

Amphipods (Crustacea: Malacostraca) fauna from Chujado Island in Korea

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A faunal study on Amphipods belonging to the class Malacostraca was conducted 26–29 August 2021 at 12 sites in Chujado Island, Korea. This study found that 68 amphipod species in 39 genera, 19 families were living on Chujado Island. Among these 19 families, the family Caprellidae (20 species) showed the highest abundance. Ampithoidae (7 species) and Dexaminidae (6 species) were subdominant families. The species *Stenothoe valida* Dana, 1852 (found at 10 of 12 sites) was the most frequent and widespread species. *Caprella scaura* Templeton, 1836 was identified at 9 of 12 sites and had the highest frequency of appearance among 20 species of Caprellidae. Among the 68 species, *Ampithoe waialua* J.L. Barnard, 1970 and *Melita nagatai* Yamato, 1987 are newly recorded species in Korean fauna. These newly recorded species are fully illustrated and compared with related species. We provide an amphipod fauna in Chujado Island with a list, figures, and a table.

Keywords: Amphipod fauna, *Ampithoe waialua*, Chujado, Korea, *Melita nagatai*, new record

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INTRODUCTION

Chujado Island is located between the southern provinces of Korea and Jeju Island. This island belongs to Jeju Island in the administrative district and comprises four islands and 38 islets. Among them, Sangchujado Island and Hachujado Island are two large, inhabited islands. Chujado Island is well preserved due to its geographical advantages of being far from the mainland of Korea. This island is influenced by the Tsushima warm current, a tributary of the Kuroshio warm current that passes through Jeju waters. The temperature of seawater is not low even in winter. As of 2021, the average annual temperature of water around Chujado Island was about 16°C. The lowest water temperature was 10.8°C in February and the highest water temperature was 25.5°C in August. The surrounding sea area has a gentle slope of the seabed below 100 m and a shallow depth, causing seasonal changes in ocean currents with heterogeneous water masses such as Yellow Sea bottom cold water, Yellow Sea turbulent water, China continental coastal water, and South Sea coastal water. Water temperature and salt fronts between these currents form nutrient-rich waters. Also, since a large amount of river water flows from the Chinese continent, nutrition become abundant

and various fish species inhabit (An *et al.*, 2004). Due to these marine environments, Chujado Island is an area with a high biodiversity. Along the coast of Chujado Island, 162 species of algae can appear according to the season, with 113 species present in summer (Kim *et al.*, 2008). Lee and Hyun (1997) have studied spatial species diversity of benthic macroinvertebrates in Chujado Island and identified 147 species belonging to 38 orders, 18 classes, and 9 phyla. Among these 147 species, only one talitrid amphipod species, *Orchestia platensis*, was recorded.

The first amphipod research in Chujado Island was done by Kim and Kim (1987). They confirmed for the first time that four amphipods live in Chujado Island: *Colomastix lunalilo*, *Maera pacifica*, *Hyale rubra*, and *Platorchestia pachypus*. Since then, 14 additional species were recorded: *Ampithoe koreana*, *Peramphithoe namhaensis* (Kim and Kim, 1988), *Orchestia platensis* (Lee and Hyun, 1997), *Atylus (Kamehatylus) japonicus* (Kim and Lee, 2009), *Perotripus koreanus* (Lee and Hong, 2010), *Peramphithoe chujaensis* (Kim *et al.*, 2012), *Paciforchestia gageoensis* (Kim and Min, 2013), *Protohyale (Boreohyale) magnaocularis*, *P.(B.) pumila* (Eun *et al.*, 2016), *Photis bronca* (Jung *et al.*, 2019), *Paradexamine acuta* and *P. rotundogena* (Zhang *et al.*,

2022). To date, a total of 16 amphipod species from Chujado Island have been reported by Korean amphipodologists. However, previous research results were studies on fragmentary records of amphipod. The present study comprehensively reveals amphipod fauna of Chujado Island.

MATERIALS AND METHODS

Specimens were collected by SCUBA diving, light trap, hand net, and D-frame net from the shallow and sublittoral waters at 15 sites in Chujado Island, Korea during the period from 26–29 August 2021 (Fig. 1, Table 1). The specimens were fixed with 95% ethanol and dissected in glycerol on Cobb's aluminum hollow slides. Permanent mounts were made using polyvinyl lactophenol with lignin pink added. Pencil drawing and measuring were performed with the aid of a drawing tube, mounted on a SZX 12 stereomicroscope (Olympus) and BX 51 interference contrast compound microscope (Olympus). Line drawings were produced using the program Graphic. Body length was measured from the tip of the rostrum to the posterior end of the urosome, along the dorsal parabolic line of the body. Specimens are deposited at the Marine Biodiversity institute of Korea (MABIK) in Seocheon, Korea and the Department of Biological Science, Dankook University (DKU), Cheonan, Korea.

RESULTS

Subphylum Crustacea Pennant, 1777 갑각아문
Class Malacostraca Latreille, 1806 연갑강
Order Amphipoda Latreille, 1816 단각목
Family Ampeliscidae Costa, 1857 안경옆새우과
Genus *Byblis* Boeck, 1871 비블리스속

1. *Byblis japonicus* Dahl, 1944

일본비블리스안경옆새우 (Fig. 6A)

Material examined. 1 ind., Sinyang Port, 26 August 2021; 2 inds., Chuja Port, 27 August 2021; 1 indiv., Yecho-ri Port, 28 August 2021; 8 inds., Mukri Port, 28 August 2021.

Distribution. Korea (Jejudo Island, west and south coasts), China, Japan.

Family Amphilochidae Boeck, 1871
짧은꼬리옆새우과
Genus *Houstonius* Hoover and Bousfield, 2001
허스토니어스속

2. *Houstonius koreana* (Kim and Kim, 1992)

짧은꼬리옆새우 (Fig. 6B)

Material examined. 20 inds., Chuja Bridge, 27 August 2021.

Distribution. Korea (west and east coasts).

Genus *Paramphilochus* Ishimaru and Ikehara, 1986
내민손짧은꼬리옆새우속

3. *Paramphilochus parachelatus* Ishimaru and Ikehara, 1986

내민손짧은꼬리옆새우 (Fig. 6C)

Material examined. 1 ind., Southern end of Hachujado, Hachujado Island, 26 August 2021.

Distribution. Korea (Jejudo Island and east coast), Japan.

Family Ampithoidae Boeck, 1871 참옆새우과
Genus *Ampithoe* Leach, 1814 참옆새우속

4. *Ampithoe changbaensis* Shin and Coleman, 2021

(Fig. 6D)

Material examined. 25 inds., Yecho-ri Port, 28 August 2021.

Distribution. Korea (Jejudo Island, south and east coasts).

5. *Ampithoe lacertosa* Spence Bate, 1858

태평양참옆새우 (Fig. 6E)

Material examined. 13 inds., Sinyang Port, 28 August 2021; 4 inds., Yecho-ri Port, 28 August 2021; 51 inds., Chuja Port, 29 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Japan, The Pacific, U.S.A.

6. *Ampithoe valida shimizuensis* Stephensen, 1944

오목손참옆새우 (Fig. 6F)

Material examined. 1 ind., Sinyang 2-ri, Hachujado Island, 26 August 2021; 14 inds., Sinyang Port, 28 August 2021; 20 inds., Yecho-ri Port, 28 August 2021; 3 inds., Chuja Port, 29 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Japan.

7. *Ampithoe waiialua* J.L. Barnard, 1970

뚝손참옆새우 (신칭)* (Figs. 2, 3, 6G)

Ampithoe waiialua J.L. Barnard, 1970: 53, Figs. 20, 21; Peart & Lörz, 2018: 27.

Material examined. 2 inds., Jikgudo Island, 29 August 2021.

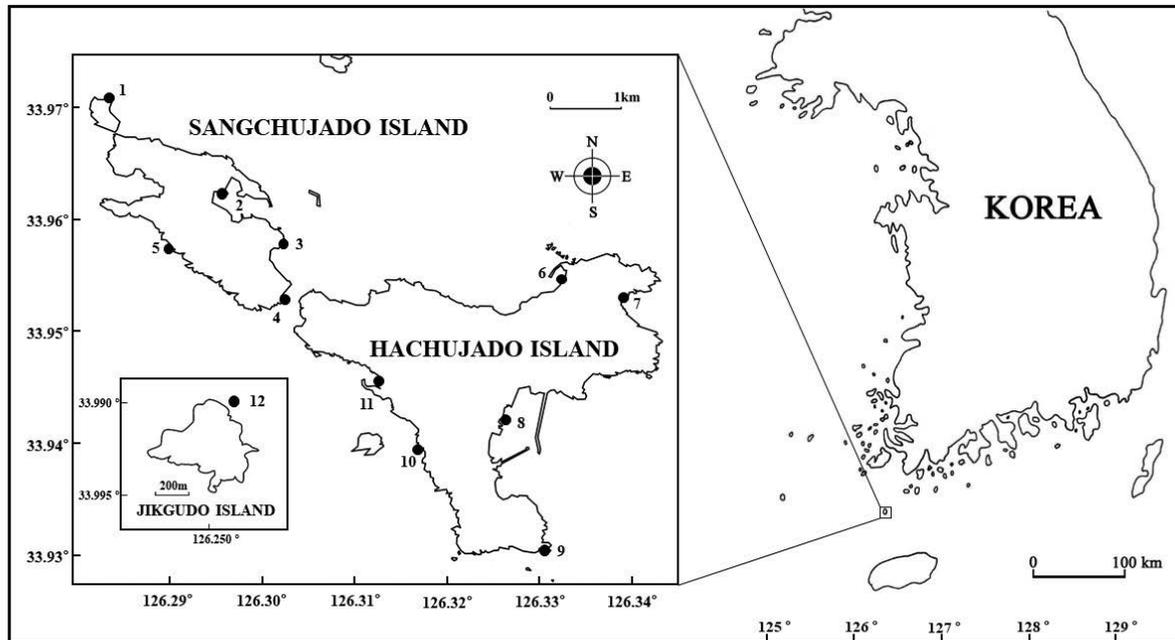


Fig. 1. Map showing collecting sites for amphipods in Chujado Island, Korea. 1, Damureami; 2, Chuja Port; 3, Yeongheung Shelter; 4, Chuja Bridge; 5, Nabalon Cliff; 6, Yecho-ri Port; 7, Yecho-ri; 8, Sinyang Port; 9, Southern end of Hachujado; 10, Sinyang 2-ri; 11, Mukri Port; 12, Jikgudo island.

Table 1. Details of sampling localities of amphipods from Chujado Island

Station No.	Date	Locality	Latitude, Longitude	Sampling method	Depth (m)
1	27. 08. 2021	Damureami	33°58'14"N, 126°17'01"E	Scuba diving	12
2	27. 08. 2021	Chujado port	33°57'41"N, 126°17'41"E	Light trap	6
	29. 08. 2021		33°57'41"N, 126°17'44"E	Port survey	2-6
3	27. 08. 2021	Yeongheung Shelter	33°57'27"N, 126°18'05"E	Sieving	0.5
4	27. 08. 2021	Chuja Bridge	33°57'13"N, 126°18'08"E	Sieving	0.5
5	29. 08. 2021	Nabalon Cliff	33°57'23"N, 126°17'25"E	Scuba diving	20
6	28. 08. 2021	Yecho-ri port	33°57'19"N, 126°19'53"E	Port survey	2-5
				Light trap	5
7	28. 08. 2021	Yecho-ri	33°57'11"N, 126°20'18"E	Sieving	0.5
8	26. 08. 2021	Sinyang port	33°56'30"N, 126°19'37"E	Light trap	5
	28. 08. 2021	Sinyang port	33°56'38"N, 126°19'45"E	Port survey	2-5
9	28. 08. 2021	Sinyang 2-ri	33°56'24"N, 126°18'59"E	Sieving	0.5
10	26. 08. 2021	Southern end of Hachujado	33°55'50"N, 126°19'45"E	Sieving	0.5
11	28. 08. 2021	Mukri port	33°56'43"N, 126°18'42"E	Light trap	5
12	29. 08. 2021	Jikgudo island	33°59'24"N, 126°15'05"E	Scuba diving	13

Description. Male (MABIK CR00252863): Body (Fig. 2A) 11.6 mm long; Head subquadrate, about 1.3 times as long as wide. Rostrum absent; cephalic lobe truncate. Eye subcircular and medium, located close to cephalic lobe; Pereonites and pleonites smooth.

Pleonites 1-3 (Fig. 2B) without ventral seta, epimeral plates 2, 3 rounded-quadrate posteroventrally, somewhat

concave midposteriorly.

Antenna 1 (Fig. 2C) slender, about 0.5 times of the body length; peduncular article 1 setose posteriorly; length ratio of peduncular articles 1-3 = 1.00 : 0.85 : 0.28; accessory flagellum absent; flagellum 32-articulate, about 1.75 times as long as peduncle.

Antenna 2 (Fig. 2D) setose, about 0.8 times as antenna

1, peduncular article 2 broader than others, with 4 robust setae ventrally; length ratio of peduncular articles 3–5 = 1.00 : 0.90 : 0.15; flagellum 27-articulates, about 0.9 times as long as peduncle.

Gnathopod 1 (Fig. 2E) coxa subtrapezoidal, produced anterodistally, with several setules ventrally; basis moderate, with rounded anterodistal lobe; merus produced into triangular expansion posterodistally; carpus about 0.7 times length to propodus, with 4 robust setae on proximal half of anterior margin; propodus subrectangular, palm short, concave; dactylus falcate, overreaching palm; length ratio of articles 2–7 = 1.00 : 0.34 : 0.60 : 0.63 : 0.85 : 0.53.

