

A Contribution to the Distribution of *Rhynchocalamus melanocephalus* (Jan, 1862) in Turkey

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Abstract

Objective: The black-headed ground snake, *Rhynchocalamus melanocephalus*, has a very narrow distribution area in the Hatay province of Turkey. A limited number of reported populations of this snake species is known. The present study aims to show that the distribution area of the species in Turkey can include different parts of the Hatay province or the surrounding provinces.

Materials and Methods: One adult individual (1 ♂) was caught from Gözlüce, Yayladağı-Hatay (GPS Data, N: 36° 00' 54.1'' and E: 35° 58' 51.6'', 66 m a.s.l.). Sex was identified by the absence/presence of palpable hemipenis pockets. The morphometric features of the individual were measured to the nearest 0.01 mm using a digital caliper.

Results: According to the literature, the known records of the species in Turkey were only limited to four localities in the Hatay province. The present study provided a new locality (Gözlüce) of the species in the Yayladağı district of the Hatay province. The number of supralabial plates (SRL) is 6-6 and the number of sublabial plates (SL) is 7-7 in the male specimen of Gözlüce. The number of ventral plates (V) is 182 and the number of longitudinal dorsal scale rows at mid-trunk between ventrals (LDS) is 15. Snout-vent length (SVL) is 231.84 mm and tail length (TL) is 50.73 mm. Pholidolial characteristics and morphometric measurements of the Gözlüce specimen were found similar to the other Turkish specimens given in the literature.

Conclusion: The new locality record (Gözlüce-Yayladağı) of *Rhynchocalamus melanocephalus* revealed that the species can also be found in different parts of the Hatay province or in the surrounding provinces. In order to reveal the distribution area of this snake species in Turkey, it is necessary to conduct further field studies in the surrounding areas where the species can potentially spread.

Keywords: The black-headed ground snake, New locality record, Gözlüce, Hatay

Introduction

The black-headed ground snake, *Rhynchocalamus melanocephalus* (Jan, 1862), is distributed along the eastern Mediterranean including Cyprus, Egypt, Jordan, Lebanon, Syria, and Turkey (Avcı *et al.*, 2007; Olgun *et al.*, 2007; Avcı *et al.*, 2009; Amr *et al.*, 2012; Avcı *et al.*, 2015; Šmíd *et al.*, 2015; Tamar *et al.*, 2016; Tamar *et al.*, 2020; Baran *et al.*, 2021; Yaşar *et al.*, 2021). The taxon, known as a polytypic species, was changed to a monotypic species by Avcı *et al.* (2015). Smid *et al.* (2015) also supported this.

The records on the distribution of the species in Turkey only consist of four localities in the Hatay province. The species was firstly reported 20 km South of Harbiye, Hatay by Franzen & Bischoff (1995), and following that Avcı *et al.* (2008) recorded three new localities (Sofular Village, Harbiye-Hatay; Kuruyer Village, Hatay; Güveççi Village, Yayladağı-Hatay) in Turkey.

The present study provides a new locality record (Fig. 1) of the species in Gözlüce (Yayladağı, Hatay. Morphological comparison was made of the Gözlüce specimen with the others reported from the Hatay province.

Material and Methods

During the field surveys in 2018, a male individual (KZL-456/2018, 1 ♂, 02 August 2018, Gözlüce, Yayladağı-Hatay, leg. U. BÜLBÜL) of *R. melanocephalus* (Fig. 2A) was observed in Gözlüce Yayladağı, Hatay province (Fig. 2B; GPS Data, N: 36° 00' 54.1'' and E: 35° 58' 51.6'', 66 m a.s.l.).

Sex was identified by the absence/presence of palpable hemipenis pockets. The specimen was caught by hand.

Mensural and meristic data were recorded by following the system of Avcı *et al.* (2008). All pholidolial characters were examined under the stereo microscope, and all specimens' morphometric features were measured using a digital caliper to the nearest 0.01 mm. The following pholidolial characteristics were evaluated: PrO (number



Figure 1. A map showing the distribution areas of *Rhynchocalamus melanocephalus* in Turkey. The red star (locality 5) shows the new locality (Gözlüce Neighborhood, Yayladağı-Hatay) found in this study. The green squares represent previous locality records in literature. 1- Sofular Village, Harbiye-Hatay (Avcı *et al.*, 2008), 2- Kuruyer Village-Hatay (Avcı *et al.*, 2008), 3- 20 km south of Harbiye (Franzen & Bischoff, 1995), 4- Güveççi Village, Yayladağı-Hatay (Avcı *et al.*, 2008).

