Mongolian Journal of Biological Sciences 2003 Vol. 1(1): 27-30

First Records of the Genus *Paraleuctra* Hanson (Plecoptera: Leuctridae) and *Isoperla flavescens* Zhiltzova et Potikha (Plecoptera: Perlodidae) for the Stonefly Fauna of Mongolia

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Abstract

Two species of stoneflies, *Paraleuctra zapekinae* Zhiltzova and *Isoperla flavescens* Zhiltzova et Potikha are recorded as new for the fauna of Mongolia as well as the genus *Paraleuctra* is firstly recorded in Mongolia. Redescriptions of the two species are given.

Key words: Plecoptera, *Paraleuctra*, *Isoperla flavescens*, first record, Mongolia

Introduction

Forty-seven species of stoneflies were listed for Mongolia by Zhiltzova & Varykhanova (1988). Since 1998, the stonefly fauna of West Khentii (Northern Mongolia) is investigated in order to assess the effects of gold mining on the stream benthos in the region (Purevdorj *et al.*, in preparation). During this study, two species were discovered that are new to the fauna of Mongolia, namely *Paraleuctra zapekinae* Zhiltzova and *Isoperla flavescens* Potikha et Zhiltzova. Including these species, the stonefly fauna of Mongolia comprises now at least 50 species (including a rediscovery of *Diura nanseni* (Kempny)) of stoneflies, of which four species (but no genera) are endemics of Mongolia.

Identifications were carried out at the Department of Ecology, National University of Mongolia and Hydrobiological laboratory of Freshwater, Institute of Biology and Soil Sciences, Far Eastern Branch of the Russian Academy of Sciences. The redescriptions of the new recorded species are adapted from Zhiltzova and Zapekina-Dulkeit (1986) and Shimizu (2000).

Redescriptions of Species

Isoperla flavescens Potikha et Zhiltzova, 1986

(Figs. 1-7)

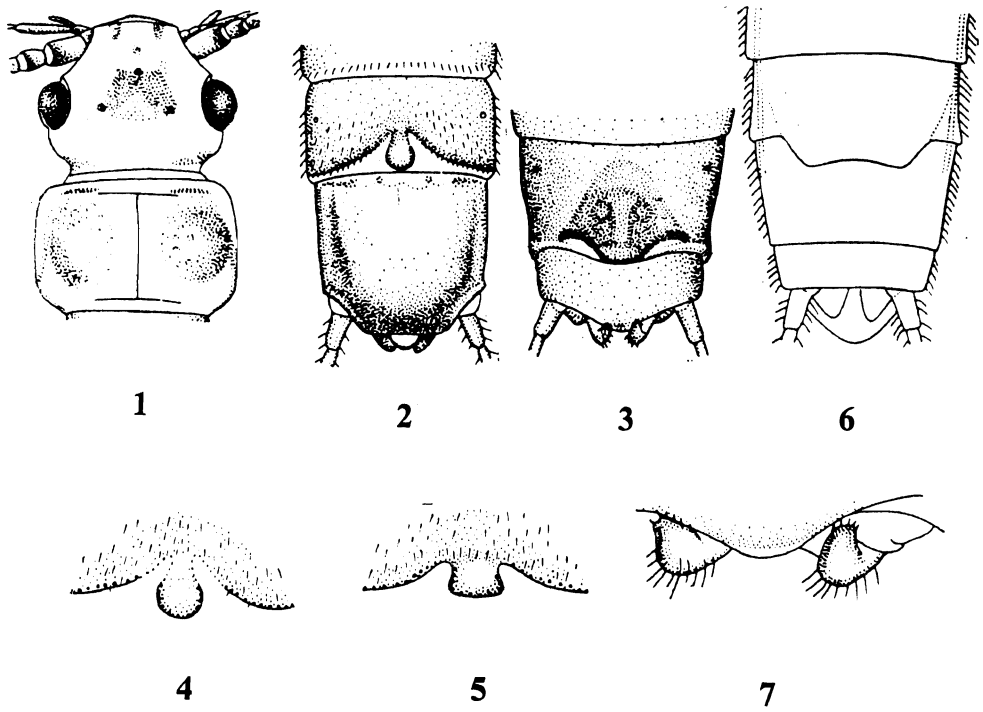
Isoperla flavescens Zhiltzova et Potikha, in Potikha & Zhiltzova, 1986: 50.

