



New cave-dwelling spiders of the family Nesticidae (Arachnida, Araneae) from China

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Abstract

Nine new species of the family Nesticidae, collected from caves in Guangxi, Guizhou, Henan and Yunnan Provinces of China, are diagnosed, described and illustrated: *Nesticella apiculata* n. sp., *Nesticella arcuata* n. sp., *Nesticella falcata* n. sp., *Nesticella gracilenta* n. sp., *Nesticella semicircularis* n. sp., *Nesticella shanlinensis* n. sp., *Nesticella verticalis* n. sp., *Nesticus globosus* n. sp. and *Nesticus navicellatus* n. sp. *Nesticella mogera* (Yaginuma, 1972), from Guizhou, is described and compared to the new species.

Key words: Taxonomy, diagnosis, distribution, morphology, Yunnan-Guizhou Plateau, Araneoidea, Orbiculariae

Introduction

Caves are world-wide, natural laboratories for the study of evolution, with the deep cave environment being characterized by the absence of light. There is intense competition between animals because of the absence of primary producers (Liu & Li 2009). This strong selection pressure may yield some rare species which provide important information in studies of evolution and ecology (Liu & Li 2009). Surveys on cave-dwelling spiders of China have been conducted by colleagues from the Chinese Academy of Sciences in more than 200 caves each year since 2005. Recent fieldwork in Henan Province and Yunnan-Guizhou Plateau yielded nine new species of Nesticidae belonging to the genera *Nesticella* and *Nesticus* which are described in this paper.

The genus *Nesticus*, established by Thorell (1869), is the most diverse nesticid genus. At present a total of 135 *Nesticus* species are known worldwide, including one species recorded from China (i.e. *Nesticus libo* Chen & Zhu, 2005) (Platnick 2012). *Nesticus* are habitat specialists, reflecting apparently strict physiological constraints that limit these spiders to cool, moist microhabitats. These constraints, in combination with habitat discontinuity in both space and over time, have led to a high diversity of cave-dwelling species (Hedin & Dellinger 2005).

The genus *Nesticella*, established by Lehtinen & Saaristo (1980), contains 30 species, including six from China: *Nesticella brevipes* (Yaginuma, 1970), *Nesticella mogera* (Yaginuma, 1972), *Nesticella odonta* (Chen, 1984), *Nesticella songi* Chen & Zhu, 2004, *Nesticella taiwan* Tso & Yoshida, 2000 and *Nesticella yui* Wunderlich & Song, 1995 (Platnick 2012).

Material and methods

Specimens were examined with an Olympus SZ40 stereomicroscope; details were studied with an Olympus BX41 compound microscope. All illustrations were made using an Olympus drawing tube. Male palps and epigyna were examined and illustrated after being dissected from the spider bodies. All measurements are given in millimeters. Leg measurements are given as: Total length (femur, patella + tibia, metatarsus, tarsus). Only structures (e.g., palp, legs) of the left body side were described and measured. The terminology used in text and figure legends follows Gertsch (1984), Lehtinen & Saaristo (1980) and Rodrigues & Buckup (2007). Abbreviations used in text and legends: A = atrium; ALE = anterior lateral eye; AME = anterior median eye; AME-ALE = distance between AME