAS), Chishui City (No. 29), Nov.1988; 35 males, 19 females, 2 juveniles (IZCAS), Daming village, Fuxing Town, water temperature 18°C, pH 6.5, altitude 700 m, coll. S.- L. Yuan, 5 Sep.1991; 2 males, 1 female (IZCAS), Nanping Village, Daqun Town, water temperature 15°C, pH 7.0, altitude 500 m, coll. S.- L. Yuan, 18 Apr.1989; 23 males, 6 females (IZCAS), Chishui City (1988-1989), coll. S.- L. Yuan.

Description. – Male, 9.6 mm. Eyes oval (Fig. 5A). Antenna 1 and antenna 2 in length ratio 1 : 0.62; antenna 1 (Fig. 7G), peduncular articles 1-3 in length ratio 1 : 0.7 : 0.4, bearing distal setae; flagellum 28-articulate, with distal setae, some articles with aesthetascs; accessory flagellum 5-articulate. Antenna 2 (Fig. 8D), peduncular articles 1-3 in length ratio 1 : 2.05 : 2.1; articles 4 and 5 with 5-6 groups of long setae on anterior and posterior margins, setae about three times as long as the article's diameter; flagellum 13-articulate, each article fringed with a cluster of distal setae; calceoli absent.

Upper lip convex (Fig. 5K), with minute setae. Left mandible (Fig. 5L), incisor 5-dentate, lacinia mobilis with 4 dentitions; second article of palp bearing 19 setae medially, article 3 with setae formula = A4, B5, D22, E5. Right mandible (Fig. 5I), incisor 4-dentate, lacinia mobilis bifurcate, with several teeth. Lower lip (Fig. 5J), bearing setae accompanied by several small spines. Maxilla 1 asymmetrical (Figs. 5E, F), inner plate with 14 plumose setae; outer plate bearing 10 serrated spines; second article of left palp with 7 sharp spines accompanied by 4 stiff setae; second article of right palp with 6 blunt spines and 1 seta. Maxilla 2 (Fig. 5H), inner plate with a diagonal row of 11 plumose setae on inner margin. Maxilliped (Fig. 5G), inner plate with 3 apical spines and 1 small subapical spine.

