

Two New Records of Noctuidae (Lepidoptera) from Korea

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ABSTRACT

We report two species of the family Noctuidae, *Callopistria nobilior* Eda, 2000 and *Mataeomera yoshimotoi* Sohn and Eda, 2013, for the first time in Korea. These two species were collected from the southern part of Korea, Jeollanamdo and Jeju. *Callopistria nobilior* can be identified by a yellowish-white fine stria on M1 of the forewing subermen, a prominent discal spot and postmedial line on the hindwing, a slender, sickle-shaped spine at the apical end of the aedeagus and vesica with large spicules in the male genitalia, and a relatively short sclerotized posterior part of the corpus bursae in the female genitalia. *Mataeomera yoshimotoi* is characterized by a slimmer submarginal shade, an enlarged discal spot, a more pronounced zigzag pattern along the postmedian line, and a wider brown band between the median and postmedian lines on the forewing. Three digitate processes at the apex of the valva and multiple teeth within the distal region of the aedeagus in male genitalia are distinct. We present diagnostic information alongside photographs of adults and their genitalia.

Keywords: Noctuidae, *Callopistria*, *Mataeomera*, new report, Jeju, Korea

INTRODUCTION

The genus *Callopistria* was established with *Phalaena juvenina* Stoll, 1782 as its type species and includes over 133 species worldwide. It exhibits significant species diversity in Sundaland and Africa (Yen and Wu, 2009). Members of this genus are characterized by morphological features such as legs fringed with long hair tufts, scales, or androconial scales; forewings with distinct orbicular and reniform stigmata; a somewhat produced termen with an acute angle at vein M3; and a crenulated tornus with short or long scale tufts. Male abdomen and genitalia are characterized by the coremata or specialized scale tufts arising latero-ventrally from sternite 2, while the valva lacks a clasper and harpe complex but has a subdivided sacculus. Additionally, the sac-like corpus bursae in the female genitalia possess internal sclerites and lacks signa (Yen and Wu, 2009). The close association between *Callopistria* species and ferns serves as a notable example of the adaptation and colonization of phytophagous insects

on land plants (Weintraub et al., 1995; Yen and Wu, 2009). In Korea, 10 species of *Callopistria* have been identified (National Institute of Biological Resources, 2024).

The genus *Mataeomera*, established by Butler in 1886 with *Mataeomera dubia* Butler, 1886 as the type species, includes over 21 species distributed globally. This genus exhibits significant species diversity in both Australia and Southeast Asia. However, its monophyly remains uncertain, as Asian species differ from their Australian counterparts in terms of external morphology and larval feeding behaviors (Sohn and Eda, 2013). In Korea, one species of *Mataeomera*, *M. esbiahni* Sohn and Ronkay, 2001 is known.

The material examined in this study was collected at night using a 22-watt UV-light bucket trap with a 12 V battery (BioQuip, USA) and preserved in a freezer and mounted for examination. Species identification was mainly based on the external morphology of adults including the genitalia. For genitalia slide preparation, the specimen was prepared by boiling the abdomen in 10% potassium hydroxide (KOH) for

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approximately 15–20 min. The scales and tissues were removed, stained with Chlorazol black, and mounted on slides in Euparal mounting medium. Abbreviations are as follows: TS, type species; TL, type locality; JN, Jeollanam-do; JJ, Jeju-do Island.

SYSTEMATIC ACCOUNTS

Order Lepidoptera Linnaeus, 1758
Family Noctuidae Latreille, 1809

Genus *Callopistria* Hübner, [1821]

TS: *Phalaena juvenina* Stoll, [1782]. TL: Europe.

¹**Callopistria nobilior* Eda, 2000 (Figs. 1A, 2A)

Callopistria nobilior Eda, 2000: 138; Yen and Wu, 2009: 38. TL: Japan, Okinawa.

Material examined. Korea: 1 female, JN: Gurye-gun, Gwangui-myeon, Mt. Jirisan, 35°16'36"N, 127°28'41"E, 295 m, 4 Sep 2010, leg. Sei-Woong Choi; 1 female, JJ: Jeju-si, near Cheonwangsa Temple, 33°24'36"N, 126°29'43"E, 673 m, 2 Aug 2021, leg. Sei-Woong Choi; 1 female, JJ: Seogwipo-si, Harye-ri, Namwon-eup, 33°18'57"N, 126°37'9.9"E, 278 m, 6 Oct 2023, leg. Sei-Woong Choi.

Diagnosis. *Callopistria nobilior* is externally indistinguishable from *C. repleta* Walker, 1857, but it can be identified by several distinctive features: a smaller wingspan, a yellowish-white fine stria on M1 of the forewing submen, a prominent discal spot and postmedial line on the hindwing, a slender, sickle-shaped spine at the apical end of the aedeagus and vesica with large spicules in the male genitalia, and a relatively short sclerotized posterior part of the corpus bursae in the female genitalia (Eda, 2000).

