



THE FIRST RECORD OF A FAR EAST STONEFLY (PLECOPTERA) FROM CENTRAL ASIA

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ABSTRACT

The first record of *Amphinemura coreana* Zwick from Kazakhstan is given. The species was hitherto known only from Korea and the Russian Far East, the new record represents an unusually large range extension for a Plecoptera species. Terminalia of the Kazakh specimens and the known distribution of the species are shown on figures.

Keywords: Plecoptera, *Amphinemura coreana*, Kazakhstan, new record

INTRODUCTION

The Plecoptera fauna of Central Asia is rather peculiar, being species poor but with a high level of endemism (Surenkhorloo 2009, Zhiltzova 1997, 2009). Hitherto only 51 species of 15 genera reported from the Central Asian Subregion, 41 species and one genus (*Zhiltzovaia*) are endemic and most of the remaining species and three genera (*Kyphopteryx*, *Filchneria*, *Mesoperlina*) are restricted to mountainous Asia (Zhiltzova 1997, 2009). The fauna shows weak contact towards the Far East, an example is *Yoraperla altaica* Devyatkov 2003 that belongs to a genus having Korean, Japanese and Nearctic species beside this Central Asian one (Devyatkov 2003).

Amphinemura coreana Zwick 1973 is a large sized, rather distinct species of its genus. It was reported only from Korea and the Russian Far East (Teslenko & Zhiltzova 2009, Zwick 2010), and was regarded as an East Asian (Palaeartic or Manchurian-Chinese) mainland species (Teslenko 2009, Zhiltzova 1997). Now a series of two males turned up from a sample collected at light in East Kazakhstan, showing an unusually large range extension for a stonefly species, and being the only non-endemic *Amphinemura* in addition to the seven species known

from Central Asia.

MATERIAL AND METHODS

The Kazakh specimens were caught at a light near the Ili River, stored in 70% ethanol and housed in the Hungarian Natural History Museum, Budapest, Hungary (HNHM). Examined type material from the People's Republic of Korea is also housed in the HNHM.

Drawings were made with the aid of a drawing tube on a Nikon SMZ800 microscope. Occurrences shown on the distribution map were compiled from the following works: Levanidova & Zhiltzova (1979), Teslenko (1986, 2011), Teslenko & Zhiltzova (2009), Zhiltzova (2003) and Zwick (1973, 2010). Terminology follows Baumann (1975).

RESULTS AND DISCUSSION

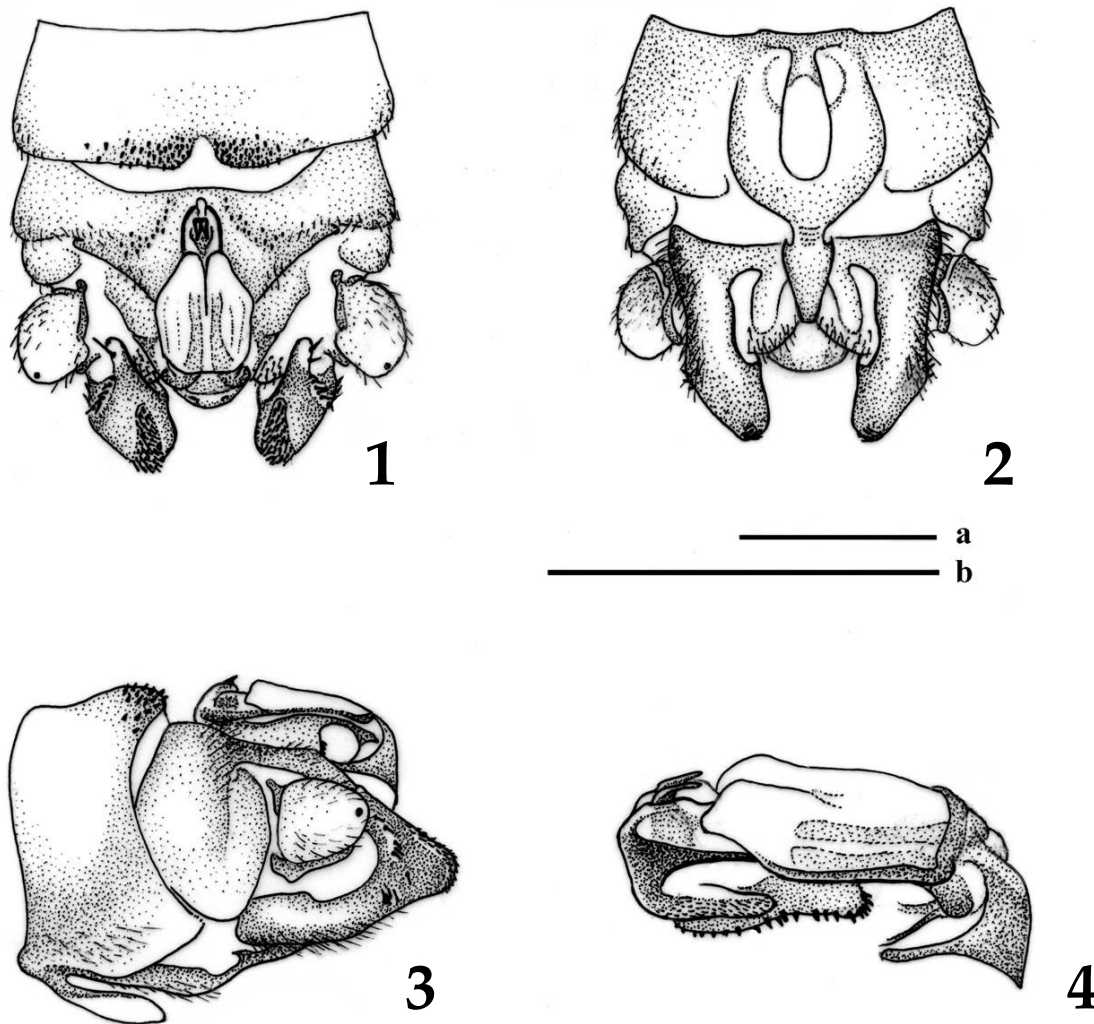
Amphinemura coreana Zwick 1973 (Figs. 1-4)