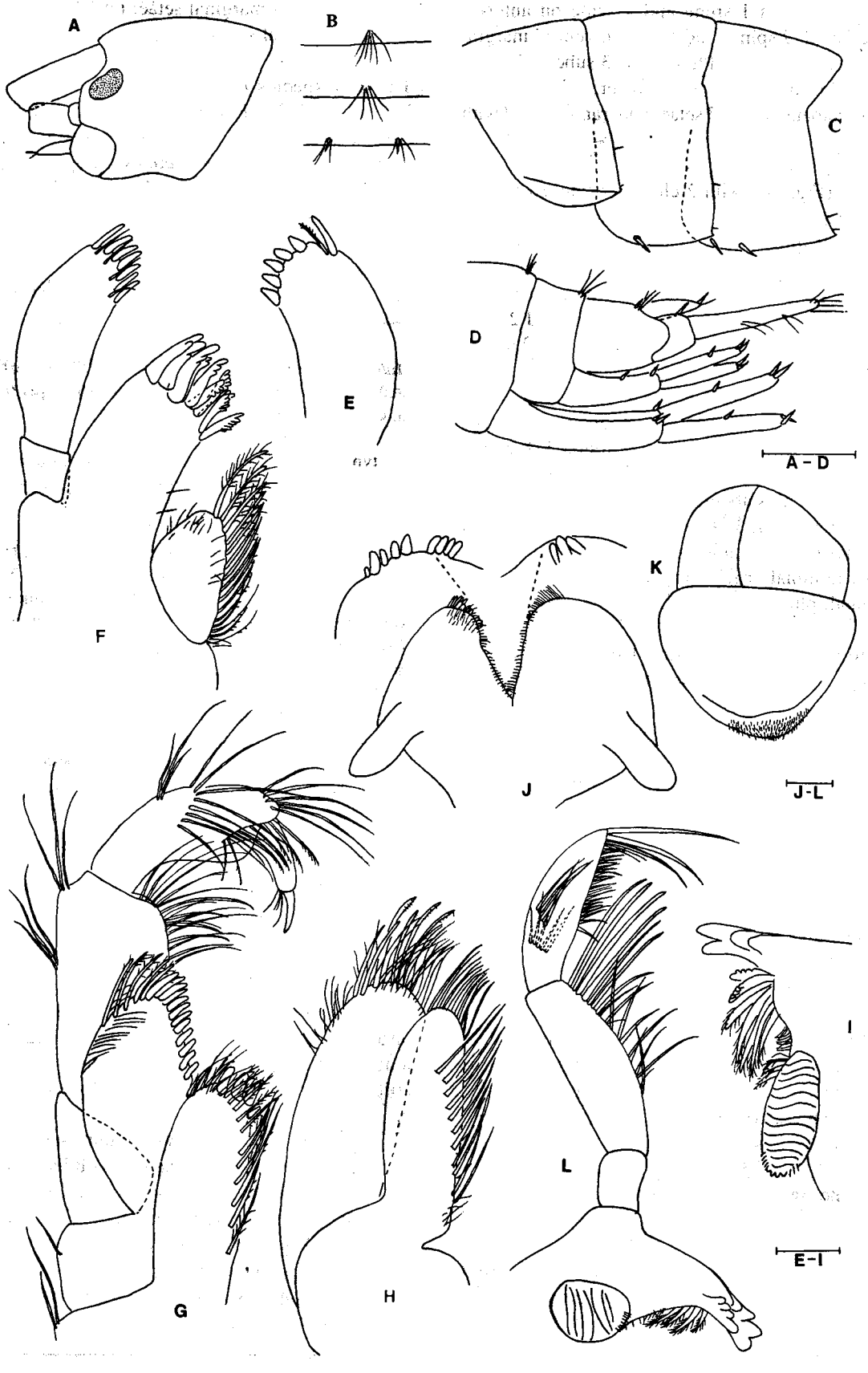


Fig. 5. *Gammarus accretus*, new species, holotype, male. A. head, B. urosomites (dorsal view), C. epimeral plates, D. urosomites (lateral view), E. palp of right maxilla 1, F. left maxilla 1, G. maxilliped, H. maxilla 2, I. right mandible, J. lower lip, K. upper lip, L. left mandible. Scales: A-D = 0.5 mm, E-L = 0.1 mm.

