

Skeletochronological Age Determination and Body Size of Spadefoot Toad (*Pelobates syriacus*) from Afyonkarahisar, TurkeyTuğba Ergül KALAYCI¹, Nurhayat ÖZDEMİR¹, Serkan GÜL¹¹ Faculty of Art and Science/Recep Tayyip Erdoğan University, Turkey
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Aim of the study: Determining demographic parameters (age, sexual maturity age, body size, etc.) of amphibians are important to elucidate the population ecology. The skeletochronology is one of the most common and using techniques for determining animals' lifespan. *Pelobates syriacus* is the only species represented the European spadefoot toads in Turkey. Despite of some morphological characters were examined in Turkey, there is no skeletochronological study for clarifying the age structure of inhabiting populations in Turkey. We determine the age structure of *P. syriacus* for the first time in this study.

Material and Methods: We collected the samples with the permission of the local ethics committee (Recep Tayyip Erdoğan University 2016/51). We used a total of twenty-one (21) samples of *P. syriacus* (11♂♂, 8♀♀, 2 juvenile). Specimens were collected from Dereçine (38° 50' N, 31° 31' E; 978 m a.s.l.), in the city of Afyonkarahisar. The snout-vent length (SVL) of specimens were measured by using digital calipers with 0.01 mm sensitivity. We evaluated sex of each animal by the presence of a glandular pad on the dorsal surface of the arm. A general skeletochronology procedure were applied to determinate the age. We used the longest toe of forelimb and removed the skin and muscle tissues of each digit, then decalcified the remaining bones in 5% nitric acid for approximately 2 hours. After decalcification, we washed them in tap water. The cross-sections from the middle part of the diaphysis were gained by using freezing microtome (17 µm thick) and stained with Ehrlich haematoxylin. Statistical differences between sexes according to age and body size were tested using with Independent Samples t-test for SVL and Mann-Whitney U test for age structure. SPSS 21 was used for statistical analyses.

Results: The maximum age was found to be 8 years in both males and females. Age varied between 4-8 years in males and 5-8 years in females. Mean age was 5.27±1.10 yrs in males and 5.87±1.13 yrs in females. Sexual maturity age was 2 and 3 years in both males and females. We determined that juveniles were 1 and 2 years old. There wasn't any significant difference between sexes in terms of age (Mann Whitney U test, $p > 0.05$). The maximum SVL was found to be 70.84 mm in males and 69.76 mm in females. SVL ranged from 54.84 to 70.84 mm in males and 57.00 to 69.76 mm in females. The SVL of juveniles was 37.62 and 41.11 mm. Despite of there were no significant differences between males and females in terms of SVL ($p > 0.05$), mean SVL of males was larger than females. Correlation between age and SVL were detected only in males ($r = 0.75$, $p < 0.05$), but not in females ($r = 0.49$, $p > 0.05$) according to Pearson's correlation coefficients.

Keywords: Skeletochronology, *Pelobates syriacus*, Turkey.