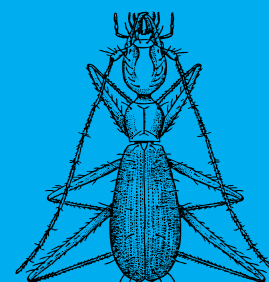


# ACTA ZOOLOGICA BULGARICA

## 74 (3)

2022  
September



Institute of Biodiversity and Ecosystem  
Research

Bulgarian Academy of Sciences

ISSN 0324-0770 (print)  
ISSN 2603-3798 (online)

Honorary Editor-in-Chief: *Vassil Golemansky*

Editor-in-Chief: *Boyko B. Georgiev*

Managing Editor: *Rositsa Kaneva*

Language Editor: *Vesela Evtimova*

**Co-editors:**

*Apostolos Apostolou*

*Dragan Chobanov*

*Vesela Evtimova*

*Simeon Lukanov*

*Rumyana Metcheva*

*Paraskeva Mihailova*

*Vasil Popov*

*Diana Zlatanova*

**Advisory Board:**

*Fabio Crocetta (Naples)*

*Gábor Csorba (Budapest)*

*Hristo Delchev (Sofia)*

*Victor Fet (Huntington)*

*Denis Geraads (Paris)*

*Georgi Georgiev (Sofia)*

*Peter Glöer (Hettingen)*

*Victor V. Glupov (Novosibirsk)*

*Andy J. Green (Seville)*

*Borislav Guéorguiev (Sofia)*

*Boris Kryštufek (Ljubljana)*

*Jean Mariaux (Geneva)*

*Josef Matena (Česke Budejovice)*

*Georgi Markov (Sofia)*

*Yuri M. Marusik (Magadan)*

*Boris Nikolov (Sofia)*

*Anastasios Legakis (Athens)*

*Toshko Ljubomirov (Sofia)*

*Vlada Peneva (Sofia)*

*Aleksi Popov (Sofia)*

*Guy Smagghe (Ghent)*

*Mitko Subchev (Sofia)*

*Milcho Todorov (Sofia)*

*Margarita Topashka (Sofia)*

*Yordan Uzunov (Sofia)*

*Eliza Uzunova (Sofia)*

# Instructions to Authors

## General Information

*Acta Zoologica Bulgarica* publishes contributions in systematics and phylogenetics, zoogeography and faunistics, terrestrial ecology and behaviour, aquatic ecology, parasitology, palaeozoology, zoomorphology and developmental biology, conservation biology, applied zoology and other branches of zoology dealing with diversity, ecology and evolution of animals. The geographical scope of the journal is worldwide but a priority is given to the Bulgarian and Balkan fauna as well as the fauna of associated regions (e.g. Black Sea, Danubian Basin and Southeast Europe). Descriptions of new zoological methods, short reviews of zoological books and information about scientific events are also accepted. Manuscripts are considered on the assumption that they have not been published elsewhere and have not been simultaneously submitted to another journal. Manuscripts must conform strictly with the instructions to authors before being sent to the editor. Papers should follow the *International Code of Zoological Nomenclature* (Fourth Edition, 1999). Incoming manuscripts are initially judged by the editor. If the manuscript is acceptable as corresponding to the scope of the journal and representing a major contribution deserving publication in an international journal, it will be forwarded to reviewers for evaluation. After the approval of the final version by the editorial board, the manuscript will be accepted for publication. The editor reserves the right to make editorial changes. Authors agree, with the acceptance of the manuscript, that the copyright is transferred to the publisher. Manuscripts, proofs, reviews and other correspondence concerning editorial matters should be addressed to the Editorial Office, e-mail [actazoologicabulgarica@gmail.com](mailto:actazoologicabulgarica@gmail.com).

## Manuscripts

Manuscripts must be submitted in correct English by e-mail. The following formats are accepted: Winword, Word Perfect, InDesign. The text should be left-justified, font size 12, no column or page breaks, double-spaced (c. 30 lines per page), without word hyphenations, A4 format. The pages must be numbered in Arabic numerals. Places of figures and tables within the text should be indicated. Generic and species names must be spelled out at least once in the text and should be in italic. Family names of authors of taxa should be in regular font.

