

# Two Species of *Argyresthia* Hübner, [1825] (Lepidoptera: Argyresthiidae) New to Korea

Jae-Cheon Sohn\*

Department of Science Education, Gongju National University of Education, Gongju 32553, Korea

## 광택집나방과 광택집나방속(*Argyresthia* Hübner, [1825])의 한국미기록 2종

손재천\*

공주교육대학교 과학교육과

**ABSTRACT:** Two species of *Argyresthia*, *A. subrimosa* Meyrick and *A. umbrina* Liu, Wang et Li are reported for the first time from Korea. The collecting data show that *A. subrimosa* occurs in two remote islands, Ulleungdo and Jeju in the country. These two local populations are compared with each other in external and genital morphology. *Argyresthia umbrina* is first recorded outside the type country, China. Photographs of the habitus and genitalia are provided for the two species treated here.

**Key words:** Argyresthiidae, Korea, Lepidoptera, New records, Taxonomy

**조 록:** 광택집나방과의 국내 미기록 2종인 큰광택집나방(*Argyresthia subrimosa* Meyrick)과 황갈광택집나방(*Argyresthia umbrina* Liu, Wang et Li)을 보고한다. 큰광택집나방은 서로 멀리 떨어진 울릉도와 제주도 두 곳에서 발견되었다. 두 지역에서의 큰광택집나방 개체군을 외형 및 생식기 특징으로 비교하였다. 황갈광택집나방이 모식산지인 중국 이외 지역에서 발견된 것은 처음이다. 두 종의 외형 및 생식기 특징을 사진과 함께 기술하였다.

**검색어:** 광택집나방과, 한국, 나비목, 미기록, 분류

*Argyresthia* is the largest genus within Argyresthiidae, currently including 106 species worldwide (Lewis and Sohn, 2015; Liu et al., 2017; Santa-Rita et al., 2020). Kyrki (1984) defined the *Argyresthia* group (= Argyresthiidae in Kyrki, 1990) with three autapomorphies: in the male genitalia, the saccus absent; the vinculum anteriorly produced on the sides; and the male sternite VIII V- or Y-shaped. These characteristics can play a role of diagnoses for *Argyresthia*, as Kyrki's definition was based on a single genus. The adult moths of

*Argyresthia* are small in body size and narrow-winged with often lustrous forewing patterns. When resting, they lay their head down and raise their end up (Fig. 1). The larvae are mostly endophagous on the buds, fruits, twigs, and leaves of various woody seed plants (Dugdale et al., 1998). The genus includes several pest species, for example, *Argyresthia pruniella* and *A. conjugella* damaging apple trees (Alford, 2015).

Studies on the species diversity of *Argyresthia* in Korea are scanty. Park (1983) included only *Argyresthia conjugella* Zeller in his checklist of the Korean Microlepidoptera. Sohn (2007) recorded three congeners new to Korea: *A. ivella* (Haworth), *A. laevigatella* (Heydenreich) and *A. magna* Moriuti. Na et al.

\*Corresponding author: [jsohn74@gjue.ac.kr](mailto:jsohn74@gjue.ac.kr)

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(2017) added two species of *Argyresthia*: *A. albicomella* Moriuti and *A. alpha* Friese et Moriuti. Given their diversity in the neighboring countries, the Korean fauna of *Argyresthia* seems to be still underestimated. In the present article, two species of the genus, *A. subrimosa* Meyrick and *A. umbrina* Liu, Wang et Li, 2017 are reported for the first time from Korea. Two isolated populations of *A. subrimosa* from the Island Jeju-do and Ulleung-do are compared with each other in the external and genital morphology.

## Material and Methods

Specimens examined are deposited in three institutional collections: Natural History Museum, London, United Kingdom (NHMUK); Department of Science Education, Gongju National University of Education, Gongju, Korea (GJUE); and National Institute of Biological Resources, Incheon, Korea (NIBR).

Slide specimens of genitalia were prepared, following Clarke (1941), except that chlorazol black and Euparal resin were used for staining and permanent mounting, respectively. Terms for genitalia followed Moriuti (1977). In the specimen data, the 'GSN' in brackets stands for the genitalia slide number.

## Taxonomic Accounts

### Family Argyresthiidae Bruand, [1850]

#### *Argyresthia* Hübner, [1825]

*Argyresthia* Hübner, [1825]: 422. Type species: *Phalaena goedartella* Linnaeus, 1758.

= *Argyrosetia* Stephens, 1829: 205. Type species: *Phalaena goedartella* Linnaeus, 1758.

= *Blastotere* Ratzeburg, 1840: 246. Type species: *Phalaena bergiella* Ratzeburg, 1840.

