

# New Reports of One Euteliid (Lepidoptera: Euteliidae) and Two Nolid (Lepidoptera: Nolidae) Moths from Korea

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## ABSTRACT

One species of Euteliidae, *Targalla delatrix* (Guenée) and two species of Nolidae, *Nola miyanoi* Sasaki and *Nola semiconfusa* (Inoue) are reported for the first time in Korea. *Targalla delatrix* can be distinguished by the dark brownish forewings that show the transverse antemedial line, the costally rounded postmedial line and the bowl shaped marking on the costal part of subtermen and the dark brownish hindwings. *Nola miyanoi* can be distinguished by the whitish forewings that have the band-shaped central fascia with the blackish undulating antemedial line and the dark brownish undulating postmedial line and the whitish hindwings with a light blackish discal dot. *Nola semiconfusa* can be distinguished by the light grayish forewings that show deeply indented antemedial line, medially strongly projected and dentate postmedial line, a dark brownish subterminal line and a dark brownish termen, and the whitish hindwings with a light grayish discal dot. Adults and genitalia are illustrated and briefly described with their biological and distributional notes.

**Keywords:** new record, Euteliidae, Nolidae, Lepidoptera, Korea

## INTRODUCTION

The family Euteliidae Grote, 1882 is a well-defined monophyletic group diagnosed by the following synapomorphies: reduced female frenulum, modified basiconic sensilla on the proboscis, a small oval plate in the ductus ejaculatorius, inner surfaces of papillae anales directed posteriorly and a counter-tympanal hood with a unique double structure (Kitching, 1987; Zahiri et al., 2010). Seven species of Euteliidae have been recorded in Korea (Kim et al., 2016).

The family Nolidae Bruand, 1846 is a monophyletic group supported by three synapomorphies: a ridged boat-shaped cocoon that bears a vertical exit slit at one end, an elongated forewing retinaculum into a bar-like or digitate condition and the presence of a postspiracular counter-tympanal hood (Zahiri et al., 2013). Eight subfamilies of the Nolidae are recognized, Diphtherinae Hübner, [1809], Risobinae Mell, 1943, Collo-meninae Kitching and Rawlins, 1998, Beaninae Zahiri and Holloway, 2013, Eligminae Mell, 1943, Westermanniinae Hampson, 1918, Nolinae Bruand, 1846 and Chloephorinae Stainton, 1859 (see Zahiri et al., 2013), and 66 species in five

subfamilies (Risobinae, Collo-meninae, Eligminae, Nolinae, and Chloephorinae) are known in Korea (Kim et al., 2016). Here, we report one euteliid and two nolid species recorded from Korea for the first time.

## MATERIALS AND METHODS

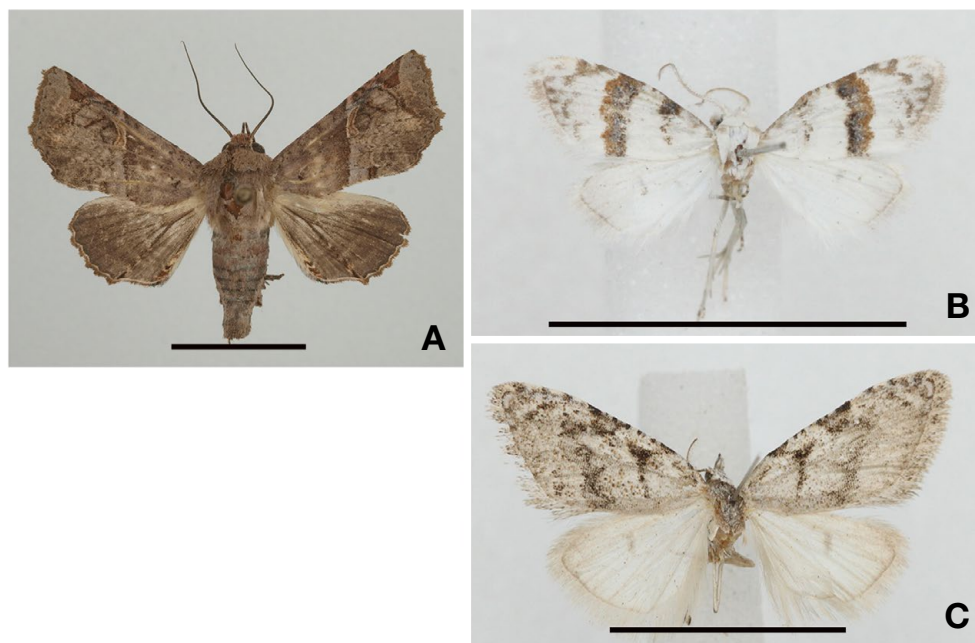
Moths were collected using a UV-light bucket trap (BioQuip, USA) during night (7:30 PM–12:30 AM) or attracted to a UV-light and resting on a white screen hanging between poles. All collected moths were preserved in a freezer and the abdomen and genitalia were mounted for examination. For genitalia slide preparation, the abdomen of each specimen was boiled in 10% KOH for approximately 20 min. Scales and tissues were removed, stained with Chlorazol Black, and mounted on slides in Euparal solution. For wing-span length, the distance between both tips of forewings was measured.

