



Original article

A taxonomic review of the family Bothrideridae Erichson (Coleoptera: Coccinelloidea) in Korea represented by ectoparasites of wood-boring insects



Seung-Gyu Lee, Jong-Woo Nam, Jongok Lim*

Division of Forest Biodiversity, Korea National Arboretum, Pocheon 11186, Republic of Korea

ARTICLE INFO

Article history:

Received 30 January 2017

Received in revised form

13 April 2017

Accepted 15 April 2017

Available online 10 May 2017

Keywords:

Bothrideridae

Coleoptera

Coccinelloidea

Korea

Taxonomy

ABSTRACT

A taxonomic study of Korean Bothrideridae is presented. Two species, *Antibothrus morimotoi* Sasaji and *Dastarcus helophoroides* (Fairmaire), are recognized and the former is recorded for the first time in Korea. A comparison of morphological features between two Korean species, habitus photograph, and illustrations of diagnostic characters are provided.

Copyright © 2017, National Science Museum of Korea (NSMK) and Korea National Arboretum (KNA). Production and hosting by Elsevier. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

The family Bothrideridae Erichson, 1845 contains about 400 species in 38 genera worldwide (Ślipiński et al 2010), including 148 Palearctic species placed in 18 genera (Ślipiński 2007). In East Asia, 11 species from Japan and one species from China have been recorded. In the Korean Peninsula, one species, *Dastarcus helophoroides* (Fairmaire), was reported from North Korea by Ślipiński (2007) and from South Korea by Lim et al (2012).

Members of the Bothrideridae are recognized by combination of the following characteristics: body oblong to distinctly elongate, cylindrical or slightly flattened; surface glabrous, with fine hairs, rarely with scales; head slightly declined; antenna 9–11-segmented, usually with compact club composed of 1–3 segments; eyes large and distinctly prominent laterally; antennal insertions exposed, distinct antennal club; mandible bidentate; mola well-developed and transversely ridged in most, rarely reduced; tarsal formula 4-4-4 (3-3-3 in *Annomatus*); trochantins not visible externally; pretarsal claws simple, empodium reduced (Philips and Ivie 2002; Ślipiński et al 2010).

Bothriderid species except for Anommatainae are usually associated with wood-boring insects and found on or under the bark or trees. They are fungal feeders or ectoparasites of larvae and pupae of them (Philips and Ivie 2002; Ślipiński et al 2010). Especially, *Dastarcus helophoroides* (Fairmaire) is known to be an important natural enemy of longhorn beetles (Qin and Gao 1988; Ogura et al 1999) and have been studied for the biological control agent (Zhou et al 1985; Urano 2003; Zang and Yang 2006; see Lim et al 2012). Also, the host range of this species was reviewed by Lim et al (2012).

In this paper, we report two Bothrideridae species in the Korean fauna; one of which, *Antibothrus morimotoi* Sasaji, is new to Korean fauna. We provide habitus photographs, diagnoses, and diagnostic characters with illustrations of Korean species.

Material and methods

All materials for this study is deposited in the Entomological Collection of Korea National Arboretum (KNAE), Pocheon, Korea.

Taxonomic accounts

Family Bothrideridae Erichson, 1845 [Korean name: Ma-reun-ga-ji-beol-re-gwa]

* Corresponding author. Tel.: +82 31 540 1082; fax: +82 31 540 1070.

E-mail address: jolim79@korea.kr (J. Lim).

Peer review under responsibility of National Science Museum of Korea (NSMK) and Korea National Arboretum (KNA).

Genus *Antibothrus* Sharp, 1885 [Korean name: Ggo-ma-ma-reun-ga-ji-beol-re-sok]

Antibothrus Sharp, 1885b: 124. Type species: *Antibothrus carinatus* Sharp, 1885b.

Antibothroides Nikitsky, 1985: 10. Type species: *Antibothrus fatalis* Nikitsky, 1985.

Diagnosis. Length less than 3.0 mm; body flat–cylindrical (Figure 1B), surface subglabrous (Figure 1E); pronotum slightly hexagonal, without distinct longitudinal carina, with weak depression on base; antennae 11-segmented, with two-segmented club (Figure 1C); procoxae narrowly separated (Figure 1D); elytra parallel-sided; all tibiae expanded apically; tarsomere I distinctly longer than II (Figure 1F) (Ślipiński et al 1989; Sasaji 1997; Ślipiński et al 2010).

Remarks. Sharp (1885b) first described the genus *Antibothrus* based on *A. carinatus* Sharp. This genus contains six species worldwide (Narukawa 2002; Encyclopedia of Life), including three Palearctic species (Ślipiński 2007). The genus *Antibothrus* Sharp is similar to *Leptoglyphus* Sharp, but it can be distinguished by antenna 11-segmented with distinctly separated into two clubbed segments (Sasaji 1997). This genus is recorded here for the first time in Korea. Some *Antibothrus* species known to have been collected under the bark of deciduous trees (Mcelrath et al 2016), and *A. fatalis* from the Far East is associated with burrows of the scolytine genus *Xyleborus* Eichhoff (Nikitsky 1985).

***Antibothrus morimotoi* Sasaji, 1997** [Korean name: Ggo-ma-ma-reun-ga-ji-beol-re] (Figure 1)

Antibothrus morimotoi Sasaji, 1997: 111; Ślipiński, 2007: 551.

