

Three new species and four new records of the families Cybaeidae and Gnaphosidae (Araneae) from Korea

Bo Keun Seo*

Major in Biological Sciences, Keimyung University, Daegu 42601, Republic of Korea

*Correspondent: bkseo@kmu.ac.kr

Seven species of the families Cybaeidae and Gnaphosidae are reported. *Cybaeus auriculatus* n. sp., *C. parvus* n. sp. and *Haplodrassus miryangensis* n. sp. are described from Gyeongsang-do, Korea. *Drassodes platnicki* Song, Zhu and Zhang, 2004, *Haplodrassus hatsushibai* Kamura, 2007, *Zelotes eskovi* Zhang and Song, 2001 and *Z. xiaoi* Yin, Bao and Zhang, 1999 are newly recorded to the spider fauna of Korea.

Keywords: Cybaeidae, *Cybaeus*, *Drassodes*, Gnaphosidae, *Haplodrassus*, *Zelotes*

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DOI:10.12651/JSR.2017.6(S).114

INTRODUCTION

The spider family Cybaeidae includes 10 genera and 188 species (World Spider Catalog, 2017). Species in the Cybaeidae have few distinctive features except the genital characters (Chamberlin and Ivie, 1932; Ihara, 2004; 2008; Bennett, 2005; 2006; Copley *et al.*, 2009). *Cybaeus* L. Koch, 1868 is the most species rich cybaeid genus and is distributed in the Holarctic region (156 species) and Neotropical region (1 species in Peru) (World Spider Catalog, 2017). Twelve *Cybaeus* species have been described from Korea (Yoo *et al.*, 2015; Seo, 2016).

The spider family Gnaphosidae comprises 2204 species in 124 genera (World Spider Catalog, 2017). In this family, the anterior spinnerets bear greatly enlarged and widened piriform gland spigots (Platnick, 1990; FitzPatrick, 2007). Twenty genera and 59 species of Gnaphosidae spiders are found in Korea (Yoo *et al.*, 2015; Seo, 2017).

While studying specimens collected during a survey of indigenous Korean species, three species were identified as new species and four species were new records for Korea: *Cybaeus auriculatus* n. sp., *Cybaeus parvus* n. sp., *Drassodes platnicki* Song, Zhu and Zhang, 2004, *Haplodrassus hatsushibai* Kamura, 2007, *Haplodrassus miryangensis* n. sp., *Zelotes eskovi* Zhang and Song, 2001 and *Zelotes xiaoi* Yin, Bao and Zhang, 1999.

MATERIALS AND METHODS

Specimens were photographed using a stereomicro-

scope (Leica S8APO, Singapore) and digital camera (Leica DFC 420) and the images were combined using image stacking software (i-Solution, Future Science Co. Ltd., Daejeon, Korea).

Leg segments in measurement data are as follows: total (femur, patella, tibia, metatarsus, tarsus). The abbreviations used in the text: c, carapace length; d, p, r and v in leg spination are dorsal, prolateral, retrolateral and ventral side of leg, respectively; Leg I, length of leg I; AER, anterior eye row; ALE, anterior lateral eye; ALE-PLE, distance between ALE and PLE; AME, anterior median eye; AME-ALE, distance between AME and ALE; AME-AME, distance between AMEs; AME-PME, distance between AME and PME; PER, posterior eye row; PLE, posterior lateral eye; PME, posterior median eye; PME-PLE, distance between PME and PLE; PME-PME, distance between PMEs. All measurements in the text are given in millimeters. The type specimens were deposited in the National Institute of Biological Resources (NIBR), Ministry of Environment, Korea.

RESULTS AND DISCUSSION

Order Araneae Clerck, 1757 거미목
Family Cybaeidae Banks, 1892 굴뚝거미과
Genus *Cybaeus* L. Koch, 1868 굴뚝거미속

***Cybaeus auriculatus* n. sp.**
귀굴뚝거미(신칭) (Fig. 1A-H)

Material examined. Holotype: ♂, mixed forest (35°21'

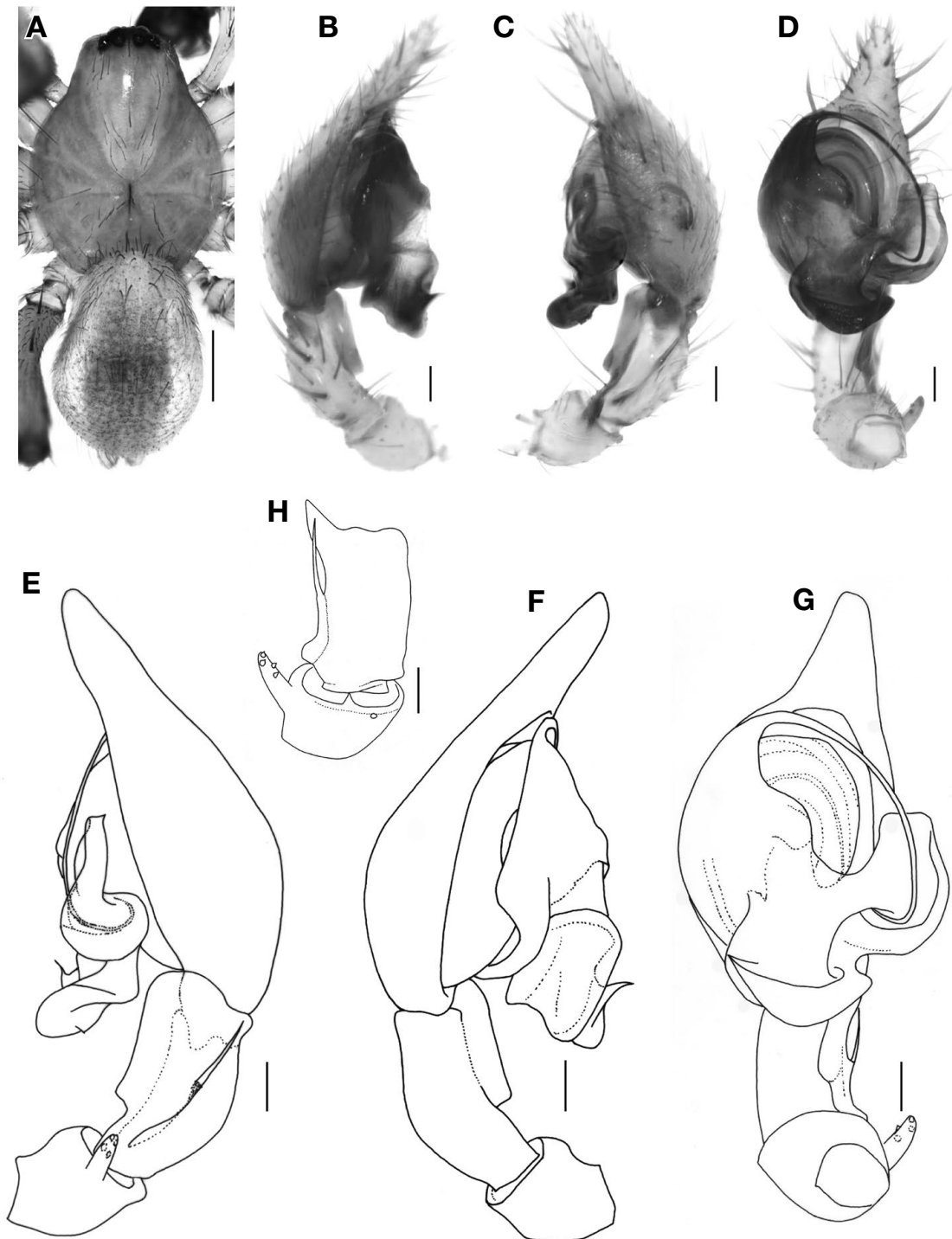


Fig. 1. *Cybaeus auriculatus* n. sp., male: A - habitus, dorsal view; B, F - left palp, prolateral view; C, E - ditto, retrolateral view; D, G - ditto, ventral view; H - ditto, tibia and patella, dorsal view. Scale bars: 0.5 mm (A), 0.1 mm (rest).