Gnathopod 2 (Fig. 2F) similar to gnathopod 1; coxa rounded quadrate, with setules ventrally; basis subrectangular with large rounded anterodistal lobe; carpus subtriangular, with 6 robust setae on proximal half of anterior margin, rounded posterior lobe setaceous; propodus large, about 1.4 times as long as carpus; palm strongly excavate, curved concavely, palmar corner delimited by subacute process; dactylus falcate, inner margin serrulate, 0.5 times as long as propodus.

Pereopod 3 (Fig. 2G) coxa subquadrate, ventral margin with setules ventrally; basis moderate, subrectangular, with simple setae posteriorly; length ratio of articles 2–7 = 1.00 : 0.27 : 0.36 : 0.32 : 0.34 : 0.22.

Pereopod 4 (Fig. 2H) similar to pereopod 3, but basis more setose.

Pereopod 5 (Fig. 3A) coxa bilobate, dorsodistal protruding lobe roundly backward; basis expanded, about 1.2 times wider than deep; merus and carpus moderate, subrectangular; propodus comparatively slender than carpus; length ratio of articles 2–7 = 1.00 : 0.30 : 0.62 : 0.55 : 0.85 : 0.32.

Pereopod 6 (Fig. 3B) basis subovate, 1.69 times as long as wide; merus slightly longer than carpus; propodus narrow, subrectangular, posterior margin with 3 robust setae; length ratio of articles 2–7 = 1.00 : 0.21 : 0.61 : 0.55 : 0.64 : 0.25.

Pereopod 7 (Fig. 3C) similar with pereopod 6, except basis slightly wider than that of pereopod 6, posterior margin serrulate; length ratio of articles 2–7 = 1.00 : 0.28 : 0.63 : 0.61 : 0.80 : 0.21.

Uropod 1 (Fig. 3D) peduncle rectangular, 1.34 times as long as inner ramus, with 6 dorsolateral, 8 dorsomedial, 3 ventrolateral robust setae; outer ramus shorter than inner one.

Uropod 2 (Fig. 3E) subsimilar in structure but about 0.7 times shorter than uropod 1; peduncle armed with 1 dorsolateral and 2 dorsomedial robust setae; outer ramus subequal to peduncle and slightly shorter than inner ramus.

Uropod 3 (Fig. 3F) short, peduncle cylindrical, 2.6 times as long as outer ramus, outer ramus bearing 2

hooked terminal spines, inner ramus with group of setae apically.

Telson (Fig. 3G) entire, subtriangular, 1.3 times as wide as long, with lateral and subapical setae.

Female (DKUAMP202205), Body length 7.8 mm. similar to male in shape, but gnathopods 1, 2 sexually dimorphic.

Gnathopod 1 (Fig. 3H) similar to that of male, but propodus palm rounded, not concave, defined by 1 small robust seta; length ratio of articles 2–7 = 1.00 : 0.31 : 0.38 : 0.57 : 0.61 : 0.35.

Gnathopod 2 (Fig. 3I) similar to that of male, but propodus palm much less-excavate, defined by 2 stout robust setae; length ratio of articles 2–7 = 1.00 : 0.32 : 0.40 : 0.51 : 0.65 : 0.38.

Remarks. *Ampithoe waialua* is similar to *A. dalli* Shoemaker, 1938 in possessing similar shaped antennae and gnathopods. However, *A. waialua* is morphologically distinguished from *A. dalli* as follows: (1) gnathopod 1 with excavated palm; (2) pereopod 5, anterior notch of basis with strong robust seta; and (3) epimeral plate 3 rounded-quadrate posteroventrally. *Ampithoe waialua* also similar to *A. platycera* Sivaprakasam, 1970. However, *A. waialua* can be distinguished from *A. platycera* as follows: (1) antenna 2, peduncular article 4 is not flat; (2) gnathopods 1 and 2, propodi elongate; and (3) gnathopod 2, palmar corner without robust seta. The newly recorded species in Chujado Island, *A. waialua* is well in accord with the original description given by J.L. Barnard (1970).

Distribution. Korea (Chujado Island), Hawaiian Islands.

Genus *Pleonexes* Spence Bate, 1857

8. *Pleonexes koreana* (Kim and Kim, 1988)

큰손참옆새우 (Fig. 6H)

Material examined. 9 inds., Southern end of Hachujado, 26 August 2021; 3 inds., Chuja Bridge, 27 August 2021; 13 inds., Sinyang 2-ri, 28 August 2021; 14 inds., Yecho-ri Port, 28 August 2021; 1 ind., Jikgudo Island, 29 August 2021; 1 ind., Chuja Port, 29 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Japan.

Genus *Sunamphitoe* Spence Bate, 1857

민수염참옆새우속

9. *Sunamphitoe baegryeongensis* (Kim and Kim, 1988) 백령도참옆새우 (Fig. 7A)

Material examined. 1 ind., Sinyang Port, 26 August 2021.

Distribution. Korea (west, south, and east coasts).

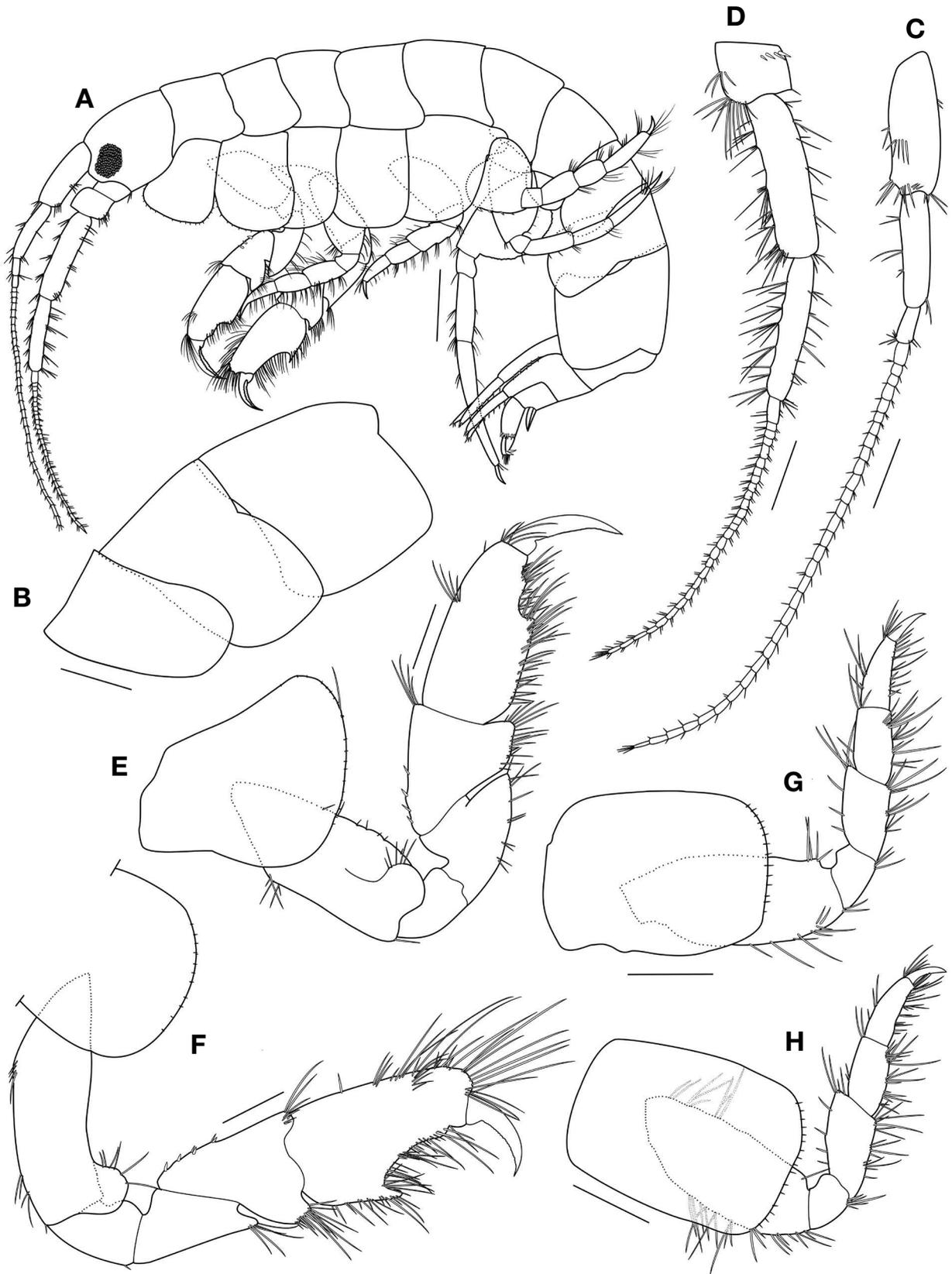


Fig. 2. *Amphithoe waiialua* J.L. Barnard, 1970, adult male A, habitus; B, pleonal epimera 1-3; C, antenna 1; D, antenna 2; E, gnathopod 1; F, gnathopod 2; G, pereopod 3; H, pereopod 4. Scale bars: A = 1 mm; B-H = 0.5 mm.

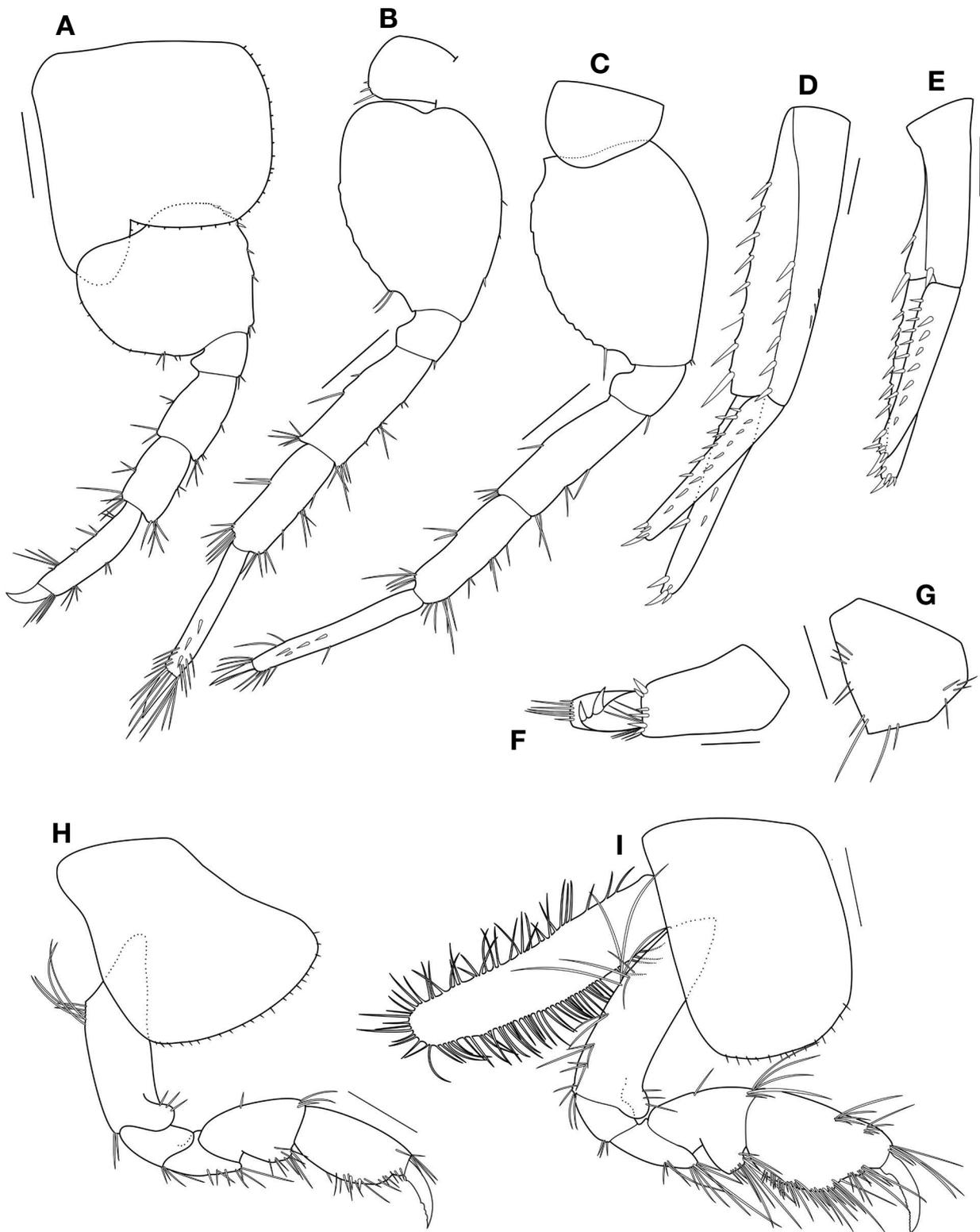


Fig. 3. *Ampithoe waialua* J.L. Barnard, 1970, adult male (A-G). A, pereopod 5; B, pereopod 6; C, pereopod 7; D, uropod 1; E, uropod 2; F, uropod 3. G, telson; *Ampithoe waialua* J.L. Barnard, 1970, adult female (H, I). H, gnathopod 1; I, gnathopod 2. Scale bars: A-C=0.5 mm; D-I=0.2 mm.

10. *Sunamphitoe chujaensis* (Kim, Hong, Conlan and Lee, 2012) 추자도참옆새우 (Fig. 7B)

Material examined. 2 inds., Yeongheung Shelter, 27 August 2021.

