

Review of amphipods of the genus *Paramoera* Miers, 1875 (Amphipoda: Pontogeneiidae) from the Sakhalin Island, Far East of Russia

Обзор бокоплавов рода *Paramoera* Miers, 1875 (Amphipoda: Pontogeneiidae) острова Сахалин, Дальний Восток России

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KEY WORDS: new species, new subspecies, taxonomy, cladistic analysis, Sakhalin Island.

КЛЮЧЕВЫЕ СЛОВА: новый вид, новый подвид, таксономия, кладистический анализ, остров Сахалин.

ABSTRACT. Based on new material, three new species and one new subspecies of the genus *Paramoera* are described: *P. staudei* sp.n., *P. stepaniae* sp.n., *P. nataliae* sp.n. and *P. erimoensis sakhalinensis* ssp.n. from littoral zone and estuaries of Sakhalin Island, bringing the total to 5 congeneric species in this region. The new subgenus *Dentomoera* is erected to receive the three species from Sea of Japan previously described by A.I. Bulyčeva [1952], A. Hirayama [1990] and T.W. Jung with co-authors [2016]. The key to the north Pacific species of the genus *Paramoera* is provided. Cladistic analysis of morphological relationships within North Pacific species of genus *Paramoera* is implemented. Evolutionary and biogeographic trends are discussed.

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Описаны три новых вида и один новый подвид бокоплавов рода *Paramoera* на основе нового материала из эстуариев рек и морской литорали острова Сахалин: *P. staudei* sp.n., *P. stepaniae* sp.n., *P. nataliae* sp.n. и *P. erimoensis sakhalinensis* ssp.n. Общий видовой список рода в этом регионе увеличился до 5 видов. Выделен новый подрод *Dentomoera*, в который вошли три вида из Японского моря, описанные ранее Булычевой [Bulyčeva, 1952], Хираямой [Hirayama, 1990] и Юнгом с соавторами [Jung *et al.*, 2016]. Приведен определительный ключ для видов рода *Paramoera* из северной Пацифики. Проведен кладистический анализ морфологических взаимо-

отношений северо-тихоокеанских видов рода *Paramoera*. Обсуждены эволюционные и биогеографические тенденции.

Introduction

The 23 species from temperate latitudes of the Pacific Ocean area have been assigned to the genus *Paramoera* Miers, 1875: *P. anivae* Labay, 2012, *P. bousfieldi* Staude, 1995, *P. brevirostrata* (Bulyčeva, 1952), *P. bucki* Staude, 1995, *P. carlottensis* Bousfield, 1958, *P. columbiana* Bousfield, 1958, *P. crassicauda* Staude, 1995, *P. dentipleurae* Jung, Kim et Yoon, 2016, *P. erimoensis* Kuribayashi et Kyono, 1995, *P. hanamurai* Hirayama, 1990, *P. koreana* Stephensen, 1944, *P. kaysama* Kuribayashi et Kyono, 1995, *P. leucophthalma* Staude, 1995, *P. mohri* J.L. Barnard, 1952, *P. mokyevskii* (Gurjanova, 1952), *P. relict* Uéno, 1971, *P. serrata* Staude, 1995, *P. shakotanensis* Hagihara, Nakano et Tomikawa, 2020, *P. suchaneki* Staude, 1995, *P. tridentata* Bulyčeva, 1952, *P. udehe* (Derzhavin, 1930), *P. (Ganigamoera) myslenkovi* Sidorov, 2010 and *P. (Ganigamoera) tiunovi* Sidorov, 2010 [Derzhavin, 1930; Stephensen, 1944; Barnard, 1952; Bulyčeva, 1952; Gurjanova, 1952; Bousfield, 1958; Uéno, 1971; Hirayama, 1990; Kuribayashi, Kyono, 1995; Staude, 1995; Sidorov, 2010; Labay, 2012; Jung *et al.*, 2016; Nakano, Tomikawa, 2018; Hagihara *et al.*, 2020]. The list of the *Paramoera* in the Russian Far East included 7 species: *P. (Ganigamoera) myslenkovi*, *P. (Ganigamoera) tiunovi*, *P. anivae*, *P. brevirostrata*, *P. mokyevskii*, *P. tridentata* and *P. udehe*. *P. udehe* was inadequately described (e.g., availability or absence of sternal gills unspecified), the taxonomic status of this species remains ambiguous. After his original descrip-

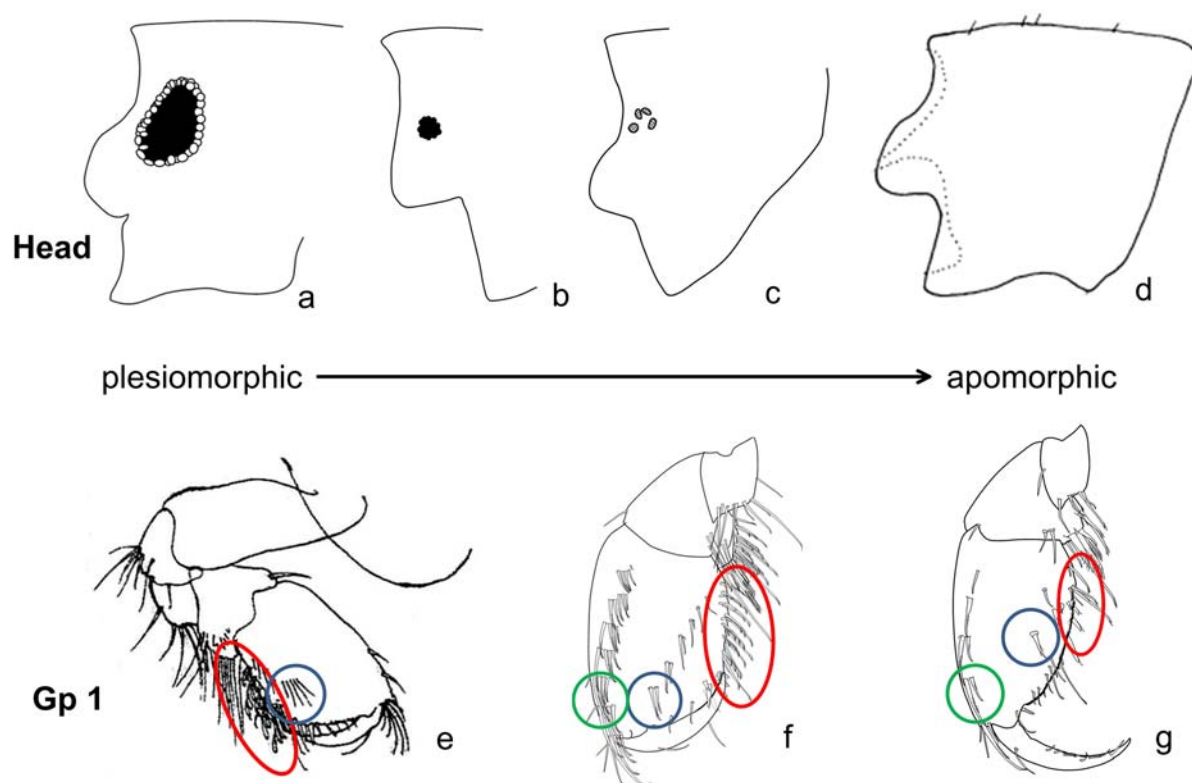


Fig. 1. *Paramoera* Miers, 1875: plesiomorphic – apomorphic changing of head (a, b, c, d) and gnathopod 1 (e, f, g): a, f — *P. staudei* sp.n., b, g — *P. nataliae* sp.n., c — *P. erimoensis sakhalinensis* ssp.n., d — *P. (Ganigamoera) myslenkovi* (from: [Sidorov, 2010]), e — *P. mokyevskii* (from: [Gurjanova, 1952]).

Рис. 1. *Paramoera* Miers, 1875: плезиоморфные – апоморфные изменения головы (a, b, c, d) и гнатопод 1 (e, f, g): a, f — *P. staudei* sp.n., b, g — *P. nataliae* sp.n., c — *P. erimoensis sakhalinensis* ssp.n., d — *P. (Ganigamoera) myslenkovi* (из: [Sidorov, 2010]), e — *P. mokyevskii* (из: [Gurjanova, 1952]).

tion in 1930 from a brook in the Somon River basin, De-Kastry Bay, *P. udehe* have never been found again. Only one species *P. anivae* was recorded from Sakhalin Island early [Labay, 2012].

Recent explorations of the littoral and estuarine waters of Sakhalin Island yielded three new species and one subspecies of the genus *Paramoera*.

Material and methods

The material examined was collected from bottom ground of the Sakhalin Island's littoral and estuarine waters in various inland expeditions of the Sakhalin branch of Russian Federal Research Institute of Fisheries & Oceanography (SakhNIRO) and author collections in 2011–2021. The specimens were dissected under a stereoscopic microscope "Altami CM0745" and their appendages and mouth parts were mounted in glycerol gel slides. Illustrations were made under an optic microscope "Lomo Mikmed-5" with digital photo camera DCM-500 and digitally prepared, following a protocol based on Coleman [2003]. All the type material is preserved in ethanol 70% and it is housed at the Crustacea Collection of the Zoological Museum of Far East State University, Vladivostok.

Setae definitions are based on Watling [1989]. SEM images of surface sculpture were produced using a JEOL

Neoscope JCM-5000 SEM on pre-dissected alcohol-dried material, coated with gold.

Analysis of possible phyletic relationships utilized the STATISTICA (data analysis software system) version 10 [www.10.statsoft.com]. The analysis of morphological relationships between species of the genus *Paramoera* (specimens from boreal Pacific) is based on external characters and character states mainly, as outlined in Suppl. Table 1. Intensity of generic characteristics is presented in Suppl. Table 2. The diversity of some of the principal taxonomic characters is indicated in Figures 1, 2.

The general phyletic thrust of morphological alterations within the genus *Paramoera* (including the features described by Staude [1995: fig. 10C] from benthic-nektonic to hypogean forms seems to have gone towards the specialization of the mouth parts (by reducing of number of setae on inner plate of maxilla 1 and maxilla 2), changing of body form from short and high to long and thin (vermiform), reduction of the notch of inferior antennal sinus, a decrease in eye size, reduction the calceoli on the flagellum of antenna 1, changing the form of gnathopods 1 and 2 from power subquadrate with horizontal palmar margin to almond-shape with strongly oblique palmar margin, a decrease the number of setae groups and the number of setae in certain groups in anterior, posterior and inner rows of setae, a shortening of pereopods 5–7, a widening of pereopods segments in benthic forms, a modification of pleopod 2 in male, a decrease the number of articles in ramies of pleopods, a reduction of

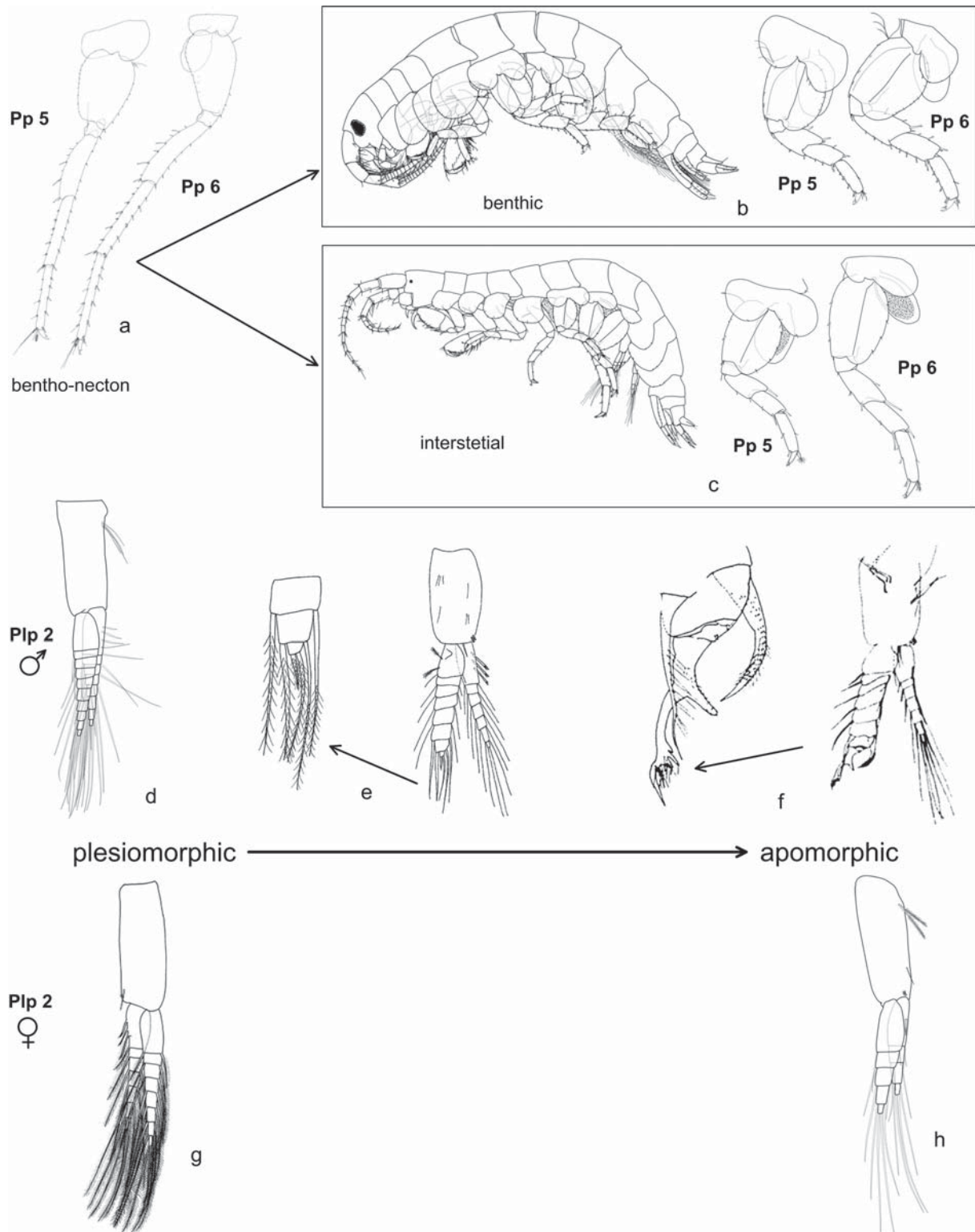


Fig. 2. *Paramoera* Miers, 1875: plesiomorphic — apomorphic changing of body shape and pereopods 5 & 6 (a, b, c) and pleopod 2 (d, e, f, g, h, i): a — *P. dentipleurae* (from: [Jung *et al.*, 2016]), b, d — *P. staudei* sp.n., c, h — *P. nataliae* sp.n., e — *P. (Ganigamoera) myslenkovi* (from: [Sidorov, 2010]), f — *P. erimoensis erimoensis* (from: [Kuribayashi, Kyono, 1995]), g — *P. anivae* (from: [Labay, 2012]).

Рис. 2. *Paramoera* Miers, 1875: — апоморфные изменения формы туловища и pereopods 5 и 6 (a, b, c) и pleopod 2 (d, e, f, g, h, i): a — *P. dentipleurae* (из: [Jung *et al.*, 2016]), b, d — *P. staudei* sp.n., c, h — *P. nataliae* sp.n., e — *P. (Ganigamoera) myslenkovi* (из: [Sidorov, 2010]), f — *P. erimoensis erimoensis* (из: [Kuribayashi, Kyono, 1995]), g — *P. anivae* (из: [Labay, 2012]).

plumose setae armament in uropod 3, and other. The direction of evolutionary changes in characters from plesiomorphic to apomorphic was determined for the genus *Paramoera* in accordance with the principles of cladistics [Wiley *et al.*, 1991].

The following abbreviations are used on the plates: Gp — gnathopod; Pp — pereopod; Plp — pleopod; *g.p.* — genital papillae.

Systematics

Paramoera Miers, 1875

Paramoera Miers, 1875: 75; Stebbing, 1906: 363 (part); Stebbing, 1914: 365 (part); Schellenberg, 1929: 280; Gurjanova, 1951: 731; Barnard, 1969: 227; Barnard, 1972: 186; Barnard, 1977: 275; Barnard, Barnard, 1983: 713; Barnard, Karaman, 1991: 331 (part); Staude, 1995: 63; Sidorov, 2010: table 2; Lowry, Myers, 2013: 41; Nakano, Tomikawa, 2018: 461.

Amphoedicerus Fearn-Wannan, 1968: 44 (part).

Pontogeneia Boeck, 1871 — Bulyčeva, 1952: 223 (part); Gurjanova, 1952: 188 (part).

Stebbingia Pfeffer, 1888: 36.

Relictomoera Barnard et Karaman, 1982: 168 (part); Barnard, Karaman, 1991: 337 (part).

Paramoera anivae Labay, 2012

Fig. 2g.

Paramoera anivae Labay, 2012: 70.

Distributed on Sakhalin Island, Aniva Bay, Cape Tomari-Aniva. The species was found in upper level of littoral, on gravels and stones, 10–20 cm under the ground level in fresh run out, on the bottom surface of stones [Labay, 2012].

In coastal cobble beaches in September *P. anivae* is sometimes found in densities up to 16 000 ind./m².

Paramoera staudei sp.n.

Figs 3–8, 32.

TYPE MATERIAL. Holotype, male, 5.8 mm, X 54524/Cr-2433, Sea of Japan, Far East of Russia (47°46'07.655"N 142°03'36.029"E, littoral), pebble with gravel, E.S. Korneev, 22 October 2019. Paratype: 1 female, 4.7 mm, X 54525/Cr-2434, with same data as holotype. Paratypes: numerous males and females, Ō 54526/Cr-2435, with same data as holotype.

ADDITIONAL MATERIAL. 1 female, X 54527/Cr-2436, Sea of Okhotsk, Far East of Russia (47°00'12.180"N 143°03'45.960"E, littoral), pebbles and sand, V.S. Labay, 8 May 2019; numerous males and females, Sea of Okhotsk, Far East of Russia (47°00'12.180"N 143°03'45.960"E, littoral), pebbles and sand, V.S. Labay, 8 May 2019 (author's own collection); 1 male, X 54528/Cr-2437, Sea of Okhotsk, Far East of Russia (47°56'34.123"N 142°31'42.071"E, littoral), pebbles and sand, V.S. Labay, 23 July 2021; numerous males and females (author's own collection), Sea of Okhotsk, Far East of Russia (47°56'34.123"N 142°31'42.071"E, littoral), pebbles and sand, V.S. Labay, 23 July 2021 (author's own collection).

TYPE LOCALITY. The western coast of Sakhalin Island, Tatar Strait, Sea of Japan, Far East of Russia (47°46'07.655"N 142°03'36.029"E, littoral).

DIAGNOSIS. Eyes medium, sub-oval. Body medium, elongated, smooth, with sternal humps.

Head, inferior antennal sinus quadrate, corner of sinus incised. Antenna 1, segments of peduncle with 5–7 groups of long setae along posterior margin of each segment; articles of flagellum without calceoli. Antenna 2, peduncular

article 2 gland cone with 3 apical setae; articles of flagellum without calceoli. Mandible, lacinia mobilis of left 5-dentate, palp segment 3 with a transversal row of 7 A-setae. Maxilla 1, inner plate with 4–5 plumose apical setae. Maxilla 2, inner plate with 3 plumose setae in the diagonal row. Gnathopod 1 in male, carpus shorter than propodus; propodus sub-quadrate with 7–8 groups of setae along posterior margin, 7 transversal rows of 5–6 setae along anterior margin and 6 groups of 1–2 setae in the diagonal row of inner surface. Gnathopod 1 in female, carpus shorter than propodus; propodus sub-quadrate with 5–6 groups of setae along posterior margin, 7 transversal rows of 3–4 setae along anterior margin and 5 groups of 1–2 setae in the diagonal row of inner surface. Gnathopod 2 in male, carpus shorter than propodus; propodus sub-rectangular with 7 groups of setae along posterior margin, and 5 groups of 1–2 setae in the diagonal row of inner surface. Gnathopod 2 in female, carpus sub-equal to propodus in length; propodus sub-rectangular with 6 groups of setae along posterior margin, and 3–4 groups of 1–2 setae in the diagonal row of inner surface. Coxal plate 4 with shallow posterior concavity. Coxal gills on pereopods 2–6. Pereopods 5–7, merus, carpus and propodus dilated. Pleopod 2 in male, outer ramus without modified articles and setae. Uropod 2, inner ramus sub-equal to outer ramus in length. Uropod 3, inner ramus without plumose setae along the entire inner margin. Telson, the longest seta of each apex shorter than ½ of telson length.

DESCRIPTION. Male (5.8 mm). Vital body colorless. Body medium, smooth (Fig. 3a). The microstructure of the surface is represented by small scales with wavy striations and sparse sensitive setae located in semilunar pockets (Fig. 4e, f). Rostrum (Fig. 3b) short, weakly produced; lateral cephalic lobe rounded; eyes medium, 0.35 times as high as head. Epimeral plates 1–3 (Fig. 7a, b, c): rounded posteriorly; posterior margins with small crenulation and tiny setae; posterodistal corners not pointed; plate 1 with cuspidate seta on ventral margin; plates 2 and 3 with 3 robust cuspidate setae along ventral margin, plate 3 with 3 long simple setae at the anterior margin.

Head. Antenna 1 (Fig. 1c, d, e): length 0.49 times as long as body length; length ratio of peduncular articles 1–3 being as 1.0:0.73:0.51; peduncular article 1 with 5–6 clusters of setae on posterior margin, and with sub-marginal row of simple setae along distal 2/3 of posterior margin; peduncular article 2 with a group of 2 setae antero-distally, 5 clusters of long simple setae on posterior margin; peduncular article 3 with cluster of setae on anterodistal corner, and 4–5 clusters of long simple setae on posterior margin; flagellum 22-articulate, about 1.7 times as long as peduncle, articles 5, 7, 9, 11, 13, 15, 17, 19 and 21 with 1 aesthetasc each; accessory flagellum 1-articulate, scale-like, with 2 long apical setae and with 1 lateral seta on each side. Antenna 2 (Fig. 3f): length ratio of peduncular articles 3–5 being 1.0 : 1.73 : 1.73; gland cone length 0.82 times that of peduncular article 3; peduncular article 3 with short seta on anterodistal corner, and 3 long setae on posterodistal corner; peduncular article 4 with 1 cluster of 2 short setae on anterior margin, 1 cluster of setae on distal margin, and 5 clusters of long setae along posterior margin; peduncular article 5 with 1 cluster of 2 short setae on anterior margin, 1 cluster of setae on distal margin, and 5 clusters of long setae along posterior margin; flagellum with 18 articles, each article with a crown of setae at the distal margin. Upper lip (Fig. 3g), ventral margin rounded, with numerous tiny setae. Mandible (Fig. 4a, b): incisor margins with 6 teeth on left and right, accessory

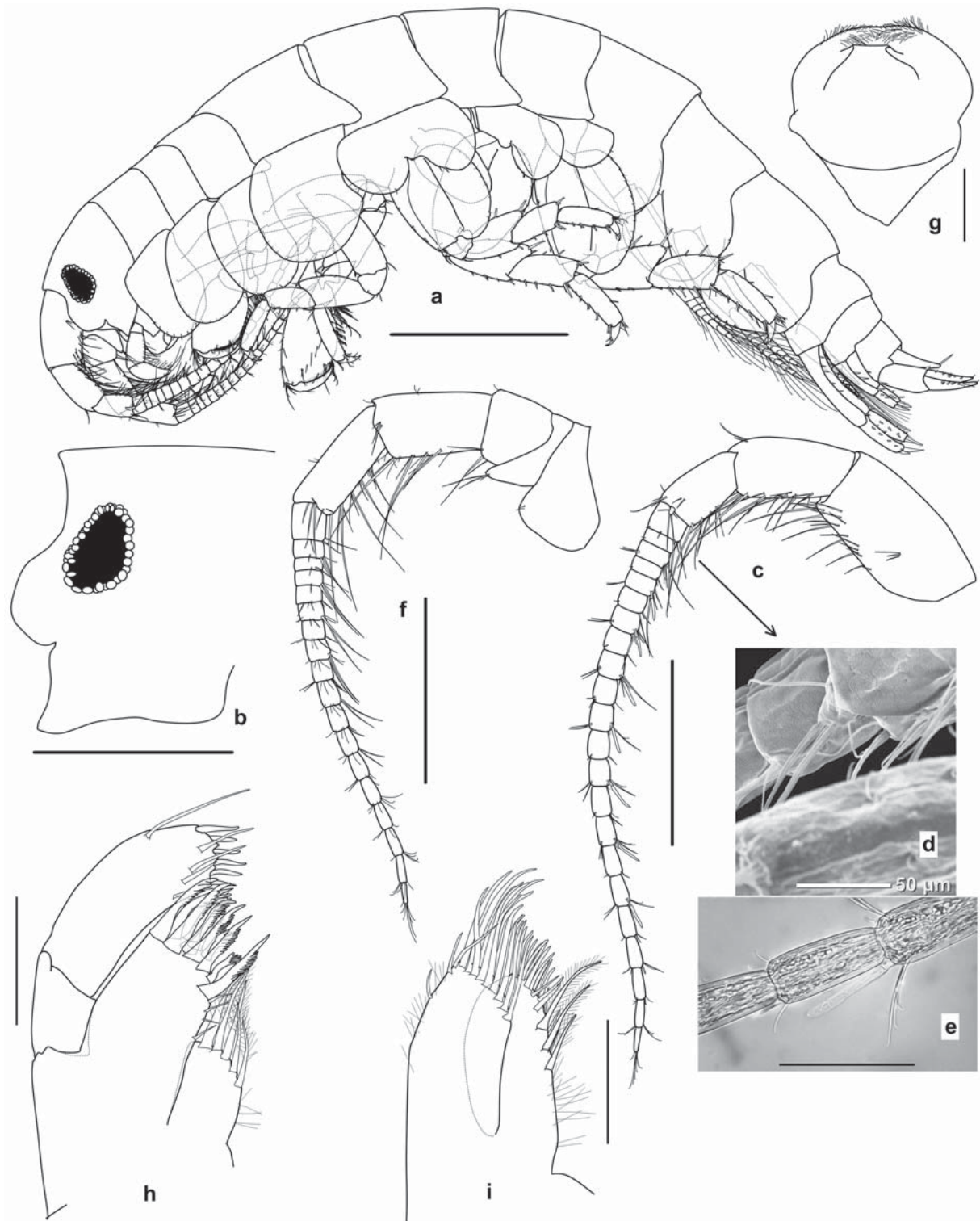


Fig. 3. *Paramoera staudei* sp.n., holotype, male: a — lateral view, b — cephalon, c — antenna 1, d — additional flagellum of antenna 1, e — aesthetasc of flagellum segment of antenna 1, f — antenna 2, g — upper lip, h — maxilla 1, i — maxilla 2; scales: a — 1 mm; b, c, f — 0.5 mm; e, g, h, i — 0.1 mm; d — 0.05 mm.

Рис. 3. *Paramoera staudei* sp.n., голотип, самец: а — общий вид латерально, б — голова, с — антенна 1, d — добавочный жгутик антенны 1, e — эстетаски на сегментах основного жгутика антенны 1, f — антенна 2, g — верхняя губа, h — максилла 1, i — максилла 2; шкалы: а — 1 мм; б, с, f — 0,5 мм; e, g, h, i — 0,1 мм; d — 0,05 мм.

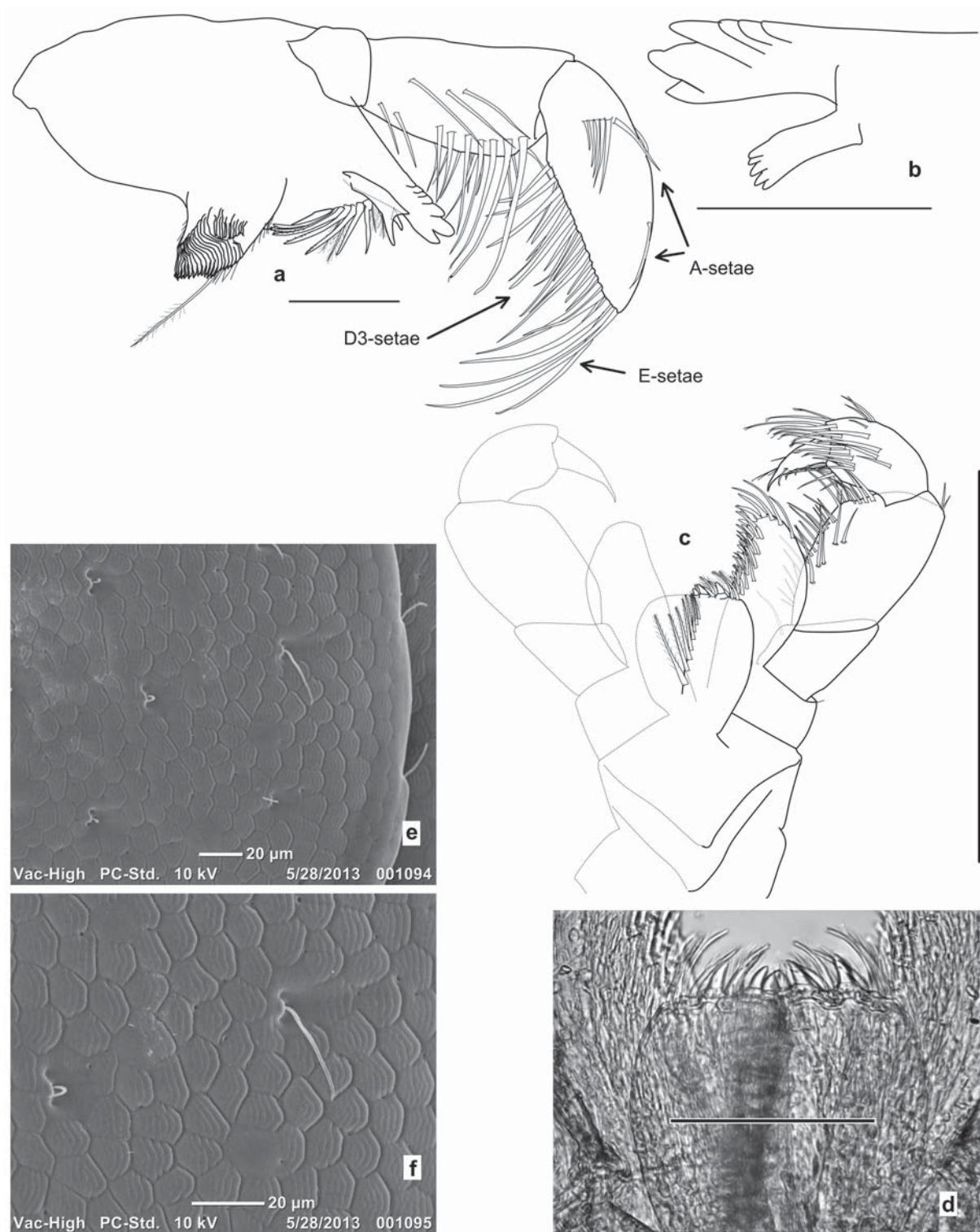


Fig. 4. *Paramoera staudei* sp.n., holotype, male: a — right mandible, b — incisor of left mandible, c — maxilliped, d — inner lobe of maxilliped; female from Ptich'e Lake: e, f — structure of surface; scales: c — 0.5 mm; a, b, d — 0.1 mm; e, f — 0.02 mm.