= *Ederesa* Curtis, 1833: 191. Type species: *Phalaena pruniella* Clerck, 1759.

= *Ismene* Stephens, 1834: 247. Type species: *Phalaena pruniella* Clerck, 1759.

= *Oligos* Treitschke, 1830: 299. Type species: *Phalaena pruniella* Clerck, 1759.

= *Paraargyresthia* Moriuti, 1969: 30. Type species: *Paraargyresthia japonica* Moriuti, 1969.

*Argyresthia subrimosa* Meyrick, 1932 큰광택집나방 (Figs. 1-4, 6-7, 9)

*Argyresthia subrimosa* Meyrick, 1932: 227. Type locality: China, Kwansien.

*Argyresthia mutuurai* Moriuti, 1964: 20. Type locality: Japan, Hokkaido, Sapporo.

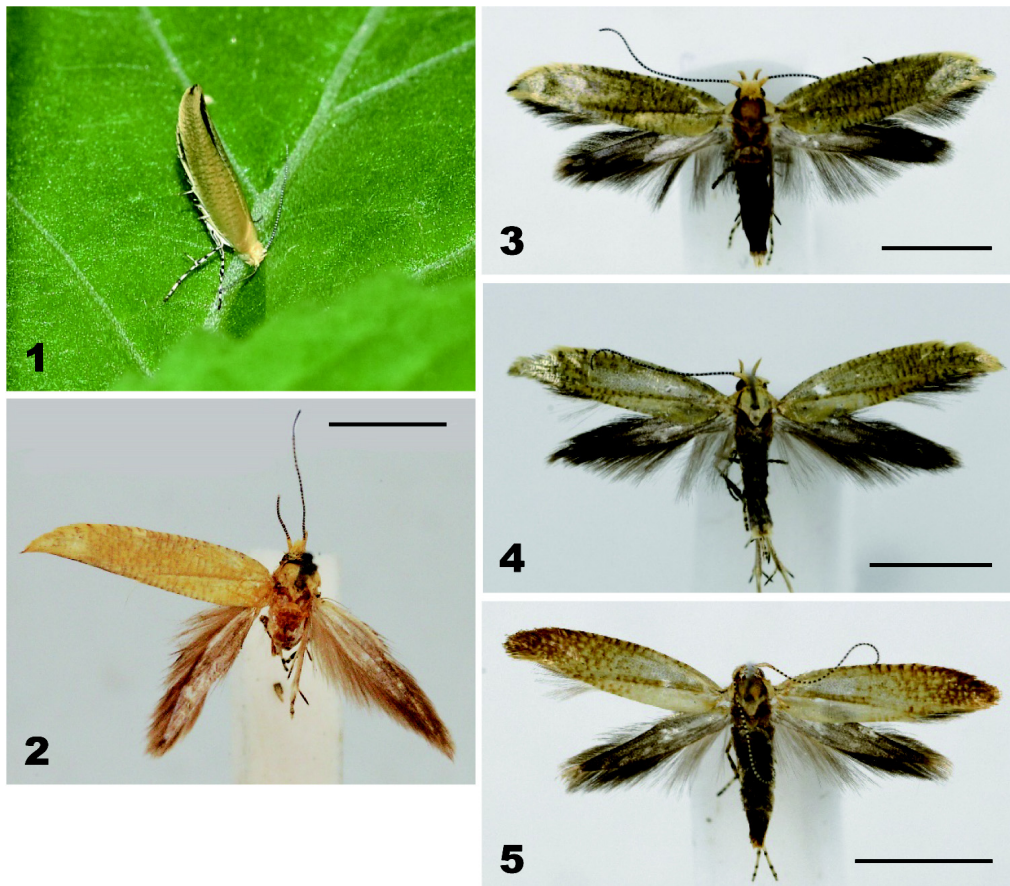
**Description.** Habitus (Figs. 1-4) - Head: Vertex and frons pale yellowish brown. Labial palpus pale orange, intermixed with dark brown scales laterally. Antenna 5/6 as long as forewing; scape pale orange; flagellum black with white annulations. Thorax: Tegula pale yellowish brown, intermixed with brownish gray scales in distal half; mesonotum pale orange. Forewing length 5.5-6.9 mm, pale orange, densely striolate with dark gray; cilia dark gray on forewing apex, pale orange on apical area, dark fuscous on termen. Hindwing and cilia dark fuscous. Male genitalia (Figs. 6-7) - Subscaphium 2x longer than socius. Socius elliptical, with ca. 18 scale-like setae on ventral surface and two setae on top. Valva lobate, slightly convex at middle of costa, broadly-round along saccular margin; stiff-setose area present on apical area and upper border of sacculus. Vinculum narrowly produced anterolaterally. Phallus nearly straight, 2.5x longer than valva; carina spiniform; spinulate cornutal zone 1/7 as long as phallus. Female genitalia (Fig. 9) - Papillae anales narrowed dorsodistally. Ovipositor as long as ductus bursae. Apophyses posteriores 3x longer than apophyses anteriores. Ductus bursae narrow, slightly dilated near corpus bursae. Corpus bursae ovate, spinulate concentrically around signum; signum 1/2 as long as corpus bursae, scobinate, cruciform, with lateral branches at anterior 1/4.