Distribution. Korea (Chujado Island), Japan.

Family Aoridae Stebbing, 1899 큰앞손옆새우과
Genus *Grandidierella* Coutière, 1904
왕큰앞손옆새우속

11. *Grandidierella japonica* Stephensen, 1938

발성육질꼬리옆새우 (Fig. 7C)

Material examined. 2 inds., Mukri Port, Chujado Island, 28 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Japan, The Pacific.

Family Caprellidae Leach, 1814 바다대벌레과
Genus *Caprella* Lamarck, 1801 바다대벌레속

12. *Caprella algaceus* Vassilenko, 1967

해초바다대벌레 (Fig. 7D)

Material examined. 2 inds., Chuja Bridge, 27 August 2021; 2 inds., Chuja Port, 27 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Japan.

13. *Caprella arimotoi* Takeuchi, 1993

나도흑등바다대벌레 (Fig. 7E)

Material examined. 2 inds., Yeongheung Shelter, 27 August 2021; 52 inds., Damuraemi Island, 27 August 2021; 42 inds., Chuja Port, 27 August 2021; 1 ind., Sinyang 2-ri, Chujado Island, 28 August 2021; 6 inds., Mukri Port, 28 August 2021; 16 inds., Jikgudo Island, 29 August 2021; 8 inds., Nabalon Cliff, 29 August 2021.

Distribution. Korea (south coast), Japan.

14. *Caprella brevirostris* Mayer, 1903

가시다리바다대벌레 (Fig. 7F)

Material examined. 5 inds., Damuraemi Island, 27 August 2021; 3 inds., Chuja Port, 27 August 2021; 1 ind., Sinyang 2-ri, Chujado Island, 28 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Japan, U.S.A.

15. *Caprella californica* Stimpson, 1856

뽕족머리가슴가시바다대벌레 (Fig. 7G)

Material examined. 27 inds., Damuraemi Island, 27 August 2021; 19 inds., Jikgudo Island, 29 August 2021; 14 inds., Nabalon Cliff, 29 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Japan, Russia, U.S.A.

16. *Caprella danilevskii* Czerniavski, 1868

매끈이바다대벌레 (Fig. 7H)

Material examined. 8 inds., Yeongheung Shelter, 27 August 2021; 3 inds., Yecho-ri, 28 August 2021; 5 inds., Chuja Port, 27 August 2021; 10 inds., Nabalon Cliff, 29 August 2021.

Distribution. Korea (west, south, and east coasts), Brazil, Italy, Japan, North Africa, the Black Sea, U.S.A.

17. *Caprella decipiens* Mayer, 1890

짧은마디더듬이민다리바다대벌레 (Fig. 8A)

Material examined. 1 ind., Sinyang Port, 26 August 2021; 1 ind., Damuraemi Island, 27 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Japan, Russia.

18. *Caprella equilibra* Say, 1818 가슴가시바다대벌레

(Fig. 8B)

Material examined. 9 inds., Sinyang Port, 26 August 2021; 8 inds., Damuraemi Island, 27 August 2021; 1 ind., Chuja Port, 27 August 2021; 120 inds., Sinyang 2-ri, Chujado Island, 28 August 2021; 200 inds., Yecho-ri Port, 28 August 2021; 29 inds., Jikgudo Island, 29 August 2021; 2 inds., Nabalon Cliff, 29 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Africa, Brazil, Chile, Colombia, Malaysia, Mexico, Panama, The Black Sea, The Mediterranean Sea, U.S.A.

19. *Caprella kroyeri* De Haan, 1849

허리갈고리바다대벌레 (Fig. 8C)

Material examined. 3 inds., Sinyang Port, Chujado Island, 26 August 2021.

Distribution. Korea (west and south coasts), Japan, U.S.A.

20. *Caprella monoceros* Mayer, 1890 긴팔바다대벌레

(Fig. 8D)

Material examined. 4 inds., Nabalon Cliff, 29 August 2021.

Distribution. Korea (west, south, and east coasts), Japan.

21. *Caprella penantis* Leach, 1814

둥근아가미바다대벌레 (Fig. 8E)

Material examined. 4 inds., Sinyang Port, 26 August 2021; 2 inds., Chuja Bridge, 27 August 2021; 3 inds.,

Damuraemi Island, 27 August 2021; 56 inds., Chuja Port, 27 August 2021; 231 inds., Sinyang 2-ri, Chujado Island, 28 August 2021; 251 inds., Yecho-ri Port, 28 August 2021; 10 inds., Mukri Port, 28 August 2021; 48 inds., Chuja Port, 29 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), worldwide.

22. *Caprella polyacantha* Utinomi, 1947

볼꽃가시바다대벌레 (Fig. 8F)

Material examined. 1 ind., Damuraemi Island, 27 August 2021.

Distribution. Korea (south and east coasts), Japan, Russia.

23. *Caprella scaura* Templeton, 1836

뽕족머리바다대벌레 (Fig. 8G)

Material examined. 4 inds., Southern end of Hachujado, 26 August 2021; 7 inds., Sinyang Port, 26 August 2021; 7 inds., Yeongheung Shelter, 27 August 2021; 4 inds., Damuraemi Island, 27 August 2021; 4 inds., Chuja Port, 27 August 2021; 8 inds., Yecho-ri, 28 August 2021; 146 inds., Sinyang 2-ri, Chujado Island, 28 August 2021; 151 inds., Yecho-ri Port, 28 August 2021; 5 inds., Mukri Port, 28 August 2021; 1 ind., Jikgudo Island, 29 August 2021; 6 inds., Nabalon Cliff, 29 August 2021; 4 inds., Chuja Port, 29 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), worldwide.

24. *Caprella simia* Mayer, 1903

뽕족머리긴팔바다대벌레 (Fig. 8H)

Material examined. 14 inds., Sinyang Port, 26 August 2021; 158 inds., Damuraemi Island, 27 August 2021; 4 inds., Chuja Port, 27 August 2021; 43 inds., Sinyang 2-ri, Chujado Island, 28 August 2021; 1 ind., Yecho-ri Port, 28 August 2021; 13 inds., Jikgudo Island, 29 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Japan.

25. *Caprella subinermis* Mayer, 1890

갈고리손바다대벌레 (Fig. 9A)

Material examined. 1 ind., Sinyang Port, 26 August 2021; 20 inds., Chuja Port, 27 August 2021; 4 inds., Mukri Port, 28 August 2021.

Distribution. Korea (west, south, and east coasts), Japan.

26. *Caprella tsugarensis* Utinomi, 1947

짧은팔바다대벌레 (Fig. 9B)

Material examined. 15 inds., Damuraemi Island, 27 August 2021; 1 ind., Jikgudo Island, 29 August 2021; 8 inds., Nabalon Cliff, 29 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Japan, Russia.

27. *Caprella verrucosa* Boeck, 1871 흑등바다대벌레 (Fig. 9C)

Material examined. 2 inds., Damuraemi Island, 27 August 2021; 38 inds., Nabalon Cliff, 29 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Japan, U.S.A.

Genus *Paracaprella* Mayer, 1890 바다대벌레붙이속

28. *Paracaprella crassa* Mayer, 1903

세옆돌기바다대벌레붙이 (Fig. 9D)

Material examined. 2 inds., Yeongheung Shelter, 27 August 2021; 7 inds., Damuraemi Island, 27 August 2021; 19 inds., Jikgudo Island, 29 August 2021; 2 inds., Nabalon Cliff, 29 August 2021.

Distribution. Korea (south coast), China, Japan.

Genus *Perotripus* Dougherty and Steinberg, 1953

세아가미불구다리원시바다대벌레속

29. *Perotripus koreanus* Lee and Hong, 2010

돌기머리세아가미불구다리원시바다대벌레 (Fig. 9E)

Material examined. 9 inds., Damuraemi Island, 27 August 2021; 1 ind., Jikgudo Island, 29 August 2021.

Distribution. Korea (Jejudo Island and south coast).

Genus *Protogeton* Mayer, 1903

두아가미원시바다대벌레속

30. *Protogeton incertus* Mayer, 1903

두마디원시바다대벌레 (Fig. 9F)

Material examined. 2 inds., Chuja Port, 27 August 2021.

Distribution. Korea (south coast), China.

Genus *Pseudoproto* Mayer, 1903

의원시바다대벌레속

31. *Pseudoproto fallax* Mayer, 1903

세아가미의원시바다대벌레 (Fig. 9G)

Material examined. 1 ind., Sinyang Port, 26 August 2021; 1 ind., Chuja Port, 27 August 2021; 4 inds., Mukri Port, 28 August 2021.

Distribution. Korea (Jejudo Island and south coast),

Australia, China, Japan.

Family Corophiidae Leach, 1814 육질꼬리옆새우과
Genus *Monocorophium* Bousfield and Hoover, 1997
단뿔옆새우속

32. *Monocorophium acherusicum* (Costa, 1853)

두가시육질꼬리옆새우 (Fig. 9H)

Material examined. 2 inds., Chuja Port, 27 August 2021; 9 inds., Sinyang Port, 28 August 2021; 22 inds., Yecho-ri Port, 28 August 2021; 22 inds., Chuja Port, 29 August 2021.

Distribution. Korea (Jeju Island, west, south, and east coasts), Australia, China, Japan, New Zealand, The Indian Ocean, The Pacific.

Genus *Sinocorophium* Bousfield and Hoover, 1997
중국뿔옆새우속

33. *Sinocorophium jindoense* Heo and Kim, 2017

진도뿔옆새우 (Fig. 10A)

Material examined. 1 ind., Southern end of Hachujado, 26 August 2021.

Distribution. Korea (west and south coasts).

Family Cyproideidae J.L. Barnard, 1974
넓은마디옆새우과
Genus *Cyproidea* Haswell, 1880 참넓은마디옆새우속

34. *Cyproidea liodactyla* Hirayama, 1978

참넓은마디옆새우 (Fig. 10B)

Material examined. 1 ind., Yecho-ri Port, 28 August 2021.

Distribution. Korea (Jeju Island), Japan.

Genus *Moolapheonoides* J.L. Barnard, 1974
사이넓은마디옆새우

35. *Moolapheonoides acutifalcatus* Kobayashi and Ishimaru, 2005 굽은손넓은마디옆새우 (Fig. 10C)

Material examined. 1 ind., Yeongheung Shelter, 27 August 2021; 1 ind., Chuja Port, 27 August 2021; 4 inds., Mukri Port, 28 August 2021; 1 ind., Jikgudo Island, 29 August 2021.

Distribution. Korea (south and east coasts), Japan.

Genus *Terepeltopes* Hirayama, 1983
마루넓은마디옆새우

36. *Terepeltopes dolichorhunia* Hirayama, 1983

긴마루넓은마디옆새우 (Fig. 10D)

Material examined. 1 ind., Sinyang Port, 26 August 2021; 2 inds., Chuja Port, 27 August 2021; 1 ind., Yecho-ri Port, 28 August 2021; 7 inds., Mukri Port, 28 August 2021.

Distribution. Korea (south coast), Japan.

Family Dexaminidae Leach, 1814 붉은꼬리옆새우과
Genus *Guernea* Chevreux, 1887
울찬붉은꼬리옆새우속

37. *Guernea ezoensis* Ishimaru, 1987

홋카이도붉은꼬리옆새우 (Fig. 10E)

Material examined. 1 ind., Chuja Port, 27 August 2021; 2 inds., Yecho-ri Port, 28 August 2021; 18 inds., Mukri Port, 28 August 2021.

Distribution. Korea (Jeju Island, west, south, and east coasts), Japan.

38. *Guernea namhaensis* Kim, Hendrycks and Lee, 2011 남해붉은꼬리옆새우 (Fig. 10F)

Material examined. 1 ind., Mukri Port, 28 August 2021.

Distribution. Korea (Jeju Island and south coast).

39. *Guernea terelamina* Hirayama, 1985

등근붉은꼬리옆새우 (Fig. 10G)

Material examined. 1 ind., Chuja Port, 27 August 2021.

Distribution. Korea (south coast), Japan.

Genus *Paradexamine* Stebbing, 1899
옆가시붉은꼬리옆새우속

40. *Paradexamine acuta* Zhang, Kim and Kim, 2022

뿔족옆가시붉은꼬리옆새우 (Fig. 10H)

Material examined. 1 ind., Chuja Bridge, 27 August 2021.

Distribution. Korea (Jeju Island, west and south coasts).

41. *Paradexamine fraudatrix* Tzvetkova, 1976

보통옆가시붉은꼬리옆새우 (Fig. 11A)

Material examined. 18 inds., Sinyang Port, 26 August 2021; 1 ind., Chuja Port, 27 August 2021; 1 ind., Yecho-ri Port, 28 August 2021; 3 inds., Jikgudo Island, 29 August 2021.

Distribution. Korea (Jeju Island, west, south, and east coasts), Japan, Russia.

42. *Paradexamine rotundogena* Zhang, Kim and Kim, 2022 둥근뿔옆가시붉은꼬리옆새우 (Fig. 11B)

Material examined. 5 inds., Mukri Port, 28 August 2021.

Distribution. Korea (south coast).

Family Hyalidae Bulyčeva, 1957 해조숨이옆새우과
Genus *Apothyale* Bousfield and Hendrycks, 2002

43. *Apothyale punctata* (Hiwatari and Kajihara, 1981)
짧은채찍해조숨이옆새우 (Fig. 11C)

Material examined. 1 ind., Chuja Bridge, 27 August 2021; 1 ind., Jikgudo Island, 29 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Japan.

