

## Two New Records of Nolidae (Lepidoptera) from Korea

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### ABSTRACT

Two species of Nolidae, *Roeselia costalis* (Staudinger) and *Roeselia protogigas* Inoue, are newly reported from Korea. Adults, and male and female genitalia are figured.

**Key words:** Nolidae, *Roeselia*, Lepidoptera, 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 and are mostly little economic importance except few pest species in Africa and Australia (Kitching and Rawlins, 1999). Species occur forest edges, cutting areas and shrubby places and not abundant in numbers (Patocka and Turceni, 2005).

Sugi (1987) noted that larvae of Nolidae are recognized by the developed verrucae projecting fasciculate setae and the lacking of prolegs from A3. Pupae have no cremaster with rounded end of abdomen and pupate in the boat-shaped cocoon covered with woody fragments on twigs of the foodplant (Sugi, 1987; Patocka and Turceni, 2005). These larval characters are shared with a subfamily of Noctuidae, Sarrothripinae, and thus it is presumed a close phylogenetic relationship between Nolidae and Noctuidae (Sugi, 1987). Kitching and Rawlins (1999) recently recognized the subfamilies of Nolidae: Nolinae, Sarrothripinae and Chloephorinae. The synapomorphies of the Nolidae (*s. l.*) are suggested: 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).

Oh (2001) reviewed the species of Nolidae (*s. s.*) in Korea and recognized 12 species under the generic name *Nola* Leach. Generic placements of the all known Korean species according to the most updated classification are as follows: *Mimerastria mandshuriana* (Oberthür), *Roeselia fumosa* (Butler), *R. albulalis* (Hübner), *R. mediofascia* Inoue, *R. gigantoides* Inoue, *Celama cristatuala* (Hübner), *C.*

*taeniata* (Snellen), *C. aerugula* (Hübner), *C. yoshinensis* Wileman and West, *C. japonibia* Strand, *C. confusalis* (Herrich-Schäffer), *C. longicosta* (Oh), **comb. nov.**, *C. nami* Inoue, *C. ebato* Inoue, *C. innocua* (Butler), *C. okanoi* Inoue, and *Nola trilinea* Marumo (Beccaloni et al., 2003). I here report two additional species of *Roeselia* Hübner new to the Korean fauna. Therefore, a total of 19 species in three genera are recognized in Korea.

Examination of adults including the male and female genitalia refers to Scoble (1992). Abbreviations are as follows: JN: Province Jeollanam-do, MNU: Mokpo National University.

### SYSTEMATIC ACCOUNTS

Order Lepidoptera Linnaeus, 1758

Family Nolidae Hampson, 1894

Subfamily Nolinae Hampson, 1894

Genus *Roeselia* Hübner, 1825

*Roeselia* Hübner, [1825] 1816, Verzeichnis: 397. Type species: *Phalaena cucullatella* Linnaeus = *Meganola* Dyar, 1898, Journ. N. Yk. ent. Soc. 6: 42.

**Diagnosis.** The members of the genus are diagnosed by the bipectinate male antennae, whitish frons, long labial palpi, greyish or light greyish wing ground color with undulating central fascia of forewing. They are similar to those of *Celama* Walker in the bipectinate male antennae, and the pattern of central fascia of forewing. However, these two genera can be distinguished by the shape of the male and female genitalia. The male genitalia are characterized by the relatively short uncus, hairy socii and long slender valva with a sclerotized harpe. The male genitalia of *Roeselia* can be distinguished from those of *Celama* by the presence of uncus with hairy socii, the lacking of subscaphium and undivided valva. The female genitalia can be distinguished

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by the simple ostium bursae, relatively short and thin ductus bursae, and the large ovate corpus bursae with two spots of sclerotized signa. The female genitalia are similar to those of *Celama*, but can be distinguished by the large corpus bursae with two signa.

<sup>1</sup>\**Roeselia protogigas* Inoue (Figs. 1A, 2)

*Roeselia protogigas* Inoue, 1970. Bull. Jap. ent. Acad. 6: 3.

pl. 1: 1 (TL: JAPAN: Ichibata, Shimane Pref.).

*Meganola protogigas*: Inoue, 1982, Moths of Japan, 1: 665.

*Materials examined.* [JN] 3♂ Mt. Seungdal, JN: Muan, E 126°27', N34°54', 9. vi. 2005, 3♂ 8. vi. 2006, 1♂ 4♀, 3. vii. 2006, coll. MNU. 1♂ Mt. Mudeung, JN: Gwangju, E126°59' N36°08' 390 m, 16. vi. 2006, S.-W. Choi leg.

