

**Age structures and Growth Parameters in three populations of Levanten Frog,  
*Pelophylax bedriagae***

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**Aim of the study:** Levanten frog, *Pelophylax bedriagae* is a highly opportunistic amphibian, and ranges widely in the eastern Mediterranean, is widespread along the Aegean coast and the southern part of the Anatolian highlands. Age determination provides crucial information on demographic parameters of amphibian's life-history. In many amphibians, skeletochronology can be performed on the phalanges, and hence, represents a powerful technique. In this context, we aimed to determine *P. bedriagae* populations' age structure and individual growth patterns in different altitudes from Denizli province.

**Material and Methods:** This study was performed at three amphibian habitats (Süleymanlı Lake, Acıgöl Lake and Vali Recep Yazıcıoğlu Dam) with different altitudes. The morphometric measurements were obtained with a dial caliper of 0.02 mm sensitivity and precision scales. The longest digit from the hind foot was cut and individually fixed in 70% ethanol. Age of the specimens was estimated using these bone samples. The procedure of skeletochronology followed previous descriptions (e.g. Castanet and Smirina 1990; Smirina 1994). The bones of each animal were cleaned of surrounding tissues, washed in running water for 12-14 h, decalcified for 3-5 h in 5% nitric acid then placed in distilled water for night. The bones were dehydrated using graded ethanol series and then cleared in xylene, before embedding in paraffin. Using rotary microtome, we obtained 16 µm thick cross sections from the central region of the diaphysis, stained them with H&E, and analysed with a light microscope.

**Results:** We studied total 133 bone samples to determine age structure and growth in three populations of the Levanten frog between the years of 2015-2017. We found statistically significant differences between SVL, and sexes ( $F=28.15$ ;  $df=1$ ;  $p<0.001$ ), and females are larger (the mean SVL= $73.22\pm 10.416$  mm for female;  $64.20\pm 9.076$  mm for male) than males in three populations. Similarly, the body weight of individuals were significantly different ( $F=22.70$ ;  $df=1$ ;  $p<0.001$ ). However, we could not find any differences between age structure and sexes. On the other hand, we determined statistically significant differences in SVL ( $F=4.25$ ;  $df=2$ ;  $p<0.05$ ), body weight ( $F=5.17$ ;  $df=2$ ;  $p<0.05$ ) and age structure ( $F=6.64$ ;  $df=2$ ;  $p<0.05$ ). The mean age was defined as  $4.9\pm 0.25$  years for Vali Recep Yazıcıoğlu Dam population,  $6.5\pm 0.34$  years for Süleymanlı population and  $5.3\pm 0.33$  years for Acıgöl population. Age at first reproduction was estimated as two years old for all populations while longevity of the species were found nine years in Vali Recep Yazıcıoğlu Dam and Acıgöl populations, and 12 years old for Süleymanlı population. On the other hand, SVL, body weight and age were positively correlated both sexes within three populations. These results show that there is intraspecific variation depend of altitudinal range in age structure and morphometric measurements of Levanten frog populations.

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