Description of a new species of *Niphargus* (Crustacea: Amphipoda: Niphargidae): the first record of a lake ecomorph in the Carpathian Mountains

MATIJA PETKOVIĆ1, TEO DELIĆ1, LUKA LUČIĆ2 & CENE FIŠER1

1Department of Biology, Biotechnical Faculty, University of Ljubljana, Večna pot 111, Ljubljana 1000, Slovenia
2Institute of Zoology, Faculty of Biology, University of Belgrade Studentski trg 3, 11000 Belgrade, Serbia

Corresponding author. E-mail: matija.petkovic@bio.bg.ac.rs

Abstract

We describe and phylogenetically characterize a new species *Niphargus mirocensis* from Mt. Miroč, eastern Serbia. This species shows distinct morphology typical for a lake ecomorph of niphargid amphipod, i.e. large and stout body, elongated appendages and raptorial gnathopods and presents the first record of this ecomorph in Carpathian Mountains. Phylogenetic analyses based on Cytochrome Oxidase Subunit 1 gene (COI), Histone (H3) and 28S rRNA (28S) suggests that species is nested within a clade of lake ecomorphs spread in Italy and Central Dinaric Region. The new finding is geographic extension of clade’s range, the species of which are generally narrow endemics.

Key words: Amphipoda, Niphargus, lake ecomorph, Carpathians, *Niphargus mirocensis* sp. n., 28S rRNA, COI

Introduction

With over 300 described species, the genus *Niphargus* Schiödte, 1947 (Amphipoda: Niphargidae) is the largest genus of freshwater amphipods in the world (Väinölä et al., 2008). Most of the species inhabit subterranean waters and constitute a substantial part of the European groundwater biodiversity (Zagmajster et al., 2014). Taxonomy of the genus has been a challenge for decades already; still new species are discovered annually on both, molecular (Meleg et al., 2013) and morphological basis (Ntakis et al., 2015).

The genus is morphologically extremely diverse and several authors attempted to split it into different subgenera or species groups (S. Karaman, 1950a; S. Karaman, 1950c; S. Karaman, 1952b; Straškraba, 1972). Phylogenies based on molecular methods, however, reject monophyly of these groups (Fišer et al., 2008). Recent research indicates that some morphologically distinct species evolved convergently in the process of adaptation to specific sub-compartments of subterranean ecosystem (Trontelj et al., 2012).

No doubt, the most impressive genus representatives evolved in deep cave lakes and were traditionally recognized as the “orcinus-group”, or “subgenus *Orniphargus* S. Karaman, 1950” (Straškraba, 1972; S. Karaman, 1950b; S. Karaman, 1950c). These species comprise the largest and the most massive European amphipods (Fišer et al., 2006), often with huge predatory gnathopods, spiny pleonal segments and extremely elongated appendages. These species independently evolved in France, Central Apennines, W Balkans, Middle East and Crimean Peninsula (Ginet, 1960; S. Karaman, 1950a; G. Karaman, 1984; Alouf, 1972; Alouf, 1973; Fišer et al., 2006; Birstein, 1961). The highest number of species and the largest morphological diversity of this ecomorph have been reported from W Balkans, where three phylogenetically unrelated lineages come in contact (Fišer et al., 2008). Considering that cave lake ecomorph has been reported also from Crimean Peninsula and Middle East, records from Central and Eastern Balkan Peninsula would be expected.

In the present paper, we fill this biogeography gap and describe a new lake ecomorph species from a geographical region where this ecomorph has not been reported yet; Carpatho-Balkan arc of Carpathian Mountains in eastern Serbia. A fact that *Niphargus* species are known to be poor dispersers (Trontelj et al., 2009; Meleg et al., 2013) and considering isolated geographic origin of herein described species, questions about its origin are evoked.