Amphinemura coreana Zwick 1973 — Zwick 1973:157. (description of male and female from People's Republic of Korea); Zhiltzova 2003:179. (monograph, with the

original figures); Teslenko & Zhiltzova 2009:113. (key, with the original figures); Zwick 2010:76. (additional description of female).

Material examined. PEOPLE'S REPUBLIC OF KOREA: Kanwon Province, Diamond Range, Hotel Go-song, 30.05.1970, leg. Sándor Mahunka, Henrik Steinmann: holotype ♂, 2♂, 4♀ paratypes (HNHM); Kengi Province, Bagyon Mts., Kaesong, Bagyon Waterfall about 27km SW of the town, 07.06.1970: 1♂ paratype (HNHM). KAZAKHSTAN: Almaty Province, Kapchagay, Ili River 20km NNW of the town, 550m, 30.08.1997, leg. András Orosz: 2♂ (HNHM).

Morphology (Figs. 1-4): Habitus of the Kazakh specimens agree with the Korean types, being large and dark nemourids. Their genital organs differ slightly in two aspects: The outer surface of the paraproct median lobe bear more spines than shown for the holotype (Zwick 1973: Fig. 3), and the epiproct has a shorter fold of the lateral arms above the denticulate crest of the ventral sclerite (Zwick 1973: Fig 4). Nevertheless, the paratypes also show some variability in these features, and the small differences of the Kazakh specimens should be regarded as individual variability more than a geographical race.



Figs. 1-4. Male terminalia of a Kazakh specimen of *Amphinemura coreana* Zwick 1973. 1: dorsal view; 2: ventral view; 3: lateral view; 4: epiproct, dorsolateral view (scales 1 mm; scale a: Figs.1-3, scale b: Fig. 4).

Geographical distribution and ecology (Fig. 5): The species is known from throughout the Korean Peninsula and the southern part of the Russian Far East (Teslenko & Zhiltzova 2009, Zwick 2010). It is not yet found in China, despite huge work on Chinese *Amphinemura* carried out since the description of this species (Du & Wang 2007, Du, Wang & Zhou 2007, Li & Yang 2005, 2006, 2007, 2008a, 2008b, 2008c, 2008d, 2008e, Li, Yang & Sivec 2005, Wang, Du, Sivec & Li 2006, Wang, Zhang & Zhu 2007, Wu 1973, Yang, Li & Sivec 2005, Yang, Li & Zhu 2004, Zhu & Yang 2002, 2003). Due to its seeming absence in China, the occurrence in Kazakhstan was highly unexpected.

Amphinemura coreana is regarded as an inhabitant

of submontane rivers and streams (Zhiltzova 2003), its flight period extends from May to August (Zhiltzova 2003, Zwick 2010). Its Kazakh habitat is a large river with sandy bottom, flowing through a steppe vegetation on the foothills of the Tien San. The two males were found together with a *Nemoura* female (probably *N. lepnevae* Zhiltzova 1971). It is worth mentioning that the Trichoptera species collected during the same light trapping resulted in additional unexpected data of species hitherto known exclusively from the Far East (*Wormaldia niiensis*, *Plectrocnemia wui*, *Goera japonica*, *Lepidostoma itoae*); however, they were found together with typical Central Asian species (e.g. *Psychomyia usitata* *Potamyia straminea*) (Oláh 2010).