37°N, 127°48'00"E, alt. 415 m), 6.8 km east northeast of the summit of Mt. Jiri, Samjang-myeon, Sancheong-gun, Gyeongsangnam-do, 30 September 2009, S. Y. Kim. Paratype: 1♂, same data as holotype.

Etymology. The specific name is a Latin adjective

meaning "eared" and refers to the shape of the conductor in the male palp.

Diagnosis. The male of *C. auriculatus* n. sp. is similar to that of *C. monticola* Kobayashi, 2006 in the bulb of male palp, but distinguished from the latter by the con-

ductor of palp and the patellar apophysis (Fig. 1B-H).

Description. Male (holotype). Total length 3.15. Habitus as in Figure 1A. Carapace reddish yellow; 1.85 long, 1.45 wide; cervical groove, median furrow and radial grooves distinct; clypeus height 5.5 times of diameter of AME. AER 0.34, PER 0.47; AER and PER slightly recurved in dorsal view. AME 0.03, ALE 0.12, PME 0.09, PLE 0.10, AME-AME 0.04, AME-ALE 0.01, PME-PME 0.08, PME-PLE 0.05, AME-PME 0.09, and ALE-PLE 0.03. Median ocular quadrangle, posterior side > height > anterior side (20:18:9). Chelicera with three promarginal and ten minute retromarginal teeth. Sternum 1.00 long, 0.96 wide. Labium 0.27 long, 0.29 wide. Leg measurements: I 6.20 (1.65, 0.65, 1.55, 1.35, 1.00), II 5.75 (1.55, 0.65, 1.35, 1.30, 0.90), III 4.75 (1.35, 0.55, 1.00, 1.15, 0.70), IV 6.20 (1.65, 0.60, 1.50, 1.55, 0.90). Leg I/c 3.35. Fem. I/c 0.89. Tib I/c 0.84. Met I/c 0.73. Pat. I + tib. I/c 1.24. Met. I/tar. I 1.35. Met. IV/tar. IV 1.72. Leg spination pattern: Femora; I d1-1, p0-0-0-1-1; II d1-1, p0-0-0-1; III, IV d1-1-1, p0-0-0-1, r0-0-0-1. Tibiae; I p0-0-1, v2-2; II p1-1, v2-2; III, IV p0-1-1, r0-1-1, v2-2-2. Metatarsi; I v2-2-2; II p2-1, v2-2-2; III d0-1-1, p1-1-1, r1-1-2, v2-2-1; IV d2-1-1-2, p0-1-1, r0-1-1-1, v2-2-1. Abdomen oval, yellow, mottled with gray dots, and 1.50 long, 1.15 wide. Palp (Fig. 1B-H): tibia longer than patella, retrolaterally with a narrow chitinized membrane forming a long spine at anterior end; patella apophysis with small four conical teeth, finger-like; embolus long and slender; conductor auricle-like, divided into two parts.

Habitat. Mixed forest.

World Distribution. Korea (Gyeongsangnam-do).

***Cybaeus parvus* n. sp.**

꼬마굴뚝거미 (신칭) (Fig. 2A-H)

Material examined. Holotype: ♂, mixed forest (36°48'30"N, 129°05'19"E, alt. 1121 m), 1 km west northwest of the summit of Mt. Ilweol, Cheonggi-myeon, Yeongyang-gun, Gyeongsangbuk-do, 23 July 2010, J. C. Lim. Paratype: 1♂, same data as holotype; 2♂♂, mixed forest (36°51'28"N, 129°07'05"E, alt. 655 m), 6.4 km north northeast of the summit of Mt. Ilweol, Socheon-myeon, Bonghwa-gun, Gyeongsangbuk-do, 23 July 2010, J. C. Lim.

Etymology. The specific name is a Latin adjective meaning "small" and refers to the size of the specimen.

Diagnosis. The male of *C. parvus* n. sp. is similar to that of *C. miyagiensis* Ihara, 2004 in the bulb of the male palp, but different from the latter by the conductor tip of palp and the patellar apophysis (Fig. 2B-H).

Description. Male (holotype). Total length 2.55. Habitus as in Figure 2A. Carapace deep yellow; 1.45 long, 1.03 wide; cervical groove, median furrow and radial grooves distinct; clypeus height 4 times of diameter of AME.

AER 0.25, PER 0.36; AER and PER slightly recurved in dorsal view. AME 0.03, ALE 0.08, PME 0.05, PLE 0.09, AME-AME 0.03, AME-ALE 0.01, PME-PME 0.07, PME-PLE 0.05, AME-PME 0.05, and ALE-PLE 0.04. Median ocular quadrangle, height > posterior side > anterior side (16:14:6). Chelicera with three promarginal and nine minute retromarginal teeth. Sternum 0.85 long, 0.74 wide. Labium 0.20 long, 0.26 wide. Leg measurements: I 4.39 (1.13, 0.48, 1.05, 0.93, 0.80), II 3.96 (1.00, 0.43, 0.90, 0.88, 0.75), III 3.61 (0.95, 0.40, 0.75, 0.88, 0.63), IV 4.82 (1.28, 0.43, 1.13, 1.23, 0.75). Leg I/c 3.03. Fem. I/c 0.78. Tib I/c 0.72. Met I/c 0.64. Pat. I + tib. I/c 1.11. Met. I/tar. I 1.16. Met. IV/tar. IV 1.64. Leg spination pattern: Femora; I, II d1-1, p0-0-0-1; III d1-1-1, p0-0-1, 0-0-1; IV d1-1-0, p0-0-1, r0-0-1. Tibiae; I v2-2; II p0-0-1, v1-1; III d1-1, p1-1, r1-1, v1-2; IV d1-0-0-0, p1-1, r1-1-1, v1-2-2. Metatarsi; I p0-0-1, v2-2-2; II p1-1, v1-2-2; III d0-1-0, p1-1-2, r1-2, v2-2-2; IV p1-2-2, r1-1-2, v2-2-2. Abdomen oval, pale gray, and 1.25 long, 0.86 wide. Palp (Fig. 2B-H): tibia longer than patella; patella apophysis with two small conical teeth, finger-like; embolus short and slender; conductor tip directed posteriorly.

Habitat. Mixed forest.

World Distribution. Korea (Gyeongsangbuk-do).

Family Gnaphosidae Pocock, 1898 수리거미과
Genus *Drassodes* Westring, 1851 수리거미속

***Drassodes platnicki* Song, Zhu and Zhang, 2004**

지리수리거미 (신칭) (Fig. 3A-F)

Material examined. 1♀, valley grassland (35°22'18"N, 127°46'43"E, alt. 606 m), 5.9 km northeast of the summit of Mt. Jiri, Samjang-myeon, Sancheong-gun, Gyeongsangnam-do, 29 June 2010, J. C. Lim.

Diagnosis. The female of *D. platnicki* Song, Zhu and Zhang, 2004 is most close to that of *D. longispinus* Marusik and Logunov, 1995 in the broad epigynal fovea, the epigynal grooves on both sides and the internal genitalia, but differs from the latter by the much broader epigynal grooves and the shape of fertilization ducts in the internal genitalia (Fig. 3B-F).