Рис. 4. *Paramoera staudei* sp.n., голотип, самец: а — правая мандибула, б — резец левой мандибулы, с — ногочелюсти, д — внутренняя лопасть ногочелюстей; самка из оз. Птичье: е, ф — структура покровов; щкалы: с — 0,5 мм; а, б, д — 0,1 мм; е, ф — 0,02 мм.

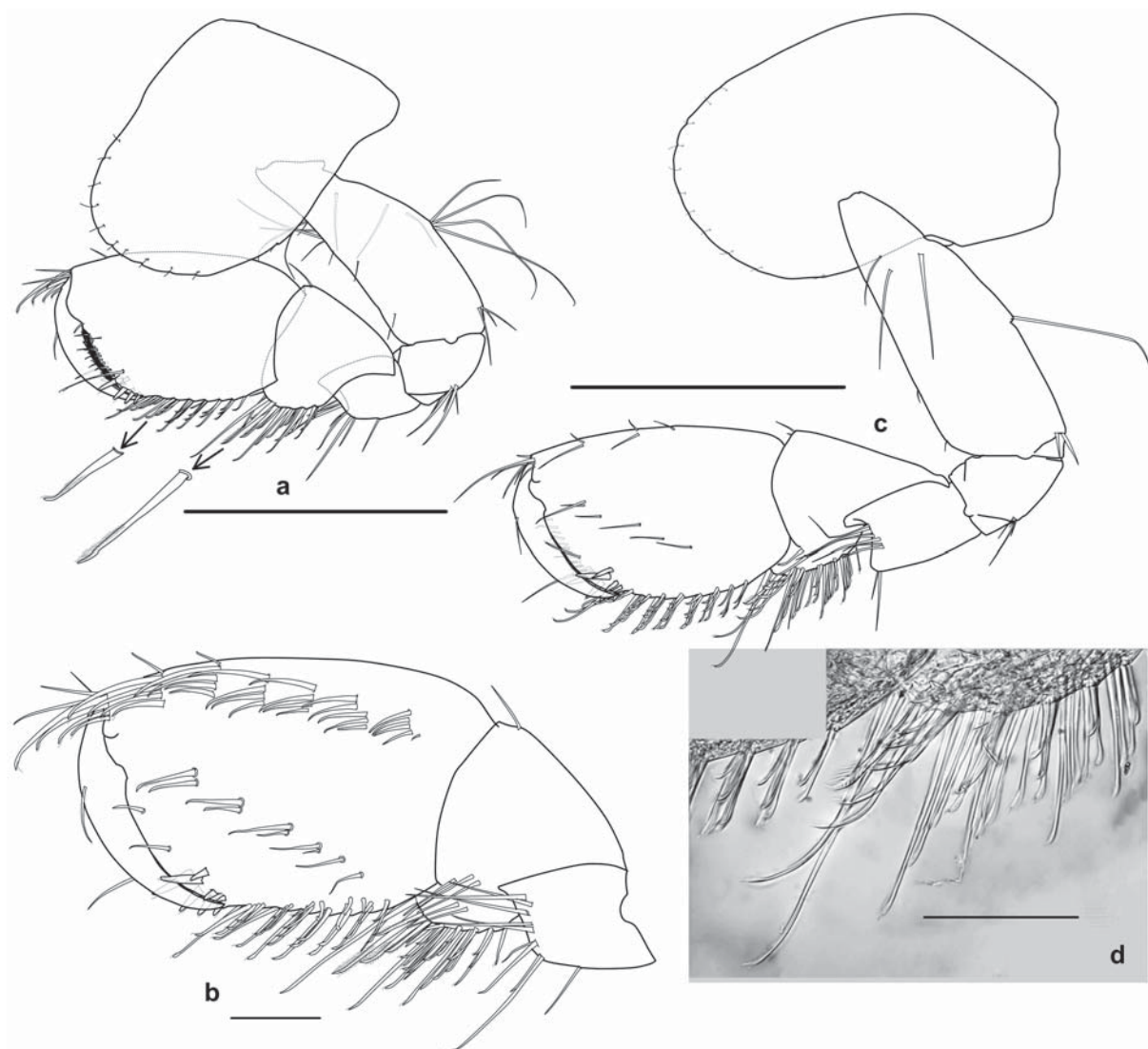


Fig. 5. *Paramoera staudei* sp.n., holotype, male: a — pereopod 1, outer side, b — pereopod 1, inner side, c — pereopod 2, b — setae of carpus of pereopod 2; scales: a, c — 0.5 mm, b, d — 0.1 mm.

Рис. 5. *Paramoera staudei* sp.n., голотип, самец: а — переопод 1, наружная сторона, б — переопод 1, внутренняя сторона, с — переопод 2, д — щетинки карпуса переопода 2; шкалы: а, с — 0,5 мм, б, д — 0,1 мм.

spine rows with 6–7 robust setae; right lacinia mobilis tridentate; molar strong, columnar, with strongly ridged grinding surface and with the long medial molar plumose seta; palp 3-articulate, short, massive, articles of palp progressively lengthener, length ratios of articles 1–3 being as 1.0 : 3.4 : 4.2, article 1 without setae, article 2 with 16–18 simple setae (D-2 setae), segment 3 with a row of 7 A-setae and single A-seta sub-distally, with posterior row of 12–16 specific plumose D3-setae and with a few long simple setae, with group of 6 long plumose distal E3-setae and one short simple E-3 seta. Lower lip, outer lobes broad, setulose along inner margin; inner lobes indistinct. Maxilla 1 (Fig. 3h): inner plate short; outer plate apically with 2 rows of 11 strong pectinate setae; palp 2-articulate, article 2 with sub-apical row of 5–6 simple setae, apical margin of article 2 with 6 robust spine-like setae. Maxilla 2 (Fig. 3i), outer plate with about 11 setae subapically. Maxilliped (Fig. 2c, d): inner plate middle length, reaching the 1/2 or 2/3 of palp

segment 1, with 3 short annulate and conate setae, without setules (Watling type II.A4) [Watling, 1989] at the truncated apex, inner margin with a row of 7–8 plumose setae; outer plate reaching about 0.5 x length of palp segment 2, rounded outer-apically and with sub-rectangular inner corner, inner margin with 6 sub-marginal transversal rows of simple setae, apex with 6 strong setae; palp stout, 4-articulate, length ratios of articles 1–4 being as 1.0 : 1.6 : 1.1 : 0.8; article 3 with medial transversal row of setae, and with a sub-distal crown of specific setae, which plumose in the distal part; article 4 (dactylus) slightly curved, nail present.

Pereon: Gnathopod 1 (Fig. 5a, b) shorter than gnathopod 2; coxa short, length about 1.4 times longer than wide, rounded below; basis length about 2.5 times longer than wide, with long setae on anterior and posterior margins, and inner surface; ischium with a tuft of setae on posterodistal corner; merus with single seta in the middle of posterior margin, and with a row of long setae on the distal margin;

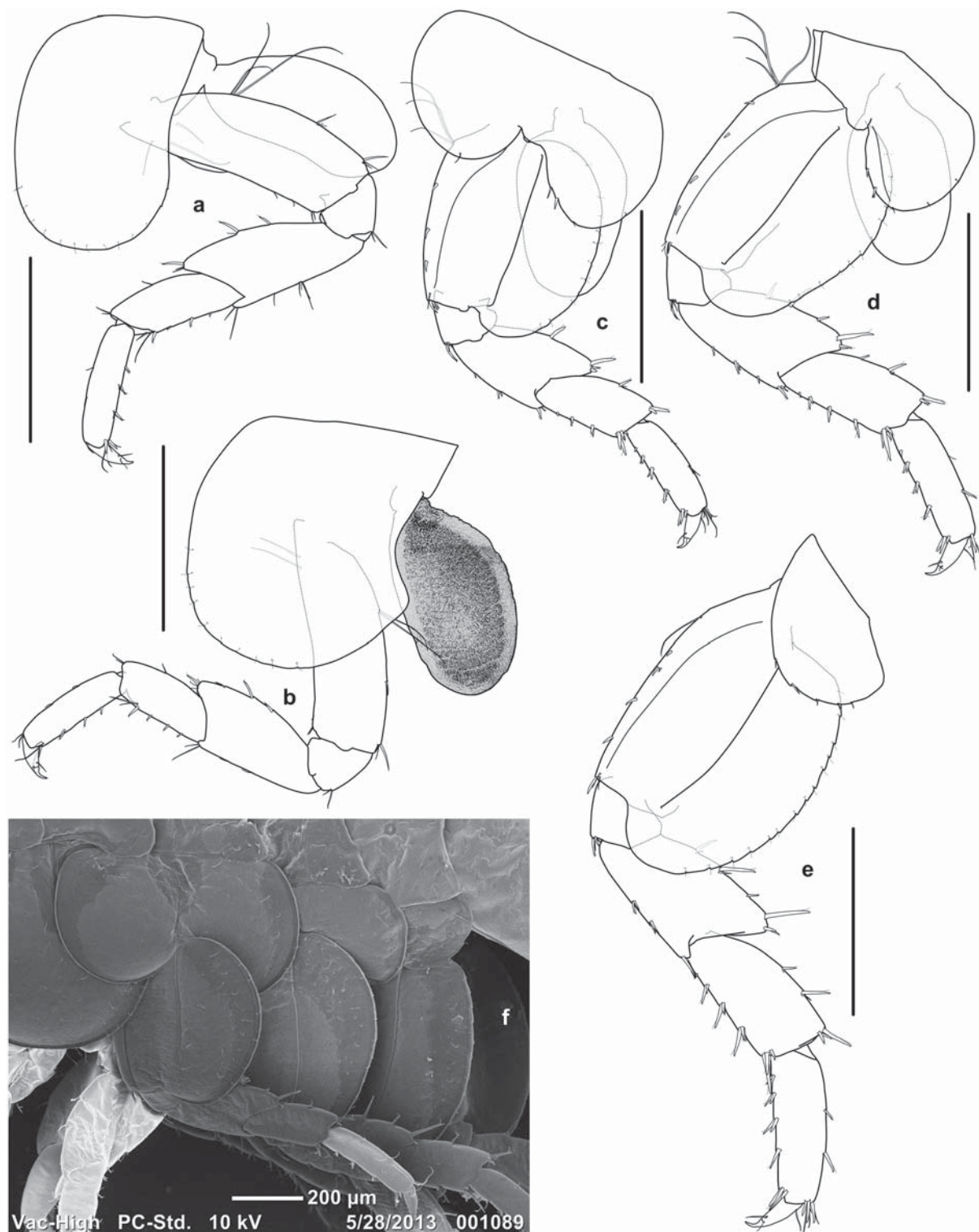


Fig. 6. *Paramoera staudei* sp.n., holotype, male: a — pereopod 3, b — pereopod 4, c — pereopod 5, d — pereopod 6, e — pereopod 7; female from Ptich'e Lake: f — pereopods 5, 6, 7; scales: a-e — 0.5 mm, f — 0.2 mm.

Рис. 6. *Paramoera staudei* sp.n., голотип, самец: а — переопод 3, б — переопод 4, с — переопод 5, d — переопод 6, е — переопод 7; самка из оз. Птичье: f — переоподы 5, 6, 7; шкалы: а-е — 0,5 мм, f — 0,2 мм.

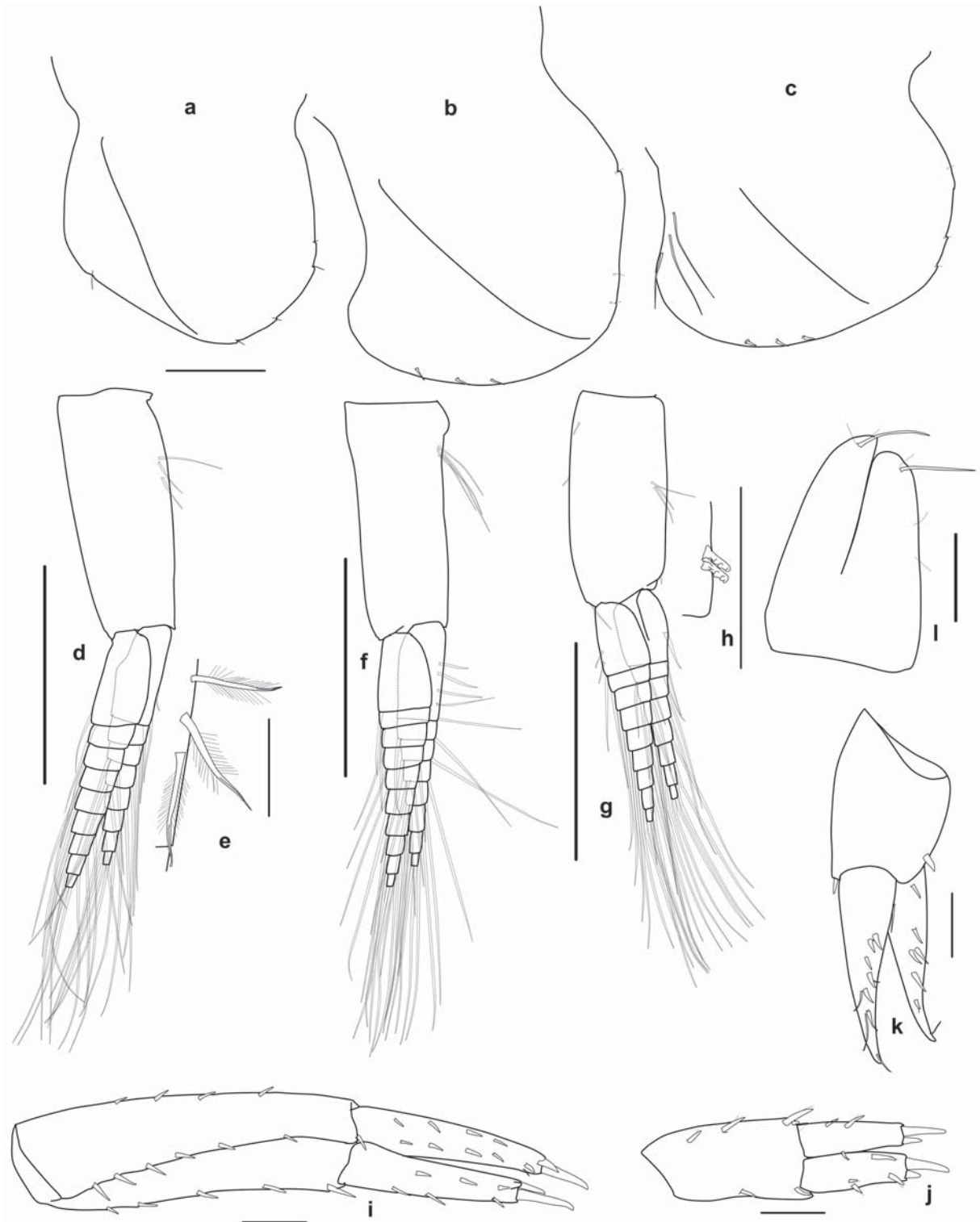


Fig. 7. *Paramoera staudei* sp.n., holotype, male: a, b, c — epimeral plates 1, 2, 3; d — pleopod 1, e — coupling setae of pleopod 1, f — pleopod 2, g — pleopod 3, h — coupling spines of pleopod 3, i — uropod 1, j — uropod 2, k — uropod 3, l — telson; scales: d, f, g — 0.5 mm, a, b, c — 0.2 mm, e, h, i, j, k, l — 0.1 mm.

Рис. 7. *Paramoera staudei* sp.n., голотип, самец: a, b, c — эпимеральные пластинки 1, 2, 3; d — плеопод 1, e — соединительные щетинки плеопода 1, f — плеопод 2, g — плеопод 3, h — соединительные шипы плеопода 3, i — уropод 1, j — уropод 2, k — уropод 3, l — тельсон; шкалы: d, f, g — 0,5 мм, a, b, c — 0,2 мм, e, h, i, j, k, l — 0,1 мм.



Fig. 8. *Paramoera staudei* sp.n., paratype, female: a — lower lips, b — pereopod 1, inner side, c — pereopod 2, inner side, d — pereopod 7, e — uropod 1, f — uropod 2, g — uropod 3, h — telson; scales: b, c, d — 0.5 mm, a, e, f, g, h — 0.1 mm.

Рис. 8. *Paramoera staudei* sp.n., паратип, самка: а — нижняя губа, b — переопод 1, внутренняя сторона, c — переопод 2, внутренняя сторона, d — переопод 7, e — уropод 1, f — уropод 2, g — уropод 3, h — тельсон; шкалы: b, c, d — 0,5 мм, a, e, f, g, h — 0,1 мм.

carpus short, 0.6 times as long as propodus, with 4–5 groups of distally plumose setae along posterior margin; propodus subrectangular, length 1.5 times longer than wide; palm slightly oblique, smoothly connected with posterior margin by a row of 4 robust setae on the inner and outer surface each; dactylus equal to palmar margin of propodus in length, slightly curved, nail indistinct. Gnathopod 2 (Fig. 5c, d), length of coxa about 1.6 times longer than wide, rounded below; basis slightly expanded distally, length about 2.6 times longer than wide, inner and posterior margins with long setae; ischium with 2 setae on posterodistal corner; merus with 2 setae on the poster-distal corner and with a row of long setae on the distal margin; carpus short, 0.7 times as long as propodus, with 6 groups of distally plumose setae along posterior margin; propodus sub-rectangular, length 1.4 times longer than wide, palm slightly oblique, smoothly connected with posterior margin by a row of 4 robust setae on the inner and outer surface each; dactyl similar to that of gnathopod 1. Pereopod 3 (Fig. 6a), coxa long, length of coxa about 1.6 times longer than wide, anterior margin slightly convex, posterior margin slightly concave, low margin rounded; length ratio from basis to propodus 1.0 : 0.3 : 0.6 : 0.5 : 0.6; basis sub-linear, with long setae on proximal 1/3 of anterior and posterior margins; ischium with 2 setae on the posterodistal corner; merus, carpus and propodus expanded; merus about 2.2 times longer than wide, with 2 robust setae along anterior margin, single seta and cluster of setae on posterior margin, antero-distal and postero-distal corners with groups of 3 and 2 setae respectively; carpus with setae along anterior and posterior margins; propodus with 2 short setae along anterior margin, 3 robust setae along posterior margin, and a group of 2 robust setae on the poster-distal corner; dactyls 0.39 times as long as propodus. Pereopod 4 (Fig. 6b), coxa with shallow posterior concavity, length of coxa about 1.1 times longer than wide, rounded ventrally; length ratio from basis to propodus as 1.0 : 0.3 : 0.6 : 0.4 : 0.5; basis sub-linear, with long setae on proximal 1/3 of anterior and posterior margins; ischium with 2 setae on the posterodistal corner; merus, carpus and propodus expanded; merus about 1.9 times longer than wide, with 3 robust setae along anterior margin, 2 short setae along posterior margin, antero-distal and postero-distal corners with groups of 3 and 2 setae respectively; carpus with setae along anterior and posterior margins; propodus with 2 short setae along anterior margin, 3 robust setae along posterior margin, and a group of 2 robust setae on the poster-distal corner; dactyls 0.43 times as long as propodus. Pereopod 5 (Fig. 7c, f), coxa bilobed, lobes subequal in size, posterior lobe with 2 robust setae along the lower margin; length ratio from basis to dactylus as 1.0 : 0.22 : 0.52 : 0.51 : 0.53 : 0.19; segments from merus to propodus broad; basis broad oval, length about 1.14 times longer than wide, posteroventrally lobate, with 3 robust setae along anterior margin, posterior wing separated by a vertical ridge; length of merus about 1.48 times longer than wide, with single short robust seta and pair of robust setae along anterior margin, robust seta on posterior margin, single robust seta and small seta at the anterodistal corner, group of few robust setae at the postero-distal corner; length of carpus about 1.94 times longer than wide, carpus with single robust seta and 2 pairs of robust setae along anterior margin, posterior margin with robust seta, anterodistal and posterodistal corners with a group of few robust setae each; propodus with 4 pairs of robust setae along anterior margin, single short seta and one cuspidate seta on posterior margin, 3 robust setae on anterodistal cor-

ner, few thin setae on posterodistal corner. Pereopod 6 (Fig. 7d, f), coxa bilobed, posterior lobe is much larger than the anterior lobe, posterior lobe with 2 robust setae along the lower margin; length ratio from basis to dactylus as 1.0 : 0.23 : 0.54 : 0.51 : 0.53 : 0.23; segments from merus to propodus broad; basis broad oval, length about 1.3 times longer than wide, posteroventrally lobate, with 4 robust setae along anterior margin, posterior wing separated by a vertical ridge; length of merus about 1.57 times longer than wide, with 3 pairs of robust setae along anterior margin, 3 robust setae along posterior margin, anterodistal and posterodistal corners with few robust setae each; length of carpus about 1.93 times longer than wide, carpus with single robust seta and 3 pairs of robust setae along anterior margin, posterior margin with single robust seta and pair of robust setae, anterodistal and posterodistal corners with a group of few robust setae each; propodus similar to that in pereopod 5. Pereopod 7 (Fig. 7e, f), coxa semicircular, with 4 setae along the postero-ventral margin; length ratio from basis to dactylus as 1.0 : 0.22 : 0.52 : 0.53 : 0.55 : 0.21; segments from merus to propodus broad; basis oval, length about 1.33 times longer than wide, posteroventrally lobate, with 4 robust setae along anterior margin, posterior wing separated by a vertical ridge; length of merus about 1.45 times longer than wide, with 2 pairs of robust setae along anterior margin, 3 robust setae along posterior margin, anterodistal and posterodistal corners with 2 robust setae each, length of the longest robust setae at the postero-distal corner about 1/3 times as length of carpus; length of carpus about 1.94 times longer than wide, carpus with single robust seta and 3 pairs of robust setae along anterior margin, posterior margin with single robust seta and pair of robust setae, anterodistal and posterodistal corners with a group of few robust setae each; propodus with 4 pairs of robust setae along anterior margin, 2 robust setae on posterior margin, anterodistal and posterodistal corners with a group of 3 robust setae each.

Pleopods: (Fig. 7d, e, g, h) normal; peduncles with paired retinacula (coupling spines) on inner distal margin; inner ramus slightly shorter than outer ramus, coupling basis of inner ramus with 2–3 specific stout two-pointed plumose setae along inner margin (3 setae on pleopod 1, 3 setae on pleopod 2 and 2 setae on pleopod 3); inner ramus of all pleopods with 8 articles, outer ramus of each with 9–10 articles. Uropod 1 (Fig. 7i), peduncle with 6 and 4 robust setae along medial and lateral margins, respectively; inner ramus length 0.57 times as peduncle, inner and lateral margins with 4–5 robust setae each; outer ramus length 0.88 times as inner ramus, inner and lateral margins with 3 robust setae, both ramie with 2 terminal robust setae each. Uropod 2 (Fig. 7j), peduncle with 2 medial and 3 lateral robust setae dorsally; inner ramus subequal to outer ramus, length 0.65 times as peduncle, with 2 robust setae on medial margin and single robust seta on lateral margin; outer ramus with medial marginal robust seta and 2 lateral robust setae, both ramie with 2 terminal robust setae each. Uropod 3 (Fig. 7k), inner ramus length 1.22 times as peduncle, outer ramus length 0.85 times as inner ramus, each ramus with single thin subterminal seta; inner ramus with 5 groups of 1–2 setae (robust and thin setae together); outer ramus with 5 groups of 1–2 robust setae. Telson (Fig. 7l) narrowed distally, length 1.5 times as wide, cleft for 68%, each lobe bearing 1 long seta (length of seta 0.34 times as telson length) sub-apically, apex rounded.

Female (4.7 mm). Similar to male except for the following features: Gnathopod 1 (Fig. 8b), propodus with 5–6

groups of setae along posterior margin, 7 transversal rows of 3–4 setae along anterior margin and 5 groups of 1–2 setae in the diagonal row of inner surface. Gnathopod 2 (Fig. 8c), carpus sub-equal to propodus in length; propodus with 6 groups of setae along posterior margin, and 3–4 groups of 1–2 setae in the diagonal row of inner surface. Pereopod 7 (Fig. 8d), coxa semicircular, with 2 setae along the postero-ventral margin; basis narrow-oval, length about 1.44 times longer than wide; merus more narrow, length of merus about 1.8 times longer than wide, with 2 pairs of robust setae along anterior margin, 1 robust seta and pair of robust setae along posterior margin, anterodistal and posterodistal corners with 2–3 robust setae each, length of the longest robust setae at the postero-distal corner about 0.35 times as length of carpus; carpus with single robust seta and 2 pairs of robust setae along anterior margin, posterior margin with single robust seta, anterodistal and posterodistal corners with a group of few (1–3) robust setae each; propodus with 3 groups of 1–2 robust setae along anterior margin, single robust seta on posterior margin. Uropod 1 (Fig. 8e), peduncle with 4 and 4 robust setae along medial and lateral margins, respectively; inner ramus length 0.51 times as peduncle, inner and lateral margins with 4 and 2 robust setae, respectively; outer ramus length 0.94 times as inner ramus, inner and lateral margins with 2 robust setae, both ramie with 2 terminal robust setae each. Uropod 3 (Fig. 8g), inner ramus length 1.1 times as peduncle, outer ramus length 0.9 times as inner ramus, inner ramus with single thin subterminal seta, with 3 groups of 1–2 setae (robust and thin setae together); outer ramus with 4 groups of 1–2 robust setae. Telson (Fig. 8h), length 1.14 times as wide, each lobe bearing 1 long seta (length of seta 0.25 times as telson length) sub-apically.

VARIABILITY. Maxilla 1, inner plate with 4 or 5 plumose apical setae. Gnathopod 1, posterior margin of propodus in young males and in females with 5–6 groups of setae, in large males with 7–8 groups of setae; anterior margin of propodus in young males and in females with 7 transversal rows of 3–4 setae, in large males with 7 transversal rows of 5–6 setae; the diagonal row of inner surface of propodus in young males and in females with 5 groups of 1–2 setae, in large males with 6 groups of 1–2 setae.

ETYMOLOGY. Named in honor of the famous American carcinologist Dr. Craig P. Staude who contributed very broadly to the knowledge of amphipods of the genus *Paramoera*.

ECOLOGY. *P. staudei* was found on littoral on pebbles sediments with sands of wave exposed beaches. Females with eggs in marsupium were detected at the south-eastern coast of Sakhalin Island in May and June.

In coastal sand-gravel beaches in October *P. staudei* is sometimes found in concentrated densities exceeding 27 000 ind./m², and may co-occur with lesser numbers of *P. anivae*, *P. stepaniae* and *P. nataliae*.

DISTRIBUTION. The coast of southern Sakhalin Island, Sea of Japan and Sea of Okhotsk (Fig. 32).

REMARKS. *P. staudei* is close to *P. mokyevskii* (Gurjanova, 1952) in its main features (inner plate of maxilla 1 with 4–5 plumose setae; inner ramus of uropod 3 without rim of plumose setae; propodus of gnathopods 1 and 2 is powerful, sub-rectangular). *Paramoera staudei* can be distinguished from *P. mokyevskii* by the following features: posterior margin of propodus in large males with 7–8 groups of setae (in *P. mokyevskii* with 5 groups), the diagonal row of inner surface of propodus in large males with 6 groups of 1–2 setae (in *P. mokyevskii* with few groups of 5 setae),

lobes of telson bearing only 1 long seta each (length of seta 0.34 times as telson length) sub-apically (in *P. mokyevskii* each lobe bearing 1 short and 1 long setae subapically, length of longest seta 0.5 times as telson length).

Paramoera stepaniae sp.n.

Figs 9–13, 32.

TYPE MATERIAL. Holotype, male, 5.1 mm, X 54529/Cr-2438, Sea of Okhotsk, Far East of Russia (47°00'12.180"N 143°03'45.960"E, littoral), pebble with sand, V.S. Labay, 8 May 2019. Paratype: 1 female, 7.0 mm, X 54531/Cr-2440, with same data as holotype. Paratype: 1 male, 4.5 mm, X 54530/Cr-2439, with same data as holotype. Paratypes: 29 males and females, X 54532/Cr-2441, with same data as holotype.

TYPE LOCALITY. The eastern coast of Sakhalin Island, Sea of Okhotsk, Far East of Russia (47°00'12.180"N 143°03'45.960"E, littoral).

DIAGNOSIS. Eyes medium, sub-reniform. Body medium, smooth, with sternal humps.

Head, inferior antennal sinus quadrate, corner of sinus incised. Antenna 1, segments of peduncle with rare (0–3) long setae at the posterior margin of each segment; articles 1–9 (1–10) of flagellum with calceoli. Antenna 2, peduncular article 2 gland cone with 1 subapical seta; articles of flagellum without calceoli. Mandible, lacinia mobilis of left 5-dentate, palp segment 3 with a transversal row of 4 A-setae. Maxilla 1, inner plate with 4 plumose apical setae. Maxilla 2, inner plate with 3 plumose setae in the diagonal row. Gnathopod 1 in male, carpus shorter than propodus; propodus almond-shaped, palmar margin strongly oblique, with 3 groups of setae along posterior margin, 6 transversal rows of 1–2 setae along anterior margin and 2 groups of 2 setae in the diagonal row of inner surface. Gnathopod 1 in female, carpus shorter than propodus; propodus almond-shaped, palmar margin strongly oblique, with 4 groups of setae along posterior margin, 5 transversal rows of 2–4 setae along anterior margin and 2 groups of 2 setae in the diagonal row of inner surface. Gnathopod 2 in male, carpus shorter than propodus; propodus almond-shaped, palmar margin strongly oblique, with 4 groups of setae along posterior margin, and 3 setae in the diagonal row of inner surface. Gnathopod 2 in female, carpus shorter than propodus; propodus almond-shaped, palmar margin strongly oblique, with 5 groups of setae along posterior margin, and 3 setae in the diagonal row of inner surface. Coxal plate 4 with shallow posterior concavity. Coxal gills on pereopods 2–6. Pereopods 5–7, merus, carpus and propodus not dilated. Pleopod 2 in male, outer ramus without modified articles and setae. Uropod 2, inner ramus longer than outer ramus. Uropod 3, inner ramus without plumose setae along the entire inner margin. Telson, the longest seta of each apex 1/3 times as telson length.