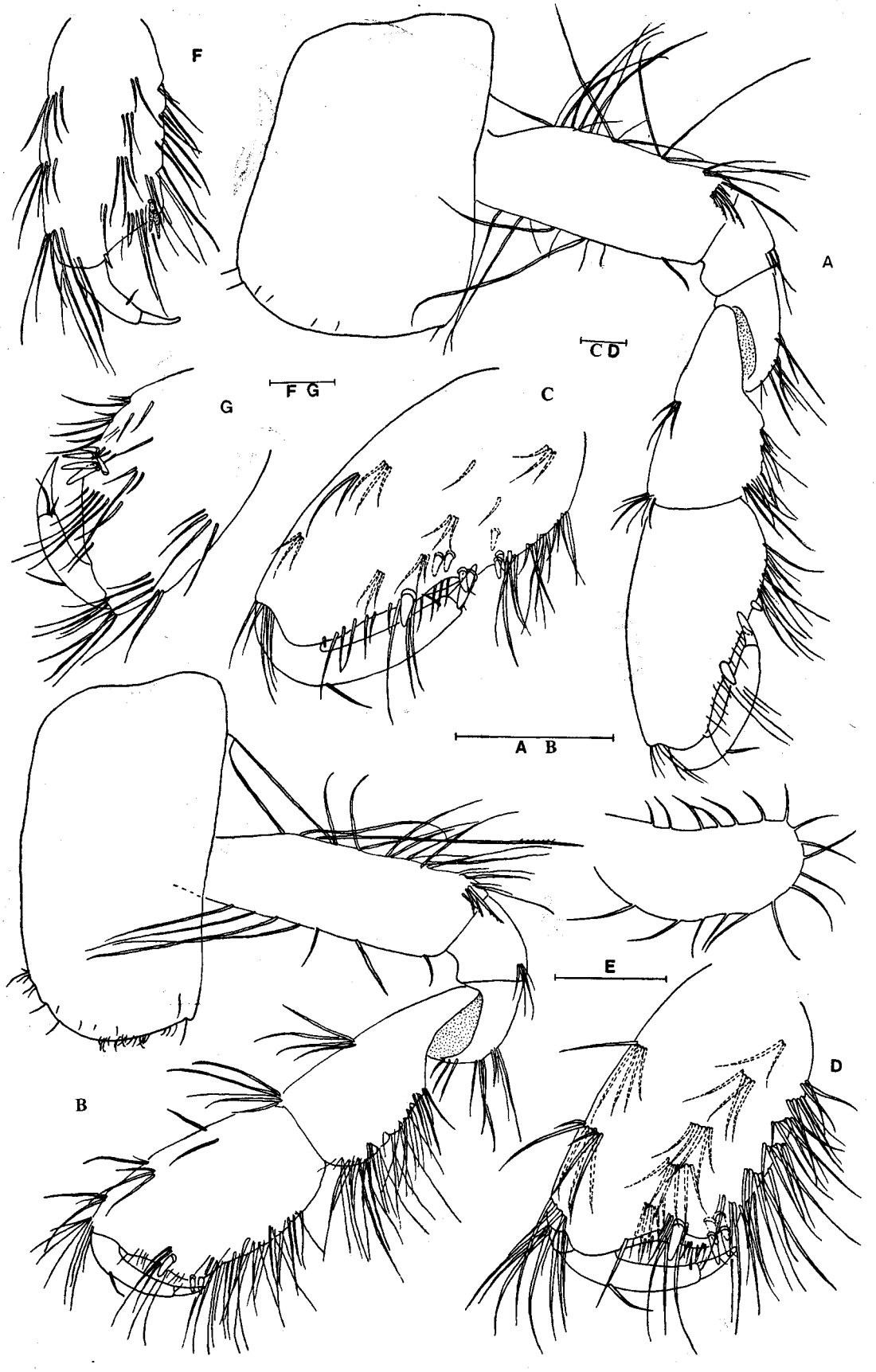


Fig. 6. *Gammarus accretus*, new species, male: A-D, female: E-G. A. gnathopod 1, B. gnathopod 2, C. propodus of gnathopod 1, D. propodus of gnathopod 2, E. oostegite of gnathopod 2, F. propodus of gnathopod 2 (female), G. propodus of gnathopod 1 (female). Scales: A, B, E = 0.5 mm; C, D, F, G = 0.1 mm.