Terminology of adult, including the male and female genitalia, refers to Scoble (1992). All materials are deposited in

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**Fig. 1.** Adults. A, *Targalla delatrix* (Guenée); B, *Nola miyanoi* Sasaki; C, *Nola semiconfusa* (Inoue). Scale bars: A-C=10 mm.

the collection of Insect collection, Department of Environmental Education, Mokpo National University. Abbreviations are follows: IC, Incheon; GG, Gyeonggi; JN, Jeollanam-do; JJ, Jeju-do; TL, type locality.

## SYSTEMATIC ACCOUNTS

Order Lepidoptera Linnaeus, 1758  
Family Eutelidae Grote, 1882  
Genus *Targalla* Walker, 1858

<sup>1</sup>\**Targalla delatrix* (Guenée, 1852) (Figs. 1A, 2A, B)

*Penicillaria delatrix* Guenée, 1852: 304. TL: Indonesia (Java).

*Penicillaria palliatrix* Guenée, 1852: 305. TL: Indonesia (Java).

*Targalla infida* Walker, 1857: 1008. TL: India (Hindustan).

*Penicillaria ludatrix* Walker, 1858: 1773. TL: Sri Lanka.

*Eutelia opposita* Walker, 1863: 67. TL: Sarawak.

*Eutelia subocellata* Walker, 1863: 67. TL: Sarawak.

**Material examined.** 1♂, Korea: JJ: Seogwipo, Mt. Hallasan, 33°21'31"N, 126°27'44"E, 1,109 m, 4 Aug 2014, Choi SW.

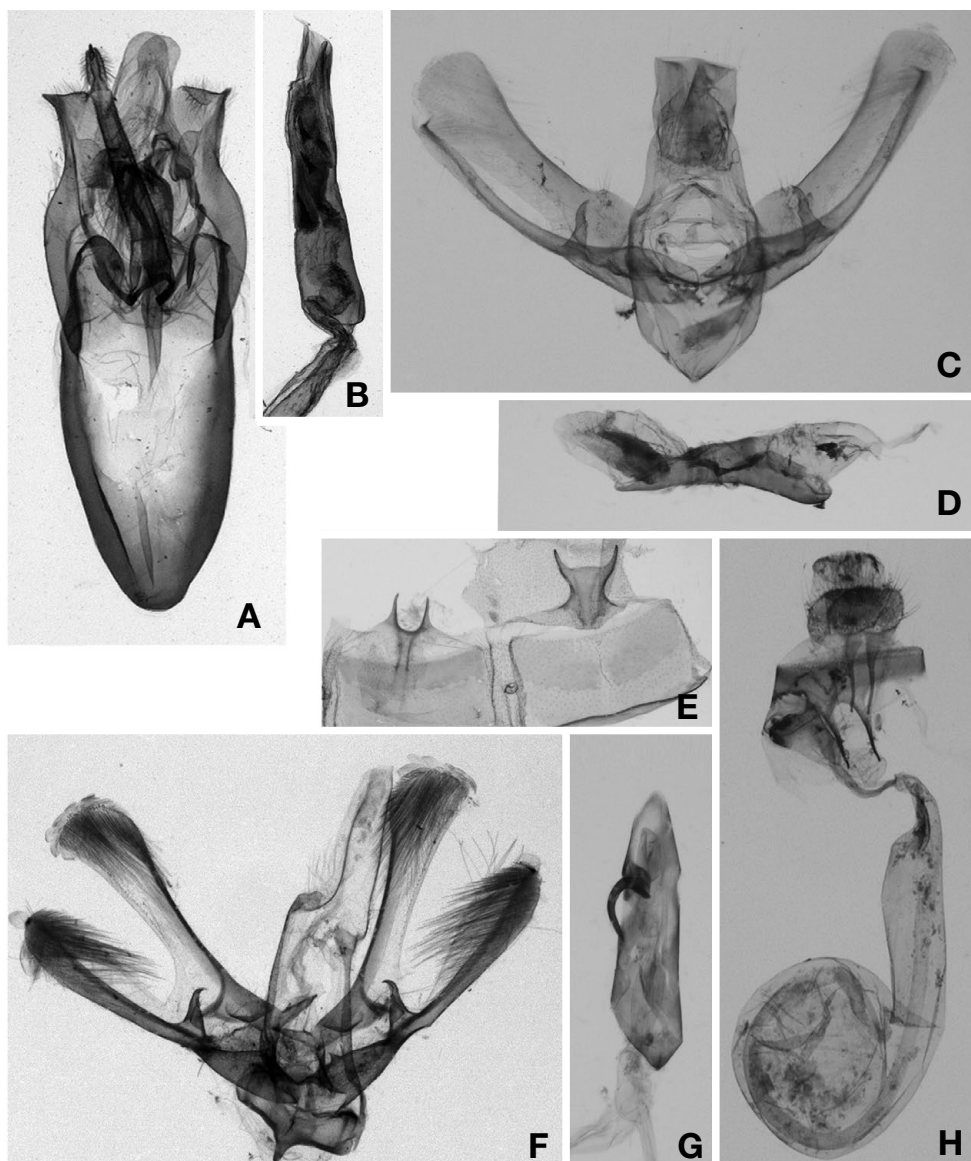
**Diagnosis.** Dark brownish forewings with transverse an-

