

Amphipods (Gammaridea and Caprellidea) Fauna of Jindo Island in Korea

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ABSTRACT

The amphipods collected from 18 localities of Jindo Island, Korea during the period June to July in 2004 turned out to be 35 species in 18 genera of 12 families. Among them, *Photis longicaudata* (Bate and Westwood) is recorded newly to Korean fauna.

Key words: amphipod, Jindo Island, *Photis*, Korea

INTRODUCTION

Jindo Island (Jindo-Gun, Jeollanam-Do, 125° 37'-126° 28'E, 34° 08'-34° 35'N) is located at the south-western waters, Korea. Only three species of amphipods have been reported from Jindo Island (Jo, 1988; Kim and Kim, 1991; Kim et al., 1992). For the faunal study on the Korean amphipods, we examined amphipod specimens collected from the Jindo Island in 2004. As a result, 35 species in 12 families were identified. One of them, *Photis longicaudata* (Bate and Westwood) belonging to the family Corophiidae was turned out to be a new record of Korean fauna.

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MATERIALS AND METHODS

Specimens were collected mainly by using a light-trap and hand net from 18 localities in the Jindo Island of Korea (Bojeon, Sebang, Paengmok, Seomang, Namdong, Dongryeongga, Gulpo, Wolpyeong, Geumgap, Supum, Domok, Chopyeong, Gagye, Mosa, Beolpo, Naesan, Byeokpa and Singi). The specimens were fixed with 80% ethyl alcohol. Specimens were dissected in glycerol on Cobb's aluminium hollow slide. Drawings and measurements were performed with the aid of a drawing tube. Measurements for the body length were made from the base of the first antenna to the telson. All examined specimens were deposited in the Department of Biology, Dankook University in Korea.

RESULTS

Order Amphipoda Latreille, 1816 단각목
Suborder Gammaridean Latreille, 1803 옆새우아목
Family Ampeliscidae Costa, 1857 안경옆새우과

1. *Ampelisca bocki* Dahl, 1945 볼록손안경옆새우 (신칭)

Material examined. 2♂♂, Paengmok, 28 Jun. 2004.

Distribution. Korea, Japan.

2. *Ampelisca brevicornis* (Costa, 1853) 짧은빨안경옆새우

Material examined. 1♂, Paengmok, 28 Jun. 2004; 1♂ 4♀♀, Chopyeong, 30 Jun. 2004.

Distribution. Korea, Japan, Mediterranean, Eastern Atlantic, Pacific, Indian Ocean.

3. *Ampelisca naikaiensis* Nagata, 1959 나йка안경옆새우 (신칭)

Material examined. 1♂, Singi, 30 Jun. 2004.

Distribution. Korea, Japan.

Family Ampithoidae Stebbing, 1899 참옆새우과

4. *Ampithoe koreana* Kim and Kim, 1988 큰손참옆새우

Material examined. 2♂♂ 1♀, Gulpo, 29 Jun. 2004; 12♀♀, Supum, 29 Jun. 2004.

Distribution. Korea.

5. *Ampithoe lacertosa* Bate, 1858 태평양참옆새우

Material examined. 5♀♀, Bojeon, 28 Jun. 2004; 1♂ 2♀♀, Namdong, 29 Jun. 2004; 10♂♂ 9♀♀, Gulpo, 29 Jun. 2004; 11♂♂ 3♀♀, Beolpo, 1 Jul. 2004.

Distribution. Korea, Alaska, British Columbia, Washington, Oregon, California, Japan.

6. *Ampithoe valida valida* Smith, 1873 볼록손참옆새우

Material examined. 1♀, Supum, 29 Jun. 2004; 1♂ 1♀, Singi, 30 Jun. 2004; 1♂ 2♀♀,

Beolpo, 1 Jul. 2004.

Distribution. Korea, British Columbia, Washington, Oregon, California, Japan, Long Island, New Jersey, New England.

7. *Peramphithoe tea* (Barnard, 1965) 털다리참옆새우

Material examined. 1♂ 2♀♀, Namdong, 29 Jun. 2004; 3♂♂ 8♀♀, Beolpo, 1 Jul. 2004.

Distribution. Korea, Alaska, British Columbia, California.