**Four categories** of contributions are published, with the following size of standard manuscript: 1. Research articles: max. 20 pages, including the list of references, figures, captions to figures and tables (on separate sheets); 2. Review articles (invited or consulted with the editor before the submission): 10-25 pages; 3. Short communications: up to 8 pages; 4. Book reviews: up to 3 pages. Information about scientific events, past or forthcoming, will also be accepted (up to 3 pages). The manuscripts should conform to the following format:

**Title:** It should be concise and enough informative. Superior taxa should be noted in the title in parentheses, e.g. (Order: Family).

**Author(s):** Full first name(s), middle initials and surname(s) in bold and italic.

**Address(es):** As complete as possible, including e-mail address(es).

**Abstract:** It should consist of only one paragraph of maximum 15 lines, briefly describing main results and conclusions with no description of methods, discussions, references or abbreviations.

**Key words:** Normally 3-6 items suitable for information-retrieval system, not repeating already those contained in the title.

**The standard order of sections should be:** Introduction, Material and Methods (including Study Area, if relevant), Results, Discussion, Conclusions (optional), Acknowledgements and References.

**Tables:** They must not repeat information already presented in the figures or in the text. Each table must be self-explanatory and as simple as possible, it should be double-spaced within an A4 page size. Tables must be numbered consecutively. They should be typed on separate sheets and enclosed after the references. An explanatory caption, located on the top of the table, should be provided.

**Illustrations:** Lines and letters in figures must be able to be enlarged or reduced without reduction in quality. They should conform to the size of the type area (16.5 x 24 cm), which is the limit for all illustrations. Magnification should be shown by scale bars. Illustrations must be submitted in electronic version in TIF format in minimum 300 DPI. Black and white photographs must be sharp, of high quality, presented on plates (maximum 14x17 cm in size). Figures must be numbered consecutively and should be provided with an explanatory legend on a separate sheet (titled 'Text under figures'). All tables and figures must be referred to in the text. The printed version of the journal may contain only greyscale illustration. The electronic version can contain colour versions of the same illustrations.

## Citations and References

Each citation in the text must be accompanied by a full reference in the list of references. Each reference included in the list of references should be cited in the text. The in-text citations are as follows (please, note small caps of author's names): (BURESH 1941), (BURESH 1941: 35) [if a certain page should be cited]; BURESH & ZONKOV (1941); (BURESH 1941, PETROV 1956, IVANOV 1996) [in chronological order] or BURESH et al. (1949), if three or more authors are cited. The references should be arranged primarily alphabetically by the first author's family name and by year of publication in case of multiple publications by the same author(s). In case of papers written in letters other than Latin, if there is an English title in the summary, it may be used instead. If there is not such a summary, the author's name must be transliterated and the title of the paper must be translated into English; in this case, the original language of the cited reference should be noted in parentheses at the end of the paragraph, e.g.: (In Bulgarian). Examples of bibliographic descriptions of references:

AUTHOR A. V. 1990a. Title of the article. Full Title of the Journal 56 (3): 35-105.

AUTHOR A. V. & AUTHOR C. P. 1990a. Title of the article. Full Title of the Journal 56 (2): 35-105.

AUTHOR A. V., AUTHOR B. B. & AUTHOR C. P. 1990a. Title of the article. Full Title of the Journal 56 (1): 35-105.

AUTHOR A. V. 2000b. Title of the book. Place of publication: Publishing House. 220 p.

AUTHOR A. V. & AUTHOR C. P. 1990. Title of the contribution. In: EDITOR V. A. (Ed.): Title of the book or volume. Place of publication: Publishing House, pp. 235-265.

## Corrections

The (senior) author will receive only one proof for checking (PDF file). Only printer errors may be corrected. The corrected version should be sent back to the journal editor within two weeks.

**For more detailed instructions to authors, see the journal homepage: [www.acta-zoologica-bulgarica.eu](http://www.acta-zoologica-bulgarica.eu).**

# CONTENTS

## SYSTEMATICS AND PHYLOGENETICS

- GAFFAROĞLU M., AYATA M. K. & KARAKUŞ S. Ü. – Cytogenetic characteristics of two species of the genus *Pseudophoxinus* Bleeker, 1860 (Cypriniformes: Leuciscidae) from Anatolia, Turkey.....335