*Diagnosis.* This species (wingspan 22-26 mm) can be

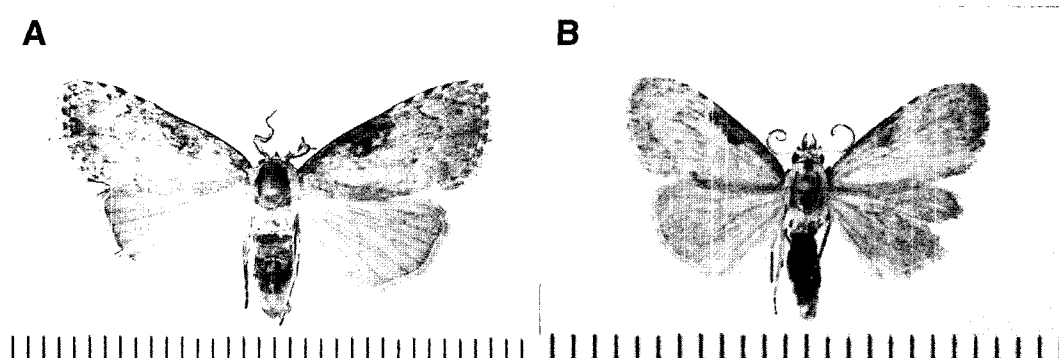


Fig. 1. Adults. A, *Roeselia protogigas* Inoue; B, *R. costalis* (Staudinger).

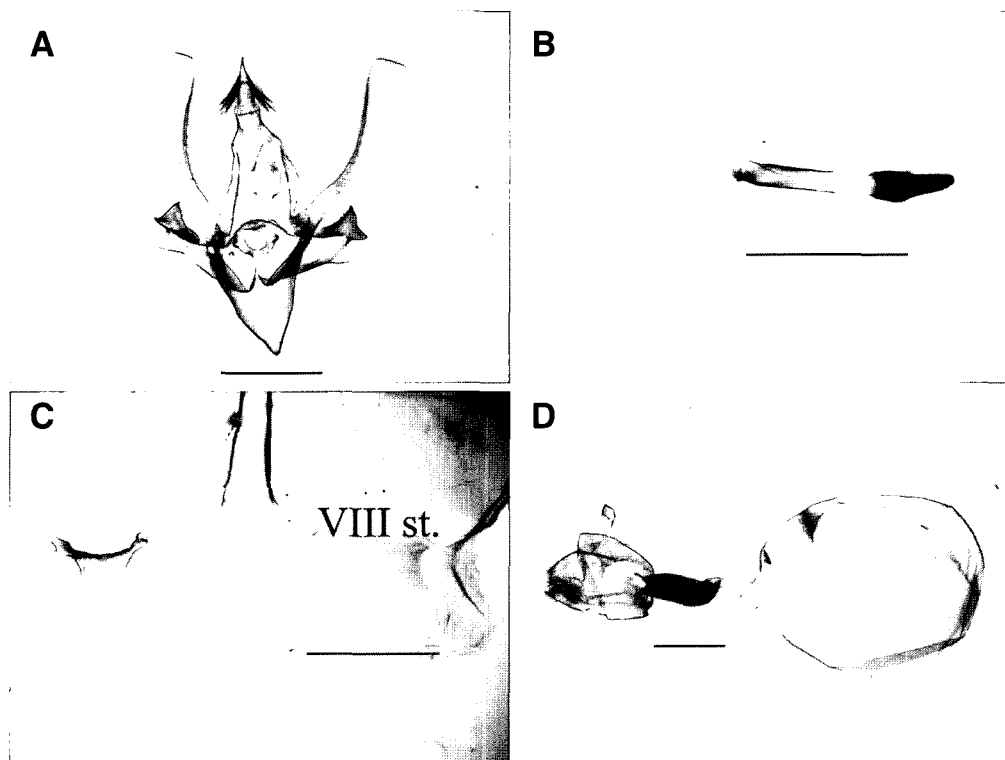
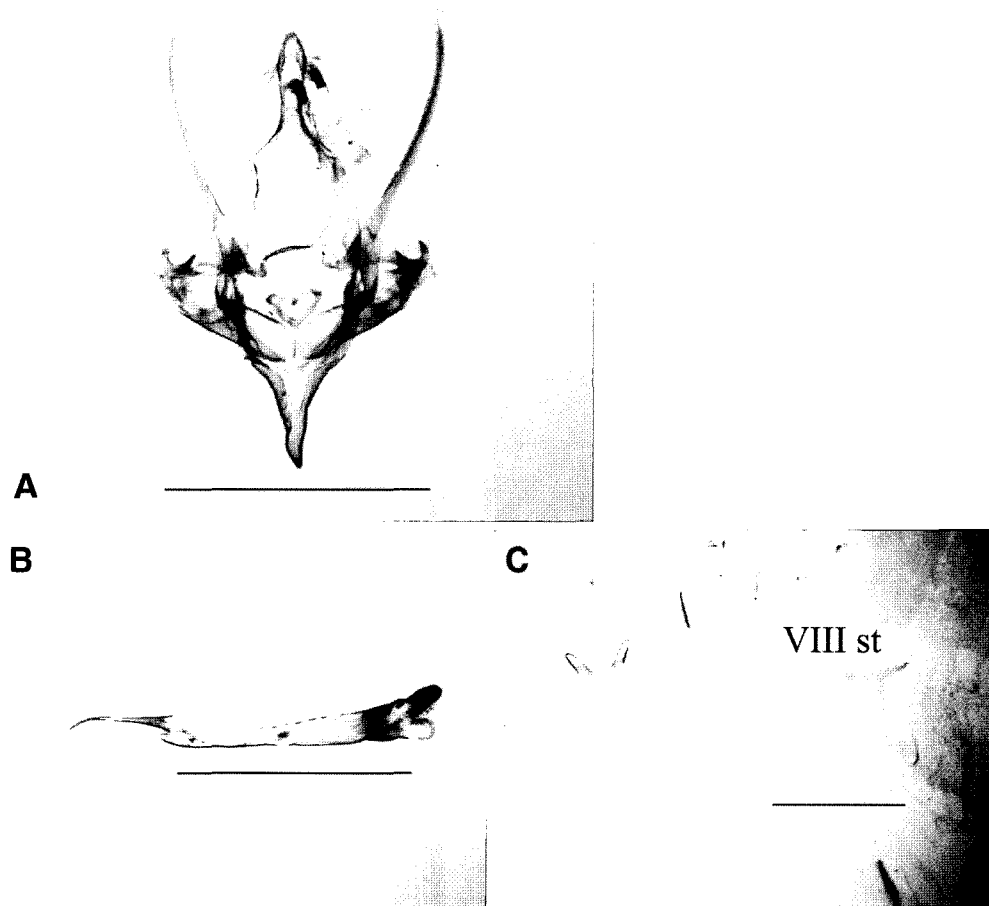


