

A new species of the genus *Perotripus* (Crustacea: Amphipoda: Caprellidae) from Korea

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From an examination of caprellid specimens collected from Korea, we found a new species belonging to the genus *Perotripus*. This new species is clearly distinguished from two previously recorded species, *P. brevis* and *P. keablei*, in having an acute projection and blunt apex of distal segment of pereopod 5. This genus *Perotripus* is reported from Korea for the first time. We described it with figures in detail. As a result, Korean caprellid fauna consists of 35 species in seven genera.

Keywords: *Perotripus*; Amphipoda; Caprellidae; Korea

Since Mayer's first report (1903), there have been continuous studies on the Korean caprellid fauna (from Kim and Lee 1975, 1978; Lee and Kim 1980; Lee 1986, 1988; Lee and Lee 1993, 1996; Lee and Eun 2002; Kim et al. 2005; Lee and Hong 2008). Recently, as a part of the continuous study of the Korean caprellid fauna, we have investigated specimens collected by SCUBA diving from three localities, which are located near the Jejudo Island and in the South Sea. As a result, we found one new species of the genus *Perotripus* (Dougherty and Steinberg 1953) in these localities. The genus *Perotripus* is a rare caprellid in the world. To date, only two species have been reported: *Perotripus brevis* (La Follete 1915) from Laguna Beach, California, USA, and *Perotripus keablei* (Guerra-García 2006) from Lizard Island, Queensland, Australia. It can be distinguished from the other genera of the subfamily Phtisicinae: the antenna 2 has no swimming setae, the flagellum is 2-articulated; mandibular palp is 3-articulated with one terminal seta, the molar is absent; the outer lobe of maxilliped is equal to or larger than the inner lobe, and both are minute; the gills have on pereonites 2–4; pereopod 3 is 3-articulated; pereopod 4 is unarticulated; pereopod 5 is 3-articulated; the abdomen of the male has a pair of segmented appendages (Laubitz 1970).

Materials and methods

We collected specimens from off the coast of Beomseom Island near Jejudo Island, Damuraemi Island in the Chuja Archipelagos, and Geomundo Island in the South Sea by SCUBA diving (Figure 1). The specimens were fixed in 80% ethyl alcohol and dissected in mixed

solution (mainly glycerin with some lactic acid with added lignin pink) on Cobb's aluminum hollow slide. Drawings and measurements were performed with the aid of a drawing tube for the identification and classification of the specimens. We referred to reports, such as those of La Follete (1915), Dougherty and Steinberg (1953), Laubitz (1970), and Guerra-García (2006), to identify and classify the specimens. Type specimens will be deposited in the National Institute of Biological Resources, Incheon, Korea. Dissected paratypes (5♂♂, 5♀♀) and other specimens are deposited in the Department of Life Science, College of Advanced Sciences, Dankook University.

Taxonomic accounts

Order Amphipoda Latreille, 1816

Suborder Caprellidea, Leach, 1814

Family Caprellidae Leach, 1814

Subfamily Phtisicinae Vassilenko, 1968

Genus *Perotripus* Dougherty and Steinberg, 1953

***Perotripus koreanus* n. sp. (Figure 1–3)**

Material examined. Holotype (♂, Cap. 01) and paratype (♀, Cap. 02), Damuraemi Is. (33° 57' 51"N., 126° 17' 11"E.), 15 Nov. 2008, collected by Y.H. Kim by SCUBA diving from 9 m in depth. They will be deposited with National Institute of Biological Resources. Dissected paratypes (5♂♂, 5♀♀) collected with the holotype and other specimens are retained in the collection of the authors; 3♂♂, 1♀, 2 juvs ♀♀ Beomseom Is. (33° 12' 58"N., 126° 30' 48"E.), 3 Sep. 2008, collected by Y.H. Kim by SCUBA diving from 18.5 m in depth; 60♂♂, 34♀♀, 24 juv., same locality as

