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First report of Saridoscelinae (Lepidoptera, Yponomeutidae) in Korea with New Records of *Saridoscelis kodamai* Moriuti from Korea and China

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한국과 중국에서 미기록종 *Saridoscelis kodamai* Moriuti 및 Saridoscelinae아과의 국내 첫 보고

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ABSTRACT: An yponomeutid species, *Saridoscelis kodamai* Moriuti, is recorded from Korea and mainland China for the first time. Saridoscelinae are first recorded in the Korean fauna. Photos of external and genital features are provided for *S. kodamai*. Occurrence of *S. kodamai* in Korea is discussed in relation with the flight time and the distribution of their host plants.

Key words: China, fauna, Korea, Saridoscelinae, Yponomeutidae

초 록: 집나방과의 상제집나방(신칭, *Saridoscelis kodamai* Moriuti)을 한국과 중국에서 처음으로 기록한다. 또한, 상제집나방아과(신칭, Saridoscelinae)를 한국에서 처음으로 보고한다. 상제집나방의 성충 외형과 생식기의 사진을 제공한다. 국내에서 상제집나방의 발생에 관해 채집 기기 및 기존의 기주식물 기록과 비교해 논의한다.

검색어: 중국, 동물상, 한국, 나비목, 상제집나방아과, 집나방과

Saridoscelinae were originally proposed by Moriuti (1977) as a tribe of Yponomeutinae (now Yponomeutidae) and later elevated to subfamily status (Kyrki, 1990). Moriuti (1977) defined the Saridoscelinae as monogeneric with *Saridoscelis*, followed by Dugdale et al. (1998) who proposed three synapomorphies for the subfamily: a unique modification of the male 8th abdominal sternite, the presence of fringed sensillae on the socii of the male genitalia, and the presence of three branches in the median vein of the hindwing. Sohn et al. (2013) found that a previously-unsettled genus, *Eucalantica* Busck, 1904, belongs to Saridoscelinae. This expansion of Saridoscelinae requires the new synapomorphies for the subfamily, whose monophyly was strongly supported with only genetic data (Sohn et al., 2013).

Saridoscelis Meyrick, 1894, the type genus of Saridoscelinae, includes four species occurring in East Asia and India (Lewis and Sohn, 2015). Another saridosceline genus, *Eucalantica*, comprises seven species distributed exclusively in the New World (Sohn and Nishida, 2011). Host records are only available for four species of *Saridoscelis* and *Eucalantica*, all of which are associated with Ericaceae. *Saridoscelis sphenias* Meyrick is regarded as a pest on cultivated rabbiteye blueberries (*Vaccinium virgatum* Aiton) in China (Yu et al., 2012).

Here, the subfamily Saridoscelinae and *Saridoscelis kodamai* Moriuti in Korea and mainland China are reported for the first

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time and the distribution of *Saridoscelis* in East Asia is discussed.

Materials and Methods

Specimens were obtained from the following institutional collections.

IZCAS: Institute of Zoology, Chinese Academy of Sciences, Beijing, China.

MPNU: Department of Environmental Education, Mokpo National University, Muan, Republic of Korea.

USNM: United States National Museum of Natural History, Washington, DC, USA.

Dissections of the genitalia were prepared following Clarke (1941), except that chlorazol black was used as a staining agent. Terms for genitalia follow Klots (1970). Terms for external features follow Moriuti (1977). The 'GSN' in the specimen data stands for 'genitalia slide number.'

Taxonomic accounts

Yponomeutidae 집나방과

Saridoscelinae Moriuti 1977 상제집나방아과 (신칭)

***Saridoscelis* Meyrick, 1894**

Saridoscelis Meyrick, 1894: 28. Type species: *Saridoscelis sphenias* Meyrick, 1894.

Diagnosis. This genus is similar to *Thecobathra* and *Niphonympha*, with both belonging to Niphonymphini of Yponomeutinae; however, it differs in having straight median and subterminal streaks convergent to the apex on the forewing; a socius with fringed sensillae in the male genitalia; and the male sternum VII modified as a sclerite covering saccus.

Distribution. East Asia and India. Robinson et al. (1994) mentioned at least nine undescribed congeners from Southeast Asia.

Host plants. Known in only two species (*S. kodamai* and *S. sphenias*), all belonging to Ericaceae.

***Saridoscelis kodamai* Moriuti, 1961 상제집나방 (신칭)**

Saridoscelis kodamai Moriuti, 1961: 65. Type locality: Japan - Honshu, Kii Peninsula, Mt. Natisan.

Description (Figs. 1-2). Head white; labial palpus white, intermixed with dark brown scales. Thorax white. Forewing length 7.1 mm, white; longitudinal subcostal line grayish brown, straight; median line starting at basal 1/3 of dorsum, running towards apex, with anterior half as black line and posterior half as oblique, narrow-triangular patch, grayish brown inside; subterminal line straight, converged to median line, juxtaposed with pale grayish brown shades outward; two grayish brown costal bars converged to apex; fringe white, suffused with dark grayish brown terminally. Hindwing grayish brown, paler to base; fringe grayish brown. Male genitalia (Fig. 3) with uncal process digitate, 2/3 as long as socius; socius usually with five or six fringed plates; valva broadest nearly at middle, acuminate apically, with small, setose hump near base; saccus elongate, as long as valva, bulbous apically; phallus bent at basal 1/4,

Figs. 1–2. Adults of *Saridoscelis kodamai* Moriuti. 1, Japan, male; 2, Korea, male. Scale bars = 3 mm.

