

## Six Pandalid Shrimps of the Genus *Plesionika* (Crustacea: Decapoda: Caridea) in Korea

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### ABSTRACT

Based on samples collected from the Korean Exclusive Economic Zone (EEZ) during an investigation of fishery resources by the National Fisheries Research and Development Institute (NFRDI) from 2002 to 2010, alongside some supplemental material, six species of the genus *Plesionika* are identified: *P. izumiae* Omori, 1971, *P. ortmanni* Doflein, 1902, *P. grandis* Doflein, 1902, *P. lophotes* Chace, 1985, *P. narval* (Fabricius, 1787), and *P. orientalis* Chace, 1985. Of these, the last four species are new to Korean marine fauna. The distributional range of *P. narval* extends to the East China Sea off Jeju Island. Excluding *P. izumiae* and *P. ortmanni*, the other four species are relatively rare in the seas around Korea. They are described and illustrated with color photographs. A key to the Korean species of *Plesionika* is also presented.

**Keywords:** *Plesionika grandis*, *Plesionika izumiae*, *Plesionika lophotes*, *Plesionika narval*, *Plesionika orientalis*, *Plesionika ortmanni*, Pandalidae, Korea

### INTRODUCTION

The genus *Plesionika* includes 92 species, which are most abundant in the family Pandalidae (see De Grave and Fransen, 2011). *Plesionika* shrimps occur in virtually all tropical and subtropical waters and in some temperate seas (Chace, 1985), but most species of the genus can be found in the Indo-West Pacific (Li, 2006b). In Korean waters, only two species, *Plesionika izumiae* Omori, 1971 and *P. ortmanni* Doflein, 1902 have been previously reported (Cha et al., 2001).

Recently, the National Fisheries Research and Development Institute (NFRDI) carried out a number of expeditions to investigate fishery resources in the Korean Exclusive Economic Zone (EEZ in 2001-2010). Six species of *Plesionika*, *P. grandis* Doflein, 1902, *P. izumiae* Omori, 1971, *P. lophotes* Chace, 1985, *P. narval* (Fabricius, 1787), *P. orientalis* Chace, 1985, and *P. ortmanni* Doflein, 1902, were collected close to Jeju Island, Korea. Excluding *P. izumiae* and *P. ortmanni*, these are rare in Korean waters, particularly *P. narval*, of which this was the first record from the East China Sea. This report was to provide morphological descriptions and color-

ed illustrations for these six species of *Plesionika*. A key was provided for their identification.

### MATERIALS AND METHODS

The specimens examined in this study were deposited in the NFRDI. The sampling data for the *Plesionika* species are shown in Table 1. Sampling gear comprised bottom otter trawls (mesh size at the cod end 0.98 × 0.98 mm). A net with otter boards was towed during daytime for 30-60 min at a mean 3.4 knot. All the samples were frozen on board shortly after capture and maintained at -80°C until laboratory identification. Before identification, photographs were taken of samples, which were then preserved with 70-90% ethyl alcohol.

Carapace length (CL), which measures from the posterior margin of the orbit to the posterior middorsal margin of the carapace, is used to indicate the size of the specimens. The terminology used within descriptions mainly follows that of Chace (1985). Species are arranged in alphabetical order.

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**Table 1.** List of sampling data for the *Plesionika* species addressed

Station	Position	Depth (m)	Date	Ship
2002 I-Tr-8	32° 59.9'N, 124° 26.0'E	65	Mar 14, 2002	RV <i>Tamgu 1</i>
2002 II-Tr-11	33° 04.3'N, 125° 30.3'E	95	Oct 29, 2002	RV <i>Tamgu 1</i>
2003 I-Tr-4	34° 00.1'N, 123° 11.9'E	68	Mar 23, 2003	RV <i>Tamgu 1</i>
2003 I-Tr-12	33° 41.3'N, 126° 34.1'E	123	Apr 3, 2003	RV <i>Tamgu 1</i>
2003 I-Tr-13	33° 14.8'N, 127° 29.4'E	142	Apr 5, 2003	RV <i>Tamgu 1</i>
2003 II #243	32° 57.0'N, 126° 36.1'E	100	Dec 3, 2003	RV <i>Tamgu 1</i>
2004 I #232	33° 04.2'N, 126° 14.4'E	111	Apr 24, 2004	RV <i>Tamgu 1</i>
2004 I #239	32° 47.3'N, 124° 49.5'E	66	Apr 18, 2004	RV <i>Tamgu 1</i>
2004 II #243	32° 48.5'N, 126° 40.4'E	117	Oct 27, 2004	RV <i>Tamgu 1</i>
2007 II #221	33° 44.3'N, 125° 45.6'E	92	Oct 3, 2007	RV <i>Tamgu 1</i>
2007 II #232	33° 01.5'N, 126° 16.3'E	105	Oct 15, 2007	RV <i>Tamgu 1</i>
2008 I #229	33° 15.4'N, 124° 43.7'E	71	Apr 21, 2008	RV <i>Tamgu 1</i>
2010 II #220	33° 43.5'N, 125° 18.7'E	100	Nov 13, 2010	RV <i>Tamgu 20</i>

## SYSTEMATIC ACCOUNTS

Order Decapoda Latreille, 1802  
 Infraorder Caridea Dana, 1852  
 Family Pandalidae Haworth, 1825  
 Genus *Plesionika* Bate, 1888

### <sup>1</sup>\**Plesionika grandis* Doflein, 1902 (Figs. 1, 7A)

*Plesionika spinipes* var. *grandis* Doflein, 1902: 618, Pl. 3, figs. 3-5 (type locality: Japan, Sagami Bay).

*Parapandalus spinipes*: De Man, 1920: 142, Pl. 12, fig. 33a, c-e, Pl. 13, fig. 33, 33b (non Bate, 1888).

*Plesionika grandis*: Chace, 1985: 66, figs. 28, 29; Hayashi, 1986: 133, 271, fig. 83; Chan and Crosnier, 1991: 423, figs. 3f, 22; Hanamura and Evans, 1996: 12; Li and Komai, 2003: 260; Li, 2006a: 369; 2006c: 1285, fig. 2; Li and Davie, 2006: 160, fig. 4.

**Material examined.** Korea: Jeju-do: 1 ♂ (CL 19.8 mm), 1 ♀ (CL 14.5 mm), 2 ovig. ♀♀ (CL 21.0, 22.0 mm), 2003 I-Tr-13, east of Jeju Island, 5 Apr 2003; 1 ♂ (CL 19.8 mm), 2004 II #243, south of Jeju Island, 27 Oct 2004; 2 ovig. ♀♀ (CL 19.6, 19.7 mm), 2007 II #221, northwest of Jeju Island, 3 Oct 2007.

**Supplemental material.** Korea: Busan: 1 ovig. ♀ (CL 20.5 mm), off Dadaepo, shrimp trawl, 11 Mar 2009; 1 ♂ (CL 16.0 mm), off Dadaepo, shrimp trawl, 3 Aug 2010.

