

Contents

I **Two new phreatic snails (Mollusca, Caenogastropoda, Cochliopidae) from the Edwards and Edwards-Trinity aquifers, Texas**

Kathryn E. Perez, Yamileth Guerrero, Roel Castañeda, Peter H. Diaz, Randy Gibson, Benjamin Schwartz, Benjamin T. Hutchins

29 **Cave-dwelling fauna of Costa Rica: current state of knowledge and future research perspectives**

Stanimira Deleva, Andres Ulloa, Hernani F. M. Oliveira, Nikolay Simov, Ferdinando Didonna, Gloriana Chaverri

Subterranean Biology 47 ♦ 2023



Subterranean Biology

A peer-reviewed open-access journal

Published by
The International Society
for Subterranean Biology



47 ♦ 2023

 <http://subtbiol.pensoft.net/>

 PENSOFT

<http://subtbiol.pensoft.net>

Subterranean Biology - Published by The International Society for Subterranean Biology

Editor-in-Chief

Oana Teodora MOLDOVAN

"Emil Racovitz" Institute of Speleology
 Romanian Academy
 Clinicilor 5, 400006 Cluj Napoca,
 Romania
 E-mail: oanamol@hasdeu.ubbcluj.ro

Editors

Marina COBOLLI

Università di Roma "La Sapienza", Roma, Italy

David C. CULVER

The American University, Washington DC, USA

Christian GRIEBLER

Helmholtz Zentrum München, GmbH, Neuherberg,
 Germany

Hans-Jürgen HAHN

Universität Koblenz-Landau, Landau in der Pfalz, Germany

Horton HOBBS III

Wittenberg University, Springfield, USA

John R. HOLSINGER

Old Dominion University, Norfolk, USA

Williams Frank HUMPHREYS

Western Australian Museum, Perth, Australia

Lubomír KOVÁČ

Pavol Jozef Safarik University in Kosice, Slovakia

Leonardo LATELLA

Museo Civico di Storia Naturale di Verona, Verona, Italy

Giuseppe MESSANA

Istituto per lo Studio degli Ecosistemi, Firenze, Italy

Managing Editor

Lyubomir PENEV

Institute of Biodiversity and Ecosystem Research
 Bulgarian Academy of Sciences
 Yurii Gagarin Street 2
 1113 Sofia, Bulgaria
 E-mail: info@pensoft.net

Jos NOTENBOOM

European Environment Agency, Copenhagen, Denmark

Boris SKET

Univerza V Ljubljana, Ljubljana, Slovenia

Eleonora TRAJANO

Instituto Biociências da USP, Sao Paulo, Brazil

Peter TRONTELJ

University of Ljubljana, Slovenia

Christian JUBERTHIE, Honorary Editor

Saint-Lizier, France

Editorial Advisory Board

Belles X. (Spain), Blas M. (Spain), Casale A. (Italy),

Coineau N. (France), Danielopol D. (Austria), Deharveng

L. (France), Di Russo C. (Italy), Giani N. (France), Iliffe

T.C. (United States), Magniez G. (France), Marmonier P.

(France), Oromi P. (Spain), Parzefall J. (Germany), Ribera

C. (Spain), Ruffo S. (Italy), Sbordoni V. (Italy), Thibaud

J.M. (France), Turquin M.J. (France), Vigna-Taglianti A.

(Italy), Weber F. (Germany), Wilkens H. (Germany).

Editorial Board: <http://subtbiol.pensoft.net/board>

Focus and Scope

Subterranean Biology is an international journal published by Pensoft on behalf of the International Society for **Subterranean Biology** [SIBIOS-ISSB] for the publication of original and significant contributions on all aspects of subterranean life.

All content is Open Access distributed under the terms of the *Creative Commons Attribution License*, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. Authors are thus encouraged to post the pdf files of published papers on their homepages or elsewhere to expedite distribution.

Editorial Office

Pensoft Publishers

Prof. Georgi Zlatarski 12, 1700 Sofia, Bulgaria. Tel. +359-2-8704281, Fax +359-2-8704282

E-mail: journals@pensoft.net

AUTHOR GUIDELINES

Authors are kindly requested to submit their manuscript *only* through the online submission module at <http://subtbiol.pensoft.net>. In case of difficulties with the submission procedure, please contact subtbiol@pensoft.net. Full text of author guidelines is available at: <http://subtbiol.pensoft.net/about#AuthorGuidelines>

EXCERPTS FROM THE GUIDELINES

BODY TEXT. All papers must be in English, checked by a native English-speaking colleague (if author(s) is/are not native English speaker(s)). Write with precision, clarity, and economy: use the active voice and first person whenever appropriate.