Genus *Protohyale* Bousfield and Hendrycks, 2002

44. *Protohyale (Boreohyale) pumila* (Hiwatari and Kajihara, 1981) 꼬마채찍해조숨이옆새우 (Fig. 11D)

Material examined. 50 inds., Chuja Bridge, 27 August 2021; 40 inds., Yeongheung Shelter, 27 August 2021; 32 inds., Yecho-ri, 28 August 2021; 2 inds., Sinyang 2-ri, Chujado Island, 28 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Japan.

45. *Protohyale (Boreohyale) triangulata* (Hiwatari, 2003) 세모손해조숨이옆새우 (Fig. 11E)

Material examined. 17 inds., Southern end of Hachujado, 26 August 2021; 10 inds., Damuraemi Island, 27 August 2021; 1 ind., Yecho-ri, 28 August 2021; 5 inds., Sinyang 2-ri, Chujado Island, 28 August 2021; 30 inds., Jikgudo Island, 29 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Japan.

Family Ischyroceridae Stebbing, 1899

육질꼬리옆새우붙이과

Genus *Erichthonius* H. Milne Edwards, 1830

46. *Erichthonius pugnax* (Dana, 1852)
넓은마디육질꼬리옆새우붙이 (Fig. 11F)

Material examined. 3 inds., Damuraemi Island, 27 August 2021; 2 inds., Chuja Port, 27 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), China, Japan, New Zealand, Madagascar.

Genus *Jassa* Leach, 1814

47. *Jassa marmorata* Holmes, 1905
큰가위손육질꼬리옆새우붙이 (Fig. 11G)

Material examined. 1 ind., Sinyang Port, 28 August 2021.

Distribution. Korea (west, south, and east coasts), China, Japan, The North Pacific.

48. *Jassa morinoi* Conlan, 1990
털꼬리육질꼬리옆새우붙이 (Fig. 11H)

Material examined. 3 inds., Sinyang Port, 26 August 2021; 1 ind., Damuraemi Island, 27 August 2021; 3 inds., Sinyang Port, 28 August 2021; 5 inds., Jikgudo Island, 29 August 2021.

Distribution. Korea (south and east coasts), Japan, The North Pacific.

49. *Jassa slatteryi* Conlan, 1990
보통육질꼬리옆새우붙이 (Fig. 12A)

Material examined. 3 inds., Chuja Port, 27 August 2021; 36 inds., Sinyang Port, 28 August 2021; 13 inds., Yecho-ri Port, 28 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), worldwide.

Genus *Ventojassa* J.L. Barnard, 1970

50. *Ventojassa dentipalma* Kim and Kim, 1991
가시손육질꼬리옆새우붙이 (Fig. 12B)

Material examined. 1 ind., Chuja Port, 27 August 2021.

Distribution. Korea (Jejudo Island and east coast).

Family Leucothoidae Dana, 1852 공생옆새우과
Genus *Leucothoe* Leach, 1814

51. *Leucothoe nagatai* Ishimaru, 1985
짧은손가락공생옆새우 (Fig. 12C)

Material examined. 4 inds., Sinyang Port, 28 August 2021.

Distribution. Korea (Jejudo Island and east coast), Japan.

52. *Leucothoe spinicarpa* (Abildgaard, 1789)
긴손가락공생옆새우 (Fig. 12D)

Material examined. 3 inds., Jikgudo Island, 29 August 2021.

Distribution. Korea (Jejudo Island and east coast), worldwide.

Genus *Paranamixis* Schellenberg, 1938 한손옆새우속

53. *Paranamixis denticulus* Kim and Kim, 1991
곰보병신옆새우 (Fig. 12E)

Material examined. 1 ind., Chuja Bridge, 27 August 2021; 1 ind., Yecho-ri Port, Chujado Island, 28 August 2021.

Distribution. Korea (Jejudo Island and Ulleungdo Island).

Family Maeridae Krapp-Schickel, 2008
마에라옆새우과
Genus *Elasmopus* Costa, 1853

54. *Elasmopus koreanus* Kim and Kim, 1991

한국멜리타옆새우 (Fig. 12F)

Material examined. 2 inds., Southern end of Hachujado, 26 August 2021; 2 inds., Chuja Bridge, 27 August 2021; 1 ind., Yeongheung Shelter, 27 August 2021; 12 inds., Jikgudo Island, 29 August 2021; 1 ind., Nabalon Cliff, 29 August 2021.

Distribution. Korea (south and east coasts).

Genus *Orientomaera* Ariyama, 2018

55. *Orientomaera brevispina* (Kim and Kim, 1991)

짧은가시멜리타옆새우 (Fig. 12G)

Material examined. 1 ind., Southern end of Hachujado, 26 August 2021; 1 ind., Damuraemi Island, 27 August 2021; 1 ind., Jikgudo Island, 29 August 2021.

Distribution. Korea (south and east coasts), Japan.

Genus *Quadrimeaera* Krapp-Schickel and Ruffo, 2000

56. *Quadrimeaera pacifica* (Schellenberg, 1938)

태평양멜리타옆새우 (Fig. 12H)

Material examined. 3 inds., Southern end of Hachujado, 26 August 2021; 5 inds., Jikgudo Island, 29 August 2021.

Distribution. Korea (Jejudo Island, south and east coasts), China, Japan, Hawaii, Micronesia, South Africa, Southern Polynesia.

Family Melitidae Bousfield, 1973 멜리타옆새우과
Genus *Abludomelita* Karaman, 1981

57. *Abludomelita japonica* (Nagata, 1965)

별난멜리타옆새우 (Fig. 13A)

Material examined. 18 inds., Nabalon Cliff, 29 August 2021.

Distribution. Korea (Jejudo Island, south and east coasts), Japan.

Genus *Melita* Leach, 1814

58. *Melita nagatai* Yamato, 1987

나도네모손멜리타옆새우 (신칭)* (Figs. 4, 5, 13B)

Melita nagagai Yamato, 1987: 289, Figs. 11–15; Tomikawa *et al.*, 2018: 74.

Material examined. 5 inds., Chuja Bridge, 27 August 2021.

Description. Male (MABIK CR00252864): Body (Fig. 4A) smooth, 8.0 mm long. Head subequal to pereonites 1, 2 combined; rostrum not elongated; lateral cephalic lobe truncate; eye round, small.

Pleonites 1, 2 (Fig. 4B) ventral margin smooth, unarmed, pleonites 3 ventral margin with 4 stout setae; pleonites 1–3 with small cusps posteroventrally.

Antenna 1 (Fig. 4C) slender, about 0.7 times as long as body length; peduncular article 1 with 5 robust setae ventrally; length ratio of peduncular articles 1–3 = 1.00 : 1.24 : 0.63; accessory flagellum 3-articulate; flagellum 21-articulate, about 1.7 times as long as peduncle.

Antenna 2 (Fig. 4D) about 0.6 times as long as antenna 1, peduncular article 2 with short gland cone ventrodistally; length ratio of peduncular articles 2–5 = 1.00 : 1.50 : 4.90 : 4.90; flagellum 7-articulates, about 0.6 times as long as peduncle.

Gnathopod 1 (Fig. 4E) coxa subquadrate, deeper than wide, with ventral setules; basis subrectangular, narrowing proximally, with simple setae distal half of anterior margin, 8 simple setae posteriorly; merus with pubescence posteriorly; carpus elongate, width 0.3 times length, slightly shorter than basis, with pubescence anterodistally; propodus subovate, triangular lobe pointed and produced anterodistally, palm transverse; dactylus broad, falcate.

Gnathopod 2 (Fig. 4F) coxa to ischium similar to those of gnathopod 1, but basis less setose; carpus subtriangular, setose ventrally; propodus massive, subrectangular, both margins with clusters of setae, medial portion with two rows of setae; palm oblique; dactylus falcate, curved inward; length ratio of articles 2–7 = 1.00 : 0.40 : 0.47 : 0.62 : 1.40 : 0.64.

Pereopod 3 (Fig. 4G) coxa similar to that of gnathopod 2; basis curved anteriorly; merus subrectangular, slightly longer than carpus, with 3 robust setae on dorsal margin; carpus and propodus slender; dactylus short, falcate; length ratio of articles 2–7 = 1.00 : 0.22 : 0.62 : 0.53 : 0.44 : 0.09.

Pereopod 4 (Fig. 4H) similar to pereopod 3, except coxa 4 more concave posteriorly and produced midposteriorly; length ratio of articles 2–7 = 1.00 : 0.20 : 0.44 : 0.32 : 0.37 : 0.09.

Pereopod 5 (Fig. 5A) coxa bilobate, anterior lobe protruding roundly downward; basis subovate, anterior margin with robust setae, posterior margin weakly ser-

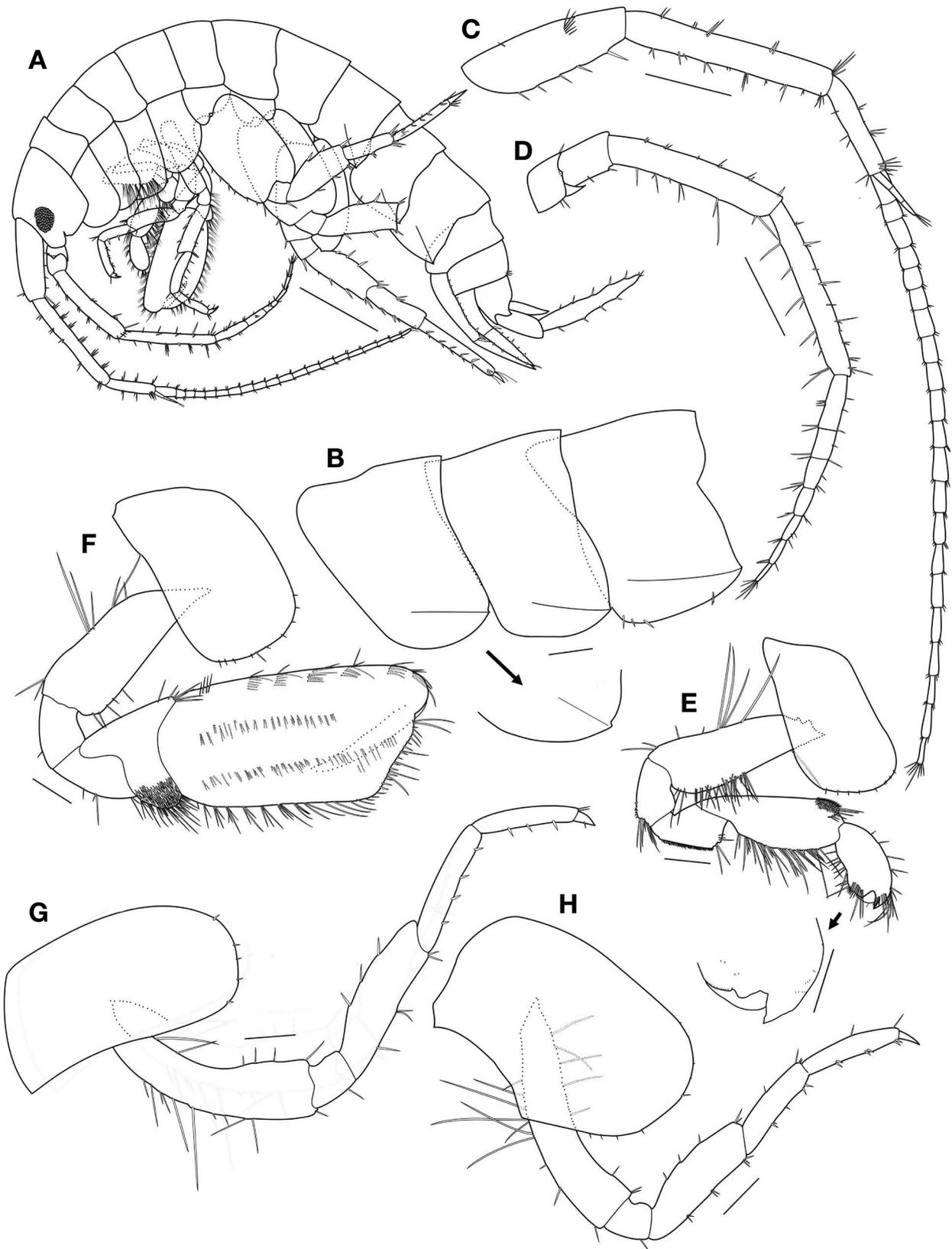


Fig. 4. *Melita nagatai* Yamato, 1987, adult male. A, habitus; B, pleonal epimera 1-3; C, antenna 1; D, antenna 2; E, gnathopod 1; F, gnathopod 2; G, pereopod 3; H, pereopod 4. Scale bars: A = 1 mm; C, D = 0.5 mm; B, E-H = 0.2 mm.