**Description.** Rostrum (Fig. 1A) moderately curving dorsally, 1.4-1.7 times as long as carapace; dorsal margin with 37-44 teeth, including 6 on carapace, 2 posteriormost teeth with distinct basal sutures; ventral margin with 21-24 teeth. Carapace (Fig. 1A) with orbital margin slightly convex in ventral part, regularly concave elsewhere; antennal spine strong, pte-

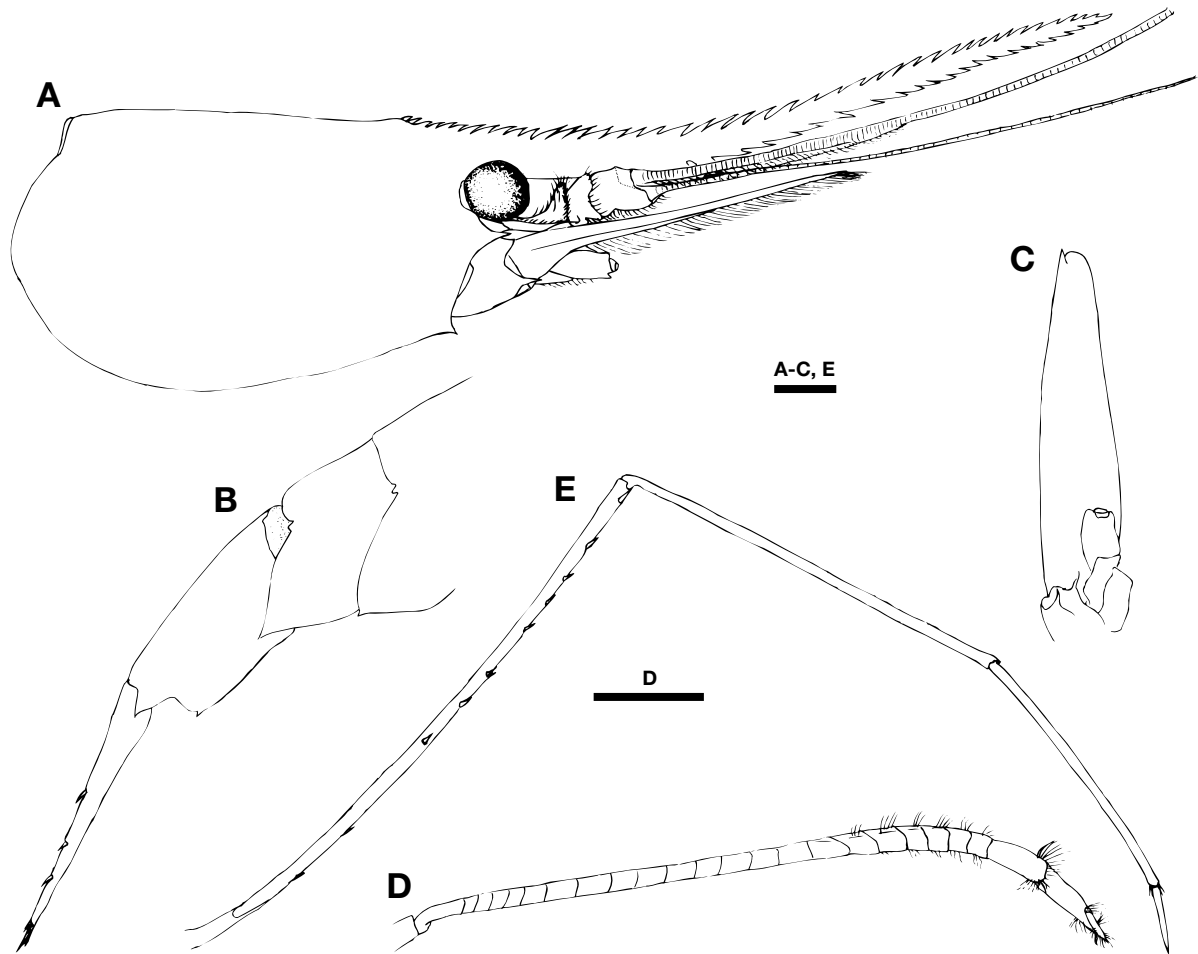
rygostomian spine weak. Abdomen (Fig. 1B) smooth and rounded dorsally; pleura of fourth and fifth somites each with posteroventral tooth; sixth somite 1.7-1.9 times as long as maximum height. Telson (Fig. 1B) usually 1.3-1.4 times as long as sixth abdominal somite, with 3 pairs of small dorso-lateral spines; posterior margin ending in minute median tooth, bearing 3 pairs of marginal spines. Eye (Fig. 7A) sub-pyriform, maximum diameter more or less than 0.2 carapace length; cornea broader than eyestalk. Antennular peduncle (Fig. 1A) with stylocerite acute, barely overreaching distal margin of first antennular segment. Antennal scale (Fig. 1C) 3.9-4.1 times as long as wide; distolateral tooth overreaching rounded blade. Third maxilliped slender, overreaching distal margin of antennal scale by entire ultimate segment and anterior 0.1 penultimate segment, without epipod; penultimate segment 1.6 times as long as ultimate segment. Pereopods without epipods, not extremely slender or thread-like. Second pereopods (Fig. 1D) subequal; carpi with 22-23 articles. Third pereopod (Fig. 1E) overreaching antennal scale by slightly more than lengths of distal 3 segments; dactylus usually about 0.2-0.3 times as long as propodus; 3 distal segments combined 1.4-1.9 times as long as carapace; merus with 11-13 lateral and 4-5 ventral spines.

**Coloration.** Body generally pinkish and slightly transparent, with 4 very narrow longitudinal red stripes on abdomen, 3 oblique on carapace, branchial region of carapace deep red; rostrum pinkish with margins red; pereopods with proximal segments somewhat whitish but becoming red distally (Fig. 7A).

**Distribution.** Indo-West Pacific: Korea, Japan, East and South China seas, Philippines, Indonesia, northwestern Australia, Zanzibar area of eastern Africa and Madagascar; 92-375 m.

**Remarks.** This species is a member of the *Plesionika narval*

Korean name: <sup>1</sup>\*줄무늬꼬마도화새우 (신칭)



**Fig. 1.** *Plesionika grandis* Doflein, 1902. Ovigerous female (carapace length 20.5 mm) from Busan. A, Carapace and cephalic appendages, lateral; B, Fourth to sixth abdominal somites and telson, lateral; C, Right antennal scale, ventral; D, Right second pereopod, lateral; E, Right third pereopod, lateral. Scale bars: A-E=2 mm.

species-group that was revised by Chan and Crosnier (1991). The species-group is characterized by the rostrum being very long and armed with numerous closely set teeth along almost the entire length of both margins. They also subdivided the species-group into two subgroups (namely the “*spinipes*” subgroup and the “*narval*” subgroup) by the presence or absence of a posteroventral tooth of the fifth abdominal pleuron. Based on this classification, *P. grandis* belongs to the “*spinipes*” subgroup.

