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Data on Hatchlings of Caucasian Rock Lizard, Darevskia valentini (Boettger, 1892) in Northeastern Anatolia

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Abstract. During our field work in the Tepeler Village (Ardahan, Turkey) on 27th of August, 2010, we observed hatchlings of *Darevsika valentini*. The mean body length of was found as 28.06±1.14 (25.3 - 30.4) and the total length as 70.81±3.92 (61.9 - 81.0). Juveniles were generally observed under stones and those portions of the roots of annual herbaceous plants which remain under stone are also used as shelters for juveniles. Neonates on the southern slopes of the hills could be individually seen and mostly, individuals aggregated [median number of individuals, 6 (1-15)] and lived in groups.

Key words: Darevskia valentine, hatchlings, Northeastern Anatolia, Turkey.

Introduction

Darevskia valentini, Caucasian rock lizard, ranges from the mountain-steppe zones of Armenia to southern Azerbaijan, eastern Turkey, southwestern Georgia and northwestern Iran (DAREVSKY, 1967; BAŞOĞLU & BARAN, 1977; BANNIKOV *et al*., 1977; ANDERSON, 1999; SINDACO *et al*., 2000; ANANJEVA *et al*., 2006). In Turkey, the distributional range of the species is eastern Anatolia, eastern part of Black Sea (west to Sinop province) and mountains of central and eastern Anatolia (provinces of Kayseri, Niğde and İçel), and it is recorded from 1,300 to 3,000m a.s.l. (BAŞOĞLU & BARAN, 1977; ANDERSON, 1999; SINDACO *et al*., 2000; ILGAZ, 2004; Ananjeva *et al*., 2006; TOK *et al*., 2008). It is classified as the least concern on the IUCN Red List (TOK *et al*., 2008) and in the list of Annex III of Bern Convention.

The species inhabits large rock blocks and small stony places on the hills in the subalpine zone. Moreover, it is also observed in areas with intensive vegetation at the border of sloping stony or rocky places (DAREVSKY, 1967; BANNIKOV *et al*., 1977; Ilgaz, 2004). The adult morphology of *D. valentini* has been studied in detail (DAREVSKY, 1967; BANNIKOV *et al*., 1977; Eiselt et al., 1992; Ilgaz, 2004) in its distribution site; however, no sufficient information is available about juvenile morphology and ecology. In this study, hatchlings of *D. valentini* were observed and our observations on the nests, dispersion, and some morphometric and color-pattern

features of these individuals were presented.

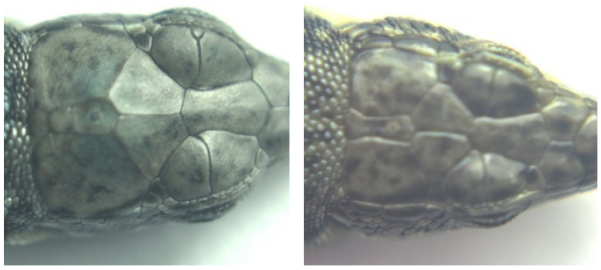
Materials and methods

In our field studies in Ardahan (Northeastern Anatolia, Turkey), we observed hatchlings of *D. valentini* in Tepeler Village (lat.: 41.060104° N, long.: 42.575360°E, 1866 m a.s.l, Fig. 1) 15 km southwestern of Ardahan on August 27, 2010. We noted some habitat characteristics and approximately density of individuals. Fifty-three hatchlings were measured and its color pattern characteristics were recorded. Following morphometric measurements were taken using dial calipers with an accuracy of 0.01 mm: Tail length (TaL): Anal cleft to the tip of the tail; Head width (HW): At the widest point of the head; Head length (HL): Tip of snout to the posterior margin of the ear opening: Pileus length (PL): Tip of the snout to the posterior margins of the parietals; Pileus width (PW): At the widest point between the parietal plates; Snout-vent length (SVL): Tip of the snout to the anal cleft; Total body length (TL): Tip of the snout to the tip of the tail. Furthermore, some morphometric indexes and ratios were calculated: Head index: (HW/HL)*100; Pileus index: (PW/PL)*100; SVL/TaL. Authors have to explain how to determine of body length for hatchlings in material and method section.

Fig. 1. Habitat of hatchlings from Tepeler Village (Ardahan, Turkey).