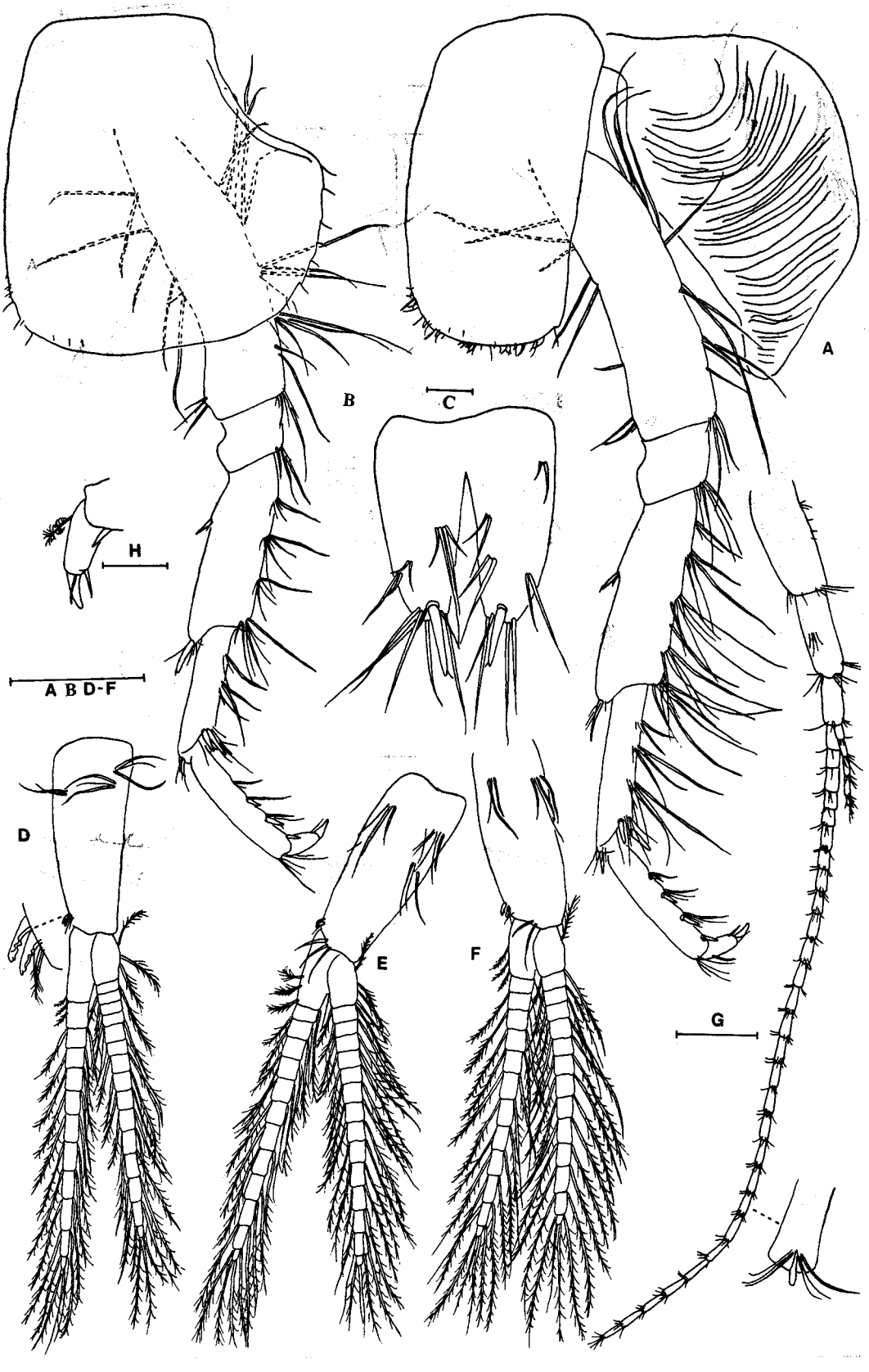


Fig. 7. *Gammarus accretus*, new species, holotype, male. A. pereopod 3, B. pereopod 4, C. telson, D. pleopod 1, E. pleopod 2, F. pleopod 3, G. antenna 1, H. dactylus of pereopod 4. Scales: A, B, D-G = 0.5 mm; C, H = 0.1 mm.