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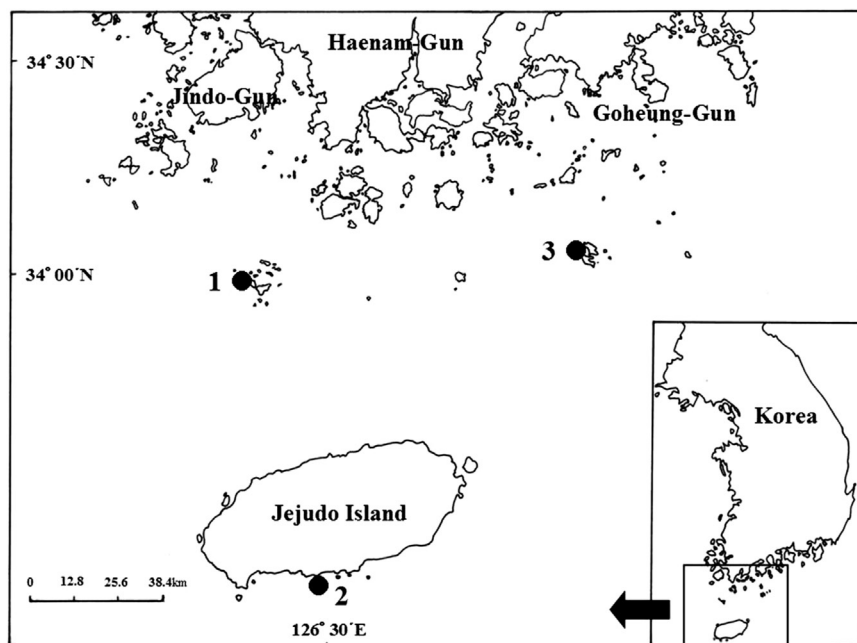


Figure 1. A map of collecting sites. 1, Damuraemi Island Chuja Archipelagos; 2, Beomseom Island Jeju Island; 3, Geomundo Island South Sea.

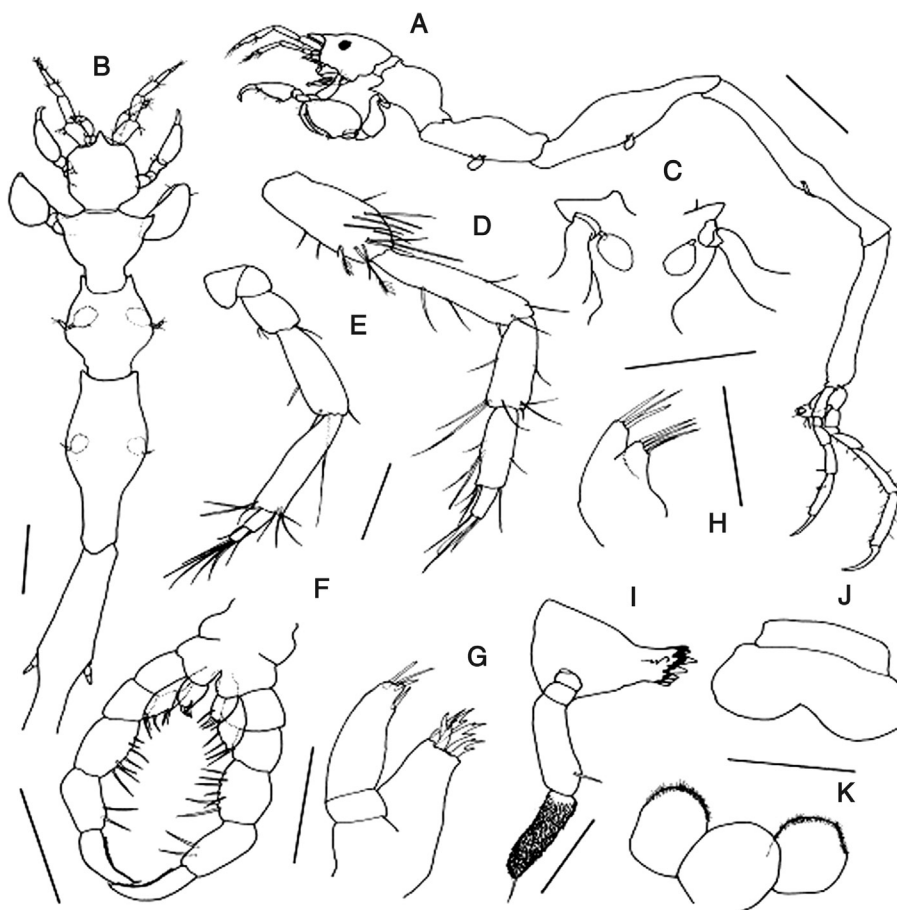


Figure 2. *Perotripus koreanus* n. sp., male, 5.6 mm: A, habitus, lateral view; B, dorsal view; C, pereonite 2, ventral view; D, antenna 1; E, antenna 2; F, maxilliped; G, maxilla 1; H, maxilla 2; I, mandible; J, upper lip; K, lower lip. Scale bars = 0.5 mm (A), 0.4 mm (B), 0.2 mm (C), 0.1 mm (D–F), 0.05 mm (G–K).

