

Four Newly Recorded Species of the Family Crambidae (Lepidoptera) from Korea

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ABSTRACT

This study was carried out to report the newly recorded species of the family Crambidae, belonging to the order Lepidoptera. During the course of investigation on the family Crambidae in South Korea, the following four species are reported for the first time from Korea: *Diplopseustis perieresalis* (Walker, 1859), *Dolicharthria bruguieralis* (Duponchel, 1833), *Herpetogramma ochrimaculale* (South, 1901), and *Omiodes diemenalis* (Guenée, 1854). Among them two genera, *Diplopseustis* Meyrick and *Dolicharthria* Stephens, are also newly reported from Korea. External and genital characteristics of adults were examined and illustrated. All of the newly recorded species were enumerated with their available information including the collecting localities, illustrations of adults, and genitalia.

Keywords: Lepidoptera, Crambidae, new record, Korea

INTRODUCTION

Until now, more than 16,000 species of the superfamily Pyraloidea have been recorded in the world (Munroe and Solis, 1999). In Korea, a total of 349 species of the superfamily Pyraloidea have been known to date (Bae et al., 2008). Later Kim et al. (2012) added two newly recorded species from Korea, *Daulia afralis* Walker and *Herpetogramma cynaralis* Walker. Recently, Kim et al. (2014) reviewed the genus *Nacoleia*, including two new records, *N. inouei* Yamanaka and *N. satsumalis* South. Consequently, a total of 353 species has been recorded from Korea to date. During the course of the survey on the microlepidoptera in Korea, we found the following four species of Crambidae: *Diplopseustis perieresalis* (Walker), *Dolicharthria bruguieralis* (Duponchel), *Herpetogramma ochrimaculale* (South), and *Omiodes diemenalis* (Guenée).

Thus, the aim of this study is to report four newly recorded species and to update our knowledge with recently collected data on the fauna of Crambidae of Korea. All of the examined materials for each species are enumerated with their localities and available information.

MATERIALS AND METHODS

Materials examined in the present study are preserved in the Systematic Entomology Laboratory, Hannam University (SELHNU), Daejeon, Korea. The genitalia of both sexes were dissected and examined after mounting with Euparal mountant for identification of the species. The photos of adults and genitalic structures for the species were taken by a digital camera, Pax cam (PAXcam Microscope Cameras Co., Chicago, IL, USA) attached on the microscope, Carl Zeiss Axio Imager A1 (Carl Zeiss Ltd., Cambridge, UK). Abbreviations used in this study are as follows: TL, type locality; TS, type species; GS, genitalia slide number.

SYSTEMATIC ACCOUNTS

Order Lepidoptera Linnaeus, 1758
Family Crambidae Latreille, 1810
Subfamily Pyraustinae Meyrick, 1890
=Spilomelinae Guenée, 1854

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Genus *Diplopseustis* Meyrick, 1884: 284

TS: *Cymoriza minima* Butler, 1881

¹**Diplopseustis perieresalis* (Walker, 1859)
(Figs. 1A–3A)

Ambia perieresalis Walker, 1859b: 958. TL: Borneo.

Cymoriza minima Butler, 1881: 684. TL: Taiwan.

Sufetula nana Warren, 1896: 225. TL: India.

Diplopseustis minima Meyrick, 1884: 285.

Diplopseustis perieresalis Hampson, 1896: 489.

Diplopseustis perieralis Dugdale, 1973: 202.

Diplopseustis periersalis Mackay and Fray, 2002: 26.

Material examined. Korea: 2♂2♀, Gyeongsangnam-do, Isl. Geoje, 25 Sep 2012, Kim SS, GS 5124-coll. SELHNU; 1♂, Gyeongsangnam-do, Isl. Geoje, 25 Aug 2012, Kim SS, GS 5126-coll. SELHNU.

Adult (Fig. 1A). Wingspan 12–14 mm. Head light gray, antenna brownish mixed gray color. Thorax light brown. Forewing with ground color brownish; yellowish spots presented along the costa; a small blackish round shape speck near discoidal cell; postmedial line with yellowish gray; outer margin presented blackish brown line with light brown scales, costa straight. Hindwing with ground color light gray; outer

margin light gray with same postmedial line color as forewing; tornus blackish scales, cilia whitish color basally.

