

Antennal peduncle (Fig. 23E) moderately stout, reaching beyond midlength of eye. First segment with moderately long distomesial spine not reaching distal margin of third segment; distolateral margin not produced. Second segment without striae on ventral surface; distomesial spine short, not reaching distal margin of third segment; no mesial spine; distolateral spine also not reaching distal margin of third segment. Third and fourth segments unarmed, former without striae on ventral surface.

Third maxilliped (Fig. 23F) moderately slender. Ischium with moderately strong flexor distal spine ex-

tending as far as extensor distal angle; lateral surface with distinct median ridge. Merus with 2 spines on flexor margin, distal spine moderately small, proximal spine moderately strong; extensor distal margin unarmed; dorsal margin and lateral surface sparsely granulate. Carpus sparsely granulate on extensor surface. Propodus subequal in length to carpus, not expanded. Dactylus much shorter than propodus.

Chelipeds (Figs. 23G, 24A - C) weakly squamous, 2.0 times longer than carapace, equally broad on merus, carpus and palm; setation quite sparse, without iridescent setae. Merus narrowing proximally; dorsal sur-

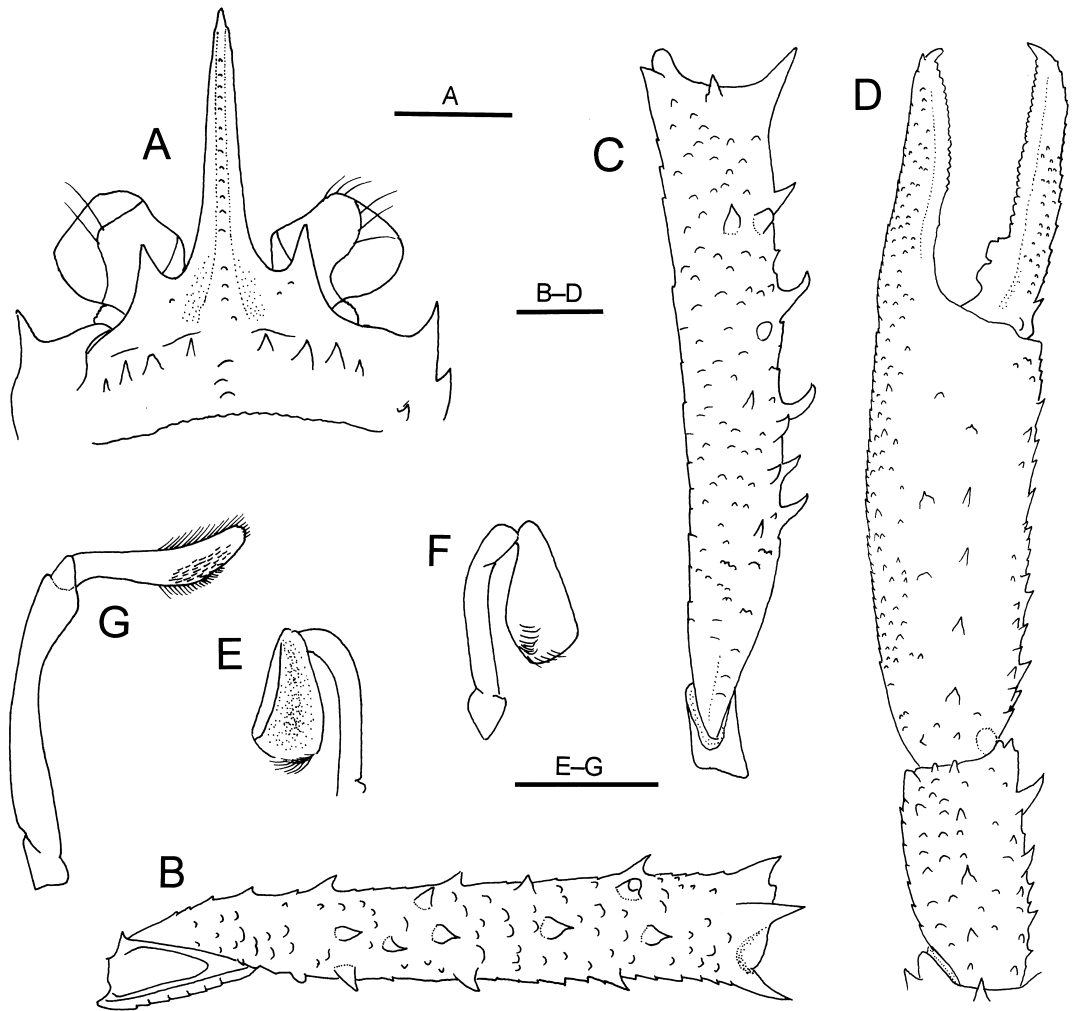


Fig. 25. *Munida trigonocornis* sp. nov., paratype, male (cl 4.6 mm), CBM-ZC 4617. A, anterior part of carapace and eyes, dorsal view (partially damaged); B, chela and carpus of left cheliped, dorsal view (denuded); C, merus of left cheliped, dorsal view; D, same, mesial view; E, left first gonopod, inner view; F, same, outer view; G, left second gonopod, outer view. Scale bars: 1 mm for A - D; 0.5 mm for E - G.