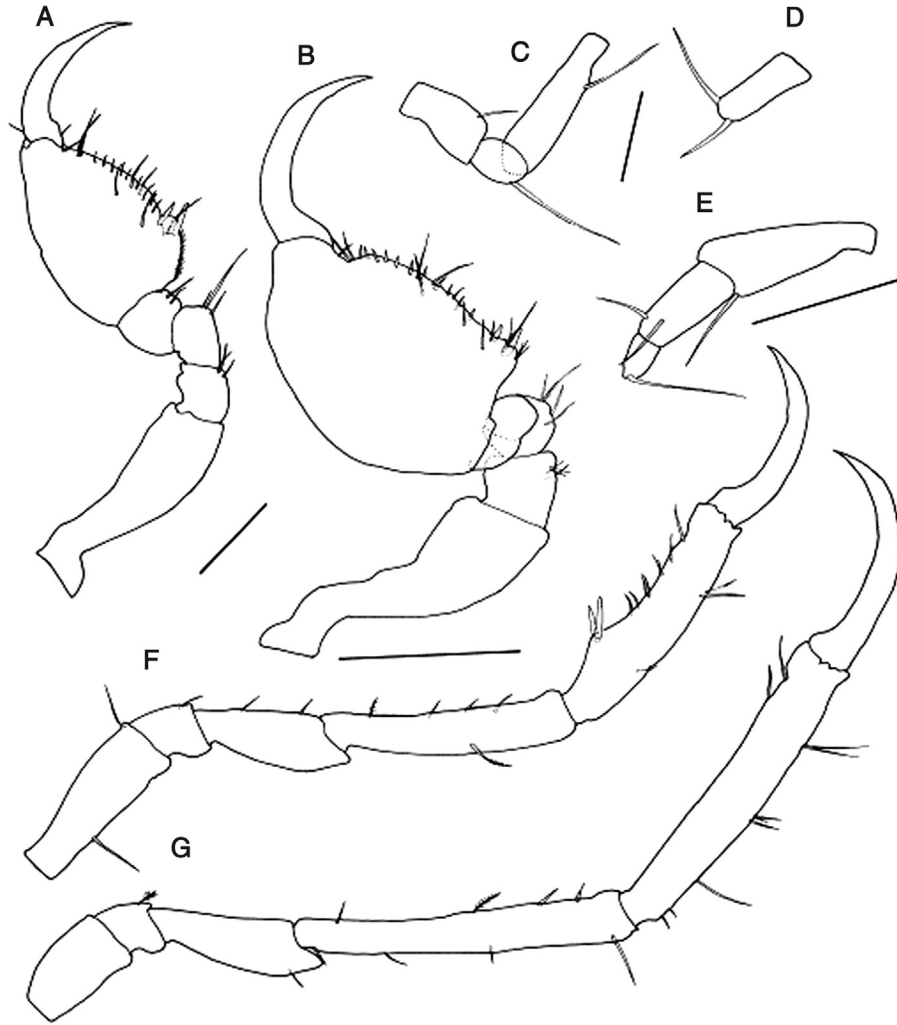


Figure 3. *Perotripus koreanus* n. sp., male, 5.6 mm: A, gnathopod 1; B, gnathopod 2; C, pereopod 3; D, pereopod 4; E, pereopod 5; F, pereopod 6; G, pereopod 7. Scale bars = 0.2 mm (F, G), 0.1 mm (A, B), 0.05 mm (E), 0.025 mm (C, D).

the holotype; 13♂, 1♀, 1 juv. ♀, Geomundo Is. (34° 03' 09"N., 127° 16' 35"E.), 16 Apr. 2009, collected by Y.H. Kim by SCUBA diving from 25 m in depth.

Description. Male. Body (Figure 2A) length about 5.6 mm, slender. Surface of body smooth. Length ratio of pereonites segments 2–7 = 0.37: 0.43: 0.79: 1.00: 0.77: 0.14.

Head, moderately large, mainly rounded with acute projection anteriorly. Pereonite 2 (Figure 2A,B) with a pair of anterolateral sharp-edged projections. Pereonites 3 and 4 sculptured with lateral projections. Pereonites 4–6 more elongate than any other pereonites, respectively. Gills (Figure 2A,C) on pereonites 2–4 and oval in form, length about 1/2 as long as wide: pereonite 2, above basis of gnathopod 2 in ventral part; pereonites 3 and 4 on normal position.

Antenna 1 (Figure 2D), about 1/10 as long as body length, peduncle 3-joints, flagellum 2-articulated;

distoventral margin of first peduncle with 2 plumose setae. Antenna 2 (Figure 2E), about 1/2 as long as antenna 1, flagellum 2-articulated; swimming setae absent.