Male genitalia (Fig. 2A). Uncus very short, rounded terminally. Anal tube very long with narrow to the top. Valva broad and expanded; bundle of long hair on basal margin; apex of valva hook shaped bearing slightly long hairs; outer margin gentle curved. Sacculus broad with short hairs on basal margin. Juxta narrow to the bottom. Aedeagus stout, narrowed towards apex, with a bundle of short hair on vesica.

Female genitalia (Fig. 3A). Papillae analis narrow, very long. Apophyses anteriores as long as half of apophyses posteriores. Ostium bursae narrow, well sclerotized. Ductus bursae very long as long as 1/4 of corpus bursae. Corpus bursae very small, globular shaped, slightly sclerotized around entrance with no signum.

Distribution. Korea (new record), China, Japan, Taiwan, Boreno, Indonesia, Malaysia, Brunei, Australia, Portugal, Spain, Canary Islands, Netherlands, England.

Host plant. *Carex secta* (Cyperaceae) in Europe (Muus and Wullaert, 2008).

Genus *Dolicharthria* Stephens, 1834: 55

TS: *Scopula longipedalis* Curtis, 1830

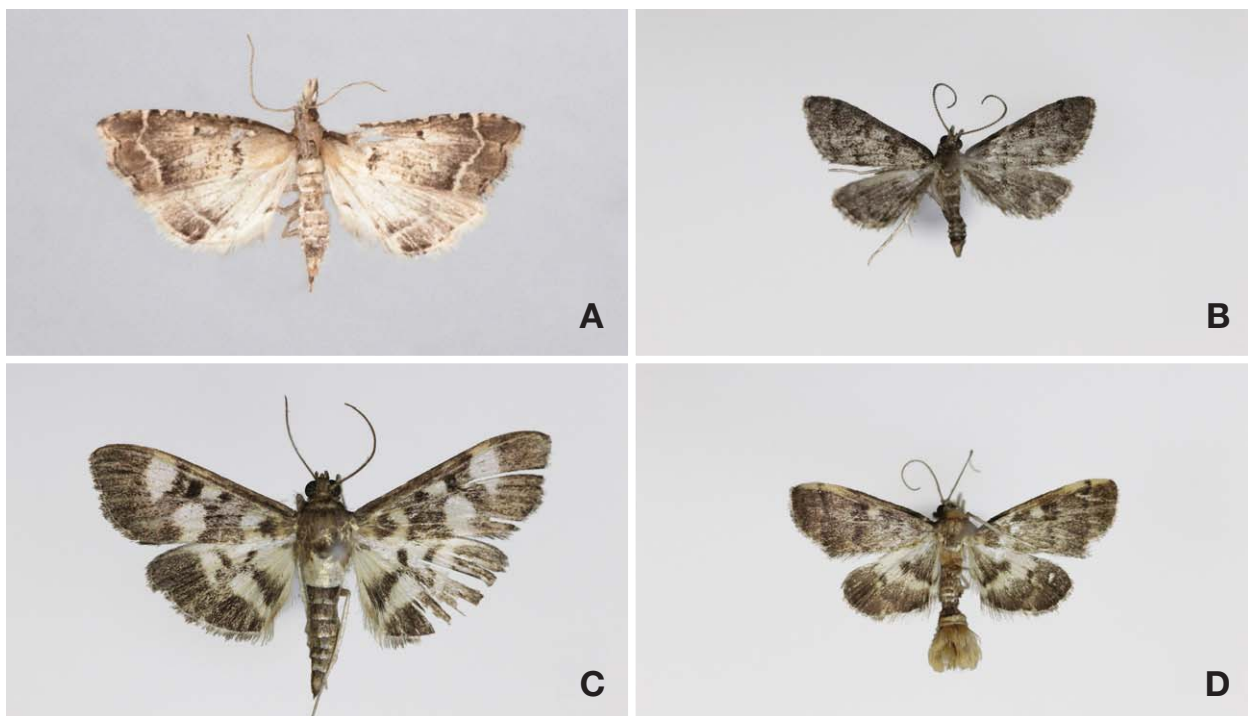


Fig. 1. Adults: A, *Diplopseustis perieresalis*; B, *Dolicharthria bruguieralis*; C, *Herpetogramma ochrimaculale*; D, *Omiodes diemenalis*.

