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Original Article

Taxonomic revision of the genus *Oberea* Dejean, 1835 (Coleoptera: Cerambycidae: Lamiinae) from Korea

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ABSTRACT

All the known Korean species of the genus *Oberea* Dejean, 1835 are revised by confirmation of specimen. The recorded species of Korea were very confused and cited sequentially because of lacking confirmation, among them, *O. fuscipennis*, *O. inclusa*, and *O. pupillata* were misidentified as *O. atropunctata*, *O. vittata*, and *O. heyrovskyi*, respectively. And, *O. simplex* was synonym of *O. atropunctata* already. Totally, 12 species of the genus *Oberea* were recognized from Korea. Diagnoses, illustrations of habitus male genitalia, host plants, distribution for each species, and a key for Korean *Oberea* species are provided.

Introduction

The coleopteran species are found worldwide, particularly palearctic region is the most popular habitat (Choi et al 2016a,b). Since the first study of Okamoto (1927), the genus *Oberea* of Korea was studied mostly by foreign scientists (Danilevsky 1988, 1992a,b, 1997, 2010; Gressitt 1942; Kurihara 2009; Ohbayashi et al 1992), and studied sporadically by Korean researchers (Cho 1941, 1946, 1961, 1962; Lee 1979, 1980, 1981a,b, 1982a,b, 1983; Newman, 1942).

The genus *Oberea* Dejean, 1835 is defined by the following combination of characteristics: body elongate and cylindrical; legs very short, apex of hind femur not reaching beyond abdominal second sternite (Cherepanov 1991).

The genus *Oberea* contains about 270 species around the world (Ohbayashiand Niisato 2007). In the Palearctic region, 14 species in Korea (Hwang 2015), six species in Europe (Danilevsky 2011a), 15 species in Russia (Danilevsky 2011b), 49 species in China (Hua 2002), and 15 species in Japan (Ohbayashiand Niisato 2007).

Recently, studies of cerambycid species from Korea were intellectually active; however, there were some confusion in the genus *Oberea* (Lobl and Smetana 2010; Kim 2011; Hong and Lee 2014; Hwang 2015; Jang et al 2015).

For these reasons, this study reviewed the previous taxonomic studies on Korean *Oberea* to solve the existing taxonomic problems and to provide the improved classification. In addition, photos of habitus (Figures 1–11 and 12–23), genitalia (Figures 22–32), and pictorial key (Figure 33) were provided in here. *Oberea formosana* was excluded from this study because Korean occurrence of this species is questionable based on our comprehensive survey although there are records in Korea (Lobl and Smetana 2010; Hong and Lee 2014; Hwang 2015; Jang et al 2015).

Materials and methods

To observe morphological and anatomical characteristics, stereoscopic microscopes (Olympus SZ61, Japan) were used. To examine male genitalia, abdomens of specimen were separated from the thorax. Then, separated abdomen and 15% KOH solution were added in beaker, and heated in boiling water for 10 minutes. For further dissection, softened abdomen was moved to a hole-glass in distilled water. Male genitalia were taken out of the abdomen.

The morphological characters of the specimen and the male genitalia were imagined using Canon EOS 500D and Carl Zeiss Axio Imager A1 with Axio Cam MRc5, respectively.