Description. Female. Total length 11.10. Habitus as in Figure 3A. Carapace deep reddish yellow; 5.30 long, 3.70 wide; cervical groove, median furrow and radial grooves distinct; clypeus height almost equal to AME diameter. AER 1.20, PER 1.56; AER retrocurved slightly and PER straight in dorsal view. AME 0.26, ALE 0.24, PME 0.22, PLE 0.20, AME-AME 0.12, AME-ALE 0.08, PME-PME 0.12, PME-PLE 0.38, AME-PME 0.24, and ALE-PLE 0.20. Median ocular quadrangle, height > anterior side > posterior side (34:31:28). Chelicera with three promarginal and two minute retromarginal teeth.

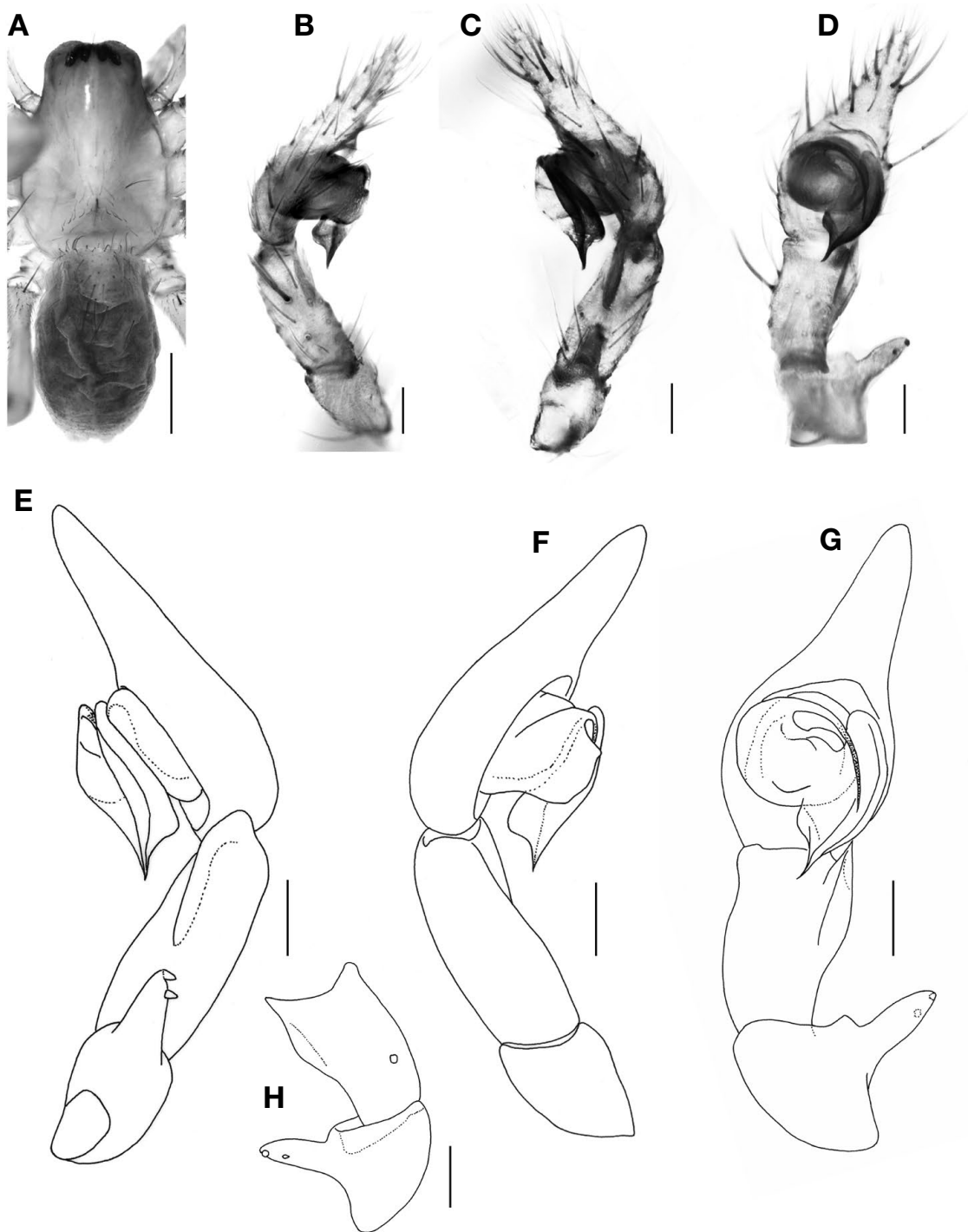


Fig. 2. *Cybaeus parvus* n. sp., male: A - habitus, dorsal view; B, F - left palp, prolateral view; C, E - ditto, retrolateral view; D, G - ditto, ventral view; H - ditto, tibia and patella, dorsal view. Scale bars: 0.5 mm (A), 0.1 mm (rest).

Sternum 2.08 long, 2.00 wide. Labium 0.96 long, 0.74 wide. Leg measurements: I 14.30 (3.80, 2.20, 3.20, 2.90, 2.20), II 13.30 (3.70, 2.00, 2.90, 2.70, 2.00), III 12.20 (3.30, 1.90, 2.50, 2.60, 1.90), IV 16.10 (1.40, 2.10, 3.40, 4.10, 2.10). Leg I/c 2.70. Fem. I/c 0.72. Tib I/c 0.60. Met

I/c 0.55. Pat. I+tib. I/c 1.13. Met. I/tar. I 1.32. Met. IV/tar. IV 1.95. Leg spination pattern: Femora; I d1-1, p0-0-1; II d1-1, p0-1-1; III d1-1-1, p0-1-1-1, r0-1-1; IV d1-1-1, p0-1-1, r0-1-1. Tibiae; I, II v0-0-1; III d1-0, p1-1-1, r1-1, v1-1-2; IV d1-1, p1-1-1, r1-1-1, v1-2-2. Metatarsi;