Family Corophiidae Dana, 1849 육질꼬리옆새우과

8. *Grandierella japonica* Stephensen, 1938 발성육질꼬리옆새우

Material examined. 2♂♂, Bojeon, 28 Jun. 2004; 4♂♂ 13♀♀, Namdong, 29 Jun. 2004; 2♂♂ 9♀♀, Gulpo, 29 Jun. 2004; 1♀, Supum, 29 Jun. 2004; 2♂♂ 6♀♀, Chopyeong, 30 Jun. 2004.

Distribution. Pacific Ocean.

9. *Photis longicaudata* (Bate and Westwood, 1863) 볼록눈이형꼬리다리옆새우 (신칭)

(Figs. 1-2)

Eiscladus longicaudatus Bate and Westwood, 1863, p. 412.

Photis longicaudata Stebbing, 1906, p. 608; Chevreux and Fage, 1925, p. 310, fig. 319; Schellenberg, 1926, p. 231; Schellenberg, 1928, p. 662; Schellenberg, 1942, p. 201, fig. 166; Shoemaker, 1945, p. 11, fig. 5; Reid, 1951, p. 262; Nagata, 1965, pp. 310-311, fig. 35; Ledoyer, 1977, p. 353; Hirayama, 1984, p. 42, fig. 71; Myers, 1989, pp. 427-429, fig. 290.

Material examined. 6♀♀, Chopyeong, 30 Jun. 2004.

Description. Adult female: Body (Fig. 1A). Length about 3.9 mm. Head as long as pereons 1, 2 combined; lateral cephalic lobe strongly protruding. Eye small, situated entirely within lateral lobe of head.

Antenna 1 (Fig. 1B). A little longer than 1/3 of body length. Ratio of length of peduncular articles 1-3 = 1 : 1.04 : 0.82; peduncular article 1 stout rather than articles 2, 3; each posterior margin of peduncular articles 2, 3 with 5-6 sets of 2 pairing simple setae; its flagellum 6 segmented.

Antenna 2 (Fig. 1C). As long as antenna 1. Peduncular articles 1-3 short; peduncular article 4 slightly longer than 5; its flagellum 5 segmented, a little shorter than 1/2 times as long as peduncle.

Lower lip (Fig. 1D). Outer and inner lobes with densely pubescent on apical and inner margins.

Mandible (Fig. 1E). Incisor with 5 blunt teeth. Lacinia mobilis well developed. Molar process truncate, with 1 pappose and 5 simple setae. Palp triarticulate, proximal article short, article 3 about 0.88 times as long as article 2.

Maxilla 1 (Fig. 1F). Inner plate small, rectangular, bearing finely pubescent on inner margin. Outer plate with 5 simple and 5 bifid spines apically. Palp biarticulate, extending beyond outer plate; article 2 with 5 conical teeth and 3 simple setae apically.

Maxilla 2 (Fig. 1G). Both lobes subequal in size, distal and apical margins of inner plate with 10 fine plumose, 9 simple and 5 feeble setae. Outer plate with 10 simple and 5 feeble setae.