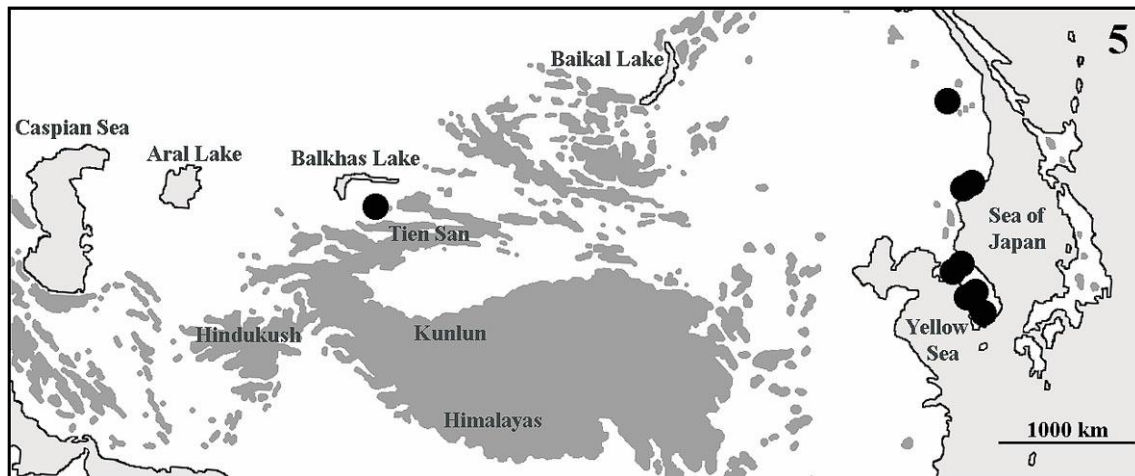


Fig. 5. Distribution of *Amphinemura coreana* Zwick 1973 (grey areas are above 2000m).

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REFERENCES

Baumann, R.W. 1975. Revision of the Stonefly Family Nemouridae (Plecoptera): A Study of the World

Fauna at the Generic Level. Smithsonian Contributions to Zoology, 211:1-74.

Devyatkov, W.I. 2003. *Yoraperla altaica*, a new species of Peltoperlidae (Plecoptera) from East Kazakhstan (Central Asia). *Aquatic Insects*, 25 (4):269-276.

Du, Y.Z. & Z.J. Wang. 2007. New species of the genus *Amphinemura* (Plecoptera: Nemouridae) from Yunnan, China. *Zootaxa*, 1554:57-62.

Du, Y.Z., Z.J. Wang, & P. Zhou. 2007. Four new species of the genus *Amphinemura* (Plecoptera: Nemouridae) from China. *Aquatic Insects*, 29 (4):297-305.