face with row of 6 spines laterally and 3 spines mesially (distomesial spine quite prominent, but far falling short midlength of carpus); mesial surface with 1 strong spine on midline and 3 spines adjacent to ventral margin (including ventromesial distal spine); ventrolateral distal angle with 1 spine. Carpus 0.8 times as long as palm, 1.6 times longer than wide (excluding distomesial projection); dorsal surface with 5 spines on midline, dorsomesial margin with single row of 6 spines; lateral surface with 1 small spine at middle; mesial surface with 2 prominent spines; ventrolateral distal angle with small spine. Palm not widened distally, 1.9 times longer than wide; dorsal surface with median row of 5 spines, 1 spine at articulation to dactylus, and 1 small spine at proximolateral portion; dorsolateral margin with 1 spine proximal to base of fixed finger, dorsomesial margin with 7 small spines; mesial surface without conspicuous spines; ventral surface with 1 small spine at dactylar articulation. Fixed finger nearly straight, without conspicuous spines; dorsal surface sparsely granulate; cutting edge minutely denticulate. Dactylus subequal in length to palm, only with 1 proximal spine on mesial margin, terminating in sharp, curved claw crossing tip of fixed finger; cutting edge minutely denticulate. No proximal hiatus between dactylus and fixed finger.

Ambulatory legs (second to fourth pereopods) relatively short and moderately slender, decreasing in length posteriorly; dorsal margins of meri with short plumose setae, extensor margins of carpi and propodi scarcely setose. Second pereopod (Fig. 24D) about 1.7 times longer than carapace, reaching level of tip of supraocular spine on carapace by mero-carpal articulation; merus 0.7 times as long as carapace, 5.1 times longer than high, dorsal surface with row of 11 spines and some minute spinules (distal spine moderately strong), ventral margin with strong distolateral spine followed by 1 smaller spine and several squamiform or transverse ridges, lateral face with small squamiform or short transverse ridges; carpus about 0.4 length of propodus, with 4 spines increasing in size distally on extensor margin, flexor distal margin produced in moderately strong spine; lateral surface with row of tiny tubercles adjacent to extensor margin; propodus unarmed on extensor margin, lateral surface sparsely granulate, flexor margin with row of 5 small equidistant movable spines, basal protuberance of ultimate spine without fixed spine; dactylus (Fig. 24E) 0.7 times as long as propodus and 4.8

times as long as high, slightly curved in distal part, bearing sparse stiff setae on extensor margin, lateral surface with row of short curled setae parallel to extensor margin, flexor margin faintly sinuous, with 8 small corneous spines along entire length (second to fifth spines from distal longest) and minute subterminal spinule closely appressed to unguis. Third pereopod (Fig. 24F) generally similar to second pereopod, reaching anterolateral angle of carapace by mero-carpal articulation; merus 0.8 length of that of second pereopod, dorsal surface with 11 spines, ventral margin with distolateral spine followed by several squamiform ridges; carpus with 3 spines on extensor margin; propodus with 5 movable spines on flexor margin; dactylus 0.7 times as long as propodus, with 8 small corneous spines and 1 subterminal spinule on flexor margin. Fourth pereopod (Fig. 24G) reaching to lateral end of cervical groove of carapace by mero-carpal articulation; merus 0.7 length of that of second pereopod, dorsal surface unarmed, ventral surface with tiny distolateral spine followed by some transverse ridges, lateral surface with several short transverse ridges; carpus with 2 tiny tubercles distally, ventrodistal angle produced, but blunt; propodus similar to those of third pereopods, bearing 4 movable spines on flexor margin; dactylus 0.8 times as long as propodus, with 7 corneous spines and subterminal spinule on flexor margin.

Merus of fifth pereopod nearly smooth on outer surface.

Uropodal exopod (Fig. 23H) with lateral margin faintly denticulate, armed with a few minute movable spinules; outer surface unarmed; posterior margin roundly truncate, without minute movable spinules. Endopod with lateral margin minutely serrate, bearing a few minute movable spinules; outer surface with some short squamiform ridges sometimes bearing 1 – 2 minute spinules; posterior margin roundly truncate, with row of minute movable spinules.

Paratype male. Carapace considerably damaged. Differing from female holotype in the followings: rostrum proportionately longer and slenderer, about 0.5 times as long as carapace (Fig. 25A).

Chelipeds (Fig. 25B – D) much more elongate than in female holotype, about 4.0 times longer than carapace. Merus with mesial surface armed with 6 slender spines on midline and 4 spines adjacent to ventral margin. Carpus about 1.9 times longer than wide. Palm slightly widening distally, about 2.6 times longer than wide; dorsomesial margin with 6 small

spines including distomesial spine; mesial surface with 3 tiny spines along midline. Fixed finger with 1 tiny subterminal spine; cutting edge sinuous. Dactylus about 0.7 times as long as palm, only with 1 proximal spine on mesial margin; cutting edge with 2 small rectangular teeth proximally. Narrow proximal hiatus between fingers.

First gonopod (Fig. 25E, F) with distal segment markedly widened distally. Second gonopod (Fig. 25G) moderately slender; distal segment gently recurved, with numerous short setae in distal part.

Distribution. Known only from the type locality, Hyotan-se Bank, northern part of Izu Islands, at depths of 275 – 350 m.