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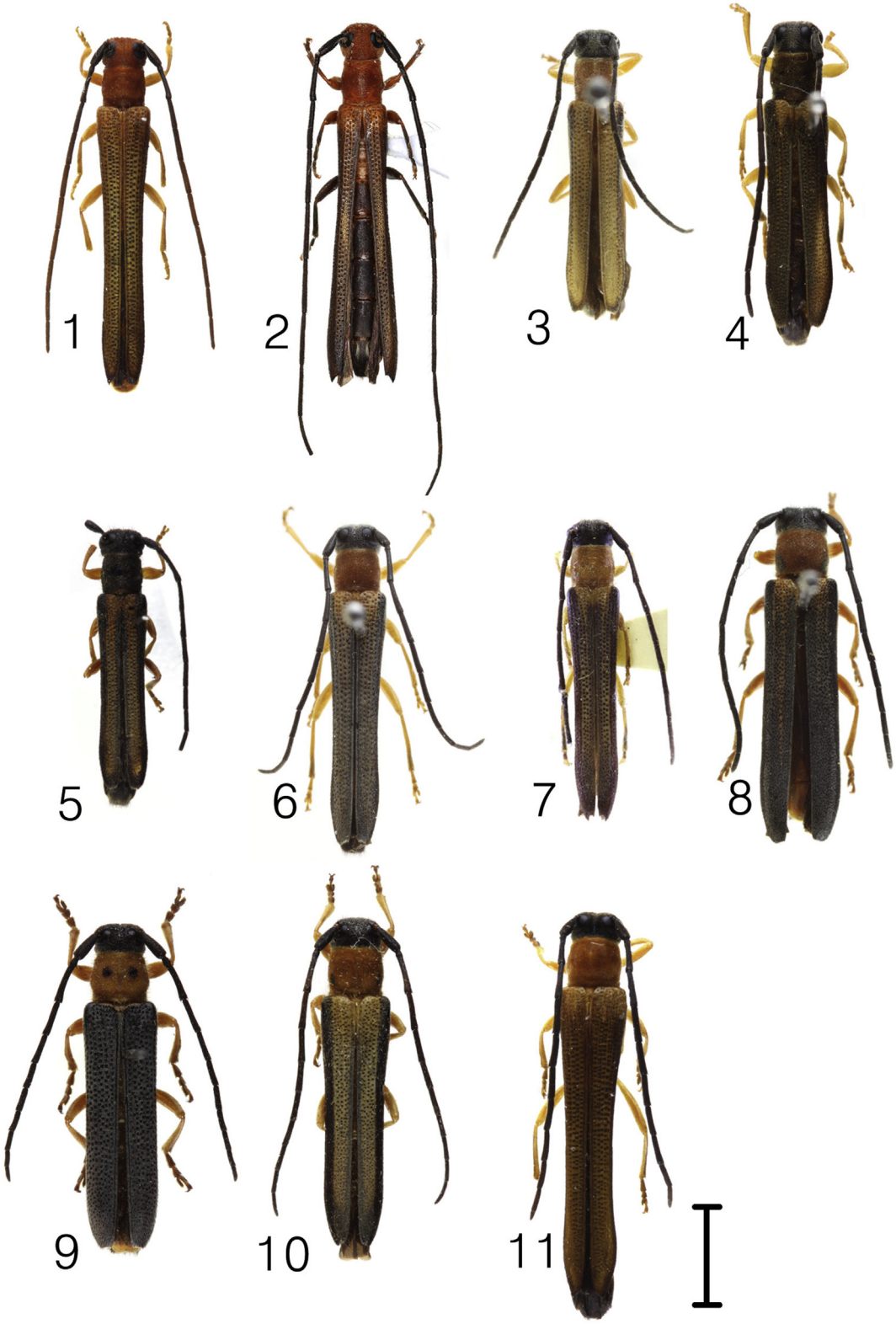

Figures 1–11. Habitus of *Oberea* spp. (dorsal view): 1, *O. atropunctata* Pic; 2, *O. nigriventris* Bates; 3, *O. herzi* Ganglbauer; 4, *O. coreana* Pic; 5, *O. morio* Kraatz; 6, *O. vittata* Blessig; 7, *O. infranigrescens* Breuning; 8, *O. depressa* Gebler; 9, *O. oculata* (Linnaeus); 10, *O. heyrovskyi* Pic; and 11. *O. tsuyukii* Takashi & Nobuo. <scale bar = 5 mm>.

The abbreviations are as follows: KNA, Korea National Arboretum (Pocheon-si); HII, Hampyeong Insect Institute (Hampyeong-gun); NIAST, National Institute of Agricultural Science and Technology (Wanju-gun); KFRI, Korea Forest Research Institute (Seoul-si); KNUL, Kangwon National University (Wonju-si); UI, University of Incheon (Incheon-si); SNU, Seoul National University (Seoul-si); NSM, National Science Museum (Daejeon-si); GW, Gangwon-do; GG, Gyeonggi-do; CB, Chungcheongbuk-do; CN, Chungcheongnam-