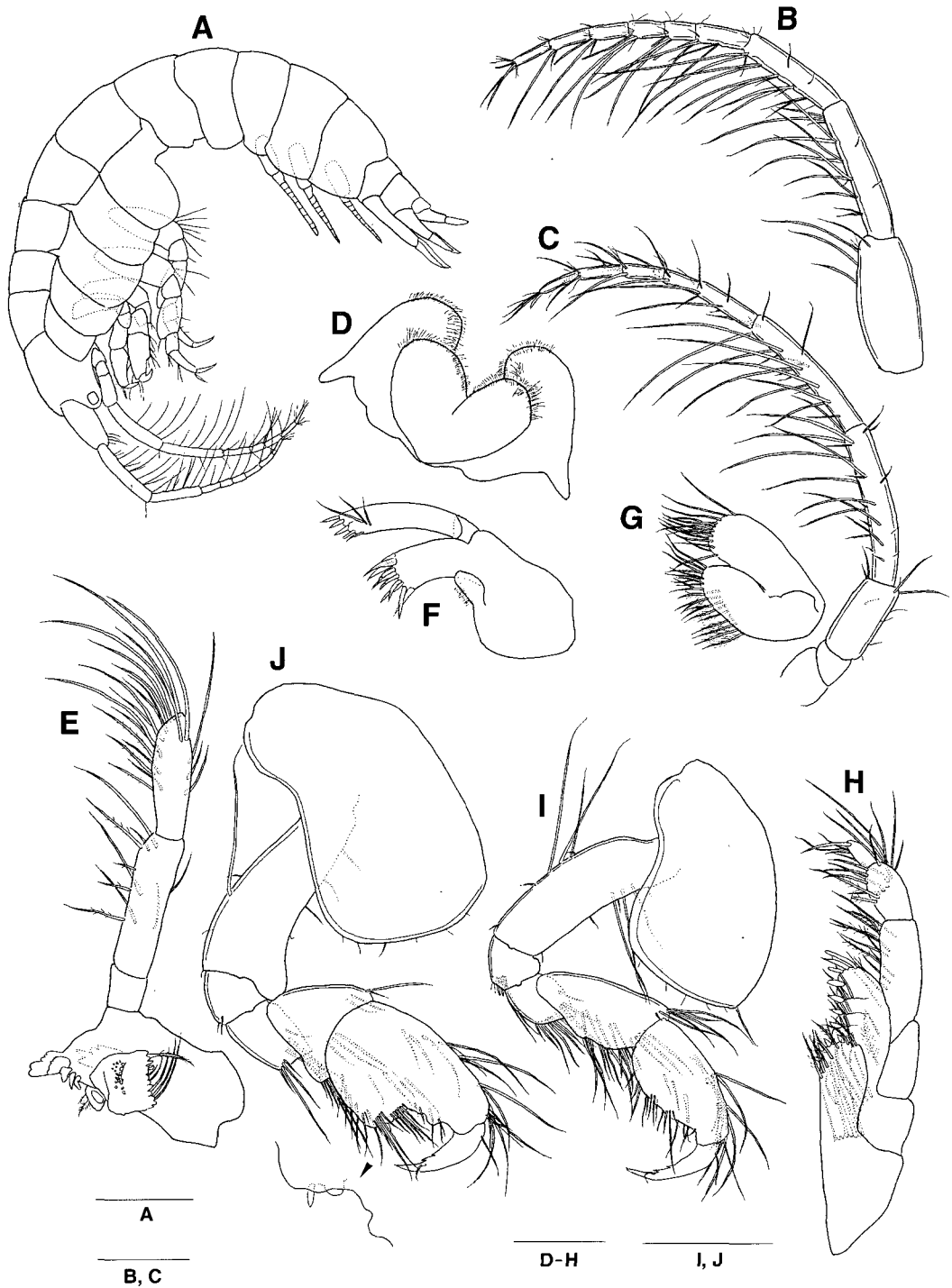


Fig. 1. *Photis longicaudata* (Bate and Westwood 1863), female. 3.9 mm: A, habitus, lateral; B, antenna 1; C, antenna 2; D, lower lip; E, mandible; F, maxilla 1; G, maxilla 2; H, maxilliped; I, gnathopod 1; J, gnathopod 2. Scales bars = 0.5 mm (A), 0.1 mm (D-H), 0.2 mm (B, C, I, J).

Maxilliped (Fig. 1H). Inner plate small, with 4 cornical teeth and 9 pinnate setae. Outer plate reaching $2/3$ of article 2 of palp; apical margin with 2 slender and 1 shorter teeth. Inner margin with 4 spatulate teeth and 3 pairs of setae. Palp 4 articulate; article 2 about $1/2$ times as long as palp; article 3 shorter than article 1 in length; article 4 shorter than article 3, slender.

Gnathopod 1 (Fig. 1I). Coxa 1 gradually slightly widening, lower margin with 1 simple seta and 5 short setae. Basis slightly shorter than $1/3$ as long as gnathopod 1, anterior margin with 3 long and 4 short setae, posteromedial margin with 3 long setae. Ischium shorter than merus, posterodistal margin with 4 simple setae. Distal margin of merus with 10 simple setae in 1 transverse row. Propodus as long as carpus, gradually narrowing; palm not defined. Posterior margin of carpus and propodus with long and short setae. Dactylus $3/4$ as long as basis, with 2 medial small teeth and 1 seta.