<sup>1</sup>\**Plesionika izumiae* Omori, 1971 (Figs. 2, 7B)

*Plesionika izumiae* Omori, 1971: 242, Pl. 1, figs. 1-4, 6-12 (type locality: Japan, Honshu, Suruga Bay, off Abe River, 45 m); Hayashi and Koike, 1976: 47, figs. 1a-e, 2; Hayashi, 1986: 133, 271, fig. 84; Cha et al., 2001: 136, 2 unnum-

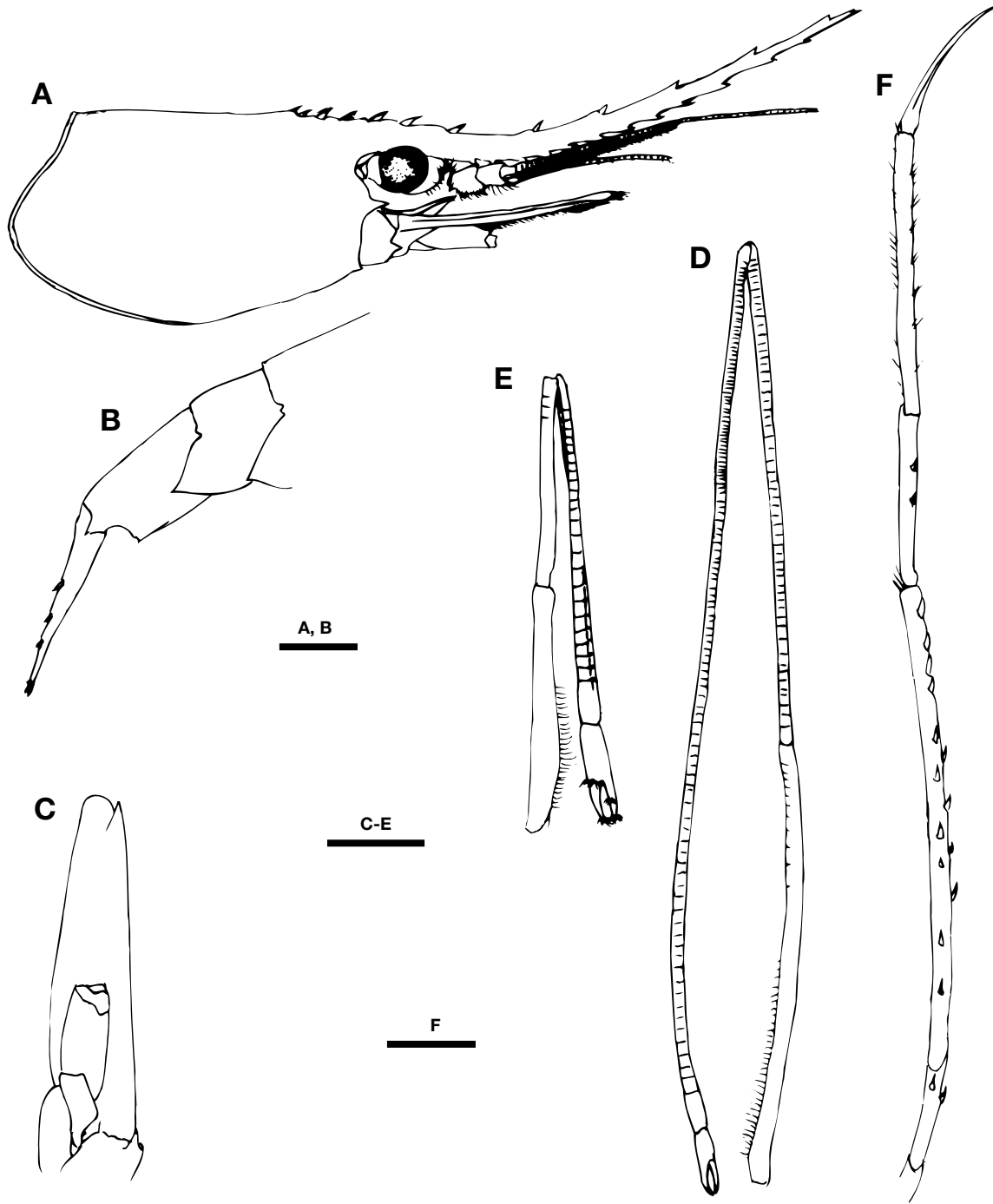
bered figs.; Li and Komai, 2003: 261; Li, 2006a: 369; 2006b: 109, figs. 1-3; 2006c: 1286; 2007: 703; Li and Davie, 2006: 160.

*Plesionika izumiae*?: Chace, 1985: 75, fig. 34.

**Material examined.** Korea: Jeju-do: 1 ovig. ♀ (CL 12.1 mm), 2002 I-Tr-8, west of Jeju Island, 14 Mar 2002; 2 ♀♀ (CL 7.2, 7.2 mm), 2003 I-Tr-4, west of Jeju Island, 23 Mar 2003.

**Description.** Rostrum (Fig. 2A) noticeably curving dorsally, 1.5-1.7 times as long as carapace; dorsal margin with 11-13 teeth, including 4 on carapace, 5-7 posteriormost teeth movable; ventral margin with 13-14 teeth. Carapace (Fig. 2A) with orbital margin convex in ventral part, rather regularly concave in dorsal half; strong antennal and weak pterygos-

Korean name: <sup>1</sup>\*점박이꼬마도화새우



**Fig. 2.** *Plesionika izumiae* Omori, 1971. A-E, Ovigerous female (carapace length 12.1 mm) from the West of Jeju Island; F, Female (carapace length 7.2 mm) from the West of Jeju Island. A, Carapace and cephalic appendages, lateral; B, Fourth to sixth abdominal somites and telson, lateral; C, Left antennal scale, ventral; D, Left second pereopod, lateral; E, Same, right; F, Right third pereopod, lateral. Scale bars: A-E=2 mm, F=1 mm.

tomian spines present. Abdomen (Fig. 2B) rounded dorsally; pleura of fourth and fifth somites with posteroventral tooth; sixth somite 1.7 times as long as maximum height. Telson

(Fig. 2B) 1.4 times as long as sixth abdominal somite, with 3 pairs of dorsolateral spinules, posterior margin with 3 pairs of spines. Eye (Fig. 2A) moderately large, maximum diame-

ter about 0.2 carapace length. Antennular peduncle (Fig. 2A) with stylocerite sharp, reaching distal margin of first antennular segment. Antennal scale (Fig. 2C) 4.2 times as long as wide, distolateral tooth falling distinctly short of distal margin of blade. Third maxilliped overreaching antennal scale by half of ultimate segment, penultimate segment 0.7 as long as ultimate segment, with epipod. Pereopods with prominent epipods on 4 anterior pairs; not extremely slender or thread-like. Second pereopods very unequal; left (Fig. 2D) overreaching antennal scale by distal 3 segments, with 83-117 carpal articles; right (Fig. 2E) reaching distal margin of antennal scale, with 18-24 carpal articles. Third pereopod (Fig. 2F) overreaching antennal scale by dactylus and half of propodus; dactylus about 0.5 times as long as propodus; 3 distal segments combined nearly 1.3 times as long as carapace; merus with 10-12 lateral and 4-8 ventral spines.

**Coloration.** Body light reddish brown, red bands on branchial region of carapace, dorsal part of third abdominal somite, margins of first and third abdominal pleura (Fig. 7B).

**Distribution.** Korea, Japan, South and East China seas, Philippines; 17-300 m.

**Remarks.** This species is very common in the East China Sea and the northern part of the South China Sea and adjacent waters (Li, 2006b).

