



Two new species of the genus *Panorpa* (Mecoptera: Panorpidae) from Shaanxi, China with notes on their biology

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Abstract

Two new species of scorpionflies, *Panorpa byersi* Hua et Huang and *Panorpa brevicornis* Hua et Li, from Shaanxi Province, China, are described and illustrated. Their male genitalia were observed under scanning electron microscopy. Their biology is briefly noticed with larval stage obtained through rearing. The type specimens are preserved in the Entomological Museum, Northwest A & F University.

Key words: Mecoptera, Panorpidae, *Panorpa*, scorpionfly, new species, biology, Shaanxi, China

Introduction

The genus *Panorpa* Linnaeus, commonly known as scorpionflies, is a diverse group in the family Panorpidae. As suggested by Carpenter (1938), the Chinese species in *Panorpa* can be divided into three groups, depending upon the structure of the 6th abdominal segment of the male. The species with a single anal horn was assigned as *centralis* group. According to this criterion, Cheng (1957) included four species in this group, among which *P. emarginata* Cheng, 1949, and *P. obtusa* Cheng, 1949, occur in Qinling Mountains. Later, Chou *et al.* (1981), Hua and Chou (1997), Huang *et al.* (2004) added four species to this group from Qinling Mountains and adjacent Wangwu Mountain. These six species are quite similar in appearance and wing markings. We once suspected that they may represent intraspecific variations and might have to be synonymized. Until recently when we dissected the female reproductive system, we discovered that different species have various numbers of ovarioles in their ovaries (unpublished data). Further, we checked these species under light and scanning electron microscope, confirming that they are different species. Scorpionflies are generally quite uncommon to most general collectors (Byers and Thornhill, 1983). However, they are considerably abundant and easily encountered in the Qinling Mountains and Daba Mountains. From 2004 to 2006, we conducted an extensive and intensive investigation on Mecoptera fauna in Shaanxi Province. Two new species of the genus *Panorpa* Linnaeus belonging to the family Panorpidae are found, one at the Honggou Forest Farm, about 20 km south of Taibai County, very close to and west of the Taibaishan National Natural Reserve in Qinling Mountains, and another at Liping National Forest Park, south Nanzheng County, in Micang Mountain along the border with Sichuan Province. The biology is briefly noted. The eggs and larval stage of the second species were obtained through rearing. The male genitalia were observed through scanning electron microscopy. The type specimens are preserved in the Entomological Museum, Northwest A & F University.