temedial line; postmedial line costally rounded; costal part of subtermen with bowl shaped marking; hindwings dark brownish. Male genitalia with long saccus; transtilla long digitate and distally hairy; uncus short; valva short; aedeagus with three spinular cornuti.

**Description.** Wingspan 26 mm. Antennae filiform; vertex, frons covered with reddish and creamy white hairs; labial palpi long, upturned, well projected beyond frons. Body densely covered with creamy whitish hairs. Forewing: dark brown, basal part with dark blackish undulating lines; antemedial line transverse, costally bordered with dark yellow, crescent-shaped marking; postmedial line brown, costally rounded, medially dentate; discal dot brown, rounded; subtermen costally with dark brown, bowl-shaped marking. Hindwing: dark brown; basally light brownish; medial lines dark brownish, dorsum tinged with dark reddish undulating lines. Male abdomen and genitalia: One pair of coremata on the 8th abdomen; uncus short, rounded; anal tube well developed; tegumen short, triangular; juxta simple; transtilla long, digitate, apex hairy; juxta broad, triangular; saccus long, triangular. Valva stout; costa membranous; sacculus long, basally sclerotized, distally with pointed apex, harpe broad sclerotized process. Aedeagus rod-shaped; cornuti three spinular processes.

**Distribution.** Korea, Japan, Indo-Australian tropics (Fiji, Rapa Iti, the Society Islands, Hawaii).

Korean name: <sup>1</sup>\*남방곶은띠비행기나방(신칭)



**Fig. 2.** Male and female genitalia. A, C, F, Male genital capsule; B, D, G, Aedeagus; E, Male abdomen; H, Female genitalia. A, B, *Tar-galla delatrix* (Guenée); C, D, *Nola miyanoi* Sasaki; E–H, *Nola semiconfusa* (Inoue).

**Remarks.** The larvae feed on *Syzygium cumini* (L.) Skeels (Myrtaceae) and *Sandoricum koetjape* (Burm.f.) Merr. (Me-liaceae) in Thailand (Hutachareern and Tubtim, 1995).

Family Nolidae Bruand, 1846  
Subfamily Nolinae Bruand, 1846  
Genus *Nola* Leach, 1815

<sup>1\*</sup>*Nola miyanoi* Sasaki, 2009 (Figs. 1B, 2C, D)  
*Nola miyanoi* Sasaki, 2009: 1. TL: Japan (Okugo).

**Material examined.** 1♂, Korea: IC: Gangwha, Whado-my-eon, Mt. Manisan, 19 Aug 2014, Kim SS.

**Diagnosis.** Whitish forewings with dark brownish basal line; band-shaped central fascia with blackish undulating antemedial line; postmedial line dark brownish, undulating; subterminal line brownish, strongly undulating; whitish hindwings with light blackish discal dot. Male genitalia with long, anellus lobe; bifurcated valva with sharply pointed harpe; aedeagus stout with long spinular cornutus.