Gnathopod 2 (Fig. 1J). Coxa 2 similar to coxa 1, lower margin with 6 minute setae. Basis shorter than $1/3$ as long as gnathopod 2, anterodistal margin increasingly expanding far beyond ischium, anterior margin with 3 simple setae and posterior margin with 1 long seta. Merus slightly longer than ischium. Carpus triangular, shorter than ischium and merus combined. Propodus large and strong, 1.7 times as long as carpus; palm distinct, with 2 transverse rows bearing 5 and 6 simple setae respectively on outer side, with rectangular tooth and 1 spine on inner side. Dactylus slightly longer than $1/2$ as long as basis, similar to one of gnathopod 1.

Pereopod 3 (Fig. 2A). Coxa 3 rectangular, lower margin with 5 minute setae. Basis longer than $1/3$ as long as pereopod 3, posterodistal margin with 2 plumose setae. Ischium slightly shorter than carpus. Merus 1.26 times length of propodus, slightly extending toward anterodistal end, with 1 longitudinal row bearing 4 plumose setae on inner side. Dactylus falcate, 0.78 times length of propodus.

Pereopod 4 (Fig. 2B). Coxa 4 similar to coxa 3, lower margin with 5 minute setae. Basis longer than $1/3$ as long as pereopod 4, anterodistal and posterodistal margins with 2 and 7 plumose setae respectively. Ischium 0.28 times length of basis, posterodistal margin with 1 simple and 1 minute setae. Merus 0.85 times length of carpus and propodus combined, anterodistal margin with 1 simple and 1 short setae. Dactylus similar to one of pereopod 3.

Pereopod 5 (Fig. 2C). Basis broadly expanded, about $1/3$ as long as pereopod 5, posterior margin with 11 simple setae. Ischium 0.85 times length of merus, anterodistal margin with 2 small setae. Carpus 0.93 times length of merus, posterodistal margin with 1 short and 2 long setae. Propodus longer and more slender than carpus, posterior margin with 1, 1, 1, 2 spines in formula. Dactylus stout, short, 0.37 times length of propodus; anterodistal margin with 1 minute seta.

Pereopod 6 (Fig. 2D). Pereopod 6 similar to pereopod 5, but slightly longer and slender.

Pereopod 7 (Fig. 2E). Basis about $1/4$ as long as pereopod 7, posterior margin with 8 simple setae. Ischium about $1/2$ as long as merus, longer than wide, anterodistal end with 1 simple seta. Propodus 1.67 times length of carpus. Dactylus 0.44 times length of propodus, with 1 medial small tooth and 1 minute seta.

Uropod 1 (Fig. 2F). Entirely reaching beyond end of uropod 2. Peduncle longer than rami; outer ventral margin with 1 longitudinal row of 5 spines and dorsal margin with 3 spines. Outer ramus slightly shorter than inner ramus, with 2 lateral spines.

Uropod 2 (Fig. 2G). Peduncle longer than rami, with 1 medial and 1 apical spines. Outer ramus

