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A systematic study of the genus *Paragavialidium* Zheng (Orthoptera: Tetrigoidea: Scelimeninae)

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Abstract

Taxonomy of a tetrigid genus *Paragavialidium* Zheng is reviewed. A new species, *P. serrimarginis* Deng *et* Zheng, **sp. nov.** is described. The distribution and an updated identification key to all known species of the genus is given.

Key words: Orthoptera, Tetrigoidea, Scelimeninae, *Paragavialidium*, new species, taxonomy

Introduction

The genus *Paragavialidium* was erected by Zheng in 1994 to accommodate three species: *P. curvispinum* Zheng, 1994, *P. tridentatum* Zheng, 1994 and *P. orthacanthum* Zheng, 1994. He designated *P. curvispinum* Zheng, 1994 as the type species of the genus. The genus *Paragavialidium* is a small genus belonging to the subfamily Scelimeninae. After that, Zheng (1994, 2007, 2011) subsequently described four species, *P. longzhouensis* Zheng *et* Jiang, 1994, *P. sichuanensis* Zheng, Wang *et* Shi, 2007, *P. emeiensis* Zheng *et* Cao, 2011, *P. serrifemura* Zheng *et* Cao. Additionally, *Eugavialidium hainanensis* Zheng *et* Liang, 1985 was transferred to *Paragavialidium* by Liang *et* Zheng in 1998. To date, the genus includes 8 known species worldwide, to be endemic to China. The identification of the genus *Paragavialidium* is problematic due to the absence of an identification key at the species level, so the original descriptions of the genus *Paragavialidium* are brief and imprecise. Species of the genus *Paragavialidium* are not pests and of no economic importance, and little is known about their biological importance. However, *Paragavialidium* is also the most ecologically important genus.

Herein, the genus of *Paragavialidium* Zheng is systematically revised and we include the clarification of the taxonomic status of the genus *Paragavialidium* and determine the utility of the characters used to diagnose, biology and geographical distribution. In addition, we describe *P. serrimarginis* Deng *et* Zheng, **sp. nov.** as new to science and an updated key to the species is presented.

Material and methods

All specimens used in this study are deposited in the Institute of Zoology, Shaanxi Normal University, Xi'an, China.

Specimens were examined and illustrated by using a stereomicroscope (Guangzhou LISS Optical Instrument Ltd. XTL-1, China) at 20× magnification. Photographs were taken with a Canon digital camera with a series of images montage using the program CombineZ5.3 (Hadley, 2006). Geographic distribution map based on geo referenced specimen data and create a map using DIVA-GIS 7.1.7 software. Morphological terminology and measurement landmarks method followed those of Zheng (2005) and Deng *et al.* (2007). The terminology of both the morphological description and the measurement of characters are as follows (Figure 1).

Vertex. The vertex lies between the two compound eyes, the size of the vertex varies between species.