SECONDARY SEXUAL DIMORPHISM AND AGE VARIABILITY IN THE CRANIUM OF THE EUROPEAN SOUSLIK, SPER*M*OP*HI*LUS C*I*TELLUS (LINNAEUS, 1766)

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Age variability and secondary sexual dimorphism in the cranium of the European souslik, Sp*erm*oph*il*u*s* c*itell*u*s*, were analysed using geometric morphometry methods.
The research included 168 specimen from 5 geographic samples (Bačka and Banat, Fruška gora, Jakupica, Dojran and Burgenland). Skulls were photographed and digitized. 31 landmarks were obtained from the cranium of each specimen (9 from the dorsal and 22 from the ventral view) using the tps Dig software. Landmark configurations of each data set were superimposed using the Procrustes Generalised Least Square Superimposition (GLS) and consensus landmark configurations were estimated. Average shapes were used to construct the tangent space of partial warps and uniform components for each specimen. The Thin Plate Spline Relative Warp program (tps RW) was used to get relative warp scores. Partial warps and relative warps were then subjected to further uni- and multivariate statistical analyses. Illustrations of differences in shape were generated with tpsRegr program.
Age variability was tested only for the ventral side of the cranium. One-way analysis of variance demonstrated highly significant differences in cranial size and shape between young and adult specimen for both sexes. Adults had in comparison to juveniles relatively narrower base of the rostrum, anteriorly moved incisors, posteriorly moved upper tooth rows, narrower zygomatic arch at muscle attachment sites, narrower foramen magnum ect..
Tests for secondary sexual dimorphism showed greater difference in cranial size than shape. The magnitude of sexual dimorphism in size among 5 geographic samples was constant. In comparison to females, males had relatively shorter row length of upper molars, narrower zygomatic arch region and longer and wider rostrum.