**Materials examined.** 4♂2♀, Gyongbuk Prov., Ulleung-gun, Is. Ulleungdo, Buk-myeon, Nari-dong, Mt. Seonginbong (37°31'03.4"N 130°51'51.3"E, alt. 420 m), 12 vii 2018 (JC Sohn), [GSN] SJC-1333 (♂), 1361 (♀), GJUE & NIBR; 3♂, Jeju Prov., Jeju-si, Nohyeong-dong, Cheonwangsa (33°24'36.1"N 126°29'43.3"E, alt. 673 m), 4 vii 2016 (JC Sohn), [GSN] SJC-1360; 1♂, ditto, 1 viii 2016 (JC Sohn).

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

**Host plants.** Unknown.

**Remarks.** The holotype of *Argyresthia subrimosa* Meyrick from NHMUK was examined (Fig. 4). It is the largest among the Korean congeners. The Korean specimens of this species



**Figs. 1-5.** Adults of *Argyresthia*. 1-4, *A. subrimosa* Meyrick (1, resting posture, Is. Ulleungdo; 2, holotype, NHMUK; 3, female, Is. Ulleungdo; 4, male, Is. Jejudo); 5, *A. umbrina* Liu, Wang et Li, female. Scale bars = 3 mm.

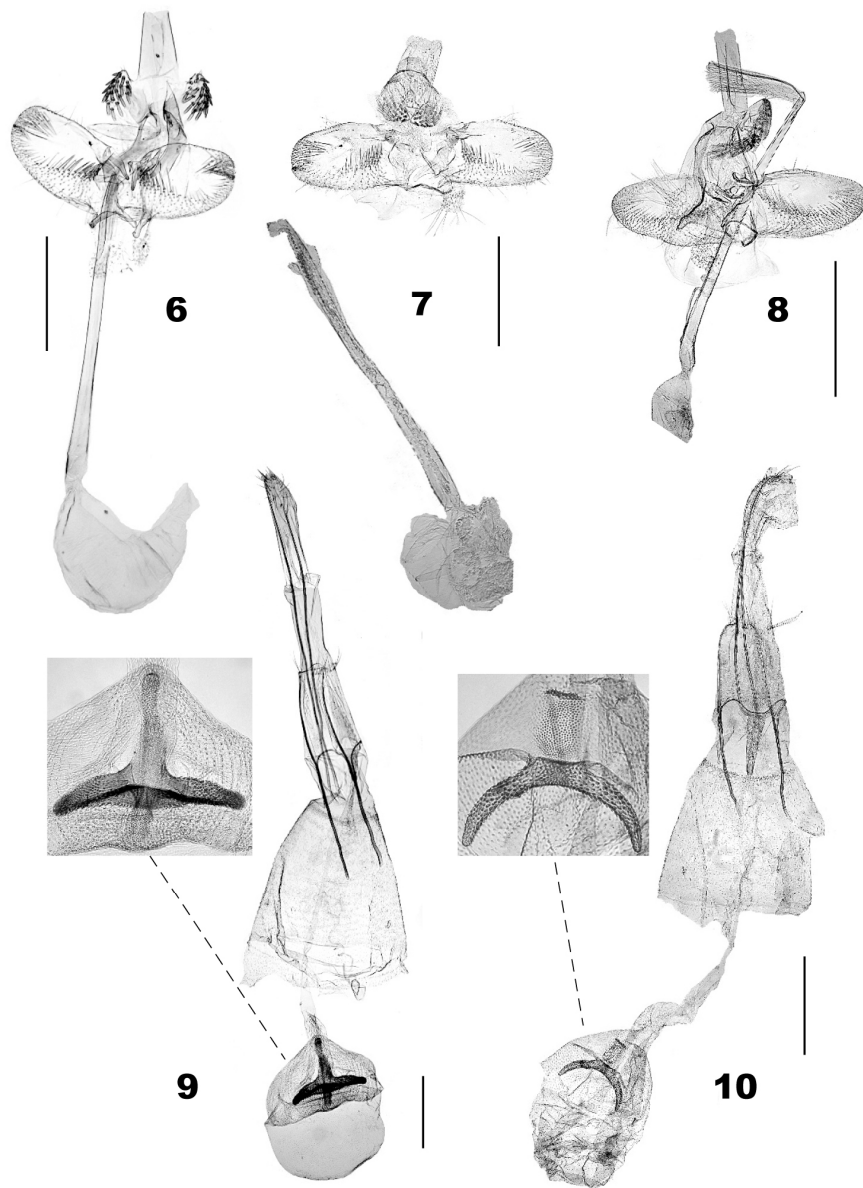
showed a different shape of valva from Moriuti's (1964) illustration. My examination of the unmounted genitalia of the specimens suggested that such difference was resulted from how to spread the valvae during slide preparation. Interestingly, the Korean populations of *A. subrimosa* were found from two remote islands, Ulleungdo and Jejudo (Figs. 3 and 4). They exhibited no significant difference in the genitalia (Figs. 6 and 7).