Isoperla is a wide-spread Holarctic genus comprising more than 130 species (Illies, 1966; Zwick, 1973). In the Palaearctic, 13 species are known from Japan (Kawai, 1976), and 19 species from Russian Far East (Zhiltzova & Zapekina-Dulkeit, 1986). Eight species are distributed in Mongolia, including *Isoperla flavescens* Potikha et Zhiltzova, which is new to the fauna of Mongolia.

Material. Two males: Northern Mongolia, West Khentii, Mandal-Khoning Nuga region, Eroo river, (N49°05'22", 107°17'44"), 14 June 2002, Leg. S. Purevdorj.

Male. Body 9.0-11.0 mm long, forewing 11.0-12.5 mm long, body color light yellowish and head with trapezoidal brown area between the three ocelli. The anterior margin of the brown area is well delimited, the arched rear margin is less pronounced, because there is a paler triangular central area (Fig. 1). Pronotum with weakly dark-coloured margins (Fig. 1), mesonotum and metanotum pale. Aedeagus absent or little developed with weak sclerotization. Rear margin of sternite VIII with projecting lobe on hind margin (Figs. 2), which varies in form and pigmentation (Figs. 2, 4, 5). Paraprocts dark, with upcurved posterior tips (Fig. 7). Posterior and central part of tergite IX with dark sclerotization and pigmentation (Fig. 3)

Female. Body 10.0-12.5 mm long, forewing 12.0-15.0 mm long, similar to male. Subgenital plate long, hind margin of sternite VIII extended (Fig. 6), medially notched with obtuse angles, sometimes hind margin rounded.



Figs. 1-7. *Isoperla flavescens*. 1: Head and pronotum, dorsal view; 2: Male terminalia, ventral view; 3: Male tergites IX and X; 4-5: Ventral lobe on segment VIII; 6: Female terminalia, ventral view; 7: Male paraproct, dorsal view (from Pothika & Zhiltzova, 1986).

The adults fly from June to August (Zhiltzova & Zapekina-Dulkeit, 1986). In the present investigation, only males were collected in mid of June, along the banks of upper reaches of the Eroo river.

Previous distribution. Russian Far East, Primorie Region.

Paraleuctra zapekinae Zhiltzova, 1974
(Figs. 8-10)

Paraleuctra zapekinae Zhiltzova, 1974: 360.

