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Review of the genus *Hemistola* Warren, 1893 in Taiwan with notes on an unusual conifer-feeding larva and descriptions of three new species (Lepidoptera, Geometridae, Geometrinae)

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Abstract

The genus *Hemistola* Warren, 1893 in Taiwan is reviewed. Seven species are confirmed, with descriptions of three new species provided: *H. piceacola* **sp. nov.**, *H. fui* **sp. nov.** and *H. taiwanensis* **sp. nov.** The immature stages and unusual conifer-feeding behavior of *H. piceacola* on Taiwan spruce (*Picea morrisonicola*) are reported. The distribution of *H. tenuilinea* (Alphéraky, 1897) is discussed and this species is omitted from the Taiwanese fauna.

Key words: Hemitheini, Oriental region, conifer-feeder, Pinaceae, *Picea*

Introduction

The genus *Hemistola* Warren, 1893 belongs to the geometrine tribe Hemitheini Inoue, 1961. It contains 46 species mainly ranging in the Oriental region (Parsons et al. 1999; Han and Xue 2009; 2011). Recently Han and Xue (2009) reviewed the Chinese and Taiwanese taxa and described seven new species. This study summarized the relationships between *Hemistola* and other sibling Hemitheini genera i.e., *Berta* Walker, 1863, *Comostola* Meyrick, 1888, *Jodis* Hübner, 1823, *Thalera* Hübner, 1823 and *Eucrostes* Hübner, 1823. The reported hostplants of *Hemistola* have also been recorded as several dicot families, i.e. Ranunculaceae, Oleaceae, Caprifoliaceae and Fagaceae (Parsons et al. 1999; Hausmann 2001; Nakajima 2011). In Taiwan, five *Hemistola* species have been recorded in Inoue (1978; 1983; 1986; 1992), Chang (1990), Wang (1997), Han and Xue (2009). Herein we describe and discuss three new species of *Hemistola*. Institutional acronyms are as follows: BMNH, The Natural History Museum, London; ESRI, Taiwan Endemic Species Research Institute, Nantou; HNHM, Hungarian Natural History Museum, Budapest; IZCAS, Institute of Zoology, Chinese Academy of Sciences, Beijing; NMNS, National Museum of Natural Science, Taichung; NSMT, National Museum of Nature and Science, Tsukuba; NSYSU, National Sun Yat-Sen University, Kaohsiung; NTU, National Taiwan University, Taipei; SPNP, Shei-Pa National Park Headquarters, Miaoli; TFB, Taiwan Forestry Bureau, Taipei; TFRI, Insect collection of Taiwan Forestry Research Institute, Taipei. Terminology follows that of Han and Xue (2009).

Taxonomic accounts

Hemistola piceacola Chang & Wu, sp. nov.

(Figs 1, 2, 17–19, 35, 43, 50–53)

Type material. Holotype. Male, TAIWAN, Nantou County, Xiaofengkou, 3002 m, 19–VII–2012, leg. S. Wu & W. C. Chang, slide TFRI00138585 (coll. TFRI). Paratypes. TAIWAN, 1 male, same collecting data as holotype, slide

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