Diagnosis. Length 8.5–10.0 mm. Body (Figure 1A and B) elongate and almost parallel-sided, about 3.2–3.4 times as long as wide. Body entirely reddish brown. Head relatively large, about 0.8 times as wide as pronotum, widest across eyes; antennomeres 2–11 slightly transverse to distinctly transverse (Figure 1C). Pronotum about as long as wide, widest at middle, with slightly angulate sides; surface with asperate sculpture. Prosternal process very narrow, widest and subtruncate at apex (Figure 1D); mesocoxae

moderately separated, mesoventral process truncate at apex; metacoxae widely separated. Elytra parallel-sided and rounded at apex, elytron about 3.9–4.1 times as long as wide, with three longitudinal carinae reaching to apex.

Material examined. 4♀, Korea, Gyeonggi Province, Pocheon-si, Soheul-eup, Korea national arboretum, 37°45'44.5" 127°09'28.9", 30 IV 2015, lindgren funnel trap in *Quercus rubra* forest (JW Nam, MH Kim, MC Kim); 5♀, Korea, Gyeonggi province, Pocheon-si, Soheul-eup, Korea national arboretum, 37°44'46.3" 127°09'4.7", 30 IV 2015, emergence trap in *Kalopanax septemlobus* forest (JW Nam, MH Kim, MC Kim).

Distribution. Korea, Japan, USA.

Remarks. This species is recorded here for the first time in Korea. *A. fatalis* Sasaji is very similar to *A. fatalis* Nikitsky, but it can be distinguished by clubbed antennomere much wider, eyes distinctly prominent laterally; prosternal process longer (Sasaji 1997). Specimens of *A. morimotoi* found in North America were all collected by Lindgren funnel traps and cross vane panel traps baited with various bark beetle attractants and the capture of this species in these baited traps suggested that the species is ectoparasitic on larvae of bark beetles, such as *Xyleborus* species (Mcelrath et al 2016). All Korean specimens were also collected by lindgren funnel trap and emergence trap of deciduous trees.

Genus *Dastarcus* Walker, 1858 [Korean name: Ma-reun-ga-ji-beol-re-sok]

Dastarcus Walker, 1858: 209. Type species: *Dastarcus porosus* Walker, 1858.

Pathodermus Famirraire, 1881: 79. Type species: *Pathodermus indicus* Famirraire, 1881.

Diagnosis. Length > 4.0 mm; body oval to elongate-oval (Figure 2A), dorsal surface with scale-like setae (Figure 2E); antennae with 2-segmented club (Figure 2C); transverse ridge of mola reduced or replaced by a fleshy lobe; pro- and mesocoxae widely separated (Figure 2D); elytra tapered apically, lateral margins notched near apex; tarsomere I–III subequal in length (Figure 2F) (Ślipiński et al 1989, 2010).

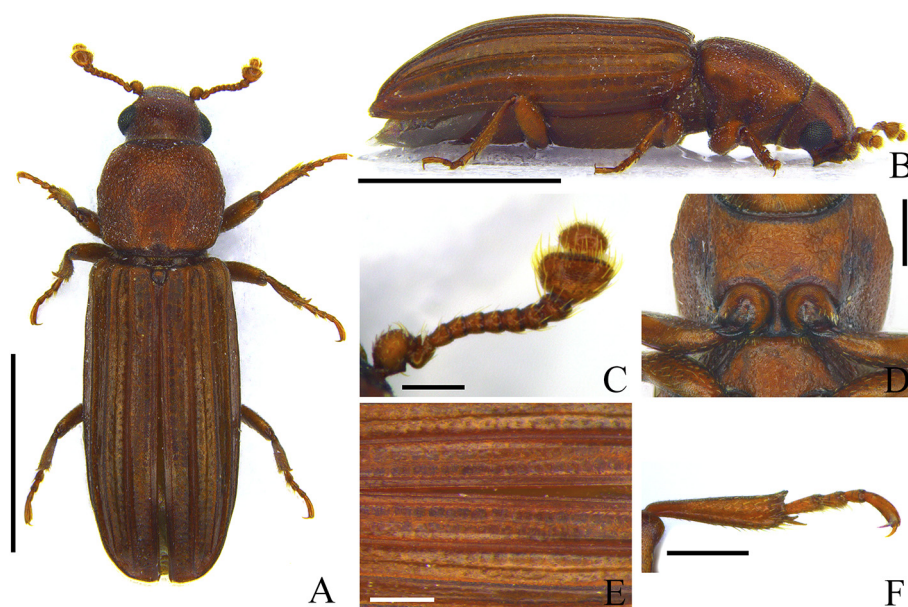


Figure 1. *Antibothrus morimotoi*: A, male habitus (dorsal aspect); B, ditto (lateral aspect); C, antenna (dorsal aspect); D, prosternum (ventral aspect); E, elytral surface (dorsal aspect); F, metaleg (dorsal aspect). <scale bars: 1.0 mm (A, B); 0.1 mm (C); 0.2 mm (D–F)>

Download English Version:

<https://daneshyari.com/en/article/8848776>

Download Persian Version:

<https://daneshyari.com/article/8848776>

[Daneshyari.com](https://daneshyari.com)