## ZOOGEOGRAPHY AND FAUNISTICS

- KARJALAINEN S. – New records of Coccinellidae (Coleoptera) from the Republic of North Macedonia .....343
- HUBENOV Z. – Review of the families of the suborder Brachycera (Insecta: Diptera) of Bulgaria.....349
- MARIĆ S. P., BĂNĂDUC D., GAJIĆ Đ. D., ŠANDA R., VELIČKOVIĆ T. Z. – *Sabanejewia romanica* (Băcescu, 1943) (Actinopterygii: Cobitidae), a new species for the ichthyofauna of Serbia.....369
- RAJKOVIĆ D. Z., STANOJEVIĆ N., RAKOVIĆ M. & MEDENICA I. – Further range expansion of the masked shrike *Lanius nubicus* (Lichtenstein, 1823) (Aves: Laniidae) in the Balkan Peninsula: the first record of the species from Serbia.....379

## TERRESTRIAL ECOLOGY AND BEHAVIOUR

- DJORGOVA N., RAGYOV D., POPGEORGIEV G., BISERKOV V., BISERKOV Y., ZLATANOVA D. & NIKOLOV B. P. – Habitat preferences of three species of diurnal birds of prey in relation to their potential foraging resources in the Balkan Mountains Range, Bulgaria .....385
- ZIDAROVA S. A. – Present distribution of the marble polecat *Vormela peregusna* (Güldenstädt, 1770) (Carnivora: Mustelidae) in central Western Bulgaria, with an observation on its defensive behaviour .....403
- RINDOS M., MISKO L., VARGA B., KONVICKA M. & FRIC Z. F. – Oviposition and larval preferences of *Zerynthia polyxena* (Denis & Schiffermüller, 1775) (Lepidoptera: Papilionidae) at its northern range margins .....409

## AQUATIC ECOLOGY

- BIŞINICU E., NIŢĂ V., ȚOȚOIU A., HARCOTĂ G.-E., ȚIGANOV G. & CRISTEA V. – Mesozooplankton in the diet of the Black Sea shad *Alosa tanaica* (Grim, 1901) (Clupeiformes: Clupeidae) from the northern part of the Romanian Black Sea waters .....417
- ZAMOROV V., STADNICHENKO S., LEONCHYK Y., SNIgiROV S. & KVACH Y. – Assessment of commercially important stocks of the round goby *Neogobius melanostomus* (Pallas, 1814) (Gobiidae) and its relationship with the state of the Mediterranean blue mussel *Mytilus galloprovincialis* Lamarck, 1819 (Mytilidae) in the Gulf of Odessa, Ukraine.....425
- TODOROVA V. R., PANAYOTOVA M. D., BEKOVA R. I. & PRODANOV B. K. – Recovery of *Flexopecten glaber* (Linnaeus, 1758) (Bivalvia: Pectinidae) in the Bulgarian Black Sea waters: recent distribution, population characteristics and future perspectives for protection and commercial utilisation .....437
- HISLI O., BALKIS H. & MÜLAYIM A. – Macrobenthic invertebrates of the Hersek Lagoon (Marmara Sea, Turkey) under pollution pressure.....445

## ZOOMORPHOLOGY

- SALAHUD D., MASOOD M., HAFSA Z., HAMEED S., AYESHA M., HAFIZ M. A. & ARBAB S. – Morphology of the lumbar vertebrae of adult chinkara *Gazella bennettii* (Sykes, 1831) (Mammalia: Bovidae) .....455

## APPLIED ZOOLOGY

- LIU Y., ZHAO T., LIU C., YANG Y., SONG H., WANG X., HU Y., LUO J. & MU X. – Embryonic development and larval growth and development of *Tilapia buttikoferi* (Hubrecht, 1881) (Actinopterygii: Cichlidae) .....465

## BIOLOGICAL INVASIONS

- GEORGIEVA G. N., UZUNOV Y. I. & VARADINOVA E. D. – New data on the distribution and relation to environmental factors of the alien *Branchiura sowerbyi* Beddard, 1892 (Oligochaeta: Naididae) in Bulgaria.....477

## SHORT COMMUNICATIONS

- UROŠEVIĆ A. – An invaded natural monument: two species of alien terrapins, *Trachemys scripta* (Thunberg in Schoepff, 1792) and *Pseudemys floridana* (Le Conte, 1830) (Testudines: Emydidae), in Lake Mavrobara, Greece .....487

## IN MEMORIAM

- BOEV Z. – 100 Years since the Birth of Nikolay Boev (1922-1985).....493