Remarks. The male paratype generally agrees with the female holotype except for the more elongate rostrum. It is unclear at present if the difference in the rostrum is a sex-related variation. The chelipeds are much more elongate and less spinose on the chela in the male paratype than in the female holotype, but this difference could be attributed to sexual variation, which is commonly seen in squat lobster species.

Munida trigonocornus sp. nov. appears closest to *M. paucistria* sp. nov., as mentioned above. These two species are discriminated by the following characters: the anterolateral spine on the carapace is relatively shorter in *M. trigonocornus* than in *M. paucistria*; the dorsal surface of the rostrum is bluntly carinate in *M. trigonocornus*, rather than only slightly convex in *M. paucistria*; the female cheliped (especially the merus) is less elongate in *M. trigonocornus* than in *M. paucistria*; the palm of the chela is unarmed laterally in *M. trigonocornus*, but there are three spines on the dorsal surface laterally in *M. paucistria*; the dactylus of the cheliped bears a small proximal spine in *M. trigonocornus*, which is absent in *M. paucistria*; and the ambulatory legs are relatively shorter in *M. trigonocornus* than in *M. paucistria*.

Munida pumila is also somewhat similar to *M. trigonocornus*, particularly in the triangular rostrum. Nevertheless, *M. pumila* is readily distinguished from *M. trigonocornus* by the very small supraocular spines, the main ridges on the anterior part of the carapace divided in short parts, the absence of spines on the anterior part of the branchial region, and the presence of an extensor distal spine on the merus of the third maxilliped.

Etymology. From the combination of the Latin, *trigonus* (= triangular) and *cornus* (horn), in reference to the non-spiniform, triangular rostrum of this new spe-

cies. Used as a noun in apposition.

Munida vicina sp. nov.

(Figs. 26, 27)

Material examined. Holotype: RV *Takunan*, stn 25, Kurose Bank, Izu Islands, 33° 22.57' E, 139° 42.9' E, 132 – 139 m, 14 October 2009, female (cl 5.6 mm), NSMT-Cr S1146.

Description. Carapace (Fig. 26A) 1.2 times longer than wide. Dorsal surface gently convex transversely; main transverse ridges interrupted or uninterrupted; a few secondary transverse striae present between main ridges; most ridges and striae with dense short setae and/or some long setae. Gastric region slightly elevated, with 5 pairs of epigastric spines, spine posterior to base of supraocular spine strongest; scale-like median tubercles on epigastric region. Hepatic region with a few squamiform striae. Cervical groove distinct. One parahepatic, 1 branchial dorsal and 1 postcervical spines present on each side, these spines moderately small. Anterior part of branchial region with a few transverse striae; lateral part of posterior branchial region with 5 transverse ridges or striae (excluding posterior transverse ridge). Intestinal region without stria medially. Posterior transverse ridge with 1 medially interrupted stria. Frontal margins somewhat oblique. Lateral margins feebly convex in dorsal view. Anterolateral spine located at anterolateral angle, moderately long, not reaching sinus between rostrum and supraocular spines, slightly diverging; no spine on frontal margin mesial to anterolateral angle. Hepatic margin with 1 spine (about half length of anterolateral spine). Branchial margins each with 4 small spines decreasing in size posteriorly.

Rostrum (Fig. 26A) spiniform, 0.4 times as long as carapace, directed forward, faintly sinuous in lateral view; dorsal carina not particularly delimited. Supraocular spines moderately long, slender, almost parallel in dorsal view and directed forward in lateral view, 0.4 length of rostrum.

Orbit with small spine curving laterally; ventral margin strongly produced in acute spine.

Pterygostomial flap (Fig. 26B) unarmed anteriorly; lateral surface moderately rugose with transverse to obliquely transverse striae.

Epistomal ridge slightly sinuous, ending at excretory pore of first segment of antennal peduncle; mesial protuberance distinct.