DESCRIPTION. Male (5.1 mm). Vital body colorless. Body medium, smooth (Fig. 9a). Rostrum (Fig. 9a, 10a) short, weakly produced; lateral cephalic lobe sub-rounded; eyes medium, sub-reniform, 0.36 times as high as head. Epimeral plates 1–3 (Fig. 12a, b, c): posterior margin of plates 1 and 2 slightly convex, posterior margin of plate 3 convex; posterior margins of plates 2 and 3 with small crenulation and tiny setae; posterodistal corners not pointed; plate 1 without cuspidate seta on ventral margin; plates 2 and 3 with 3 robust cuspidate setae along anterior half of ventral margin.

Head. Antenna 1 (Fig. 9b, c, d): length 0.46 times as long as body length; length ratio of peduncular articles 1–3

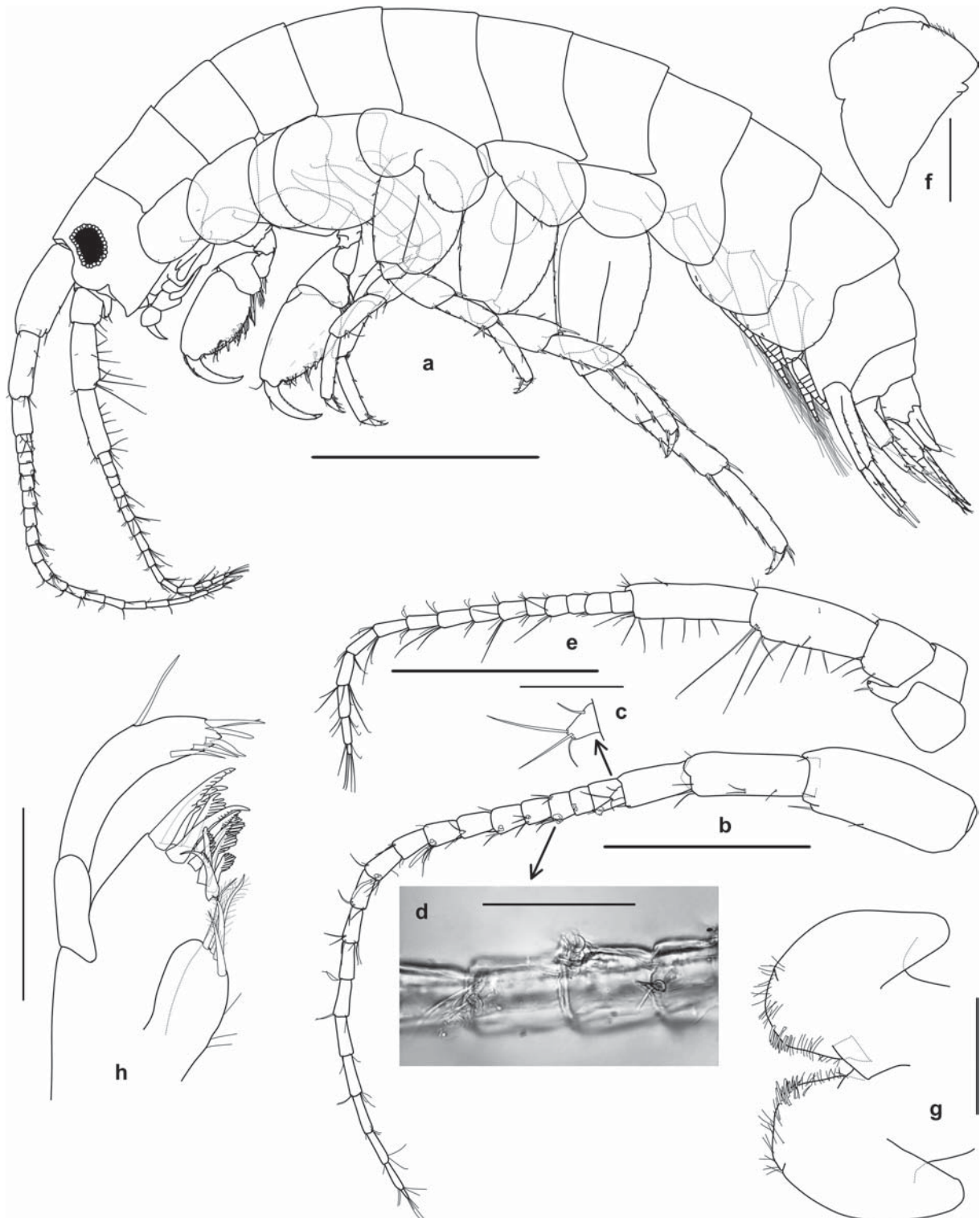


Fig. 9. *Paramoera stepaniae* sp.n., holotype, male: a — lateral view, b — antenna 1, c — additional flagellum of antenna 1, d — calceoli on articles of flagellum of antenna 1, e — antenna 2, f — upper lip, g — lower lip, h — maxilla 1; scales: a — 1 mm; b, e — 0.5 mm; c, d, f, g, h — 0.1 mm.

Рис. 9. *Paramoera stepaniae* sp.n., голотип, самец: а — общий вид латерально, б — антенна 1, с — добавочный жгутик антенны 1, d — калцеолы на члениках основного жгутика антенны 1, e — антенна 2, f — верхняя губа, g — нижняя губа, h — максилла 1; шкалы: а — 1 мм; б, e — 0,5 мм; с, d, f, g, h — 0,1 мм.



Fig. 10. *Paramoera stepaniae* sp.n., holotype, male: a — cephalon, b, c — right mandible, d — molar, raker setae and incisor of left mandible, e — maxilliped, f — pereopod 1, outer side, g — pereopod 1, inner side, scales: a, f — 0.5 mm, b, c, d, e, g — 0.1 mm.

Рис. 10. *Paramoera stepaniae* sp.n., голотип, самец: а — голова, b, c — правая мандибула, d — моляр, щетинки зубного ряда и резец левой мандибулы, e — ногочелюсти, f — переопод 1, наружная сторона, g — переопод 1, внутренняя сторона, шкалы: а, f — 0,5 мм, b, c, d, e, g — 0,1 мм.

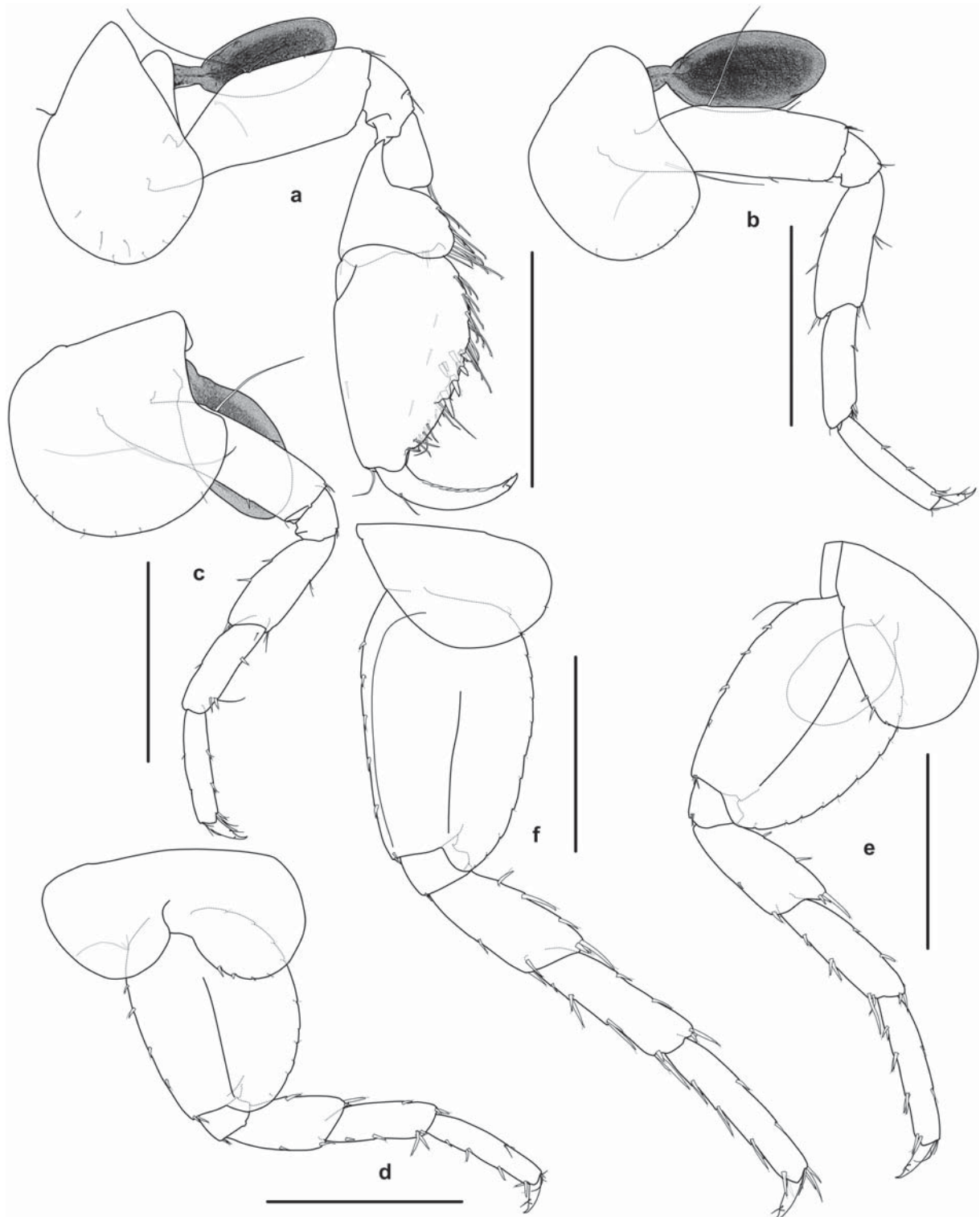


Fig. 11. *Paramoera stepaniae* sp.n., holotype, male: a — pereopod 2, b — pereopod 3, c — pereopod 4, d — pereopod 5, e — pereopod 6, f — pereopod 7; scale — 0.5 mm.

Рис. 11. *Paramoera stepaniae* sp.n., голотип, самец: а — переопод 2, б — переопод 3, с — переопод 4, д — переопод 5, е — переопод 6, ф — переопод 7; шкала — 0,5 мм.

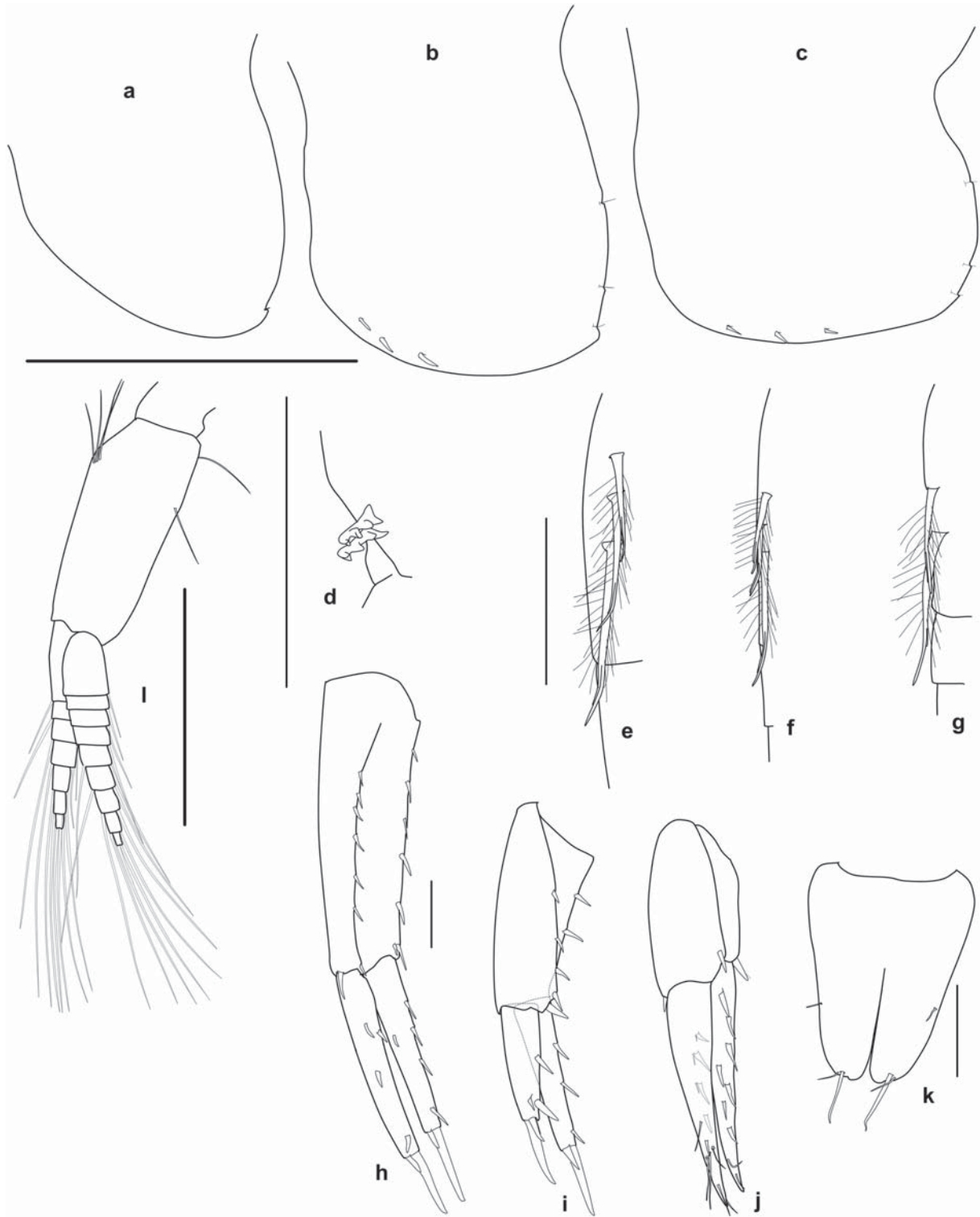


Fig. 12. *Paramoera stepaniae* sp.n., holotype, male: a, b, c — epimeral plates 1, 2, 3, d — coupling spines of pleopod 3, e, f, g — coupling setae of pleopod 1, 2, 3, h — uropod 1, i — uropod 2, j — uropod 3, k — telson; paratype, male: l — pleopod 2; scales: a, b, c, l — 0.5 mm, d–k — 0.1 mm.

Рис. 12. *Paramoera stepaniae* sp.n., голоти, самец: а, б, с — эпимеральные пластинки 1, 2, 3, d — соединительные шипы плеопода 3, е, ф, г — соединительные щетинки плеопод 1, 2, 3, h — уropод 1, i — уropод 2, j — уropод 3, k — тельсон; паратип, самец: l — плеопод 2; шкалы: а, б, с, l — 0,5 мм, d–k — 0,1 мм.

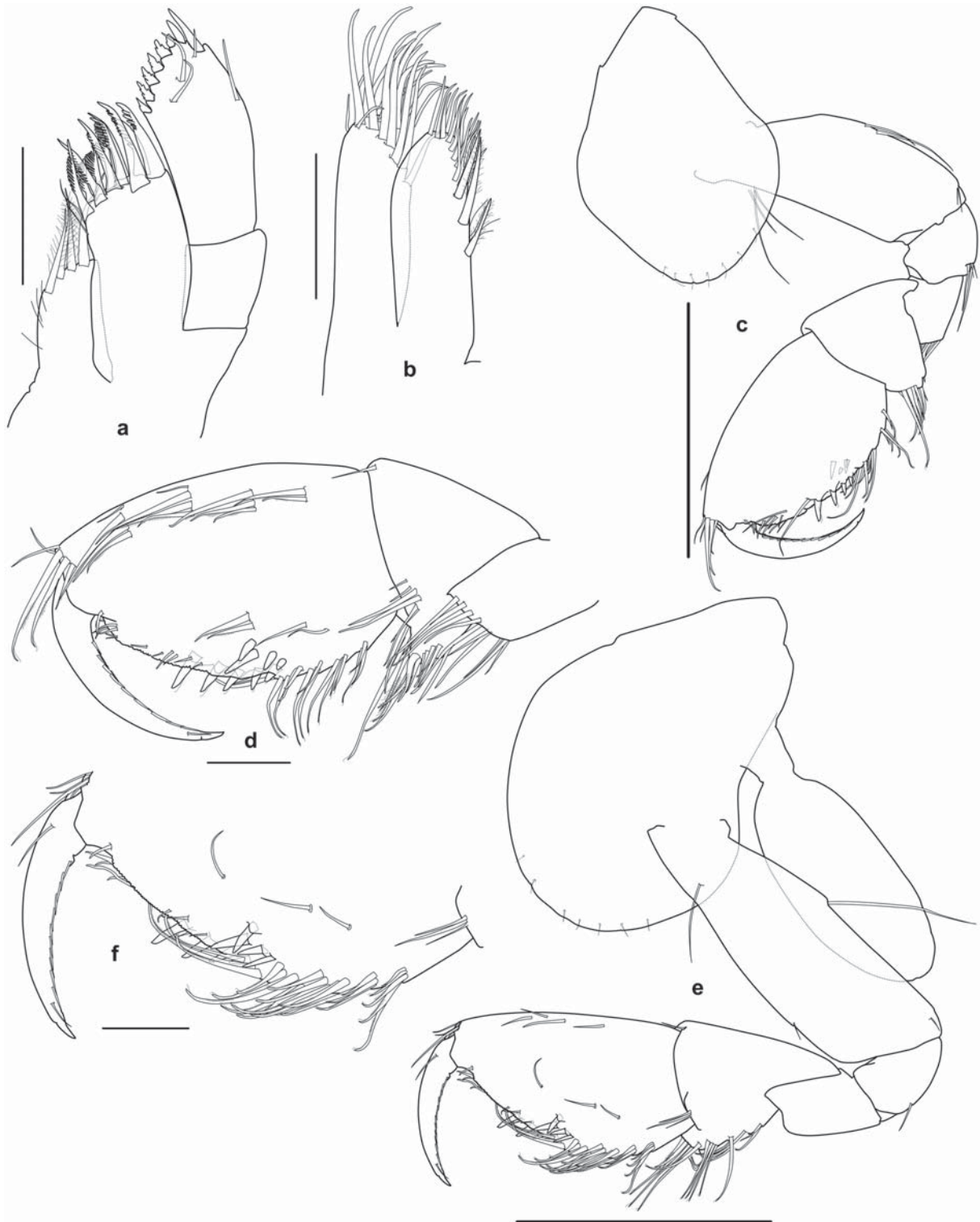


Fig. 13. *Paramoera stepaniae* sp.n., paratype, female: a — maxilla 1, b — maxilla 2, c — pereopod 1, outer surface, d — pereopod 1, inner surface, e, f — pereopod 2, inner surface; scales: c, e — 0.5 mm, a, b, d, f — 0.1 mm.

Рис. 13. *Paramoera stepaniae* sp.n., парати, самка: а — максилла 1, б — максилла 2, с — переопод 1, наружная сторона, d — переопод 1, внутренняя сторона, е, f — переопод 2, внутренняя сторона; шкалы: с, е — 0,5 мм, а, б, d, f — 0,1 мм.

being as 1.0 : 0.70 : 0.41; peduncular article 1 with single seta on posterior margin, and with single seta at the posterodistal corner; peduncular article 2 with single seta and pair setae along posterior margin, a group of 3 setae posterodistally, single seta anterodistally; peduncular article 3 with cluster of 2 setae on posterodistal corner; flagellum 19-articulate, about 1.7 times as long as peduncle, articles 7, 9, and 11 with 1 aesthetasc each; accessory flagellum 1-articulate, scale-like, with 3 long apical setae and with 1 lateral seta on anterior side. Antenna 2 (Fig. 9e): length ratio of peduncular articles 3–5 being 1.0 : 1.9 : 1.8; gland cone length 0.75 times that of peduncular article 3; peduncular article 3 with short seta on anterodistal corner, and 3 long setae on posterodistal corner; peduncular article 4 with 1 cluster of 2 short setae on anterodistal corner, 4 long setae along posterior margin, 2 groups of 2 long setae at the posterodistal corner; peduncular article 5 with seta on anterior margin, 1 cluster of 3 setae at the anterodistal corner, 4 long setae along posterior margin, and 1 cluster of 5–6 setae at the posterodistal corner; flagellum with 15 articles, each article with a crown of setae at the distal margin. Upper lip (Fig. 9f), ventral margin rounded, with tiny setae. Mandible (Fig. 10b, c, d): incisor margins with 6 teeth on left and right, accessory spine rows with 5–7 robust setae; right lacinia mobilis tridentate; molar strong, columnar, with strongly ridged grinding surface and with the long medial molar plumose seta; palp 3-articulate, short, massive, articles of palp progressively lengthener, length ratios of articles 1–3 being as 1.0 : 3.4 : 3.8, article 1 without setae, article 2 with 6 simple setae (D-2 setae), segment 3 with a row of 4 A-setae, with posterior row of 11–13 specific plumose D3-setae, with a group of 3 long plumose distal E3-setae. Lower lip (Fig. 9g), outer lobes broad, setulose along inner margin; inner lobes indistinct. Maxilla 1 (Fig. 9h): inner plate short; outer plate apically with 2 rows of 11 strong pectinate setae; palp 2-articulate, article 2 with apical row of 6–7 robust setae, 2 subapical setae, 1 seta on the outer margin. Maxilla 2, outer and inner plates with numerous setae apically each. Maxilliped (Fig. 10e): inner plate middle length, reaching the 1/3 of palp segment 1, with 3 short annulate and conate setae, without setules (Watling type II.A4) [Watling, 1989] at the truncated apex, inner margin with a row of 5 plumose setae; outer plate reaching about 0.5 x length of palp segment 2, rounded outer-apically and with sub-rectangular inner corner, inner margin with 5–6 sub-marginal transversal rows of 1–3 simple setae (each marginal seta is robust), apex with 4 strong setae; palp stout, 4-articulate, length ratios of articles 1–4 being as 1.0 : 1.75 : 0.89 : 0.91; article 3 with sub-distal crown of specific setae, which plumose in the distal part; article 4 (dactylus) slightly curved, nail present.

Pereon: Gnathopod 1 (Fig. 10f, g) shorter than gnathopod 2; coxa short, length about 0.7 times longer than wide, rounded below; basis narrowed proximally, length about 2.3 times longer than wide, with 2 long setae in the middle of posterior margins; ischium with a tuft of setae on posterodistal corner; merus with a group of 3 simple setae on the distal margin; carpus short, 0.45 times as long as propodus, with 3 groups of distally plumose setae along posterior margin; propodus almond-shaped, length 1.6 times longer than wide; palm strongly oblique, smoothly connected with posterior margin by a row of 4 robust setae on the inner and outer surface each, palm length 1.5 times as length of posterior margin; dactylus shorter than length of palmar margin of propodus, curved, nail indistinct. Gnathopod 2 (Fig. 11a),

coxa beveled forward, length of coxa subequal to wide, rounded below; basis expanded in distal 2/3, length about 2.4 times longer than wide, posterior margins with 2 long setae at the border of proximal 1/3, and with single seta at the border of distal 1/3; ischium with 2 setae on posterodistal corner; merus with 2 setae on the postero-distal corner; carpus short, 0.54 times as long as propodus, with 3 groups of distally plumose setae along posterior margin; propodus almond-shaped, length 1.7 times longer than wide; palm strongly oblique, smoothly connected with posterior margin by a row of 3–4 robust spine-like setae on the inner and outer surface each, palm length 1.2 times as length of posterior margin; dactylus similar to that of gnathopod 1. Pereopod 3 (Fig. 11b), coxa short, length of coxa about 0.9 times longer than wide, anterior margin slightly convex, posterior margin slightly concave, lower margin sub-rounded; length ratio from basis to propodus 1.0 : 0.21 : 0.74 : 0.60 : 0.55; basis sub-linear, with 2 long setae on proximal 1/3 of anterior and posterior margins each; merus, carpus and propodus narrow; merus about 3.2 times longer than wide, with 2 cuspidate setae along anterior margin, cluster of 2 setae on posterior margin, antero-distal and postero-distal corners with groups of 2 setae each; carpus with seta on posterior margin; propodus with 2 robust setae along posterior margin, and a group of 2 robust setae on the poster-distal corner; dactylus 0.38 times as long as propodus. Pereopod 4 (Fig. 11c), coxa with shallow posterior concavity, length of coxa about 0.94 times longer than wide, rounded ventrally; length ratio from basis to propodus as 1.0 : 0.22 : 0.65 : 0.53 : 0.57; basis sub-linear, with long seta on proximal 1/3 of posterior margin and with 2 long setae on anterior margin proximally; merus, carpus and propodus narrow; merus about 2.8 times longer than wide, with 2 robust setae along anterior margin, a group of 2 short setae on posterior margin, antero-distal and postero-distal corners with a group of 2 setae each; carpus with single seta on anterior and posterior margins each; propodus with 2 short setae along anterior margin, 2 robust setae along posterior margin, and a group of 2 robust setae and thin seta on the poster-distal corner; dactyls 0.36 times as long as propodus. Pereopods 5–7 progressively elongate from 5 to 7. Pereopod 5 (Fig. 11d), coxa bilobed, posterior lobe slightly larger, posterior lobe with 4 robust setae along the lower margin; length ratio from basis to dactylus as 1.0 : 0.16 : 0.47 : 0.47 : 0.57 : 0.19; segments from merus to propodus narrow; basis oval, length about 1.3 times longer than wide, posteroventrally lobate, with 4 robust setae along anterior margin, posterior wing separated by a vertical ridge; length of merus about 1.9 times longer than wide, with single short robust seta on anterior and posterior margins each, single robust seta at the anterodistal corner, group of 2 robust setae at the posterodistal corner; length of carpus about 2.7 times longer than wide, carpus with 2 robust setae along anterior margin, posterior margin with robust seta, anterodistal and posterodistal corners with a group of few robust setae each; propodus with 3 groups of 1–2 robust setae along anterior margin, single short seta and one cuspidate seta on posterior margin, 2 robust setae on anterodistal corner, few short thin setae on posterodistal corner. Pereopod 6 (Fig. 11e), coxa bilobed, anterior lobe tiny, posterior lobe is much larger than the anterior lobe, posterior lobe with 3 robust setae along the lower margin; length ratio from basis to dactylus as 1.0 : 0.19 : 0.49 : 0.56 : 0.61 : 0.21; segments from merus to propodus narrow; basis ovate, length about 1.45 times longer than wide, posteroventrally lobate, with 4 robust setae along anterior

margin, posterior wing separated by a vertical ridge; length of merus about 2.0 times longer than wide, with single robust seta on anterior margin, 2 robust setae along posterior margin, anterodistal and posterodistal corners with 2–3 robust setae each; length of carpus about 3.3 times longer than wide, carpus with 2 pairs of robust setae along anterior margin, 2 robust setae along posterior margin, anterodistal and posterodistal corners with a group of few robust cuspidate setae each; propodus with 3 pairs of robust setae along anterior margin, 2 short setae along posterior margin. Pereopod 7 (Fig. 11f), coxa semicircular, with 2 tiny setae along the posterior margin; length ratio from basis to dactylus as 1.0 : 0.17 : 0.50 : 0.55 : 0.66 : 0.20; segments from merus to propodus narrow; basis with posterior wing, narrowed distally, length about 1.57 times longer than wide, posteroventrally lobate, with 5 robust setae along anterior margin, posterior wing separated by a vertical ridge; length of merus about 2.0 times longer than wide, with single robust seta on anterior margin, 3 robust setae along posterior margin, anterodistal and posterodistal corners with 2–3 robust setae each, length of the longest robust setae at the postero-distal corner about 0.3 times as length of carpus; length of carpus about 3.2 times longer than wide, carpus with single robust seta and 2 pairs of robust setae along anterior margin, 2 robust setae along posterior margin, anterodistal and posterodistal corners with a group of 3 robust setae each; propodus with 3 pairs of robust cuspidate setae along anterior margin, 2 robust setae on posterior margin, anterodistal and posterodistal corners with a group of 2 and 4 robust setae respectively.

Pleon: Pleopods: (Fig. 12d, e, f, g, l) normal, outer ramus slightly expanded; peduncles with paired retinacula (coupling spines) on inner distal margin; inner ramus slightly shorter than outer ramus, coupling basis of inner ramus with 2–3 specific stout two-pointed plumose setae along inner margin (3 setae on pleopod 1, 3 setae on pleopod 2 and 2 setae on pleopod 3); inner ramus of all pleopods with 7 articles, outer ramus of each with 9 articles. Uropod 1 (Fig. 12h), peduncle with 6 and 5 robust setae along medial and lateral margins, respectively; inner ramus length 0.62 times as peduncle, inner and lateral margins with 3 and 1 robust setae respectively; outer ramus length 0.92 times as inner ramus, inner and lateral margins with 1 and 4 robust setae respectively, both ramie with 2 terminal robust setae (1 short seta and 1 long seta) each. Uropod 2 (Fig. 12i), peduncle with 2 medial and 3 lateral robust setae dorsally; outer ramus length 0.80 times as inner ramus, length of inner ramus 0.71 times as peduncle, inner ramus with 3 robust setae on medial margin; outer ramus with subapical marginal robust seta and 2 lateral robust setae, both ramie with 2 terminal robust setae (1 short seta and 1 long seta) each. Uropod 3 (Fig. 12j), inner ramus length 1.4 times as peduncle, outer ramus length 0.93 times as inner ramus, each ramus with single thin subterminal seta; inner ramus with 5 robust setae and a group of thin setae; outer ramus with 3 and 4 robust setae along inner and lateral margins respectively. Telson (Fig. 12k) narrowed distally, length 1.23 times as wide, cleft for 57%, each lobe bearing 1 long seta (length of seta 0.32 times as telson length) and 1 short seta subapically, apex rounded.

