

Genus *Telamoptilia* (Lepidoptera: Gracillariidae) New to Korea

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ABSTRACT

The family Gracillariidae, belonging to the superfamily Gracillarioidea, is one of the major group of leaf-miners. Among them, the genus *Telamoptilia* Kumata & Kuroko, 1988 has been known as a small genus with only nine described species over worldwide to date. In this study, the genus *Telamoptilia* Kumata & Kuroko, 1988, is reported for the first time from Korea. In addition, two species of the genus *Telamoptilia*, *T. grewiae* Liu, Wang & Li, 2015 and *T. tiliae* Kumata & Ermolaev, 1988, are newly recorded in Korea. All the known species are enumerated with their available information. The adults and genitalia of all species are redescribed and illustrated.

Keywords: Acrocercopinae, new record, *Telamoptilia*, taxonomy

INTRODUCTION

In Korea, 87 species, belonging to 23 genera of the family Gracillariidae have been known up to date (Byun et al., 2009; Shin et al., 2015; Kim and Byun, 2016, 2017, 2019, 2022; Kim et al., 2022a, 2022b, 2022c, 2022d; Lee et al., 2017; Park and Lee, 2021; Lee and Jeun, 2022). Among them, 20 species belonging to eight genera of the subfamily Acrocercopinae have been recorded from Korea (Park, 1983; Byun et al., 2009; Kawahara et al., 2010; Kim and Byun, 2019; Kim and Byun 2022; Kim et al., 2022c, 2022d; Lee and Jeun, 2022).

The genus *Telamoptilia* Kumata & Kuroko, 1988 is one of the smaller genera in the subfamily Acrocercopinae, comprising only nine species worldwide (De Prins and De Prins 2006–2022), which was established based on the type species, *Acrocercops cathedraea* Meyrick, 1908. In this study, the genus *Telamoptilia* is reported for the first time from Korea. Also, *Telamoptilia grewiae* Liu, Wang & Li, 2015 and *T. tiliae* Kumata & Ermolaev, 1988, are newly reported from Korea. The aim of the present study is to report the genus *Telamoptilia* for the first time along with two newly recorded species.

MATERIALS AND METHODS

Specimens were collected using a light trap reared on the host plants and stored in the Systematic Entomology Laboratory, Hannam University, Daejeon, Korea (HNSUEL). Male and female genitalia were dissected and mounted with Euparal solution, following the procedure of Holloway et al. (1987). Adults were imaged using a digital camera (Canon EOS 600D; Canon Inc., Tokyo, Japan), and images of the genitalia were captured using a digital camera attached to a LEICA M205C (Leica Microsystems, Wetzlar, Germany) microscope and refined using Photoshop CS5 software.

Abbreviations for different localities of Korea mentioned are as follows: IC, Incheon; DJ, Daejeon; GW, Gangwon-do; JN, Jeollanam-do; TL, type locality; TD, type depository.

Specimen depositories used in this study were from the following collections:

EIHU, Entomological Institute, Hokkaido University, Japan; HNU, Hannam University, Korea; INU, Department of Life Sciences, Incheon National University, Korea; KNAE, Korea National Insect Collection, Korea National Arboretum, Korea; NKUM, Insect Collection, Nankai University, China.

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SYSTEMATIC ACCOUNTS

Order Lepidoptera Linnaeus, 1758
Family Gracillariidae Stainton, 1854

Genus *Telamoptilia* Kumata & Kuroko, 1988

Telamoptilia Kumata & Kuroko, 1988: 57–59.

Type species: *Acrocercops cathedraea* Meyrick, 1908.

Diagnosis. The adults of genus *Telamoptilia* Kumata & Kuroko, 1988 are very similar those of genus *Spulerina*, but can be distinguished by the absence of the fan-shaped comb on the valva of the male genitalia and reduced ductus bursae in the female genitalia.

Distribution. Afrotropical, Nearctic, Oriental, and Palearctic regions.

Remarks. There are only nine species in the genus *Telamoptilia* worldwide. In this study, this is the first report of this genus Korea with two newly recorded species.

Key to the species of the genus *Telamoptilia* in Korea based on adult specimens

1. White fascia of forewing narrower than intervals.....
..... *Telamoptilia grewiae*
– White fascia of forewing broad than the intervals ... *T. tiliae*

¹Telamoptilia grewiae* Liu, Wang & Li, 2015**

(Figs. 1A, 2A, C)

Telamoptilia grewiae Liu, Wang & Li, 2015: 123–133. TL: Tianjin, China. TD: NKUM (holotype; paratypes).

