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First report of the tribe Chlidanotini (Lepidoptera: Tortricidae) from Korea, with the description of a new genus and species

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Abstract

Nabangana **gen. nov.** is described and illustrated from Korea. The new genus and its type species *Nabangana koreana* **sp. nov.** represents the first record of the tortricid tribe Chlidanotini from Korea.

Key words: Chlidanotinae, Korea, *Nabangana,* new taxa

Introduction

The subfamily Chlidanotinae, representing the basal branch of Tortricidae, comprises three tribes, each of which occurs wordlwide: Chlidanotini, Hilarographini, and Polyorthini (Regier *et al*. 2012). The subfamily was proposed by Meyrick (1906), based on the type genus *Chlidanota* Meyrick, 1906. Gilligan *et al*. (2018) provided a comprehensive list of the described Chlidanotini, listing 24 genera.

The number of known species in the tribe Chlidanotini is the highest in the Neotropical region, but the tribe is also present in the Oriental, Australian and Afrotropical regions (Razowski & Giliomee 2014). Razowski & Becker (1999) revised the Neotropical members of the tribe, treating 58 species. To date only three species are known from the East Palaearctic region, including *Trymalitis escharia* Clarke, 1976, *Archimaga philomima* Meyrick, 1918, and *Metrernis* sp., recorded from Japan (Nasu 2013).

In Korea, the subfamily Chlidanotinae was first reported by Bae (2000) who recorded *Mictocommosis nigromaculata* Issiki, 1930, which belongs to the tribe Hilarographini. Later, *Thaumatographa eremnotorna* (Diakonoff & Arita, 1976), also Hilarographini, was added to the Korean fauna (Sohn 2007). While these two species of Hilarographini have been reported from Korea, until present, no species of the tribe Chlidanotini has been recorded from Korea.

During recent studies on the Korean Tortricidae, the author discovered a species belonging to an undescribed genus of the tribe. The aim of this study is to describe and illustrate this new genus and species, which represents the first report of the tribe Chlidanotini from Korea.

Materials and methods

Specimens used in this study are deposited in the Systematic Entomology Laboratory, Hannam University, Daejeon, Korea (SELHNU). Male and female genitalia were dissected and slide-mounted with Euparal, following a slightly modified version of the methods of Holloway *et al*. (1987). Images of the adult which were taken by digital camera (Canon EOS 600D, Canon Inc., Ota, Tokyo, Japan), for genitalia were taken by using digital camera attached on the microscope, LEICA M205C (© Leica Microsystems, Wetzlar, Hesse, Germany).

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Results

Tribe Chlidanotini Meyrick, 1906

Journal of the Bombay Natural History Society, 17 (2): 412.
Type genus: *Chlidanota* Meyrick, 1906

Genus *Nabangana* gen. nov.

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Type species: *Nabangana koreana* sp. nov.

Diagnosis. The new genus is somewhat similar in appearance to members of the tribe Enarmoniini, but it can be easily distinguished by the concaved termen beneath the apex in the forewing, the presence of hami and a subtriangular lobe on the valva in male genitalia, and a signum bearing numerous long spines in female genitalia. Also, the new genus is similar to the related genera, *Trymalitis* Meyrick, 1905, *Caenognosis* Walsingharn, 1900, *Leurogyia* Common, 1965, and *Daulocnema* Common, 1965, but it is different from them by the wing venation as written in the Discussion. The male genitalia (Figs 5, 5a) are similar to those of *Leurogyia peristictum* Common, 1965, but can be distinguished by the rather narrow uncus, with sub-acute apex; the stick-shaped hami with broadened apex; the rather rounded valva, curved at middle of ventral margin with a subtriangular lobe medially. Aedeagus nearly straight with bifid apex, cornuti absent. The female genitalia (Fig. 6) are in general similar to those of allied genera, but are characteristic especially by the sclerotized ductus bursae near the entrance, and the signum with a bundle of spines, and the accessory sac originating from the head of the signum.

Description. *Head* (Figs. 2–3). Frons with short, whitish, rough scale tufts; rough yellowish brown scales around compound eye, base of antenna, and vertex; proboscis short; labial palpus somewhat subtriangular in frontal view, rather broadened downwards with long scales, apical segment narrowed, slightly porrect, subacute, with appressed short scales; ocelli absent; cilia of the antennae not developed.