**Description.** Wingspan 12 mm. Antennae in male bipecti-

Korean name: <sup>1\*</sup>띠혹나방 (신칭)

nate, frons broad, whitish. Labial palpi long, twice that of the eye diameter, upturned, well projected beyond frons. Body whitish. Forewing: white, basal line dark brown and undulating, costally large-dot shaped and tapered to dorsum; antemedial line blackish, medially weakly indented; postmedial line dark ochreous or brownish, undulating, medially weakly projected; subterminal line light brownish, costally strongly curved, undulating; termen medially blackish veins; underside dark grayish with dark central fascia. Hindwing: white, discal dot light blackish; underside white with grayish apex. Male 8th abdomen: Distal process on abdominal segments short. Male genitalia: Uncus short; anellus lobe long; tegumen long, hood-shaped; juxta simple, membranous; saccus long, triangular with pointed apex. Valva long, slender, bifurcated; costa long, slender, distally expanded; harpe long, triangular; sacculus long, slender, distally with sharp process. Aedeagus stout; cornutus one long semi-rounded sclerotized process.

**Distribution.** Korea, Japan.

**Remarks.** This species is externally similar to *N. taeniata* Snellen, 1875 in having whitish wings with the band-shaped central fascia on the forewings, but can be distinguished by the thinner central fascia of the forewing. The male genitalia of *N. miyanoi* are similar to those of *N. taeniata*, but can be distinguished by the broad costa and the slender sacculus with a sharply pointed distal process of the valva. The 8th abdominal processes of *N. miyanoi* are minute, while those of *N. taeniata* are relatively long.

<sup>1</sup>\**Nola semiconfusa* (Inoue, 1976) (Figs. 1C, 2E–H)

*Celama semiconfusa* Inoue, 1976: 162. TL: Japan (Kurie, Yakushima).

*Nola semiconfusa*: Inoue 1982: 663.

**Material examined.** 1♂, 1♀, Korea: GG: Yongin, Giheung-gu, Changdeok-dong, 4 Apr 2013, 27 Mar 2014, Kim SS.

**Diagnosis.** Light grayish forewings with dark brownish, deeply indented antemedial line; postmedial line dark brownish, dentate, medially strongly projected; subterminal line dark brownish; termen dark brownish; hindwings whitish with light grayish discal dot. Male genitalia with long anellus lobe; bifurcated valva with large triangular harpe; broad saccus with sharp distal process. Female genitalia with funnel-shaped antrum; ductus bursae thin; corpus bursae long, pear-shaped.

**Description.** Wingspan 20–21 mm. Antennae bipectinate in males, filiform in females, frons broad, mixed with whitish and dark grayish hairs. Labial palpi long, about twice that

of the eye diameter, porrect, well projected beyond frons. Body whitish. Forewing: grayish, antemedial line dark grayish, medially strongly indented; postmedial line dark grayish, medially strongly projected, dentate; central fascia costally with dark brownish marking; subterminal line dark brownish, strongly undulating; termen dark brownish dots; underside light grayish. Hindwing: whitish, discal dot light blackish, long; underside whitish. Male 8th abdomen: 8th tergite distal process U-shaped with sharp apex; 8th sternite distal process trophy-shaped with narrow neck and sharp apex. Male genitalia: Uncus short; anellus lobe long; tegumen long, hood-shaped; juxta simple, membranous; saccus broad, distally with strongly pointed apex. Valva long, slender, bifurcated; costa long, slender, distally expanded, hairy; harpe long, triangular; sacculus long, slender, distally expanded, hairy. Aedeagus stout; cornutus one long semi-rounded sclerotized process. Female genitalia: Papillae anales simple, membranous; lamella antevaginalis short, almost equal length to lamella postvaginalis. Antrum funnel-shaped; ductus bursae thin, membranous; corpus bursae long neck and ovate with one signum patch.

**Distribution.** Korea, Japan.

**Remarks.** This species is externally similar to *N. neglecta* Inoue, 1991 in the wing ground color and pattern elements of the forewings, but can be distinguished by the whitish hindwing. The male 8th abdominal segments and genitalia are similar to those of *N. neglecta*, but can be separated by the relatively narrow neck of the distal process of tergite and the broad saccus. The female genitalia are also similar to those of *N. neglecta*, but can be separated by the long neck of the corpus bursae.

Up to now, 17 species of *Nola* is known from Korea, including *N. miyanoi* and *N. semiconfusa* (Kim et al., 2016).

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