

# Micromolluscs: Methodological Challenges — Exciting Results

DANIEL L. GEIGER<sup>1</sup> & BERNHARD RUTHENSTEINER<sup>2</sup> (EDS)

<sup>1</sup> Santa Barbara Museum of Natural History, 2559 Puesta del Sol Road, Santa Barbara, CA 93105, USA,  
E-mail: geiger@vetigastropoda.com

<sup>2</sup> Bavarian State Collection of Zoology, Münchhausenstraße 21, 81247 Munich, Germany,  
E-mail: BRuthensteiner@zsm.mwn.de

## Table of Contents

### iii Editors' preface

DANIEL L. GEIGER (USA) & BERNHARD RUTHENSTEINER (GERMANY)

1 **New techniques yield new insights on the basic biology of living microgastropods**  
CAROLE S. HICKMAN (USA)

15 ***Niku-nuki*: a useful method for anatomical and DNA studies on shell-bearing molluscs**  
HIROSHI FUKUDA, TAKUMA HAGA & YUKI TATARA (JAPAN)

39 **Micromolluscs in molecular systematics: experiences and best practices**  
DANIEL L. GEIGER & CHRISTINE E. THACKER (USA)

47 **Digital imaging of micro bivalves**  
JAMES A. TURNER (UK)

63 **Soft part 3D visualization by serial sectioning and computer reconstruction**  
BERNHARD RUTHENSTEINER (GERMANY)

101 **3D interactive microanatomy of *Omalogyra atomus* (Philippi, 1841) (Gastropoda, Heterobranchia, Omalogyridae)**  
NATALIE BAEUMLER, GERHARD HASZPRUNAR & BERNHARD RUTHENSTEINER (GERMANY)

119 **Skeneimorph gastropods in Neomphalina and Vetigastropoda — a preliminary report**  
THOMAS KUNZE, MARTIN HEß, MARTIN BRÜCKNER, FRIEDERIKE BECK & GERHARD HASZPRUNAR (GERMANY)

133 **Monographing micromolluscs: a case study on Scissurellidae s.l. (Vetigastropoda)**  
DANIEL L. GEIGER (USA)

147 **Micromolluscs in Japan: taxonomic composition, habitats, and future topics**  
TAKENORI SASAKI (JAPAN)

- 233 **The genus *Onoba* (Mollusca, Caenogastropoda, Rissoidae) from NW Spain, with the description of two new species**  
EMILIO ROLÁN (SPAIN)
- 247 **Four new species of Anatomidae (Mollusca: Vetigastropoda) from the Indian Ocean (Reunion, Mayotte) and Australia, with notes on a novel radular type for the family**  
DANIEL L. GEIGER (USA) & TAKENORI SASAKI (JAPAN)
- 265 ***Scissurella clathrata* in the San Jorge Gulf (Argentina) and the identity of the enigmatic *S. dalli* Bartsch, 1903 (Gastropoda: Scissurellidae)**  
DIEGO G. ZELAYA (ARGENTINA) & DANIEL L. GEIGER (USA)
- 271 **Sampling micromolluscs in tropical forests: one size does not fit all**  
THOR-SENG LIEW (MALAYSIA), REUBEN CLEMENTS (SINGAPORE) & MENNO SCHILTHUIZEN (THE NETHERLANDS)
- 281 **Micro-molluscs of the Western Ghats: diversity, distribution and threats**  
NEELAVAR ANANTHRAM ARAVIND, K. PATIL RAJASHEKHAR & NEELAVAR ANANTHRAM MADHYASTHA (INDIA)
- 295 **Micro-gastropod population changes from the early Cretaceous to the Recent in the Gulf Coastal Plain of the USA**  
CHRISTOPHER L. GARVIE (USA)