Female (7.0 mm). Similar to male except for the following features: Gnathopod 1 (Fig. 13c, d), propodus with 4 groups of setae along posterior margin, 5 transversal rows of 2–4 setae along anterior margin and 2 groups of 2 setae in the diagonal row of inner surface. Gnathopod 2 (Fig. 13e, f),

carpus shorter than propodus; propodus almond-shaped, palmar margin strongly oblique, with 5 groups of setae along posterior margin, and 3 setae in the diagonal row of inner surface.

VARIABILITY. Maxilla 1, article 2 of palp with 5–7 robust setae in apical row. Gnathopods 1 and 2, variability of propodus armament shown above for males and females.

ETYMOLOGY. Named in honor of my father Stepan I. Labay and my son Stepan V. Labay.

ECOLOGY. *P. stepaniae* was found on littoral on pebbles with sands. Females with eggs in marsupium were detected at the south-eastern coast of Sakhalin Island in May and June.

DISTRIBUTION. Only type locality. The coast of south-eastern Sakhalin Island, Sea of Okhotsk (Fig. 32).

REMARKS. *P. stepaniae* is close to *P. bucki* Staude, 1995 in its main features (inner plate of maxilla 1 with 4 plumose setae; inner plate of maxilla 2 with 3 plumose setae in facial row; inner ramus of uropod 3 without rim of plumose setae; propodus of gnathopods 1 and 2 almond-shaped, palmar margin strongly oblique). *P. stepaniae* can be distinguished from *P. bucki* by the following features: postantennal sinus with a notch (in *P. bucki* postantennal sinus without a notch), eyes medium, sub-reniform, 0.36 times as high as head (in *P. bucki* eye small, and subcircular, 0.19 times as high as head), flagellum of antenna 1 with calceoli, flagellum of antenna 2 without calceoli (in *P. bucki* flagellum of antenna 1 without calceoli, flagellum of antenna 2 with calceoli); lobes of telson bearing only 1 long seta and 1 short seta each sub-apically (in *P. bucki* each apex of telson truncated, with 3–4 long setae).

Paramoera nataliae sp.n.

Figs 14–20, 32.

TYPE MATERIAL. Holotype, male, 2.8 mm, X 54533/Cr-2442, Sea of Okhotsk, Far East of Russia (47°00'12.180"N 143°03'45.960"E, littoral), pebble with sand, V.S. Labay, 10 July 2019. Paratype: 1 female, 3.2 mm, X 54534/Cr-2443, with same data as holotype. Paratypes: 40 males and females, X 54535/Cr-2444, with same data as holotype.

TYPE LOCALITY. The eastern coast of Sakhalin Island, Sea of Okhotsk, Far East of Russia (47°00'12.180"N 143°03'45.960"E, littoral).

DIAGNOSIS. Eyes small, subcircular. Body thin, elongate, smooth, with sternal humps.

Head, inferior antennal sinus quadrate, without a notch. Antenna 1, only segment 2 of peduncle with rare (3) setae at the posterior margin; articles of flagellum without calceoli. Antenna 2, peduncular article 2 gland cone with 1 subapical seta; articles of flagellum without calceoli. Mandible, lacinia mobilis of left 5-dentate, palp segment 3 with a transversal row of 2–3 A-setae. Maxilla 1, inner plate with 3–4 plumose apical setae. Maxilla 2, inner plate with 2 plumose setae in the diagonal row. Gnathopod 1 in male, carpus shorter than propodus; propodus almond-shaped, palmar margin strongly oblique, with 2 groups of setae along posterior margin, 4 transversal rows of 1–2 setae along anterior margin and 2 setae in the diagonal row of inner surface. Gnathopod 1 in female, carpus shorter than propodus; propodus almond-shaped, palmar margin subvertical, with 2 groups of setae along posterior margin, 4 transversal rows of 1–2 setae along anterior margin and 2 groups of 1–2 setae in the diagonal row of inner surface. Gnathopod 2 in male, carpus shorter than propodus; propodus almond-shaped, palmar mar-

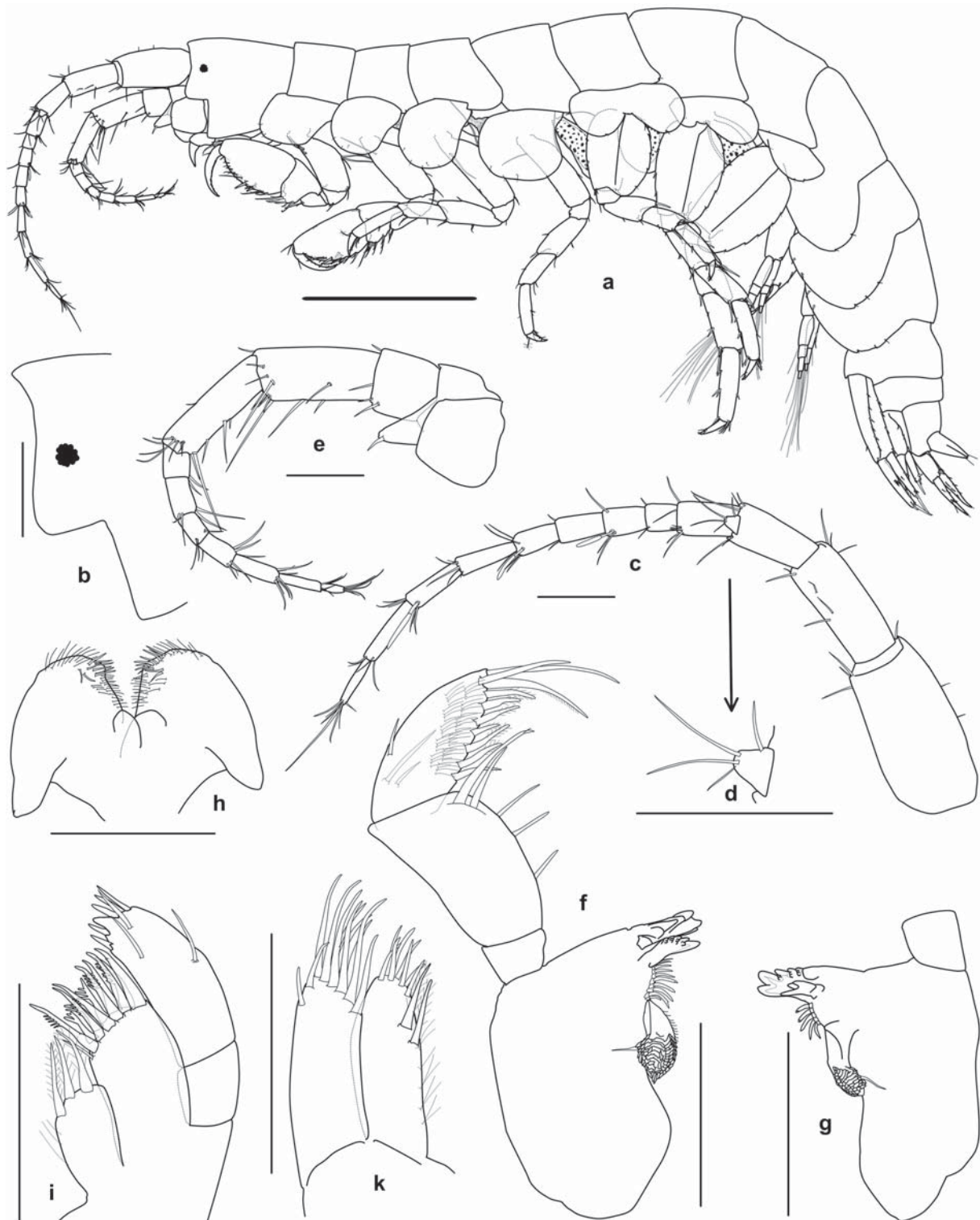


Fig. 14. *Paramoera nataliae* sp.n., holotype, male: a — lateral view, b — cephalon, c — antenna 1, d — additional flagellum of antenna 1, e — antenna 2, f — left mandible, g — right mandible without palp, h — lower lips, i — maxilla 1, k — maxilla 2; scales: a — 0.5 mm; b–k — 0.1 mm.

Рис. 14. *Paramoera nataliae* sp.n., голотип, самец: а — общий вид латерально, б — голова, с — антенна 1, d — добавочный жгутик антенны 1, e — антенна 2, f — левая мандибула, g — правая мандибула без щупика, h — нижняя губа, i — максилла 1, k — максилла 2; шкалы: а — 0,5 мм; b–k — 0,1 мм.

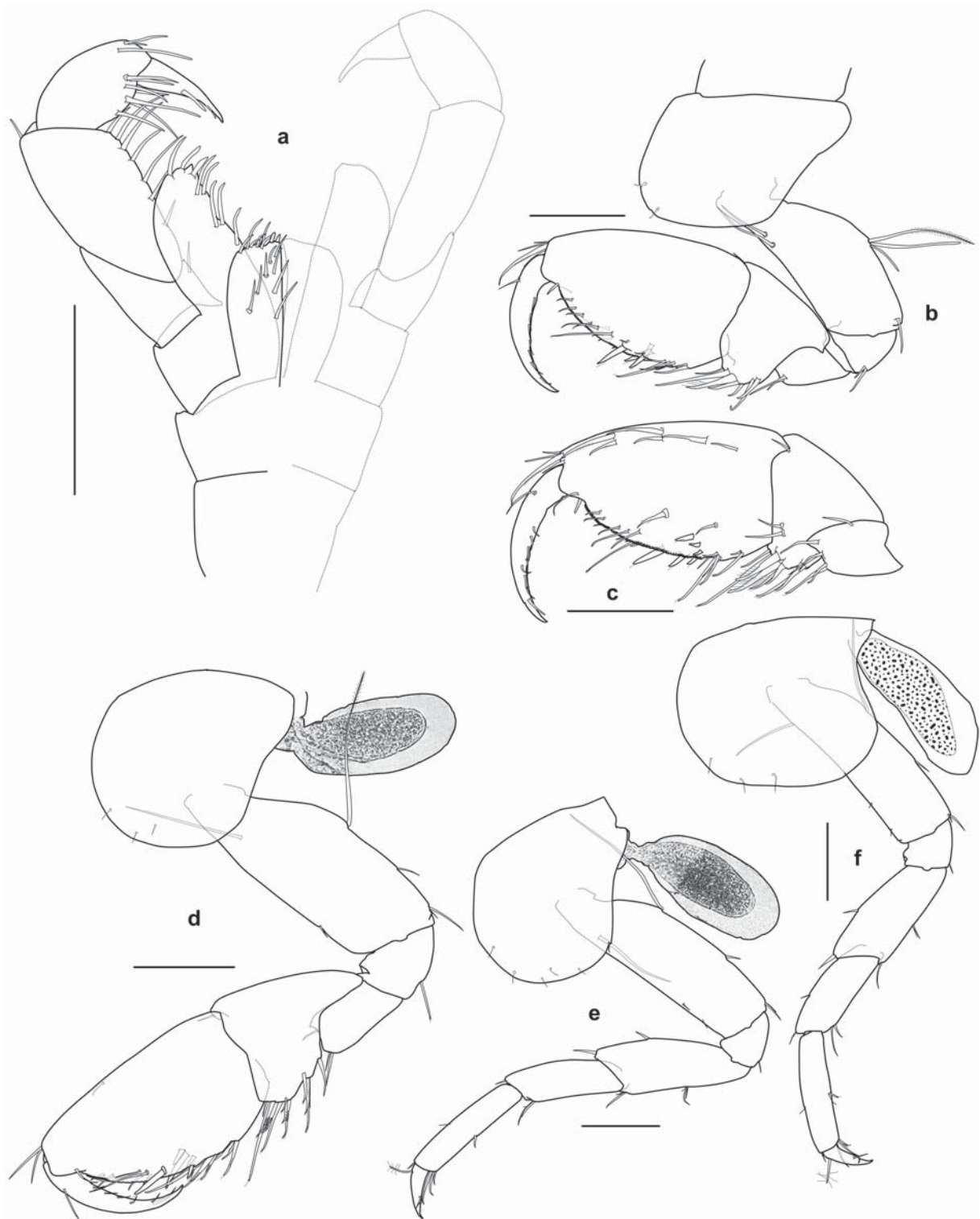


Fig. 15. *Paramoera nataliae* sp.n., holotype, male: a — maxilliped, b — pereopod 1, outer side, c — pereopod 1, inner side, d — pereopod 2, e — pereopod 3, f — pereopod 4; scale — 0.1 mm.

Рис. 15. *Paramoera nataliae* sp.n., голотип, самец: а — ногочелюсти, б — переопод 1, наружная сторона, с — переопод 1, внутренняя сторона, d — переопод 2, e — переопод 3, f — переопод 4; шкала — 0,1 мм.

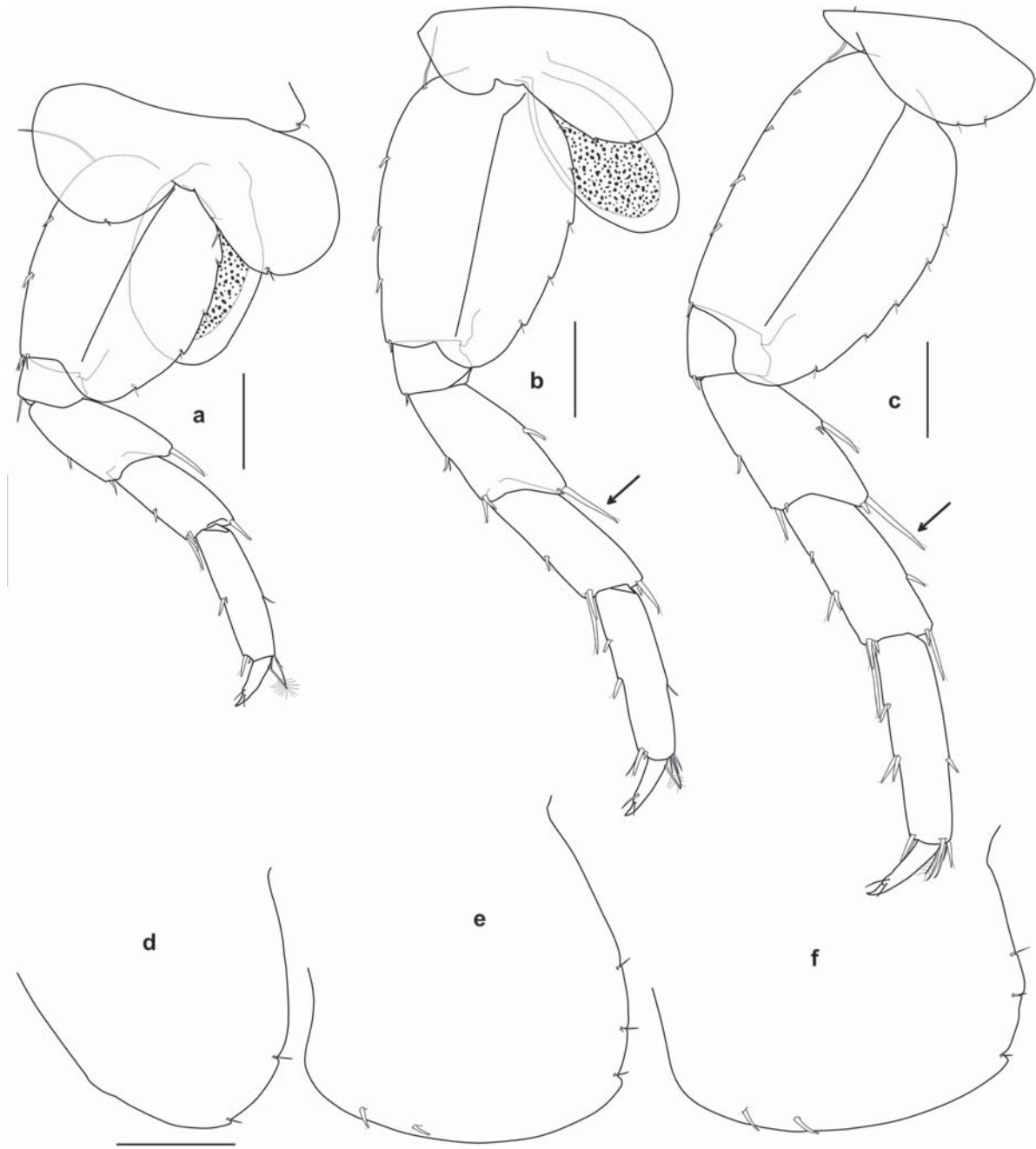


Fig. 16. *Paramoera nataliae* sp.n., holotype, male: a — pereopod 5, b — pereopod 6, c — pereopod 7, d, e, f — epimeral plates 1, 2, 3; scale — 0.1 mm.

Рис. 16. *Paramoera nataliae* sp.n., голотип, самец: а — переопод 5, б — переопод 6, с — переопод 7, д, е, ф — эпимеральные пластинки 1, 2, 3; шкала — 0,1 мм.

gin strongly oblique, with 2 groups of setae along posterior margin, and 2 setae in the diagonal row of inner surface. Gnathopod 2 in female, carpus shorter than propodus; propodus almond-shaped, palmar margin strongly oblique, with 3 groups of setae along posterior margin, and 2 setae in the diagonal row of inner surface. Coxal plate 4 with shallow posterior concavity. Coxal gills on pereopods 2–6. Pereopods 5–7, merus, carpus and propodus not dilated. Pereopod 6 and 7, length of the longest robust seta at the posterodistal

corner of merus about 0.5 times as length of posterior margin of carpus. Pleopod 2 in male, outer ramus without modified articles and setae. Uropod 2, inner ramus longer than outer ramus. Uropod 3, inner ramus without plumose setae along the entire inner margin. Telson, the longest seta of each apex 0.3 times as telson length.

DESCRIPTION. Male (2.8 mm). Vital body colorless. Body thin, elongate, smooth (Fig. 14a). Rostrum (Fig. 14a, b) short, weakly produced; lateral cephalic lobe sub-quad-

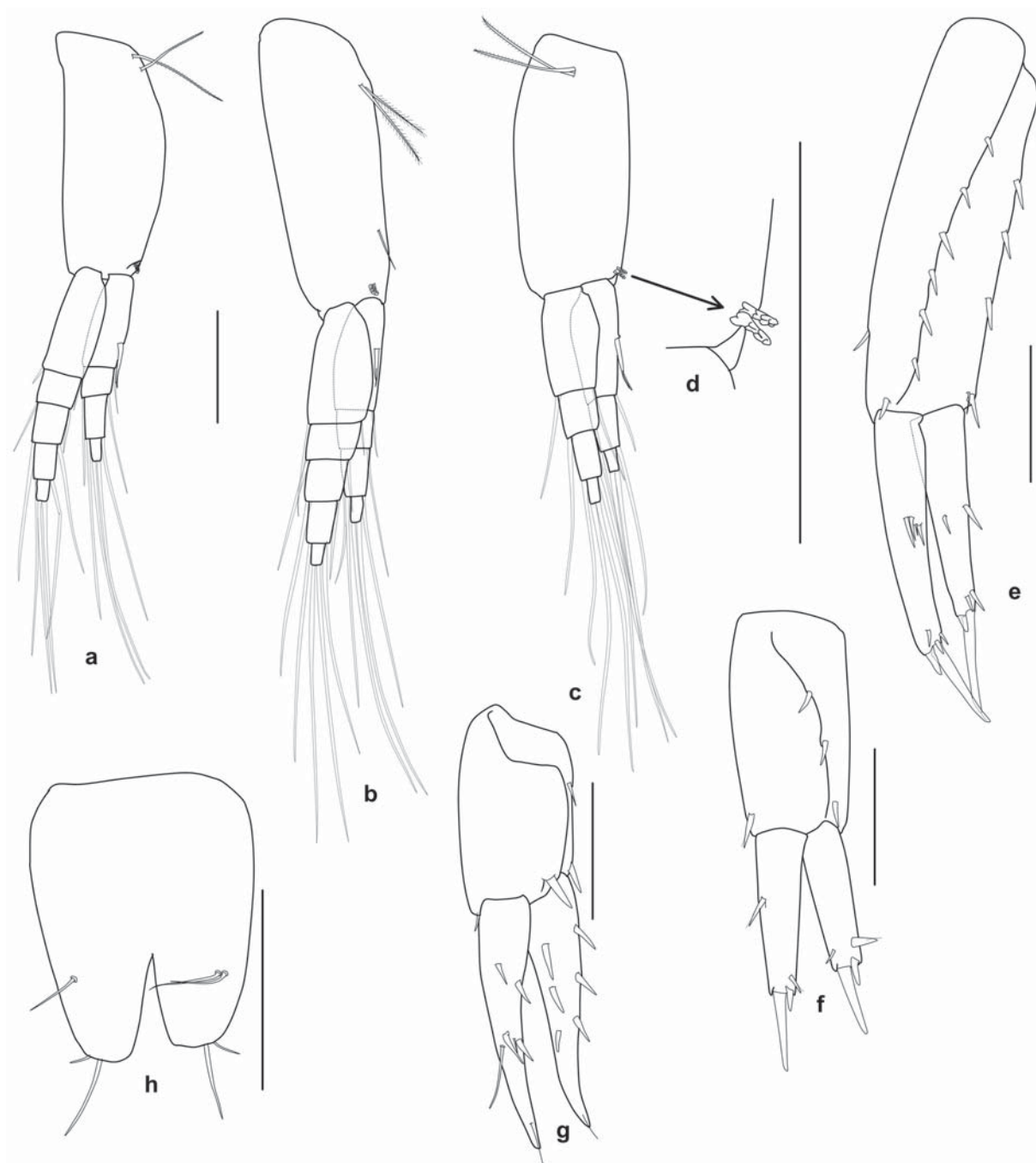


Fig. 17. *Paramoera nataliae* sp.n., holotype, male: a — pleopod 1, b — pleopod 2, c — pleopod 3, d — coupling spines of pleopod 3, e — uropod 1, f — uropod 2, g — uropod 3, h — telson; scale — 0.1 mm.

Рис. 17. *Paramoera nataliae* sp.n., голотип, самец: а — плеопод 1, б — плеопод 2, с — плеопод 3, д — соединительные шипы плеопода 3, е — уropод 1, ф — уropод 2, г — уropод 3, h — тельсон; шкала — 0,1 мм.

rate; eyes small, subcircular, 0.08 times as high as head. Epimeral plates 1–3 (Fig. 16d, e, f): posterior margin slightly convex; posterior margin of plate 1 with 2 tiny setae, posterior margins of plates 2 and 3 with 3 tiny setae; posterodistal corners not pointed; plate 1 without cuspidate seta on ventral margin; plates 2 and 3 with 2 robust cuspidate setae along anterior half of ventral margin.

Head. Antenna 1 (Fig. 14c, d) short: length 0.36 times as long as body length; length ratio of peduncular articles 1–3

being as 1.0 : 0.66 : 0.47; peduncular article 1 without setae on posterior margin, and with a group of 3 seta at the posterodistal corner; peduncular article 2 with single seta and pair setae along posterior margin, a group of 2 setae posterodistally, 3 setae anterodistally; peduncular article 3 with clusters of 2 and 3 setae on posterodistal and anterodistal corners respectively; flagellum 9-articulate, about 1.2 times as long as peduncle, articles 3, 5, and 7 with 1 aesthetasc each; accessory flagellum 1-articulate, scale-like, with



Fig. 18. *Paramoera nataliae* sp.n., paratype, female: a — upper lip, b — right mandible, c — molar, raker setae and incisor of left mandible, d — lower lips, e, f — maxilla 1, g — maxilla 2, h — maxilliped; scale — 0.1 mm.

Рис. 18. *Paramoera nataliae* sp.n., паратип, самка: а — верхняя губа, б — правая мандибула, с — моляр, щетинки зубного ряда и резец левой мандибулы, d — нижняя губа, e, f — максилла 1, g — максилла 2, h — ногочелюсти; шкала — 0,1 мм.

3 long apical setae and with 1 lateral seta on anterior side. Antenna 2 (Fig. 14e): length ratio of peduncular articles 3–5 being 1.0 : 2.0 : 2.0; gland cone length 0.74 times that of peduncular article 3; peduncular article 3 with short seta on anterodistal corner, and 3 setae on posterodistal corner; peduncular article 4 with a crown of short setae along distal margin, 2 setae along posterior margin, a group of long setae at the posterodistal corner and lateral seta; peduncular arti-

cle 5 with seta on anterior margin, 1 cluster of 2 setae at the anterodistal corner, subdistal row of 5 setae, 3 setae along posterior margin, and 1 cluster of 2–3 long setae at the posterodistal corner; flagellum with 7 articles, each article with a crown of setae at the distal margin. Upper lip (Fig. 18a) typical, ventral margin rounded, with tiny setae. Mandible (Fig. 14f, g): incisor margins with 6 teeth on left and right, accessory spine rows with 5–8 robust setae; right

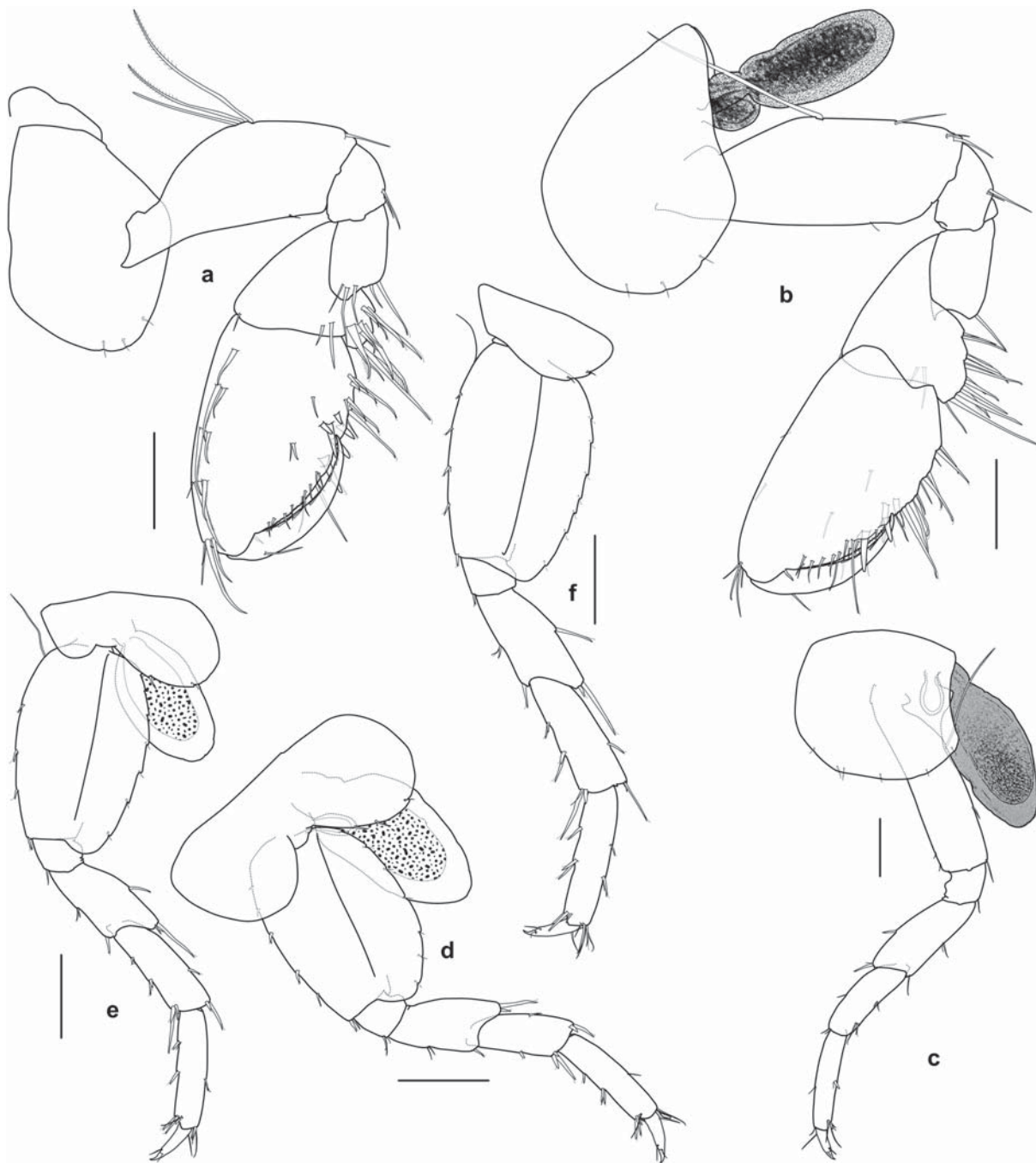


Fig. 19. *Paramoera nataliae* sp.n., paratype, female: a — pereopod 1, inner side, b — pereopod 2, c — pereopod 4, d — pereopod 5, e — pereopod 6, f — pereopod 7; scale — 0.1 mm.