<sup>1</sup>\**Plesionika lophotes* Chace, 1985 (Figs. 3, 7C)

*Plesionika binoculus*: De Man, 1920: 134, Pl. 12, fig. 30; Hayashi and Koike, 1976: 47, fig. 1a'-e' (non Bate, 1888). *Plesionika lophotes* Chace, 1985: 81, fig. 37 (type locality: Samar Sea between southeastern Masbate and Almagro Island, Philippines, 11° 57' 27" N, 124° 10' 42" E, 245 m); Hayashi, 1986: 135, 272, fig. 85; Hanamura and Takeda, 1987: 111; Miyake, 1998: 61, Pl. 21, fig. 3; Chan, 2004: 307, figs. 6, 15.

**Material examined.** Korea: Jeju-do: 1 ovig. ♀ (CL 16.5 mm), 2004 II #243, south of Jeju Island, 27 Oct 2004; 1 ovig. ♀ (CL 22.8 mm), 2007 II #232, west of Jeju Island, 15 Oct 2007.

**Description.** Rostrum (Fig. 3A) remarkably curving dorsally, 1.5 times as long as carapace; dorsal margin with 14 teeth, including 5-6 on carapace, all teeth on carapace with distinct basal sutures and movable; ventral margin with 13-18 teeth. Carapace (Fig. 3A) with orbital margin convex in ventral part, rather deeply concave posteriorly, become nearly straight dorsally; antennal spine much stronger than pterygostomian spine. Abdomen (Fig. 3B) smooth and rounded dorsally; pleura of fourth and fifth somites with small marginal tooth posteriorly; sixth somite 1.5 times as long as maximum height.

Telson (Fig. 3B) 1.6 times as long as sixth abdominal somite; dorsolateral margin with 4 pairs of small spine; posterior margin with 3 pairs of spines. Eye (Fig. 3A) broadly subpyriform, maximum diameter about 0.2 carapace length, Antennular peduncle (Fig. 3A) with stylocerite sharply acute, distinctly overreaching distal margin of first antennular segment. Antennal scale about 3.4 times as long as wide, distolateral tooth falling short of distal margin of blade. Third maxilliped overreaching distal margin of antennal scale by half of ultimate segment, with epipod; penultimate segment about 0.7 as long as ultimate segment. Pereopods with epipods on 4 anterior pairs; not extremely slender or thread-like. Second pereopods unequal, left (Fig. 3C) overreaching antennal scale by distal 3 segment and anterior 0.3 of merus, with 147 carpal articles, right (Fig. 3D) overreaching antennal scale by entire chela and anterior 0.7 of carpus, with 40 carpal articles. Third pereopod (Fig. 3E) overreaching antennal scale by dactyl and half of propodus; dactylus about 0.3 times as long as propodus; 3 distal segment combined about 1.1 times as long as carapace; carpus with 3 lateral spines; merus 12 lateral and 6 ventral spines.

**Coloration.** Body light reddish orange, with large red circles margined by white on third abdominal somite; carapace and anterior abdomen with scattered white dots; thoracic appendages, antennular and antennal flagella with bands of red and white (Fig. 7C).

**Distribution.** Indo-West Pacific: Korea, Japan, Philippines, Vietnam, Madagascar, southern Arabia, South Africa; 105-329 m.

**Remarks.** Chan (2004) revised the "*P. lophotes*" species group examining two Korean specimens of *P. lophotes* from the southern waters of Jeju Island. The species is characterized by its relatively large body size, very high basal rostral crest, the high number of the rostral teeth along both the dorsal and ventral margins, and the long dactyli on the posterior three pairs of pereopods.

<sup>2</sup>\**Plesionika narval* (Fabricius, 1787) (Figs. 4, 7D)

*Astacus narval* Fabricius, 1787: 331 (type locality: probably Nice, Mediterranean).

*Parapandalus serratifrons*: De Man, 1920: 146, Pl. 12, fig. 34a, c, Pl. 13, fig. 34, 34b, d, e (non Borradaile, 1900).

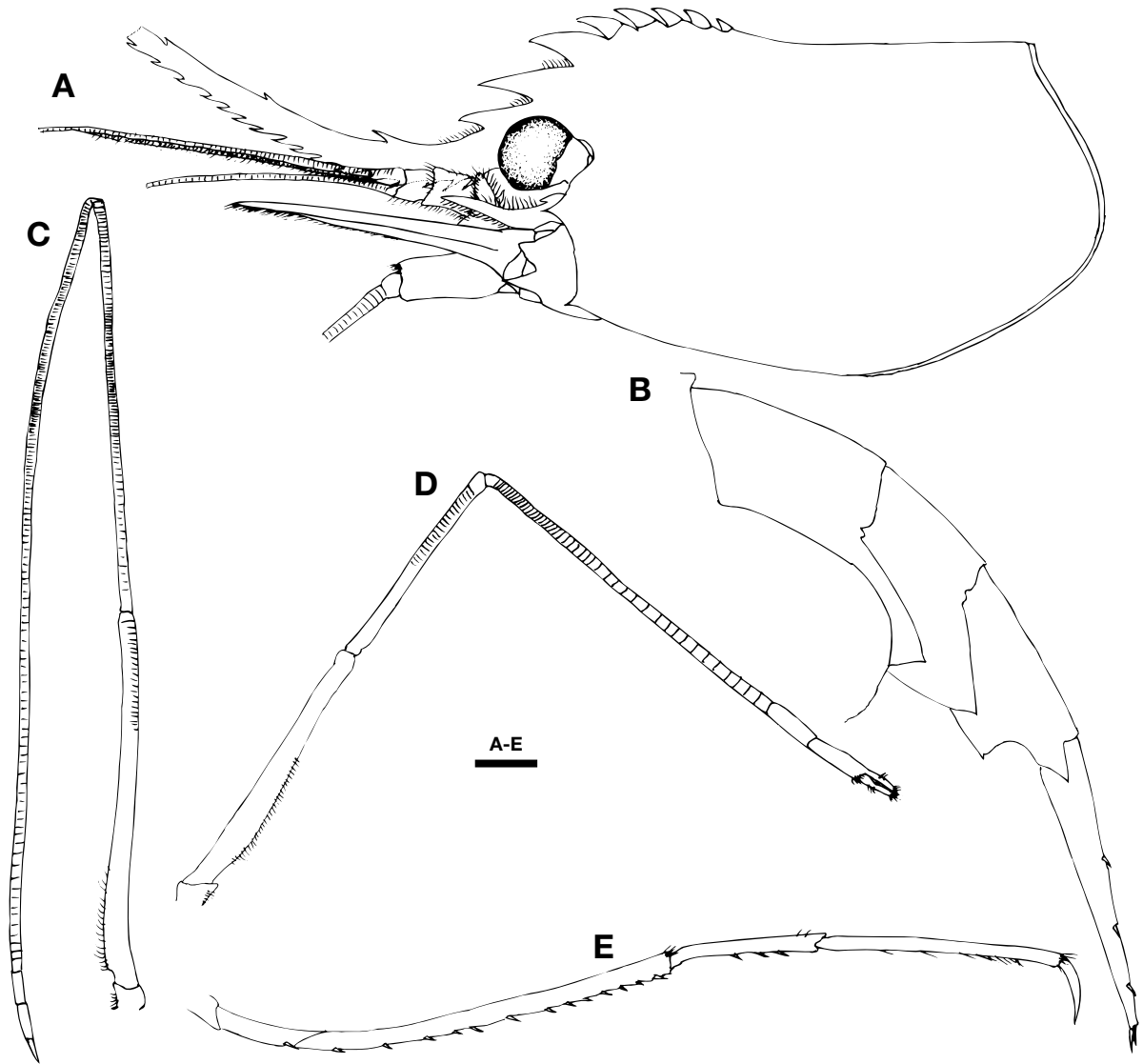
*Parapandalus spinipes*: Kubo, 1965: 611, fig. 958 (non Bate, 1888).