Korean name: ¹*가는줄들명나방 (신칭)

¹**Dolicharthria bruguieralis* (Duponchel, 1833)
(Figs. 1B–3B)

Dolicharthria bruguieralis Duponchel, 1833: 320. TL: France.

Diasemia calcaralis Strand, 1918: 73. TL: China, Taiwan.

Metasia coniotalis Hampson, 1903: 220. TL: Japan, China, India.

Stenia adelalis Guenée, 1854: 245.

Stenia bruguieralis tenebrosa Rothschild, 1929: 233. TL: Morocco.

Material examined. Korea: 2 ♀, Gangwon-do, Inje-gun, Mt. Bangtaesan, 21 Aug 2012, Kim SS; 1 ♂ 1 ♀, Gyeongsangbuk-do, Yeongcheon-si, 13 Jul 2012, Kim SS, GS 5129-coll. SELHNU; 1 ♀, Gyeongsangbuk-do, Naribunji, Isl. Ulleung,

8 Aug 2012, Kim SS, GS 5128-coll. SELHNU.

Adult (Fig. 1B). Wingspan 9–11 mm. Head light brown, antenna brownish. Thorax brownish mixed gray scales. Forewing with ground color brownish; a small blackish round shape speck near discoidal cell; postmedial line with blackish brown; outer margin presented light brown scales, costa straight with somewhat rounded apex. Hindwing with ground color blackish brown; outer and inner margin light brown scales; cilia light brown color basally.

Male genitalia (Fig. 2B). Uncus very long, rounded terminally. Socii relatively small; tongue shape with black terminal. Valva broad and expanded; bundle of long hair on basal margin; apex of valva curved bearing slightly long hairs; outer margin gentle curved. Sacculus broad with short hairs on

