



<http://dx.doi.org/10.11646/zootaxa.3920.4.2>

<http://zoobank.org/urn:lsid:zoobank.org:pub:08D33EF3-C7A3-4B5E-984D-0D4122497D89>

A review of the *Strongylovelia* Esaki, 1924 (Hemiptera: Heteroptera: Veliidae) from China, with descriptions of three new species

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Abstract

Five species of genus *Strongylovelia* Esaki are now known from China. Of these, *S. formosa* Esaki, 1924 is the only member of the genus previously recorded from China and *S. paitooni* Chen, Nieser & Sangpradub, 2006 is newly recorded from China. In addition, three species, *S. balteiformis* sp. n., *S. fasciaria* sp. n. and *S. hainanensis* sp. n. are described as new to science. Photographs of the female and male dorsal habitus, male abdominal segment VIII, and male genitalic structures are provided, accompanied by line drawings of the female body in lateral view, views perpendicular to the distal part of the male paramere, and a distribution map for all Chinese *Strongylovelia* species. A key to the all five Chinese *Strongylovelia* species is also provided to assist in future identification.

Key words: Heteroptera, Veliidae, *Strongylovelia*, new species, China

Introduction

The genus *Strongylovelia* was established by Esaki in the *Annals of the Entomological Society of America* with the type species *S. formosa* Esaki, 1924 from China (Taiwan). Prior to this study, 23 species and 2 subspecies have been considered valid in this genus (Chen *et al.* 2005; Chen *et al.* 2006; Lansbury & Zettel 1997; Zettel 2003a, b; Zettel & Tran 2006, 2009), but only one species was recorded from China. Based on the material collected recently during several excursions, however, southern and southwest China, especially Yunnan Province harbors a rich and largely undescribed assemblage of *Strongylovelia* species. The aim of the present paper is to review the species of the *Strongylovelia* occurring in China, and to provide descriptions of the new species present. In this work, one previously described species, *S. formosa* Esaki, 1924, is discussed, one newly recorded species and three new species are described: *S. paitooni* Chen, Nieser & Sangpradub, 2006, *S. balteiformis* sp. n., *S. fasciaria* sp. n. and *S. hainanensis* sp. n.. With these additions, 26 species and 2 subspecies are now considered valid in this genus, and 5 species of *Strongylovelia* are now recorded in China. To allow identification of this regional biota, photographs and line drawings of key female and male characters are provided, and a key to the all five Chinese *Strongylovelia* species is presented.

Depository, material and methods

All the examined specimens in the study are deposited in the Institute of Entomology, College of Life Sciences, Nankai University, Tianjin, China (NKUM). The genitalic dissection followed the methods and techniques given by Chen *et al.* (2005). All measurements are in millimeters (mm). The majority of the photographic illustrations were acquired using a Nikon SMZ1000 stereomicroscope equipped with a computer-controlled SPOT RT digital camera and related software except photographs of the male genitalic structures which were made using an OLYMPUS BX53 microscope equipped with a computer-controlled Canon OLYMPUS DP72 digital camera and Cell sens Standard software.

Macropterous female and male: unknown.

Etymology. The specific name is derived from the name of type locality, Hainan Province, China.

Distribution. China (Hainan) (Fig. 43).

Key to the species of *Strongylovelia* occurring in China

1. Antennal segment I whitish.—Female: connexiva segments VI–VII with a prominent, posteriorly directed tuft of long bristles (Figs. 13, 16, 17) 2
- Antennal segment I blackish.—Female: connexiva segments VI–VII without a prominent, posteriorly directed tuft of long bristles, instead with broader tufts of shorter hairs (Figs. 14, 15) 4
2. Female: body length 1.49–1.51; mesonotum with large, band-shaped whitish mark (Fig. 5). — Male: body length 1.19–1.21; mesonotum with large, broadly band-shaped whitish mark (Fig. 10); abdominal segment VIII and pygophore as illustrated (Figs. 22, 39); apex of blade of paramere pointed (Fig. 42) *S. hainanensis* **sp. n.**
- Female: body length 1.64–1.74; mark on mesonotum not as above. —Male: body length 1.38–1.42; mark on mesonotum not as above.; apex of blade of paramere slightly blunt (Figs. 26, 38) 3
3. Female: mesonotum and mesopleura with a large, characteristically shaped whitish mark (Figs. 1, 13); mesopleura with two additional pairs of small whitish spots laterally, one located just dorsally of metacetabula and another on the first abdominal laterotergite (Fig. 13).—Male: mesonotum with a large, characteristically shaped whitish mark (Fig. 6); abdominal segment VIII and pygophore as illustrated (Figs. 18, 23); paramere relatively broad in lateral view (Figs. 24, 25) *S. formosa*
- Female: mesonotum and mesopleura with large, characteristically shaped whitish mark (Figs. 4, 16); mesopleura without two additional pairs of whitish spots laterally.—Male: mesonotum with semicircular-shaped whitish mark (Fig. 9); abdominal segment VIII and pygophore as illustrated (Figs. 21, 35); paramere relatively slender in lateral view (Figs. 36, 37) *S. fasciaria* **sp. n.**
4. Mesonotum and metanotum separate; pronotum anteriorly along hind margin of head with a yellowish transverse band which distinctly interrupted medially (Figs. 2, 7) *S. paitooni*
- Mesonotum and metanotum fused; pronotum anteriorly along hind margin of head without a yellowish transverse band which distinctly interrupted medially *S. balteiformis* **sp. n.**

Acknowledgments

We would like to extend our gratitude to the following organizations/persons for their support in various ways to this study: to Yanhui Wang (Nankai University, China) for collecting specimens for this research; to Maolan Nature Reserve, Guizhou and Yinggeling Nature Reserve, Hainan for their strong support during our field work; and to Dr. Nico Nieser (NCB Naturalis, Leiden) for the comments to improve the manuscript. We also thank two reviewers: Herbert Zettel (Natural History Museum, Austria) and Dan A. Polhemus (Bishop Museum, USA) for their valuable comments on the early draft of the manuscript. This project was supported by Natural Science Foundation of China (No. 31071959, and No. J0930005).

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