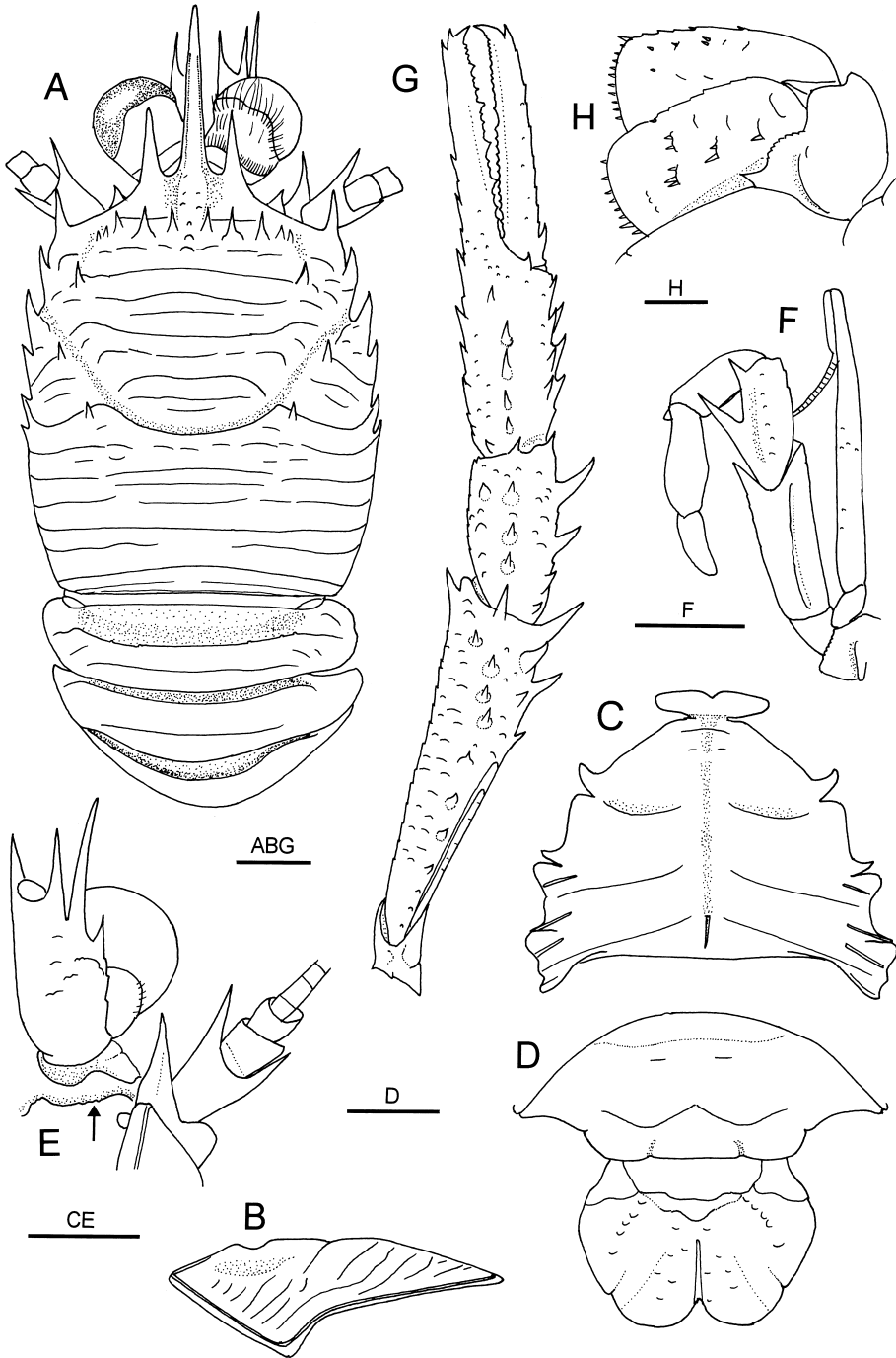


Fig. 26. *Munida vicina* sp. nov., holotype, female (cl 5.6 mm), NSMT-Cr S1146. A, carapace, cephalic appendages and first to fourth abdominal somites, dorsal view (setae omitted except for left eye; antennal flagella omitted); B, left pterygostomial flap, ventrolateral view; C, thoracic sternum, ventral view (setae omitted); D, sixth abdominal somite and telson, outer (ventral) view (setae partially omitted); E, left anterolateral part of carapace, eye, first segment of antennular peduncle and antennal peduncle, ventral view (arrow indicating epistomal ridge); F, left third maxilliped, lateral view (setae omitted); G, left cheliped, dorsal view (denuded); H, left uropod, outer (ventral) view (setae omitted). Scale bars: 1 mm for A – G; 0.5 mm for H.

