

Description of the Male of *Agroeca bonghwaensis* Seo, 2011 (Araneae: Liocranidae) from Korea

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봉화밭고랑거미(거미목: 밧고랑거미과) 수컷의 기재

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ABSTRACT: The male of *Agroeca bonghwaensis* (Seo, 2011), Korean endemic species, of Liocranidae firstly described with measurements and morphological illustrations from Korea. The male of *A. bonghwaensis* is similar to *A. brunnea* (Blackwall, 1833) in palpal organ, but can be easily distinguished by bird-shaped retrolateral tibial apophysis with blunt tip and basally broad median apophysis with broad hook-shaped tip.

Key words: Liocranidae, *Agroeca bonghwaensis*, Male, Description, Korea

조 록: 한국고유종인 밧고랑거미과의 봉화밭고랑거미 *Agroeca bonghwaensis* (Seo, 2011) 수컷을 측정치 및 형태학적 도해와 함께 처음으로 기재한다. 봉화밭고랑거미의 수컷은 *A. brunnea* (Blackwall, 1833) 수컷의 더듬이다리기관과 유사하나 끝부분이 뭉뚝한 후측면돌기와 기부가 넓고 끝부분이 넓은 갈고리 모양의 중부돌기로 쉽게 구분된다.

검색어: 밧고랑거미과, 봉화밭고랑거미, 수컷, 기재, 한국

Total of four species of the genus *Agroeca* have been reported from Korea (Yoo et al., 2015); *A. bonghwaensis*, *A. coreana*, *A. mongolica*, and *A. montana*. *Agroeca bonghwaensis* was described by Seo (2011) based on the single female collected in 2010 from Bonghwa-gun, Gyeongsangbuk-do. During a survey of the rice field spider fauna, a number of *A. bonghwaensis* was collected by pitfall traps trapped around the levee in rice ecosystem from many provinces. Among them, three males were collected in Dangjin-si, Chungcheongnam-do. In this paper, the male of *A. bonghwaensis*, Korean endemic species, of Liocranidae firstly described with measurements

and morphological illustrations from Korea.

Material and Methods

The external morphology was examined using a stereoscopic dissecting microscope (LEICA, S8APO) and illustrated. Photographs of body were taken with a CANON 650D with 60 mm macro-lens. Measurements of each part of the body were taken with an ocular micrometer scale and are recorded in millimeters. Leg and palp (left) measurements are given as “leg number, total length (femur, patella+tibia, metatarsus, tarsus)”. Leg spiniformation was countered with left side. Abbreviations used are as follows: AER = anterior eye row and PER = posterior eye row in eye region; d = dorsal surface, v = ventral

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Received February 23 2018; Revised April 17 2018

Accepted May 1 2018

surface, p = prolateral surface, and r = retrolateral surface in leg spiniformation. The examined specimens of this study was deposited in the collection of Life and Environment Research Institute in Konkuk University, Korea.

Taxonomic accounts

Order **Araneae** Clerck, 1757

Family **Agelenidae** Koch, 1837

Genus **Agroeca** Westring, 1861

Agroeca bonghwaensis Seo, 2011 봉화발고랑거미 (Fig. 1)

Agroeca bonghwaensis Seo, 2011: 99, f. 1-4.

Description. Measurements (male): Body length 4.11 (habitus). Carapace 2.23 long, 1.86 wide. AER 1.49, PER 1.60. Chelicera 0.72 long, 0.32 wide. Endite 0.60 long, 0.38 wide. Labium 0.20 long, 0.26 wide. Sternum 1.17 long, 1.08 wide. Legs: I, 6.64 (1.92, 2.40, 1.29, 1.03); II, 6.14 (1.65, 2.21, 1.28, 1.00); III, 5.79 (1.70, 1.75, 1.44, 0.90); IV, 8.20 (2.20, 2.65, 2.24, 1.11). Palp 2.32 (0.75, 0.73, -, 0.84). Abdomen 1.95 long, 1.41 wide.