Redescription. Wingspan 27–28 mm. Antenna filiform; labial palpi not strongly projected beyond frons. Forewing ground color blackish, long whitish line along the costal vein; antemedial line whitish with a central black line, strongly curved near dorsum; central fascia blackish, anteriorly with a white, small, rounded dot; postmedial line white with a central black line and bent near costa; termen medially projected. Hindwing ground color blackish; discal dot long, thick, dark blackish; postmedial line weakly bent, dark blackish; fringe orange-colored. **Female genitalia:** Papillae anales relatively small, dorsally slightly projected; apophyses slender, anterior apophyses as long as posterior apophyses. Antrum simple, broad, membranous; ductus bursae short, posteriorly expanded to antrum; corpus bursae long, about seven times to the length of ductus bursae, cucumber-shaped with medial narrowing, posteriorly sclerotized and the length of sclerotized part relatively short, about 1/4 of the corpus bursae; signum absent.

Distribution. Korea, Japan, Taiwan.

Notes. The larvae feed on ferns of Dennstaedtiaceae such as *Histiopteris incisa*, *Microlepidia krameri*, *M. obtusiloba*, *M. speluncae*, and *M. strigose* in Taiwan (Yen and Wu, 2009). Although the species is multivoltine, with flight periods in May and August in Japan (Kishida, 2011), its populations in Korea are active from August through September to October, and potentially in May as well. It is likely that the species exhibits multivoltinism in Korea as well.

Genus *Mataeomera* Butler, 1886

TS: *Mataeomera dubia* Butler, 1886. TL: Australia, Peak Downs and Gayndah.

²**Mataeomera yoshimotoi* Sohn and Eda, 2013 (Figs. 1B, 2B, C)

Mataeomera yoshimotoi Sohn and Eda, 2013: 497. TL: Japan,

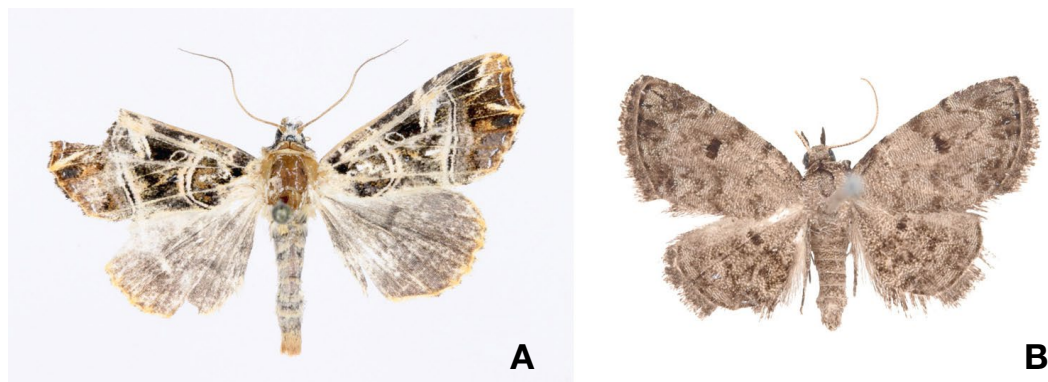


Fig. 1. Adults from Korea. A, *Callopistria nobilior* Eda, 2000; B, *Mataeomera yoshimotoi* Sohn and Eda, 2013.

Korean name: ¹*섬어린밤나방 (신칭), ²*갯빛물결꼬마짚름나방 (신칭)

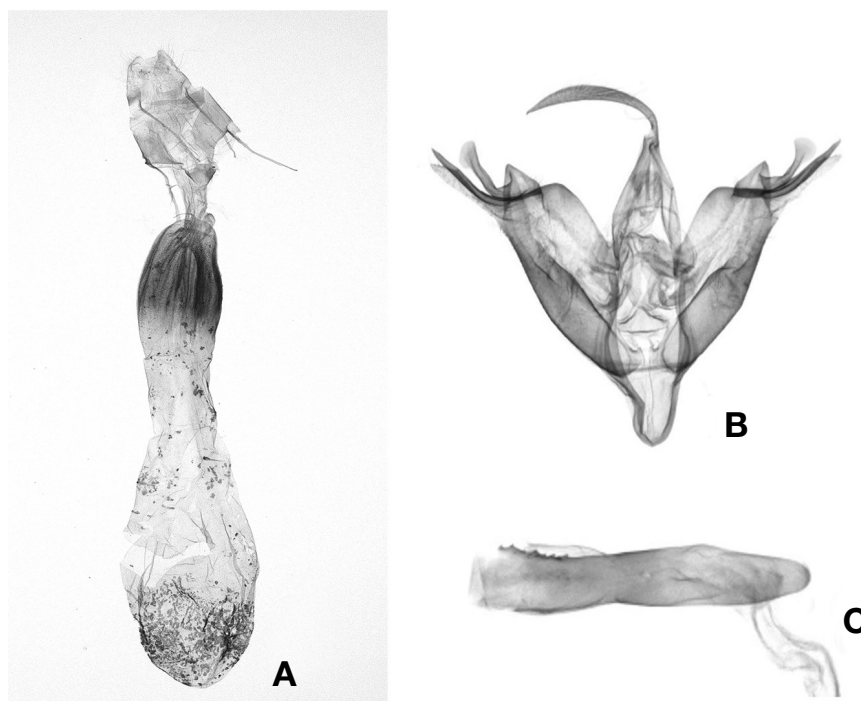


Fig. 2. Genitalia of two species of Noctuidae from Korea. A, Female genitalia of *Callopietria nobilior* Eda, 2000; B, C, Male genital capsule and aedeagus of *Mataeomera yoshimotoi* Sohn and Eda, 2013.