*Parapandalus narval*: Crosnier and Forest, 1973: 221, fig. 69a; Crosnier, 1976: 235, fig. 4b.

*Plesionika serratifrons*: Chace, 1985: 121, figs. 55, 56; Hayashi, 1986: 139, 274, fig. 89 (non Borradaile, 1899).

*Plesionika narval*: Lemaitre and Gore, 1988: 385, figs. 3k-m,

Korean name: <sup>1</sup>\*큰점꼬마도화새우 (신칭), <sup>2</sup>\*흰줄꼬마도화새우 (신칭)



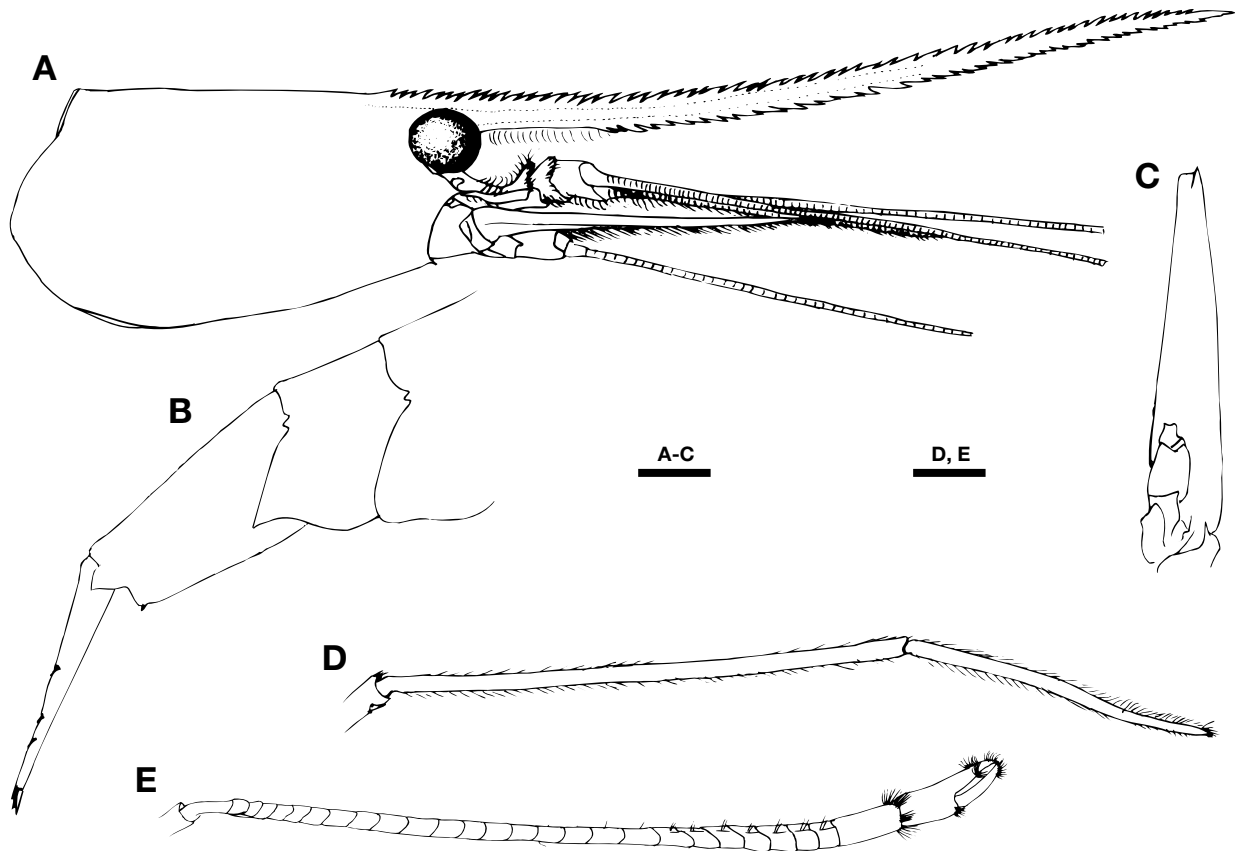
**Fig. 3.** *Plesionika lophotes* Chace, 1985. Ovigerous female (carapace length 22.8 mm) from the West of Jeju Island. A, Carapace and cephalic appendages, lateral; B, Third to sixth abdominal somites and telson, lateral; C, Left second pereopod, lateral; D, Same, right; E, Right third pereopod, lateral. Scale bar: A-E=2 mm.

4; Chan and Crosnier, 1991: 443, figs. 12a-c, 13a, 14a-c, 15a-e, 34-36; Miyake, 1998: 61, Pl. 21, fig. 1; Li and Komai, 2003: 265; Li, 2006a: 370; Li and Davie, 2006: 161.

**Material examined.** Korea: Jeju-do: 1♂ (CL 16.5 mm), 1 ovig. ♀ (CL 15.1 mm), 2004 I #232, south of Jeju Island, 24 Apr 2004; 1♂ (CL 11.3 mm), 2008 I #229, west of Jeju Island, 21 Apr 2008.

**Description.** Rostrum (Fig. 4A) slightly curving dorsally, elongate, 2.2-2.3 times as long as carapace; dorsal margin with 58-60 serrated teeth, including 5 on carapace, all teeth on carapace with distinct basal sutures and movable; ventral margin with 41-44 serrated teeth. Carapace (Fig. 4A) with

orbital margin slightly truncate in dorsal end; strong antennal and weak pterygostomial spines present. Abdomen (Fig. 4B) smooth and rounded dorsally; pleuron of fourth somite rounded, that of fifth somites with small marginal tooth posteriorly; sixth somite 1.8 times as long as maximum height. Telson (Fig. 4B) about 1.1 times as long as sixth abdominal somite; dorsolateral with 3 pairs of dorsolateral spinules, posterior margin with 3 pairs of spines. Eye (Fig. 4A) broadly subpyriform, maximum diameter about 0.2 carapace length. Antennular peduncle (Fig. 4A) with stylocerite tapered anteriorly, falling short of distal margin of first antennular segment. Antennular scale (Fig. 4C) much slender, about 5.4 times as



**Fig. 4.** *Plesionika narval* (Fabricius, 1787). Ovigerous female (carapace length 15.1 mm) from the South of Jeju Island. A, Carapace and cephalic appendages, lateral; B, Fourth to sixth abdominal somites and telson, lateral; C, Left antennal scale, ventral; D, Right third maxilliped, lateral; E, Right second pereopod, lateral. Scale bars: A-C=2 mm, D, E=1 mm.

long as wide, distolateral tooth reaching beyond distal margin of blade. Third maxilliped (Fig. 4D) slender, overreaching distal margin of antennal scale by ultimate segment and anterior 0.2 of penultimate segment, with epipod; penultimate segment about 1.7 as long as ultimate segment. Pereopods without epipod; not extremely slender or thread-like. Second pereopods (Fig. 4E) subequal, overreaching antennal scale by distal 2 segments and half of carpi; carpi with 27-29 articles. Third pereopod overreaching antennal scale by distal 3 segments; merus with 12 lateral and 2-4 ventral spines. Fourth pereopod with merus bearing 13 lateral and 1 ventral teeth. Fifth pereopod with merus bearing 11 lateral and 3 ventral spines.