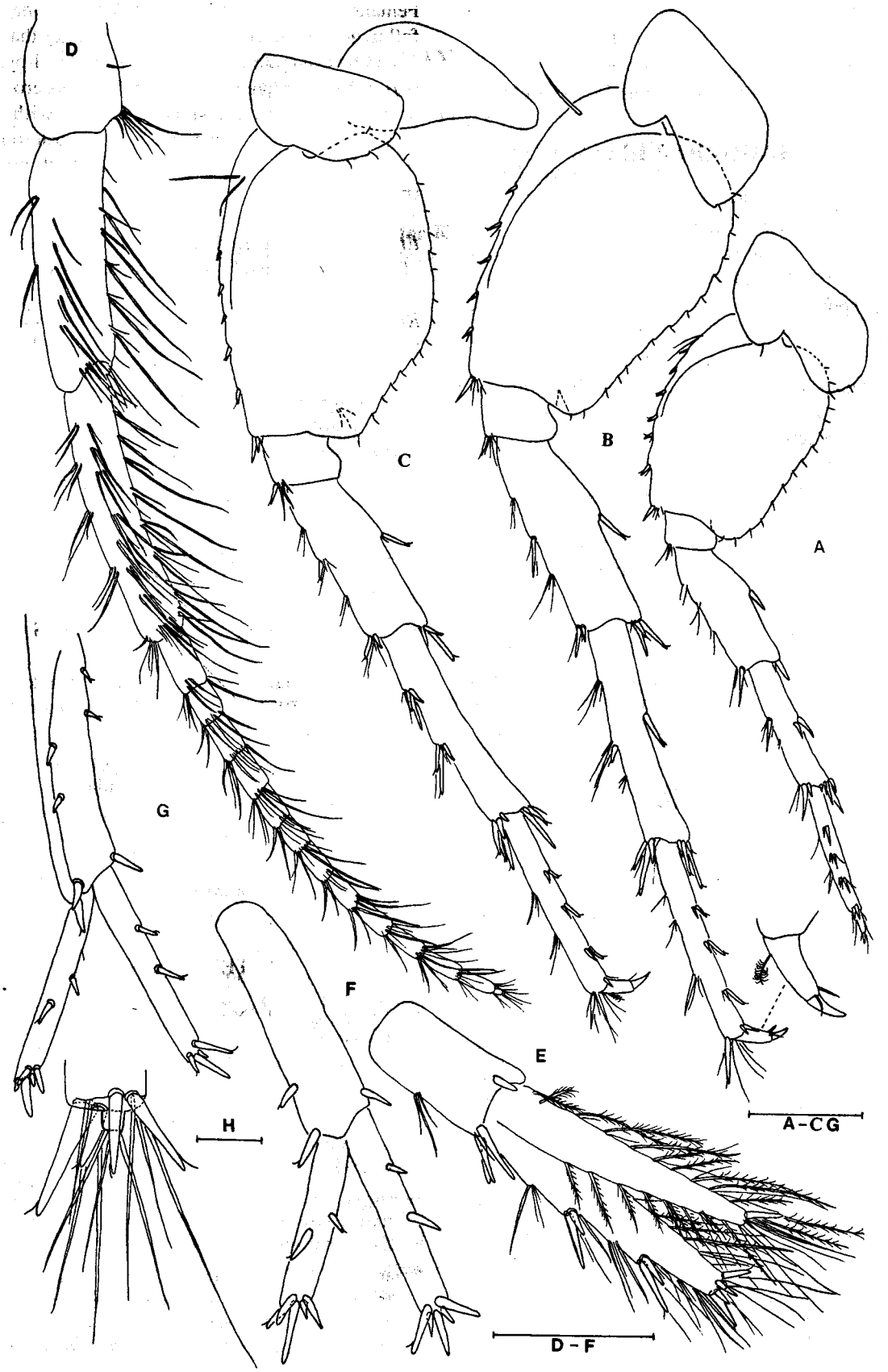


Fig. 8. *Gammarus accretus*, new species, holotype, male. A. pereopod 5, B. pereopod 6, C. pereopod 7, D. antenna 2, E. uropod 3, F. uropod 2, G. uropod 1, H. terminal article of uropod 3. Scales: A-G = 0.5 mm, H = 0.1 mm.

Coxal plates 1-3 subrectangular (Figs. 6A, B, 7A), with 2-3 setae and 1 seta on anterior and posterior corners, respectively; lower margin setose. Coxal plate 4 with posterior excavation (Fig. 7B), with 3 setae on anterior corner and 7 setae on posterior margin. Coxal plates 5-7 shallow (Figs. 8A-C), bearing 1-3 setae on posterior margins, respectively. Coxal gills 2-7 sac-like (Fig. 7A), coxal gill 7 smallest.