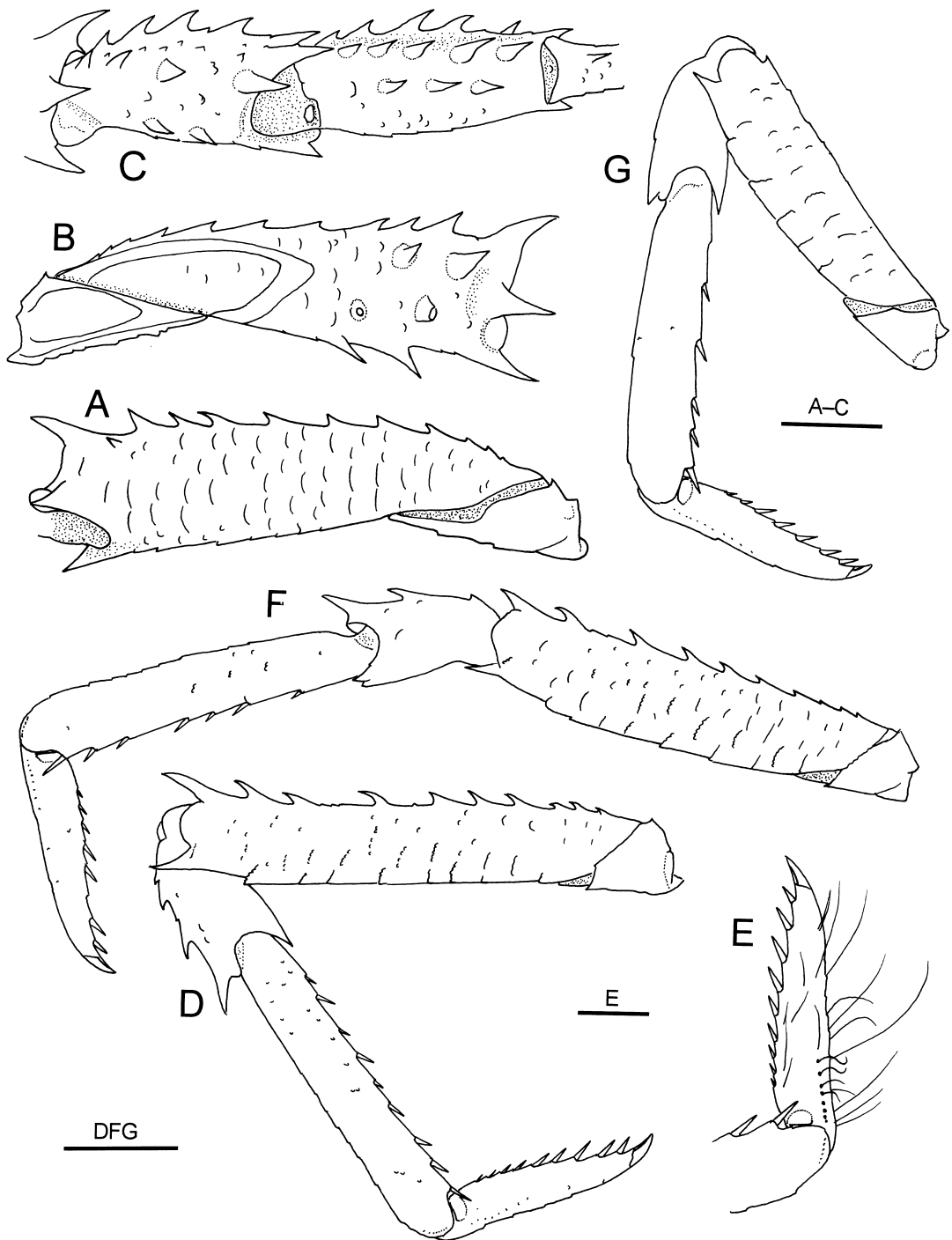


Fig. 27. *Mumida vicina* sp. nov., holotype, female (cl 5.6 mm), NSMT-Cr S1146 (setae omitted except for E). A, merus of right cheliped, lateral view; B, same, mesial view; C, palm and carpus of right cheliped, mesial view; D, left second pereopod, lateral view; E, same, dactylus, lateral view; F, left third pereopod, lateral view; G, left fourth pereopod, lateral view. Scale bars: 1 mm for A - D, F, G; 0.5 mm for E.

Thoracic sternum (Fig. 26C) distinctly wider than long. Third thoracic sternite about 4.7 times wider than long, much broader than anterior margin of fourth sternite, narrowly separated from fourth sternite; anterior margin bilobed by distinct median notch. Fourth sternite with a few striae anteromedially. Fifth to seventh sternites with sharp carinae on lateral parts, otherwise smooth; seventh sternite with deep median groove. Transverse ridges nearly smooth, without setae.

First abdominal tergite (Fig. 26A) smooth. Second somite (Fig. 26A) with anterior ridge devoid of distinct spines, but having 2 or 3 minute granules laterally; tergum with 1 main transverse ridge and a few short lateral striae; pleuron with a few short striae. Third somite (Fig. 26A) with anterior ridge unarmed; tergum with 1 main transverse ridge; pleuron almost smooth. Fourth and fifth somites smooth, devoid of transverse ridge. Sixth somite (Fig. 26D) with median groove and paired arcuate ridges on posterior half of tergum, and 1 pair of short transverse striae anteriorly, otherwise smooth. Telson (Fig. 26D) 1.4 times wider than long, incompletely divided into 7 plates (division between lateral and posterolateral plates indistinct); anteromedian plate nearly smooth on surface; lateral and posterolateral plates slightly squamous.

Eyes (Fig. 26A, E) moderately large, not particularly flattened dorsoventrally. Cornea dilated, width much greater than sinus between rostrum and supraocular spine and 0.3 of distance between bases of anterolateral spines of carapace. Eyestalk not narrowed proximally, with 1 setiferous stria on dorsal surface proximally; eyelash consisting of short to moderately long setae, partially covering dorsal part of cornea.

Basal segment of antennular peduncle (Fig. 26E) moderately stout, just reaching distal corneal margin, length excluding distal spines 1.8 of width; ventral surface with a few short transverse ridges; distal spines subequal, moderately long and slender; 2 lateral spines present, first spine elongate, overreaching distal spines, arising somewhat proximal to base of distolateral spine; second spine moderately short, located distal to midlength of basal segment; statocyst lobe not inflated laterally.

Antennal peduncle (Fig. 26E) moderately stout, not reaching midlength of eye. First segment with moderately long distomesial spine reaching distal margin of third segment; distolateral margin slightly produced

in rounded lobe. Second segment without striae on ventral surface; distomesial spine moderately long, nearly reaching distal margin of fourth segment; no mesial spine; distolateral spine reaching distal margin of third segment. Third and fourth segments unarmed, former without striae on ventral surface.

Third maxilliped (Fig. 26F) moderately slender. Ischium with moderately strong flexor distal spine extending as far as extensor distal angle; lateral surface with distinct, faintly granulated median ridge. Merus with 2 spines on flexor margin, distal spine moderately small, proximal spine strong; extensor distal margin unarmed; extensor margin microscopically granulate, lateral surface with some minute granules along midline. Carpus nearly smooth on extensor surface. Propodus slightly longer than carpus, not expanded. Dactylus much shorter than propodus.