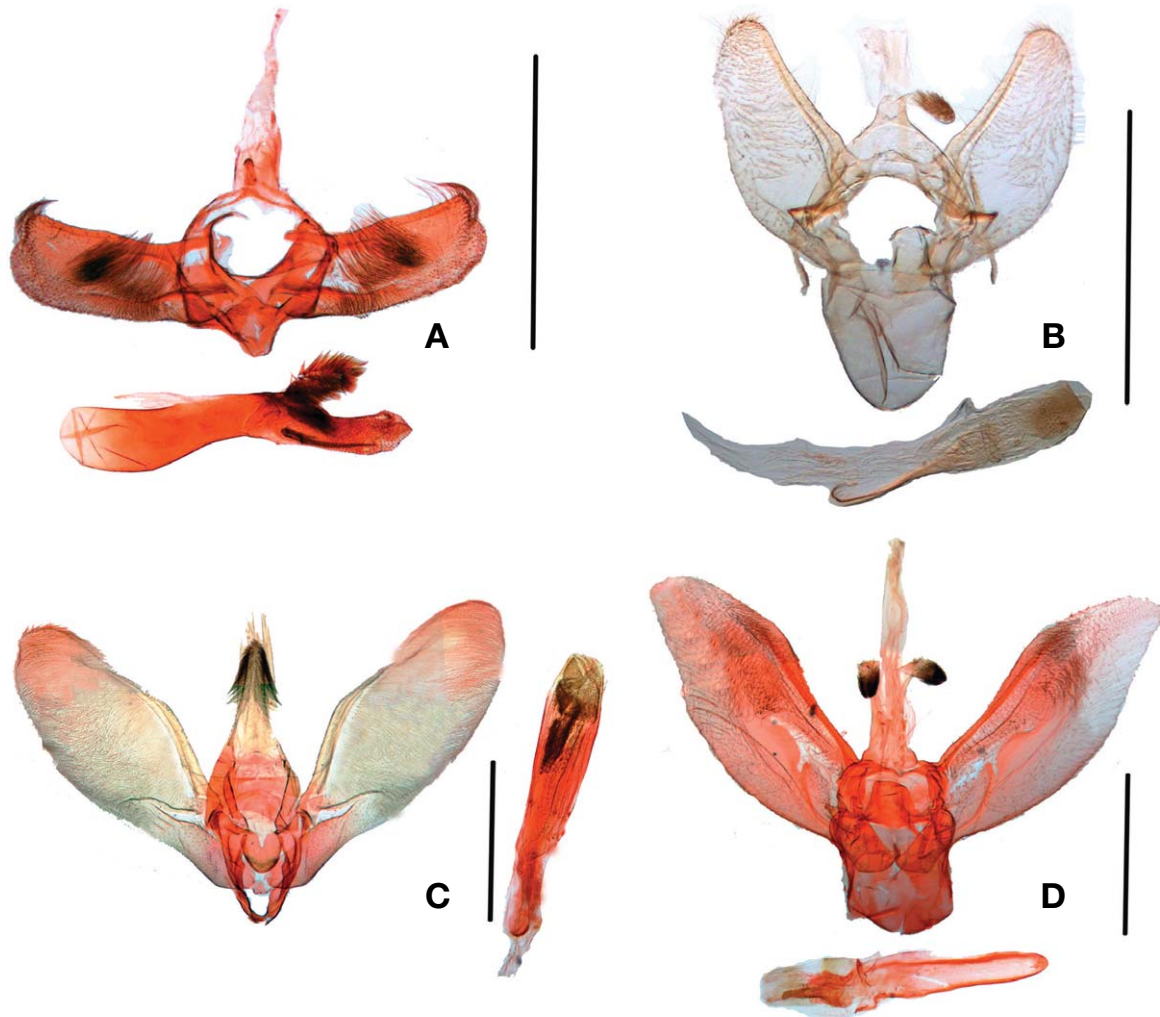


Fig. 2. Male genitalia: A, *Diploseustis perieresalis*; B, *Dolicharthria bruguieralis*; C, *Herpetogramma ochrimaculale*; D, *Omiodes diemenalis*. Scale bars: A–D=1 mm.

Korean name: ¹* 회색애기들명나방 (신칭)

basal margin. Juxta broad to the bottom. Aedeagus stout, wide towards apex, ductus ejaculatorius presented.

Female genitalia (Fig. 3B). Papillae analis slightly long, narrow, covered numerous short hairs. same ground color as forewing Apophyses anteriores almost same length as apophyses posteriores. Ostium bursae wide, rounded. Ductus bursae short; slightly wide in diameter, well sclerotized from entrance to middle. Corpus bursae large, pear shaped, with a small thorn like signa.

Distribution. Korea (new record), China, Japan, Taiwan, India, France, Libya, Israel, Morocco.

Host plant. *Gynura bicolor* (Compositae), *Ipomoea batatas* (L.) Lam. (Convolvulaceae) in Japan (Yoshiyasu, 2013).

Genus *Herpetogramma* Lederer, 1863: 430

TS: *Herpetogramma servalis* Lederer, 1863

Acharana Moore, 1885: 285.

Coremataria Amsel, 1956: 207–208.

Culcitaria Amsel, 1957: Pl. 39, fig. 1.

Macrobotys Munroe, 1950: 228.

Pachyzancla Meyrick, 1884: 315.

Pantoeocome Warren, 1896: 173.

Piloptila Swinhoe, 1894: 142.

Ptiloptila Hampson, 1899: 201.

Stenomelas (sic.) Hampson, 1912.

Stenomeles Warren, 1892: 437.

¹**Herpetogramma ochrimaculale* (South, 1901)

(Figs. 1C, 2C)

Nacoleia ochrimaculalis South, 1901, in Leech, 1901: 460, Pl. 15: 28.



Fig. 3. Female genitalia: A, *Diplopseustis perieresalis*; B, *Dolicharthria bruguieralis*. Scale bars: A, B=1 mm.

Korean name: ¹*황토얼룩들멍나방 (신칭)

Material examined. Korea: 1 ♂, Gyeongsangbuk-do, Nari-bunji, Isl. Ulleung, 8 Aug 2012, Kim SS, GS 5121-coll. SELHNU.

Adult (Fig. 1C). Wingspan 24 mm. Head dark brown, antenna blackish brown. Thorax dark brown, mixed with yellowish gray scales. Forewing with ground color yellowish dark brown; dark brown scales along the costa, four yellowish white round shape specks, two blackish spots presented near discoidal cell; apex and posterior margin blackish brown. Costa straight, with somewhat rounded apex. Hindwing with same ground color as forewing, a blackish brown area form 1/3 of hindwing; antemedial and postmedial line blackish gray. Cilia dark brown, mixed with grayish color basally.