Gnathopod 1 (Figs. 6A, C), carpus and propodus with length ratio 1 : 1.2; palm of propodus oblique, with 1 medial spine, 2 pairs of spines on posterior margin, 3 spines on inner face; dactylus with 1 seta on outer margin. Gnathopod 2 (Figs. 6B, D), carpus parallel-sided; palm of propodus transverse, with 1 medial spine, and 2 spines on inner and outer faces, respectively.

Pereopod 3 (Fig. 7A), basis slender, articles 4-6 with 4-5 groups of long straight setae on posterior margins accompanied by a few spines. Pereopod 4 (Figs. 7B, H), posterior margin sparsely with setae, dactylus with 1 seta on outer margin, and 2 stiff setae at hinge of nail.

Pereopods 5-7 progressively longer, but pereopod 6 longer than pereopod 7 (Figs. 8A-C). Anterior margins of bases with 6 short spines; posterior margin nearly straight in pereopod 5 slightly, concave in pereopod 6, processed in pereopod 7, with 12 short setae, respectively; inner faces of pereopods 6-7 with 2-3 setae on posterior corners. Articles 4 and 5 with spines accompanied by short setae on anterior margins. Dactylus curved, bearing 1 seta on outer margin and 2 stiff setae at joint of nail.

Epimeral plates 1-3 (Fig. 5C) bearing 1-2 short setae on posterior margins. Epimeral plate 1 with 4 setae on anterior corner; epimeral plate 2 with 1 spine on mediovental margin; epimeral plate 3 with 2 spines on anterior corner. Pleopods 1-3 subequal (Figs. 7D-F), peduncles with a few setae, bearing 2 retinaculae accompanied by 2 setae; rami armed with long, plumose setae.

Urosomites 1 and 2 with only 1 group of setae dorsally; urosomite 3 with 1 spine accompanied by a few setae on each side (Figs. 5B, D). Uropod 1 (Fig. 8G), peduncle without basofacial spines, outer and inner margins bearing of spines; inner ramus with 2 spines on outer margin; outer ramus with 1 spine on each side. Uropod 2 (Fig. 8F), peduncle with 2 spines and 1 spine on outer and inner margin, respectively; inner ramus with 2 spines on outer margin; outer ramus with 1 spine on each side. Uropod 3 (Figs. 8E, H), peduncle with dorsal setae and distal spines; inner ramus about as long as outer ramus, with 1 distal spine; article 1 of outer ramus with 4 spines on outer margin and 4 distal spines, terminal article much shorter than adjacent spines; inner margin of outer ramus and both margins of inner ramus with plumose setae.

Telson deeply cleft (Fig. 7C), each lobe bearing 1 distal spine and some facial setae.

Female – A 6.2 mm female differed from the male by the following characters: gnathopod 1 smaller than gnathopod 2, carpus triangular, propodus posterodistal pyriform (Fig. 6G), palm of propodus oblique, with 5 posterodistal spines; basis of gnathopod 2 slender, carpus with subparallel margins, propodus transverse with 2 posterodistal spines (Fig. 6F). Oostegites of peropods 2-5 with marginal setae (Fig. 6E).

Etymology. – The epithet *accretus* alludes to the presence of a cluster of dorsal setae on urosomites 1 and 2.

Remarks. – The new species *G. accretus* is closely related to *G. craspedotrichus* by having a peduncle of antenna 2 with rows of long setae; a peduncle of uropod 1 without basofacial spines; and similar length ratios of inner and outer rami of uropod 3. *Gammarus accretus* differs from *G. craspedotrichus* by the following characters: urosomites 1 and 2 only with 1 cluster of dorsal setae; urosomite 3 with 2 clusters of setae accompanied by 1 spine, respectively; terminal article of outer ramus of uropod 3 very short or vestigial; telson bearing more facial setae.

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