



Panorpodes kuandianensis, a new species of short-faced scorpionflies (Mecoptera, Panorpididae) from Liaoning, China

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Abstract

Panorpodes kuandianensis, a new species of short-faced scorpionflies (family Panorpididae), is described and illustrated from Kuandian County, Liaoning Province, northeastern China. It is the third species of Panorpididae from China, and can be separated from its congeners by the following combination of characters: wings with blackish brown markings; vein R₄₊₅ much shorter than half the length of R₂₊₃; hypovalve expanded apically with an almost truncated apex, shorter than the stalk, and with more than ten black spines along the apical inner margin. A key to species of *Panorpodes* is updated to include the new species.

Key words: Insecta, *Panorpodes*, taxonomy, new species, China

Introduction

Panorpodes MacLachlan, 1875 is one of the two genera in the short-faced scorpionfly family Panorpididae, with *P. paradoxa* MacLachlan from Japan as its type species. The other genus, *Brachypanorpa* Carpenter, 1931, occurs only in North America, with five described species (Byers 1997). *Panorpodes* is distributed in Japan, Korea, China, and North America (Byers 2005; Tan & Hua 2008). Seven species of *Panorpodes* have been described to date: three species from Japan (*P. paradoxa* MacLachlan, 1875, *P. pulchra* Issiki, 1927, *P. maculata* Miyamoto, 1984), two from China (*P. brevicaudatus* (Hua, 1998) (Hua 2004), *P. brachypodus* Tan & Hua, 2008), one from Korea (*P. komaensis* Okamoto, 1925) and one from North America (*P. colei* Byers, 2005). The biology of *Brachypanorpa* was briefly reported by Carpenter (1953) and Byers (1997). The biology of *Panorpodes*, however, has been scarcely studied. A molecular phylogenetic analysis of Panorpididae (Pollmann *et al.* 2008) was only concerned with three species of *Panorpodes*, one from the North America and two from Japan. Recently, the feeding strategy of Panorpididae and other families of Mecoptera was summarized by Palmer (2010).

In July 2009 and June 2010, numerous specimens of *Panorpodes* were collected in Kuandian County, Liaoning Province, northeastern China, and were identified as a species new to science, increasing the total number of the Chinese species of *Panorpodes* to three and the world species to eight.

Material and methods

Adults were collected in mountainous areas in Kuandian County, Liaoning Province. For light microscopy observation, adult specimens were preserved in 75% alcohol and dissected under a Nikon SMZ168 Stereoscopic Zoom Microscope. Some specimens were macerated in cold 5% NaOH for 12 h. Photographs were taken with a QImaging Retiga 2000R Fast 1394 Digital CCD camera attached to a Nikon SMZ1500 microscope and further treated with Syncroscopy Auto-Montage software.