Thorax: Legs with smooth scales. Forewing (Figs 1, 4) narrow, elongate, costa gently arched basally, then nearly straight toward apex, apex narrowed and strongly produced, apex subacute, termen deeply concaved beneath apex, tornus somewhat broadly rounded. Forewing venation with Sc extending to near middle of the costa, R_1 from 2/3 length of the cell, R_3 from upper-right angle of the cell, R_4 and R_5 long stalked extending to near apex and the end of apex respectively, M_1 long to the termen beneath apex, M_2 straight to the concavity of the termen, M_3 and CuA_1 connate near the lower angle of the cell, CuA_1 strongly curved in middle and approaching M_3 near margin of termen, CuA_2 originated from beyond the half of the cell, more or less straight, 1A+2A with basal fork, extending to 1/3 of dorsum. Hindwing (Figs 1, 4) slightly narrower than forewing, slightly acute apically, Sc fused with discal cell to beyond one-half, Rs and M_1 nearly coincident from upper angle of cell, then branched near apex, stem of M absent from cell, M_2 originating from the lower 1/3 of the outer margin of the discal cell, M_3 and CuA_1 long-stalked, CuA_2 from about 2/3 of cell, CuB vestigial, 1A+2A with basal fork, 3A vestigial.

Abdomen: hair pencil not observed.

Male genitalia (Figs 5, 5a). Tegumen broad; uncus broad basally, then narrow from middle towards apex, with two hami, the modification of the uncus, thick, with broadened apex, as long as 2/3 of uncus, socii clavate, hairy, rounded terminally; gnathos arms short, united medially, sub-acute terminally; transtilla broad, weakly sclerotized; juxta narrow at base, vinculum broad, rounded; valva internally strongly concave, distally broadly rounded, with long hairs along the terminal margin, a sub-triangular lobe with acute apex present medially; aedeagus as long as the height of the genitalia, nearly straight, bifid apically, cornutus absent.

Female genitalia (Fig. 6). Papillae anales long, elongate, rounded posteriorly; ostium bursae broad, cup-shaped, well sclerotized; ductus bursae broad, as long as corpus bursae, sclerotized near entrance, then membranous towards corpus bursae; corpus bursae ovate, signum near junction of ductus bursae, a deeply invaginated sclerotized structure basally, with two series of appressed spines terminally, neck of accessory sac short, originating from the signum posteriorly.

Distribution. The genus occurs only in Korea.

Etymology. The species name of the new genus is derived from the common name for “moth” in Korea (Nabang).

***Nabangana koreana* sp. nov.**
(Figs. 1–6)
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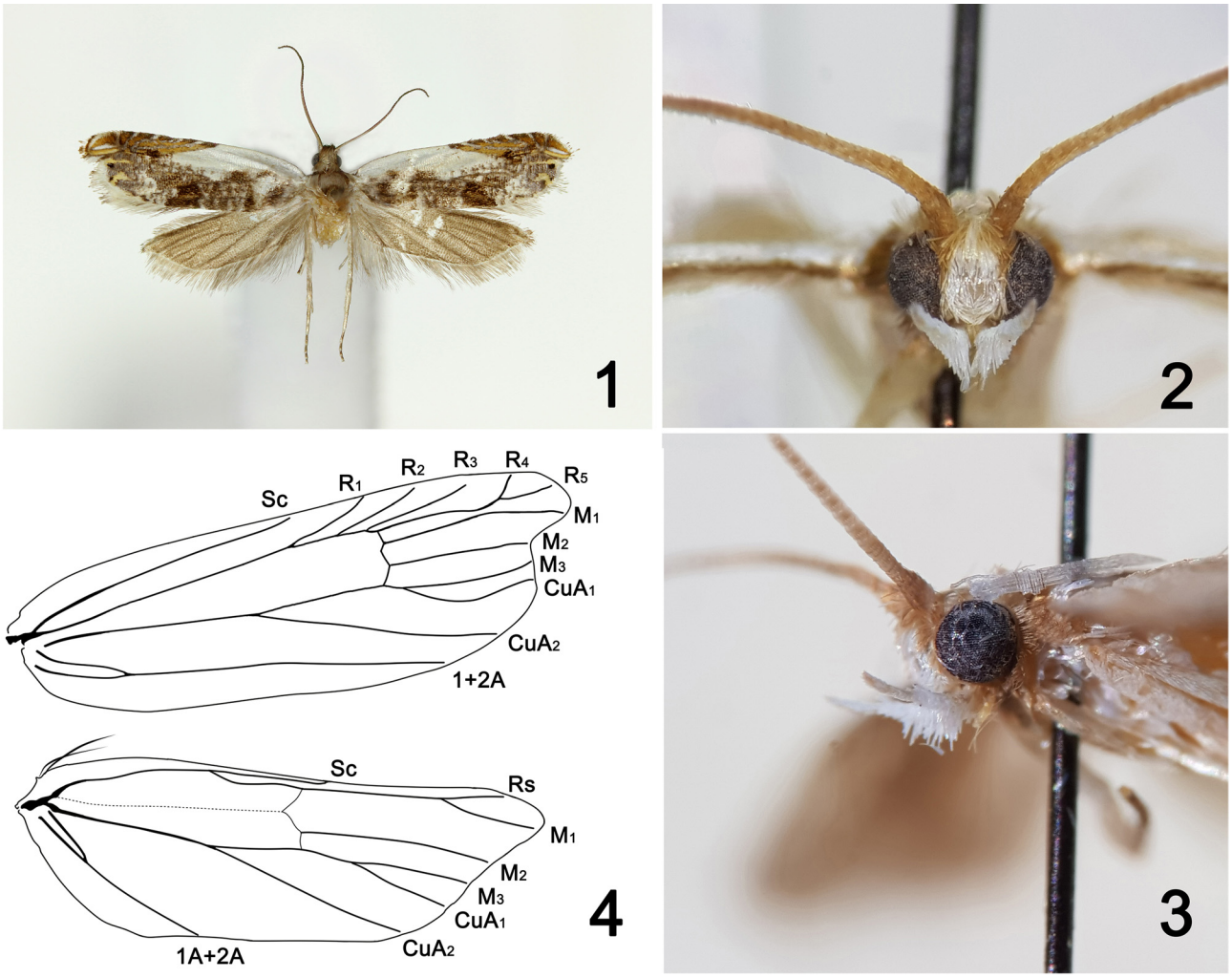
Type material. Holotype. [KOREA] ♂, Gwangrung, Province Gyeonggi, 3 vi 1999 (leg., B.K. Byun), genitalia slide no. 854. Paratypes. [KOREA] 1♀, Mt. Chenggye-san, Province Gyeonggi, 15 v 1997 (Y.M. Park & J.S. Lee); 1♀, Yangyang, Province Gangweon, 30 v 1987 (K.T. Park), genitalia slide no. 3464; 1♂, Chuncheon, N 37.961788, E 127.683416, Province Gangweon, 14 v 1991 (leg., B.K. Byun & Y.D. Kwon)-coll. SELHNU, genitalia slide no. 3467.

