

Two Species of Gelechiidae (Lepidoptera: Gelechioidea) New to Korea

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빨나방과의 한국 미기록 2종 보고

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ABSTRACT: Two species of Gelechiidae: *Helcystogramma compositaepictum* (Omelko et Omelko) and *Paralida triannulata* Clarke are reported from Korea for the first time. The genus *Paralida* Clarke, 1958 is new to the Korean fauna. Photographs of adults and genitalia for available sexes are provided with notes of distribution.

Key words: Fauna, Gelechiidae, Korea, New record, *Paralida*

초 록: 한국산 빨나방과의 2미기록종인 *Helcystogramma compositaepictum* (Omelko et Omelko)와 *Paralida triannulata* Clarke을 보고한다. *Paralida* Clarke속은 국내에서 처음 기록된다. 성충과 생식기의 사진을 제공하는 한편, 분포 정보를 논하였다.

검색어: 동물상, 빨나방과, *Helcystogramma*, 한국, 미기록종, *Paralida*

The family Gelechiidae represents one of the largest radiations in the extant fauna of Lepidoptera, comprising more than 4,700 described species in about 500 genera (Nieukerken et al., 2011). The monophyly of Gelechiidae is well established with morphological (Hodges, 1998) and molecular evidences (Karsholt et al., 2013; Heikkilä et al., 2014; Sohn et al., 2016). The subfamilial and tribal classification of Gelechiidae is less stable, but a recent proposal (Karsholt et al., 2013) suggested six subfamilies within the family. The larvae exhibit various feeding modes and host associations. There are several pest species of Gelechiidae known from Korea, including *Scrobipalpa salinella* (Zeller) attacking the glassworts (Paik et al., 2013) and *Phthorimaea operculella* (Zeller), a well-known global pest on the solanaceous crops (An et al., 2013).

Park and Ponomarenko (2007) compiled the Korean records of Gelechiidae that represent 172 species in 57 genera. The Korean fauna of Gelechiidae is yet exhaustively studied and new faunistic records of the family has been continuously made (e.g. Bae et al., 2014; Kim et al., 2014; Park et al., 2014).

The aim of this paper is to report two species of Gelechiidae new to Korea. We provide a taxonomic summary for each genus and species treated in this paper and discuss their distribution.

Material and Methods

Dried specimens were obtained from two institutional collections: the Department of Environmental Education, Mokpo National University, Muan (MPNU) and the National Institute of Biological Resource, Incheon (NIBR). Pinned specimens and slide preparations were examined using

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dissecting and compound microscopes (Leica EZ4 and Leica DM-500). Dissections of the male and female genitalia were prepared following Clarke (1941), except that chlorazol black was used as stain. Dissected genitalia were mounted on slides in Euparal. In the specimen data, "GSN" in brackets indicates the number of genitalia slide. Terms for genitalia follow Klots (1970).

Taxonomic accounts

Family Gelechiidae

Genus *Helcystogramma* Zeller, 1877

Helcystogramma Zeller, 1877: 369. Type species: *Gelechia obseratella* Zeller, 1877.

This genus comprises over 100 known species worldwide, including 5 species from Korea (Park and Ponomarenko, 2007; Park et al., 2016). *Helcystogramma* is similar to the genus *Brachmia*, but differs from the latter in the presence of the secondary radial retinaculum on the underside of forewing and the lack of a juxta in the male genitalia (Park and Ponomarenko, 2007).

Helcystogramma compositaepictum (Omelko and Omelko, 1993) 그림날개꼴나방 (Figs. 1, 3)

Schemataspis compositaepicta Omelko and Omelko, 1993: 216 [TL: Russia, Primorskii krai, Verkhni Pereval].

Helcystogramma compositaepictum: Ponomarenko, 1997: 5.

Description (Fig. 1). Forewing length 3.6-4 mm. Head and antenna dark brown. Thorax dark brown. Forewing dark grayish brown, suffused with dark brown along costal area; two oblique streaks at basal 1/4 and middle of costa converged, orange on posterior 4/5, white on anterior 1/5; two white bars present on distal area of costa; broad, crescentiform, dark brown patch at basal 1/3 of dorsum, juxtaposed with orange line along inner margin and with white line along outer margin; triangular, dark brown patch above crescentiform patch, outlined with pale orange; posterior line orange, zigzagged, juxtaposed with silvery band outwardly; subterminal area orange, cut by two dark brown bars on anterior 1/3; terminal line dark brown. Hindwing dark brownish gray. Male genitalia (Fig. 3) with uncus spatulate; tegumen with quadrate protrusion at anterolateral 1/3; gnathal process elongate, acuminate apically, 1/2 as long as uncus; valva elongate, narrowly round apically; vinculum triangular, with short, dentiform process anterolaterally; phallus (Fig. 3a) short, narrowed apically. See Omelko and Omelko (1993) for the female genitalia.