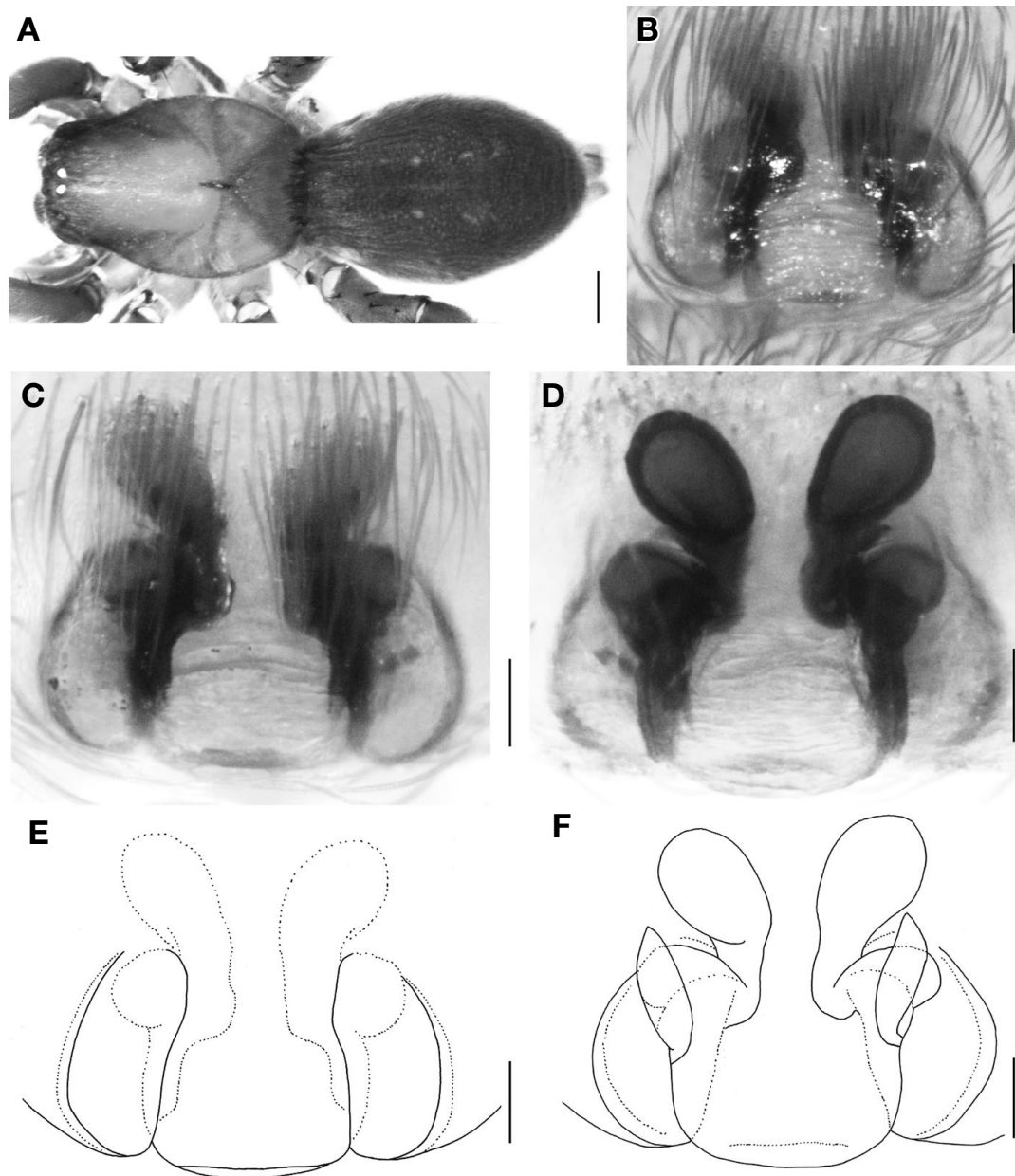


Fig. 3. *Drassodes platnicki* Song, Zhu and Zhang, 2004, female; A - habitus, dorsal view; B - epigynum; C, E - internal genitalia, ventral view; D, F - ditto, dorsal view. Scale bars: 1 mm (A), 0.1 mm (rest).

I, II v1-0-0; III d1-2-2, p1-1-1, r1-1-1, v2-2-2; IV d1-2-2, p1-1-1, r1-1-1, v2-2-0. Abdomen oval, dark brown, with several pairs of dots medially, and 5.80 long, 3.90 wide. Epigynum: broad fovea with a pair of grooves on both sides; internal genitalia with two pairs of spermathecae; genital ducts poorly developed; fertilization ducts well developed (Fig. 3B-F).

Habitat. Grassland.

World Distribution. China, Korea (Gyeongsangnam-do), Mongolia, Russia.

Genus *Haplodrassus* Chamberlin, 1922 새매거미속

***Haplodrassus hatsushibai* Kamura, 2007**

거제새매거미 (신칭) (Fig. 4A-D, I-J)

Material examined. 4♀♀, mixed forest (35°23'27"N, 129°06'16"E, alt. 658 m), 1 km east southeast of Wahyeon Beach, Ilun-myeon, Geoje-si, Gyeongsangnam-do, 10 May 2013, J. S. Park.

Diagnosis. The female of *H. hatsushibai* Kamura, 2007 is very similar to that of *H. montanus* Paik and Sohn,

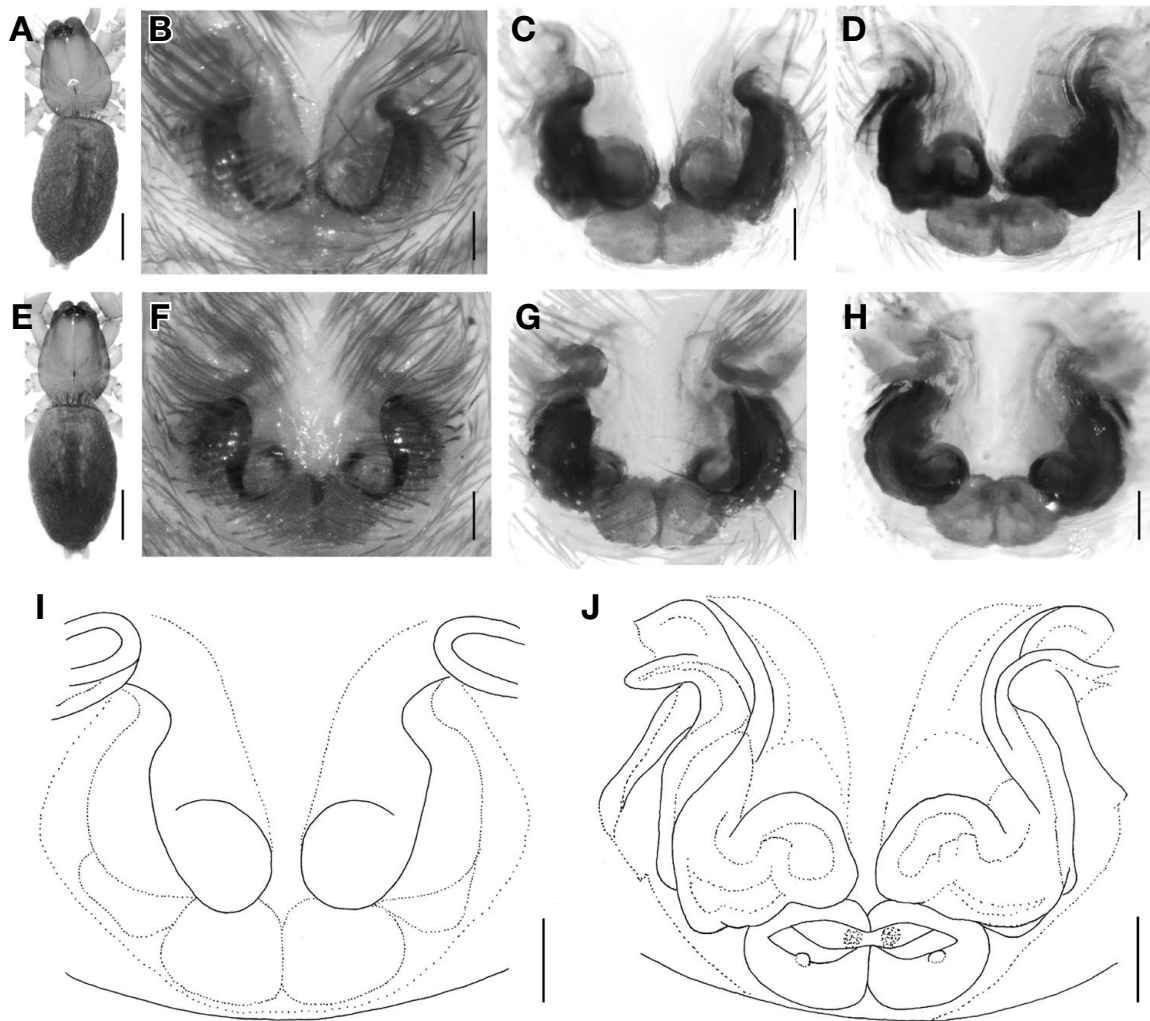


Fig. 4. *Haplodrassus hatsushibai* Kamura, 2007, female (A-D, I-J) and *H. montanus* Paik and Sohn, 1984, female (E-H): A, E - habitus, dorsal view; B, F - epigynum; C, G, I - internal genitalia, ventral view; D, H, J - ditto, dorsal view. Scale bars: 1 mm (A and E), 0.1 mm (rest).