Chelipeds (Figs. 26G, 27A - C) moderately squamous, about 2.3 times longer than carapace, equally broad on merus, carpus and palm; dorsal and mesial surfaces of palm to distal part of merus covered with numerous short plumose setae, partially masking armature; long iridescent setae present on mesial faces of chela to merus. Merus gradually narrowing proximally; dorsal surface with row of 9 spines laterally (spines increasing in size distally) and 3 spines mesially (distomesial spine prominent, but far falling short of midlength of carpus); mesial face with 2 spines on midline and 3 spines adjacent to ventral margin (including ventromesial distal spine). Carpus subequal in length to palm, 2.0 times longer than wide (excluding distomesial projection); dorsal surface with row of 4 small spines along midline; dorsomesial margin with single row of 5 spines; lateral surface with 1 tiny spine; ventral surface with 2 small spines; ventrolateral distal angle with small spine. Palm not widened distally, 2.0 times longer than wide; dorsal surface with median row of 5 small spines, 1 spine at articulation to dactylus, and 1 small spine at proximolateral portion; dorsolateral margin with 4 spines along entire length, dorsomesial margin with 5 slender spines; mesial surface with 3 spines on midline; ventral surface with 1 small spine at dactylar articulation. Fixed finger nearly straight, with 2 subdistal spines; lateral margin with 3 slender spines in proximal half; dorsal surface nearly smooth; cutting edge with 4 conspicuous acute teeth interspersed by minute denticles. Dactylus about 1.4 times longer than palm, terminating in sharp, curved claw crossing tip of fixed finger, with 1 subterminal spine;

mesial margin with 1 prominent proximal spine; dorsal surface unarmed; cutting edge with row of minute denticles along entire length. No proximal hiatus between dactylus and fixed finger.

Ambulatory legs (second to fourth pereopods) moderately long and slender, decreasing in length posteriorly; dorsal margins of meri with sparse short plumose setae, those of carpi and propodi with sparse short to long, stiff setae. Second pereopod (Fig. 27D) about 1.9 times longer than carapace, nearly reaching to level of tip of supraocular spine on carapace by mero-carpal articulation; merus 0.7 times as long as carapace, 5.0 times longer than high, dorsal surface with row of 10 spines (distal spine moderately strong), ventral margin with strong distolateral spine followed by many squamiform or transverse ridges, lateral face with many small squamiform or short transverse ridges; carpus about 0.4 length of propodus, with 4 spines increasing in size distally on extensor margin, flexor distal margin produced in moderately strong spine; lateral surface without longitudinal ridge; propodus unarmed on extensor margin, lateral surface sparsely granular, flexor margin with row of 9 small movable spines (distal 3 spines equidistant), basal protuberance of ultimate spine unarmed; dactylus (Fig. 27E) 0.6 times as long as propodus and 5.4 times longer than high, slightly curved in distal part, bearing sparse short to long stiff setae on extensor margin, lateral surface with row of short curled setae parallel to extensor margin, flexor margin faintly sinuous, with 9 small corneous spines along entire length (distal second to fourth spines longest); minute subterminal spinule closely appressed to unguis. Third pereopod (Fig. 27F) generally similar to second pereopod, slightly overreaching anterolateral angle of carapace by mero-carpal articulation; merus 0.9 length of that of second pereopod, dorsal surface with row of 10 spines, ventral margin with strong distolateral spine followed by several squamiform or transverse ridges; carpus with 3 spines on extensor margin; propodus with 9 movable spines on flexor margin; dactylus about 0.7 times as long as propodus, with 9 corneous spines on flexor margin; terminal spinule present. Fourth pereopod (Fig. 27G) reaching to lateral end of cervical groove of carapace by mero-carpal articulation; merus about 0.6 length of that of second pereopod, dorsal surface unarmed except for tiny distal spine, ventral surface with strong distolateral spine followed by some transverse ridges, lateral surface with many several short transverse

ridges; carpus with dorsodistal spine, ventrodistal angle produced in strong spine; propodus similar to those of third pereopods, bearing 5 movable spines on flexor margin; dactylus 0.7 times as long as propodus, with 7 corneous spines and subterminal spinule on flexor margin.

Merus of fifth pereopod nearly smooth on outer surface.

Uropodal exopod (Fig. 26H) with lateral margin faintly denticulate, with a few minute movable spinules; outer surface with longitudinal row of minute movable spinules along lateral margin; posterior margin roundly truncate, with row of minute movable spinules. Endopod with lateral margin faintly serrate, bearing a few minute movable spinules; outer surface with some low squamiform ridges sometimes bearing 1 – 3 movable spinules; posterior margin roundly truncate, with row of minute movable spinules increasing in size mesially.

Distribution. So far known only from the type locality.

Remarks. The holotype is considered to be an adult, because the gonopores are fully developed and the pleopods bears ovigerous setae.

