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An unusual juvenile coloration of the whip snake *Dolichophis jugularis* (Linnaeus, 1758) observed in Southwestern Anatolia, Turkey

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The Large whip snake, *Dolicophis jugularis* (Linnaeus, 1758) is widely distributed in Greece, including some Aegean islands, as well as throughout the Levant (Başoğlu and Baran, 1977; Leviton et al., 1992; Budak and Göçmen, 2008; Amr and Disi, 2011). The distribution of the species in Turkey extends from Izmir in the West to the Mediterranean region in the southern, southeastern and eastern Anatolia (Başoğlu and Baran, 1977; Budak and Göçmen, 2005; Göçmen et al., 2013).

Dolicophis jugularis is a large colubrid snake that can reach 2.5 m in total length (Budak and Göçmen, 2008; Amr and Disi, 2011). Its adult coloration is usually uniform, the dorsum is bright black, and the top of the head is almost black with scattered red coloration. Ventrals are reddish with black spots (Baran, 1976; Başoğlu and Baran, 1977; Amr and Disi, 2011). However, juvenile coloration is typically different and shows a spotted pattern. The dorsal side is grayish brown to grayish orange (Fig. 1A) and there are 4–6 rows of dark brown or black spots, formed by the dark edges of dorsal scales (Zinner, 1972; Baran, 1976). The ventral side is usually white with small, brown or dark grey spots (Zinner, 1972).

On 1 April 2012, we caught a juvenile specimen of *D. jugularis* [Zoology Museum of Harran University, ZMHRU 2012/50] in Kocaaliler Village, Burdur Province, Turkey (37°19' N, 30°41' E, elevation 720 m). The coloration of this juvenile specimen resembles that of adults (Fig. 1B–D). This was the only juvenile specimen with such unusual coloration, although the study area was thoroughly searched. We observed three other juveniles with the aforementioned typical pattern. One of them [ZMHRU 2012/51] was caught at Kızılseki Village (37°16' N, 30°45' E, elevation 400 m) and presents the known juvenile pattern (Fig. 1A).

In the juvenile specimen with adult coloration caught at Kocaaliler Village, the dorsal and upper dorsolateral areas of the head are black, whereas the color below the eye and along the jawline is white (Fig. 1B). On both sides of the head, there are white spots on rostral, supralabials, preoculars, postoculars, and temporals, and the edges are black (Fig. 1C). The white coloration continues to the lower nuchal region. The rest of the body and the dorsal side of the tail are shiny black (Fig. 1B). On the venter, about 1/6 of the snake's length is white with interspersed black blotches, and the remaining area is whitish (Fig. 1D). The venter is spotted and the spots start in the neck area and diminish, becoming indistinguishable toward the tail.

The adult colored juvenile has a snout–vent length (SVL) of 422 mm and tail length (TL) of 175 mm. In the specimen caught near Kızılseki Village, SVL was 256 mm and TL 86 mm. Both specimens are similar in morphological traits and pholidosis (Table 1). Also, for both specimens, the mitochondrial marker cytochrome *b* was sequenced (see protocols and further details in Nagy et al., 2004). Both samples yielded sequences identical to those of another *D. jugularis* (GenBank accession number AY486917) collected in Antalya Province, Turkey. Zinner (1972) reported that juveniles become darker at about 600–700 mm total length (TTL), show small reddish spots on the ventral surface, and at a TTL approaching 1200 mm adult coloration is fully developed.

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Figure 1. Juvenile coloration in *Dolicophis jugularis*. The normal phenotype is displayed by an individual from Kızılseki Village (A), whereas the individual from Kocaaliler Village (B–D) displays an adult coloration. Photos by Bayram Göçmen.

Table 1. Measurements (in mm) and pholidotic characters of *D. caspius* juveniles from Kocaaliler (1; ZMHRU 2012/50) and Kızılseki (2; ZMHRU 2012/51), Burdur (Southwestern Anatolia, Turkey). Abbreviations include snout–vent length (SVL), tail length (TL), rostral height (RH), rostral width (RW), numbers of preocular (Pro), postocular (Pso), supralabial (Supl), sublabial (Subl), temporal (Temp), frenal (Fr), and dorsal (Ds) scales, counted according to the method of Dowling (1951), and the number of subcaudal scales (Sc).

Specimen	SVL	TL	RH	RW	Pro	Pso	Supl	Subl	Temp	Fr	Ds	Ven	Sc
1	422	175	2.21	3.46	2/2	2/2	8/7	8/8	2+3	1/1	19	2+196	115
2	256	86	1.71	2.47	2/2	2/2	8/8	8/8	2+3	1/1	19	2+194	106

A fully melanistic form of adults (with black dorsum and venter) is reported from the Arabian Peninsula (Al-Mohanna et al., 1997). However, no difference in coloration has yet been detected in the juveniles. Juveniles show highly variable patterns with irregular, intermingled motifs of dorsal spots and blotches (Zinner, 1972). However, the form that shows adult coloration, as described herein, is a new observation for the species. Although our study area has been thoroughly searched, no additional specimens of this color morph have been encountered.

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