Iruma, Bushi.

Material examined. Korea: 1 male, JJ: Jeju-si, Pyungdae-ri, Gujwa-eup, Bijarim, 22 Aug 2014, leg. Sung-Soo Kim.

Diagnosis. This species is externally similar to *M. esbiahni* Sohn and Ronkay, 2001 but can be distinguished by the narrower submarginal shade, the larger discal spot, the more sharply zigzagged postmedian line, and the broader brown fascia between median and postmedian line of the forewing and the presence of three digitate processes in the apex of the valva and several teeth in the distal area of aedeagus in the male genitalia (Sohn and Eda, 2013).

Redescription. Wingspan 14 mm. Male antennae filiform; labial palpi slightly ascending. Forewing ground color pale brownish gray; antemedial line dark brown, sinuous; median and postmedian lines dark brown, strongly undulating; discal dot large, dark brown; subtermen dark brown. Hindwing ground color pale brownish gray; median and postmedian lines dark brown, discal dot vague with medial line; termen tinged with dark brown. **Male genitalia:** Uncus long, slender, curved, apex pointed; tegumen triangular; juxta triangular; saccus long, projected. Valva elongate; costa medially expanded, distally with a long, hooked process that projects beyond valva; cucullus cone-shaped with an apically expanded digitate process; sacculus long, sclerotized, distally with a long

digitate, membranous process. Aedeagus rod-shaped, apically with several minute teeth-like processes; cornutus absent.

Distribution. Korea, Japan.

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CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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REFERENCES

- Butler AG, 1886. Descriptions of 21 new genera and 103 new species of Lepidoptera-Heterocera from Australian region. Transactions of the Royal Entomological Society of London, 1886:381-442. <https://doi.org/10.1111/j.1365-2311.1886.tb01633.x>
- Eda K, 2000. A new species of *Callopistria* Hübner (Noctuidae) from Japan and its ally in Sumatra. Japan Heterocerists' Journal, 208:137-140.
- Hübner J, [1821]. Verzeichniss bekannter Schmettlinge. Verlag Hübner, Augsburg, pp. 209-224.
- Kishida Y, 2011. The standard of moths in Japan. II: Notodontidae, Lymantriidae, Arctiidae, Aganidae, Micronoctuidae, Nolidae, Noctuidae. Gakken Educational Publishing, Tokyo, pp. 1-300.
- Latreille PA, 1809. Genera crustaceorum et insectorum secundum ordinem naturalem in familias disposita, iconibus exemplis que plurimis explicate. Vol. 4. A. Parisiis, Koenig, pp. 1-399.
- Linnaeus C, 1758. Systema naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Editio decima, reformata. 10th revised ed. Vol. 1. Laurentius Salvius, Holmiae, pp. 1-824.
- National Institute of Biological Resources, 2024. National Species List of Korea. Ministry of Environment of Korea, Sejong, Accessed 2025 Jan 11, <<https://www.nibr.go.kr>>
- Sohn JC, Eda K, 2013. A new species of *Mataeomera*, formerly misidentified as *M. obliquisigna* (Hampson, 1894) from Japan (Lepidoptera, Erebidae, Boletobiinae). Zootaxa, 3745:496-500. <https://doi.org/10.11646/zootaxa.3745.4.8>
- Sohn JC, Ronkay L, 2001. New records of Korean Noctuidae (Lepidoptera), with descriptions of a new species. Insecta Koreana, 18:219-227.
- Stoll C, [1782]. Uitlandsche Kapellen (Papillons exotiques) in Cramer, 4:165-252.
- Walker F, [1858]. List of the specimens of lepidopterous insects in the Collection of the British Museum. Part 12. Edward Newman, London, pp. 765-982.
- Weintraub JD, Lawton JH, Scoble MJ, 1995. Lithinine moths on ferns: a phylogenetic study of insect-plant interactions. Biological Journal of the Linnean Society, 55:239-250. <https://doi.org/10.1111/j.1095-8312.1995.tb01062.x>
- Yen SH, Wu S, 2009. Biota Taiwanica. Hexapoda: Lepidoptera, Noctuoidea, Noctuidae, Eriopinae. National Sun Yat-Sen University & National Science Council, Kaohsiung, pp. 1-60.

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