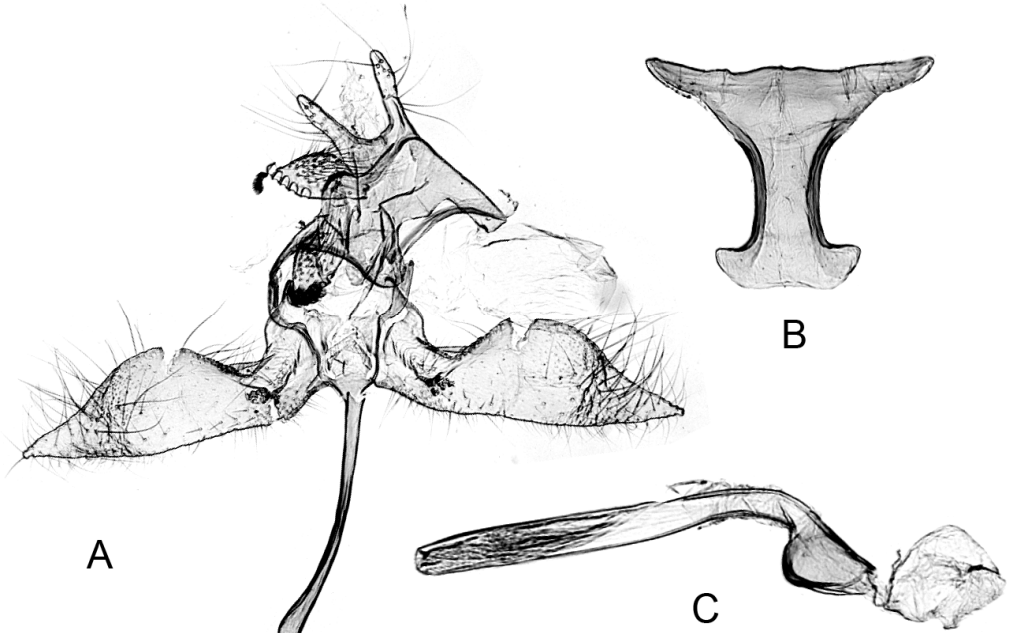

Fig. 3. Male genitalia of *Saridoscelis kodamai* Moriuti; A, genital capsule; B, 8th sternite; C. phallus.

broadened in distal 1/3, with two spinulate cornutal areas. See Moriuti (1961) for the female genitalia.

Materials examined. [KOREA] 1♂, Jeonnam Prov., Haenam, Mt. Dalmasan (34°23'01"N, 126°34'41", alt. 232 m), 26 March 2007 (SW Choi), MPNU. [JAPAN] 1♂, Honshu, Kii Prov., Oomata, 3 VI 1957 (T Yasuda), reared from *Pieris japonica*, emerged on 23 June 1957, USNM. [CHINA] 1♂, Hunan Prov., Sangzhi Co., Mt. Tianpingshan, 28 June 1981 (XW Tong), IZCAS.

Distribution. Korea (new record), Japan (Hokkaido, Honshu, Shikoku), China (new record: Hunan), and Russia (South Kamchatka).

Host plants. Ericaceae - *Pieris japonica* (Thunb.) D. Don ex G. Don, *Leucothoe grayana* Maxim. var *oblongifolia* (Miq.) H. Hara (Moriuti, 1961, 1977).

Discussion

Currently, *Saridoscelis* comprise four species, *S. kodamai* Moriuti and *S. synodias* Meyrick from East Asia, *S. nudata* Meyrick from India, and *S. sphenias* Meyrick occurring across Oriental and Palearctic regions. Among two East Asian species, *Saridoscelis kodamai* has been recorded from Japan and Far Eastern Russia, showing rather broad distribution. Our record of *S. kodamai* from Korea is not surprising based on its distribution in the neighboring countries, but also leaves two puzzling aspects. Our Korean specimen of *S. kodamai* was collected in March, much earlier than its usual flight season of May to July in Japan (Moriuti, 1977). This rejects the possibility that our specimen is due to an accidental introduction from Japan. Larval host records of *S. kodamai* include two ericacean plants that do not naturally occur in Korea. Of the two host plants, *Pieris japonica* occurs in Japan, China, and Taiwan, and its relative, *P. nana*, occurs in the Russian Far East. The other, *Leucothoe grayana*, is endemic to Japan. This host plant information only explained the distribution of *S. kodamai* from Japan, China and Russia, but not from Korea. The collecting site of our specimen, Mt. Dalmasan, is located in the southern part of the Korean Peninsula. There have been only two species of Ericaceae, *Rhododendron mucronulatum* Turcz. and *R. yedoensis* var. *poukhanense* (H. Lev.) M. Sugim. ex T. Yamaz., recorded from this mountain area (Im and Hong, 2005). Additionally, no trophic association of *S. kodamai* with *Rhododendron* has been identified to date. The larvae of *S. kodamai* most likely feed on *Vaccinium bracteatum* Thunb. in Korea. This shrub species spreads broadly in Haenam County, although it has not been recorded from Mt. Dalmasan. It is known that *S. sphenias* feeds on *V. bracteatum*

in Japan (Moriuti, 1961). Another possible, albeit less likely, food source for *S. kodamai* in Korea is *Pieris japonica*, which is uncommonly cultivated as a garden plant in the southern provinces.

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