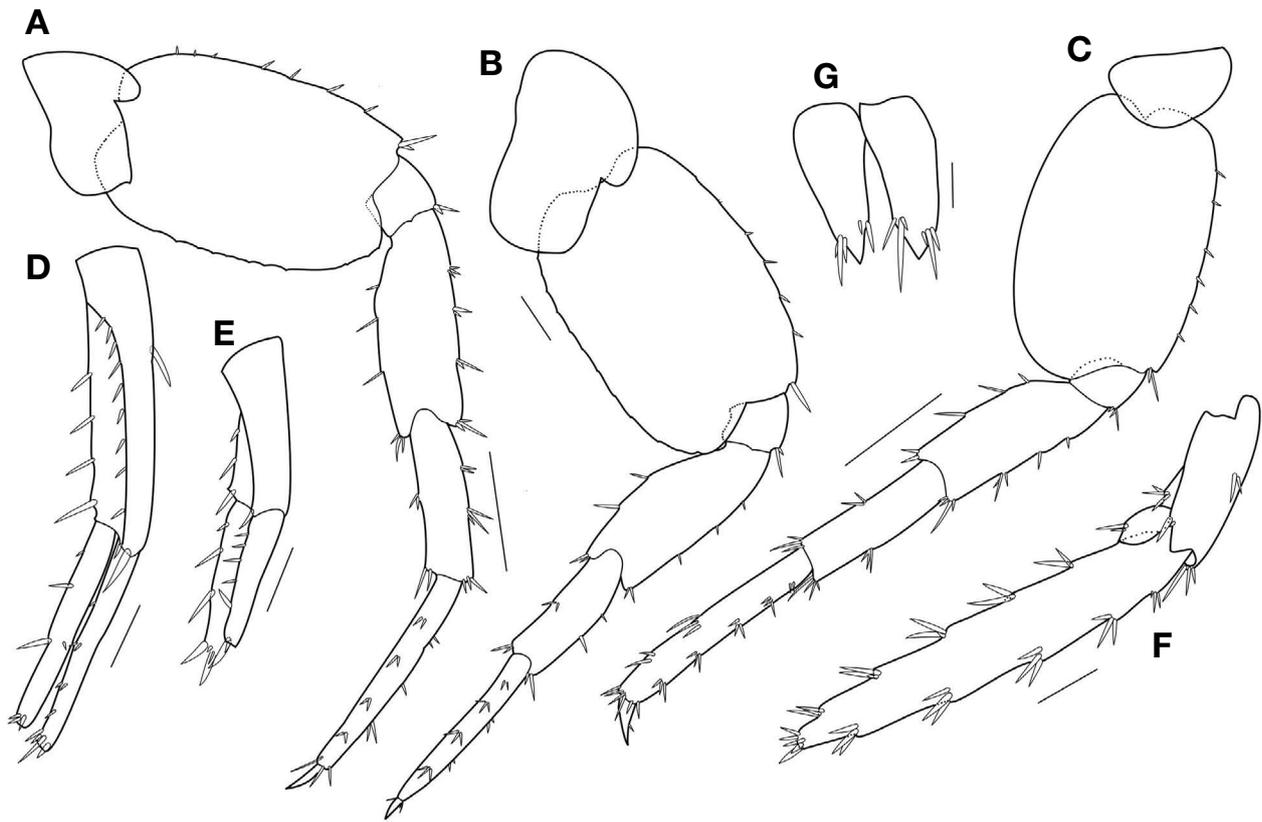


Fig. 5. *Melita nagatai* Yamato, 1987, adult male. A, pereopod 5; B, pereopod 6; C, pereopod 7; D, uropod 1; E, uropod 2; F, uropod 3; G, telson. Scale bars: A, C=0.5 mm; B, D–F=0.2 mm; G=0.1 mm.

ulate; merus broader than carpus and propodus, robust setae on both margins; carpus and propodus subrectangular, slender; length ratio of articles 2–7 = 1.00 : 0.21 : 0.72 : 0.60 : 0.78 : 0.14.

Pereopod 6 (Fig. 5B) similar to pereopod 5, except coxa 6 broader than that of pereopod 5; length ratio of articles 2–7 = 1.00 : 0.20 : 0.63 : 0.53 : 0.65 : 0.09.

Pereopod 7 (Fig. 5C) similar to pereopod 6, except coxa semicircular, unilobate; basis ovate, posterior margin smooth and rounded; length ratio of articles 2–7 = 1.00 : 0.18 : 0.63 : 0.53 : 0.82 : 0.17.

Uropod 1 (Fig. 5D) peduncle longer than both rami with 9 dorsolateral, 4 dorsomedial, 1 ventrolateral, and 1 apicolateral robust setae; both rami subequal in length, with dorsal robust setae.

Uropod 2 (Fig. 5E) about 0.6 times as long as uropod 1; peduncle with 3 dorsomedial and 1 apicolateral robust setae; inner ramus slightly longer than outer ramus.

Uropod 3 (Fig. 5F) variramous; peduncle short, about 0.4 times as long as outer ramus; inner ramus short, scale-like with 2 robust setae distally; outer ramus elongate, slender, and uniaarticulate.

Telson (Fig. 5G) completely cleft, narrowing distally, apically acute, with 2 groups of subapical robust setae in

each lobe.

Remarks. *Melita nagatai* is similar to *M. bingoensis* Yamato, 1987. However, *M. nagatai* is easily distinguished from *M. bingoensis* by lacking medial robust setae on propodus of gnathopod 1. This species is also very similar to *M. koreana* Stephenson, 1944 in possessing a similar body form, especially subquadrate propodus of gnathopod 2. However, *M. nagatai* is morphologically distinguished from *M. koreana* as follows: (1) gnathopod 1, propodus with acute triangular lobe anterodistally; (2) epimeral plates 1–3 slightly acute ventrodistally. The newly recorded species in Chujado Island, *M. nagatai* is well accorded with the original description given by Yamato (1987). However, these morphological characteristics does not seem clear to distinguish between the two species. Therefore, systematic molecular verification through sequencing is necessary in the future for accurate identification of these two morphologically similar species.

Distribution. Korea (Chujado Island), Japan.

59. *Melita rylovae* Bulyčeva, 1955

두발가락멜리타옆새우 (Fig. 13C)

Material examined. 10 inds., Southern end of Hachujado, 26 August 2021; 20 inds., Chuja Bridge, 27 August 2021; 2 inds., Yecho-ri, 28 August 2021; 1 ind., Sinyang 2-ri, Chujado Island, 28 August 2021; 1 ind., Jikgudo Island, 29 August 2021.

Distribution. Korea (Jejudo Island, west and south coasts), China, Japan, Russia.

Family Oedicerotidae Lilljeborg, 1865

불은눈옆새우과

Genus *Synchelidium* G.O. Sars, 1892

60. *Synchelidium trioostegitum* Jo, 1990

제주머니불은눈옆새우 (Fig. 13D)

Material examined. 4 inds., Chuja Port, 27 August 2021; 3 inds., Mukri Port, 28 August 2021.

Distribution. Korea (Jejudo Island and west coast).

Family Photidae Boeck, 1871 꼬리다리옆새우과

Genus *Gammaropsis* Lilljeborg, 1855

61. *Gammaropsis japonica* (Nagata, 1961)

극동육질꼬리옆새우 (Fig. 13E)

Material examined. 10 inds., Damuraemi Island, 27 August 2021; 35 inds., Sinyang Port, 28 August 2021; 4 inds., Yecho-ri Port, 28 August 2021; 20 inds., Jikgudo Island, 29 August 2021; 25 inds., Nabalon Cliff, 29 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), China, Japan.

Genus *Photis* Krøyer, 1842

62. *Photis bronca* Jung, Coleman and Yoon, 2019

돌기손이형꼬리다리옆새우 (Fig. 13F)

Material examined. 1 ind., Southern end of Hachujado, 26 August 2021; 1 ind., Chuja Bridge, 27 August 2021; 2 inds., Damuraemi Island, 27 August 2021.

Distribution. Korea (Jejudo Island and south coast).

Family Podoceridae Leach, 1814 긴배옆새우과

Genus *Podocerus* Leach, 1814

63. *Podocerus hoonsooi* Kim and Kim, 1991

등빨긴배옆새우 (Fig. 13G)

Material examined. 2 inds., Chuja Port, 27 August 2021; 1 ind., Jikgudo Island, 29 August 2021.

Distribution. Korea (Jejudo Island, south and east coasts).

64. *Podocerus ulreungensis* Kim and Kim, 1991

가시손긴배옆새우 (Fig. 13H)

Material examined. 14 inds., Chuja Bridge, 27 August 2021; 11 inds., Yeongheung Shelter, 27 August 2021; 50 inds., Damuraemi Island, 27 August 2021; 2 inds., Chuja Port, 27 August 2021; 3 inds., Sinyang 2-ri, Chujado Island, 28 August 2021; 28 inds., Yecho-ri Port, 28 August 2021; 8 inds., Jikgudo Island, 29 August 2021; 1 ind., Nabalon Cliff, 29 August 2021.

Distribution. Korea (Jejudo Island, south and east coasts).

Family Pontogeneiidae Stebbing, 1906

Genus *Eusiroides* Stebbing, 1888

65. *Eusiroides japonica* Hirayama, 1985

극동짧은채찍옆새우 (Fig. 14A)

Material examined. 3 inds., Jikgudo Island, 29 August 2021; 1 ind., Nabalon Cliff, 29 August 2021.

Distribution. Korea (Jejudo Island and east coast), Bering Sea, Japan, Mexico.

Genus *Pontogeneia* Boeck, 1871

66. *Pontogeneia rostrata* Gurjanova, 1938

북태평양짧은채찍옆새우 (Fig. 14B)

Material examined. 2 inds., Southern end of Hachujado, 26 August 2021; 1 ind., Sinyang Port, 26 August 2021; 16 inds., Chuja Bridge, 27 August 2021; 13 inds., Yeongheung Shelter, 27 August 2021; 10 inds., Yecho-ri, 28 August 2021, 1 ind., Sinyang 2-ri, Chujado Island, 28 August 2021.

Distribution. Korea (Jejudo Island, west, south, and east coasts), Bering Sea, China, Japan, Mexico.

Family Stenothoidae Boeck, 1871 예쁜이옆새우과

Genus *Stenothoe* Dana, 1852

67. *Stenothoe valida* Dana, 1852 꼬마예쁜이옆새우 (Fig. 14C)

Material examined. 5 inds., Southern end of Hachujado, 26 August 2021; 1 ind., Sinyang Port, 26 August 2021; 35 inds., Chuja Bridge, 27 August 2021; 20 inds., Yeongheung Shelter, 27 August 2021; 3 inds., Damuraemi Island, 27 August 2021; 80 inds., Chuja Port, 27 August 2021; 35 inds., Yecho-ri, 28 August 2021; 1 ind., Sinyang 2-ri, Chujado Island, 28 August 2021; 23 inds., Sinyang Port, 28 August 2021; 55 inds., Yecho-ri Port, 28 August 2021; 3 inds., Yecho-ri Port, 28 August 2021; 15 inds., Jikgudo Island, 29 August 2021.

Distribution. Korea (Jejudo Island, south and east coasts), worldwide.

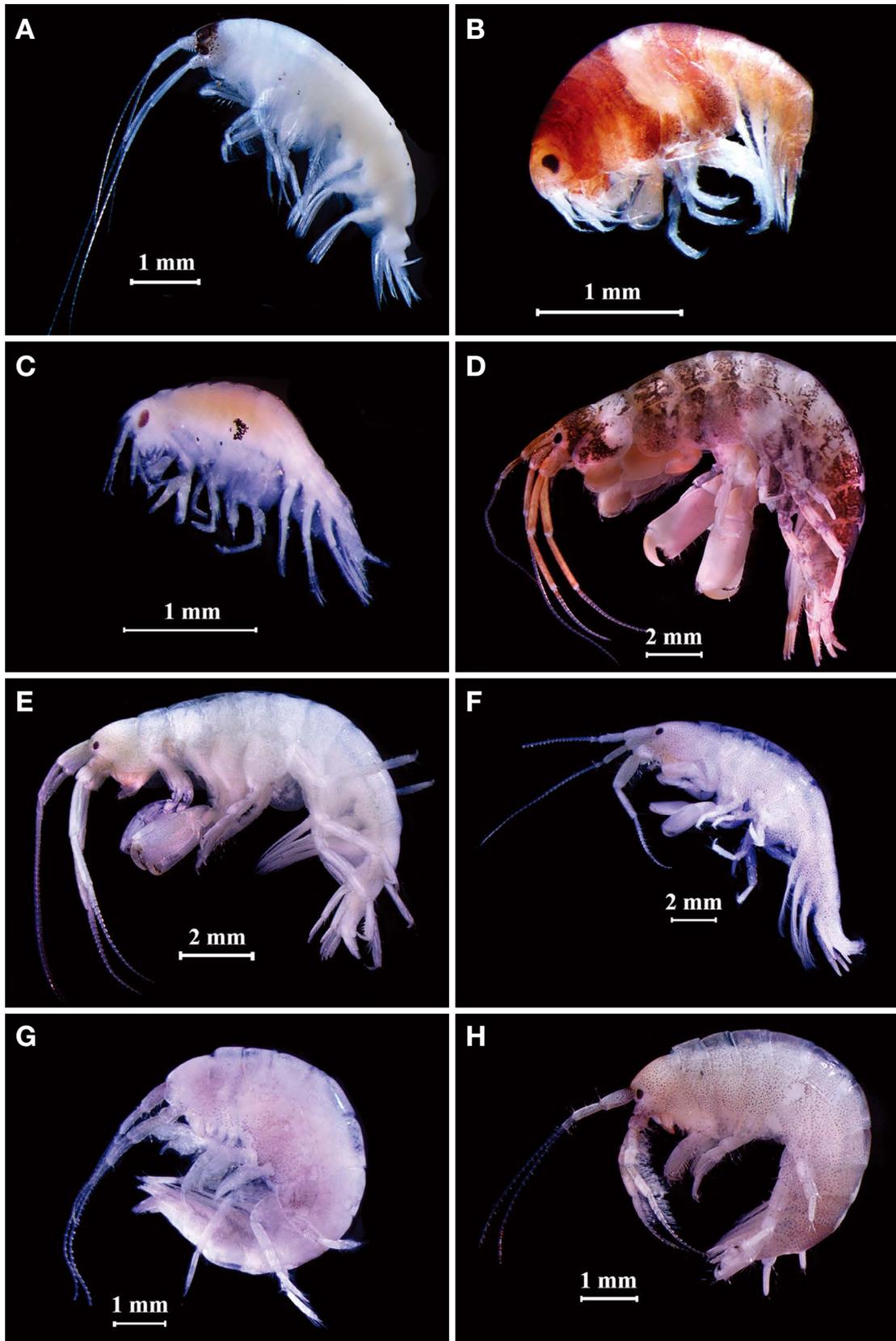


Fig. 6. A, *Byblis japonicus*; B, *Hourstonius koreana*; C, *Paramphilochus parachelatus*; D, *Ampithoe changbaensis*; E, *Ampithoe lacertosa*; F, *Ampithoe valida shimizuensis*; G, *Ampithoe waialua*; H, *Pleonexes koreana*.