Рис. 19. *Paramoera nataliae* sp.n., паратип, самка: а — переопод 1, внутренняя сторона, б — переопод 2, с — переопод 4, д — переопод 5, е — переопод 6, ф — переопод 7; шкала — 0,1 мм.

lacinia mobilis tridentate; molar strong, columnar, with strongly ridged grinding surface and with the long medial molar plumose seta; palp 3-articulate, short, massive, articles of palp progressively lengthener, length ratios of articles 1–3 being as 1.0 : 4.6 : 5.4, article 1 without setae, article 2 with 5 simple setae (D-2 setae), segment 3 with 3 A-setae, with posterior row of 7–8 specific plumose D3-setae, with a group of 3 long plumose distal E3-setae. Lower

lip (Fig. 14h) typical, outer lobes broad, setulose along inner margin; inner lobes indistinct. Maxilla 1 (Fig. 14i), inner plate short; outer plate apically with 2 rows of 11 strong pectinate setae; palp 2-articulate, article 2 with apical row of 4–5 robust setae, 2–3 subapical setae, 1 seta on the outer margin. Maxilla 2 (Fig. 14k), outer and inner plates with numerous setae apically each. Maxilliped (Fig. 15a): inner plate middle length, reaching the 1/3 of palp segment 1, with

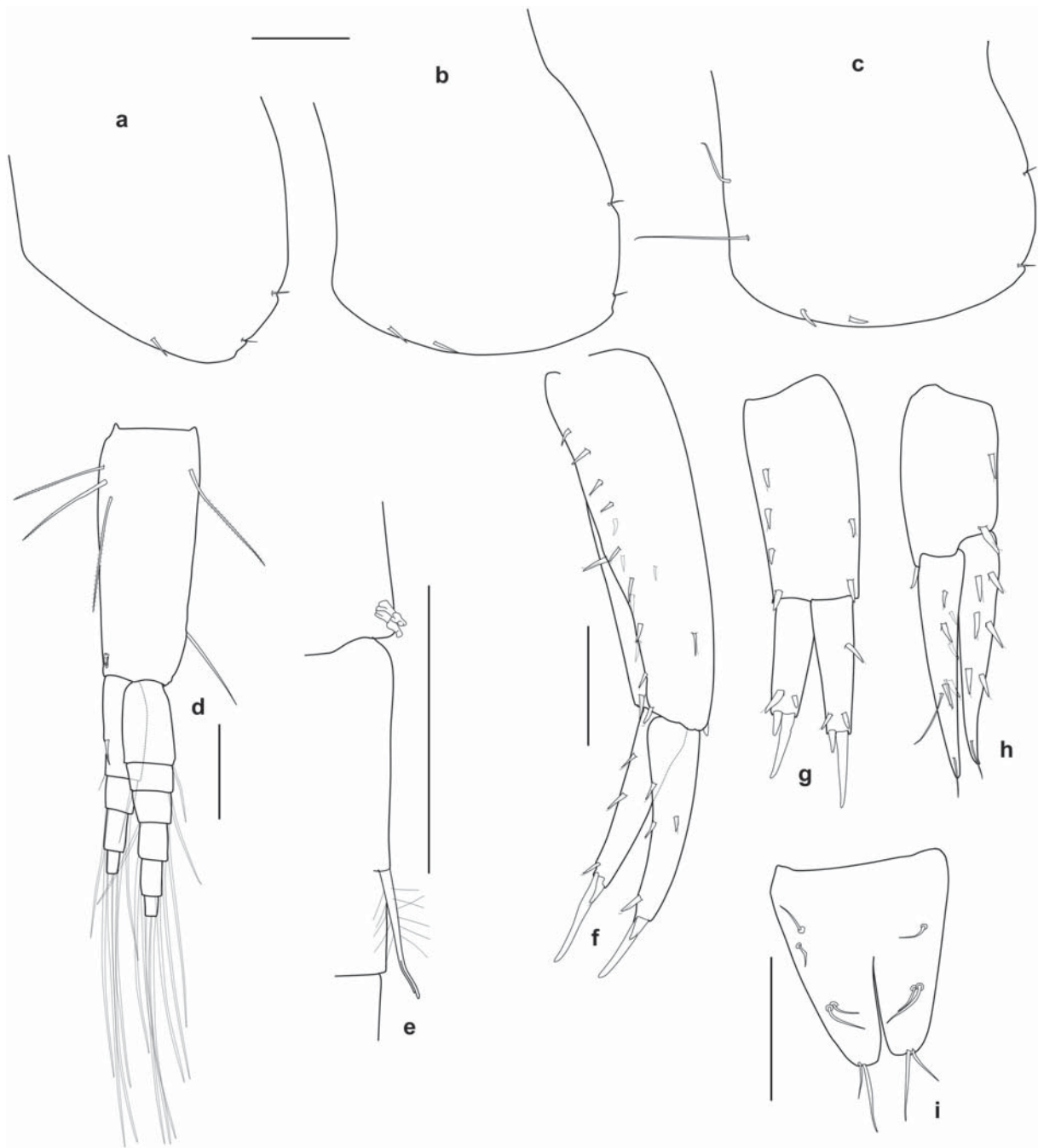


Fig. 20. *Paramoera nataliae* sp.n., paratype, female: a, b, c — epimeral plates 1, 2, 3, d — pleopod 2, e — coupling spines and seta of pleopod 1, f — uropod 1, g — uropod 2, h — uropod 3, i — telson; scale — 0.1 mm.

Рис. 20. *Paramoera nataliae* sp.n., паратип, самка: а, б, с — эпимеральные пластинки 1, 2, 3, d — плеопод 2, e — соединительные шипы и щетинки плеопода 1, f — уropод 1, g — уropод 2, h — уropод 3, i — тельсон; шкала — 0,1 мм.

2 conate setae, without setules (Watling type II.A4) [Watling, 1989] at the truncated apex, inner margin with a row of 4 plumose setae; posterior surface with diagonal row of 4 plumose setae; outer plate reaching about 0.5 x length of palp segment 2, rounded outer-apically and with sub-rectangular inner corner, inner margin with 3 sub-marginal transverse rows of 1–2 simple setae, apex with 3 strong setae; palp 4-articulate, length ratios of articles 1–4 being as 1.0 : 1.6 : 1.0 : 0.7; article 3 with sub-distal crown of setae.

Pereon: Gnathopod 1 (Fig. 15b, c) shorter than gnathopod 2; coxa short, length about 0.64 times longer than wide, subrounded below, anterior and posterior margins are beveled forward; basis narrowed proximally, length about 2.2 times longer than wide, with 2 long and 1 short plumose setae in the middle of posterior margins, with 2 long setae in the proximal 1/3 of anterior margin; merus with 4 simple setae on the distal margin; carpus short, 0.48 times as long as propodus, with a group of distally plumose setae on the

posterior margin, and with a row of robust distally plumose setae at the distal postero-corner; propodus almond-shaped, length 1.6 times longer than wide; palm strongly oblique, smoothly connected with posterior margin by a row of 3 robust setae on the inner and outer surface each, palm length 1.9 times as length of posterior margin; dactylus shorter than length of palmar margin of propodus, curved, nail indistinct. Gnathopod 2 (Fig. 15d), coxa rounded anteriorly, length about 0.9 times longer than wide; basis expanded in distal 2/3, length about 2.5 times longer than wide, posterior margins with long plumose seta at the border of proximal 1/3, and with single seta at the border of distal 1/3; merus with 2 setae on the postero-distal corner; carpus short, 0.7 times as long as propodus, with 4 groups of distally plumose setae along posterior margin; propodus almond-shaped, length 1.8 times longer than wide; palm strongly oblique, smoothly connected with posterior margin by a row of 2–3 robust spine-like setae on the inner and outer surface each, palm length 1.2 times as length of posterior margin; dactylus similar to that of gnathopod 1. Pereopod 3 (Fig. 15e), coxa short, length of coxa about 0.84 times longer than wide, anterior margin slightly convex, posterior margin slightly concave, lower margin sub-rounded; length ratio from basis to propodus 1.0 : 0.26 : 0.69 : 0.53 : 0.58; basis sub-linear, with single long seta on proximal 1/3 of anterior and posterior margins each; merus, carpus and propodus narrow; merus about 2.8 times longer than wide, with single cuspidate seta on anterior margin, cluster of 2 setae on posterior margin, antero-distal and postero-distal corners with groups of 1–2 setae each; carpus without setae on anterior and posterior margins; propodus with single robust seta on posterior margin, and a group of 3 setae on the postero-distal corner; dactylus 0.45 times as long as propodus. Pereopod 4 (Fig. 15f), coxa with shallow posterior concavity, length of coxa about 0.86 times longer than wide, subrounded ventrally; length ratio from basis to propodus as 1.0 : 0.22 : 0.66 : 0.53 : 0.58; basis sub-linear, with long seta on proximal 1/4 of posterior margin and with long seta on anterior margin proximally; merus, carpus and propodus narrow; merus about 2.6 times longer than wide, with cuspidate seta on anterior margin, a group of 2 short setae on posterior margin, antero-distal and postero-distal corners with single seta each; carpus with single seta on anterior margin; propodus with single seta on anterior margin, a group of 2 short setae on posterior margin, and a group of 3 setae on the postero-distal corner; dactylus 0.4 times as long as propodus. Pereopods 5–7 progressively elongate from 5 to 7. Pereopod 5 (Fig. 16a), coxa wide, bilobed, posterior lobe slightly larger, posterior lobe with single seta on the lower margin; length ratio from basis to dactylus as 1.0 : 0.19 : 0.56 : 0.45 : 0.58 : 0.25; segments from merus to propodus narrow; basis suboval, length about 1.4 times longer than wide, posteroventrally lobate, with 2 robust setae along anterior margin, posterior wing separated by a vertical ridge; length of merus about 1.9 times longer than wide, with single short robust seta on anterior margin, posterior margin without setae, single robust seta on antero-distal and posterodistal corners each; length of carpus about 2.1 times longer than wide, carpus with short robust seta on anterior margin, posterior margin without setae, antero-distal corner with a group of few robust setae, posterodistal corner with single robust seta; propodus with a group of 2 short robust setae on anterior margin, single short seta on posterior margin, 2 robust setae on antero-distal corner, few thin setae on posterodistal corner. Pereopod 6 (Fig. 16b), coxa wide, bilobed, anterior lobe

small, posterior lobe is much larger than the anterior lobe, posterior lobe with 2 short setae along the lower margin; length ratio from basis to dactylus as 1.0 : 0.24 : 0.55 : 0.52 : 0.62 : 0.25; segments from merus to propodus narrow; basis ovate, length about 1.46 times longer than wide, posteroventrally lobate, with 3 robust setae along anterior margin, posterior wing separated by a vertical ridge; length of merus about 1.84 times longer than wide, with a group of 2 robust setae on anterior margin, single robust seta on posterior margin, antero-distal and posterodistal corners with 2 robust setae each; length of carpus about 2.4 times longer than wide, carpus with single robust seta on anterior margin, posterior margin without setae, antero-distal and posterodistal corners with a group of 2 robust cuspidate setae each; propodus with 2 robust setae along anterior margin, single short seta on posterior margin. Pereopod 7 (Fig. 16c), coxa semicircular, with 2 tiny setae along the posterior margin; length ratio from basis to dactylus as 1.0 : 0.22 : 0.49 : 0.49 : 0.63 : 0.25; segments from merus to propodus narrow; basis with posterior wing, length about 1.62 times longer than wide, posteroventrally lobate, with 4 robust setae along anterior margin, posterior wing separated by a vertical ridge; length of merus about 1.8 times longer than wide, with single robust seta on anterior and posterior margins each, antero-distal and posterodistal corners with 2 robust setae each, length of the longest robust setae at the postero-distal corner about 0.5 times as length of carpus; length of carpus about 2.2 times longer than wide, carpus with single robust seta and a pair of robust setae along anterior margin, single robust seta on posterior margin, antero-distal and posterodistal corners with a group of 3 robust setae each; propodus with 2 pairs of robust setae along anterior margin, single robust seta on posterior margin, antero-distal and posterodistal corners with a group of 2 and 4 robust setae respectively.

Pleon: Pleopods: (Fig. 17a, b, c, d) normal, outer ramus slightly expanded; peduncles with paired retinacula (coupling spines) on inner distal margin; inner ramus shorter than outer ramus, coupling basis of inner ramus with single specific stout two-pointed plumose seta on inner margin; inner ramus of pleopods 1 and 2 with 4 articles, inner ramus of pleopod 3 with 3 articles, outer ramus of pleopods 1 and 2 with 5 articles, outer ramus of pleopod 3 with 4 articles. Uropod 1 (Fig. 17e), peduncle with 6 and 3 robust setae along medial and lateral margins, respectively; inner ramus length 0.62 times as peduncle, inner and lateral margins with 2 robust setae each; outer ramus length 0.82 times as inner ramus, inner and lateral margins with 1 robust seta each, both ramie with 2 terminal robust setae (1 short seta and 1 long seta) each. Uropod 2 (Fig. 17f), peduncle with 2 lateral robust setae dorsally; outer ramus length 0.85 times as inner ramus, length of inner ramus 0.74 times as peduncle, inner ramus with single robust seta on medial margin; outer ramus with subapical robust seta on inner and lateral margins each, both ramie with 2 terminal robust setae (1 short seta and 1 long seta) each. Uropod 3 (Fig. 17g), inner ramus length 1.2 times as peduncle, outer ramus subequal to inner ramus in length, each ramus with single thin subterminal seta; inner ramus with 2 robust setae and a thin seta along inner and lateral margins each; outer ramus with 3 robust setae along inner and lateral margins each. Telson (Fig. 17h), length 1.23 times as wide, cleft for 35%, each lobe bearing 1 long seta (length of seta 0.31 times as telson length) and 1 short seta sub-apically, apex rounded laterally.

Female (3.2 mm). Similar to male except for the following features: Gnathopod 2 (Fig. 19b), propodus with 3 groups of setae along posterior margin. Inner ramus of pleopods 1 and 2 (Fig. 20d, e) with 6 articles, outer ramus of pleopods 1 and 2 with 4 articles.

VARIABILITY. Maxilla 1, inner plate with 3–4 apical setae. Gnathopods 2, variability of propodus armament shown above for males and females.

ETYMOLOGY. Named in honor of my daughter Natalia V. Labay.

ECOLOGY. *P. nataliae* was found on littoral on pebbles with sands on a depth from bottom surface of 10–20 cm. Females with buds of marsupial plates were detected at the south-eastern coast of Sakhalin Island in July.

DISTRIBUTION. Only type locality. The coast of south-eastern Sakhalin Island, Sea of Okhotsk (Fig. 32).

REMARKS. *P. nataliae* is close to *P. crassicauda* Staude, 1995 and *P. shakotanensis* Hagihara, Nakano et Tomikawa, 2020 in its main features (postantennal sinus of head without a notch, inner plate of maxilla 1 with 3–4 plumose setae; inner plate of maxilla 2 with 2 facial setae; inner ramus of uropod 3 without rim of plumose setae; propodus of gnathopods 1 and 2 with 2–3 tufts of setae along posterior margin). *P. nataliae* differs from the listed species by the following features: eyes very small, round, 0.08 times as high as head (in *P. crassicauda* eye small, round, 0.22 times as high as head; in *P. shakotanensis* eye medium, reniform, 0.43 times as high as head); propodus of gnathopods 1 and 2 almond-shaped, palm strongly oblique, longer than posterior margin (in *P. crassicauda* and *P. shakotanensis* palm of propodus slightly oblique, shorter than posterior margin); pereopods 6 and 7, the length of the longest robust seta at the posterodistal corner of merus about 0.5 times as length of posterior margin of carpus (in other species of *Paramoera* the length of the longest robust seta at the posterodistal corner of merus shorter than 0.3 length of posterior margin of carpus).

Paramoera sp.
Figs 21–23, 32.

MATERIAL. Male, 3.2 mm, X 54536/Cr-2445, Sea of Okhotsk, Far East of Russia (47°56'34.123"N 142°31'42.071"E, littoral), pebble with sand, V.S. Labay, 23 July 2021. 120 males and females, X 54537/Cr-2446, with same data.

LOCALITY. The eastern coast of Sakhalin Island, Sea of Okhotsk, Far East of Russia (47°56'34.123"N 142°31'42.071"E, littoral).

ECOLOGY. *Paramoera* sp. was found on littoral on pebbles with sands on a depth from bottom surface of 10–15 cm.

REMARKS. *Paramoera* sp. is close to *P. nataliae* in its habit and morphology. *Paramoera* sp. differs from *P. nataliae* by the eyes size: (in *P. nataliae* eye very small, round; in *Paramoera* sp. eye larger, oval); in the shape of inferior antennal sinus (in *Paramoera* sp. the corner of sinus incised; in *P. nataliae* inferior antennal sinus quadrate, without a notch).

Species status is indeterminate.

Paramoera erimoensis sakhalinensis ssp.n.
Figs 24–31, 32.

TYPE MATERIAL. Holotype, male, 3.2 mm, X 54538/Cr-2447, Sakhalin Island, Far East of Russia (50°07'22.080"N 143°54'53.160"E, interstitial in littoral), mouth of the Pilenga River,

coarse sand with pebble, E.S. Korneev, 21 June 2020. Paratype: male, 2.8 mm, X 54540/Cr-2449, with same data as holotype. Paratype: male, 3.6 mm, X 54539/Cr-2448, with same data as holotype. Paratypes: 12 males and females, X 54541/Cr-2450, with same data as holotype. Paratype: female, 3.2 mm, X 54542/Cr-2451, Sakhalin Island, Far East of Russia (49°46'20.880"N 144°06'16.380"E, interstitial in littoral), mouth of the Peskovskaya River, coarse sand with pebble, E.S. Korneev, 24 June 2020. Paratypes: 12 males and females, X 54543/Cr-2452, with the same data as the previous one.

TYPE LOCALITY. The eastern coast of Sakhalin Island, Far East of Russia, mouth of the Pilenga River (50°07'22.080"N 143°54'53.160"E).

DIAGNOSIS. Eyes reduced, of 4 disjunct ommatidia. Body small, smooth, with sternal humps.

Head, inferior antennal sinus with obtuse angle, corner of sinus not incised. Antenna 1, segments of peduncle with rare (1–2) setae at the posterior margin of each segment; articles of flagellum with calceoli on 2 and 4. Antenna 2, peduncular article 2 gland cone with single subapical seta; articles of flagellum without calceoli. Mandible, lacinia mobilis of left 5-dentate, palp segment 3 with 2 A-setae. Maxilla 1, inner plate with 5 plumose apical setae. Maxilla 2, inner plate with 4 plumose setae in the diagonal row. Gnathopod 1 in male, carpus shorter than propodus; propodus sub-quadrate, palmar margin slightly oblique, with 3 groups of setae along posterior margin, 2 transversal rows of 2 setae along anterior margin and 3 groups of 2 setae in the diagonal row of inner surface. Gnathopod 1 in female, carpus shorter than propodus; propodus sub-quadrate, palmar margin slightly oblique, with 3 groups of setae along posterior margin, 4 transversal rows of 1–2 setae along anterior margin and 4 groups of 1–2 setae in the diagonal row of inner surface. Gnathopod 2 in male, carpus slightly shorter than propodus; propodus sub-quadrate, palmar margin oblique, with 4 groups of setae along posterior margin, and without setae in the diagonal row of inner surface. Gnathopod 2 in female, carpus sub-equal to propodus in length; propodus sub-quadrate, palmar margin oblique, with 4 groups of setae along posterior margin, and without setae in the diagonal row of inner surface. Coxal plate 4 sub-rounded, with shallow posterior concavity. Coxal gills on pereopods 2–6. Pereopods 5–7, merus, carpus and propodus narrow. Pereopod 7, posterior margin of merus with 3 long robust setae in the proximal half, anterior margin of carpus slightly concave, armed with numerous long and short robust setae. Pleopod 2 in male, outer ramus strongly transformed, 3 times as broad as inner ramus, not attenuating distally, 8-articulate, articles jointed strongly obliquely; article 6 armed medially with strong curved robust bristly seta, armed laterally with robust plumose seta which tip is bare and curved inward; article 7 without setae; terminal article with greatly enlarged robust seta like the antler of a deer, outer branch 4 times longer than inner, armed with 2 triangular teeth on medial margin, distally bristly, inner branch with transversal rows of tooth-like tubercles. Uropod 2, inner ramus longer than outer ramus. Uropod 3, inner ramus without plumose setae along the entire inner margin. Telson, the longest seta of each apex 1/3 times as telson length.

DESCRIPTION. Male (3.2 mm). Vital body white. Rostrum (Fig. 24a, b) very short; lateral cephalic lobe sub-rounded. Epimeral plates 1–3 (Fig. 26a, b, c): posterior margin of plates slightly convex, with two small crenulation and tiny setae; posterodistal corners not pointed; plates 1 and 2 without cuspidate seta on ventral margin; plate 3 with 2 robust cuspidate setae along anterior half of ventral margin.

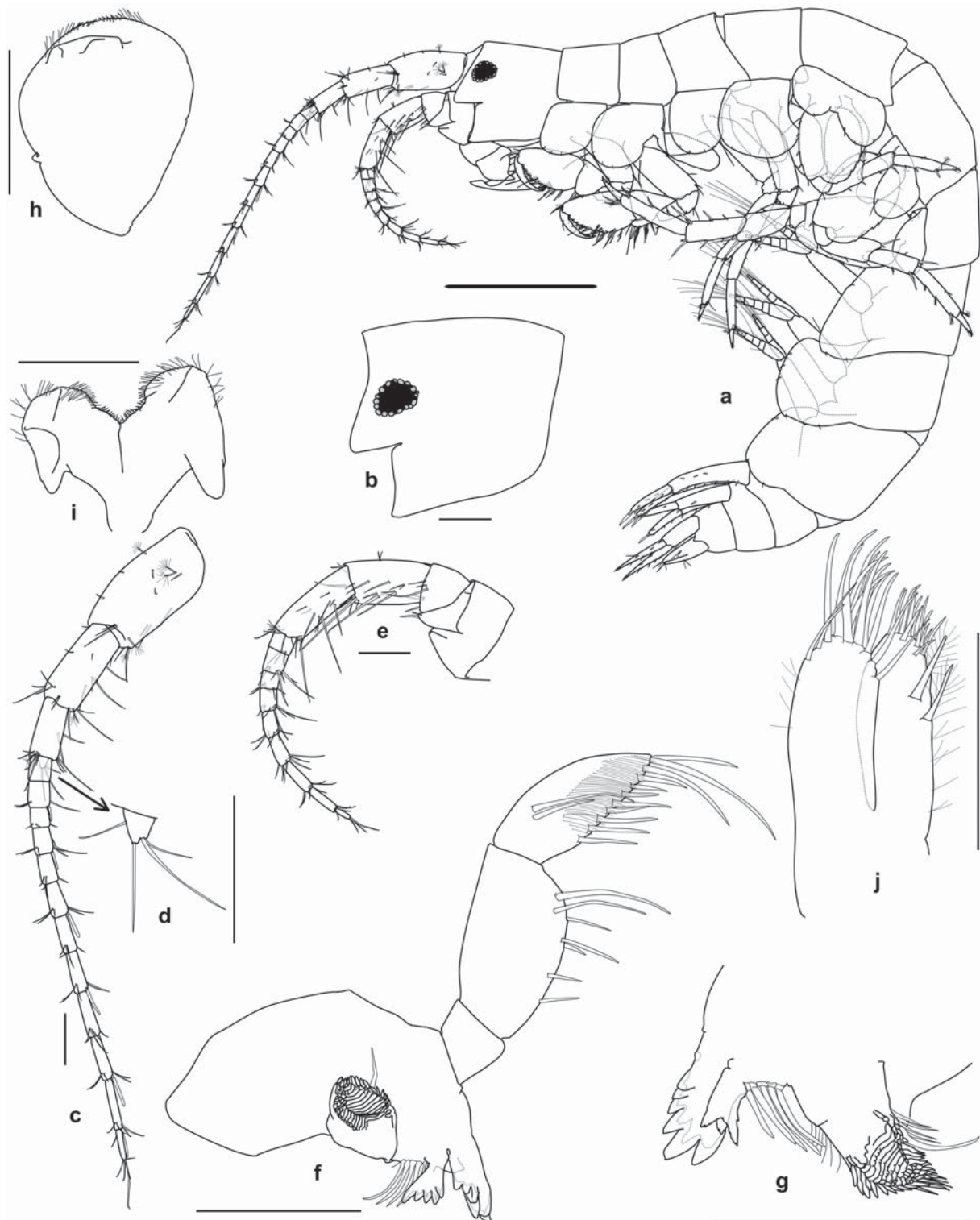


Fig. 21. *Paramoera* sp., male: a — lateral view, b — cephalon, c — antenna 1, d — additional flagellum of antenna 1, e — antenna 2, f — left mandible, g — right mandible, h — upper lip, i — lower lip, j — maxilla 2; scales: a — 0.5 mm; b-j — 0.1 mm.

Рис. 21. *Paramoera* sp., самец: а — общий вид латерально, б — голова, с — антенна 1, d — добавочный жгутик антенны 1, е — антенна 2, f — левая мандибула, g — правая мандибула, h — верхняя губа, i — нижняя губа, j — максилла 2; шкалы: а — 0,5 мм; b-j — 0,1 мм.

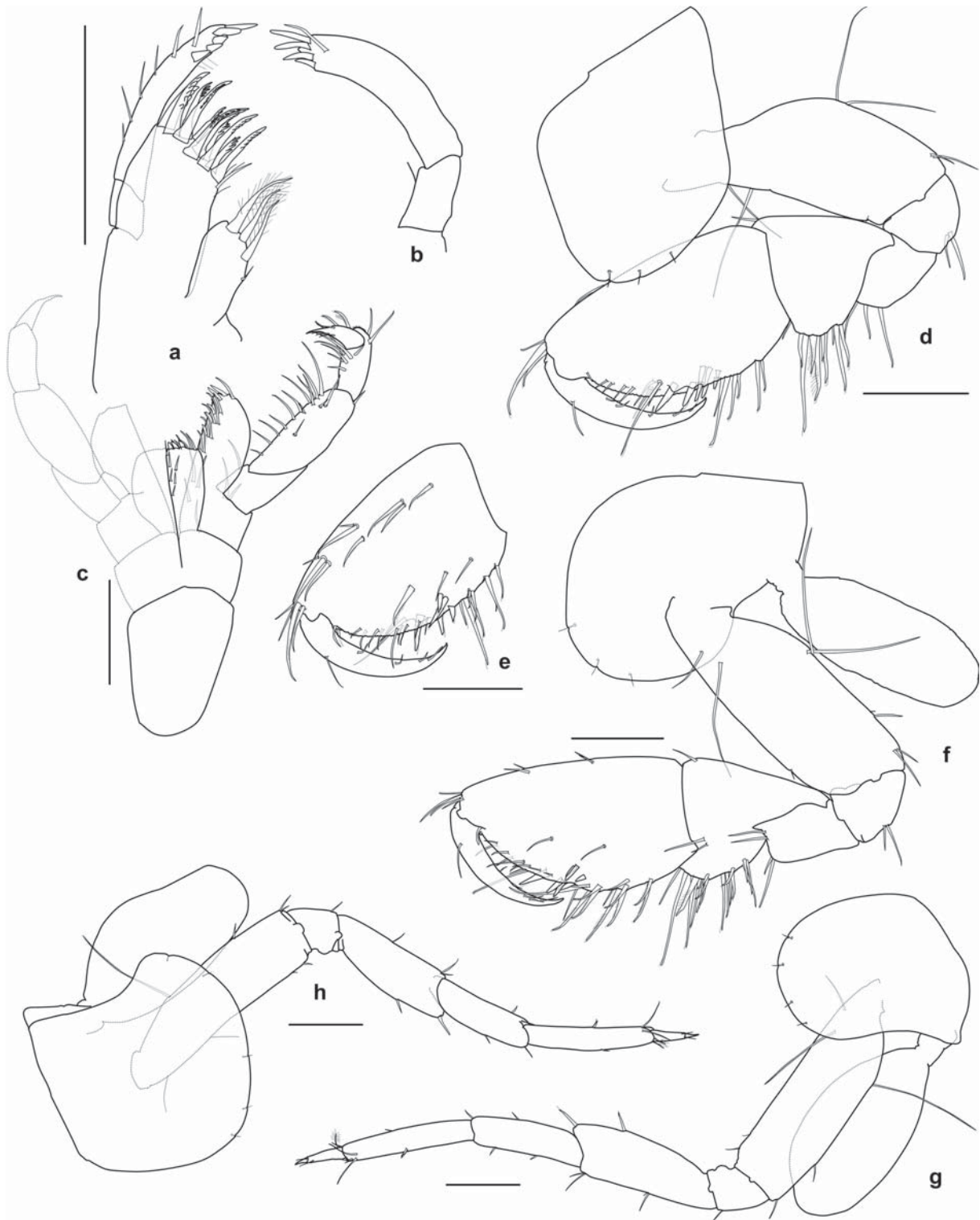


Fig. 22. *Paramoera* sp., male: a, b — maxilla 1, c — maxilliped, d — pereopod 1, outer side, e — pereopod 1, inner side, f — pereopod 2, g — pereopod 3, h — pereopod 4; scale — 0.1 mm.

Рис. 22. *Paramoera* sp., самец: a, b — максилла 1, c — ногочелюсти, d — переопод 1, наружная сторона, e — переопод 1, внутренняя сторона, f — переопод 2, g — переопод 3, h — переопод 4; шкала — 0,1 мм.

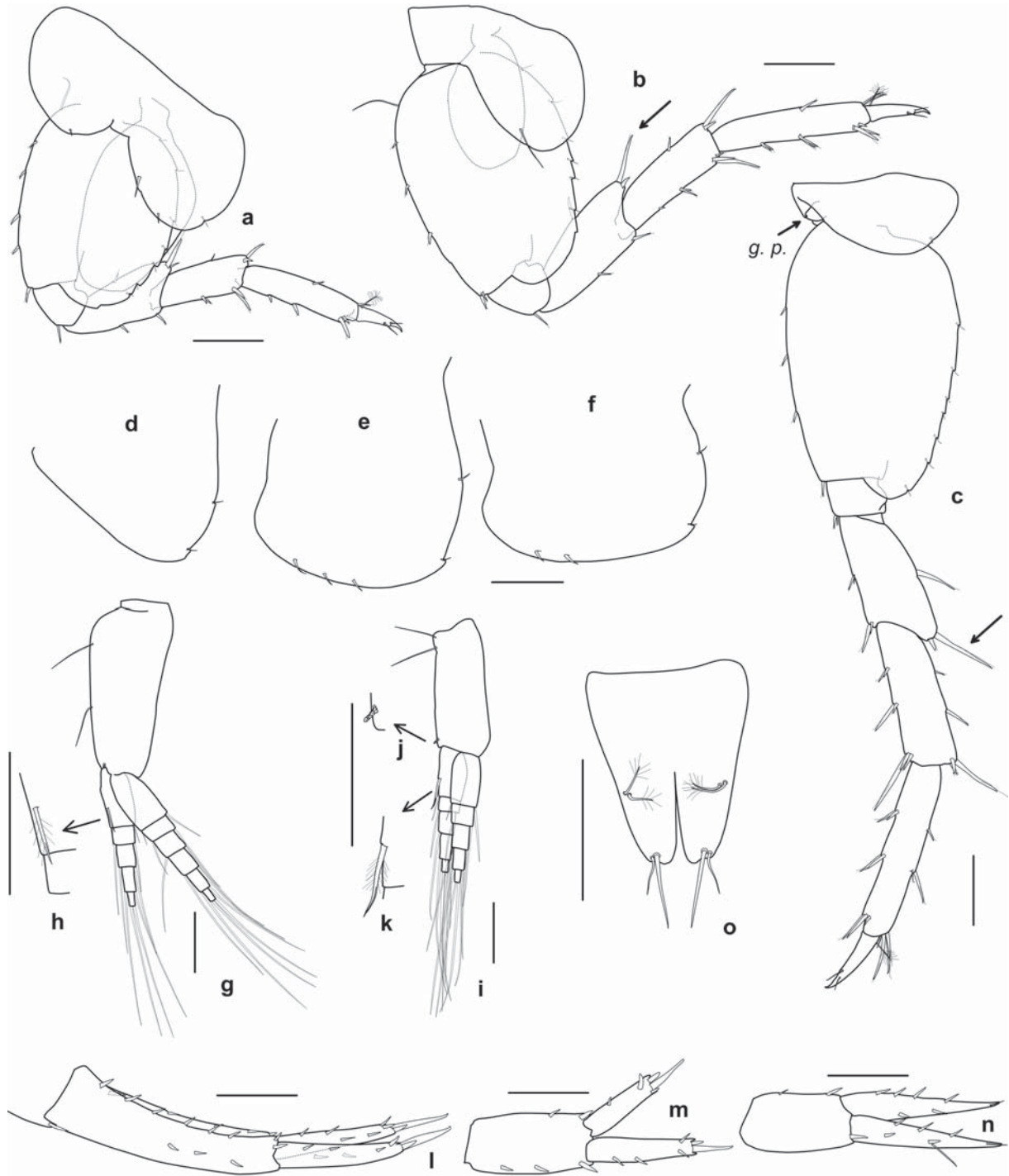


Fig. 23. *Paramoera* sp., male: a — pereopod 5, b — pereopod 6, c — pereopod 7, d, e, f — epimeral plates 1, 2, 3, g — pleopod 2, h — coupling seta of pleopod 2, i — pleopod 3, j — coupling spines of pleopod 3, k — coupling seta of pleopod 3, l — uropod 1, m — uropod 2, n — uropod 3, o — telson; scale — 0.1 mm.