***Argyresthia umbrina* Liu, Wang et Li, 2017** 황갈광택집나방 (Figs. 5, 8, 10)

*Argyresthia umbrina* Liu, Wang et Li, 2017: 60. Type locality: China, Shanxi Prov., Jiexiu Co., Mt. Mian.

**Description.** Habitus (Fig. 5) - Head: Vertex white; frons pale orange. Labial palpus pale reddish brown laterally, pale orange mesally. Antenna 3/4 as long as forewing costa; scape pale orange dorsally, white ventrally; flagellum dark purplish

brown, with white annulations. Thorax: Tegula orange; mesonotum lustrous, white, intermixed with orange scales at center. Forewing length 4.1-5.5 mm, pale orange, tinged with white on basal 1/3 of dorsum, reticulate with brownish orange; cilia brownish orange on apical area, fuscous on termen. Hindwing and cilia brownish gray. Male genitalia (Fig. 8) - Subscaphium 2/3 as long as valva. Socius securiform, with 19-21 scale-like setae on ventral surface and two setae on top. Valva linguiform, widest at middle, setose on apical and saccular areas; costa curved at basal 1/3; zone of stiff setae present on upper boarder of sacculus. Vinculum rectangular, emarginated ventromedially. Phallus 2.5x longer than valva, slightly curved at middle, gradually narrowed to apex; spinulate cornutal zone 1/3 as long as phallus. Female genitalia (Fig. 10) - Papillae anales subconical, setose. Ovipositor 2.5x longer than eighth segemt. Apophyses posteriores 2.1x longer than apophyses anteriores. Antrum elongate, funnel-shaped. Ductus bursae



**Figs. 6-10.** Male (6-8) and female (9-10) genitalia of *Argyresthia*. 6-7, *A. subrimosa* Meyrick (6, Is. Ulleungdo; 7, Is, Jeju-do); 8, *A. umbrina* Liu, Wang et Li; 9, *A. subrimosa* Meyrick, Is. Ulleungdo (inset = enlarged image of signum); 10. *A. umbrina* Liu, Wang et Li. (inset = enlarged image of signum). Scale bars = 0.5 mm.

narrow, gradually broadened to corpus bursae from middle. Corpus bursae globular, spinulate on posterior half; signum as subtriangular sclerite, with curved long horn-like, scobinate lateral branch at anterior end.

**Materials examined.** 5♂5♀, Jeonnam Prov., Goheung-gun, Yeongnam-myeon, Mt. Palyongsan, 21 vi 2019 (JC Sohn), [GSN] SJC-1359 (♀); 3♀, Jeonnam Prov., Goheung-gun, Is. Oenarodo, Yena-ri, near Naro tunnel, 25 vi 2020 (JC Sohn), GJUE & NIBR; 1♂, Jeonnam Prov., Goheung-gun, Is. Dol-

sando, Mt. Geumosan, Hyangilam, 24 vi 2019 (JC Sohn), [GSN] SJC-1358; 2♀, Jeonnam Prov., Yeosu-si, Is. Geumodo, Nam-myeon, Dupo-ri, 23 vi 2019 (JC Sohn), [GSN] SJC-1383; 1♀, Jeonnam Prov., Yeosu-si, Is. Geumodo, Mt. Kalibong, 23 vi 2019 (JC Sohn).

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

**Host plants.** Unknown.

**Remarks.** The Korean records of this species represent its first occurrence outside of China.

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## Statements for Authorship Position & Contribution

Sohn, J.-C.: Gongju National University of Education, Professor performed all procedures of research and wrote the manuscript.

All author read and approved the manuscript.

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