Male genitalia (Fig. 2C). Uncus long, rounded terminally with numerous blackish hairs from middle to the top. Valva broad and expanded; sclerotized costa towards apex; apex of valva softly curved. Transtilla heart shape. Sacculus slightly narrowed. Juxta narrow to the bottom. Aedeagus slightly stout with narrowed towards apex; ductus ejaculatorius very long.

Female genitalia. Unknown.

Distribution. Korea (new record), China, Japan.

Host plant. Unknown.

Genus *Omiodes* Guenée, 1854: 355

TS: *Omiodes humeralis* Guenée, 1854

Charema Moore, 1888: 218.

Coenostola Lederer, 1863: 408–409.

Coenolesta Whalley, 1962.

Deba Walker, 1866: 1494.

Hedylepta Lederer, 1863: 409.

Hedylepta Lederer, 1863: 279.

Heydelepta Dyar, 1917: 70.

Lonchodes Guenée, 1854: 354.

Loxocreon Warren, 1892: 432.

Merotoma Meyrick, 1894: 460.

Pelecycntis Meyrick, 1884: 315.

Phycidicera Snellen, 1880: 71–72.

Spargeta Lederer, 1863: 406–407.

¹**Omiodes diemenalis* (Guenée, 1854)

(Figs. 1D, 2D)

Omiodes diemenalis Guenée, 1854: 203. TL: Tasmania.

Asopia lydialis Walker, 1859a: 374–375.

Botys ustalis Lederer, 1863: 375, 471, Pl. 10, fig. 14.

Omiodes diementalis Inoue, 1996: 92.

Hedylepta pyraustalis Snellen, 1880: 71.

Pyralis incertalis Walker, 1866.

Pyrausta absistalis Walker, 1859a: 311–312.

Material examined. Korea: 1 ♂, Gyeongsangbuk-do, Nari-bunji, Isl. Ulleung, 8 Aug 2012, Kim SS, GS 5122-coll. SELHNU.

Adult (Fig. 1D). Wingspan 17 mm. Head light brown, antenna blackish brown. Thorax blackish brown, mixed with yellowish scales. Forewing with ground color blackish brown; yellowish scales along the costa, yellowish white round shape specks presented near discoidal cell; apex and posterior margin blackish brown, mixed with gray scales. Costa straight. Hindwing with blackish brown ground color mixed white scales, a blackish brown area form 1/2 of hindwing; antemedial and postmedial line blackish gray. Cilia light brown, mixed with whitish color basally.

Male genitalia (Fig. 2D). Uncus very long, rounded terminally. Socii relatively small; tongue shape with black terminal. Valva broad and expanded; long hair on basal margin; costa of valva rapidly soar to up to 2/3, then curved to apex straightly; outer margin has a soft line. sacculus narrow with short hairs on basal margin. Juxta expanded to the bottom. Aedeagus relatively big and long.

Female genitalia. Unknown.

Ditribution. Korea (new record), China, Japan, Taiwan, Malaysia, India, Australia, Samoa, Africa.

Host plant. *Vigna* sp. (Leguminosae), Solanaceae, Urticaceae, Cruciferae in Southeast Aisa, *Nicotiana tabacum* L. (Solanaceae) in China (Yoshiyasu, 2013).

DISCUSSION

In this study, four species of Crambidae, *Diplopseustis perieresalis* (Walker), *Dolicharthria bruguieralis* (Duponchel), *Herpetogramma ochrimaculale* (South), and *Omiodes diemenalis* (Guenée) are reported from Korean peninsula for the first time. The three species among them, with the exception of *Herpetogramma ochrimaculale* (South), are distributed worldwide including Asia, Europe, Africa, and Australia. In Korea, *Diplopseustis perieresalis* (Walker) was collected from Is. Geoje which is the southern area of the Korean peninsula. Also, *Herpetogramma ochrimaculale* (South) was collected from Isl. Ulleung which is the eastern area of the Korean peninsula. These species can be expected to be used as indicator species for the time being to monitor the distributional characteristics.

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Korean name: ¹*애기털보들명나방 (신칭)

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