Munida vicina sp. nov. is morphologically most similar to *M. muscae* Macpherson and de Saint Laurent, 2002, known from the Réunion Islands and Madagascar, in sharing the following characters (Macpherson and de Saint Laurent, 2002; Baba, 2005): branchial margin of carapace fewer than five spines; sixth and seventh thoracic sternites bearing carinae on lateral parts; second abdominal somite without spines on anterior ridge; second segment of antennal peduncle bearing distomesial spine reaching distal margin of fourth segment; and fixed finger of chela bearing spines on lateral margin. However, *M. vicina* differs from *M. muscae* in the following characters: the branchial margin of the carapace bears four spines in *M. vicina*, three spines instead in *M. muscae*; there are more numerous transverse striae on the carapace in *M. vicina* than in *M. muscae* (for example, there are nine transverse ridges or striae, including interrupted ones, on the gastric region in *M. vicina*, rather than five in *M. muscae*); the basal segment of the antennular peduncle reaches only the distal corneal margin in *M. vicina*, rather than distinctly overreaching it in *M. muscae*; the distal spines on the basal segment of the antennular peduncle are subequal in *M. vicina*, but they are distinctly unequal with the distomesial spine being shorter than the distolateral

spine in *M. muscae*; and the dactylus of the second pereopod is more stout with a non-elongate unguis in *M. vicina*, while it has a noticeably elongate unguis in *M. muscae*.

The anterior ridge of the second abdominal somite does not have distinct spines, but a few minute granules are discernible in the holotype of *M. vicina*. Consequently, comparison with species having spines on the second abdominal somite might be necessary in considering the possibility of variation. Among species characterized by the less than five spines on the branchial margin of the carapace and the possession of carinae at least on the lateral parts of the sixth and seventh thoracic sternites, *Munida vicina* is comparable with *M. ignea*, *M. lenticularis* and *M. maculata* sp. nov. in sharing subequal distal spines on the basal segment of the antennular peduncle (Macpherson and de Saint Laurent, 1991; Baba, 2005; Macpherson, 2006). Other than the absence of distinct spines on the second abdominal somite, *M. vicina* can be distinguished from these three species by the lack of dorsomesial spines on the carpus and on the dactylus of the chela (except for the distomesial spine on the carpus and the proximal spine on the mesial margin of the dactylus). Furthermore, *M. lenticularis* differs from *M. vicina* in the smaller eyes and the elongate basal segment of the antennular peduncle that distinctly overreaches the distal corneal margin (it only reaches the distal corneal margin in *M. vicina*).

Etymology. From the Latin *vicinus* (= close), alluding to the close similarity to *M. muscae*.

Discussion

It is surprising that 10 of 19 species treated in this study are new to science, despite the Japanese fauna of the Galatheaidea being fairly investigated. Although many of the previously known species of *Munida* from Japan inhabit soft bottoms where trawls are available (e.g., Baba *et al.*, 1986), the present collections were sampled mainly from hard bottoms using dredges, where operation of trawling is difficult. As listed in Table 1, 26 species of *Munida* are heretofore known from Japanese waters, and this study adds 11 species to the Japanese fauna. Of the 37 species, 20 species, including 10 new species described in this study, are so far known only from Japan, while other 16 species are widespread in the tropical West Pacific or Indo-West Pacific. From Taiwan, close to the Ryukyu Islands, 28 species of the genus have been re-

corded (Baba *et al.*, 2009; Cabezas *et al.*, 2011), of them 16 species are not recorded from Japan. There is no doubt that further exploration in the Japanese coast will likely yield many more undescribed and unrecorded species of this diverse genus.

It is worth to mention about *Munida sagamiensis* described by Doflein (1902) from the Sagami Bay, included in the study area of the present study, because Baba (2005) suggested that the identity of this species remains questionable. I tried to locate the type specimen of *M. sagamiensis* during my stay in the Zoologische Staatssammlung, München, in 1998, where the material studied by Doflein (1902) was deposited, but it was not successful. As Baba (2005) noted, the type is probably lost. From the brief original description by Doflein (1902), the following diagnostic characters can be detected: carapace bearing five or six pairs of epigastric spines (median spine absent), two spines on hepatic margin (including anterolateral spine) and five spines on branchial margin; parapepatic spine absent on carapace; rostrum less than one-third length of carapace; supraocular spines short, about one-third length of rostrum; second abdominal somite with row of 10 spines on anterior ridge; and eyes moderately large, not compressed, with short eye-lashes. No specimens having these features are included in the present material. In order to establish the taxonomic identity of this taxon, examination of newly collected specimens will be necessary.

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房総半島沖、相模灘および伊豆諸島海域で採集
されたチュウコシオリエビ属 (甲殻上綱：十脚
目：異尾下目：チュウコシオリエビ科)