Maxilliped (Figure 2F), inner lobe with three long setae apically; outer lobe 1-segmented, with three simple setae on distal margin; palp 4-articulated, inner marginal edge of dactylus with many small serratulations and a sharp projection apically.

Maxilla 1 (Figure 2G), inner lobe absent, outer lobe with three bicuspidate and two tricuspidate setal teeth apically; palp biarticulate, distal article with three apical and one subapical setae.

Maxilla 2 (Figure 2H), inner lobe with four simple setae distally; outer lobe about 1.2 times as long as inner lobe, with three apical setae.

Right mandible (Figure 2I), incisor 7-teethed, lacinia mobilis separated three small teeth, palp 4-articulated, third article with one simple seta

subdistally and terminal article with one simple seta apically and surface with patch of pubescence.

Upper lip (Figure 2J), symmetrically bilobed, smooth apically.

Lower lip (Figure 2K), inner lobes fused, forming a semicircular plate; outer lobe with some setules apically.

Gnathopod 1 (Figure 3A), basis slightly longer than ischium, merus, and carpus combined; propodus, oval form 1.6 times as long as wide, palm oblique, with some setae marginally, and two spines at ventroproximal corner; dactylus elongate and slightly curved, smooth.

Gnathopod 2 (Figure 3B), ischium rectangular; merus rounded; propodus 1.5 times as long as wide, oval form, palm with 10 small spines and some setae distally to medially, and two spines at

ventroproximal margin; dactylus elongate and slightly curved, smooth.

Pereopod 3 (Figure 3C), small, 3-articulated and attached at base of gill, length ratio of segments 1–3 = 0.52: 0.31: 1.00; first segment with one short seta distally, second segment with one long seta subapically, terminal segment with one simple seta, apex of terminal segment blunt.

Pereopod 4 (Figure 3D), unarticulate and attached at base of gill, with two distal setae unequal in length.

Pereopod 5 (Figure 3E), 3-articulated, length ratio of segments 1–3 = 1.00: 0.62: 0.29; proximal segment with one long seta distally, second segment with two setae, distal segment with one long terminal seta, apex of terminal segment blunt.