1984 in the general appearance, but distinguished from the latter by the shape of the epigynal septum, narrowing posteriorly and the lateral epigynal pockets angled interiorly (Fig. 4B-D, F-J).

Description. Female. Total length 5.30. Habitus as in Figure 4A. Carapace reddish yellow; 2.05 long, 1.55 wide; cervical groove, median furrow and radial grooves distinct; clypeus height equal to AME diameter. AER 0.47, PER 0.53; AER straight and PER procurved slightly in dorsal view. AME 0.10, ALE 0.12, PME 0.12, PLE 0.10, AME-AME 0.07, AME-ALE 0.01, PME-PME 0.01, PME-PL 0.08, AME-PME 0.10, and ALE-PL 0.07. Median ocular quadrangle, height > posterior side = anterior side (23:19). Chelicera with two teeth on each margin. Sternum 1.27 long, 1.04 wide. Labium 0.36 long, 0.33 wide. Leg measurements: I 4.95 (1.50, 0.85, 1.05, 0.85, 0.70), II 4.35 (1.30, 0.75, 0.85, 0.75, 0.70), III 3.80 (1.10, 0.55, 0.70, 0.80, 0.65), IV 5.90 (1.65, 0.85,

1.20, 1.35, 0.85). Leg I/c 2.41. Fem. I/c 0.73. Tib I/c 0.51. Met I/c 0.41. Pat. I + tib. I/c 1.58. Met. I/tar. I 1.21. Met. IV/tar. IV 1.59. Leg spination pattern: Femora; I, II d1-1, p0-0-1; III d1-1-0, p0-0-1, r0-0-1; IV d1-1, r0-0-1. Tibiae; III d1-0, p1-1, r1-1, v1-2-2; IV p1-1, r1-1-1, v2-2-2. Metatarsi; I, II v0-2-0; III d1-1, p1-1, r1-1, v2-2; IV d2-2, p1-1, r1-1, v1-1-1-2. Abdomen elliptical, pale brown, and 3.25 long, 1.80 wide. Epigynum: fovea with elevated, inverted triangle septum and thick sclerotized epigynal lateral pockets, slightly converging, and angled interiorly (Fig. 4B-D, I-J).

Habitat. Mixed forest.

World Distribution. Japan, Korea (Gyeongsangnam-do).

***Haplodrassus miryangensis* n. sp.**
밀양새매거미 (신칭) (Fig. 5A-F)

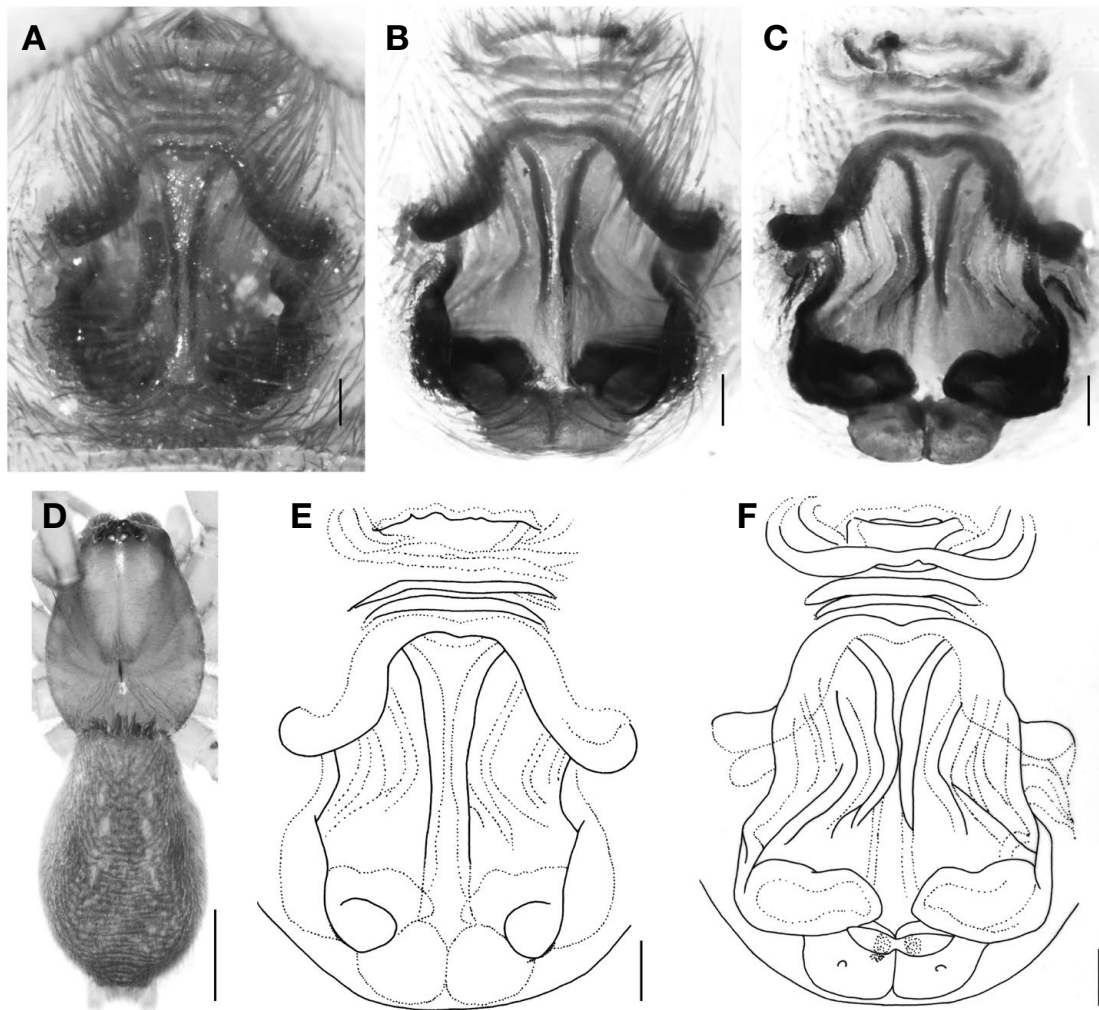


Fig. 5. *Haplodrassus miryangensis* n. sp., female; A - epigynum; B, E - internal genitalia, ventral view; C, F - ditto, dorsal view; D - habitus, dorsal view. Scale bars: 1 mm (D), 0.1 mm (rest).

Material examined. Holotype ♀, mixed forest (35°33' 27"N, 128°55'04"E, alt. 305 m), 4.9 km west of the summit of Mt. Cheonhwang, Danjang-myeon, Miryang-si, Gyeongsangnam-do, 26 August 2011, J. S. Park. Paratype: 4♀, same data as holotype; 1♀, mixed forest (35°38'30"N, 129°02'18"E, alt. 554 m), 3.6 km south southeast of the summit of Mt. Unmun, Unmun-myeon, Cheongdo-gun, Gyeongsangbuk-do, 15 October 2010, J. C. Lim.

Diagnosis. The female of *H. miryangensis* n. sp. is similar to that of *H. huarong* Yin and Bao, 2012 in the wavy transverse ridges and bow-like ridge anterior to the lateral pockets on the epigynal plate, but different from the latter by the shapes of the ridges, the internal shapes of the pockets and the presence of medial septum (Fig. 5B-F).