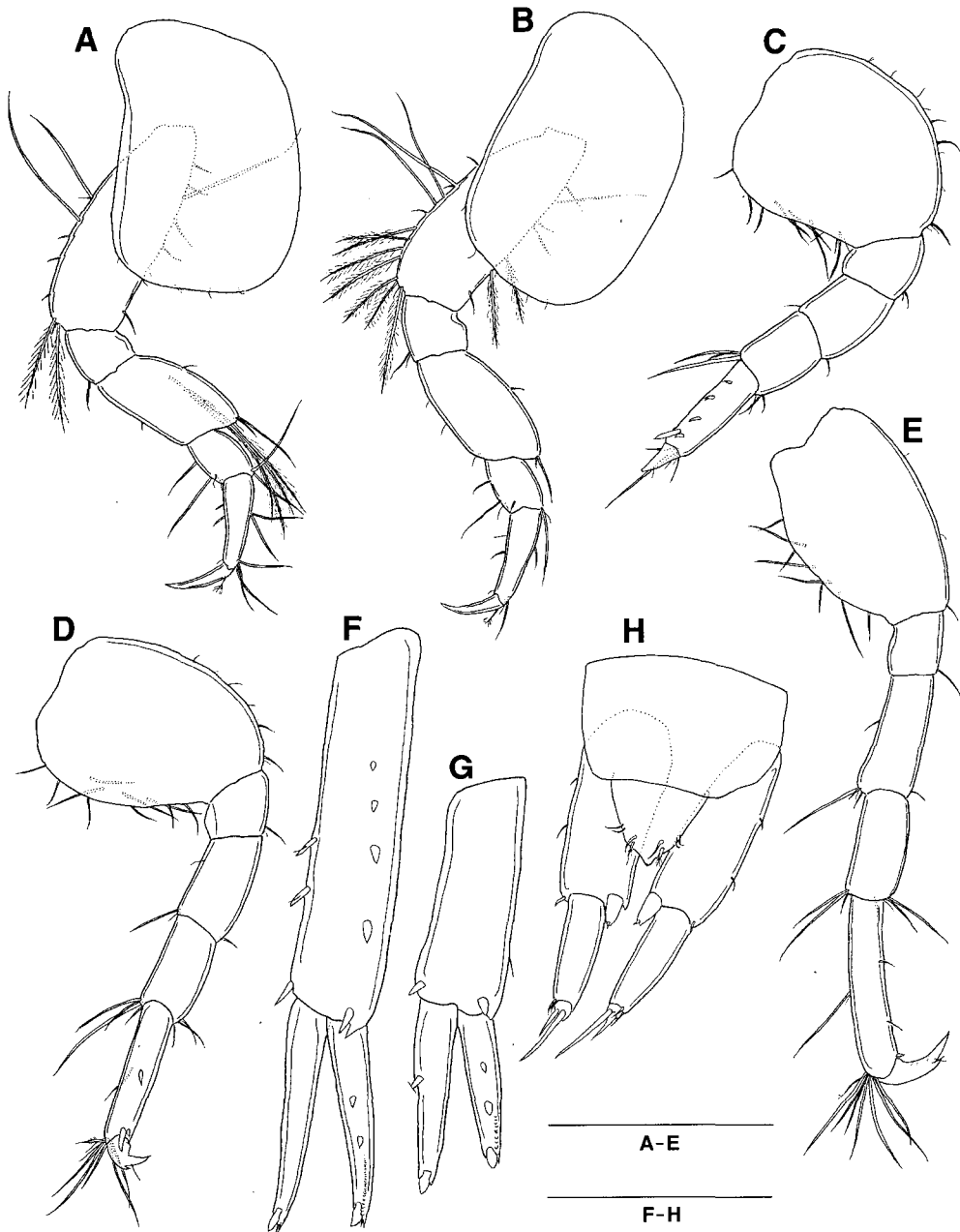


Fig. 2. *Photis longicaudata* (Bate and Westwood 1863), female. 3.9 mm: A, pereopod 3; B, pereopod 4; C, pereopod 5; D, pereopod 6; E, pereopod 7; F, uropod 1; G, uropod 2; H, uropod 3 and Telson. Scales bars = 0.4 mm (A-E), 0.2 mm (F-H).

shorter than inner ramus, with 2 lateral spines.

Uropod 3 (Fig. 2H). Peduncle longer than rami. Outer ramus 0.63 times length of peduncle, biarticulate, proximal article with 2 small setae, distal article very small, with 2 terminal long stout

setae. Inner ramus small, with 1 small spine distally.

Telson (Fig. 2H). Triangular, entire, with 2 pairs of minute setae laterally and 2 pairs of comparatively long setae dorsally.

Remarks. *Photis longicaudata* is characteristic in having the rectangular tooth on the inner side of the propodus of gnathopod 2 at about the center of the concavity. Our specimens are well accorded with this characteristic.

Distribution. Korea, Norway, West Africa, British East Africa, Gulf of Mexico, Mediterranean, Indian Ocean, South Arabian coast, Ceylon, Greenland, Japan.

Family Dogielinotidae Gurjanova, 1953 모래옆새우과

10. *Haustorioides koreanus* Jo, 1988 긴털모래옆새우

Material examined. 1 ♀, Geumgap, 29 Jun. 2004; 2 ♂♂, Mosa, 30 Jun. 2004.