Male. Carapace: ovoid, convex, turbid and pale blackish brown, longer than wide; head region narrow, a pair of longitudinal reticulated patterns stretched from posterior lateral eyes; median part and both margins of thoracic region darker, a pair of broad light and pale longitudinal band stretched, rimmed; cervical furrow indistinct, radial furrow blackish brown and distinct, longitudinal fovea reddish brown, needle-shaped (Fig. 1B). Eye: eye area infuscate, all eyes encircled with black; AER slightly recurved, PER slightly procurved or almost straight (Fig. 1C). Chelicera: normal, yellowish brown; three promarginal teeth and 2 retromarginal teeth; covered densely with blackish brown setae (Fig. 1D). Endite: almost rectangular, pale yellowish brown with light yellowish white anterior part bearing brown scopula. Labium: almost quadrangle, turbid yellowish brown; covered sparsely with long blackish brown setae (Fig. 1E). Sternum: heart-shaped, pale yellowish brown with darker and rimmed margin; three pairs of faint blackish brown markings on both sides; covered densely with long and short blackish brown hairs; not protruded between fourth coxae (Fig. 1F). Legs: slightly weak, pale and mottled yellowish brown; no annuli; leg formula

4-1-2-3. Leg spiniformation: I (femur 1-1-1d, 1p; tibia 2-2v; metatarsus 2-2-2v); II (femur 1-1-1d, 1p; tibia 1-2v; metatarsus 2-2-2v); III (femur 1-1-1d, 1-1p, 1r; patella 1d, 1r; tibia 1-1d, 1-1p, 1-1r, 1-2-2v; metatarsus 1-1-1p, 1-1-1r, 2-2-2v); IV (femur 1-1-1d, 1p, 1r; patella 1d, 1-1r; tibia 1-1d, 1-1p, 1-1r, 1-2v; metatarsus 1-2-2d, 1-1-1p, 1-1-1r, 1-1-2v). Abdomen: ovoid, pale blackish brown with dappled patterns, longer than wide; clothed densely with brown hairs; shoulder with long brown setae (Fig. 1B). Male palp (Figs. 1H-J): patellar apophysis absent; retrolateral tibial apophysis bird-shaped with blunt tip; tegular apophysis thick and large, highly sclerotized; median apophysis basally broad with broad hook-shaped tip; embolus long and slender, curved inside the cymbium; conductor membranous.

Female. Body length 5.12-5.41 (habitus). Similar to male; larger body with lighter body color (Fig. 1A); epigyne simple, copulatory ducts and part of sermathecae visible through integument (Fig. 1G). See Seo (2011) for detail description of female.

Materials examined. 1 ♀, Gueup-ri, Gunnae-myeon, Pocheon-gun, 12 June 1983 (M.S., Im), 1 ♀, Mt. Samgaksan, Gugi-dong, Jongro-gu, Seoul, 15 November 1997 (S.T., Kim), 1 ♀, Gagok-ri, Songsan-myeon, Dangjin-si, Chungcheongnam-do, 15 July 2011 (S.T., Kim), 2 ♀ ♀ 3 ♂ ♂, Masan-ri, Weonbuk-myeon, Taean-gun, Chungcheongnam-do, 17 October 2014 (S.T., Kim and S.Y. Lee), 1 ♀, Chnagbuk-ri, Gyehwa-myeon, Buan-gun, 11 February 2015 (S.T., Kim and S.Y. Lee).

Diagnosis. The male of *A. bonghwaensis* Seo, 2011 is similar to *A. brunnea* (Blackwall, 1833) in palpal organ, but can be easily distinguished by bird-shaped retrolateral tibial apophysis with blunt tip and basally broad median apophysis with broad hook-shaped tip.

Ecological remarks. This species was collected by pitfall traps trapped around the levee in rice ecosystem.

Distribution. Korea.

Acknowledgements

This study was supported by Rural Development Administration (PJ01228502).