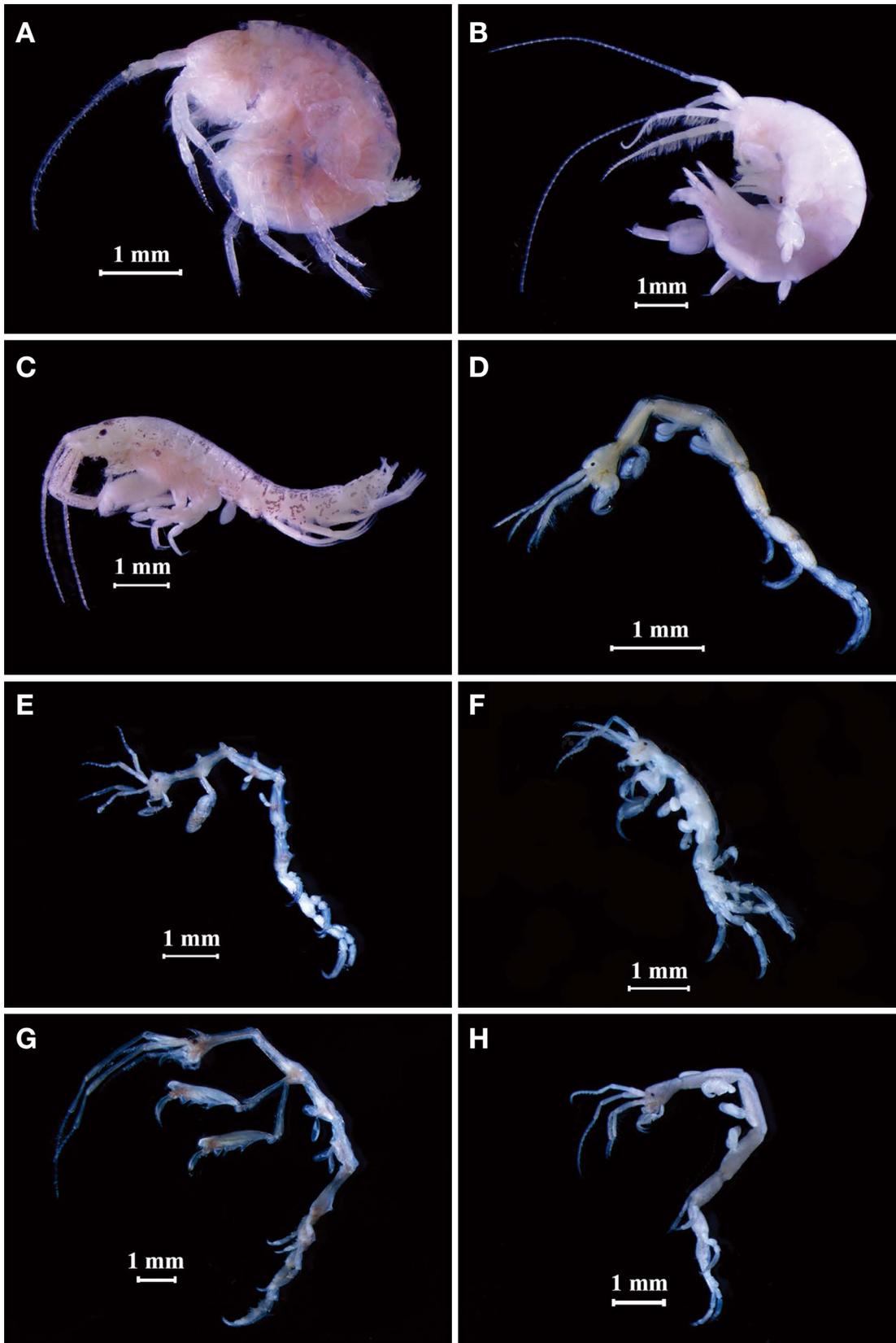


Fig. 7. A, *Sunamphitoe baegryeongensis*; B, *Sunamphitoe chujaensis*; C, *Grandidierella japonica*; D, *Caprella algaceus*; E, *Caprella arimotoi*; F, *Caprella brevisrostris*; G, *Caprella californica*; H, *Caprella danilevskii*.

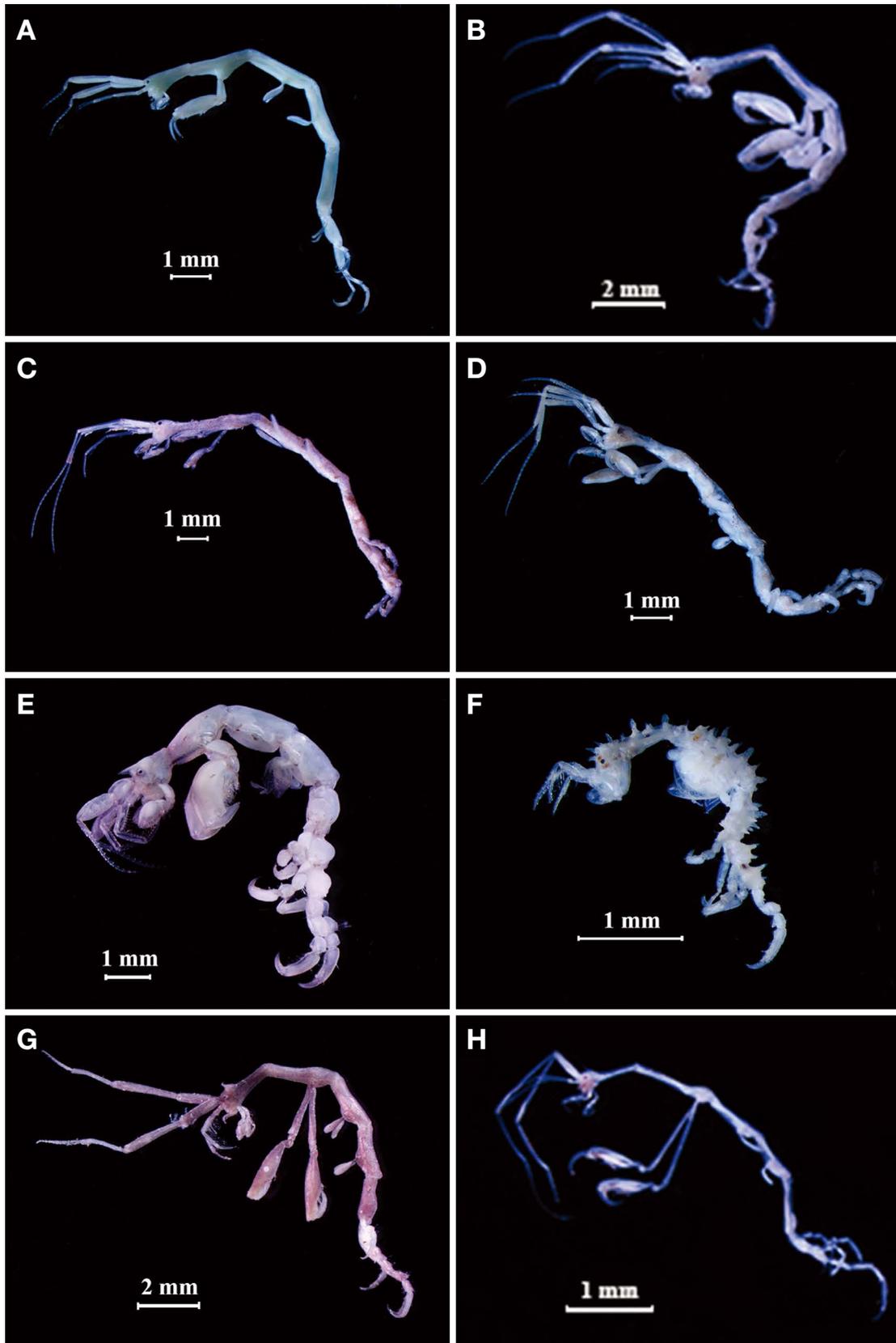


Fig. 8. A, *Caprella decipiens*; B, *Caprella equilibra*; C, *Caprella kroyeri*; D, *Caprella monoceros*; E, *Caprella penantis*; F, *Caprella polycantha*; G, *Caprella scaura*; H, *Caprella simia*.

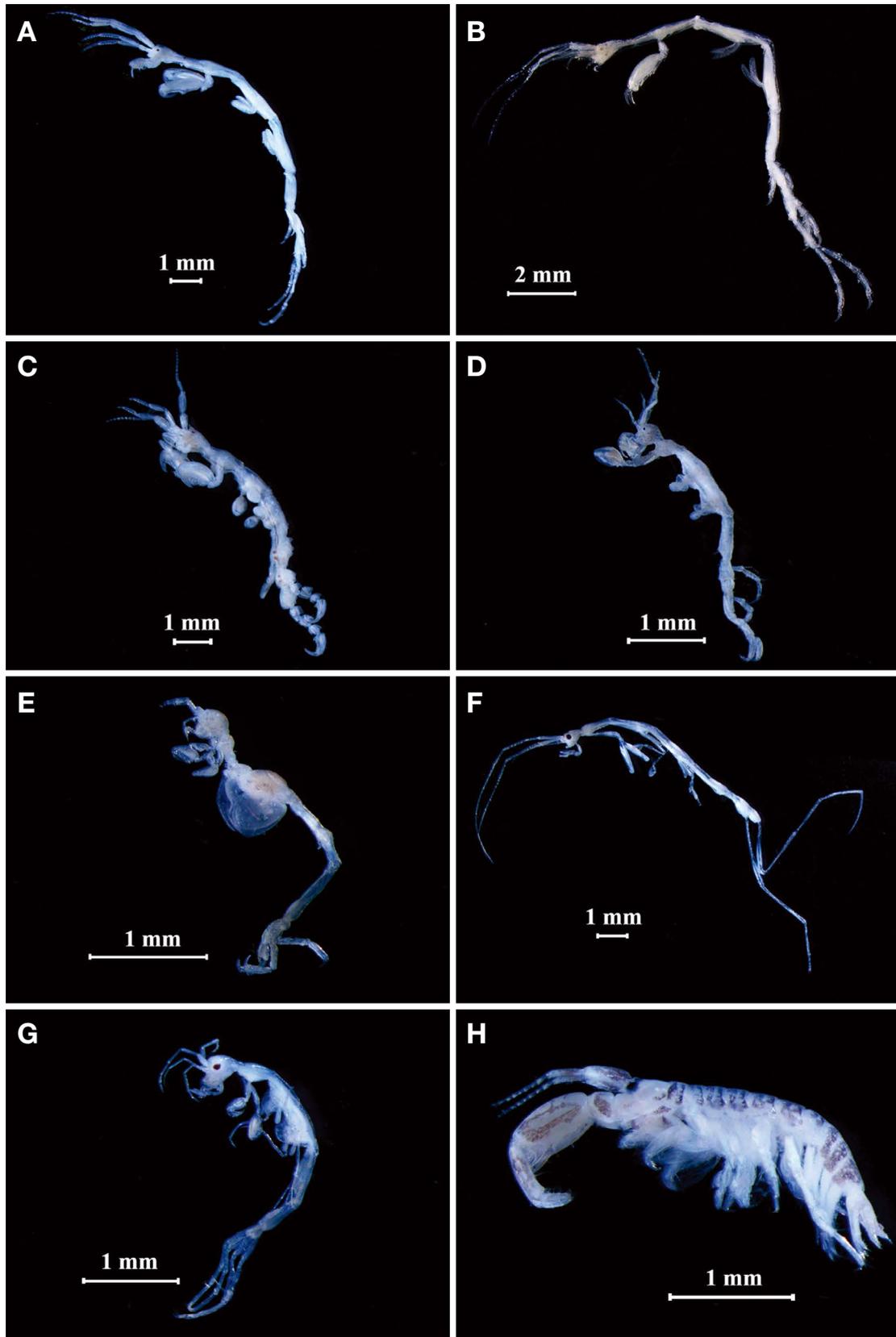


Fig. 9. A, *Caprella subinermis*; B, *Caprella tsugarensis*; C, *Caprella verrucosa*; D, *Paracaprella crassa*; E, *Perotripus koreanus*; F, *Protogeton incertus*; G, *Pseudoproto fallax*; H, *Monocorophium acherusicum*.