Description. Female (holotype). Total length 5.15. Habitus as in Figure 5D. Carapace reddish yellow; 3.80 long,

2.60 wide; cervical groove, median furrow and radial grooves distinct; clypeus height almost equal to AME diameter. AER 0.53, PER 0.61; AER recurved and PER straight in dorsal view. AME 0.13, ALE 0.13, PME 0.12, PLE 0.12, AME-AME 0.07, AME-ALE 0.01, PME-PME 0.03, PME-PLP 0.10, AME-PME 0.10, and ALE-PLP 0.08. Median ocular quadrangle, height > anterior side > posterior side (24:22:21). Chelicera with three promarginal and two retromarginal teeth. Sternum 1.48 long, 1.20 wide. Labium 0.48 long, 0.42 wide. Leg measurements: I 5.95 (1.70, 1.00, 1.30, 1.10, 0.85), II 5.30 (1.50, 0.95, 1.05, 0.95, 0.85), III 4.75 (1.35, 0.75, 0.85, 1.00, 0.80), IV 6.95 (1.90, 1.05, 1.40, 1.55, 1.05). Leg I/c 2.48. Fem. I/c 0.71. Tib I/c 0.54. Met I/c 0.46. Pat. I+tib. I/c 1.13. Met. I/tar. I 1.29. Met. IV/tar. IV 1.48. Leg spination pattern: Femora; I, II d1-1-0, p0-0-1; III d1-1-0, p0-0-1, r0-0-1; IV d1-1-0, r0-0-1. Tibiae; III d2-0, p1-1, r0-0-1, v2-2-2; IV p1-1, r1-1-1, v2-2-2. Meta-

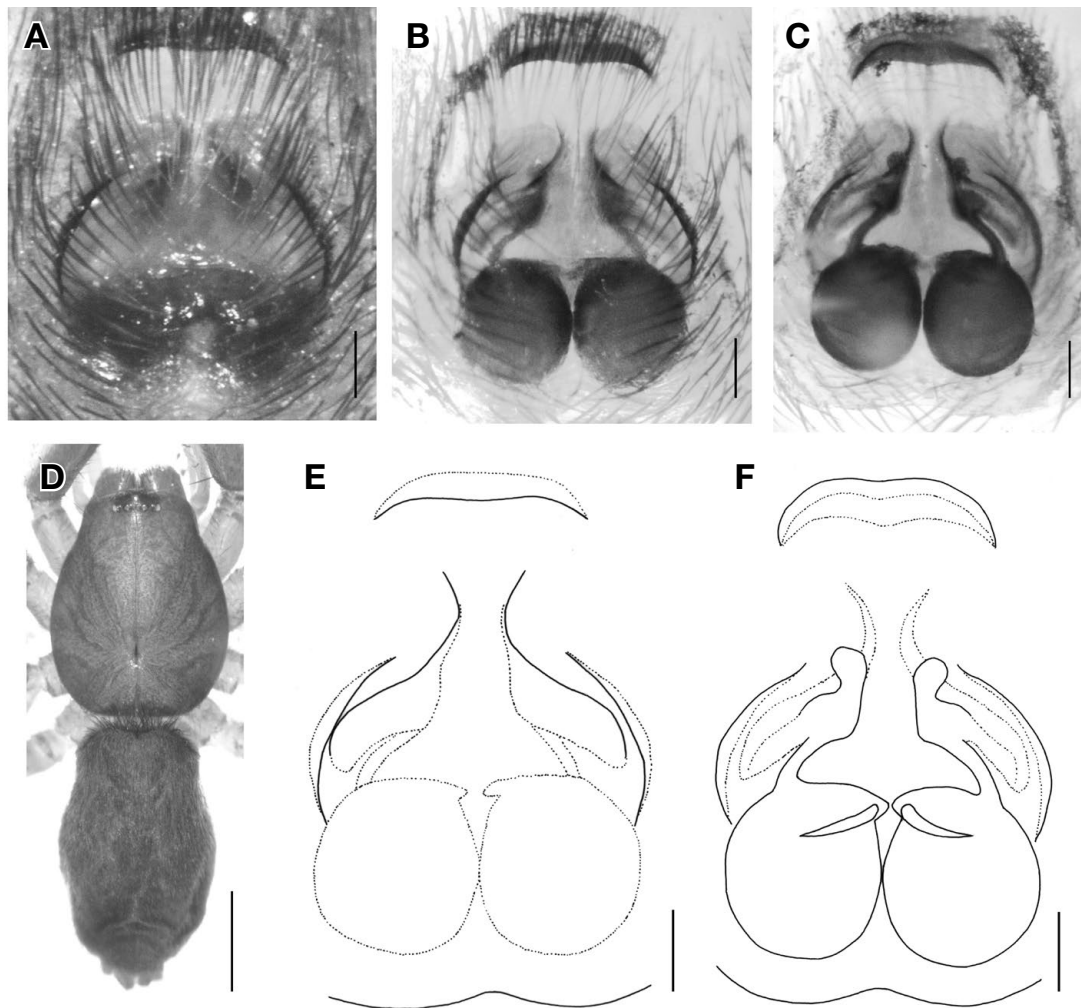


Fig. 6. *Zelotes eskovi* Zhang and Song, 2001, female; A - epigynum; B, E - internal genitalia, ventral view; C, F - ditto, dorsal view; D - habitus, dorsal view. Scale bars: 1 mm (D), 0.1 mm (rest).

tarsi; I, II v2-0; III d1-0, p1-2, r1-2, v2-2; IV d1-0, p1-1-2, r1-2-2, v1-1-1-2. Abdomen oval, pale light brown, and 2.80 long, 1.85 wide. Epigynum: fovea with four wavy transverse ridges and a big bow-like ridge anterior to sclerotized lateral epigynal pockets, and with narrow, elevated, inverted triangle septum (Fig. 5A-C, E-F).

Habitat. Mixed forest.

World Distribution. Korea (Gyeongsang-do).

Genus *Zelotes* Gistel, 1848 염라거미속

***Zelotes eskovi* Zhang and Song, 2001**

속리염라거미 (신칭) (Fig. 6A-F)

Material examined. 1♀, mixed forest near the uphill path (36°29'35"N, 127°49'36"E, alt. 385 m), 200 m west of the eastern entrance of Galmok tunnel, Songnisan-myeon, Boeun-gun, Chungcheongbuk-do, 4 July

2011, T. B. Ryu.

Diagnosis. The female of *Z. eskovi* Zhang and Song, 2001 is very similar to that of *Z. potanini* Schenkel, 1963 in the epigynum and the internal genitalia, but different from the latter by the short and uncoiled genital ducts of spermathecae in the internal genitalia (Fig. 6B-F).

