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Short communication

An Ennomine Species, *Paradarisa chloauges* (Lepidoptera: Geometridae), New to Korea

Sei-Woong Choi[1,*], Sung-Soo Kim[2]

[1]Department of Environmental Education, Mokpo National University, Muan 58554, Korea
[2]Research Institute for East Asian Environment and Biology, Seoul 05236, Korea

ABSTRACT

An ennomine species, *Paradarisa chloauges* Prout, 1927 is newly recorded from Korea. Adults were collected at the south aspect of Mt. Hallasan, Jejudo. *Paradarisa chloauges* can be distinguished by grayish or dark greenish fore- and hindwings, blackish basal, ante- and postmedial lines with a blackish discal dot on the forewing and transverse antemedial line, as well as a strongly dentate postmedial line and a thick, dark brownish tinged subterminal line on the hindwing. *Paradarisa chloauges* is externally very similar to *P. consonaria*, but can be distinguished by the larger wingspan and flying time. The male genitalia of *P. chloauges* are similar to those of *P. consonaria*, but can be distinguished by the long sacculus and two harpe processes on the valva and the large spinular cornuti on the vesical. The female genitalia of *P. chloauges* are similar to those of *P. consonaria*, but can be distinguished by the large bag-shaped corpus bursae. To date, two species of the genus *Paradarisa* have been recorded in Korea.

Keywords: Geometridae, Ennominae, *Paradarisa*, Mt. Hallasan, Korea

INTRODUCTION

The genus *Paradarisa* Warren consists of large-sized geometrid moths in the subfamily Ennominae. The genus was erected by Warren (1894) based on a morphological character, ciliate male antennae. The monophyly of the genus was not defined yet. There are five species of the genus, most of which occur in Asian regions such as India, Sri Lanka, Myanmar, and Taiwan (Scoble, 1999). To date, only one species, *P. consonaria* Hübner, has been identified in Korea (Kim et al., 2016). During a moth survey on Mt. Hallasan, Jejudo, we found an additional species of *Paradarisa*, *P. chloauges* Prout. Here, we report the occurrence of the species for the first time in Korea.

Adult moths were collected using a UV-light bucket trap with a 12 V battery (BioQuip, USA) during night. All collected adults were preserved in a freezer and mounted for examination. For slide preparation of male and female genitalia, each specimen was prepared by boiling the abdomen in 10% KOH for approximately 20 min. Scales and tissues were removed, stained with Chlorazol black, and mounted on slides in Euparal solution. For wingspan measurements, the distance from the tip of the left forewing to the tip of the right forewing was used.

Terminology of adult, including the male and female genitalia, refers to Hausmann (2001). All materials were deposited in the Collection of Insects of the Department of Environmental Education, Mokpo National University. Abbreviations: JJ, Jeju-do.

SYSTEMATIC ACCOUNTS

Order Lepidoptera Linnaeus, 1758
Family Geometridae Leach, 1815
Genus *Paradarisa* Warren, 1894

[1*]*Paradarisa chloauges* Prout, 1927 (Figs. 1A, 2A, B, E)

Paradarisa chloauges Prout, 1927: 937.
Paradarisa comparataria kurosawai Inoue, 1956: 6.

Material examined. 4 males, 1 female, Korea: JJ: Seogwipo,

Korean name: [1*]큰회색가지나방 (신칭)

*To whom correspondence should be addressed
Tel: 82-61-450-2783, Fax: 82-61-450-2789
E-mail: choisw@mokpo.ac.kr

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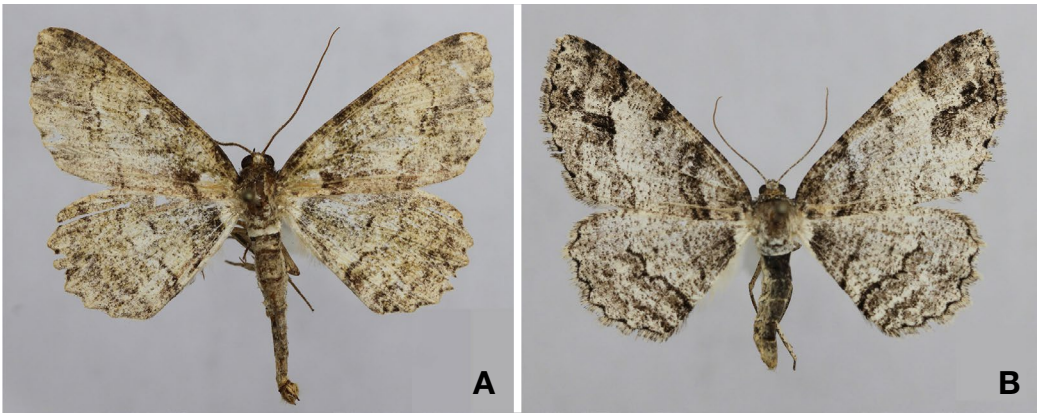

Fig. 1. Adults of *Paradarisa* in Korea. A, *Paradarisa chloauges*; B, *Paradarisa consonaria*.