- Levanidova, I.M. & L.A. Zhiltzova. 1979. An annotated list of the stoneflies (Plecoptera) of the Soviet Far East. *Internationale Revue der gesamten Hydrobiologie*, 64 (4):551-576.
- Li, W.H. & D. Yang. 2005. Two new species of *Amphinemura* (Plecoptera: Nemouridae) from Sichuan, China. *Zootaxa*, 1083:63-68.
- Li, W.H. & D. Yang. 2006. Three new species of *Amphinemura* (Plecoptera: Nemouridae) with a key to the species from Guizhou province, China. *Zootaxa*, 1154:41-48.
- Li, W.H. & D. Yang. 2007. Review of the genus *Amphinemura* (Plecoptera: Nemouridae) from Guangdong, China. *Zootaxa*, 1511:55-64.
- Li, W.H. & D. Yang. 2008a. Species of *Amphinemura* (Plecoptera: Nemouridae) from Tibet, China. *Zootaxa*, 1688:54-60.
- Li, W.H. & D. Yang. 2008b. New species of Nemouridae (Plecoptera) from China. *Aquatic Insects*, 30 (3):205-221.
- Li, W.H. & D. Yang. 2008c. A new species of *Amphinemura* (Plecoptera: Nemouridae) from China. *Zootaxa*, 1892:65-68.
- Li, W.H. & D. Yang. 2008d. Two new species of *Amphinemura* (Plecoptera: Nemouridae) from Yunnan, China, with the redescription of *A. triramia* (Wu, 1962). *Zootaxa*, 1926:61-67.
- Li, W.H. & D. Yang. 2008e. Two new species and two new records of stonefly family Nemouridae from Henan (Plecoptera: Nemouroidea). pp. 11-16. *In*: X. Shen & C. Lu (Eds.). *The Fauna and Taxonomy of Insects in Henan*. China Agricultural Science and Technology Press, Beijing.
- Li, W.H., D. Yang, & I. Sivec. 2005. A new species of *Amphinemura* (Plecoptera: Nemouridae) from China. *Entomological News*, 116 (2):93-96.
- Oláh, J. 2010. New species and new records of Palaearctic Trichoptera in the material of the Hungarian Natural History Museum. *Annales historico-naturales Musei nationalis Hungarici*, 102:65-117.
- Surenkhorloo, P. 2009. Updated species list of stoneflies (Plecoptera) of Mongolia. *Aquatic Insects*, 31(Suppl.1):707-720.
- Teslenko, V.A. 1986. Evaluation of the hydrobiological regimen of the Rudnaya River in terms of bottom invertebrate composition. pp. 116-127. *In*: *Bottom organisms of freshwaters of the Far East USSR*. FEB AS USSR, Vladivostok (in Russian).
- Teslenko, V.A. 2009. Stoneflies (Plecoptera) of the Russian Far East: diversity and zoogeography. *Aquatic Insects*, 31(Suppl.1):693-706.
- Teslenko, V.A. 2011. To the stonefly fauna (Insecta, Plecoptera) in the Lower Amur River Basin. Vladimir Ya. Levanidov's Biennial Memorial Meetings, 5:501-521 (in Russian).
- Teslenko, V.A. & L.A. Zhiltzova. 2009. Key to the stoneflies (Insecta, Plecoptera) of Russia and adjacent countries. *Imagines and nymphs*. Russian Academy of Sciences, Vladivostok: Dalnauka, 382 pp.
- Wang, Z.J., Y.Z. Du, I. Sivec, & Z.Z. Li. 2006. Records and descriptions of some Nemouridae species (Order: Plecoptera) from Leigong Mountain, Guizhou province, China. *Illiesia*, 2 (7):50-56.
- Wang, Z.J., J.H. Zhang, & J.Y. Zhu. 2007. A new species of the genus *Amphinemura* (Plecoptera: Nemouridae) from Xinjiang, China. *Acta Zootaxonomica Sinica*, 29:13-16.
- Wu, C.F. 1973. New species of Chinese stoneflies (Order Plecoptera). *Acta Entomologica Sinica*, 16:97-118.
- Yang, D., W.H. Li, & I. Sivec. 2005. A new species of *Amphinemura* from south China (Plecoptera: Nemouridae). *Zootaxa*, 805:1-4.
- Yang, D., W.H. Li, & F. Zhu. 2004. A new species of *Amphinemura* (Plecoptera: Nemouridae) from China. *Entomological News*, 115 (4):226-228.
- Zhiltzova, L.A. 1971. On the knowledge of Plecoptera from Middle Asia. New and little-known species of the family Nemouridae. *Revue d'Entomologie de l'URSS*, 50 (2):347-365.
- Zhiltzova, L.A. 1997. Zoogeographical features of the Euholognatha fauna (Plecoptera) of Russia and adjacent territories (within the limits of the former USSR). pp. 186-192. *In*: P. Landolt & M. Sartori (Eds.). *Ephemeroptera & Plecoptera: Biology-Ecology-Systematics*. MTL, Fribourg.
- Zhiltzova, L.A. 2003. *Insecta Plecoptera Volum 1, issue 1, Plecoptera gruppe Euholognata*. Fauna of Russia and neighbouring countries (N.S.), Zoological Institute of the Russian Academy of Sciences, St. Petersburg, 145:1-538.
- Zhiltzova, L.A. 2009. Zoogeographical features of the Systellognatha (Plecoptera) fauna of Russia and

Murányi, Dávid. 2011. The first record of a Far East stonefly (Plecoptera) from Central Asia. *Illiesia*, 7(23):259-263. Available online: <http://www2.pms-lj.si/illiesia/Illiesia07-23.pdf>

adjacent countries. *Aquatic Insects*, 31 (Suppl.1):721-726.

Zhu, F. & D. Yang. 2002. Three new species of *Amphinemura* from China (Plecoptera: Nemouridae). *Acta Zootaxonomica Sinica*, 27:745-749.

Zhu, F. & D. Yang. 2003. Three new species of *Amphinemura* (Plecoptera: Nemouridae) from Tibet. *Entomologia Sinica*, 10:51-56.

Zwick, P. 1973. Plecoptera from Korea. *Annales historico-naturales Musei nationalis Hungarici*, 65:157-169.

Zwick, P. 2010. New species and new records of Plecoptera from Korea and the Russian Far East. *Illiesia*, 6 (9):75-97.

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