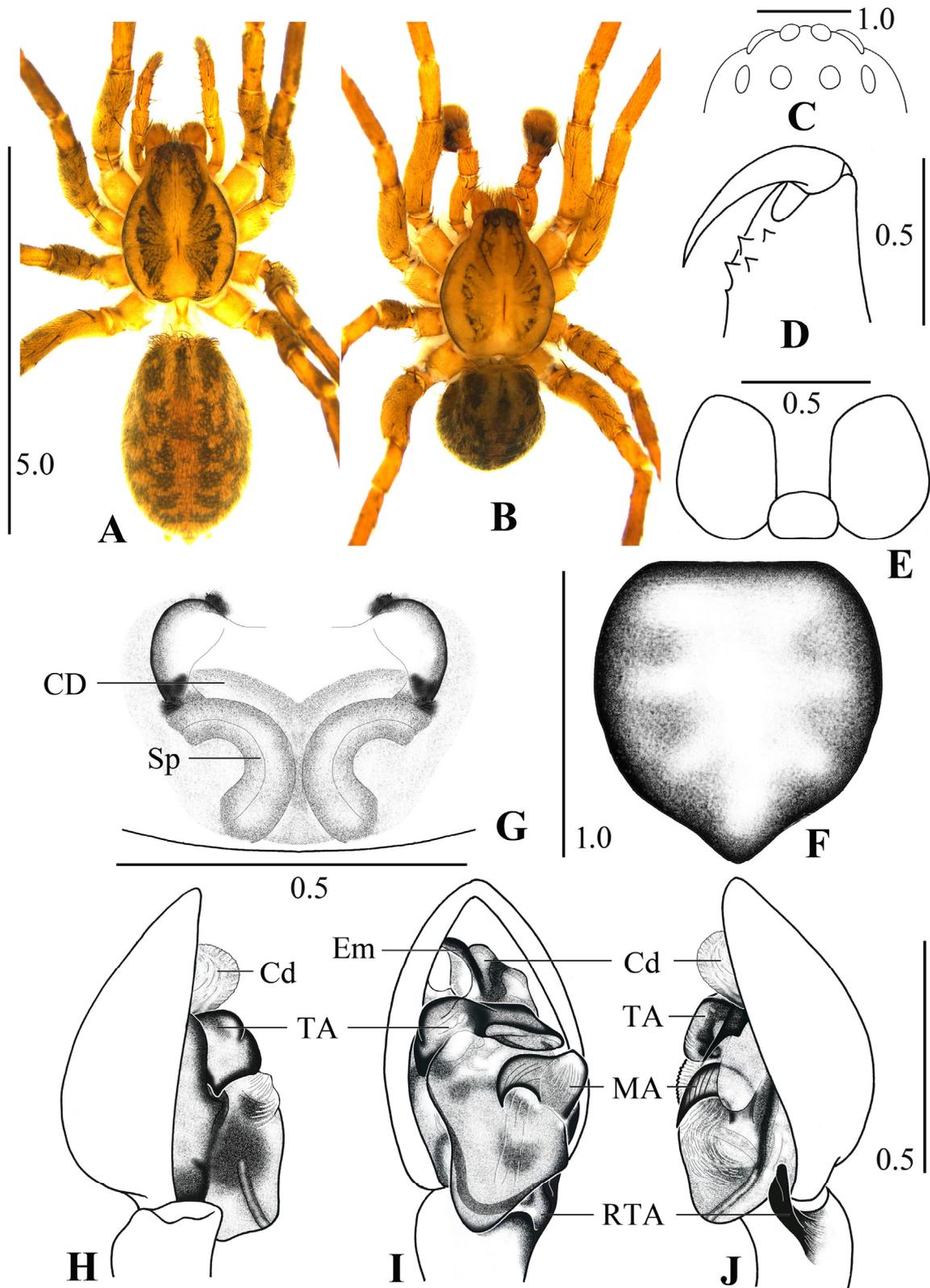


Fig. 1. *Agroeca bonghwaensis*. A: female body (habitus in specimen); B: male body (habitus in specimen); C: male, eye area; D: male, chelicera; E: male, endite and labium; F: male, sternum; G: female epigyne, ventral view; H: male palp, prolateral view; I: same, ventral view; J: same, retrolateral view. Abbreviations: CD. copulatory duct; Cd. conductor; Em. embolus; MA. median apophysis; RTA. retrolateral tibial apophysis; Sp. spermathecae; TA. tegular apophysis. Scale bars in mm.

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