Description. Female. Total length 3.35. Habitus as in Figure 6D. Carapace mottled dark brown; 3.80 long, 2.60 wide; cervical groove, median furrow and radial grooves distinct; clypeus height 1.6 times of diameter of AME. AER 0.46, PER 0.52; AER slightly recurved and PER straight in dorsal view. AME 0.07, ALE 0.10, PME 0.08, PLE 0.09, AME-AME 0.08, AME-ALE 0.03, PME-PME 0.10, PME-PLP 0.08, AME-PME 0.12, and ALE-PLP 0.08. Median ocular quadrangle, height = posterior side > anterior side (20:18). Chelicera with three promarginal and one retromarginal teeth. Sternum 1.43 long,

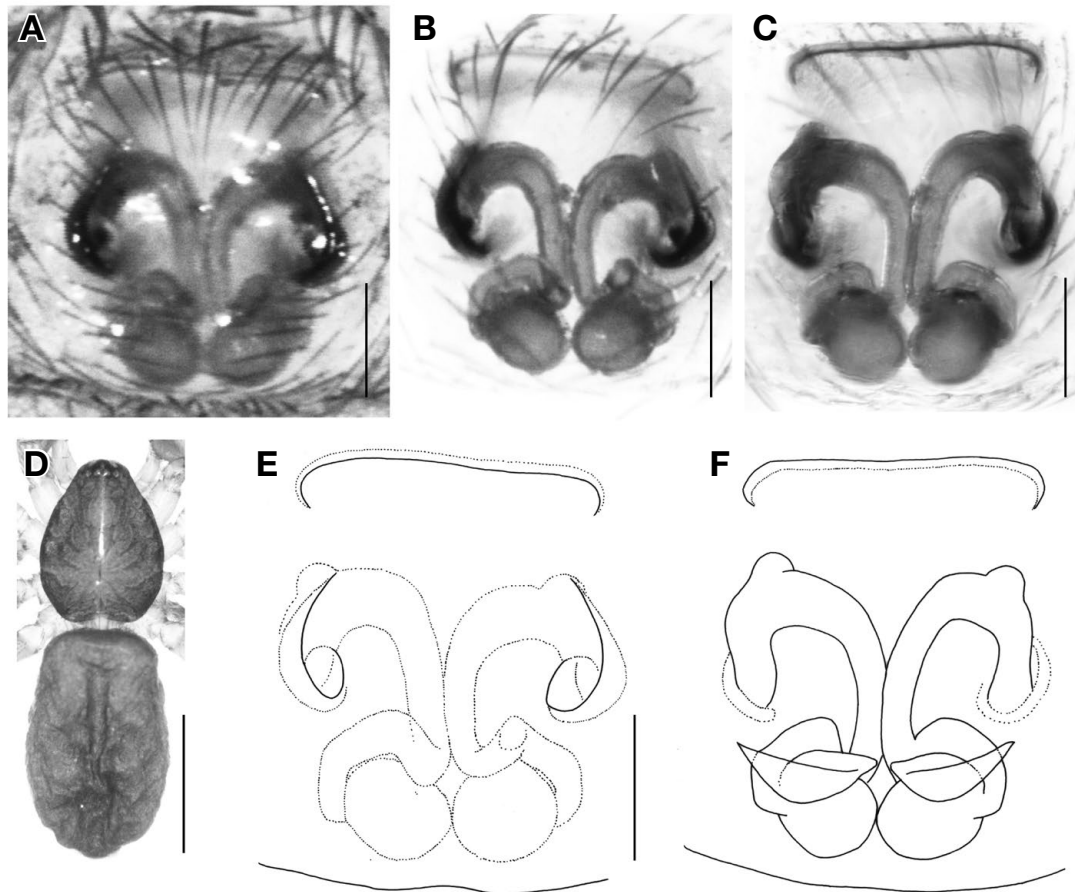


Fig. 7. *Zelotes xiaoi* Yin, Bao and Zhang, 1999, female; A - epigynum; B, E - internal genitalia, ventral view; C, F - ditto, dorsal view; D - habitus, dorsal view. Scale bars: 1 mm (D), 0.1 mm (rest).

1.24 wide. Labium 0.56 long, 0.42 wide. Leg measurements: I 5.65 (1.55, 1.00, 1.20, 1.05, 0.85), II 5.10 (1.45, 0.85, 1.00, 1.00, 0.80), III 4.45 (1.25, 0.70, 0.75, 1.00, 0.75), IV 6.60 (1.75, 1.00, 1.25, 1.65, 0.95). Leg I/c 2.35. Fem. I/c 0.65. Tib I/c 0.50. Met I/c 0.44. Pat. I + tib. I/c 1.06. Met. I/tar. I 1.24. Met. IV/tar. IV 1.74. Leg spination pattern: Femora; I, II d1-1, p0-0-1; III d1-1-0, p0-1-1, r0-1-1; IV d1-1, r0-0-1. Tibiae; III p1-1-1, r1-1, v2-2-2; IV p1-1, r1-1-1, v2-2-2. Metatarsi; III d0-2-0, p1-1-2, r1-1-2, v2-0-preening comb; IV d0-2-0, p1-1-2, r1-2-1, v2-1-1-1 and preening comb. Abdomen oval and grayish brown, 2.60 long, 1.70 wide. Epigynum with an anterior epigynal margin and a pair of lateral margins on both sides of epigynal plate; internal genitalia with a pairs of short genital ducts and a pair of spermathecae (Fig. 6A-C, E-F).

Habitat. Mixed forest.

World Distribution. China, Korea (Chungcheongbuk-do).

***Zelotes xiaoi* Yin, Bao and Zhang, 1999**

일월염라거미 (신칭) (Figs. 7A-F, 8A-G)

Material examined. 1♀, grassland (37°49'36"N, 128°42'39"E, alt. 220 m), 3.8 km northeast of Guryong Fall, Yeongok-myeon, Gangneung-si, Gangweon-do, 20 July 2010, J. C. Lim; 1♂, mixed forest (36°49'22"N, 129°05'10"E, alt. 805 m), Jesan-myeon, Bonghwa-gun, Gyeongsangbuk-do, 24 May 2015, B. K. Seo; 1♀, mixed forest (38°06'55"N, 128°21'35"E, alt. 534 m), 8.4 km west of the summit of Mt. Seorak, Buk-myeon, Inje-gun, Gangweon-do, 29 July 2014, B. K. Seo; 1♀, mixed forest near a hamlet (35°49'44"N, 128°04'14"E, alt. 773 m), 4.7 km west of the summit of Mt. Gaya, Gabuk-myeon, Geochang-gun, Gyeongsangnam-do, 12 August 2007, B. K. Seo.

Diagnosis. The male of *Z. xiaoi* Yin, Bao and Zhang, 1999 is very similar to that of *Z. exiguides* Platnick and Shadab, 1983 in the embolus and median apophysis, tegulum and subtegulum, and retrolateral tibial apophysis, but clearly distinguished from the latter by the shape of the median apophysis tip and the retrolateral tibial apophysis (Fig. 8B-G). The female of *Z. xiaoi* is also very similar to that of *Z. exiguides* in the anterior and lateral margins on the epigynal plate, and the inter-