WEB (HTML) LINKS. Authors may include links to other Internet resources in their article. This is especially encouraged in the reference section. When inserting a reference to a web-page, please include the **http://** portion of the address.

CITATIONS WITHIN THE TEXT. Before submitting the manuscript, check each citation in the text against the **References** to ensure that they match exactly. Delete citations from the list if they are not actually cited in the text of the article. Citations in the text should be formatted as follows: (Smith 1990) or (Smith et al. 1998; Brock and Gunderson 2001; Felt 2006).

REFERENCES. It is crucial to properly format the references, because all references will be linked electronically as much as possible to the papers they cite. For all references, list all authors. You can include a **DOI** number for the full-text article as an alternative to or in addition to traditional volume and page numbers. Please use the following style for the reference list:

Published Papers: Polaszek A, Alonso-Zarazaga M, Bouchet P, Brothers DJ, Evenhuis NL, Krell FT, Lyal CHC, Minelli A, Pyle RL, Robinson N, Thompson FC, van Tol J (2005) ZooBank: the open-access register for zoological taxonomy: Technical Discussion Paper. *Bulletin of Zoologi-*

cal Nomenclature 62: 210-220.

Accepted Papers: Same as above, but "In press" appears instead the page numbers.

Electronic Journal Articles: Mallet J, Willmott K (2002) Taxonomy: renaissance or Tower of Babel? *Trends in Ecology and Evolution* 18 (2): 57-59. doi: 10.1016/S0169-5347(02)00061-7.

Paper within conference proceedings: Orr AG (2006) Odonata in Bornean tropical rain forest formations: Diversity, endemicity and applications for conservation management. In Cordero Rivera A (Ed) *Forest and Dragonflies. Fourth WDA International Symposium of Odonatology*, Pontevedra (Spain), July 2005. Pensoft Publishers, Sofia-Moscow, 51-78.

Book chapters: Mayr E (2000) The biological species concept. In: Wheeler QD, Meier R (Eds) *Species Concepts and Phylogenetic Theory: A Debate*. Columbia University Press, New York, 17-29.

Books: Goix N, Klimaszewski J (2007) *Catalogue of Aleocharine Rove Beetles of Canada and Alaska*. Pensoft Publishers, Sofia-Moscow, 166 pp.

Book with institutional author: International Commission on Zoological Nomenclature (1999) *International code of zoological nomenclature. Fourth Edition*. London: The International Trust for Zoological Nomenclature.

PhD thesis: Dalebout ML (2002) *Species identity, genetic diversity and molecular systematic relationships among the Ziphiidae (beaked whales)*. PhD thesis, Auckland, New Zealand: University of Auckland.

Link/URL: BBC News: Island leopard deemed new species. <http://news.bbc.co.uk/> [accessed 3.VI.2008]

CITATIONS OF PUBLIC RESOURCE DATABASES: It is highly recommended all appropriate datasets, images, and information to be deposited in public resources. Please provide the relevant accession numbers (and version numbers, if appropriate). Accession numbers should be provided in parentheses after the entity on first

use. Examples of such databases include, but are not limited to:

- Zoobank (www.zoobank.org),
- Morphbank (www.morphbank.net),
- Genbank (www.ncbi.nlm.nih.gov/Genbank),
- BarCode (www.barcodinglife.org)

Providing accession numbers allows linking to and from established databases and integrates your article with a broader collection of scientific information. Please list all accession numbers directly **after the References**.

INTERNATIONAL CODE FOR ZOOLOGICAL NOMENCLATURE. **ZooKeys** will publish papers only strictly following the rules of the 4th edition of the *International Code of Zoological Nomenclature*. Each first mentioning of an animal species name within the text must be provided with author(s)' name(s). Year of publication of animal species is recommended to be given in taxonomic revisions with providing full referencing of original description in the list of references.

OPEN ACCESS FEES. Publication fees in open access journals ensure a barrier-free distribution of your paper at no charge for the readers and include costs involved in processing, formatting, publishing, indexing and archiving your paper.

The journal charges Open Access Publication Fee of EURO 15 per page for papers of less than 100 printed pages. Publication fees for larger papers will be discounted and can be negotiated with the Managing Editor.

Open Access Publication Fees are usually covered by institutional funds and grants. Discounts/waivers can be requested by private and retired zoologists, scientists from low- and middle-level income countries, post-graduate students, especially in case of exceptionally good manuscripts.

Discounts will be offered also to scientists who actively participate in the reviewing and editing process.

PRINTED VERSION. Offprints and printed issues of the journal can be purchased additionally (see journal's website). For standing orders/subscriptions please contact the Managing Editor.