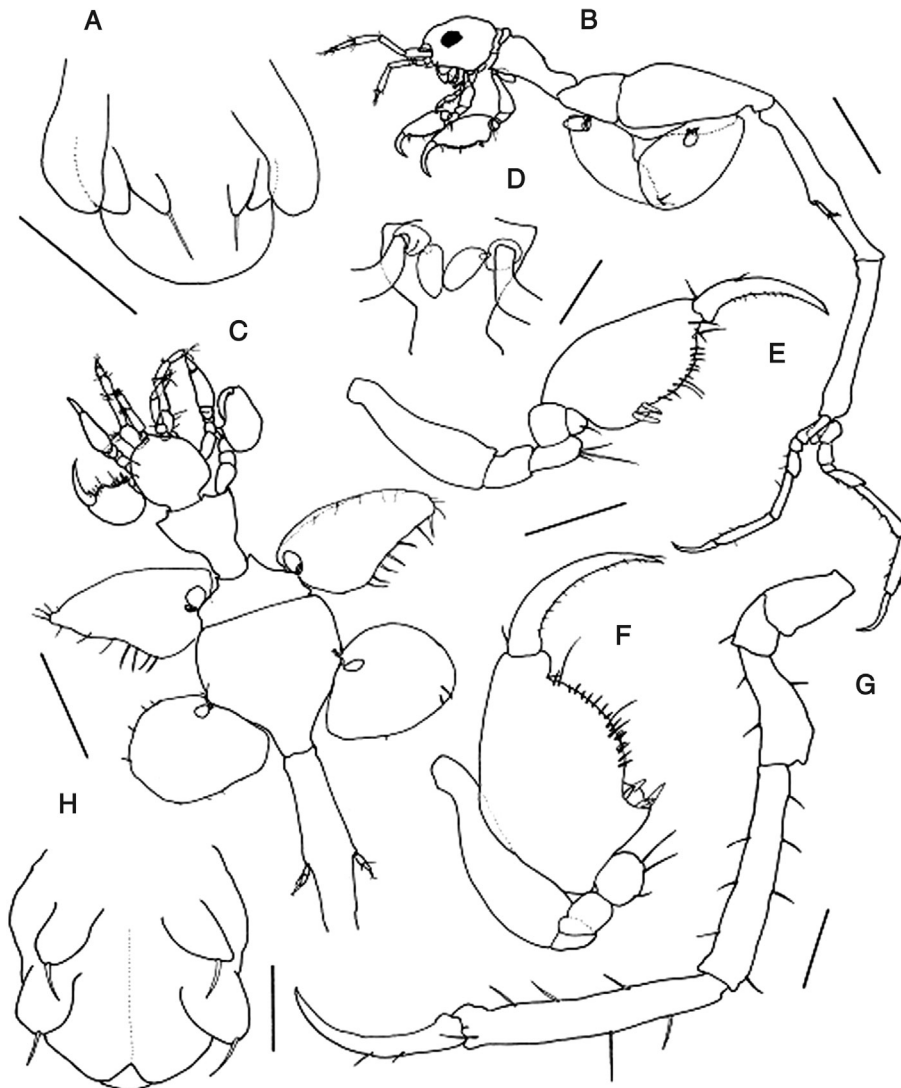


Figure 4. *Perotripus koreanus* n. sp., male, 5.6 mm: A, abdomen. Female, 4.2 mm: B, habitus, lateral view; C, dorsal view; D, ventral view, pereonite 2; E, gnathopod 1; F, gnathopod 2; G, pereopod 6; H, abdomen. Scale bars = 0.5 mm (B, C), 0.25 mm (D), 0.1 mm (E–G), 0.05 mm (A), 0.025 mm (H).

Table 1. Character comparison of the genus *Perotripus* species.

Characters	Species		
	<i>P. brevis</i>	<i>P. keablei</i>	<i>P. koreanus</i> n. sp.
Head	no projection	no projection	acute projection
Antero-lateral projection of pereonite 2	sculptured	Rounded	sharp-edged
No. of segments of pereopod 3	3	1	3
Distal segment of pereopod 5	claw	claw	blunt
Propodus of pereopod 6 in male	no well-defined palmar surface	palm straight with one long spine and 3 small spines posterodistal corner	palm concave slightly with a pair of robust grasping spines at posteroproximal corner

Pereopod 6 (Figure 3F), 6-articulated, length ratio of segments 1–6 = 0.17: 0.06: 0.11: 0.22: 0.25: 0.19; carpus with one short plumose seta ventrally and one moderately long plumose seta dorsally; propodus slightly concave, with a pair of robust grasping spines at strongly pointed proximally and some short setae medially.

Pereopod 7 (Figure 3G), 6-articulated, length ratio of segments 1–6 = 0.09: 0.04: 0.11: 0.27: 0.29: 0.19; ischium with a short distal plumose seta; carpus with a short medial plumose seta; propodus straight, without spines, with two distal setae at ventral margin, five short and three setae dorsally.

Abdomen (Figure 4A), penes positioned laterally, large, 2.5 times as long as wide; a pair of lateral lobes each with a long seta and one dorsal lobe.

Female. Body (Figure 4B) length about 4.2 mm. Surface of body smooth. Length ratio of pereonites 2–7 = 0.42: 0.24: 0.75: 1.00: 0.92: 0.13.

Head, pereonite 2, gills and pereopods 3–5 (Figure 4B–D) similar to male, but projection of head slightly shorter and anterolateral sharp-edged projections of pereonite 2 smaller than male relatively. The lamellum of the brood pouch on pereonite 3 (Figure 4C) with 15 setae, that of pereonite 4 with four short setae marginally.

Gnathopod 1 (Figure 4E), similar to male, but dactylus with some short setules on ventral margin.

Gnathopod 2 (Figure 4F), similar to male, but palm of propodus delimited by four spines.

Pereopod 6 (Figure 4G), similar to male, but propodus straight and without grasping spine at strongly pointed proximally. Pereopod 7, similar to male.

Abdomen (Figure 4H), two pairs of lateral lobes each with a long setae and one dorsal lobe.

Remarks. We compared the taxonomic characters of our specimens with two other congeners belonging to

the genus (*Perotripus brevis* and *P. keablei*). Mostly, they had common generic characters in the 2-articulate flagellum of antenna 1 and the striking shape of the body, especially in males, with long pereonites 5 and 6. Nevertheless, our specimens distinctly differed from these species: (1) the head had an acute projection, (2) the pereonite 2 had a sharp-edged projection at the anterolateral corner, (3) the shape of pereopod 5 was blunt, and (4) the propodus of pereopod 6 had a slightly concave palmar surface and a pair of robust grasping spines at posteroproximal corner. Details are as given in Table 1. According to the comparison of some characters among the above three species, we recognized that these specimens belong to a new species.

Etymology. The species is named *koreanus*, and is named from the Republic of Korea, the country where the type locality of the new species is situated.

Acknowledgements

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