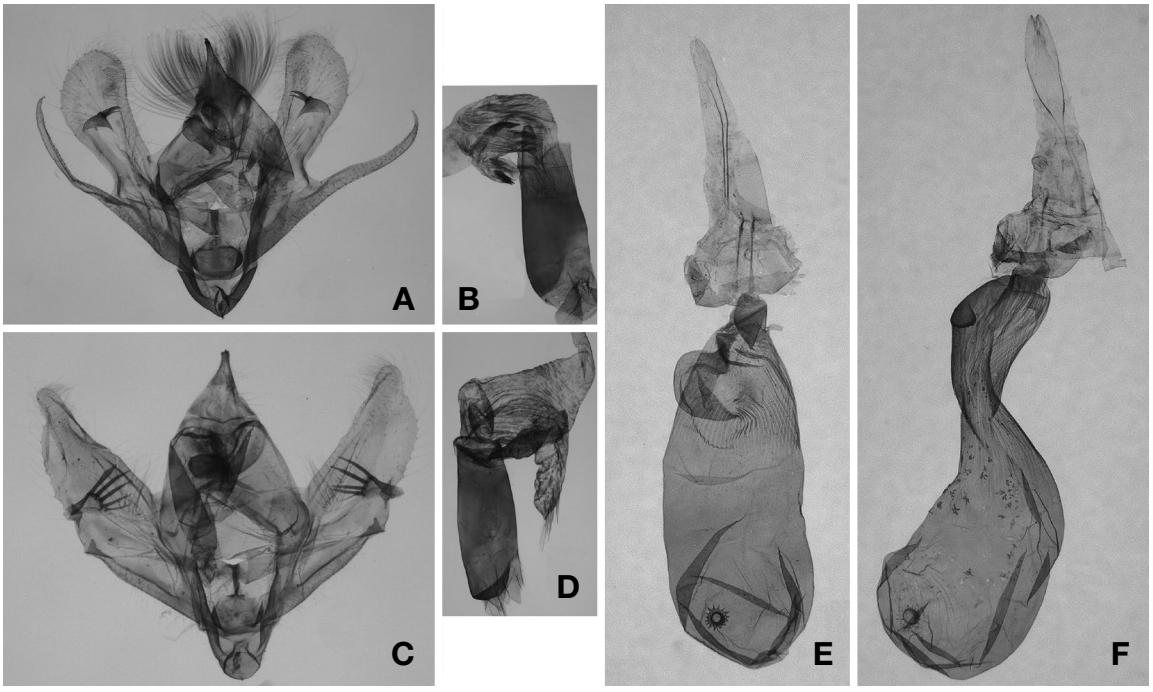

Fig. 2. Male and female genitalia of *Paradarisa* in Korea. A, B, E, *Paradarisa chloauges*; C, D, F, *Paradarisa consonaria*.

Namwon-eup, Mt. Hallasan National Park, 33°19′57″N, 126° 36′25″E, 499 m above sea level, 9 Jul 2015, 1 Oct 2016, 1 Oct 2018, Choi SW.

Diagnosis. Wingspan 39–40 mm. This grayish or dark greenish winged species can be distinguished by the filiform antennae, the grayish well projected labial palpi, slender brownish frons, grayish body, grayish or dark greenish fore- and hindwings, blackish basal, ante- and postmedial lines with a blackish discal dot on the forewing and transverse antemedial line, as well as a strongly dentate postmedial line and a thick, dark brownish tinged subterminal line on the hindwing. The male genitalia can be distinguished by the strongly tapered uncus with long hairs on the gnathos, a medially fused mushroom-body shaped transtilla, a triangular saccus, a strongly bifurcated valva with a long sacculus process and a strongly sclerotized harpe with two spinular processes and an anteriorly expanded, rod-shaped aedeagus with a pair of large spinular cornuti. The female genitalia can be distinguished by the long papillae anales, narrow antrum, short ductus bursae and large bag-shaped corpus bursae that show the sclerotized stripes anteriorly and a large stellate signum.

Distribution. Korea, Japan, India.

Remarks. There are two species of *Paradarisa* in Korea: *P. consonaria* and *P. chloauges*. *Paradarisa chloauges* is externally very similar to *P. consonaria* (Fig. 1B), but can be distinguished by the larger wingspan. The male genitalia of *P. chloauges* are similar to those of *P. consonaria* (Fig. 2C, D), but can be distinguished by the long sacculus and two harpe processes on the valva and the large spinular cornuti on the vesical. The female genitalia of *P. chloauges* are similar to those of *P. consonaria* (Fig. 2F), but can be distinguished by the large bag-shaped corpus bursae. Additionally, the occurrence of two species is different: *P. chloauges* fly in summer and autumn, while *P. consonaria* fly on spring. *P. chloauges* feed on *Quercus phillyraeoides* A. Gray and *Magnolia stellata* (Siebold & Zucc.) Maxim. (Fagaceae) (Kishida, 2011).

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