



## Book of Abstracts

Silvia Herrero-Cófreces and Juan José Luque-Larena, Editors

Departamento de Ciencias Agroforestales, Escuela Técnica Superior de Ingenierías Agrarias

Universidad de Valladolid

**May 22<sup>nd</sup> – 26<sup>th</sup>, 2023 - Valladolid, Spain**

*Palacio de Congresos Conde Ansúrez, Real de Burgos s/n, 47011, Valladolid*



Herrero Cofreces, Silvia & Luque Larena, Juan José; Editors

Proceedings of the 17<sup>th</sup> Rodens et Spatium - International Conference on Rodent Biology

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ISBN 978-84-09-51624-7 (on-line)

## Phylogenetic structuring in skull variation of *Apodemus* species (Rodentia: Muridae)

Klenovšek, Tina<sup>1\*</sup>; Jojić, Vida<sup>2</sup>, Kryštufek, Boris<sup>3</sup>, Janžekovič, Franc<sup>1</sup>; Đurakić, Marko<sup>4</sup>

<sup>1</sup> Department of Biology, Faculty of Natural Sciences and Mathematics, University of Maribor, Maribor, Slovenia

<sup>2</sup> Department of Genetic Research, Institute for Biological Research "Siniša Stanković"-National Institute of Republic of Serbia, University of Belgrade, Belgrade, Serbia

<sup>3</sup> Slovenian Museum of Natural History, Ljubljana, Slovenia

<sup>4</sup> Department of Biology and Ecology, Faculty of Sciences, University of Novi Sad, Novi Sad, Serbia

\* [tina.klenovsek@um.si](mailto:tina.klenovsek@um.si)

We studied phenetic and phylogenetic relationships among *Apodemus* species of the Western Palearctic region. The sample comprised eight field mice species from three subgenera *Sylvaemus* (*A. alpicola*, *A. flavicollis*, *A. sylvaticus*, *A. uralensis*, *A. witherbyi*), *Karstomys* (*A. epimelas*, *A. mystacinus*) and *Apodemus* (*A. agrarius*). Two species were each represented by two geographically distinct populations, *A. flavicollis* from Slovenia and Türkiye in Asia, and *A. uralensis* from the Czech Republic and Türkiye. The study of skull variation with geometric morphometric methods included the ventral cranium, mandible and upper molars. The analyzed skull structures were the largest in *A. mystacinus* and *A. epimelas* and the smallest in *A. uralensis*. The most distinctive in the mandible shape were *A. mystacinus*, *A. epimelas*, *A. alpicola* and *A. agrarius*. *Apodemus mystacinus*, *A. epimelas* and *A. alpicola* showed most unique cranium shape while *A. agrarius* was the most distinct in the molar shape. Mapping the geometric morphometric data to a phylogenetic tree of *Apodemus* species based on mtDNA cytochrome *b* sequences showed a phylogenetic signal in size variation in all the studied skull structures. The presence of a phylogenetic signal in shape variation was recorded for the mandible and molars. For the cranium, the permutation test showed the absence of a phylogenetic structure in shape variation. These results confirm the idea that different skull structures have diverse developmental pathways and different functional roles and respond differently to phylogenetic constraints and selective pressures. Nevertheless, contrary to the expectations, the cranial shape variation of the studied *Apodemus* species did not contain phylogenetic structuring.

**Keywords:** *Sylvaemus*; *Karstomys*; cranium; geometric morphometrics; mandible; molars