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千葉県立中央博物館および国立科学博物館に所蔵される、相模灘(房総半島沖合を含む)～伊豆諸島海域で採集されたチュウコシオリエビ属 *Munida* の分類学的検討を行った。結果として11種の新種を含む以下の19種が記録された：*M. consobrina* sp. nov. (新称：イズチュウコシオリエビ), *M. honshuensis* Benedict, 1902(スジチュウコシオリエビ), *M. japonica* Stimpson, 1858 (チュウコシオリエビ), *M. maculata* sp. nov. (新称：アカモンチュウコシオリエビ), *M. megalophthalma* sp. nov. (新称：メダマチュウコシオリエビ), *M. multilineata* sp. nov. (新称：シワチュウコシオリエビ), *M. munin* Komai, 2011 (ムニンチュウコシオリエビ), *M. ommata* Macpherson, 2004 (新称：モンツキチュウコシオリエビ), *M. olivarae* Macpherson, 1994 (アナモリチュウコシオリエビ), *M. osawai* sp. nov. (タテヤマチュウコシオリエビ), *M. parvioculata* Baba, 1982 (新称：ムクゲチュウコシオリエビ), *M. paucistria* sp. nov. (新称：コツブチュウコシオリエビ), *M. pectinata* Macpherson and Machordom, 2005(クシノハチュウコシオリエビ), *M. rufiantennulata* Baba, 1969 (新称：アカヒゲチュウコシオリエビ), *M. solitaria* sp. nov. (新称：カワリチュウコシオリエビ), *M. squamifera* sp. nov. (新称：ウロコチュウコシオリエビ), *M. tiresias* Macpherson, 1994 (新称：シンエンチュウコシオリエビ), *M. trigonocornus* sp. nov. (新称：ミツカドチュウコシオリエビ), *M. vicina* sp. nov. (新称：タクナンチュウコシオリエビ)。各新種については近縁種との詳細な比較を行った。モンツキチュウコシオリエビはこれまで南西太平洋の各地から記録されていたが、今回、本邦海域から初めて記録された。日本近海からはこれまで26種の本属種が記録されていたが、本研究により37種に増加した。今回検討された材料の多くは岩場や礫の堆積地などの採集の容易でない環境からドレッジを用いて採集されたもので、このような環境における生物相の解明が未だ不十分であることが強く示唆される。

NOTE TO AUTHORS

1. Topics: Original articles and reviews covering any aspects of natural history may be considered for publication in Natural History Research (NHR). In particular, manuscripts related to Chiba and adjacent prefectures are welcome.

2. Institutional affiliation of authors: Authors should usually be museum staff, but their co-workers, and others as determined by the Editorial Board, are also welcome.

3. Language and file types: English is the primary language. Manuscripts should be prepared using a word processor (Microsoft Word is recommended).

4. Layout: Manuscripts should include:

(a) Title; (b) Author names, Affiliations and an e-mail address; (c) Abstract (up to 300 words); (d) Key words (4 – 6); (e) Introduction; (f) Materials and Methods; (g) Results or Descriptions; (h) Discussion; (i) Acknowledgements; (j) References; (k) Figure Captions; (l) Abstract in Japanese.

5. Preparation of the text:

(a) A4-sized paper (29.7 × 21.0 cm) should be used for the manuscript. The first page should start with: (1) Running title; (2) Name and version of the word processing software; (3) Numbers of pages in the main text, figures and tables; and (4) Subject area of the manuscript (e.g., geology, zoology, botany, museology). Below the upper one-third of the page are placed the full title and author information. Every word of the title (except *but, and, the, a, in, of...*) should start with a capital letter. The main text should be separated from the abstract and key words by a page break. Text should be typed with double spacing.

(b) Latin names of genera and species should be typed with italic letters and underlined. Latin abbreviations (*et al., etc., e.g.* and *i.e.*) should also be italicized and underlined. Superscripts, symbols and unclear letters should be marked in pencil.

(c) References should be sorted firstly in alphabetical order, and secondly by the year of publication. Journal names should be abbreviated. Below are selected examples, but authors should also consult recent journal issues for appropriate style.

Aigner, T. 1982. Calcareous tempestite: storm-dominated stratification in Upper Muschelkalk Limestone (Middle Trias, SW-Germany). In Einsele, G. and A. Seilacher (eds.), *Cyclic and Event Stratification*, pp. 180 – 198. Springer-Verlag, Berlin.

Darlington, P. J. 1980. *Zoogeography: the Geographical Distribution of Animals*. 675 pp. Krieger, New York.

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Trevelyan, W. E., D. P. Proctor and J. S. Harrison. 1950. Detection of sugar on paper chromatograms. *Nature* 166: 444 – 445.

(d) The Japanese abstract page should include a title in Japanese, author names, affiliations and an e-mail address. Japanese text should use commas and periods (, .) rather than Japanese punctuation marks (、 。) .

6. Preparation of figures and tables: All illustrations are treated as figures, not plates. The figures should be prepared at A4 size, with good digital resolution to enable photocomposition. Every figure should be given a number, author name and preferred reduction size (e.g., 100%, 75%), written in pencil on the lower margin of the page front.

Author should first test the designated size using a photocopier and resolve any letter jams, too large margins and/or eccentric width-length proportions. Captions should not be attached to figure or table pages, but must be provided on separate sheets. Black and white figures are printed by default. Figures are printed in colour only if the authors pay an additional page charge.

7. Submission: Authors intending to submit to NHR should inform the Editorial Board by the end of June, and submit 2 hard copies of manuscripts by the end of September. Neither original figures nor electronic files should be sent before final acceptance. Because of the wide range of topics covered by NHR, authors should suggest 2 – 3 external referees who are close to the research field, but are not acknowledged in the manuscript. A separate sheet should include the names, affiliations and e-mail addresses of the suggested referees.

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9. Final manuscript: Electronic files must be submitted after the acceptance notice. An e-mail submission is recommended. File types should be Word or RTF for text, JPEG or TIFF for figures and Excel for tables. Hand-drawn or non-JPEG figures may be submitted as hard copies.

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