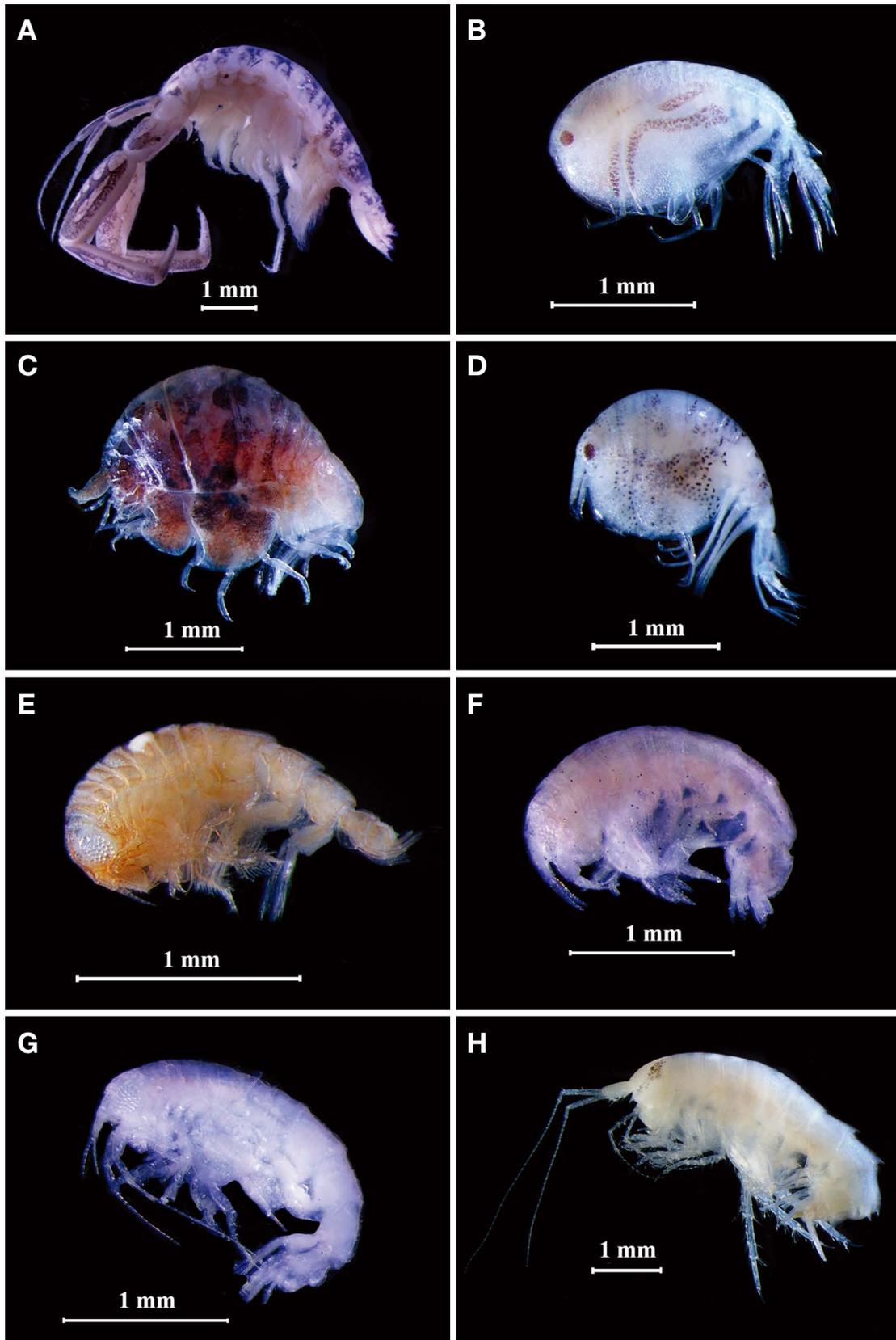


Fig. 10. A, *Sinocorphium jindoense*; B, *Cyproidea liodactyla*; C, *Moolapheonoides acutifalcatus*; D, *Terepeltopes dolichorhunia*; E, *Guerneza ezoensis*; F, *Guerneza namhaensis*; G, *Guerneza terelamina*; H, *Paradexamine acuta*.

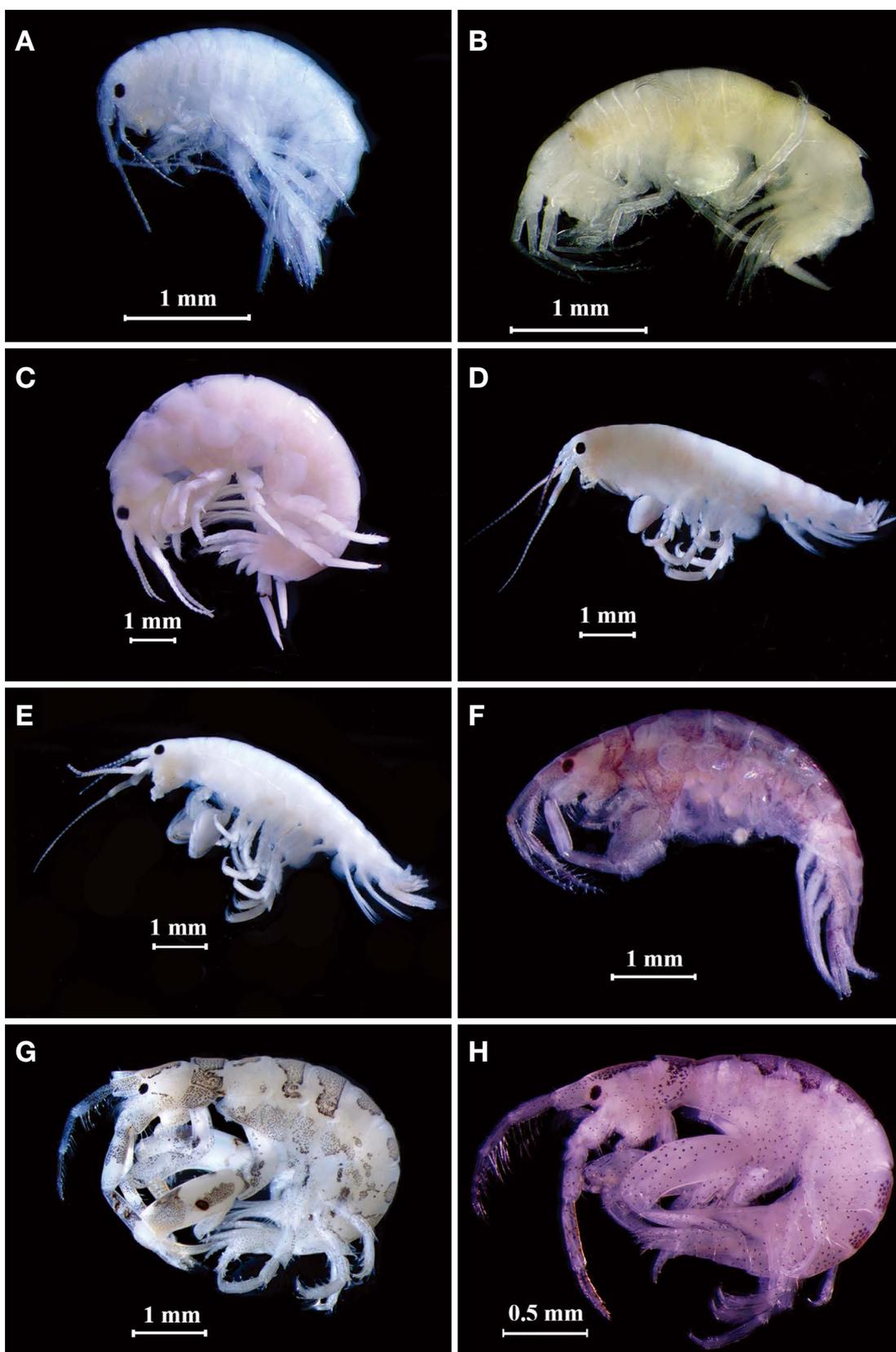


Fig. 11. A, *Paradexamine fraudatrix*; B, *Paradexamine rotundogena*; C, *Apohyale punctata*; D, *Protohyale (Boreohyale) pumila*; E, *Protohyale (Boreohyale) triangulata*; F, *Erichthonius pugnax*; G, *Jassa marmorata*; H, *Jassa morinoi*.

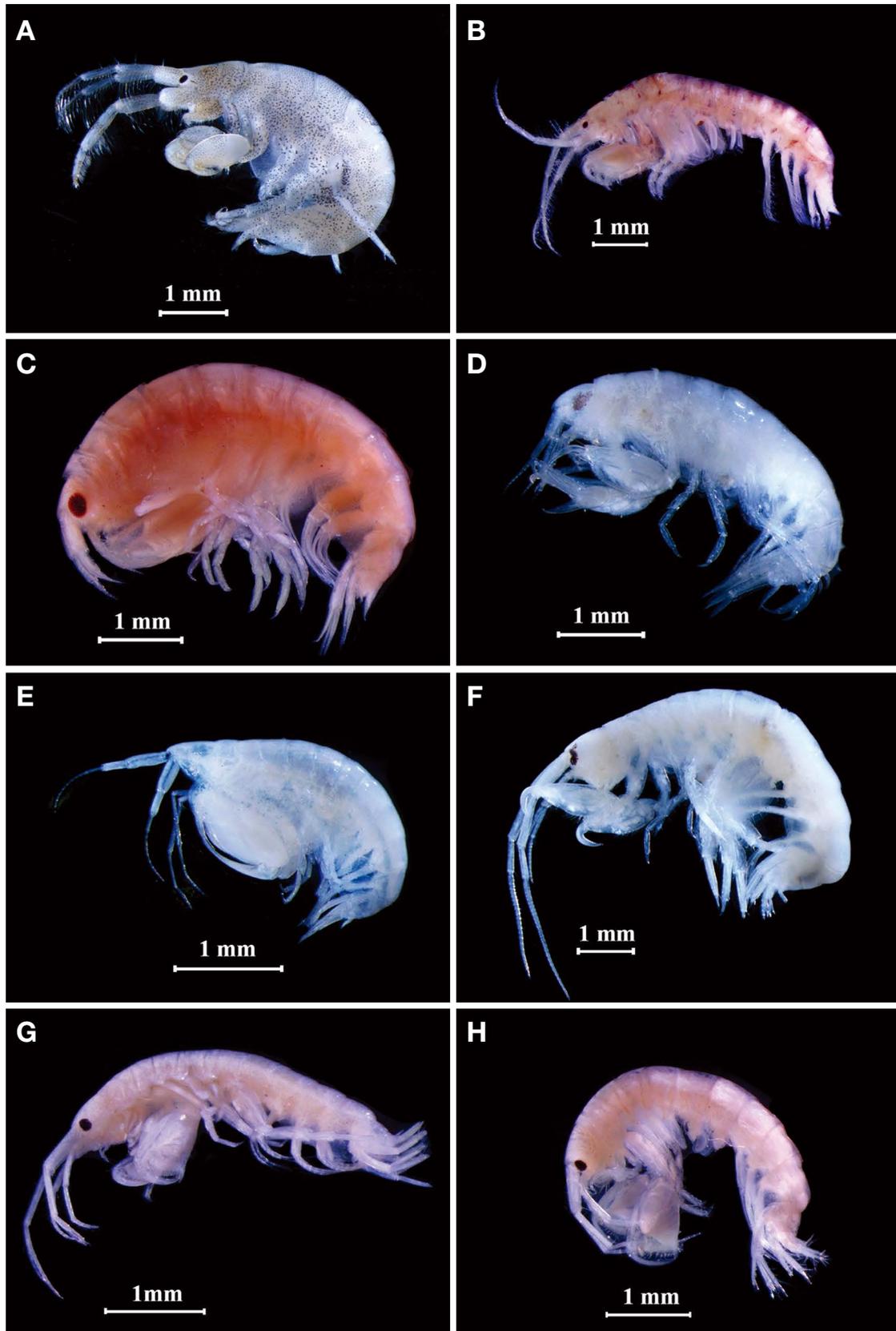


Fig. 12. A, *Jassa slatteryi*; B, *Ventojassa dentipalma*; C, *Leucothoe nagatai*; D, *Leucothoe spinicarpa*; E, *Paranamixis denticulus*; F, *Elasmopus koreanus*; G, *Orientomaera brevispina*; H, *Quadrimaera pacifica*.