Previous Record. 19 juvs., Songhori, 8 Aug. 1986 (Jo, 1988).

Distribution. Korea.

Family Eusiridae Stabbing, 1888 짧은채찍옆새우과

11. *Pontogeneia rostrata* Gurjanova, 1938 북태평양짧은채찍옆새우

Material examined. 7 ♂♂ 5 ♀♀, Bojeon, 28 Jun. 2004; 12 ♂♂ 8 ♀♀, Sebang, 28 Jun. 2004; 75 ♂♂ 34 ♀♀, Dongryeongga, 29 Jun. 2004; 12 ♂♂ 2 ♀♀, Singi, 30 Jun. 2004.

Distribution. Korea, Japan Sea, Bering Sea, Okhotsk Sea, Southern Sea, Japan, Mexico.

Family Hyalidae Bulycheva, 1957 해조숨이옆새우과

12. *Hyale bisaeta* Kim and Kim, 1991 털채찍해조숨이옆새우

Material examined. 2 ♂♂, Namdong, 29 Jun. 2004.

Distribution. Korea.

13. *Hyale punctata* Hiwatari and Kajihara, 1981 짧은채찍해조숨이옆새우

Material examined. 79 ♂♂ 31 ♀♀, Namdong, 29 Jun. 2004.

Distribution. Korea, Japan.

14. *Hyale rubra* (Thomson, 1879) 긴채찍해조숨이옆새우

Material examined. 1 ♂ 1 ♀, Singi, 30 Jun. 2004.

Distribution. Korea, Australia, Japan, Hawaii, Juan Fernan dez Islands, Peru, Chile.

Family Ischyroceridae Stebbing, 1899 육질꼬리옆새우붙이과

15. *Erichthonius pugnax* (Dana, 1852) 넓은마디육질꼬리옆새우붙이

Material examined. 1 ♂, Bojeon, 28 Jun. 2004; 1 ♂, Chopyeong, 30 Jun. 2004; 3 ♂♂ 5 ♀♀, Beolpo, 1 Jul. 2004.

Distribution. Korea, Japan, Sooloo Sea, Madagascar, New Zealand.

16. *Jassa falcata* (Montagu, 1808) 가시꼬리육질꼬리옆새우붙이

Material examined. 2 ♀♀, Chopyeong, 30 Jun. 2004; 9 ♂♂ 12 ♀♀, Beolpo, 1 Jul. 2004.

Distribution. Widely distributed in shallow waters of all oceans except in high polar region.

Family Melitidae Bousfield, 1973 멜리타옆새우과

17. *Maera brevispina* Kim and Kim, 1991 짧은가시멜리타옆새우

Material examined. 6♂♂ 1♀, Chopyeong, 30 Jun. 2004.

Distribution. Korea.

18. *Melita koreana* Stephensen, 1944 네모손멜리타옆새우

Material examined. 2♂♂ 6♀♀, Gulpo, 29 Jun. 2004.

Previous Record. 16♂♂ 10♀♀, Songhori, 2 May 1990 (Kim, 1992).

Distribution. Korea, Japan.

19. *Melita setiflagella* Yamato, 1988 큰손멜리타옆새우

Material examined. 1♂, Namdong, 29 Jun. 2004; 2♂♂ 2♀♀, Domok, 30 Jun. 2004.

Distribution. Korea, Japan.

Family Oedicerotidae Liljeborg, 1865 불은눈옆새우과

20. *Monoculodes koreanus* Jo 1990 뾰족빨불은눈옆새우

Material examined. 13♂♂ 31♀♀, Geumgap, 29 Jun. 2004; 6♂♂ 16♀♀, Chopyeong, 30 Jun. 2004; 1♀, Gagy, 30 Jun. 2004.

Distribution. Korea.

21. *Syncheridium lenorostralum* Hirayama 1986

Material examined. 8♂♂, Singi, 30 Jun. 2004.

Distribution. Korea, Japan.

22. *Syncheridium carinorostrum* Jo 1990

Material examined. 1♀, Byeokpa, 30 Jun. 2004.

Distribution. Korea.