Fig. 2. Male and female genitalia of *Roeselia protogigas* Inoue. A, Male genital capsule; B, Aedeagus; C, Male abdomen, VIII st. refers to eighth sternite; D, Female genitalia. Scale bars=1.0 mm (A-D).

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**Fig. 3.** Male and female genitalia of *Roeselia costalis* (Staudinger). A, Male genital capsule; B, Aedeagus; C, Male abdomen, VIII st. refers to eighth sternit. Scale bars=1.0 mm (A-C).

distinguished by the larger wingspan, the bipectinate male antennae, whitish frons, long labial palpi with long, expanded second segment, and the relatively thick undulating central fascia with costally dark brownish scales and the dark brownish subterminal line of forewing. This species is similar to *R. fumosa* in the dark undulating central fascia of forewing, but can be distinguished by the larger wingspan and the costally dark brownish central fascia. 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 strongly sclerotized triangular harpe and slender aedeagus without a cornutus. The female genitalia can be distinguished by the simple sterigmata, the sclerotized ductus bursae and a large ovate corpus bursae with two spots of

signa.

*Distribution.* Korea, Japan.

<sup>1</sup>*\*Roeselia costalis* (Staudinger) (Figs. 1B, 3)

*Nola costalis* Staudinger, 1887, in Romanoff, Mém. Lépid. 3: 179, t. 10, f. 3 (TL: RUSSIA: Amur, Ussuri, Askold).

*Roeselia melanocosta* Inoue, 1961, Checklist Lepid. Japan (6): 683.

*Meganola costalis*: Inoue, 1982, Moths of Japan, 1: 666.

*Materials examined.* [JN] 6♂ nr. Temple Dogapsa, Mt. Wolchulsan, JN: Youngam, E126°39' N34°44' 120 m a. s. l., 27. vi. 2006; 4♂ nr. Kyungpodae, Mt. Wolchulsan, JN: Gangjin, E126°42' N34°44' 200 m a. s. l., 27. vi. 2006, coll. MNU.

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*Diagnosis.* This species (wingspan 15-18 mm) can be distinguished by the bipectinate male antennae, long labial palpi and the costally dark brownish central fascia of forewing. The shape of central fascia of forewing is similar to that of *R. protogigas*, but it can be distinguished from the latter by the smaller wingspan and more whitish wing ground color. The male genitalia are similar to those of *R. protogigas*, but can be distinguished by the smaller size, the relatively long tegumen, the strongly tapering saccus, the slender valva with a bowl-shaped sclerotized harpe and the aedeagus with a long sharp cornutus.

*Host plant.* *Malus* and *Sorbus* (Rosaceae) (Sugi, 1987).

*Distribution.* Korea, Japan, Russian Far East.

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