**Coloration.** Body transparent whitish or somewhat pink-red, with one subdorsal and one lateral red-margined white stripe; rostrum red with margins somewhat paler in color; pereopods red distally and pink proximally (Fig. 7D).

**Distribution.** Indo-West Pacific from Madagascar to Poly-

nesia, Japan, Korea, and Mediterranean, East Atlantic coast from Gibraltar to Cape Verde Islands, South Atlantic, Red Sea; 35-910 m.

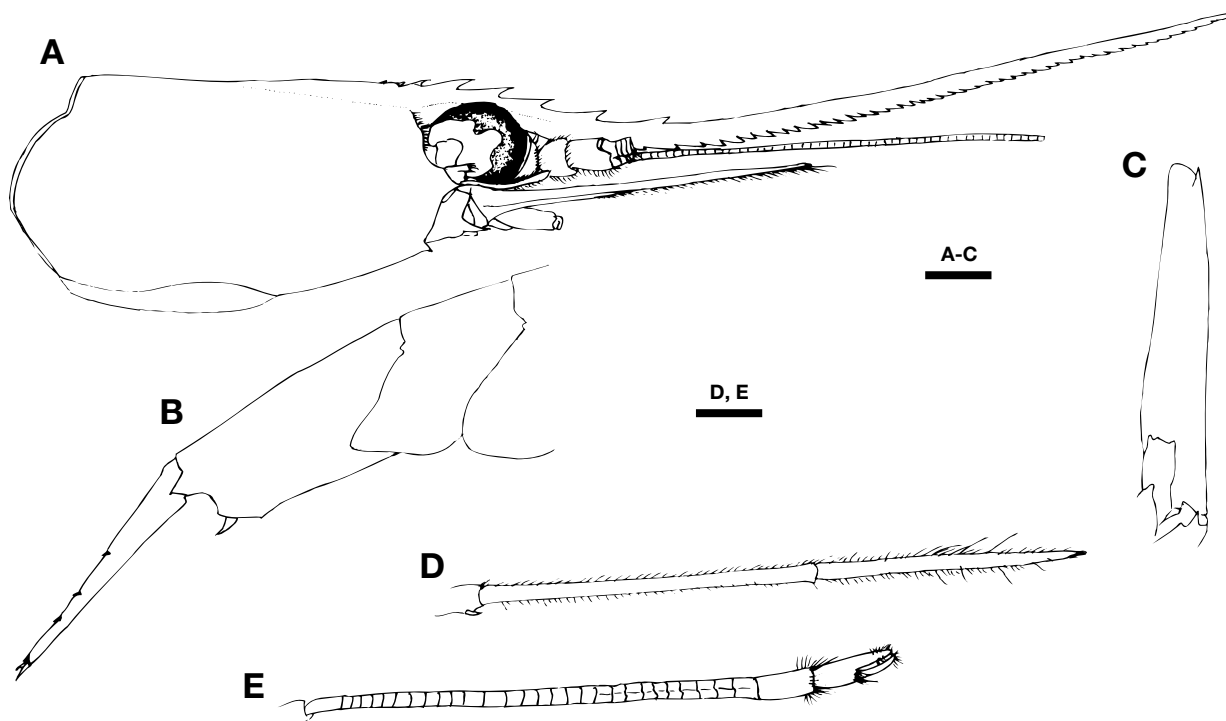
**Remarks.** The present specimens agree with the diagnosis of Chan and Crosnier (1991). This is the first time that *P. narval* has been reported with certainty in the East China Sea as well as Korean waters. *Plesionika narval* differs from the Korean congeners due to following character combination: the closely set teeth and serrate dorsal rostral margin, a marginal tooth on the fourth abdominal pleuron, a strap-like epipod on the third maxilliped, and no epipod on the pereopods.

<sup>1</sup>\**Plesionika orientalis* Chace, 1985 (Figs. 5, 7E)

*Plesionika semilaevis* Bate, 1888: 644 (part).

*Plesionika martia orientalis* Chace, 1985: 84, figs. 38, 39, 53, 54 (type locality: Sulu Archipelago between Jolo and Tavitawi Islands, 5° 48'00"N, 120° 33'45"E, 490 m); Hana-

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**Fig. 5.** *Plesionika orientalis* Chace, 1985. Female (carapace length 17.5 mm) from the West of Jeju Island. A, Carapace and cephalic appendages, lateral; B, Fourth to sixth abdominal somites and telson, lateral; C, Left antennal scale, ventral; D, Right third maxilliped, lateral; E, Right second pereopod, lateral. Scale bars: A-C=2 mm, D, E=1 mm.

mura and Takeda, 1987: 111, fig. 3a, b; Takeda and Hanamura, 1994: 21, fig. 9; Li, 2006b: 115.

*Plesionika orientalis*: Hanamura and Evans, 1996: 14; Li and Davie, 2006: 161; Li, 2006c: 1288, fig. 3.

**Material examined.** Korea: Jeju-do: 1 ♀ (CL 17.5 mm), 2004 I #239, west of Jeju Island, 18 Apr 2004; 1 ♂ (CL 12.0 mm), 2010 II #220, northwest of Jeju Island, 13 Nov 2010.

**Description.** Rostrum (Fig. 5A) moderately curving dorsally, elongate, 2.2 times as long as carapace; dorsal margin, on basal crest only, with 8 teeth, including 3 on carapace, all teeth on partial basal sutures; ventral margin with 42 serrated teeth. Carapace (Fig. 5A) with orbital margin convex in ventral part, nearly vertical posteriorly; antennal and pterygostomian spines prominent. Abdomen (Fig. 5B) smooth and rounded dorsally; pleura of first to fifth somites without distinct marginal tooth or denticle; sixth somite about 2.2 times as long as maximum height. Telson (Fig. 5B) subequal to sixth abdominal somite in length; dorsolateral margin with 3 pairs of spinules; posterior margin with minute median tooth, flanked by 2 pairs of spines. Eye (Fig. 5A) very broadly subpyriform, maximum diameter about 0.25 carapace length. Antennular peduncle (Fig. 5A) with stylocerite bluntly acute, slightly reaching beyond distal margin of first antennular segment.