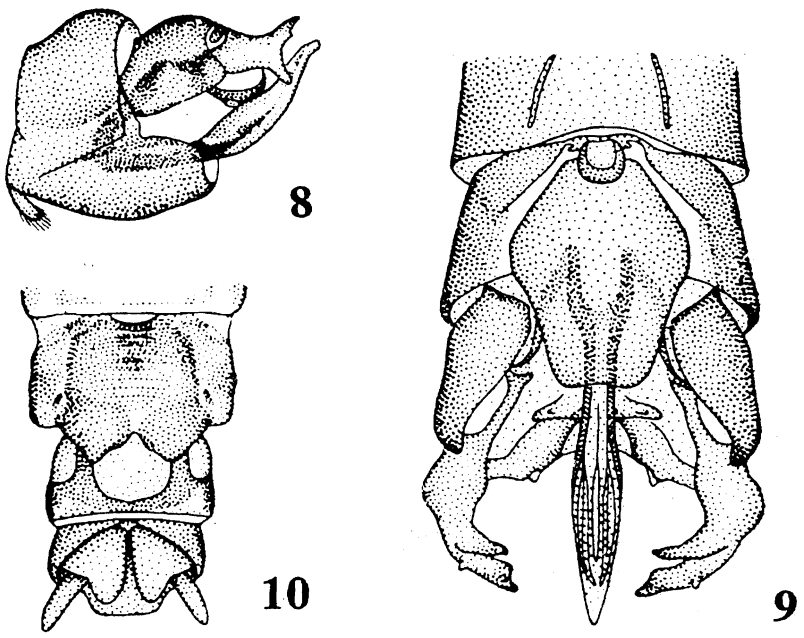
Hanson (1941) proposed *Paraleuctra* as a Nearctic genus embracing seven species. Stark and Kyzar (2000) reviewed the genus and placed seven species in three groups of Nearctic *Paraleuctra*. The large number of Asian species is known from Japan. Eight species of the genus *Paraleuctra* are recognized in Japan (Shimizu, 2000) and three species in Russia (Zhiltzova and Zapekina-Dulkeit, 1986). This is the first record of the genus *Paraleuctra* for the Stonefly fauna of Mongolia.

Material. Two females and one male: Northern Mongolia, Khentii region: Central Province, District Erdene, Terelj river (N48°07', E102°22'), 24 June 1998, Col. S. Purevdorj and J. C. Morse; six larvae(?): Province Selenge, District Eroo, Eroo river (N49°05'22", 107°17'44"), August 2000, Col. S. Purevdorj.

Males. Body 6.0-7.0 mm, forewing 6.3-7.2 mm long. Segment IX interrupted ventrally by distinct subgenital plate. Winged, subgenital plate tapered, with concave hind margin. Cercus forked, with a tapered dorsal and ventral arms (Fig. 8). Dorsal arm of cercus distinctly longer than ventral one, with bifurcate tip (Fig. 9).

Female. Body length 7.5-8.5 mm, forewing 8.0-8.5 mm long. Winged and subgenital plate widely expanded posteriorly and well sclerotized and dark. Subgenital plate with angulate hind margin on either side of medial cleft and tapered posterolateral margins (Fig. 10).

Distribution. Wide-spread North-East Asian species known from the south-west coast of the Sea of Okhotsk, Ulukan River, Bolshoi Shantar Island, mouth of Amur River, Amgun; Sakhalin Island, Khor River in the Ussuri River Basin, to the Sayan Mountains in Eastern Siberia (Zhiltzova and Levanidova, 1984). Before the present recovery



Figs. 8-10. *Paraleuctra zapekinae*. 8: Male terminalia, cercus with tapered dorsal and ventral arms, lateral view; 9: Ventral view; 10: female terminalia, ventral view (from Zhiltzova, 1974).

family Leuctridae was represented in Mongolia only by the Transpalaearctic species, *Leuctra fusca* L. (Zhiltzova, 1976; 1982).

Discussion

Both the species are studied here have been considered as elements of the Russian Far East. The records of these species in Mongolia document up to now the Western border of their distribution. The occurrence in the rapid flowing upper Eroo river shows an obvious wide range of habitat use in streams and rivers for these species.

Acknowledgements

Our cordial thanks to Dr. Valentina A. Teslenko, Hydrobiology Laboratory of Freshwater, Institute of Biology and Pedology, Far Eastern Branch of the Russian Academy of Science, who confirmed the legitimacy of the new species for *Paraleuctra zapekinae* and to Prof. Dr. Peter Zwick, Limnologische Fluss-Station, Schlitz, for his critical reading of the manuscript and providing useful references. We are also grateful to Prof. K.Ulykpan, Prof. R.Samiya, National University of Mongolia, Prof. John C. Morse, Clemson University, USA, who gave valuable advices. This work was carried out with the financial support of the German Academic Exchange Service-DAAD (Grant No.A/02/31165).

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(Accepted: March 2003)