



## A new species of *Alloperla* (Plecoptera: Chloroperlidae) from China

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### Abstract

A chloroperline stonefly species from Liaoning Province, northeastern China is described as new to science: *Alloperla yangi* sp. n. Its taxonomic relationship to similar species is discussed.

**Key words:** Plecoptera, Chloroperlidae, *Alloperla yangi*, new species, China

### Introduction

At least 15 species of *Alloperla* Banks, 1906 are known from Asia (DeWalt et al. 2011). Wu (1938) described three species from Gansu Province, China in *Alloperla*: *A. longistyla*, *A. recurvata* and *A. erectospina*; the former two species have subsequently been placed in *Sweltsa* (Zwick 1973; DeWalt et al. 2011) and *A. erectospina* remains in *Alloperla* (Illies 1966, DeWalt et al. 2011, Du and Sivec 2005). However, Stark and Sivec (2009) considered the generic assignment of *S. recurvata* and *A. erectospina* problematic. Nelson and Hanson (1968) described two species, *A. thompsoni* and *A. alexanderi* from northeastern China. The latter is considered a synonym of *A. mediata* (Navás) (Zhiltzova and Zwick 1971). Therefore, *A. thompsoni*, *A. mediata* and *A. erectospina* seem to be the recognized three *Alloperla* species from China.

Recent works of Baumann and Kondratieff (2008, 2009) and Willett and Stark (2009) indicate that scanning electron microscopy studies on fine structures of the epiproct may assist in species delimitation and possible phylogenetic research on the genus. We recently examined two specimens of *Alloperla* from Liaoning, China and studied the ultrastructure of the epiproct using a FEI Quanta 200 Field Emission Environmental Scanning Electron Microscope (ESEM-FEG). We found them representative of a previously unrecognized species of *Alloperla* and describe it herein. The types including the one used for the SEM work will be deposited in the Entomological Museum of China Agricultural University, Beijing and preserved in 75% ethanol.

### Taxonomy

#### *Alloperla yangi* Li & Wang, sp. n.

(Figs. 1–11)

**Diagnosis.** This species is characterized by the head and pronotum without dark markings (Figs. 1, 2). The epiproct is sub-elliptical in dorsal view (Figs. 4, 8) and flattened in lateral view (Figs. 5, 9). Dorsum of epiproct with lateral margin bare (Fig. 8), basal  $\frac{1}{3}$  with many appressed setae and sparse irregularly arranged setae on apical  $\frac{2}{3}$ . The epiproct with shallow marginal serrations (Fig. 8).

**Male** (Figs. 1–7). Forewing length 9.0–9.5 mm, hindwing length 8.1–8.4 mm. General color, greenish in life, white in ethanol. Head and pronotum without markings. Compound eyes and ocelli black. Antennae dark brown except basal segments pale to light brown. Abdominal terga 1–6 with brown median stripe, tergum 1 with one small median stigma and two lateral markings, terga 2–4 pigmentation each with two light areas; epiproct brown, cerci 10