

A New Record of *Roeselia triangulalis* (Lepidoptera: Nolidae) from Korea

Sei-Woong Choi*

Department of Environmental Education, Mokpo National University, Muan 534-729, Korea

ABSTRACT

A nolid species, *Roeselia triangulalis* (Leech) is reported for the first time from Korea. Two males were collected from Jeju Island, South Korea. *Roeselia triangulalis* can be distinguished by the bipectinate male antennae, broad frons, long labial palpi, costally dark brownish spot and the rounded dark brownish postmedial line of forewing. In the male genitalia, the long saccus, the slender valve with distally expanded and spine-like harpe and long spinular cornutus of vesica are distinguishing characters. In the female genitalia, the simple sterigma, the long ductus bursae and the large ovate corpus bursae with a lip-shaped signum are distinguishing characters. Diagnosis and description of the species are given with the figures of the male genitalia.

Keywords: Lepidoptera, Nolidae, *Roeselia triangulalis*, taxonomy, Korea

INTRODUCTION

The Nolidae are small to medium sized moths and are estimated about 1,400 species in 308 genera. They occur worldwide, but primarily palaeotropical in distribution. The synapomorphies of the Nolidae include the following characters: the dorsally broadened postspiracular bar at the base of the abdomen, the easily detached tegulae and patagia, an elongate retinaculum of male wing, and the ventrally directed M₄ male genital muscle (Kitching and Rawlins, 1999).

The genus *Roeselia* Hübner, one of the largest taxa of Nolidae, was based on *Phalaena cucullatella* Linnaeus as the type species, and comprises 203 species worldwide (Beccaloni et al., 2003). The genus is characterized by the bipectinate male antennae, whitish frons, long labial palpi, greyish or light greyish wing ground color with undulating central fascia of forewing, and quadrifine hindwing veation with M₃ and CuA₁ stalked. It is superficially to those of *Celama* Walker, but can be distinguished by the shape of the male and female genitalia. The male genitalia of *Roeselia* differ from those of *Celama* by the presence of uncus with hairy socii, the absence of subscaphium and the undivided valva. The female genitalia differ from those of *Celama* by having the large corpus bursae with two signa (Holloway, 2003; Choi, 2006).

Up to now, a total of 19 species in three genera of Nolidae are recognized in Korea (Oh, 2001; Choi, 2006). Among them 6 species of *Roeselia* are recognized: *Roeselia fumosa* (Butler), *R. albulalis* (Hübner), *R. mediofascia* Inoue, *R. gigantoides* Inoue, *R. protogigas* Inoue, and *R. costalis* (Staudinger). The present study describes a nolid species, *Roeselia triangulalis* (Leech), for the first time in Korea. Two male specimens were collected at the southern slope of Mt. Halla-san, Jeju-do. Examination of adults including the male and female genitalia refers to Scoble (1992). Abbreviations are as follows: TL, type locality; MNU, Mokpo National University, Jeonnam; JJ, Province Jeju-do.

SYSTEMATIC ACCOUNTS

Order Lepidoptera Linnaeus, 1758
Family Nolidae Hampson, 1894
Subfamily Nolinae Hampson, 1894
Genus *Roeselia* Hübner, 1825

¹**Roeselia triangulalis* (Leech) (Figs. 1, 2)

Nola triangulalis Leech, [1889] 1888: 608. TL: Japan: Satsuma, Sikkim, Assam.

© This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

*To whom correspondence should be addressed

Tel: 82-61-450-2783, Fax: 82-61-450-2789

E-mail: choisw@mokpo.ac.kr

Roeselia triangulalis: Matsumura, 1930: 94.
Meganola triangulalis: Holloway, 2003: 26.

Material examined. Korea: [JJ] 1♂, Seoguipo-si, Namwon-eup, Silye-ri, Mt. Halla-san, N33°19'56.7", E126°36'25.7", 499 m, 11 Jun 2009 (MNU); 1♂, Seoguipo-si, Namwon-eup, Harye-ri, Mt. Halla-san, N33°18'56.8", E126°37'09.4", 264 m, 4 May 2010 (MNU).

Diagnosis. This species can be distinguished by the bipectinate male antennae, broad frons with dark ochreous and whitish scales, long labial palpi with distally dilated second segment, and costally dark brownish scales and the dark brownish postmedial line and subtermen of forewing. This species is similar to *R. protogigas* in the dark brownish spot on costa of forewing, but can be distinguished by the smaller



Fig. 1. Adult of *Roeselia triangulalis* (Leech) from Korea.

wingspan and the rounded postmedial line without costal projection of forewing. The male genitalia can be diagnosed by the short uncus, with hairy socii, the long tegumen twice to the tegumen in length, the long triangular saccus, the slender membranous valva with a strong spine-like harpe and slender aedeagus with a long spinular cornutus. The male genitalia are similar to those of *R. protogigas*, but can be distinguished by the shape of harpe that is spine-like, distally dilated valve and the rod-shaped cornutus of vesica. The female genitalia can be distinguished by the simple sterigma, the long ductus bursae and a large ovate corpus bursae with a lip-shaped signum. The female genitalia are similar to those of *R. protogigas*, but can be distinguished by the long ductus bursae with anteriorly twisted.

