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Species of *Neoperla* (Plecoptera: Perlidae) from Henan Province, China

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Abstract

A new species, *Neoperla jigongshana* Li & Li, **sp. nov.**, is proposed from Henan Province, China and compared with related congeners. Two additional species, *N. cavaleriei* (Navás, 1922) and *N. forcipata* Yang & Yang, 1992, are reported from the Province for the first time and descriptions of female and egg of *N. baotianmana* Li & Wang, 2011 are also presented. A provisional key to the known species of the Henan Province is presented.

Key words: Plecoptera, Perlidae, *Neoperla*, new species, China

Introduction

Seventy-five *Neoperla* species have been described from China by Chu (1929), Du (1999, 2000a, 2000b), Du and Sivec (2004, 2005), Du and Wang (2005, 2007), Du *et al.* (1999), Du *et al.* (2001), Li *et al.* (2011), Li *et al.* (2011), Li and Wang (2011), Li *et al.* (2012), Li *et al.* (2012), Li and Li (2013 a, b), Li *et al.* (2013), Li *et al.* (2013), Li *et al.* (2014), Qin *et al.* (2013), Sivec and Zwick (1987), Wang *et al.* (2013), Wu (1935, 1938, 1948, 1962, 1973), Wu and Claassen (1934), Yang and Yang (1990, 1991) and Yang and Yang (1992, 1993, 1995a, 1995b, 1996, 1998). In this paper, we describe a new species of *Neoperla* and report new records for *N. cavaleriei* (Navás, 1922) and *N. forcipata* Yang & Yang, 1992, from Henan Province. Additionally, the descriptions of the female and egg of *N. baotianmana* Li & Wang, 2011 and a provisional key to the known species for the Henan Province are also presented. The Province lies in central China and has a temperate climate. The Province borders the Shanxi and Taihang mountains to the north, the Shaanxi, the Funiu Mountains to the southwest, the Hubei, the Dabie and Tongbai mountains to the south. Four large rivers drain the Province, the Yellow, Huaihe, Weihe, and the Hanshui.

Material and methods

Specimens used in this study were collected using light traps or a sweep net. Types of the new species and other examined material were preserved in 75% ethanol. Studied specimens are deposited in the Insect Collection of Henan Institute of Science and Technology (HIST), Xinxiang, and the Entomological Museum of China Agricultural University (CAU), Beijing, respectively, as indicated in the text. Aedeagi were everted using the cold maceration technique of Zwick (1983).

Results and discussion

Neoperla baotianmana Li & Wang, 2011

(Figs. 1–2)

Neoperla baotianmana Li & Wang, 2011. Entomological News. 122: 3. Type locality: Henan Province, Neixiang County, Baotianman.

Key to species of *Neoperla* (males) known from Henan

1. Aedeagal tube completely sclerotized 2
- Aedeagal tube incompletely sclerotized 4
2. Aedeagal tube with ventral lobes (Fig. 5, Li *et al.* 2011) *N. flavescens*
- Aedeagal tube without ventral lobes 3
3. Aedeagal sac about as long as tube, with small spines (Fig. 4, Li *et al.* 2014) *N. cavaleriei*
- Aedeagal sac ca. 1.5x tube length, with linear large spines (Fig. 1d) *N. baotianmana*
4. Aedeagal tube with single ventral lobes 5
- Aedeagal tube with one pair of ventral lobes 6
5. Aedeagal lobe finger like (Figs. 4 a & b) *N. jigongshana* **sp. nov.**
- Aedeagal lobe bifurcate *N. forcipata*
6. Aedeagal tube with a pair of ventral projections in addition to lateral lobes apically *N. magisterchoui*
- Aedeagal tube only with a pair of ventral projections apically 7
7. Aedeagal sac lacking ventral spines (Fig. 15, Li *et al.* 2011); apical half with a field of fine spinules separated by a lateral membranous area (Fig. 17, Li *et al.* 2011) *N. yaoshana*
- Aedeagal sac with ventral spines medially; apical half evenly covered by fine lateral spinules with no membranous area (Fig. 3, Li *et al.* 2011) *N. henana*

Remarks. Currently eight *Neoperla* species are known from Henan Province. Seven species occur in the Funiu Mountains (Mts. Baiyunshan, Baotianman, Laojieling, Longyuwan, Yaoshan etc.), the eastern extension of Qinling Mountains, and only *N. jigongshana* is known from Mount Jigongshan of Dabie Mountains. Recent stonefly surveys in the Taihang and Tongbai mountains have not collected *Neoperla* specimens.

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