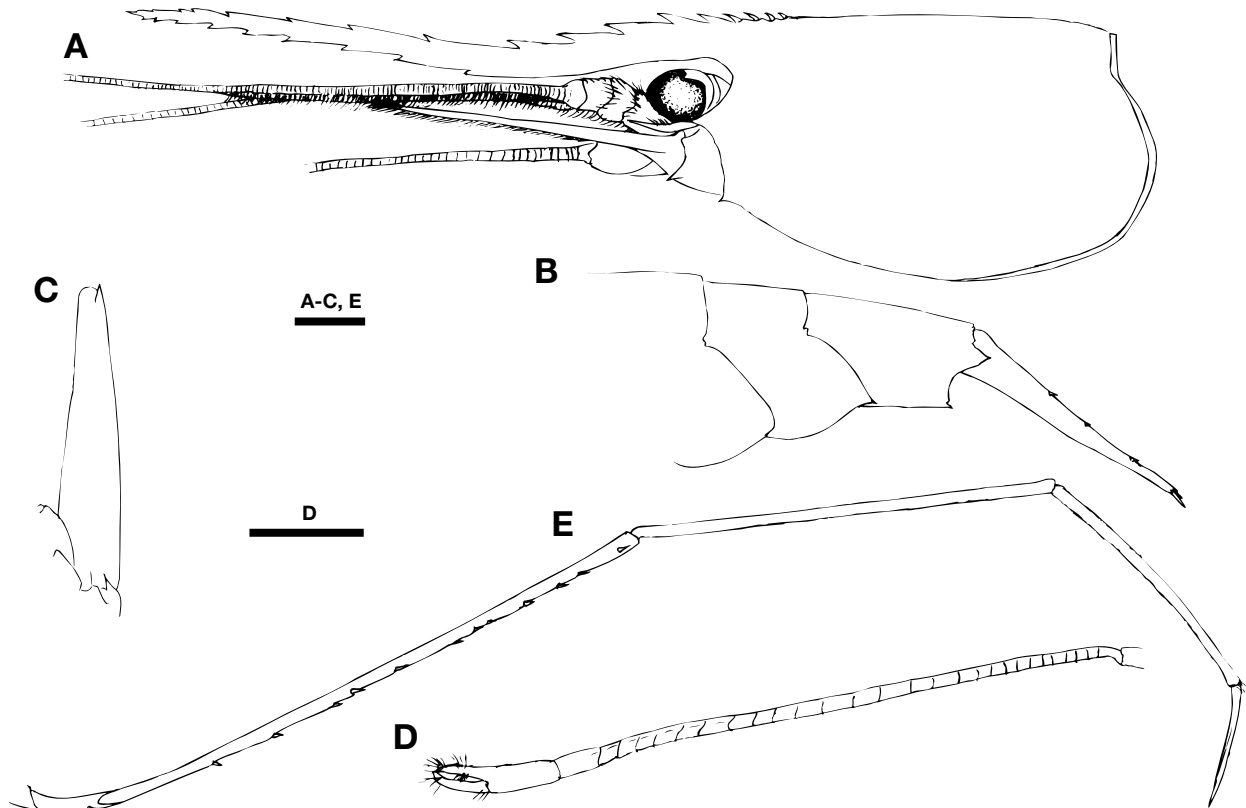
Antennal scale (Fig. 5B) 5.0 times as long as wide; distolateral tooth slightly falling short of distal margin of blade. Third maxilliped (Fig. 5D) overreaching distal margin of antennal scale by anterior 0.3 of ultimate segment, with epipod, well developed exopod present; penultimate segment 1.3 times as long as ultimate segment. Pereopods with epipods on 4 anterior pairs, not extremely slender or thread-like. Second pereopods (Fig. 5E) subequal, reaching distal margin of antennal scale, carpi with 18-21 articles. Third pereopod overreaching antennal scale by lengths of dactylus, propodus, and anterior 0.7 of carpus; merus with 11-15 lateral spines. Fourth and fifth pereopods each with merus bearing 8 and 6-7 lateral spines, respectively.

**Coloration.** Body transparent whitish or somewhat pinkish tinge, with numerous small spots on carapace and abdominal margins; distal parts of rostrum, antennular flagella and third maxilliped red (Fig. 7E).

**Distribution.** Korea, Japan, East and South China seas, Philippines, Indonesia; 66-686 m.

**Remarks.** The specimens agree well with Chace's (1985) original description and illustrations, and Li's (2006c) illustration from the East China Sea especially in terms of the basicerite of the antenna with the small and short distoventral tooth (Fig. 5A, C).





**Fig. 6.** *Plesionika ortmanni* Doflein, 1902. Male (carapace length 13.9 mm) from the North of Jeju Island. A, Carapace and cephalic appendages, lateral; B, Fourth to sixth abdominal somites and telson, lateral; C, Right antennal scale, ventral; D, Left second pereopod, lateral; E, Right third pereopod, lateral. Scale bars: A-E=2 mm.

<sup>1</sup>\**Plesionika ortmanni* Doflein, 1902 (Figs. 6, 7F)

*Plesionika ortmanni* Doflein, 1902: 616, Pl. 3, fig. 2, 2a (type locality: Japan, Sagami Bay); Balss, 1914: 30, fig. 14; Fujino and Miyake, 1970: 261, fig. 8; Chace, 1985: 92, fig. 41; Hayashi, 1986: 137, 273, fig. 87; Cha et al., 2001: 138, 2 unnumbered figs.; Li and Komai, 2003: 267; Li, 2006a: 370; 2006b: 115; 2006c: 1289.

