

Late ontogeny of sexual dimorphism in pileus shape: a case study of *Podarcis tauricus*

Gorana Danon¹, Aleksandar Urošević², Marko Anđelković², Ana Ivanović¹

¹ Institute of Zoology, Faculty of Biology, University of Belgrade, Serbia

² Institute for Biological Research “Siniša Stanković”, University of Belgrade, Serbia

We employed methods of landmark based geometric morphometrics to explore ontogeny of sexual dimorphism in pileus shape, as an approximation of sexual dimorphism in head shape of Balkan wall lizard *Podarcis tauricus*. To estimate the changes in the level and pattern of shape dimorphism over ontogeny, the differences in pileus shape were calculated for subadults and adults. Sex in both subadults and adults was determined according to the presence of the hemipenial bulges. All individuals with snout-vent length less than 52 mm for females and 53 mm for males were classified as subadults. To estimate ontogenetic trajectories of shape changes, the multivariate regression of shape variables on pileus size was performed. The trajectories of shape changes for females and males were compared. We found no significant sexual dimorphism in pileus shape for subadults, while for adults, pronounced sexual dimorphism was found. In comparison to females, males have relatively narrower pileus and shorter and narrower rostrum. In males, pileus elongation is especially pronounced in the parietal and anterior part of frontoparietal scales. Frontoparietal scales overlay the frontoparietal suture and observed elongation likely helps to compensate for the increased mechanical stress at the important mesokinetic joint. The calculated ontogenetic trajectories of pileus shape in females and males are homogenous, indicating that the main factor leading to sexual dimorphism in pileus shape of *Podarcis tauricus* are allometric, size related, changes in shape.