

Accepted Manuscript

Epigeal gammarids survived millions of years of severe climatic fluctuations in high latitude refugia throughout the Western Carpathians

Denis Copilaş-Ciocianu, Tereza Rutová, Petr Pařil, Adam Petrusek

PII: S1055-7903(17)30341-X

DOI: <http://dx.doi.org/10.1016/j.ympev.2017.04.027>

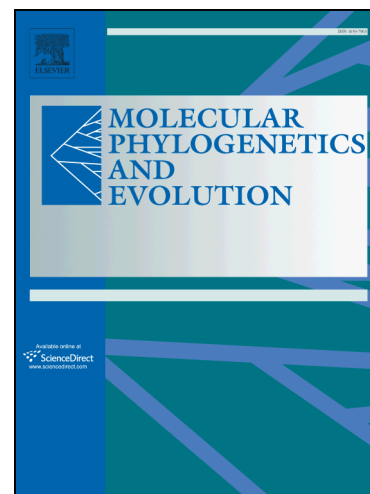
Reference: YMPEV 5814

To appear in: *Molecular Phylogenetics and Evolution*

Received Date: 25 October 2016

Revised Date: 17 February 2017

Accepted Date: 28 April 2017



Please cite this article as: Copilaş-Ciocianu, D., Rutová, T., Pařil, P., Petrusek, A., Epigeal gammarids survived millions of years of severe climatic fluctuations in high latitude refugia throughout the Western Carpathians, *Molecular Phylogenetics and Evolution* (2017), doi: <http://dx.doi.org/10.1016/j.ympev.2017.04.027>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Epigean gammarids survived millions of years of severe climatic fluctuations in high latitude refugia throughout the Western Carpathians

Denis Copilaş-Ciocianu^{a*}, Tereza Rutová^a, Petr Pařil^b and Adam Petrusek^a

^aCharles University in Prague, Faculty of Science, Department of Ecology, Viničná 7, 12844, Prague, Czech Republic

^bMasaryk University, Faculty of Science, Department of Botany and Zoology, Kotlářská 2, 611 37, Brno, Czech Republic

*Corresponding author. E-mail address: copilas.denis@gmail.com (D. Copilaş-Ciocianu)

Abstract

Isolated glacial refugia have been documented in Central Europe for a number of taxa, but conclusive evidence for epigean aquatic species has remained elusive. Using molecular data (mitochondrial and nuclear markers), we compared the spatial patterns of lineage diversity of the widely distributed *Gammarus fossarum* species complex between two adjacent biogeographically and geomorphologically distinct Central European regions: the Bohemian Massif and the Western Carpathians. We investigated if the observed patterns of spatial diversity are more likely to stem from historical or present-day factors. Phylogenetic and phylogeographic analyses revealed eight phylogenetically diverse lineages: two exhibiting local signatures of recent demographic expansion that inhabit both regions, while the other six display a relict distributional pattern and are found only in the Western Carpathians. Molecular dating indicates that these lineages are old and probably diverged throughout the Miocene (7 to 18 Ma). Furthermore, their distribution does not seem to be constrained by the present boundaries of river catchments or topography. The contrasting spatial patterns of diversity observed between the two regions thus more likely results from historical rather than

Download English Version:

<https://daneshyari.com/en/article/5592259>

Download Persian Version:

<https://daneshyari.com/article/5592259>

[Daneshyari.com](https://daneshyari.com)