Рис. 23. *Paramoera* sp., самец: а — переопод 5, б — переопод 6, с — переопод 7, d, e, f — эпимеральные пластинки 1, 2, 3, g — плеопод 2, h — соединительные щетинки плеопода 2, i — плеопод 3, j — соединительные шипы плеопода 3, k — соединительные щетинки плеопода 3, l — уropод 1, m — уropод 2, n — уropод 3, o — тельсон; шкала — 0,1 мм.

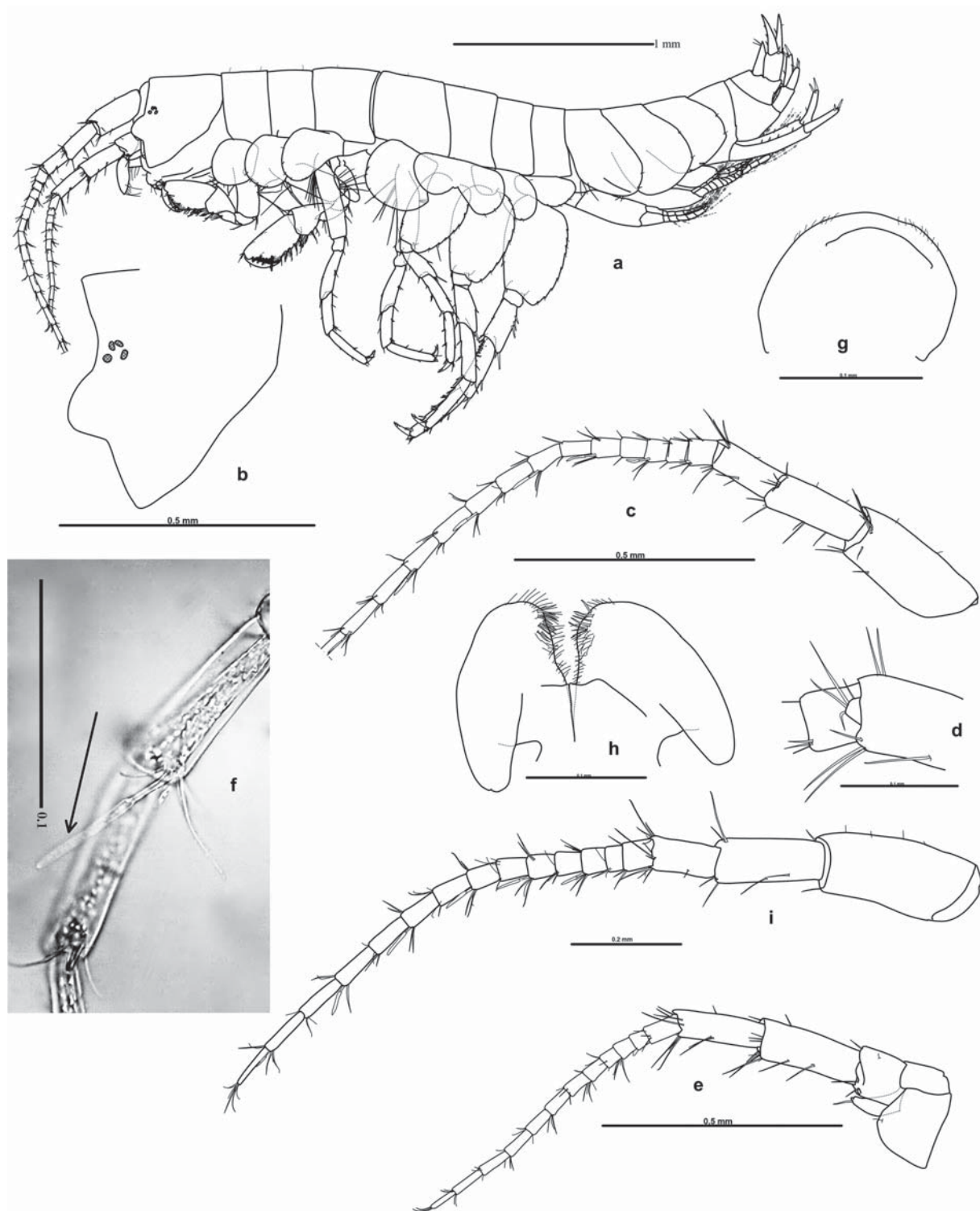


Fig. 24. *Paramoera erimoensis sakhalinensis* ssp.n., holotype, male (3.2 mm): a — lateral view, b — cephalon, c — antenna 1, d — additional flagellum of antenna 1, e — antenna 2, f — aesthetasc on flagellum article of antenna 1, g — upper lip, h — lower lips; paratype, male (3.2 mm): i — antenna 1; scales: a — 1 mm; b, c, e — 0.5 mm; i — 0.2 mm, d, f, g, h — 0.1 mm.

Рис. 24. *Paramoera erimoensis sakhalinensis* ssp.n., голотип, самец (3,2 мм): а — общий вид латерально, б — голова, с — антенна 1, d — добавочный жгутик антенны 1, e — антенна 2, f — эстетаски на члениках жгутика антенны 1, g — верхняя губа, h — нижняя губа; паратип, самец (3,2 мм): i — антенна 1; шкалы: а — 1 мм; б, с, е — 0,5 мм; i — 0,2 мм, d, f, g, h — 0,1 мм.

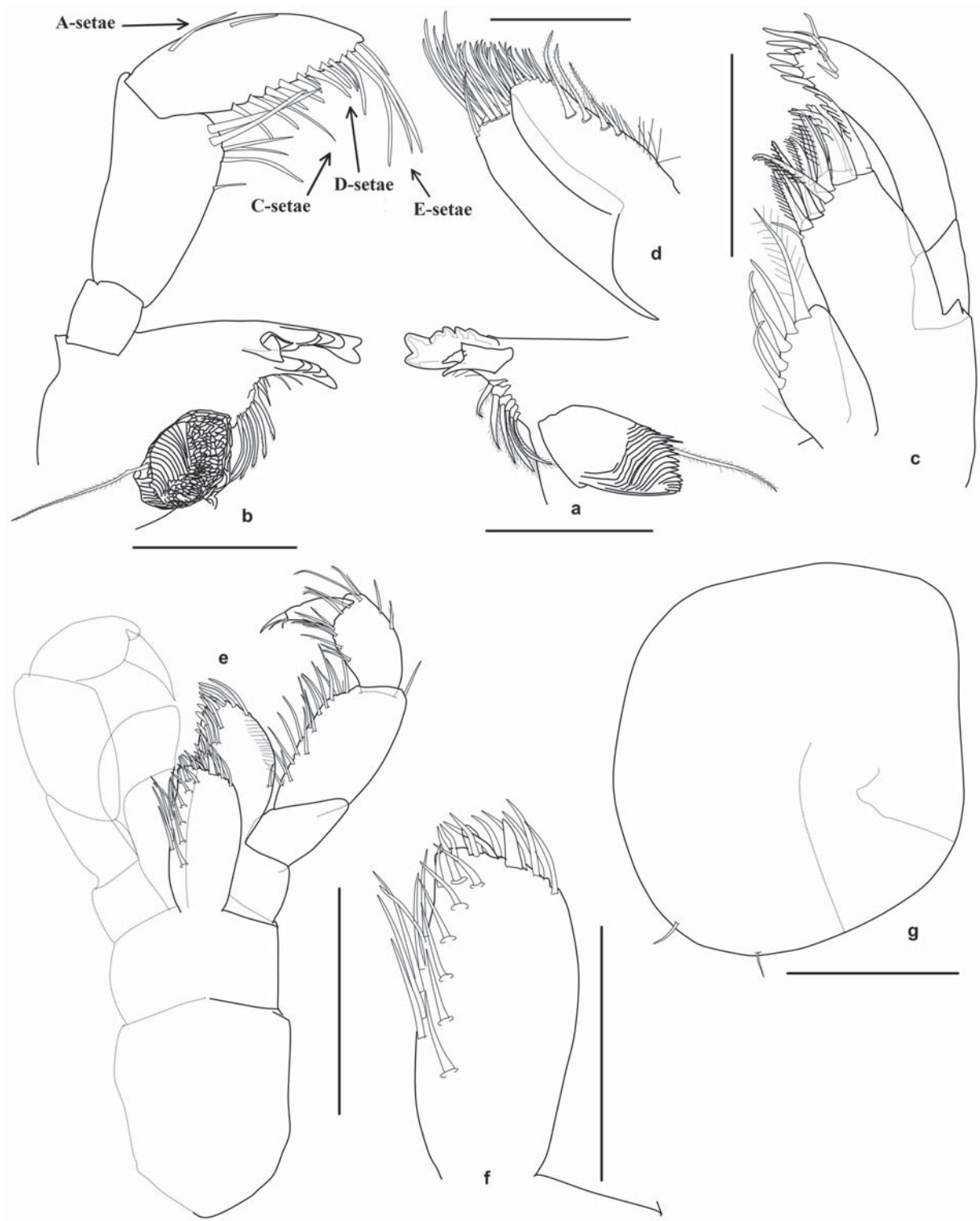


Fig. 25. *Paramoera erimoensis sakhalinensis* ssp.n., holotype, male (3.2 mm): a — incisor and molar of right mandible, b — left mandible, c — maxilla 1, d — maxilla 2, e — maxilliped, f — inner plate of maxilliped; paratype, male (3.2 mm): g — coxa 1; scales: e — 0.2 mm; a, b, c, d, f, g — 0.1 mm.

Рис. 25. *Paramoera erimoensis sakhalinensis* ssp.n., голотип, самец (3,2 мм): а — резец и моляр правой мандибулы, б — левая мандибула, с — максилла 1, d — максилла 2, е — ногоchelюсти, f — внутренняя лопасть ногоchelюсти; паратип, самец (3,2 мм): г — коксальная пластинка 1; шкалы: е — 0,2 мм; а, б, с, d, f, г — 0,1 мм.



Fig. 26. *Paramoera erimoensis sakhalinensis* ssp.n., holotype, male (3.2 mm): a — pereopod 1, outer surface, b — propodus and dactylus of pereopod 1, inner surface, c — pereopod 2; d — locking spine-form setae of palmar corner of pereopod 2; scale — 0.1 mm.

Рис. 26. *Paramoera erimoensis sakhalinensis* ssp.n., голотип, самец (3,2 мм): а — переопод 1, наружная сторона, б — проподус и дактилюс переопода 1, внутренняя сторона, с — переопод 2; д — замыкающие шиповидные щетинки пальмарного края переопода 2; шкала — 0,1 мм.

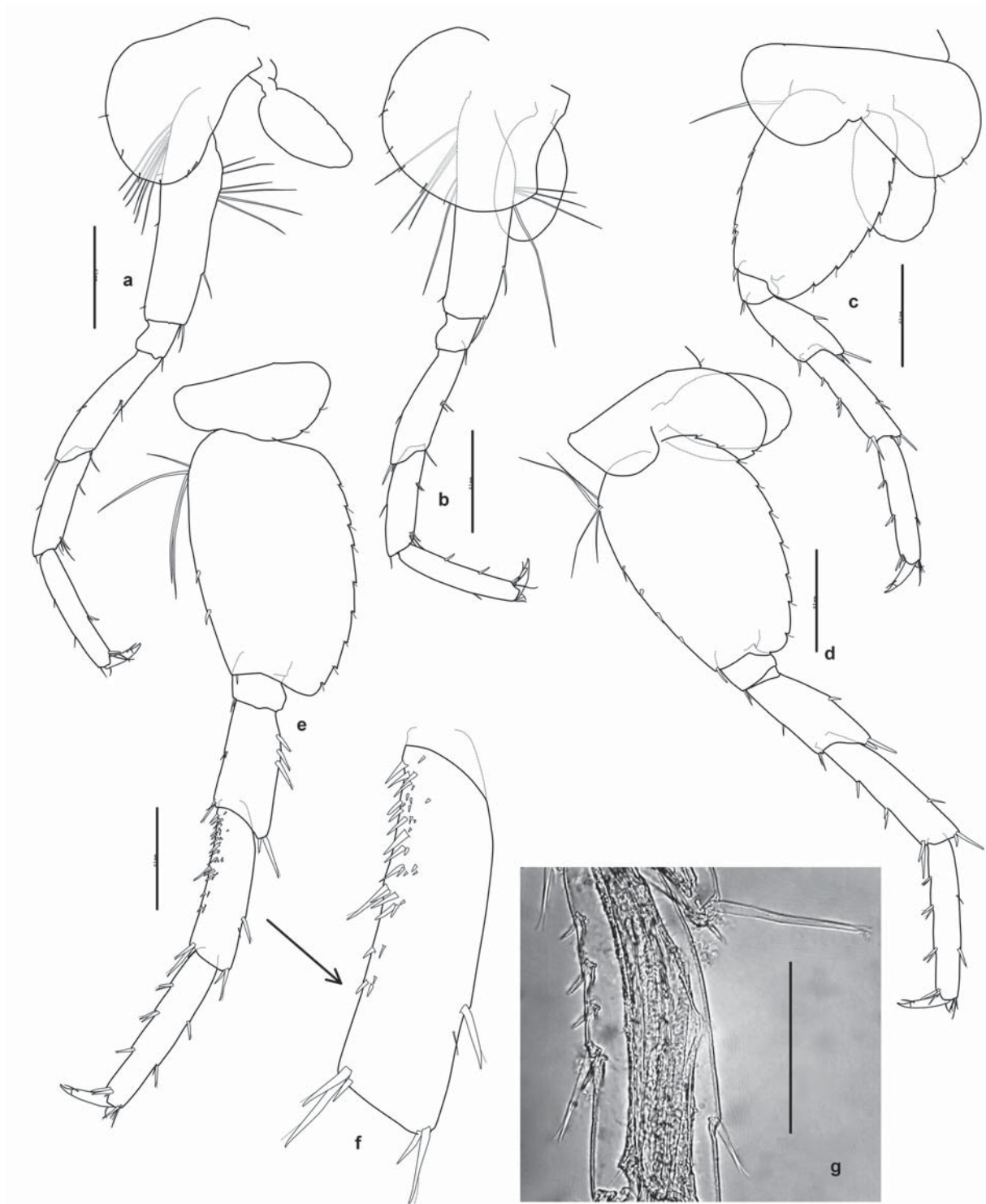


Fig. 27. *Paramoera erimoensis sakhalinensis* ssp.n., holotype, male (3.2 mm): a — pereopod 3, b — pereopod 4, c — pereopod 5, d — pereopod 6, e — pereopod 7, f — carpus of pereopod 7; paratype, male (2.8 mm): g — carpus of pereopod 7; scales: a–f — 0.2 mm, g — 0.1 mm.

Рис. 27. *Paramoera erimoensis sakhalinensis* ssp.n., голотип, самец (3,2 мм): а — переопод 3, б — переопод 4, с — переопод 5, д — переопод 6, е — переопод 7, ф — карпус переопода 7; паратип, самец (2,8 мм): г — карпус переопода 7; шкалы: а–ф — 0,2 мм, г — 0,1 мм.

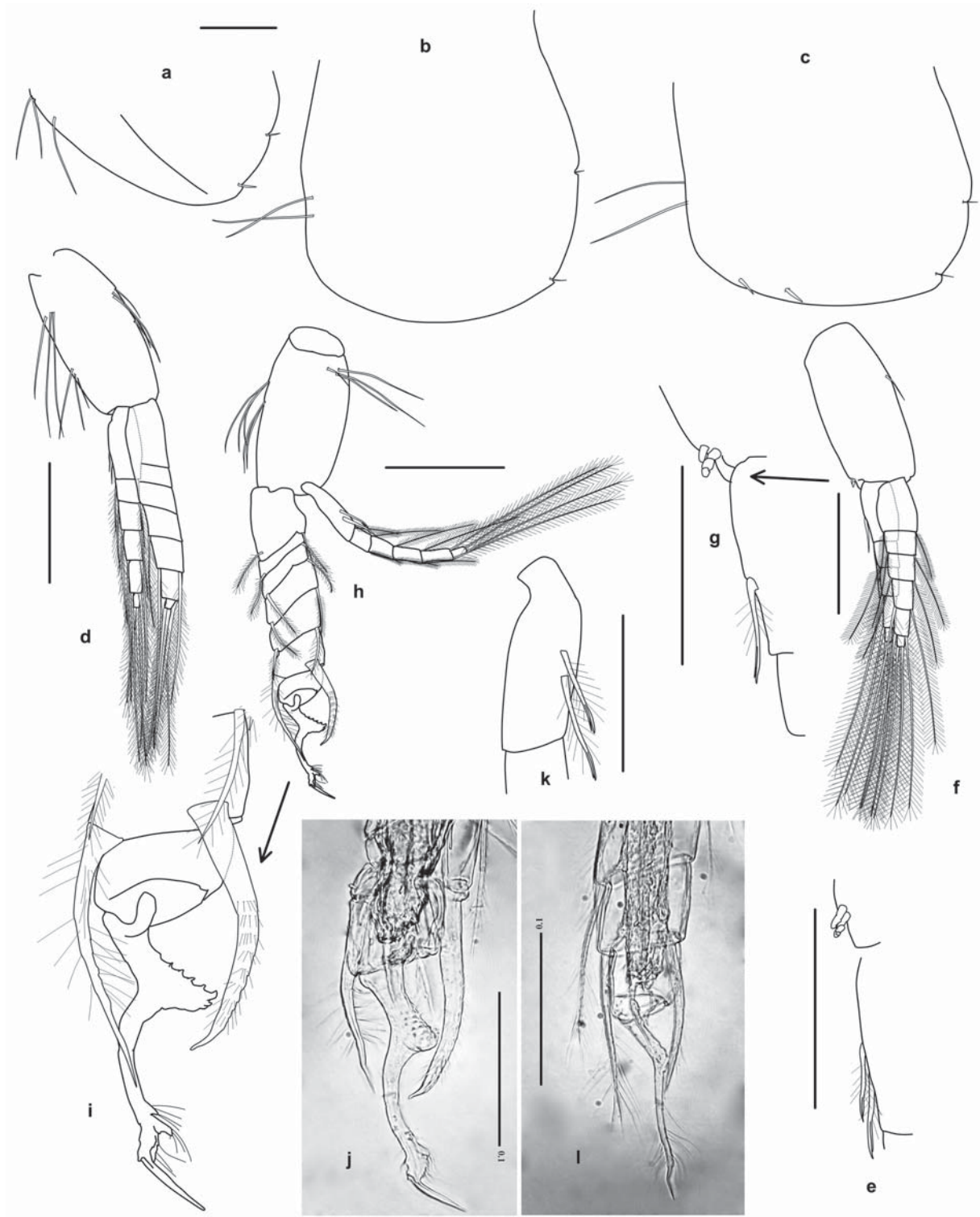


Fig. 28. *Paramoera erimoensis sakhalinensis* ssp.n., holotype, male (3.2 mm): a, b, c — epimeral plates 1–3, d — pleopod 1, e — coupling spines and retinacula of pleopod 1, f — pleopod 3, g — coupling spines and retinacula of pleopod 3; paratype, male (3.2 mm): h — pleopod 2, i, j — apex of outer ramus of pleopod 2, k — retinacula of pleopod 2; paratype, male (2.8 mm): l — apex of outer ramus of pleopod 2; scales: d, h, f — 0.2 mm, a, b, c, e, g, i, j, k, l — 0.1 mm

Рис. 28. *Paramoera erimoensis sakhalinensis* ssp.n., голотип, самец (3,2 мм): a, b, c — эпимеральные пластинки 1–3, d — плеопод 1, e — соединительные шипы и щетинки плеопода 1, f — плеопод 3, g — соединительные шипы и щетинки плеопода 3; паратип, самец (3,2 мм): h — плеопод 2, i, j — апекс наружной ветви плеопода 2, k — соединительные щетинки плеопода 2; паратип, самец (2,8 мм): l — апекс наружной ветви плеопода 2; шкалы: d, h, f — 0,2 мм, a, b, c, e, g, i, j, k, l — 0,1 мм.

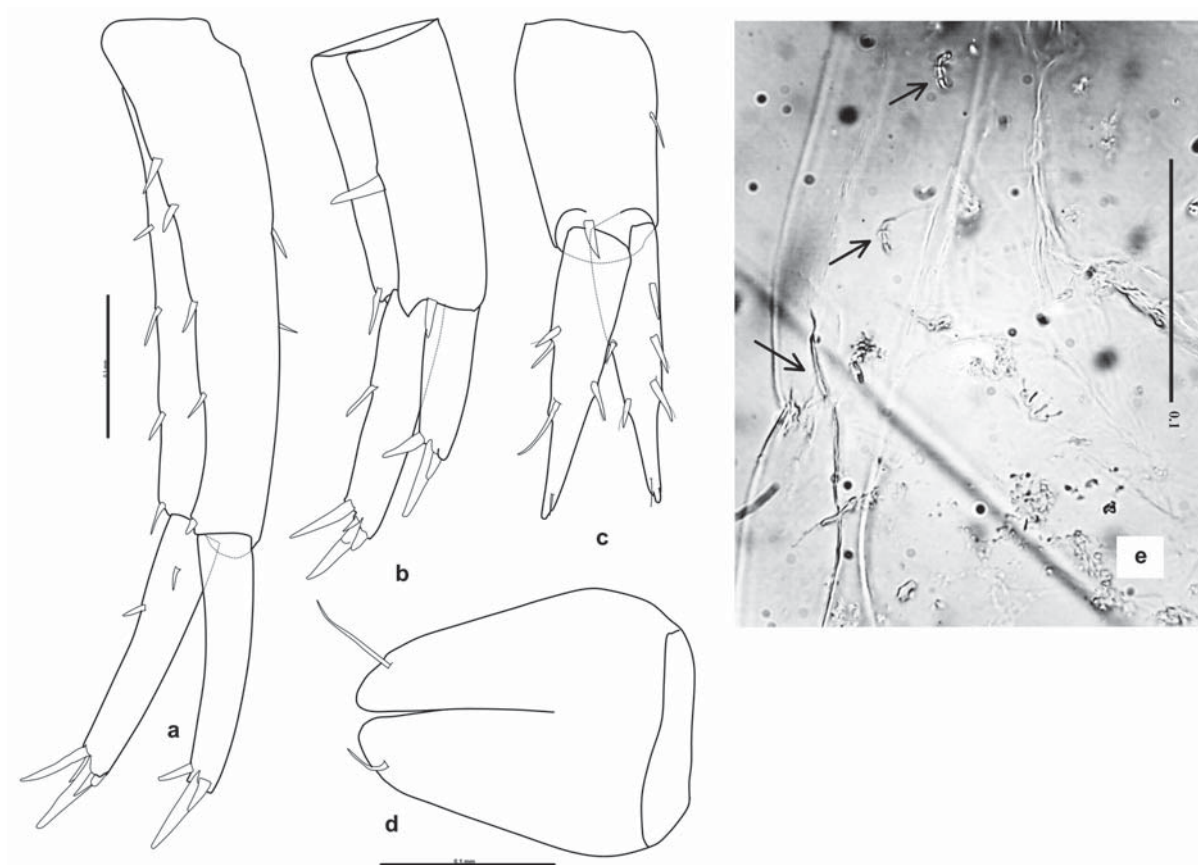


Fig. 29. *Paramoera erimoensis sakhalinensis* ssp.n., holotype, male (3.2 mm): a — uropod 1, b — uropod 2, c — uropod 3, d — telson, e — microstructure of surface, arrows indicate sensitive setae; scales: d, h, f — 0.2 mm, a, b, c, e, g, i, j, k, l — 0.1 mm.

Рис. 29. *Paramoera erimoensis sakhalinensis* ssp.n., голотип, самец (3,2 мм): а — уropод 1, б — уropод 2, с — уropод 3, д — тельсон, е — микроструктура покровов, стрелочками показаны чувствительные щетинки; шкалы: d, h, f — 0,2 мм, а, б, с, е, г, и, j, k, л — 0,1 мм.

Head. Antenna 1 (Fig. 24c, d, f, i): length 0.57 times as long as body length; length ratio of peduncular articles 1–3 being as 1.0 : 0.72 : 0.50; peduncular article 1 with or without single seta on posterior margin, and with two setae or single seta at the posterodistal corner; peduncular article 2 with single seta and pair setae along posterior margin, a group of 2 setae posterodistally, 2–3 setae anterodistally; peduncular article 3 with clusters of 2–3 setae on anterodistal and posterodistal corners each; flagellum 14(14+)-articulate, about 1.4 times as long as peduncle, articles 3, 5, 7, 9 and 11 with 1 aesthetasc each; accessory flagellum 1-articulate, scale-like, with 3 long apical setae and with 1 lateral seta on anterior side. Antenna 2 (Fig. 24e): length ratio of peduncular articles 3–5 being 1.0 : 1.9 : 1.7; gland cone length 0.88 times that of peduncular article 3; peduncular article 3 with short seta on anterodistal corner, and 2 setae on posterodistal corner; peduncular article 4 with one cluster of 3 long and 2 short setae on posterodistal corner, 2 long setae along posterior margin; peduncular article 5 with a crown of long setae along distal margin, posterior margin with a group of two long setae; flagellum with 12 articles, each article with a crown of setae at the distal margin. Upper lip (Fig. 24g), ventral margin rounded, with tiny setae. Mandible (Figs 25a, b): incisor margins with 6 teeth on left and right, accessory spine rows with 5–6 robust setae; right lacinia mobilis tridentate; molar columnar, with strongly

ridged grinding surface and with the long medial molar plumose seta; palp 3-articulate, short, massive, articles of palp progressively lengthener, length ratios of articles 1–3 being as 1.0 : 2.5 : 3.1, article 1 without setae, article 2 with 6 simple setae (D-2 setae), segment 3 with two single A-setae along anterior margin, with posterior row of 11–13 specific plumose D3-setae, with a group of 3 long distal E3-setae. Lower lip (Fig. 24h), outer lobes broad, setulose along inner margin; inner lobes indistinct. Maxilla 1 (Fig. 25c): inner plate short; outer plate apically with 2 rows of 11 strong pectinate setae; palp 2-articulate, article 2 with apical row of 5–6 robust setae, 5 subapical setae. Maxilla 2 (Fig. 25d), outer and inner plates with numerous setae apically each. Maxilliped (Fig. 25e, f): inner plate middle length, almost reaching the distal margin of palp segment 1, with 2 annulate and conate setae, without setules (Watling type II.A4) [Watling, 1989] at the truncated apex, inner margin with two rows of 5–7 plumose setae; outer plate reaching about 0.5 x length of palp segment 2, rounded outer-apically and with sub-rectangular inner corner, inner margin with 5 sub-marginal transversal rows of 3 simple setae, apex with 3 strong setae; palp stout, 4-articulate, length ratios of articles 1–4 being as 1.0 : 1.8 : 1.1 : 1.0; article 3 with numerous specific setae, which plumose in the middle part; article 4 (dactylus) conical, slightly curved, nail present.



Fig. 30. *Paramoera erimoensis sakhalinensis* ssp.n., paratype, female (3.2 mm): a — pereopod 1, outer surface, b — propodus and dactylus of pereopod 1, inner surface, c — pereopod 2; d — locking spine-form setae of palmar corner of pereopod 1; scale — 0.1 mm.

Рис. 30. *Paramoera erimoensis sakhalinensis* ssp.n., паратип, самка (3,2 мм): а — переопод 1, наружная сторона, б — проподус и дактилюс переопода 1, внутренняя сторона, с — переопод 2; д — замыкающие шиповидные щетинки пальмарного края переопода 1; шкала — 0,1 мм.