Diagnosis. The new species is similar to members of the allied genera, *Caenognosis incisa* Walsingham, 1900, *Leurogyia peristictum* Common, 1965, and *Daulocnema epicharis* Common, 1965 in wing pattern, color, and the shape of the forewing termen, but it can be distinguished by the elongate uncus, the golf club-shaped hami, the curved costa of the valva, and a nearly straight aedeagus. In wing venation, the new species is quite similar to *Leurogyia peristictum*, with the forked R_4 and R_5 near the apex in the forewing; however, in the latter, the veins are positioned near the apex at the costa and beneath the apex at the termen, respectively, whereas in *N. koreana* R_4 and R_5 are positioned together near the apex at the costa.



FIGURES 1–4. Morphological features of adults of *Nabangana koreana* **sp. nov.** 1, adult, paratype; 2, frontal view of head; 3, lateral view of head; 4, wing venation.

Description. *Head* (Figs 2, 3) with short whitish rough scale tufts on frons and with yellowish brown rough scales along the compound eye, base of antenna, and vertex; proboscis short; labial palpus with creamy white second segment, somewhat sub-triangular in the frontal view, rather broadened downwards with long scales; apical segment narrowed, slightly porrect, subacute, with appressed short scales.

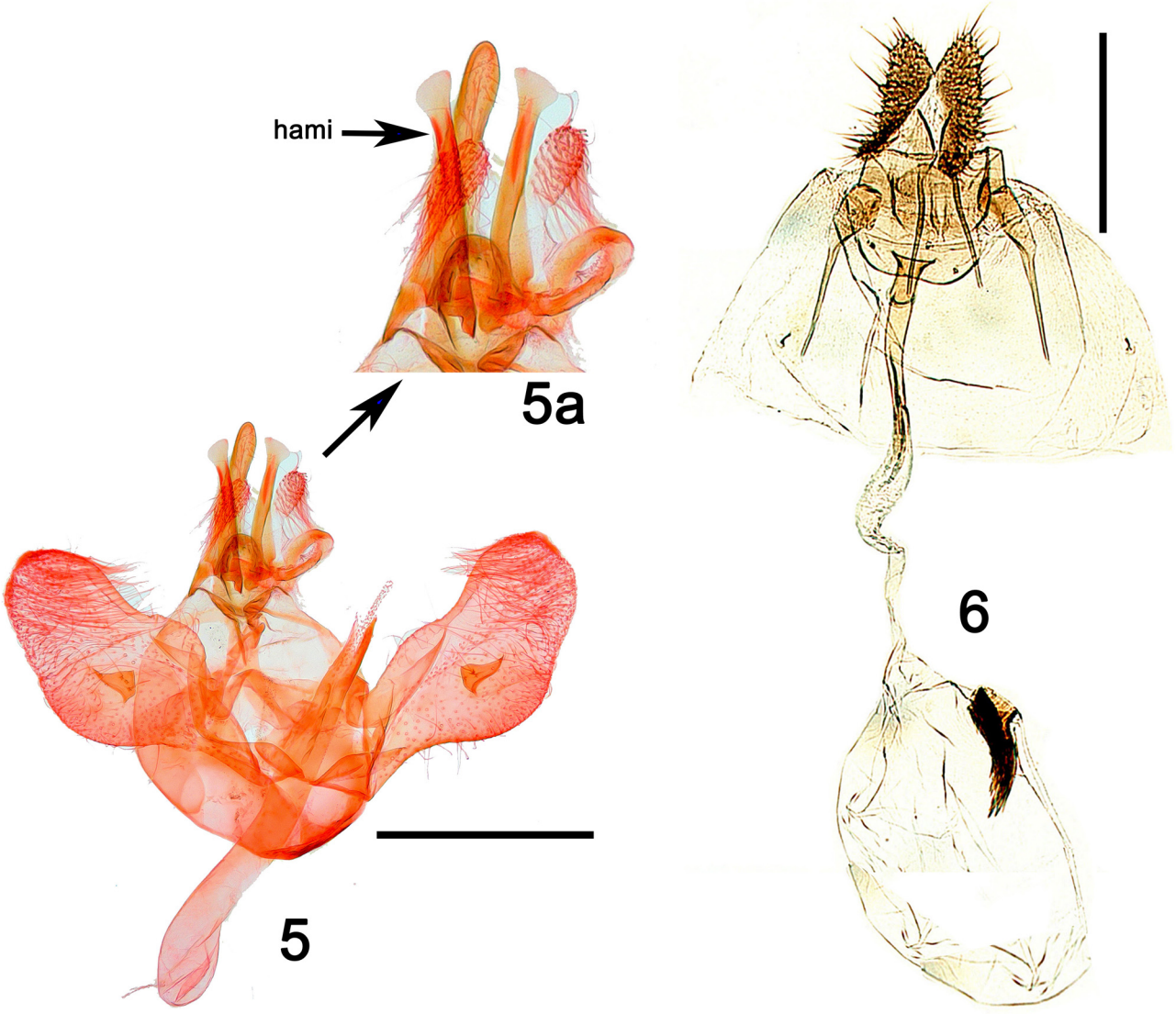
Thorax and legs with smooth scales. Forewing (Figs 1, 4). Wingspan 11.5 mm in male, 13.5 mm in female, narrow, elongate, costa gently arched basally, then nearly straight toward apex, apex narrowed and subacute, strongly produced, termen deeply concaved beneath apex, tornus somewhat broadly rounded; ground color creamy white, blackish brown scales from base to 3/4 at lower half of the forewing, then somewhat weak in color to termen; apical half of costa nearly straight, with five narrow yellowish brown streaks from middle to near apex, rather darkened near costa, then abruptly curved at apex forming a protruded portion with a short and narrow white streak inside of apical area; termen strongly