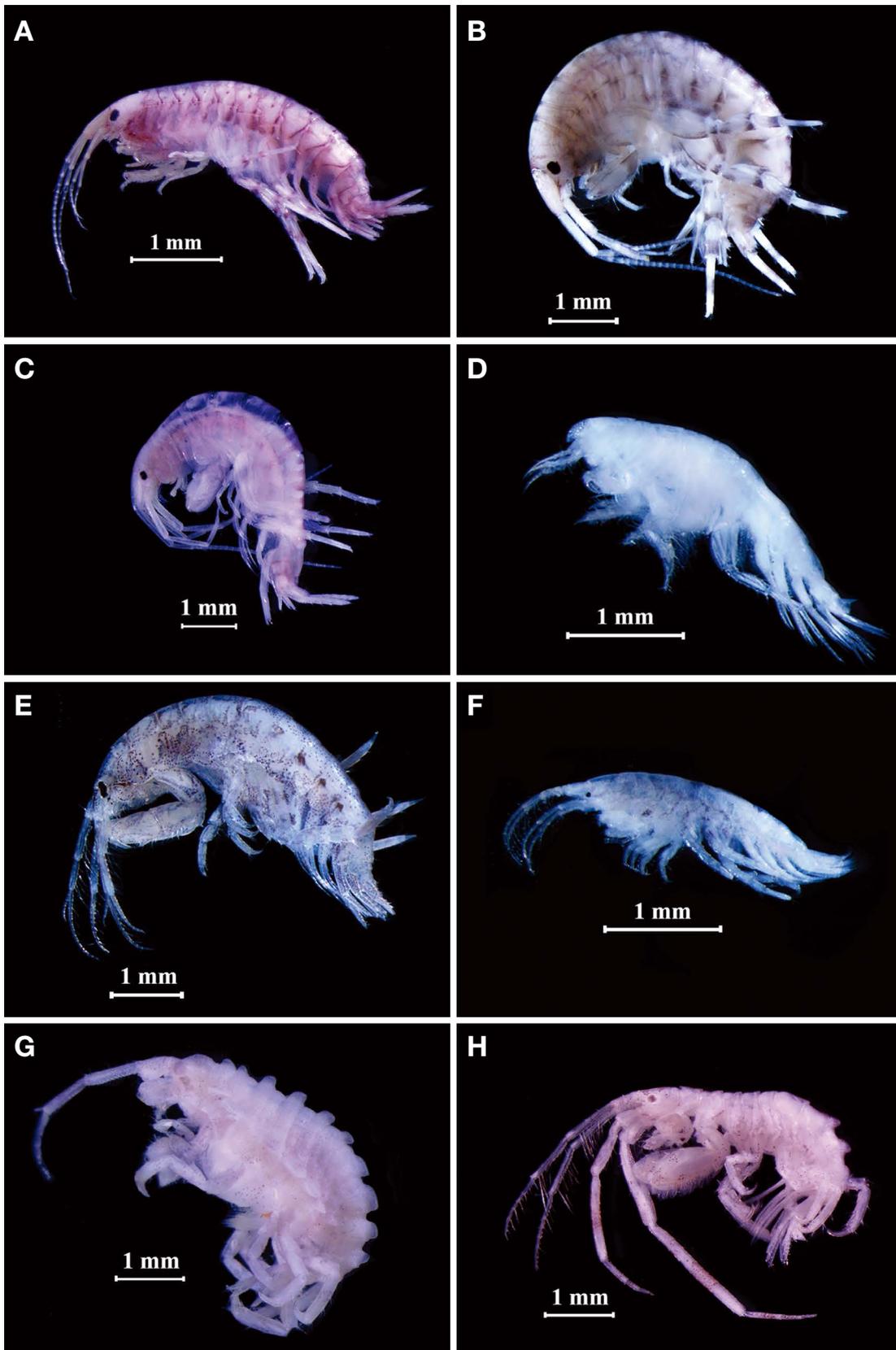


Fig. 13. A, *Abludomelita japonica*; B, *Melita nagatai*; C, *Melita rylovae*; D, *Synchelidium trioostegitum*; E, *Gammaropsis japonica*; F, *Photis bronca*; G, *Podocerus hoonsooi*; H, *Podocerus ulreungensis*.

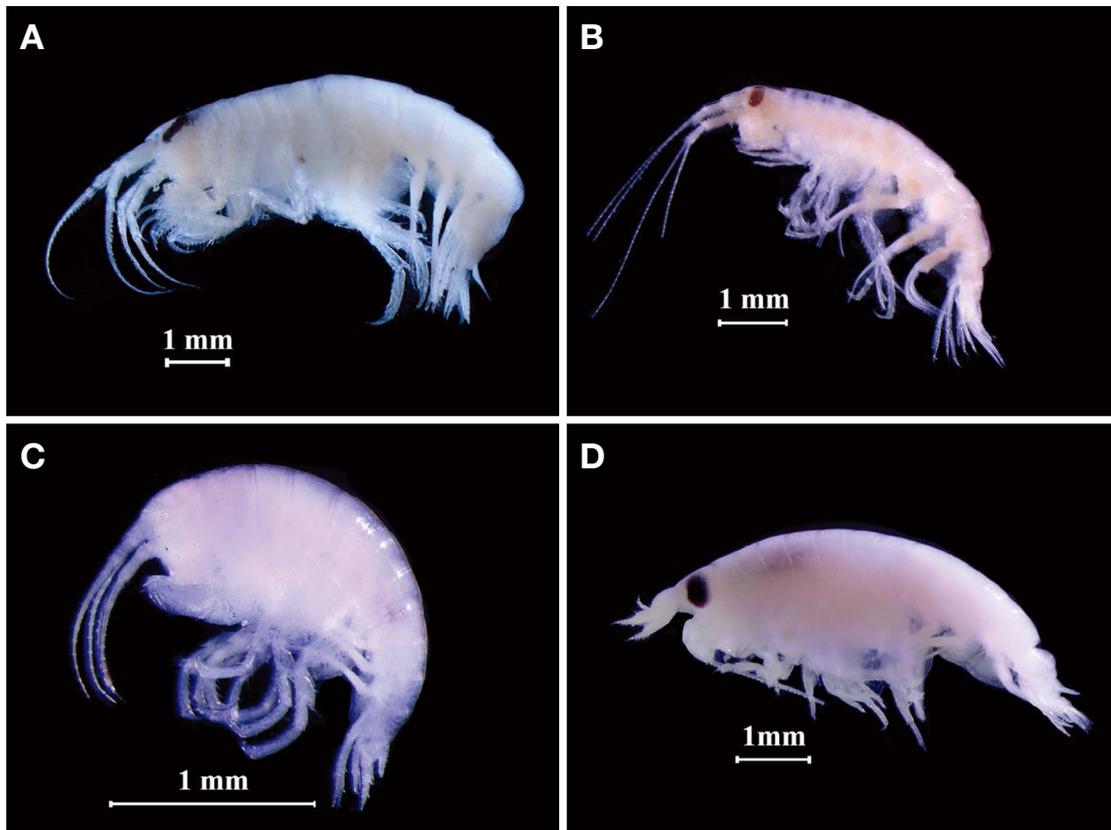


Fig. 14. A, *Eusiroides japonica*; B, *Pontogeneia rostrata*; C, *Stenothoe valida*; D, *Microlysias rectangulatus*.

Family Tryphosidae Lowry and Stoddart, 1997

어금니긴팔옆새우과

Genus *Microlysias* Stebbing, 1918

애기어금니긴팔옆새우속

68. *Microlysias rectangulatus* Heo, Hendrycks and Kim, 2020 네모더듬이긴팔옆새우 (Fig. 14D)

Material examined. 6 inds., Nabalon Cliff, 29 August 2021.

Distribution. Korea (east coast).

DISCUSSION

To date, 248 marine amphipod species belonging to 119 genera, 49 families have been recorded in Korea (National Marine Biodiversity Institute of Korea, 2022). A total of 68 amphipod species in 39 genera, 19 families were revealed in this faunal study at 12 sites of Chujado Island during the period 26–29 August 2021 (Table 1, Fig. 15). A total of 16 species in 11 genera, 9 families have been recorded from previous studies in Chujado Island (Kim and Kim, 1987; 1988; Lee and Hyun, 1997;

Kim and Lee, 2009; Lee and Hong, 2010; Kim *et al.*, 2012; Kim and Min, 2013; Eun *et al.*, 2016; Jung *et al.*, 2019; Zhang *et al.*, 2022). The number of species found in this study was about 27% of the total number of marine amphipod species recorded in Korea. This value is more than four times the 16 amphipod species identified from previous studies. It showed higher species diversity than previous records of Jindo Island (35 species in 18 genera, 12 families) and Yeonggwang-gun (30 species in 18 genera, 13 families) (Kim *et al.*, 2005; Kim and Lee, 2008; Lee and Hong, 2008). Results confirm that Chujado Island has a high amphipod species diversity despite its small area. Among the 68 species, two species, *Ampithoe waialua* J.L. Barnard, 1970; *Melita nagatai* Yamato, 1987, are newly recorded in Korea with a major significance. In addition, 60 species in 34 genera, 18 families were first confirmed in Chujado Island. Now a total of 75 species in 43 genera, 22 families of amphipods are known to inhabit Chujado Island.

As a result of examining the appearance ratio of each recorded amphipod family, family Caprellidae with 20 species (29%) showed the highest appearance ratio among the 68 species of 19 families. Ampithoidae with 7 species (10%) and Dexaminidae with 6 species (9%)

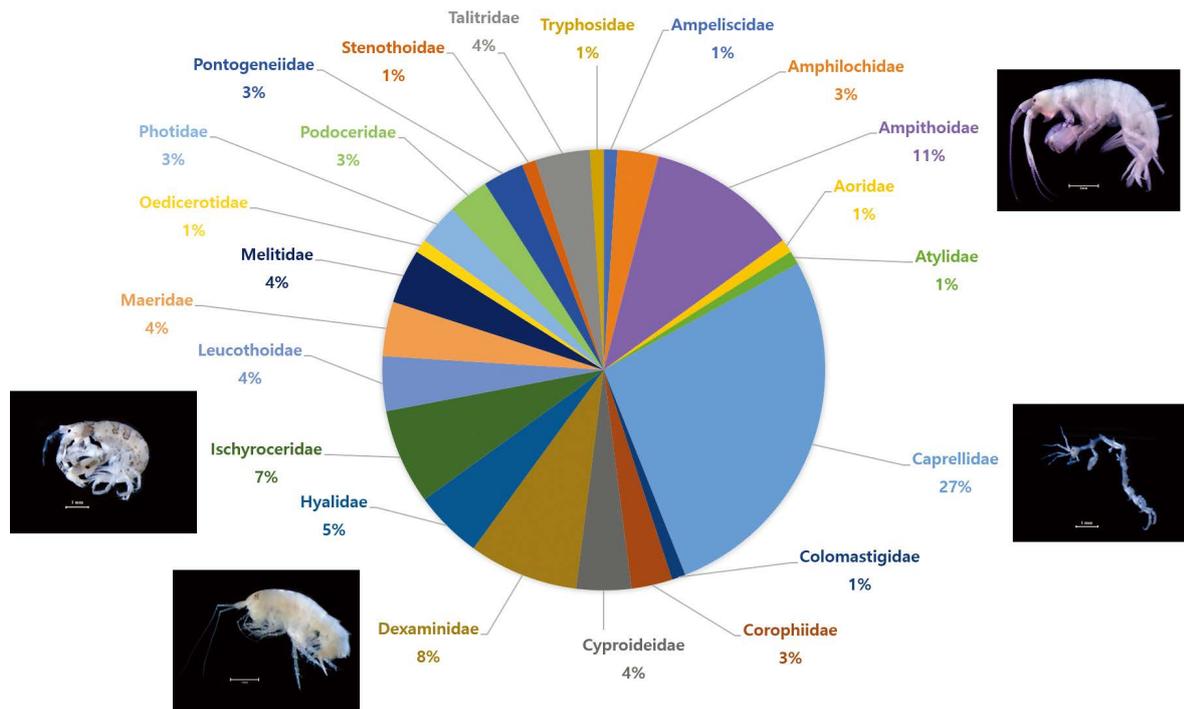


Fig. 15. The proportion of species in each family to the total number of species.

were revealed as subdominant families, respectively (Fig. 15). Family Caprellidae, which showed the highest appearances ratio (29%), had an appearance ratio similar to previous studies such as 10 species (29%) belonging to the family Caprellidae identified in Jindo and 8 species (27%) belonging to the family Caprellidae identified in Yeonggwang. One of the reasons for this result is that the family Caprellidae has the largest number of species recorded in Korea, with 40 species belonging to the 10 genera. Previous studies only verified the habitat of one genus, *Caprella*, in Jindo and Yeonggwang. However, this study identified five genera (*Caprella* Lamarck, 1801; *Paracaprella* Mayer, 1890; *Perotripus* Dougherty and Steinberg, 1953; *Protogeton* Mayer, 1903; *Pseudoprotos* Mayer, 1903) in Chujado among 10 genera of Caprellidae recorded in Korea, showing a high rate of 50% of total records. This result confirms that the Jeju Sea has higher species diversity than other seas in Korea.

According to identification of *Stenothoe valida* Dana, 1852 among 68 species of 19 families at 10 (83%) of 12 sites on Chujado Island, this species was confirmed as the most frequent and widespread species. *Caprella scaura* Templeton, 1836 was collected at 9 (75%) of 12 sites. It had highest frequency of appearance among 20 species of Caprellidae. The following four species, *Caprella arimotoi* Takeuchi, 1993, *C. penantis* Leach, 1814, *Pleonexes koreana* (Kim and Kim, 1988), and *Podocerus ulreungensis* Kim and Kim, 1991, were found at 7 (58%) of 12

sites. These species were confirmed as relatively common species with a wide habitat range in Chujado Island.

A total of 28 (41%) of 68 species were collected on Chuja Port using a light trap among 12 sites, while 25 (37%) of 68 species were collected in Jikgudo Island by SCUBA diving, and 22 (32%) of 68 species were collected in Sinyang Port by port survey and light trap. However, the east coast of Yecho-ri surveyed by sieving showed only 7 (10%) of 68 species. These results confirmed that Chuja Port had the highest species diversity whereas the east coast of Yecho-ri had the lowest species diversity. The low species diversity of Yecho-ri may be the result of only shallow intertidal surveys and differences in sampling methods.

In this amphipod faunal study, sieving stones, tidal pools besides rocks, seaweeds in intertidal zones, SCUBA diving in subtidal zones, port survey to collect amphipods living on periphyton or artificial structures such as ropes, fishing net, and light trap were used to collect amphipods (Table 2). Different amphipod species were caught depending on the survey method. Both light trap and SCUBA diving methods collected the most (n=36) amphipod species, followed by sieving and port survey which collected 27 and 18 species, respectively. Therefore, light trap and SCUBA diving are essential collection methods to understand the amphipod fauna accurately.

A relatively large number of amphipods (a total of 68

species) were collected through these methods. Their habitat and habitat range were confirmed. This relatively high appearance in this study might be attributed to the use of various methods compared to previous studies and the fact that various caprellid genera inhabit the Jeju Sea of the Korean Peninsula. Results obtained from this study are significant as part of recording Korea's ecosystem where climate and environmental change are intensifying.

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