Pereon: Gnathopod 1 (Figs 25g, 26a, b) shorter than gnathopod 2; coxa short, length about 0.92 times longer than wide, rounded below; basis narrowed proximally, length about 2.3 times longer than wide, with a group of 6 long setae in the middle of posterior margin; ischium with two setae on posterodistal corner; merus with a group of 4 simple setae on the distal margin; carpus short, 0.59 times as long as propodus, with one group of setae along posterior

margin and with 3 robust plumose setae and one long seta along posterior 1/3 of distal margin; propodus slightly widens distally, length 1.7 times longer than wide; palm slightly oblique, connected with posterior margin by 5 medial and 4 lateral robust setae, palm length 0.9 times as length of posterior margin; dactylus slightly longer than length of palmar margin of propodus, curved, nail distinct. Gnathopod 2 (Fig. 27c, d), coxa beveled forward, rounded, length of coxa

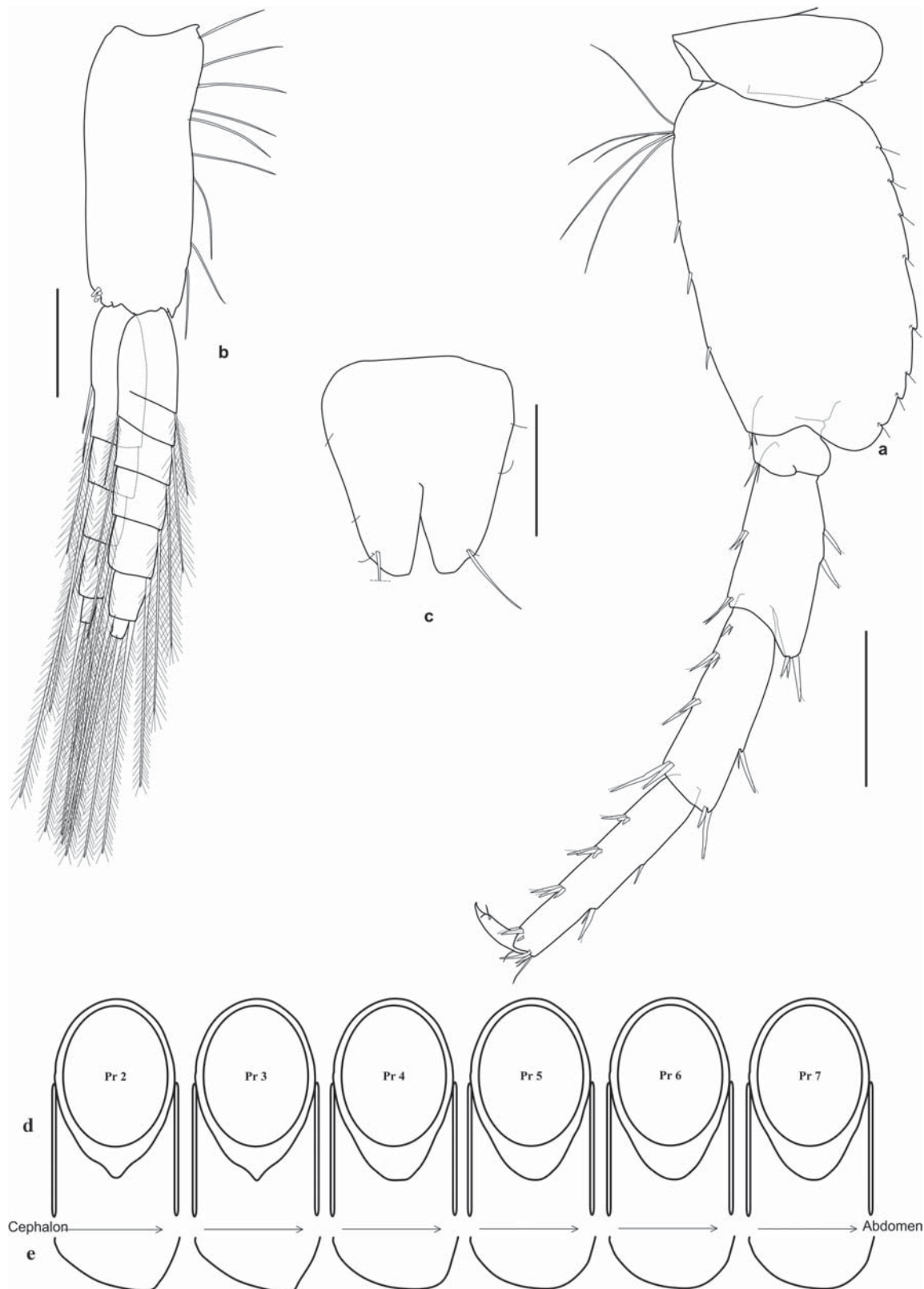
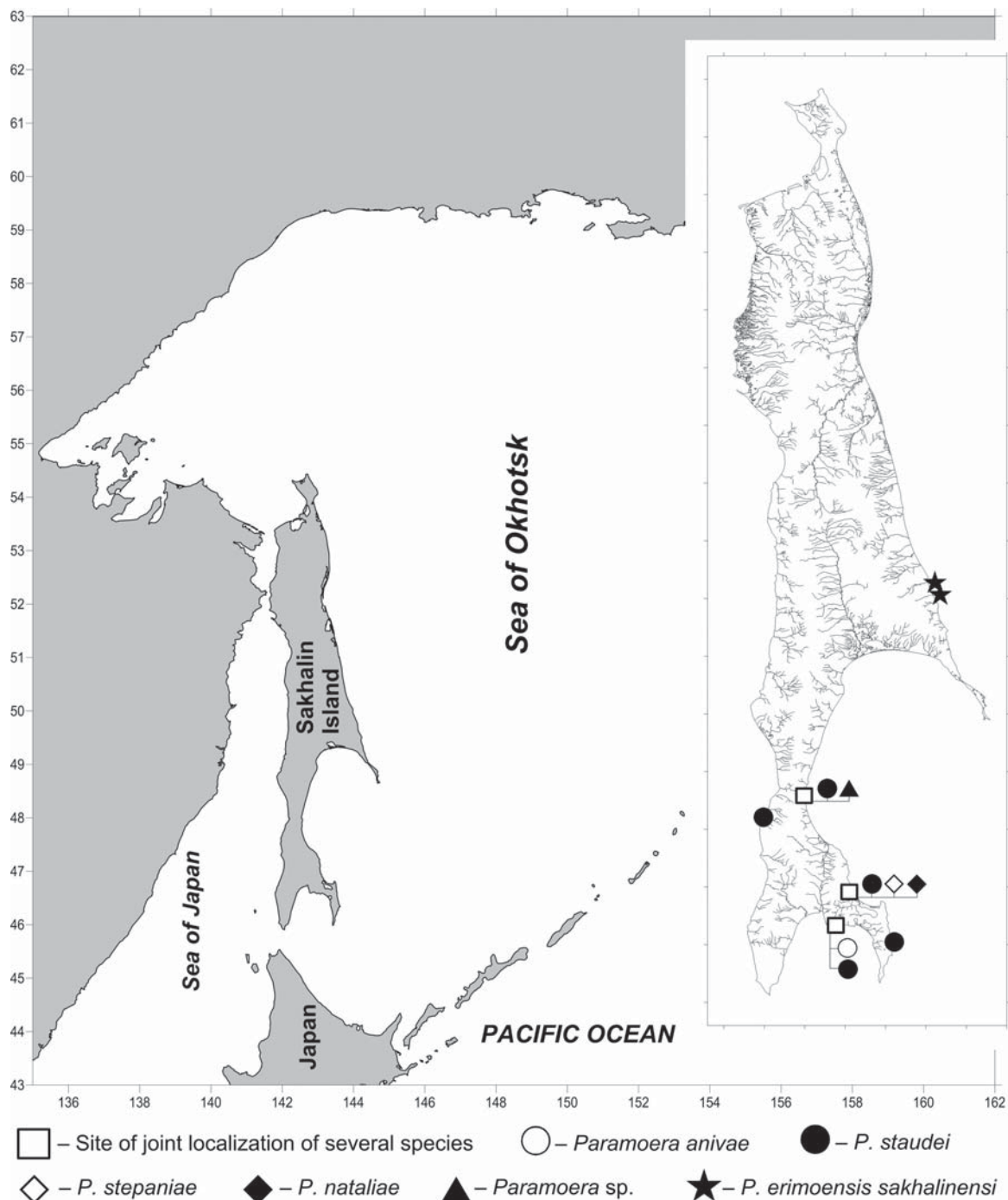


Fig. 31. *Paramoera erimoensis sakhalinensis* ssp.n., paratype, female (3.2 mm): a — pereopod 7, b — pleopod 2, c — telson; holotype, male: d — sternal humps of pereopod in profile, e — sternal humps laterally; scales: a — 0.2 mm, b, c — 0.1 mm.

Рис. 31. *Paramoera erimoensis sakhalinensis* ssp.n., паратип, самка (3,2 мм): а — переопод 7, б — плеопод 2, с — тельсон; голотип, самец: d — стеральные горбы переона в профиль, е — стеральные горбы латерально; шкалы: а — 0,2 мм, б, с — 0,1 мм.

Fig. 32. Distribution of *Paramoera* species on the Sakhalin Island.Рис. 32. Распределение видов *Paramoera* на острове Сахалин.

subequal to wide; basis expanded in distal 3/4, length about 2.7 times longer than wide, posterior margins with 3 long setae at the border of distal 1/3; ischium with 2 setae on posterodistal corner; merus with 2 setae on the posterodistal corner; carpus short, 0.74 times as long as propodus, with 3 groups of distally plumose setae along posterior margin; propodus slightly widens distally, length 1.9 times longer than wide; palm slightly oblique, connected with posterior margin by 3 medial and 8 lateral robust setae, palm

length 0.8 times as length of posterior margin; dactylus similar to that of gnathopod 1. Pereopod 3 (Fig. 27a), coxa high, length of coxa about 1.2 times longer than wide, widens distally, rounded below; length ratio from basis to propodus 1.0 : 0.16 : 0.60 : 0.51 : 0.56; basis sub-linear, slightly expanded in the border of proximal 1/3, with a group of 6 long setae on proximal 1/5 of anterior margin and with 5 long setae on proximal 1/3 and single seta on distal 1/5 of posterior margin; merus, carpus and propodus narrow; merus

about 4.1 times longer than wide, with single seta on proximal 3/5 of anterior margin, cluster of 2 setae on posterior margin, antero-distal and postero-distal corners with single seta each; carpus with seta on anterior and posterior margins each; propodus with single seta on posterior margin, and a group of 2 robust setae on the postero-distal corner; dactylus 0.32 times as long as propodus. Pereopod 4 (Fig. 27b), coxa with shallow posterior concavity, length of coxa about 0.86 times longer than wide, rounded ventrally; length ratio from basis to propodus as 1.0 : 0.17 : 0.59 : 0.49 : 0.61; articles 2–7 similar to those of pereopod 3. Pereopods 5–7 progressively elongate from 5 to 7. Pereopod 5 (Fig. 27c), coxa bilobed, posterior lobe slightly larger; length ratio from basis to dactylus as 1.0 : 0.14 : 0.44 : 0.56 : 0.63 : 0.18; basis narrowed distally, length about 1.4 times longer than wide, posteroventrally lobate, with 4 robust setae along anterior margin; length of merus about 2.0 times longer than wide, with single short robust seta on anterior and posterior margins each, single robust seta at the anterodistal corner, group of 3 robust setae at the posterodistal corner; length of carpus about 3.9 times longer than wide, carpus with 2 groups of 1–3 robust setae along anterior margin, posterior margin with robust seta, anterodistal and posterodistal corners with a group of 2 robust setae each; propodus with 2 groups of 2 robust setae along anterior margin, single short seta on posterior margin, 2 robust setae on anterodistal corner, few short thin setae on posterodistal corner. Pereopod 6 (Fig. 27d), coxa bilobed, anterior lobe small, posterior lobe is much larger than the anterior lobe; length ratio from basis to dactylus as 1.0 : 0.14 : 0.46 : 0.63 : 0.68 : 0.22; basis subovate, narrowed distally, length about 1.5 times longer than wide, posteroventrally lobate, with 4 robust setae along anterior margin; length of merus about 2.1 times longer than wide, with single robust seta on anterior and posterior margins each, anterodistal and posterodistal corners with 2 robust setae each; length of carpus about 4.1 times longer than wide, carpus with 2 pairs of robust setae along anterior margin, single robust seta on posterior margin, anterodistal and posterodistal corners with a group of 2 robust cuspidate setae each; propodus with 3 pairs of robust setae along anterior margin, 2 short setae along posterior margin. Pereopod 7 (Fig. 27e, f, g), coxa semicircular, with 2 tiny setae along the posterior margin; length ratio from basis to dactylus as 1.0 : 0.13 : 0.48 : 0.58 : 0.66 : 0.22; segments from merus to propodus narrow; basis with posterior wing, narrowed distally, length about 1.7 times longer than wide, posteroventrally lobate, with 2 robust setae along anterior margin; length of merus about 2.0 times longer than wide, with single robust seta on anterior margin, a row of 3 robust setae along proximal half of posterior margin, anterodistal and posterodistal corners with 2 robust setae each, length of the longest robust setae at the postero-distal corner about 0.25 times as length of carpus; length of carpus about 3.3 times longer than wide, anterior margin slightly concave, lined with numerous robust setae, single robust seta on posterior margin, anterodistal and posterodistal corners with a group of 2–3 robust setae each; propodus with 3 pairs of robust cuspidate setae along anterior margin, 2 robust setae on posterior margin, anterodistal corner with a group of 2 robust setae.

Pleon: Pleopods 1 and 3 (Fig. 28d, e, f, g) normal, outer ramus slightly expanded; peduncles with paired retinacula (coupling spines) on inner distal margin; inner ramus slightly shorter than outer ramus, coupling basis of inner ramus with 1–2 specific stout two-pointed plumose setae along

inner margin (2 setae on pleopod 1, 2 setae on pleopod 2 and 1 seta on pleopod 3); inner ramus of all pleopods with 6 articles, outer ramus of pleopods 1 and 3 with 6 articles. Outer ramus of pleopod 2 strongly transformed as it described in Diagnosis (Fig. 28h, i, j, l, k). Uropod 1 (Fig. 29a), peduncle with 4 and 3 robust setae along medial and lateral margins, respectively; inner ramus length 0.52 times as peduncle, inner and lateral margins with single robust seta each; outer ramus length 0.94 times as inner ramus, inner and lateral margins without setae, both ramie with 1 long and 2–3 terminal robust setae each. Uropod 2 (Fig. 29b), peduncle with single lateral robust seta dorsally; outer ramus length 0.62 times as inner ramus, length of inner ramus 0.88 times as peduncle, inner ramus with single robust seta on medial margin; outer ramus without marginal robust setae, both ramie with 2 long and 1–2 short terminal robust setae each. Uropod 3 (Fig. 29c), inner ramus length 1.2 times as peduncle, outer ramus length 0.96 times as inner ramus, each ramus with single tiny subterminal seta; inner ramus with 1 robust and 2 thin setae along medial margin and with single robust seta on lateral margin; outer ramus with 2 and 3 robust setae along inner and lateral margins respectively. Telson (Fig. 29d) narrowed distally, length 1.16 times as wide, cleft for 64%, each lobe bearing 1 seta (seta on different lobes unequal in length, length of the longest seta 0.32 times as telson length), apex rounded.

Female (3.2 mm). Similar to male except for the following features: Gnathopods 1 and 2 (Fig. 30a, b, c, d), armament of propodus as in Diagnosis. Pereopod 7 (Fig. 31a), typical for genus, without sexual dimorphism (without anterior concave and numerous robust setae on carpus). Pleopod 2 normal, outer ramus not transformed, with 6 articles.

VARIABILITY. It is observed in the age variability of the armament of the carpus of pereopod 7 in male (the number of robust setae on the anterior field of carpus increases from young to old individuals: Fig. 27f, g) and in the structure of the outer ramus of pleopod 2 in male (Fig. 28i, j, l).

ETYMOLOGY. Named after the type locality in Sakhalin Island.

ECOLOGY. It lives in the mouths of rivers in the immediate vicinity of the sea. Interstitial species inhabiting coarse sand with pebbles.

DISTRIBUTION. River estuaries of the eastern Sakhalin Island (Fig. 32).

REMARKS. *P. erimoensis sakhalinensis* is close to nominate subspecies *P. erimoensis erimoensis* in its main features (structure of the body, head, eyes, the presence of a field of numerous robust setae on the carpus of pereopod 7 in male, the structure of the pleopod 2 in male). Reliable distinguishing features in *P. erimoensis sakhalinensis* are the absence of a posterior concave on the merus and an anterior concave on the carpus of pereopod 7 in male, and the presence of 4 plumose setae in the diagonal row on the inner plate of maxilla 2 (in *P. erimoensis erimoensis* inner plate of maxilla 2 with 3 plumose setae in the diagonal row).

The original diagnosis of the nominative subspecies lacks a description of sternal humps [Kuribayashi, Kyono, 1995]. But the other features given above undoubtedly indicate that the new subspecies belongs to the species *P. erimoensis*.

Dentomoera subgen.n.

Figs 33–36.

TYPE SPECIES. *Paramoera* (*Dentomoera*) *tridentata* Bulyčeva, 1952.

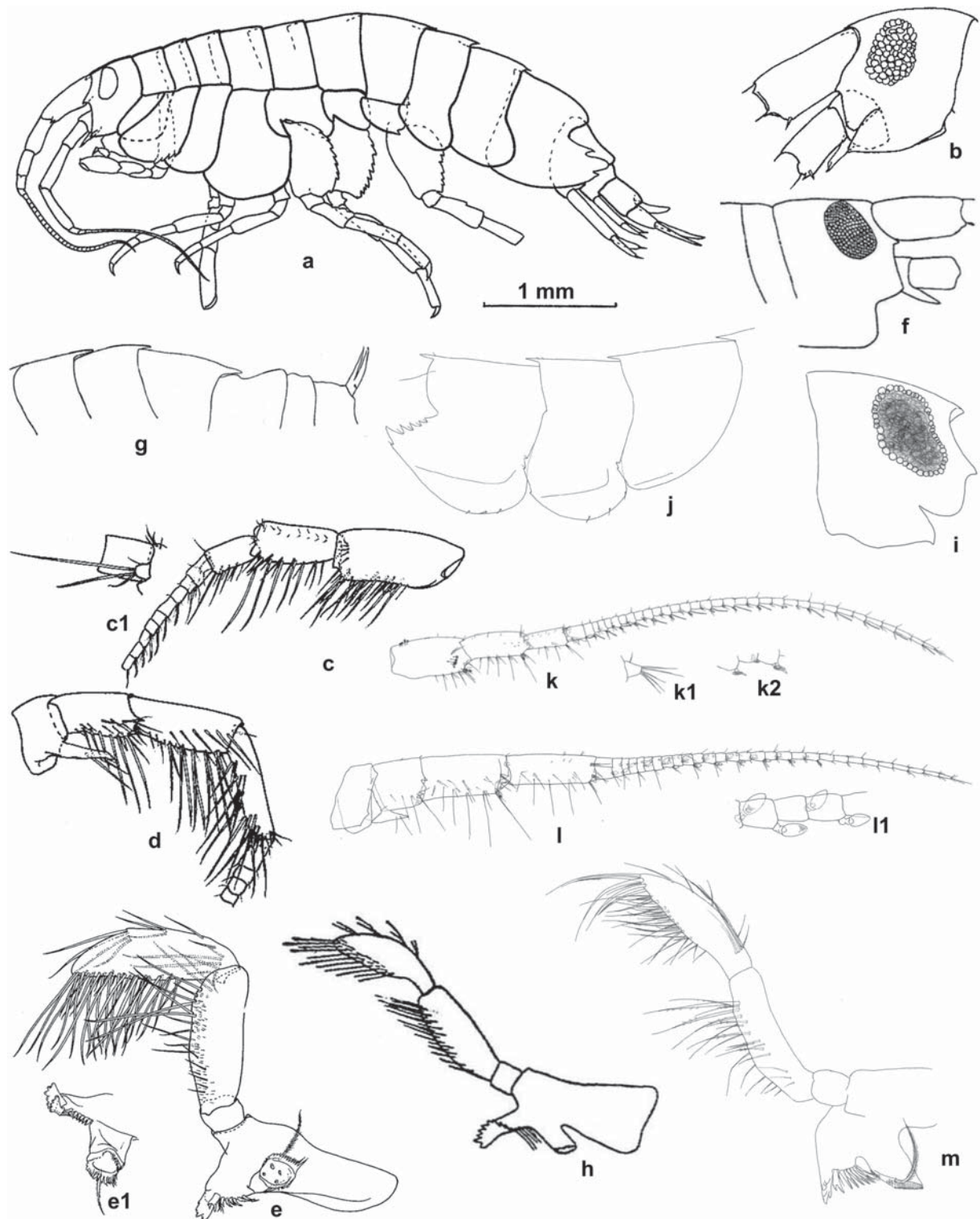


Fig. 33. Species of *Dentomoera* subgen.n.: a, b, c, c1, d, e, e1 — *P. (Dentomoera) hanamurai* (from [Hirayama, 1990]); f, g, h — *P. (Dentomoera) tridentata* (from [Bulyčeva, 1952]); h, i, j, k, k1, k2, l, l1, m — *P. (Dentomoera) dentipleurae* (from [Jung *et al.*, 2016]); a — lateral view, b, f, i — cephalon, g, j — abdomen, c, c1, k, k1, k2 — antenna 1, d, l, l1 — antenna 2, e, e1, h, m — mandible.

Рис. 33. Виды *Dentomoera* subgen.n.: a, b, c, c1, d, e, e1 — *P. (Dentomoera) hanamurai* (из: [Hirayama, 1990]); f, g, h — *P. (Dentomoera) tridentata* (из: [Bulyčeva, 1952]); h, i, j, k, k1, k2, l, l1, m — *P. (Dentomoera) dentipleurae* (из: [Jung *et al.*, 2016]); a — общий вид латерально, b, f, i — голова, g, j — abdomen, c, c1, k, k1, k2 — антенна 1, d, l, l1 — антенна 2, e, e1, h, m — мандибула.

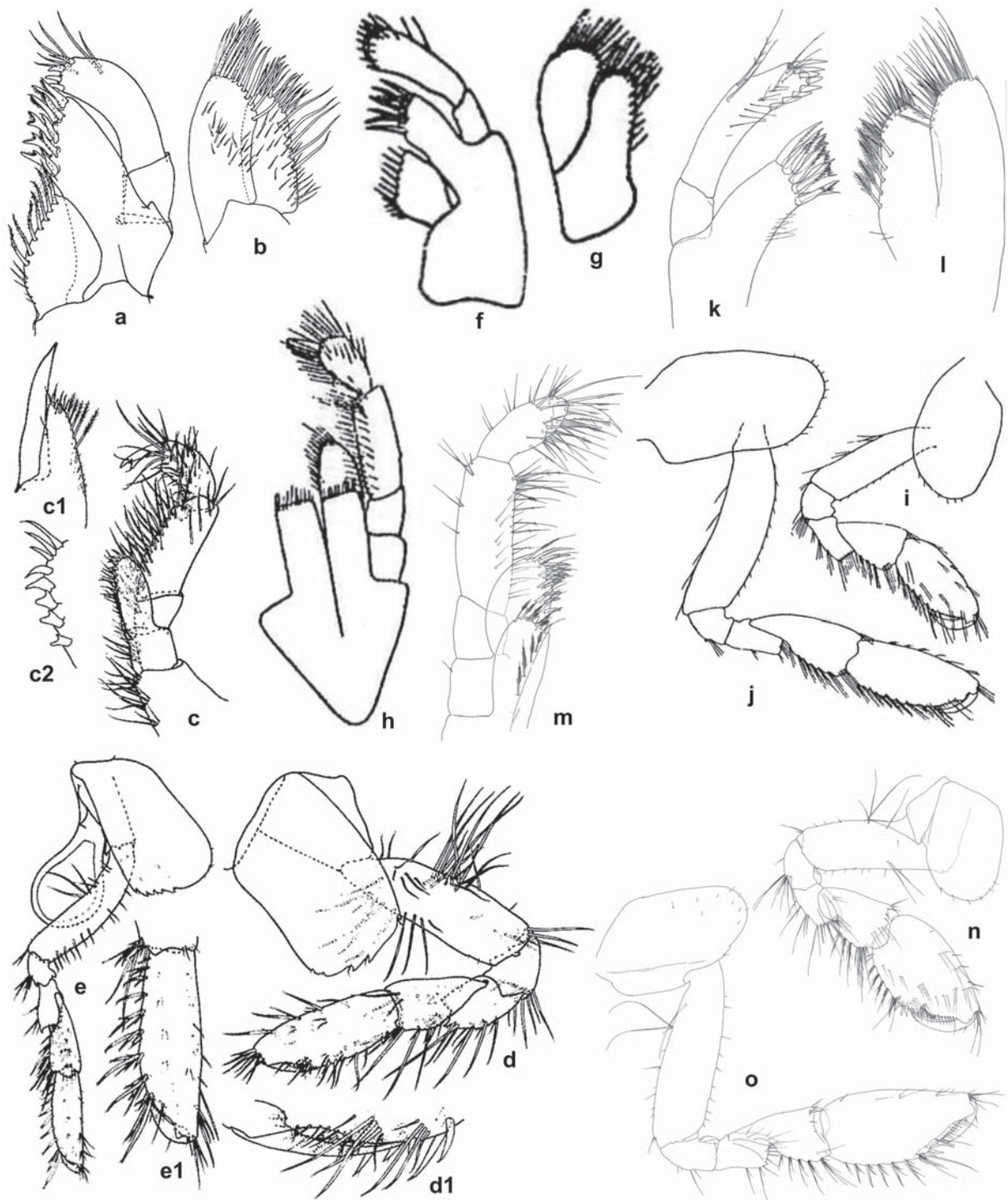


Fig. 34. Species of *Dentomoera* subgen.n.: a, b, c, c1, c2, d, d1, e, e1 — *P. (Dentomoera) hanamurai* (from [Hirayama, 1990]); f, g, h, i, j — *P. (Dentomoera) tridentata* (from [Bulyčeva, 1952]); k, l, m, n, o — *P. (Dentomoera) dentipleurae* (from [Jung et al., 2016]); a, f, k — maxilla 1, b, g, l — maxilla 2, c, c1, c2, h, m — maxilliped, d, d1, i, n — pereopod 1, e, e1, j, o — pereopod 2.

Рис. 34. Виды *Dentomoera* subgen.n.: a, b, c, c1, c2, d, d1, e, e1 — *P. (Dentomoera) hanamurai* (из: [Hirayama, 1990]); f, g, h, i, j — *P. (Dentomoera) tridentata* (из: [Bulyčeva, 1952]); k, l, m, n, o — *P. (Dentomoera) dentipleurae* (из: [Jung et al., 2016]); a, f, k — максилла 1, b, g, l — максилла 2, c, c1, c2, h, m — ногоchelюсти, d, d1, i, n — переопод 1, e, e1, j, o — переопод 2.

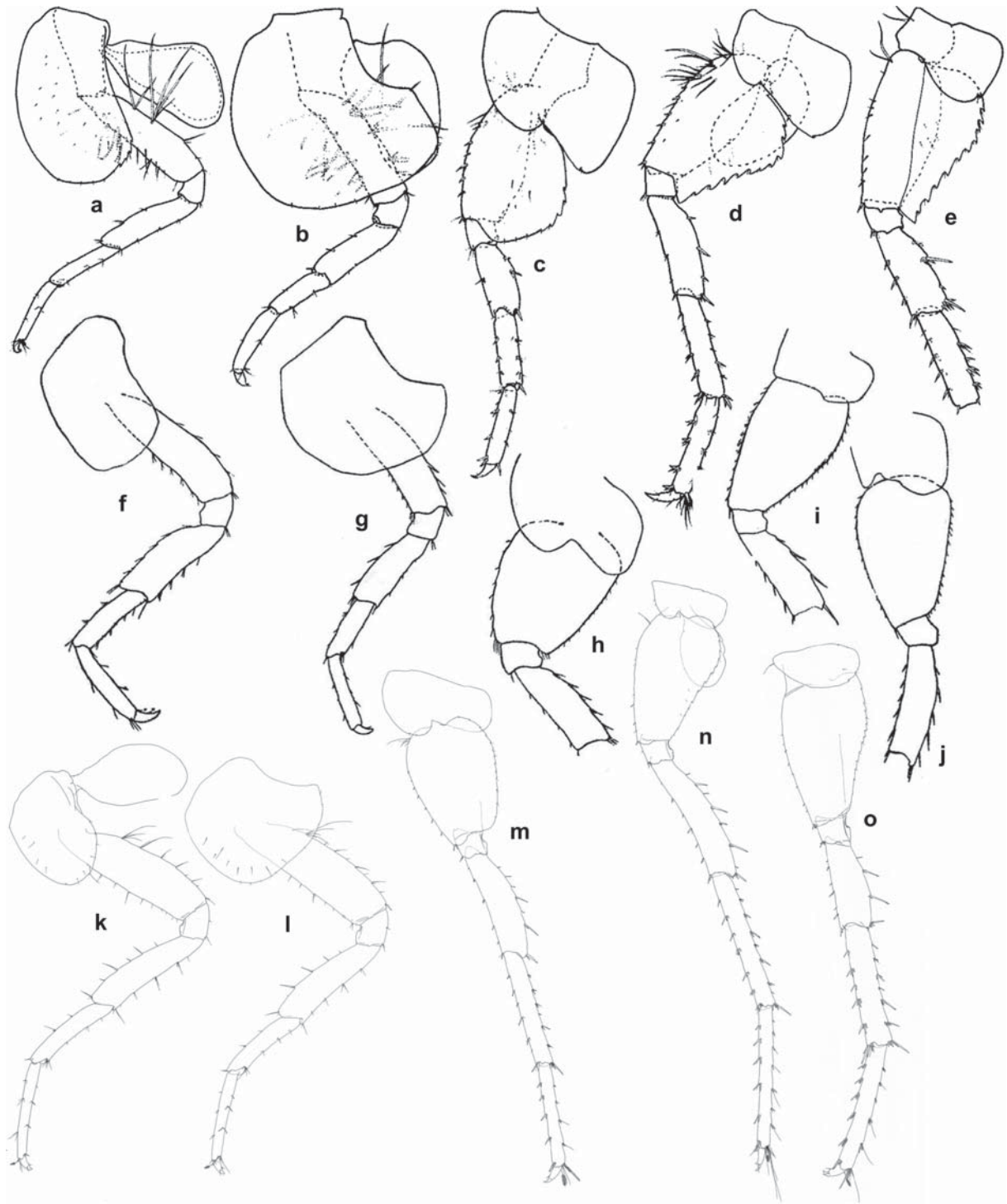


Fig. 35. Species of *Dentomoera* subgen.n.: a, b, c, d, e — *P. (Dentomoera) hanamurai* (from [Hirayama, 1990]); f, g, h, i, j — *P. (Dentomoera) tridentata* (from [Bulyčeva, 1952]); k, l, m, n, o — *P. (Dentomoera) dentipleurae* (from [Jung et al., 2016]); a, f, k — pereopod 3, b, g, l — pereopod 4, c, h, m — pereopod 5, d, i, n — pereopod 6, e, j, o — pereopod 7.