Material examined. Korea: 3 males, 2 females, IC: Ganghwa-gun, Gyodong-myeon, Mt. Hwagaesan, 11 Jun 2019, Shin YM, gen. slide No. HNUSEL-5485, 5486, 5487, 5488

5489-coll. KNAE; 10 males, 13 females, DJ: Seo-gu, Jangandong, Mt. Jangtaesan, 18 Jun 2015, leg. BK Byun, gen. slide No. HNUSEL-5467, 5503-coll. HNU; 1 male, GW: Hongcheon-gun, Bukbang-myeon, 26 Aug 2019, leg. BK Byun-coll. HNU; 2 females, JN: Suncheon-si, Songgye-myeon, Jangan-ri, 4 Jul 2018, leg. BK Byun-coll. HNU; 4 males, Mt. Baegunsan, 8 Aug 2018, leg. BK Byun, gen. slide No. HNUSEL-5468, 5469, 5470-coll. HNU.

Redescription. Adult (Fig. 1A): Wingspan 5.8–7.5 mm. Silvery white head and white occiput with a tiny pale ochreous part; white frons and face mixed with gray fuscous; minute maxillary palpus, white and fuscous in the middle; white labial palpus with a lateral fuscous band in the middle and a fuscous minute distal lateral ring; gray-ochreous antenna with white on 1–2 segments; white scape with a minute blackish fuscous distal ring, a tuft of white scales that becomes gray in the distal part below the scape. White thorax mixed with light gray and ochreous patches; ochreous tegular that becomes fuscous anteriorly; white legs; white fore coxa with a fuscous distal band; fuscous fore femur; blackish fuscous fore tibia; fore tarsus with three equally spaced fuscous rings; half white middle coxa that distally becomes fuscous; fuscous middle femur with a distal white dorsal spot; fuscous middle tibia with a medial white band; middle tarsus with three equally spaced fuscous rings that are paler than those of fore tarsus; hind tibia with two basal and distal fuscous bands; hind tarsus with four more distal fuscous rings.

Dark ochreous to fuscous forewing ground color with blackish edged white fasciae; darker and more fuscous costa basal margin than ground color; first fascia reaches the wing fold; second fascia reaches just before median to base and third fascia distal to median; two whitish strigular on costal and dorsal margin with black edges; 4–5 white spots along apex to tornus and black apex; gray ochreous cilia on the outer



Fig. 1. Adults. A, *Telamoptilia grewiae*; B, *T. tiliae*.

Korean name: ¹*장구밤가는나방 (신칭)

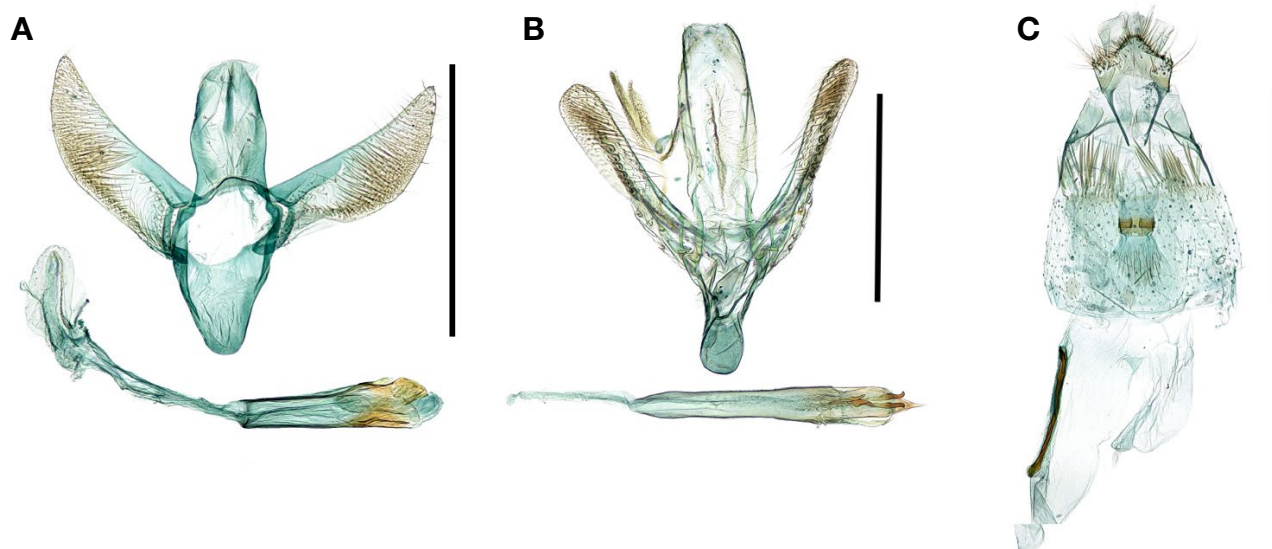


Fig. 2. Male and female genitalia. A, B, Male genitalia: A, *Telamoptilia grewiae* (gen. slide No. HNUSEL-5468); B, *T. tiliae* (gen. slide No. HNUSEL-5490); C, Female genitalia of *T. grewiae* (gen. slide No. HNUSEL-5488). Scale bars: A-C=0.5 mm.

margin and black in tornus to apex.