concaved beneath apex, then rounded to the broad tornus; three pale yellowish short streaks along the termen with a small blackish dot on the concaved area near termen; cilia short near apex, then rather long along termen and tornus. Hindwing (Figs 1, 4), a bit narrower than forewing, slightly acute apically, Sc fused with discal cell to beyond one-half, Rs and M_1 practically coincident from upper angle of cell.

Male genitalia (Figs. 5, 5a). As described for the genus.

Female genitalia (Fig. 6). As described for the genus.

Distribution. Korea (South).

Etymology. The species name is derived from the type locality (Korea).



FIGURES 5–6. Genitalia of *Nabangana koreana* **sp. nov.** 5, male genitalia, holotype (genitalia slide number 854); 6, female genitalia, paratype (genitalia slide number 3464). Scale bar: 0.5mm.

Discussion

The new monotypic genus is similar to and allied with *Leurogyia*, *Caenognosis*, and *Daulocnema* from Australia

in wing shape and forewing patterns (Common 1965). However, the wing venation is quite different from that of *Caenognosis*, and *Daulocnema*, in which the R_4 and R_5 is not long stalked and forked reaching to near apex and the end of apex in forewing and Sc with separated from $Rs+M_1$ respectively. Instead, the wing venation of the new genus is rather similar with that of *Leurogyia*, in having the long stalked and forked R_4 and R_5 reaching to near apex and the end of apex in forewing and Sc originating from beyond the upper angle of the cell. However, *Leurogyia* has the forewing wider than the hind wing, but in the new genus the fore- and hind wing are of nearly the same width. Comparing venation and genitalic structures, the new genus is most closely related to *Leurogyia*.

The generic group allied with the new genus mainly known from the Australian region. Until present, there has been no record from East Asia. Thus, the discovery documented here represents a biogeographical link between the Korean peninsula and the Australian region.

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