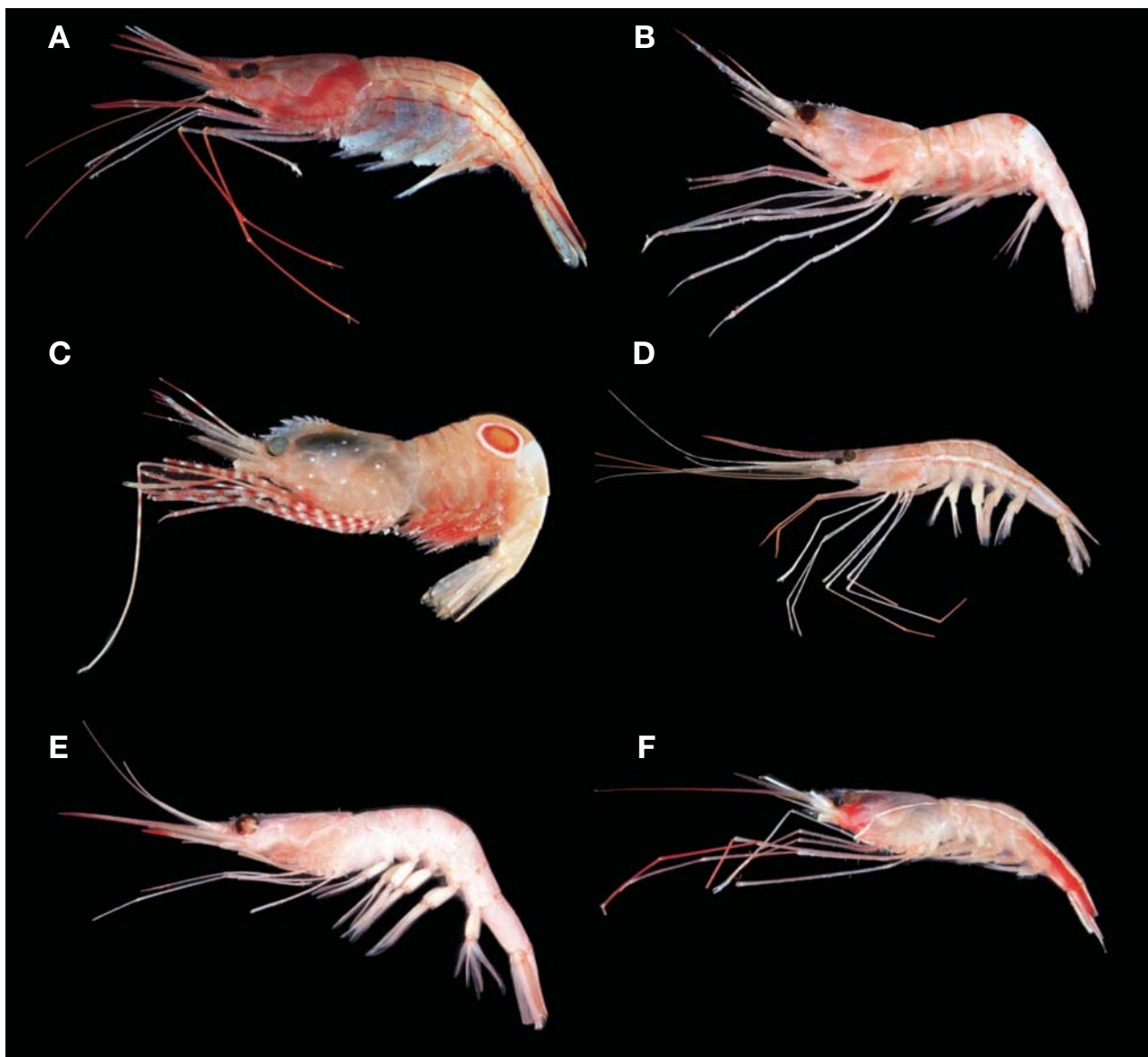
*Plesionika ortmanni* (sic): De Man, 1920: 124, Pl. 11, fig. 26.

**Material examined.** Korea: Jeju-do: 3♂♂ (CL 13.7-17.2 mm), 1 ovig. ♀ (CL 16.4 mm), 2002 II-Tr-11, north of Jeju Island, 29 Oct 2002; 1♀ (CL 13.8 mm), 2003 I-Tr-12, north of Jeju Island, 3 Apr 2003; 2♂♂ (CL 14.1, 16.5 mm), 2003 II #243, south of Jeju Island, 3 Dec 2003.

**Description.** Rostrum (Fig. 6A) rather curving dorsally, 1.5-1.6 times as long as carapace; dorsal margin with 17-18 teeth, including 3-4 on carapace, all teeth with partial or complete basal sutures; ventral margin with 6-9 teeth. Carapace (Fig. 6A) with orbital margin slightly convex in ventral part, rather

regularly concave elsewhere; antennal spine strong, pterygostomial spine rather weak. Abdomen (Fig. 6B) without carina or projection dorsally; pleuron of fifth somite with posteroventral tooth; sixth somite 1.5 times as long as maximum height. Telson (Fig. 6B) 1.5 times as long as sixth abdominal somite; dorsolateral margin with 3 pairs of spinules; posterior margin with 3 pairs of spines. Eye (Fig. 6A) subpyriform, maximum diameter barely 0.2 carapace length. Antennular peduncle (Fig. 6A) with stylocerite sharply point anteriorly, reaching distal margin of first antennular segment. Antennal scale (Fig. 6C) 4.3-4.4 times as long as wide, distolateral tooth reaching narrow distal margin of blade. Third maxilliped overreaching distal margin of antennal scale by entire ultimate segment and anterior 0.2 of penultimate segment, with epipod; penultimate segment 1.4 as long as ultimate segment. Pereopods with prominent epipods on 4 anterior pairs; not extremely slender or thread-like. Second pereopods (Fig. 6D) subequal, overreaching entire chelae and half of carpi; carpi with 28-33 articles. Third pereopod (Fig.

Korean name: <sup>1</sup>\*긴줄꼬마도화새우



**Fig. 7.** A, *Plesionika grandis* Doflein, 1902: ovigerous female (carapace length [CL] 22.0 mm) from 2003 I-Tr-13; B, *Plesionika izumiae* Omori, 1971: ovigerous female (CL 12.1 mm) from 2002 I-Tr-8; C, *Plesionika lophotes* Chace, 1985: ovigerous female (CL 16.5 mm) from 2004 II #243; D, *Plesionika narval* (Fabricius, 1787): male (CL 16.5 mm) from 2004 I #232; E, *Plesionika orientalis* Chace, 1985: male (CL 12.0 mm) from 2010 II #220; F, *Plesionika ortmanni* Doflein, 1902: female (CL 13.8 mm) from 2003 I-Tr-12.

6E) overreaching antennal scale by lengths of distal 3 segments; dacylus about 0.5 times as long as propodus; 3 distal segments combined nearly 2.0 times as long as carapace; merus with 8-12 lateral and 8 ventral spines.

**Coloration.** Body light reddish brown, 1 prominent white line from branchiostegal region of carapace obliquely backward through lateral surface of first to sixth abdominal somites and another white line from lateral surface of posterior half of third abdominal somite to end of telson, with rather broad red line ventrally (Fig. 7F).

**Distribution.** Korea, Japan, East and South China seas, Philippines, Indonesia; 29-400 m.

**Remarks.** This species is easily distinguished from the Korean congeners due to its diagnostic white line from the branchiostegal region of the carapace to the lateral surface of the sixth abdominal somite.

#### Key to Korean species of *Plesionika*

1. Rostrum with dorsal margin armed with closely set teeth, serrate; pereopods without strap-like epipods on coxae ...

- ..... 2
- Rostrum with dorsal teeth widely spaced; first to fourth pereopods with strap-like epipods on coxae ..... 3
2. Fourth abdominal somite with marginal tooth on pleuron; third maxilliped without epipod .....  
..... *P. grandis* Doflein, 1902
- Fourth abdominal somite without marginal tooth on pleuron; third maxilliped with strap-like epipod .....  
..... *P. narval* (Fabricius, 1787)
3. Fourth and fifth abdominal somites each with marginal tooth on pleuron ..... 4
- Fourth abdominal somite without marginal tooth on pleuron ..... 5
4. Posterior teeth of dorsal rostral series forming distinct crest dorsal and posterior to orbit .....  
..... *P. lophotes* Chace, 1985
- No prominent crest at base of rostrum .....  
..... *P. izumiae* Omori, 1971
5. Rostrum armed ventrally with fewer than 20 rather widely spaced teeth; fifth abdominal somite with posteroventral denticle on pleuron ..... *P. ortmanni* Doflein, 1902
- Rostrum armed ventrally with more than 20 closely set teeth, serrate; fifth abdominal somite without posteroventral denticle on pleuron ..... *P. orientalis* Chace, 1985

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