

Notes on the reproduction of *Lyciasalamandra atifi* (Başoğlu, 1967) (Amphibia: Salamandridae) from Cebireis Mountain (Antalya, Turkey)

Bayram GÖÇMEN, Kerim ÇİÇEK*, Ahmet MERMER and Bahadır AKMAN

Ege University, Faculty of Science, Department of Biology, Zoology Section, TR-35100 Bornova, Izmir-Turkey.

*Corresponding author, K. Çiçek, E-mail: kerim.cicek@hotmail.com / kerim.cicek@ege.edu.tr

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Abstract. This report is the first observation on parturition in *Lyciasalamandra atifi*. We report data on a female of *L. atifi* from Cebireis Mountain (Cebel-i Reis, Alanya, Antalya) giving birth. In our field studies in Alanya province, we captured two males and a female. They were brought to the laboratory and kept in a terrarium for a short period on November 4, 2011. The female (SVL= 75.92 mm, TL= 150.11 mm) gave birth to two completely metamorphosed juveniles (SVL= 39.12 mm, 39.38 mm, TL= 77.53 mm, 77.78 mm) on November 5, 2011.

Key words: *Lyciasalamandra atifi*, reproduction biology, Urodela, Turkey.

The Lycian salamanders (*Lyciasalamandra luschani*, *L. arikani*, *L. antalyana*, *L. atifi*, *L. billae*, *L. fazilae*, *L. flavimembris*, *L. helverseni*, *L. irfani*, and *L. yehudahi*) consist of ten valid viviparous species distributed in approximately 420 km along the Mediterranean coast of Turkey and some adjacent islands (Başoğlu et al. 1994, Veith & Steinfartz 2004, Franzen et al. 2008, Göçmen et al. 2011, Göçmen & Akman 2012). The distribution of *Lyciasalamandra atifi* spreads in the Taurus mountain range extending for about 110 km, from Turbelinaz (Dereköy, Alanya) to the vicinity of the ancient city of Selge (Altinkaya, Serik) near the Köprülü Canyon in Antalya province, Turkey; at altitudes from 160 - 1500 m (Veith et al. 2001, Öz et al. 2004, Franzen et al. 2008, Akman et al. 2011, Göçmen et al. 2011). *Atif's* Lycian Salamander population is threatened due to habitat destruction, caused by forest fires, and collection by humans (IUCN 2001).

Previously, we reported five new localities for *Lyciasalamandra atifi* near Alanya (Akman et al. 2011). We re-visited the Dim Cave location [36° 32' 28" N, 32° 07' 12"E, 232m a.s.l.] on November 4, 2011. We captured two males and a female and the individuals were brought to the laboratory for a short period and kept in a terrarium (60x30x30 cm).

The female individual (weight= 7.1g, snout-vent length= 75.92mm, total length= 150.11mm) gave birth to two completely metamorphosed juvenile salamanders on November 5, 2011 (Fig. 1). The size of the newborn juveniles was W 1.7g, 1.5g; SVL 39.12mm, 39.38mm; TL 77.53mm, 77.78mm respectively. All individuals were released on November 20, 2011 when they captured.

Akman et al. (2011) reported that specimens from the Dim Cave population were smaller in size than those from the type locality (Türbelinaz, Alanya) they also indicated that the dorsum of adults was a greyish colour with blackish flecks; juveniles have yellowish coloration on the posterior half of the parotids and yellowish flecks on the tail unlike adults. There was no significant difference in terms of color pattern of the two newborn juveniles. Only the dorsum of the juveniles is dark brown and has more prominent flecks than the female.

While there was limited knowledge on the reproduction biology of Lycian salamanders, it was reported that females generally give birth to 1 - 2 offspring (Pieper 1970, Özeti 1973, 1979). Pieper (1970) reported that a young *L. helverseni*

(TL= 70 mm) was born on 30 March in a terrarium. Özeti (1973) discovered an embryo in the uterus after dissecting a female *L. atifi*. In different females of *L. antalyana*, two (TL= 29mm, 45mm) juveniles were born on September, 28; one (TL= 42mm) on December, 16; one (TL= 51mm) on December, 20 and two (TL= 65mm, 66mm) on January 10, the births of these offspring were reported in captivity (Özeti 1979).



Figure 1. General view of female and newborn juveniles.

Özeti (1979) stated that parturition time of *L. antalyana* is between October and January depending on the environmental conditions, especially temperature and humidity. The author also indicated that mating season of the species is in the spring, especially in April. Spermatogenesis in the testes of *L. atifi* males in captivity was observed from March to June (Özeti 1973). The mating behavior of *L. atifi* was observed by the first author (B.G.) in March and April 2011 confirming the timing of spermatogenesis.

Polymeni (1994) indicated that the parturition time of Lycian salamanders is between the end of autumn and spring (September - March). In parallel to previous studies, our study confirms that Lycian salamanders, which have adapted to arid Mediterranean climate [annual average rainfall is 400-600mm and 34-45°C reached during the summer months], preferred the months with more abundant rainfall and higher humidity for parturition.

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