Male genitalia (Fig. 2A). Short tegumen as long as 2/3 of valva with pair of short setae near apex and two lateral pairs. Valva occur parallelly from base to apex, softly curved on the outside and straight on the inside; blunt apex blunt; inner surface covered with setae except for the costal area with a longer base. Short and reduced vinculum; short, blunt, and slightly rectangular saccus with rounded edges. Tubular aedeagus, as long as valva with a well sclerotized 1/3 apical part.

Female genitalia (Fig. 2C). Moderate papillae anales with long caudal setae and slightly upward apex; apophyses posteriores as long as anteriores or longer. Moderate ostium bursae in opening size; antrum as long as papillae anales with a sclerotized ring disconnected at the dorsal medial part. Reduced ductus bursae with some longitudinal wrinkles just before the corpus bursae. Ovate and slightly elongated corpus bursae with a signum; a long signum, reaching more than half of corpus bursae, slightly concaved medially, upper side with an apex curved on the inside and lower side with a blunt apex.

Distribution. Korea (new record), China.

Host plants. Tiliaceae - *Grewia parviflora* Bunge. and Caprifoliaceae - *Viburnum erosum* Thunb., in Korea (in this study). Tiliaceae - *G. biloba* G. Don., in China (De Prins and De Prins, 2006–2022; Liu et al., 2015).

Remarks. This species was reared from *Grewia parviflora* Bunge of the family Tiliaceae and *Viburnum erosum* Thunb. of the family Caprifoliaceae.

¹**Telamoptilia tiliae* Kumata & Ermolaev, 1988
(Figs. 1B, 2B)

Telamoptilia tiliae Kumata & Ermolaev, 1988: 66–69. TL: Hokkaido, Japan. TD: EIHU (holotype; paratypes).

Material examined. Korea: 1 male, GW: Jeongseon-gun, Mt. Gariwangsan, 20 May 2016, leg. Park BS, Na SM, Lee DJ, Ko JH, gen. slide No. HNUSEL-5490-coll. INU.

Redescription. Adult (Fig. 1B): Silvery white and smooth head with erect scales on the occiput; reduced and minute white maxillary palpus with tiny fuscous lateral and distal spots; white labial palpus with a lateral fuscous color at the first segment; antenna pale ochreous dorsally and more light ventrally; scape white and fuscous distally; white thorax with a pale ochreous tinge; white legs; fore coxa with a distal fuscous band; fore femur fuscous with a white spot on the basal part; fuscous fore tibia fuscous; fore tarsus with four fuscous rings, first one most broad on 1/4 from base and the rest are equally spaced distally; fuscous middle femur and tibia white a white lateral spot on the tibia; middle tarsus with four fuscous rings, first one slightly oblique.

Ochreous forewing ground color with white transverse fasciae, fuscous edged fasciae and inner edge to base more dark and broad; a white spot near the base that pales towards the apex; first white fascia in echelon form, broadened at dorsal margin and rounded inner edge towards base; second fascia immediately after median part, outer edge more oblique in-

Korean name: ¹*피나무가는나방 (신칭)

ward to base without fuscous median to outer margin; an apical white stria with blackish edge over subapical; an apical white spot on the dorsal margin; an oblique black stria on apex with a white spot; cilia ochreous and white to black at tornus to apical margin. Hindwing lanceolate, gray ochreous, long cilia.

Male genitalia (Fig. 2B). Tegumen ~1.2 times longer than valva, weak and membranous, and slightly rectangular with six pairs of long lateral setae. Valva rectangular with rounded apex; a linear band with 6–7 small discs at the middle of the inner surface, dense long setae just above a linear disc, more short setae along the outer margin and 3–5 long and clavate scales on the costal base area. Vinculum moderately to slightly reduced; saccus weakly swollen at apex and rounded. Aedeagus tubular, slightly broaden to apically, apex highly acute, vesica with two pairs of large and apically hooked spinules.

Female genitalia. Unknown.

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

Host plants. Tiliaceae - *Tilia maximowicziana* Shiras. in Japan (Kumata et al., 1988; De Prins and De Prins, 2006–2022). Tiliaceae - *T. maximowicziana* Shiras. in Russia (Kuznetsov and Baryshnikova, 1998; De Prins and De Prins, 2006–2022).

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CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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