



<http://dx.doi.org/10.11646/zootaxa.3949.4.7>

<http://zoobank.org/urn:lsid:zoobank.org:pub:38453726-B686-4E18-9076-2E445A277578>

## Discovery of second new species of the genus *Spiniphilus* Lin & Bi, and female of *Heterophilus scabricollis* Pu with its biological notes (Coleoptera: Vesperidae: Philinae: Philini)

WENXUAN BI<sup>1,2</sup> & MEIYING LIN<sup>1,3</sup>

<sup>1</sup>Key Laboratory of Zoological Systematics and Evolution, Institute of Zoology, Chinese Academy of Sciences, 1 # Beichen West Road, Chaoyang, Beijing, 100101, China. E-mail: [linmeiyang@ioz.ac.cn](mailto:linmeiyang@ioz.ac.cn)

<sup>2</sup>Room 401, No. 2, Lane 155, Lianhua South Road, Shanghai, 201100 China. E-mail: [insectb@163.com](mailto:insectb@163.com)

<sup>3</sup>Corresponding author. E-mail: [linmeiyang@ioz.ac.cn](mailto:linmeiyang@ioz.ac.cn)

### Abstract

A new philine species of the genus *Spiniphilus* Lin & Bi, 2011, *S. xiaodongi* **sp. nov.** is described from Yunnan, China. The female of *Heterophilus scabricollis* Pu, 1988 is described for the first time with its biological and ecological data.

**Key words:** new species, Philini, China, taxonomy, biology, description

### Introduction

The genus *Spiniphilus* was established for *S. spinicornis* from Yunnan, China by Lin & Bi (2011). In 2011, two additional males of this species were collected, along with one quite different male believed to be congeneric, from a lower altitude locality in Yunnan. This peculiar specimen, having the process of antennomeres III to X much longer than the type species, was discussed with Dr. Petr Švácha and mentioned as “one undescribed species” of the genus (Švácha & Lawrence 2014). This second species has not been described until now due to a lack of sufficient material. Additional specimens confirming the validity of the second new species were collected from the same locality in 2013. The species is described herein as *S. xiaodongi* **sp. nov.** This new species is the 12<sup>th</sup> species from the subfamily Philinae to be reported from China (Löbl & Smetana 2010; Lin & Bi 2011).

In addition, the female of *Heterophilus scabricollis* Pu, 1988 is described for the first time. Although two female specimens of the genus *Heterophilus* were described by Lin & Bi (2011), they were in poor condition and their species identity was uncertain. During the same expedition in 2013, several additional specimens were collected of both sexes of *Heterophilus scabricollis* Pu, 1988, from the type locality. Phenological and habitat information was recorded and reported for the first time herein.

### Materials and methods

The depositories of the specimens examined are abbreviated as follows: Institute of Zoology, Chinese Academy of Sciences, Beijing, China (IZAS); Personal collection of Chang-Chin Chen, Tianjin, China (CCCC); and Personal collection of Wen-Xuan Bi, Shanghai, China (CBWX).

Specimens of males were collected by light trap. The females of *Heterophilus scabricollis* Pu, 1988 were hand-collected from emergence holes. Holes were excavated using a pickax (Fig. 12) and females were then extracted from the emergence hole using long forceps.

males) were found in ca. 1.5 cm diameter emergence holes at depths of 10–20 cm. The soil galleries are usually vertical or slightly oblique. The expedition team searched three grasslands of similar vegetative composition, and about 60% of the holes (n= 42) of 1.5 cm diameter contained a single female. However, no beetles were recovered from holes less than 1.0 cm diameter (n>10), although spiders and wasps were often found instead. This size specificity suggests the holes which females hide in during the daytime are most likely also their emergence holes, though there were some deeper holes that could not be completely excavated. Females cannot fly because the hind wings are strongly reduced in spite of well-developed elytra. Copulation and oviposition were not observed but likely occurs at night in the grassland. They may lay eggs before July because all females collected on 9 July, 2013 did not contain eggs, presumably because they had already oviposited as this would be very late for an unmated female to be found. Larvae were not found, but are likely to be subterranean and feed on the roots of cogongrass (*i.e. Imperata cylindrica*) based on the location of holes in grassland areas with cogongrass (Figs. 16–20). Larva of a congener, *Heterophilus punctulatus* has been recorded feeding on the roots of cogongrass (Chiang & Chen 1996; Švácha *et al.* 1997; Švácha & Lawrence 2014).