Material examined. 2♂, Gyonggi Prov., Dongducheon, Mt. Soyosan, 13 July 1998 (JC Sohn), [GSN] SJC-544, NIBR; 2♂, Chungbuk Prov., Jaecheon, Mt. Weolaksan (36°53'16.9"N 128°08'56.8"E), 23 July 2005 (JC Sohn), [GSN] SJC-1014, MPNU.

Distribution. South Korea, Japan (Hokkaido), Russia (Far East).

Remarks. Park et al. (2016) described a new species, *Helcystogramma haryensis* Park, from Is. Jeju, South Korea. This species is very similar to *H. compositaepictum* but



Figs. 1-2. Adults of Gelechiidae. 1, *Helcystogramma compositaepictum* (Omelko and Omelko), male; 2, *Paralida triannulata* Clarke, female. Scale bars = 3 mm.

differs from the latter in the forewing patterns and the male genitalia. It is interesting that two closely related species of *Hevcystogramma* occur allopatrically in Korea.

Genus *Paralida* Clarke, 1958

Paralida Clarke, 1958: 1. Type species: *Paralida triannulata* Clarke, 1958.

This genus belongs to Chelariinae (Ueda, 2005) and Chelariini (Karsholt et al., 2013). It comprises three species occurring in East Asia. Ueda (2005) characterized *Paralida* with two synapomorphies: the presence of the sclerotized plate on the anterior margin of the parapleura in the metathorax, and the produced apex of the forewing. *Paralida* is similar to the genus *Hypatima* in external appearance, but can be distinguished from the latter in the absence of the scale-tuft on the forewing and the absence of the sensilla basiconica on the valvella in the male genitalia.

***Paralida triannulata* Clarke, 1958** 밀구슬뿔나방 (Figs. 2, 4)

Paralida triannulata Clarke, 1958: 2.

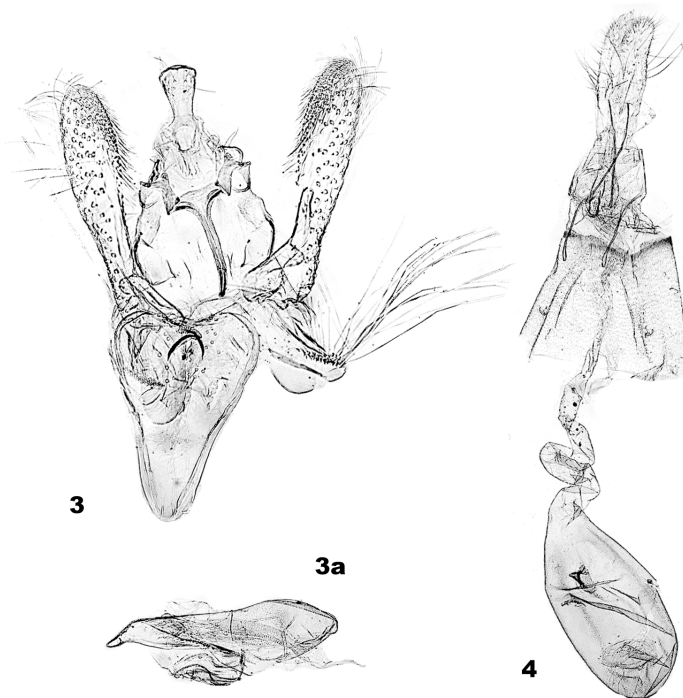
Description (Fig. 2). Forewing length 9.3 mm. Head and antenna pale yellowish gray. Thorax pale yellowish gray. Forewing pale yellowish gray, with pale reddish brown, longitudinal streak medially; costa suffused with brownish gray from basal 1/3 to apex; brown, orbicular stigma present at distal end of discal cell; dark brown streak present after orbicular stigma towards apex. Hindwing pale brownish gray. Female genitalia (Fig. 4) with papillae anales short, setose; apophysis posterioris about twice length of apophysis anterioris; ductus bursae narrow, weakly sclerotized on posterior 1/5; corpus bursae long, obovate; signum oblong, with rectangular process. See Clarke (1958) and Ueda (2005) for the male genitalia.

Material examined. 1 ♀, Jeonnam Prov., Wando-gun, Gunoe-myeon, near Wando Arboretum, 11 August 2015 (SS Kim), [GSN] SJC-1012, NIBR.

Distribution. South Korea, Japan, Taiwan, Thailand.

Host plants. Meliaceae - *Melia azedarach* L. (Ueda, 2005).

Remarks. The record of this species from Korea represents its northernmost distribution. The host plants of *P. triannulata* commonly occur in the southern parts of Korea, indicating its residency in the country.



Figs. 3-4. Genitalia of Gelechiidae. 3, *Helcystogramma compositaepectum* (Omelko and Omelko), male (3a - phallus); 4, *Paralida triannulata* Clarke, female.

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