Results and Discussion

In the hatchlings of *D. valentini*, interparietal and occipital plates are well-developed and the parietal plates found to be laterally pushed are trapezoidal (Fig. 2). The pileus of the specimens is convex upwards. The morphological characteristics of the specimens are given in Table 1.



(A) (B)

Fig. 2. The view of pileus in hatchling (A) and adult (B) Caucasian rock lizards

Table 1. Morphometric measurements of hatchlings from Tepeler Village (Ardahan, Turkey). [N: number of specimens; SD: Standard deviation; SE: Standard error of the mean]

Characters	N	Mean	Min -Max	SD	SE
HL	53	7.44	7.0 - 8.1	0.29	0.04
HW	53	4.70	4.2 - 5.1	0.19	0.03
PL	53	7.08	6.6 - 7.7	0.28	0.04
PW	53	4.02	3.4 - 4.5	0.21	0.03
SVL	53	28.06	25.3 - 30.4	1.14	0.16
(HW/HL)*100	53	158.53	146.1 - 173.5	6.82	0.94
(PW/PL)*100	53	56.81	52.0 - 62.5	2.53	0.35
TL	32	70.81	61.9 - 81.0	3.92	0.69
SVL/TaL	32	0.66	0.6 - 0.7	0.03	0.01

Furthermore, a vitellus cleft occupying 2 or 3 transverse ventral rows manifests itself in the individuals and starts at ventral rows 16 and 18. In 53 individuals, the dorsal ground color is green, and maculation over the head (the pileus always has clear maculation) is very clear in 22 (41.5%), scarcely clear in 28 (52.8%) and unclear in 3 (5.7%) of all the specimens (Fig. 3). No occipital stripe is observed in 27 (51%) of the specimens showing a reticular pattern, whereas there is a clear occipital stripe in the rest of them. The ventral part is dirty white and the outermost ventral plates have blackish dots. The tail is lighter green relative to the dorsum. The maculation of the juveniles is thinner (primarily the head region) and

large and integral dots cover less area as compared to the adults.

Fig. 3. Egg-laying site and shelters of juveniles.

TERENTEV & CHERNOV (1965) reported that the oviposition period of *D. saxicola* is from late June to early August and that the females lay 2 to 4 eggs (mean 3). In the Armenian population of *D. valentini*, adults come out of hibernation at about the end of April and at the beginning of May and lay eggs at around the end of June and in the midst of July (DAREVSKY, 1967). ILGAZ (2004) stated that May and June are the breeding period of *D. valentini*. According to DAREVSKY (1967), the average clutch size of females is 5.2 (range= 3 – 8) and its egg size is 14.5x8.5mm. In the Crimean population of *Darevskia saxicola*, juveniles hatch from late August to early September and the size of neonates is 25 mm and reaches 31 mm by the next spring (TERENTEV & CHERNOV, 1965). Hatchlings start to appear at the end of August and at the beginning of September, and their body lengths range from 26 to 27 mm after 55-to-65-day incubation depending on temperature (DAREVSKY, 1967). In the hatchlings of the Tepeler Village population, the mean body length was found as 28.06±1.14 (25.3 - 30.4) and the total length as 70.81±3.92 (61.9 - 81.0). Our observations also support the fact that oviposition period resembles that of the Armenian population. They hatch at around the end of August and at the beginning of September in Armenia, while slightly mature individuals were observed in the Tepeler Village population on August 27. As observed in some populations (DAREVSKY, 1967), this might be due to the quicker development in cold regions or early mating and oviposition in order to complete the development.

DAREVSKY (1967) observed that Caucasian rock lizards lay their eggs into rock cracks, under stones and into soil clefts and that female has egg-laying site fidelity. In Tepeler Village population as well, juveniles were generally observed under stones and remnants of egg shells were encountered under some stones. This indicates that the species lay its eggs under stones in the place concerned. In addition, those portions of the roots of annual herbaceous plants which remain under stone are also used as both egg-laying sites and shelters for juveniles (Fig. 3).

During the fieldwork, it was observed that neonates under stones on the southern slopes of the hill could be individually seen and mostly, individuals aggregated [median number of individuals, 6 (1-15)] and lived in groups (Fig. 4). In this way, individuals can more easily perform their daily functions, such as finding a prey, balancing the body temperature, and protection from their potential enemies. It was striking that these sites were at the same time egg-laying sites.

Fig. 4. Aggregation of five Caucasian rock lizards from Tepeler Village (Ardahan, Turkey).

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