Description (Fig. 1). Wingspan 20-21 mm. Antennae in male bipectinate; frons broad, trapezoidal, mixed with yellowish white and dark ochreous scales; labial palpi long, almost twice the eye diameter, projected forward, 2nd segment distally dilated. Body and legs covered with whitish scales. Forewing ground color light grayish, costa basal part covered with blackish scales; postmedial line blackish, medially slightly projected outward; termen dark brownish with an undulating blackish line. Hindwing ground color light grayish, paler at basal part.

Male abdomen and genitalia (Fig. 2A-C): Eighth tergite posteriorly sharp edges. Uncus short, slender, basally tapering; socii hairy; tegumen long, twice the length of vinculum; juxta simple with a thin sclerotized line; saccus long, triangular. Valva long, distally expanded; costa slender, weakly sclerotized; sacculus slender with a strong spine-like harpe. Aedeagus slim; vesica long, tubular with a long rod-like cornutus.

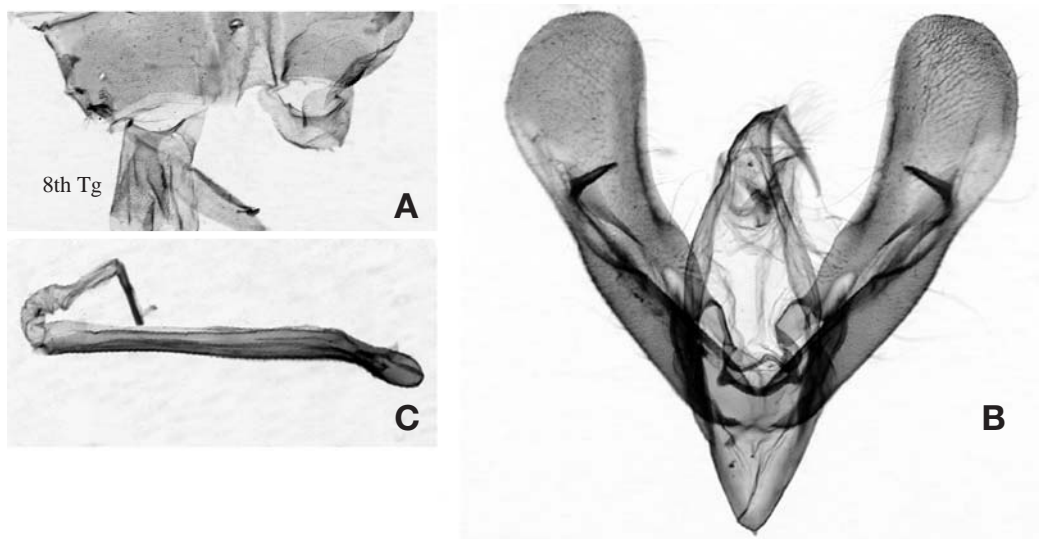


Fig. 2. Male genitalia of *Roeselia triangulalis* (Leech) from Korea. A, Male abdomen, 8th Tg. 8th tergite; B, Male genital capsule; C, Aedeagus with everted vesica.

Female genitalia: Papillae anales simple, rounded. Anterior apophyses long, twice of the posterior apophyses. Antrum U-shaped and membranous. Ductus bursae long, narrow, twisted anteriorly. Corpus bursa large, ovate, membranous, with a lip-shaped signum (Holloway, 2003).

Distribution. Korea, Japan, Taiwan, N. India, Sundaland.

Biology. Flying period of moths is from May to June in southern Korea.

ACKNOWLEDGEMENTS

I would like to thank Mr. Jeong-Seop An and Sang-Hyun Na for aiding in collecting moths. This study was supported by the project on the survey and excavation of Korean indigenous species of the National Institute of Biological Resources (NIBR) under the Ministry of Environment, Korea.

REFERENCES

- Beccaloni GW, Scoble MJ, Robinson GS, Pitkin B, 2003. The Global Lepidoptera Names Index (LepIndex) [Internet]. Natural History Museum, London, Accessed 14 Aug 2011, <<http://www.nhm.ac.uk/entomology/lepindex>>.
- Choi SW, 2006. Two new records of Nolidae (Lepidoptera) from Korea. *Korean Journal of Systematic Zoology*, 22:185-188.
- Holloway JD, 2003. The moths of Borneo. Part. 18. Family Nolidae. Southdene Sdn. Bhd., Kuala Lumpur, pp. 1-279.
- Kitching IJ, Rawlins JE, 1999. The Noctuoidea. In: *Handbook of zoology*. Vol. 4. Arthropoda: Insecta. Part 35. Lepidoptera, Moths and Butterflies, Vol. 1 (Ed., Kristensen NP). Walter de Gruyter, Berlin, pp. 355-401.
- Leech JH, [1889] 1888. On the Lepidoptera of Japan and Corea. Part II. Heterocera, Sect I. *Proceedings of the Zoological Society of London*, 1888:580-655.
- Matsumura S, 1930. A catalogue of the Arctiidae of the Japan-Empire. *Insecta Matsumurana*, 5:58-94.
- Oh SH, 2001. A review of the subfamily Nolinae (Lepidoptera, Noctuidae) in Korea (I): Genus *Nola* Leech. *Insecta Koreana*, 18:123-137.
- Scoble MJ, 1992. *The Lepidoptera: form, function and diversity*. Oxford University Press, Oxford, pp. 1-404.

Received September 14, 2011
Revised November 9, 2011
Accepted November 14, 2011