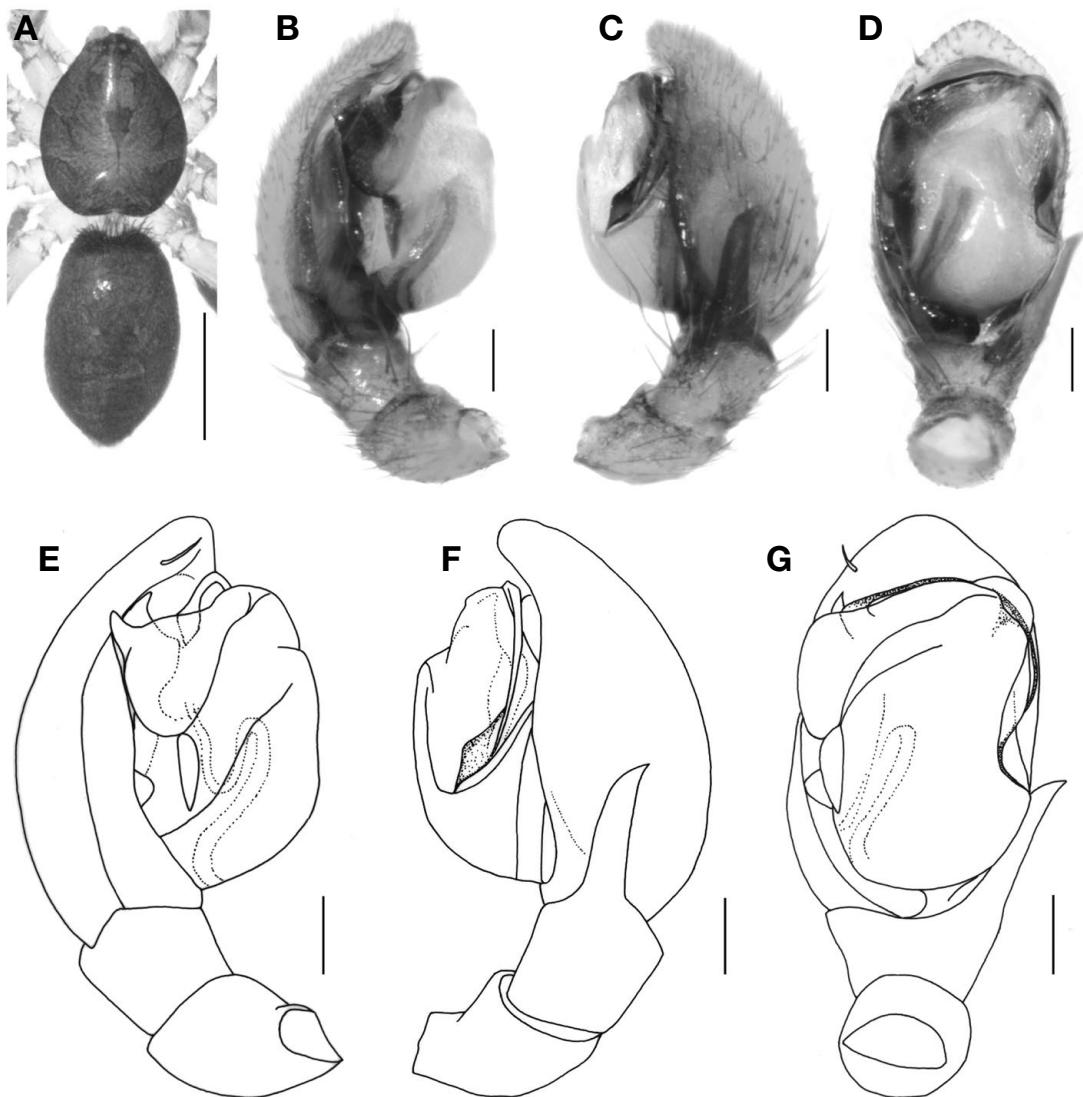


Fig. 8. *Zelotes xiaoi* Yin, Bao and Zhang, 1999, male: A - habitus, dorsal view; B, E - left palp, prolateral view; C, F - ditto, retrolateral view; D, G - ditto, ventral view. Scale bars: 1 mm (A), 0.1 mm (rest).

nal genitalia, but different from the latter by the broader epigynum, the size of spermathecae and fertilization ducts, and the curvature of genital ducts (Fig. 7A-C, E-F).

Description. Female. Total length 2.95. Habitus as in Figure 7D. Carapace dark brown; 1.20 long, 0.90 wide; median furrow and radial groove distinct; clypeus height 0.6 times of diameter of AME. AER 0.23, PER 0.26; AER straight recurved and PER straight in dorsal view. AME 0.07, ALE 0.08, PME 0.07, PLE 0.08, AME-AME 0.03, AME-ALE 0.01, PME-PME 0.01, PME-PLE 0.01, AME-PME 0.05, and ALE-PLE 0.01. Median ocular quadrangle, height > posterior side > anterior side (13:11:8). Chelicera with two promarginal and four retromarginal teeth. Sternum 0.83 long, 0.59 wide. Labium

0.18 long, 0.17 wide. Leg measurements: I 2.90 (0.85, 0.50, 0.60, 0.50, 0.45), II 2.50 (0.70, 0.45, 0.50, 0.45, 0.40), III 2.25 (0.60, 0.30, 0.40, 0.50, 0.45), IV 3.40 (0.90, 0.50, 0.70, 0.80, 0.50). Leg I/c 2.42. Fem. I/c 0.71. Tib I/c 0.50. Met I/c 0.42. Pat. I+tib. I/c 0.92. Met. I/tar. I 1.11. Met. IV/tar. IV 1.60. Leg spination pattern: Femora; I d1-1, p0-0-1; II d1-1; III d1-1, p0-1-1, r0-1-1; IV d1-1, p0-0-1, r0-0-1. Tibiae; I v2-2; II v1-1; III d1-0, p1-1-1, r1-1-1, v1-2-2; IV d1-0-0, p1-1-1, r1-1-1, v2-2-2. Metatarsi; I, II v2-2; III d0-2-2, p1-1-1, r1-1-1, v0-0-preening comb; IV d0-2-2, p1-1-1, r1-1-1, v2-0-0-preening comb. Abdomen oval, grayish brown, and 1.80 long, 1.10 wide. Epigynum with a hood-like anterior margin and a pair of lateral margins; internal genitalia with a pair of crooked genital ducts and a pair of developed

fertilization ducts (Fig. 7A-C, E-F).

Male. Total length 3.35. Habitus as in Figure 8A. Carapace 1.50 long, 1.20 wide; clypeus height 1.3 times of diameter of AME. AER 0.27, PER 0.31; AME 0.05, ALE 0.09, PME 0.07, PLE 0.07, AME-AME 0.03, AME-ALE 0.01, PME-PME 0.03, PME-PLA 0.03, AME-PME 0.05, and ALE-PLA 0.04. Median ocular quadrangle, height > posterior side > anterior side (15:13:11). Chelicera with two promarginal and four retromarginal teeth. Sternum 0.91 long, 0.78 wide. Labium 0.21 long, 0.20 wide. Leg measurements: I 3.85 (1.10, 0.65, 0.80, 0.70, 0.60), II 3.25 (0.95, 0.55, 0.60, 0.60, 0.55), III 2.90 (0.80, 0.45, 0.50, 0.65, 0.50), IV 4.30 (1.15, 0.65, 0.85, 1.05, 0.60). Leg I/c 2.57. Fem. I/c 0.73. Tib I/c 0.53. Met I/c 0.47. Pat. I + tib. I/c 1.17. Met. I/tar. I 1.17. Met. IV/tar. IV 1.75. Leg spination pattern: Femora; I, II d1-1, p0-0-1; III d1-1, p0-1-1, r0-1-1; IV d1-1, p0-0-1, r0-0-1. Tibiae; I, II v2-2; III, IV d1-0, p1-1-1, r1-1-1, v2-2-2. Metatarsi; I, II v2-2; III d0-2-2, p1-1-1, r1-1-1, v2-0-preening comb; IV d0-2-2, p1-1-1, r1-1-1, v2-2-0-preening comb. Abdomen oval, dark brown, and 1.85 long, 1.10 wide. Palp (Fig. 8B-G): embolus long and thin, extending basally, lying on median apophysis; embolar projection and intercalary sclerite small; retrolateral apophysis long and stout with pointed tip.

Habitat. Grassland and mixed forest.

World Distribution. China, Korea (Gangweon-do, Gyeongsang-do).

ACKNOWLEDGEMENTS

This work was supported by grants from the National Institute of Biological Resources (NIBR), funded by the Ministry of Environment (MOE) of the Republic of Korea (NIBR No. 2017-02-001).

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Submitted: October 11, 2017

Revised: October 24, 2017

Accepted: November 13, 2017