## Acknowledgements

This study would have been impossible without the discovery of the new *Spiniphilus* species by Xiao-Dong Yang (Sichuan, China), and the collection and observation of additional specimens of *Spiniphilus spinicornis* Bi & Lin by Mr. Wan-Gang Liu (Yunnan, China) and females of *Heterophilus scabricollis* Pu by Jian Hao (Liaoning, China). We thank them and Chao Wu (Beijing, China) for collecting these important specimens. We wish to express our thanks to Petr Švácha (Institute of Entomology, Academy of Sciences, Ceske Budejovice, Czech Republic) and Nobuo Ohbayashi (Miura, Japan) for their comments on a draft manuscript. We thank Laurence Livermore (The Natural History Museum, London, UK) for improving this manuscript. Special thanks are due to Chang-Chin Chen (Tianjin, China) for his continuous support in various ways. This research was supported by a grant (No. O529YX5105) from the Key Laboratory of the Zoological Systematics and Evolution of the Chinese Academy of Sciences, NSFC program J1210002 and 31472029.

## References

- Chiang, S.-N., Chen, B. & Zhang, R.-Q. (1996) Two new species of the genus *Heterophilus* (Coleoptera: Cerambycoidea) from China. *Entomotaxonomia*, 18, 109–112.
- Chiang, S.-N. & Chen, L. (1996) Description of two species of philine larvae (Coleoptera: Cerambycoidea) from China. *Entomotaxonomia*, 18, 113–119.
- Lin, M.-Y. & Bi, W.-X. (2011) A new genus and species of the subfamily Philinae (Coleoptera: Vesperidae). *Zootaxa*, 2777, 54–60.
- Löbl, I. & Smetana, A. (2010) *Catalogue of Palaearctic Coleoptera. Vol. 6*. Apollo Books, Stenstrup, 924 pp.
- Pu, F.-J. (1988) Coleoptera: Cerambycidae. In: Huang, F.-S., Wang, P.-Y., Yin, W.-Y., Yu, P.-Y., Lee, T.-S., Yang, C.-K. & Wang, X.-J. (Eds.), *Insects of Mt. Namjagbarwa Region of Xizang*. Science Press, Beijing, pp. 293–304.
- Saito, A. (1990) Female reproductive organs of cerambycid beetles from Japan and the neighboring areas. I. Philini through Atimiini. *Elytra (Tokyo)*, 18, 231–260.
- Švácha, P. & Lawrence, J.F. (2014) 2.1 Vesperidae Mulsant, 1839. In: Leschen, R.A.B. & Beutel, R.G. (Eds.), *Handbook of Zoology, Arthropoda: Insecta; Coleoptera, Beetles, Volume 3: Morphology and systematics (Phytophaga)*. Walter de Gruyter, Berlin/Boston, pp. 16–49.
- Švácha, P., Wang, J.J. & Chen, S.C. (1997) Larval morphology and biology of *Philus antennatus* and *Heterophilus punctulatus*, and systematic position of the Philinae (Coleoptera: Cerambycidae and Vesperidae). *Annales de la Société Entomologique de France, Paris (N.S.)*, 33, 323–369.
- Wu, W.-W. & Chiang, S.-N. (2000) A taxonomic study of the male genitalia of some philid beetles with one new species in China (Coleoptera: Cerambycoidea). *Acta Entomologica Sinica*, 43, 78–87.