

20th International Conference
on Subterranean Biology

Postojna, Slovenia
Aug 29 - Sept 3, 2010



ICSB 2010

ABSTRACT BOOK



Organized under the auspices of the International Society for Subterranean Biology by:

- Notranjska Museum, Postojna
- Karst Research Institute
- Biotechnical Faculty, University of Ljubljana

Published by the Organizing Committee,
20th International Conference on Subterranean Biology,
Postojna

This volume has been published with the financial support of the
Slovenian Ministry of the Environment and Spatial Planning and the
Slovenian Research Agency–ARRS

Printed in 270 copies

Edited by: Ajda Moškrič and Peter Trontelj
Graphic design: Martin Turjak
Cover photo by Slavko Polak

CIP - Kataložni zapis o publikaciji
Narodna in univerzitetna knjižnica, Ljubljana

551.44:57(082)

INTERNATIONAL Conference on Subterranean Biology (20 ; 2010 ;
Postojna)

Abstract book / 20th International Conference on Subterranean
Biology, Postojna, Slovenia, 29 August - 3 September 2010 ; [edited
by Ajda Moškrič and Peter Trontelj]. - Postojna : organizing
committee, 2010

ISBN 978-961-269-286-5

1. Moškrič, Ajda

252225024

Oral presentation:

Central European spiders adapted to life in subterranean habitats

Vlastimil Růžička

Institute of Entomology, Biology Centre ASCR, Branišovská 31, 370 05 České Budějovice, Czech Republic

Many species of macroarthropods have colonized various types of subterranean habitats. These are, for example, voids in soil layers, clastic river and slope sediments, stony accumulations, young volcanic deposits, old sedimentary and metamorphic bedrock, lava tubes in consolidated lava flows, and typical pseudokarst and karst caves. Morphological adaptations of arthropods to life in subterranean habitats can be subdivided into edaphomorphisms and troglomorphisms. Edaphomorphisms, i.e., adaptations to life in subsurface interior voids in soil are usually manifested as body diminishing and sometimes also vermiform elongation, shortening of appendages, reduction or rearrangement of chaetotaxy and sensory organs. In contrast, troglomorphisms, i.e., adaptations to life in relatively large spaces, are characteristic by elongation of appendages, and hypertrophy of chaetotaxy and sensory organs. Depigmentation, desclerotization, and reduction of eyes are common for both these groups of adaptations. In Central Europe, we register some of these adaptations in eighteen species of spiders, and eight of them are representatives of the genus *Porrhomma*. They inhabit leaf litter, ant's nests, deep soil layers, void systems under soil surface, scree voids, and caves. Some of them are specialised to only one exclusive type of subterranean habitat, in contrast some others were recorded in several types of subterranean habitats. *Bathypantes eumenis buchari* inhabits exclusively deep scree layers. *Porrhomma profundum* was recorded exclusively in caves. *Porrhomma microps* was recorded in leaf litter, deep soil layers and caves. *Porrhomma myops* has edaphomorphic populations in voids of deep soil layers, and troglomorphic populations in scree voids and caves. Hotspots of subterranean biodiversity, such as Postojna–Planina Cave System, harbour highly specialized, fascinating creatures that we can encounter at the end of their long-term subterranean evolution. On the contrary, temperate latitudes of the northern hemisphere lying in the former Pleistocene periglacial zone harbour invertebrates at the very beginning of their underground evolution. These subterranean habitats are natural laboratories in which we can study early phases of underground evolution of troglobionts.