Рис. 35. Виды *Dentomoera* subgen.n.: a, b, c, d, e — *P. (Dentomoera) hanamurai* (из: [Hirayama, 1990]); f, g, h, i, j — *P. (Dentomoera) tridentata* (из: [Bulyčeva, 1952]); k, l, m, n, o — *P. (Dentomoera) dentipleurae* (из: [Jung et al., 2016]); a, f, k — перепод 3, b, g, l — перепод 4, c, h, m — перепод 5, d, i, n — перепод 6, e, j, o — перепод 7.

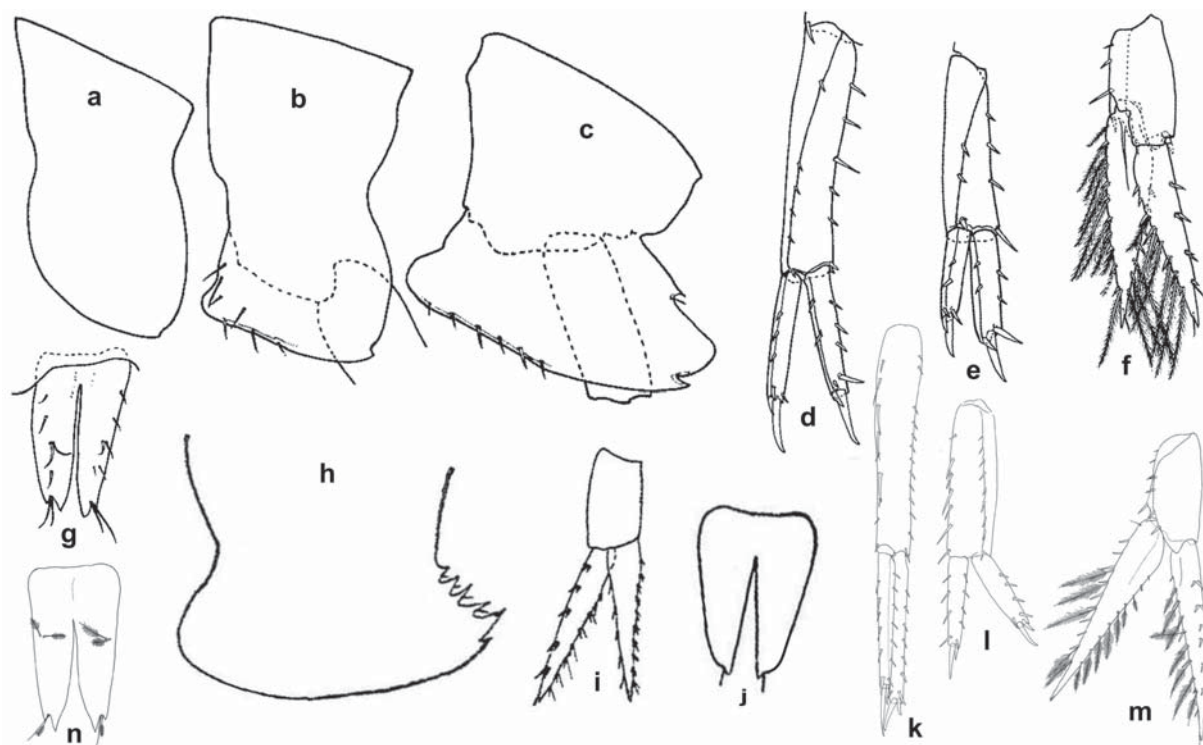


Fig. 36. Species of *Dentomoera* subgen.n.: a, b, c, d, e, f, g — *P. (Dentomoera) hanamurai* (from [Hirayama, 1990]); h, i, j — *P. (Dentomoera) tridentata* (from [Bulyčeva, 1952]); k, l, m, n — *P. (Dentomoera) dentipleurae* (from [Jung et al., 2016]); a — epimeral plate 1, b — epimeral plate 2, c, h — epimeral plate 3, d, k — uropod 1, e, l — uropod 2, f, i, m — uropod 3, g, j, n — telson.

Рис. 36. Виды *Dentomoera* subgen.n.: a, b, c, d, e, f, g — *P. (Dentomoera) hanamurai* (из: [Hirayama, 1990]); h, i, j — *P. (Dentomoera) tridentata* (из: [Bulyčeva, 1952]); k, l, m, n — *P. (Dentomoera) dentipleurae* (из: [Jung et al., 2016]); a — эпимеральная пластинка 1, b — эпимеральная пластинка 2, c, h — эпимеральная пластинка 3, d, k — уropод 1, e, l — уropод 2, f, i, m — уropод 3, g, j, n — тельсон.

DIAGNOSIS. Pereonite 7 (in two species of three) and pleonites 1–2 (1–3) carinate dorsally. Rostrum unproduced; lateral cephalic lobe not mammilliform, with sinusoid upper part; inferior antennal sinus forming deep notch. Eyes large, reniform. Antennae of moderate length, antenna 1 slightly longer, subequal or slightly shorter than antenna 2; peduncular segments of antenna 1 progressively shorter, segment 1 subequal to head length, stout; accessory flagellum unarticulate, short, scale-like; ventromedial setae of peduncles long, numerous; gland cone produced with 2 simple setae; calceoli present in male (*P. (D.) dentipleurae*).

Upper lip entire and subrounded; epistome unproduced. Molar triturative, oval; palp segment 2 equal to or slightly longer than segment 3, with numerous setae; lower lip with weak inner lobes. Maxilla 1; inner plate with 7–8 plumose setae, outer plate with 10 pectinate strong setae; palp long, segment 1 short. Maxilla 2; inner plate with a submarginal row of 5 plumose setae. Maxilliped: inner plate about as long as outer, with 3 conical robust setae apically, outer plate with 5 medial teeth-like setae and 3 apical robust setae; palp of 4 segments, segment 1 not laterally extended, segment 3 unlobed, segment 4 shorter than segment 3, segment 4 not spinose (but with small distal setae) along the inferior margin, ungiform, with nail.

Coxae 1–3 ordinary (neither anteriorly nor ventrally produced), serrate (in *P. (D.) hanamurai*) or minutely serrate below (other species); coxa 4 with posterior lobe, excavate; anterior lobe of coxa 6 small. Gnathopods rather feeble,

subchelate, with strongly oblique palmar margin; segment 5 of gnathopods slightly shorter (in male) or slightly shorter than segment 6 (in female); gnathopod 2 of male not enlarged, palm with more than 5 barb spine-like seta in the outer row.

Bases of pereopods 5–7 expanded proximally and narrowed distally, not ovate, serrated posteriorly; dactyls of pereopods 3–7 non-castellate, with 1–2 small setae near the uncinus; segments 4–6 narrow; segment 2 of pereopods 3 and 4 not anteriorly lobate; segment 5 of pereopods 5–7 subequal to segment 6 in length.

Pleopods ordinary; pleopod 2 of male is unknown. Posteroventral corner of epimeral plate 2 not acutely produced, with small tooth, epimeral plates 1 and 2 with 2–3 small teeth posteriorly in *P. (D.) dentipleurae*; posterior margin of epimeral plate 3 with few teeth (3 teeth of different sizes in *P. (D.) hanamurai*, 6 subequal teeth in *P. (D.) tridentata* and in *P. (D.) dentipleurae*), the penultimate lower tooth the largest. Peduncles of uropods 1 and 2 not dorsally broadened; rami of uropod 1 subequal (*P. (D.) hanamurai*) or inner ramus slightly shorter than outer ramus (*P. (D.) dentipleurae*); outer ramus of uropod 2 shorter than inner ramus (*P. (D.) hanamurai*) or rami subequal (*P. (D.) hanamurai*). Uropod 3 extending significantly beyond uropod 1, peduncle without large process; inner ramus slightly longer than outer ramus, both rami lanceolate, with a rim of plumose setae each. Telson long, lobes of telson cleft to about 0.7–0.8 times of its length, each apex with subapical lateral notch,

bearing 1 pair of 1 plumose and 1 long simple seta on apex (*P. (D.) dentipleurae*) or single simple seta only (*P. (D.) hanamurai* and *P. (D.) tridentata*).

Coxal gills present on pereopods 2–6.

RELATIONSHIPS. Subgenus *Dentomoera* is like the grade “*Paramoera*” (in the description of Staude [1995], within the boreal Pacific), but distinctly differs by the presence of dorsal carination on pereonite 7 and pleonites 1–3, by the form of lateral cephalic lobe of head (in the species of *Dentomoera* lateral cephalic lobe not mammilliform, with sinusoid upper part, in other species lateral cephalic lobe mammilliform), by the presence of dentation on posterior margin of epimeral plate 3. Subgenus *Dentomoera* differs from the subgenus *Humilomoera* Staude, 1995 in the features listed above, as well by the big eyes, by the armament of gland cone of antenna 2 (in species of *Dentomoera* gland cone with 2 setae, in *Humilomoera* gland cone with single seta only), the unreduced setosity of maxillae 1 and 2 (in the species of *Dentomoera* inner plate of maxilla 1 with 7–8 plumose setae, inner plate of maxilla 2 with a submarginal row of 5 plumose setae, in *Humilomoera* inner plate of maxilla 1 with 3–4 plumose setae, inner plate of maxilla 2 with a submarginal row of 2 setae), the presence of the inner lobes of the lower lip, by the armament of rami of uropod 3 (in the species of *Dentomoera* both rami with a rim of plumose setae each, in *Humilomoera* rami without plumose setae), and by the shape of telson (in the species of *Dentomoera* telson long, lobes of telson fused less than 1/3 of telson length, each apex with subapical lateral notch, in *Humilomoera* telson shorter, lobes of telson fused more than 1/3 of telson length, each apex rounded). It differs from *Rhithromoera* Staude, 1995 by the carination of body, by the big eyes, by the form of lateral cephalic lobe of head (in the species of *Rhithromoera* lateral cephalic lobe mammilliform, without sinusoid upper part, inferior antennal sinus without a cleft), by the armament of gland cone (in *Rhithromoera* gland cone with ventrally deflexed single spine-like seta), by the setacea of inner lobe of maxilla 1 and 2 (in *Rhithromoera* inner plate of maxilla 1 with 4–5 plumose setae, inner plate of maxilla 2 with a submarginal row of 5 setae), by the shape of bases of pereopods 5–7 (in the species of *Dentomoera* bases of pereopods 5–7 expanded proximally and narrowed distally, not ovate, serrated posteriorly, in *Rhithromoera* bases ovate, posteroventrally lobate), by the presence of large teeth on the posterior margin of epimeral plate 3, by the presence of plumose setae on the rami of uropod 3, by the shape of telson (in *Rhithromoera* telson short, lobes of telson fused more than 1/3 of telson length, each apex rounded). From subgenus *Moanamoera* Staude, 1995 it differs by the carination of body, by the big eyes, by the form of lateral cephalic lobe of head (in the species of *Moanamoera* lateral cephalic lobe mammilliform, inferior antennal sinus without a cleft), by the shape of bases of pereopods 5–7 (in *Moanamoera* bases subcircular or ovate, posteroventrally lobate), by the presence of large teeth on the posterior margin of epimeral plate 3 [Barnard, 1977; Staude, 1995]. *Dentomoera* is similar to *P. bidentata* K.H. Barnard, 1932 from south Africa, in the big eye, the cleft inferior antennal sinus, pleonites 1 and 2 with the posterior margin produced in a medio-dorsal subacute triangular tooth, the shape of telson (long, each apex with subapical lateral notch), but differs in the presence of large teeth on the posterior margin of epimeral plate 3, the presence of plumose setae on the rami of uropod 3, lobes of telson fused less than 1/3 of telson length [Barnard, 1932, 1940].

SPECIES. *P. (D.) dentipleurae* Jung, Kim et Yoon, 2016; *P. (D.) hanamurai* Hirayama, 1990; *P. (D.) tridentata* Bulyëva, 1952; western North Pacific (Sea of Japan), local region from southern Primorye (Bay of Peter the Great) and South Korea (Jeju Island) to Hokkaido Island (Shirouchi); fom marine littoral to sublittoral in sand and gravel substratum.

ETYMOLOGY. The composite epithet of the subgenus name of *Dentomoera* is a combination of Latin *dens*, Gen. *dentis* (meaning ‘teeth’ or ‘serration’) and *moera*, implying alliance to related genera with the same root.

KEY TO SPECIES OF GENUS *PARAMOERA* FROM THE NORTH PACIFIC (EXCEPT *P. UDEHE*)

1. Ramie of uopod 3 with plumose setae 2
– Ramie of uopod 3 without plumose setae 11
2. Eyes absent
 Paramoera (Ganigamoera) myslenkovi Sidorov, 2010
– Eyes present 3
3. Epimeral plate 3, posterior margin with large teeth; pleon segments with dorsal tooth each 4
– Epimeral plate 3, posterior margin without large teeth, small notches only; pleon segments without dorsal teeth 6
4. Epimeral plate 3, posterior margin with two small and one big teeth *Paramoera (Dentomoera) hanamurai* Hirayama, 1990
– Epimeral plate 3, posterior margin with 6 subequal teeth ... 5
5. Lower margin of coxal plate 4 reaches the ½ of the basis pereopod 4 length *Paramoera (Dentomoera) tridentata* Bulyčeva, 1952
– Lower margin of coxal plate 4 reaches the 1/3 of the basis pereopod 4 length *Paramoera (Dentomoera) dentipleurae* Jung, Kim et Yoon, 2016
6. Gnathopods 1 and 2, pereopod subrectangular with slightly oblique palmar margin 7
– Gnathopods 1 and 2, pereopod almond-shape with strongly oblique palmar margin 10
7. Propodus of gnathopod 2 long, length to width ratio is 2.9 *Paramoera koreana* Stephensen, 1944
– Propodus of gnathopod 2 short, length to width ratio is 1.6–1.9 8
8. Propodus of pereopod 4 with more than 4 robust setae in the posterior row; posterior margin of epimeral plate 3 with more than 3 small notches; outer ramus of uropod 2 longer than inner ramus
 *Paramoera suchaneki* Staude, 1995
– Propodus of pereopod 4 with not more than 4 robust setae in the posterior row; posterior margin of epimeral plate 3 with 2 small notches; outer ramus of uropod 2 shorter than inner ramus 9
9. Head with a shallow cleft separating the lateral lobe and postantennal lobe; segments 1 and 2 of antenna 1 with about 4 groups of long setae along the ventral margins; gland cone of antenna 2 with one long and one short seta *Paramoera mohri* J.L. Barnard, 1952
– Head with a deep cleft separating the lateral lobe and postantennal lobe; segments 1 and 2 of antenna 1 with 5 or more groups of long setae along the ventral margins; gland cone of antenna 2 with 4–6 long setae
 *Paramoera serrata* Staude, 1995
10. Antenna 1, peduncular article 1 with short robust setae only; Japan
 *Paramoera koyasama* Kuribayashi et Kyono, 1995

- Antenna 1, peduncular article 1 with 3 groups of long setae; North America *Paramoera columbiana* Bousfield, 1958
- 11. Eyes reduced, of 4 disjunct ommatidia 12
- Eyes not reduced 13
- 12. Pereopod 7 in male, merus with posterior concave, carpus with anterior concave; inner plate of maxilla 2 with 3 plumose setae in the diagonal row *Paramoera erimoensis* Kuribayashi et Kyono, 1995
- Pereopod 7 in male, merus without posterior concave, carpus without anterior concave; inner plate of maxilla 2 with 4 plumose setae in the diagonal row *Paramoera erimoensis sakhalinensis* ssp.n.
- 13. Eyes small, 1/5 or less of head height 14
- Eyes medium or large, more than 1/5 of head height ... 19
- 14. Species from Eastern Asia 15
- Species from North America 17
- 15. Eyes very small, round; inferior antennal sinus of head quadrate, without a notch; underground or interstitial species 16
- Eyes small, oval; inferior antennal sinus of head incised *Paramoera* sp.
- 16. Gnathopod 1 and 2, propodus powerful, almond-shape, longer than carpus *Paramoera nataliae* sp.n.
- Gnathopod 1 and 2, propodus feeble, with parallel anterior and posterior margins, subequal or shorter than carpus *Paramoera relicta* Uéno, 1971
- 17. Antenna 2, peduncular segment 2, gland cone with 1–2 crooked spines; propodus of gnathopods about twice as long as wide; pereopods 5–7 with carpus slightly longer than propodus; each apex of telson with 3–4 setae *Paramoera bucki* Staude, 1995
- Antenna 2, peduncular segment 2, gland cone with a single small seta; propodus of gnathopods more than twice as long as wide; pereopods 5–7 with carpus shorter than propodus; each apex of telson with less than 3 setae 18
- 18. Eyes light; peduncular segment 1 of antenna 1 with a distoventral robust setae; uropod 3 with rami much longer than peduncle; telson fused less than half its length *Paramoera leucophthalma* Staude, 1995
- Eyes dark; peduncular segment 1 of antenna 1 with thin setae only; uropod 3 with rami longer than the peduncle; telson fused more than half its length *Paramoera crassicauda* Staude, 1995
- 19. Telson, lobes apically without setae *Paramoera bousfieldi* Staude, 1995
- Telson, lobes apically with setae 20
- 20. Telson, lobes apically with short setae 21
- Telson, lobes apically with one short and one long setae each 22
- Telson, lobes with few long setae each *Paramoera carlottensis* Bousfield, 1958
- 21. Eyes medium size, ¼ of head height; maxilla 1, inner plate with 8 plumose setae *Paramoera (Ganigamoera) tiunovi* Sidorov, 2010
- Eyes large, 2/5 of head height; maxilla 1, inner plate with 3 plumose setae *Paramoera shakotanensis* Hagihara, Nakano et Tomikawa, 2020
- 22. Telson, lobes, the length of long apical setae is 1/2 of telson length *Paramoera mokyevskii* (Gurjanova, 1952)
- Telson, lobes, the length of long apical setae is 1/3 or less of telson length 23

- 23. Maxilla 1, inner plate with 7–8 plumose apical setae; telson narrow, the length to width ratio is 1.8 *Paramoera brevirostrata* (Bulyčeva, 1952)
- Maxilla 1, inner plate with 4–5 plumose apical setae; telson not narrow, the length to width ratio is 1.2–1.524
- 24. Gnathopod 1 in male, propodus subrectangular, with slightly oblique palmar margin; pereopods 5–7, merus, carpus and propodus dilated, the length of merus about 1.5–1.6 times longer than wide *Paramoera staudei* sp.n.
- Gnathopod 1 in male, propodus almond-shape, with strongly oblique (subvertical) palmar margin; pereopods 5–7, merus, carpus and propodus not dilated, the length of merus about 1.9–2.0 times longer than wide 25
- 25. Antenna 1 in male, articles of flagellum with calceoli; maxilla 1, inner plate with 4 plumose apical setae; maxilla 2, inner plate with 3 plumose setae in diagonal row *Paramoera stepaniae* sp.n.
- Antenna 1 in male, articles of flagellum without calceoli; maxilla 1, inner plate with 5 plumose apical setae; maxilla 2, inner plate with 4 plumose setae in diagonal row *Paramoera anivae* Labay, 2012

Systematic analysis of the genus *Paramoera*

Morphological relationships within genus *Paramoera* are indicated in Fig. 37. Two major groups within *Paramoera* allocated at the level of similarity in a middle of linkage distance (from 2 to 2.5). The picture has the consistency with the geographical distribution of species from boreal Pacific and basic subgenera within the genus *Paramoera*.

First group comprises species *P. dentipleurae* from the Korean coast, *P. tridentata* from the coast of Primorsky Krai (Russia) and *P. hanamurai* from intertidal zone of sothern Hokkaido (Japan). All these species live along the coast of the Sea of Japan and are distinguished by a unique set of plesiomorphic characters: lateral cephalic lobe acute, antennal sinus deeply notched, pleon segments 1–3 with posterior teeth dorsally, epimeral plate 3 with large posterior teeth, gland cone of antenna 2 with 2 thin setae, palp articles 2 and 3 of manible with numerous setae, inner plate of maxilla 1 with numerous (7–8) plumose apical setae, inner plate of maxilla 2 with a diagonal row of 5 plumose setae, pereopods long ant thin, ramie of uropod 3 with plumose setae [Bulyčeva, 1952; Hirayama, 1990; Jung *et al.*, 2016]. The above list of characters is sufficient to distinguish of a new subgenus *Dentomoera*. The diagnosis of the new subgenus is given above.

The next cluster combines two species from the underground water of the Far East: *P. relicta* from lava Cave of Japan and *P. myslenkovi* from subterranean freshwaters of Primorsky Krai (Russia). The underground way of life causes a number of similar features between species: Body dorsally smooth, with fine setae; legs long, thin, feeble; eyes reduced or absent; lateral cephalic lobe rounded; antennal sinus rounded; antenna 2, peduncular article 2 gland cone with two subapical setae; gnathopod 2 propodus shorter than carpus. But a number of important features that sepa-

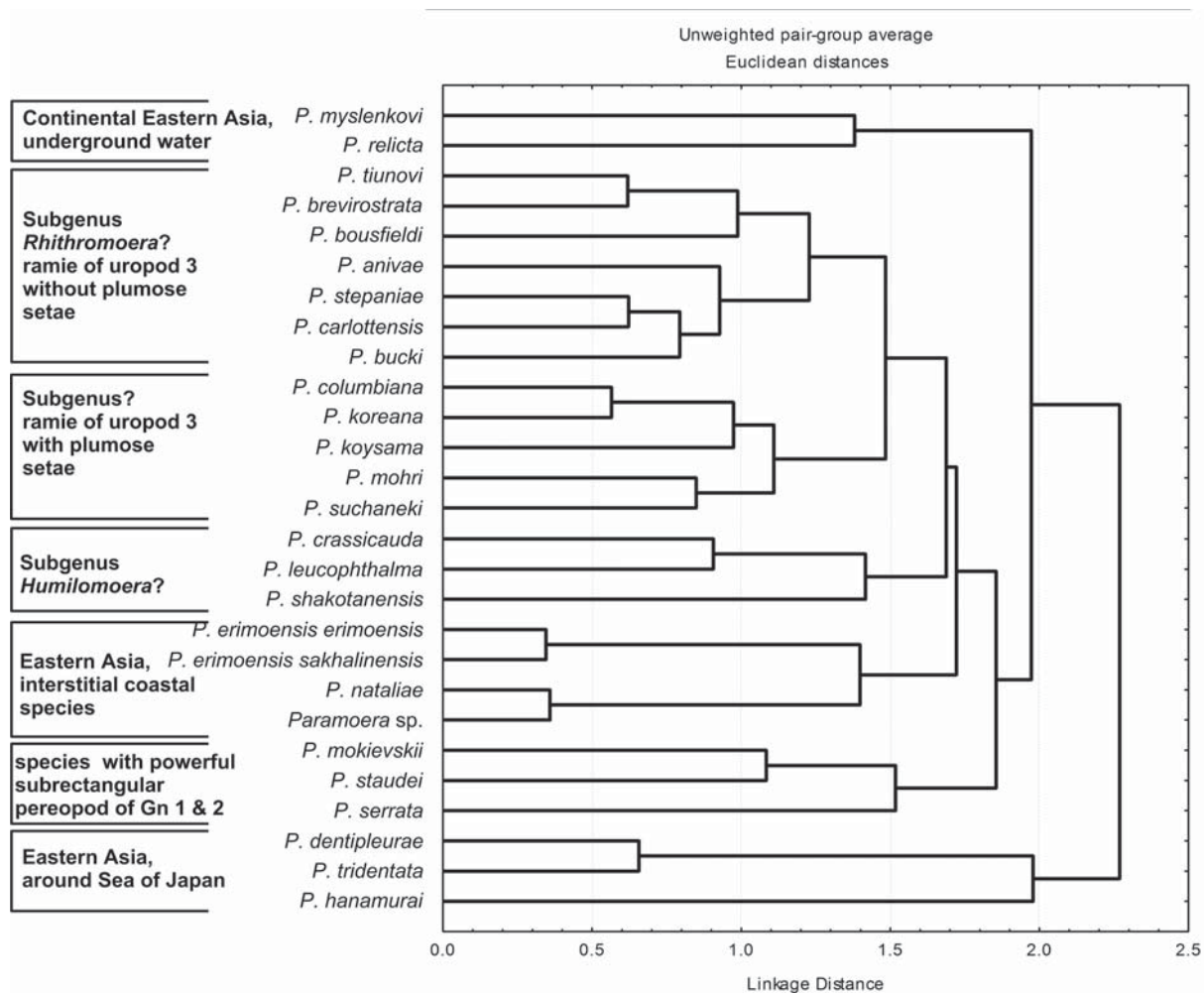


Fig. 37. Phenogram of *Paramoera* species of the boreal Pacific.
Рис. 37. Фенограмма видов *Paramoera* северной Пацифики.

rate these species do not allow them to be attributed to one subgenus: epimeral plates without (*P. relict*) or with (*P. myslenkovi*) notches on posterior margins; mandibular palp article 3 shorter than article 2 (*P. relict*) or equal in length (*P. myslenkovi*); sternal humps are absent (*P. relict*) or present (*P. myslenkovi*); pereopod 7 without (*P. relict*) or with (*P. myslenkovi*) coxal gill; ramie of uropod 3 without (*P. relict*) or with (*P. myslenkovi*) plumose setae, and telson lobe entire (*P. relict*) or notched (*P. myslenkovi*) apically [Uéno, 1971; Sidorov, 2010; Nakano, Tomikawa, 2018].

Three species stand out from other “typical” *Paramoera* species at a difference level of 1.87: *P. mokievskii*, *P. staudei* and *P. serrata*. The similarity of the external appearance of these species is determined by the similarity of habitat conditions. These species are shallow burrowers in coarse sand and gravel sediments of wave exposed beaches. The powerful gnathopods and widened posterior pereopods with enlarged spines may be an adaption to this burrowing habit. The well-developed, regularly spaced setae of the antennae

and gnathopods are probably used in suspension feeding [Staude, 1995]. However, there are distinct differences at the subgeneric level between the Asian (*P. mokievskii*, *P. staudei*) and North American (*P. serrata*) species of this group: gland cone with 2 setae in Asian species and 5–6 setae in North American species, pleopod 2 in male without sexual dimorphism in *P. mokievskii*, *P. staudei* and with sexual dimorphism in *P. serrata*, ramie of uropod 3 without plumose setae in Asian species and with plumose setae in North American species.

Interstitial Asian species form a separate cluster on the dendrogram: *P. erimoensis erimoensis*, *P. erimoensis sakhalinensis*, *P. nataliae* and *Paramoera* sp. These species inhabit the interstitial of sandy and sandy-pebble beaches in the open sea coast and in lower part of river estuaries. The similarity of the morphology of these species is due to the similarity of habitat conditions: reduced eyes, small and short coxal plates, short and thin pereopods. There are differences at the subgeneric level between the species of this cluster: in *P.*

erimoensis antennal sinus without notch, outer ramus of pleopod 2 in male geniculated; in *P. nataliae* and *Paramoera* sp. the outer ramus of pleopod 2 in male not geniculated.

The North American species of the subgenus *Humilomoera* Staude, 1995 (*P. crassicauda* and *P. leucophthalma*) are combined with the Asian species *P. shakotanensis* into a separate cluster. *P. shakotanensis* has a number of features in common with species of the subgenus *Humilomoera* (the structure of the head, mouthparts, pereopods, uropods and telson). Distinctive features are eyes of medium size in *P. shakotanensis* (small in species of *Humilomoera*), gland cone of antenna 2 with two setae (one seta), coxal gill on pereopods 7 is present (absent).

The two clusters of species separate at a linkage distance of 1.47. The only feature by which the species of these clusters are distinctly distinguished is the presence of plumose setae on the ramie of uropod 3. The first cluster unites North American species of the subgenus *Rhithromoera* Staude, 1995 (*P. bucki* and *P. carlottensis*), of the unresolved grade "*Paramoera*" (*P. bousfieldi*), and East Asian species of the genus (*P. anivae*, *P. brevirostrata*, *P. stepaniae* sp.n. and *P. (Ganigamoera) tiunovi*). The species of it cluster are distinguished by the absence of plumose setae on the ramie of uropod 3. The second cluster includes North American species of the unresolved grade "*Paramoera*" (*P. columbiana*, *P. mohri*, and *P. suchaneki*) and East Asian species of the genus (*P. koreana*, *P. koysama*). All species included in this group have the large reniform eyes, inferior antennal sinus with a cleft, and ramie of uropod 3 with plumose setae.

Only species of the new subgenus *Dentomoera* form a single monophyletic group and correspond to the subgenus. The rest of the clusters are more consistent with ecological groups, in which the similarity of morphology is explained by the similarity of habitat conditions. They combine species of different origin from variose subgenera and do not correspond to the principle of monophyly. The taxonomy of these species can be realized using the methods of molecular biology only.

There is a question about the need to separate the subgenus *Ganigamoera* Sidorov, 2010. The only feature that distinguishes species *P. myslenkovi* and *P. tiunovi* belonging to the subgenus *Ganigamoera* is the presence of sternal humps on the ventral surface of pereonites 2–7 [Sidorov, 2010]. All other diagnostic characters of the subgenus *Ganigamoera* are found in many species of the genus *Paramoera* in various combinations (Suppl. Table 2). Recent study showed that sternal humps on pereonites 2–7 were found in all species of the genus *Paramoera* from Sakhalin Island. Most authors in their descriptions simply did not pay attention to this feature [Derzhavin, 1930; Stephensen, 1944; J.L. Barnard, 1952; Bulyčeva, 1952; Gurjanova, 1952; Bousfield, 1958; Uéno, 1971; Hirayama, 1990; Kuribayashi, Kyono, 1995; Staude, 1995; Jung *et al.*, 2016; Hagihara *et al.*, 2020]. This thesis is well sup-

ported by the presence of sternal humps in *P. erimoensis sakhalinensis* ssp.n., although this feature is absent in the description of the nominative subspecies [Kuribayashi, Kyono, 1995]. I consider the question with separation of the subgenus *Ganigamoera* open without additional research on the presence of sternal humps in other species of the genus *Paramoera*.

Supplementary data. The following Tables are available online.

Supplementary Table 1. Characters and character states of the genus *Paramoera*.

Supplementary Table 2. Intensity of characters and character states of North Pacific *Paramoera* species.

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