23. *Chitinomandibulum emargicoxa* Jo 1990 굽은이불은눈옆새우

Material examined. 1♂, Bojeon, 28 Jun. 2004; 9♂♂ 4♀♀, Paengmok, 28 Jun. 2004; 12♂♂ 1♀♀, Seomang, 28 Jun. 2004.

Distribution. Korea.

Family Phoxocephalidae Sars, 1891 긴빨옆새우과

24. *Grandifoxus bangpoensis* Jo, 1989 민가시긴빨옆새우

Material examined. 5♀♀, Chopyeong, 30 Jun. 2004.

Distribution. Korea.

Family Podoceridae Leach, 1814 긴배옆새우과

25. *Podocerus hoonsooi* Kim and Kim, 1991 등빨긴배옆새우

Material examined. 37♂♂ 12♀♀, Beolpo, 1 Jul. 2004.

Distribution. Korea.

Suborder Caprellidea Leach, 1814 바다대벌레아목

Family Carpellidae Leach, 1814 바다대벌레과

26. *Caprella acanthogaster* Mayer, 1890 가시투성바다대벌레

Material examined. 1♂ 1♀, Beolpo, 1 Jul. 2004.

Distribution. Korea, China, Japan, South America.

27. *Caprella algaceus* Vassilenko, 1967 해초바다대벌레

Material examined. 41♂♂ 20♀♀, Chopyeong, 30 Jun. 2004; 1♂ 1♀, Gagye, 30 Jun. 2004.

Distribution. Korea, Japan.

28. *Caprella brevirostris* Mayer, 1903 가시다리바다대벌레

Material examined. 1♂, Beolpo, 1 Jul. 2004.

Distribution. Korea, Japan, California.

29. *Caprella californica* Stimpson, 1856 뽕족머리가슴가시바다대벌레

Material examined. 12♂♂ 25♀♀, Beolpo, 1 Jul. 2004.

Distribution. Korea, Japan, California, Mexico, South Africa.

30. *Caprella danilevskii* Czerniavski, 1868 매끈이바다대벌레

Material examined. 2♀♀, Gulpo, 29 Jun. 2004; 18♂♂ 27♀♀, Beolpo, 1 Jul. 2004.

Distribution. Korea, Japan, France, Italy, Hawaii, Brazil, South Africa.

31. *Caprella decipiens* Mayer, 1890 짧은마디더듬이민다리바다대벌레

Material examined. 1♀, Gulpo, 29 Jun. 2004; 4♂♂, Chopyeong, 30 Jun. 2004.

Distribution. Korea, Japan.

32. *Caprella equilibra* Say, 1818 가슴가시바다대벌레

Material examined. 3♂♂ 1♀, Beolpo, 1 Jul. 2004.

Distribution. Korea, Africa, Mexico, Mediterranean, Hawaii, Japan.

33. *Caprella penantis* Leach, 1814 둥근아가미바다대벌레

Material examined. 1♂, Gulpo, 29 Jun. 2004; 1♂, Gagye, 30 Jun. 2004; 8♂♂ 7♀♀, Beolpo, 1 Jul. 2004.

Distribution. Korea, South Africa, France, North America, Mediterranean, Hawaii, Hong Kong, Japan.

34. *Caprella scaura* Templeton, 1836 뽕족머리바다대벌레

Material examined. 1♀, Gulpo, 29 Jun. 2004; 3♂♂ 2♀♀, Chopyeong, 30 Jun. 2004; 2♂♂, Beolpo, 1 Jul. 2004.

Distribution. Korea, Brazil, South Africa, Japan.

35. *Caprella tsugarensis* Utinomi, 1947 짧은팔바다대벌레

Material examined. 1♀, Chopyeong, 30 Jun. 2004; 7♂♂ 7♀♀, Beolpo, 1 Jul. 2004.

Distribution. Korea, Japan.

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한국 진도 해역의 단각류상

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요 약

전라남도 진도 해안의 18개 지점에서 2004년 6월부터 7월까지 조사되어 분류된 해산 단각류는 12과 18속 35종이었다. 이들 중 볼록눈이형꼬리다리옆새우 (*Photis longicaudata*)가 한국미기록종으로 확인되어 보고한다.