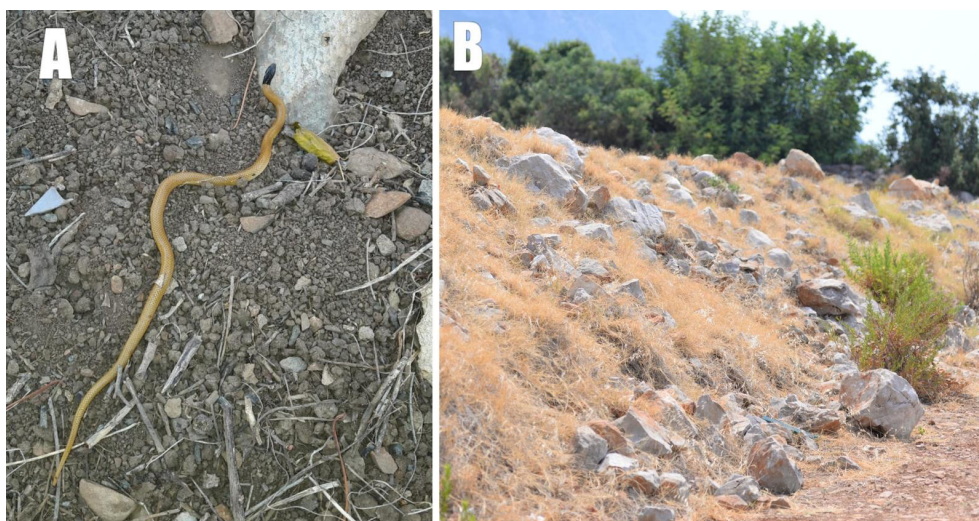


Figure 2. A) A male individual of *Rhynchocalamus melanocephalus* in the Gözlüce population. B) A general view from the habitat of *Rhynchocalamus melanocephalus* in the Gözlüce neighborhood of Yayladağı-Hatay.

of preocular plates, left-right); PoO (number of postocular plates, left-right); T (number of temporal plates, left-right); PoT (number of post temporal plates, left-right), SRL (number of supralabial plates, left-right); SL (number of sublabial plates, left-right); G1 (number of gular scales surrounding the last sublabials); G2 (number of the gular scales in a row between posterior infralabials); D+T (number of the Dorsal+Temporal scales surrounding the posterior margin of the parietals); V (number of ventral plates); LDS (number of longitudinal dorsal scale rows at mid-trunk between ventrals 85-95); and S (number of subcaudal plates).

The morphometric measurements in this study were: rostrum height (RH), rostrum width (RW), distance between the nostrils (ND), diameter of eyes (DOE), pileus length (PL), pileus width (PW), head height (HH), supraocular length (SOL), frontal width (FW), frontal length (FL), anterior inframaxillar length (AIML), posterior inframaxillar length (PIML), snout-vent length

(SVL), tail length (TL), and pairs of lower labials in contact with anterior chin shields (PLL).

Results

Laudakia stellio (Linnaeus, 1758), *Mediodactylus orientalis* (Stepánek, 1937), *Ophisops elegans* (Ménétries, 1832), *Phoenicolacerta laevis* (Gray, 1838), and *Testudo graeca* (Linnaeus, 1758) were the sympatric reptile species observed in the study site. The vegetation of the new locality area (Gözlüce) consists of *Ceratonia siliqua*, *Olea europaea*, and *Laurus nobilis*.

The mean annual temperature and precipitation over the past 80 years in the Gözlüce site were 18.3°C and 96.79 mm, respectively, according to data of the 6th Meteorology Regional Directorate Hatay. During the month of August, when the individual of *R. melanocephalus* was caught, the mean temperature and precipitation were 27.9°C and 17.6 mm, respectively.

Table 1. Comparison of pholidolial characteristics and morphometric measurements of the Gözlüce-Yayladağı specimen of *Rhynchocalamus melanocephalus* with those given by Avcı et al. (2008) and Franzen & Bischoff (1995). For other abbreviations, see text. IN: Internasal triangular (d) or trapezoid shaped (t).

Character	This Study (Gözlüce, Yayladağı specimen)	Avcı et al. (2008) (2 male specimens from Sofular, Harbiye-Hatay; 1 female specimen from Kuruyer-Hatay; 1 male specimen from Güveççi, Yayladağı-Hatay, respectively)				Franzen & Bischoff (1995) 1 specimen from 20 km south of Harbiye, Hatay (sex is not given)
		1 ♂	1st ♂	2nd ♂	1 ♀	
PrO	1-1	1-1	1-1	1-1	1-1	-
PoO	1-1	1-1	1-1	1-1	1-1	-
IN	t	d	t	t	t	d
T	1-1	1-1	1-1	1-2	1-1	-
PoT	2-2	2/2	2-2	2-2	2-2	-
SRL	6-6	6-6	6-6	5-6	6-6	6-6
SL	7-7	7-7	7-7	8-8	7-7	8-8
G1	10	10	10	11	10	-
G2	1	1	1	1	1	-
D+T	11	9	11	11	11	-
V	182	180	184	198	184	201
LDS	15	15	15	15	15	15
S	55	55	54	53	56	56
SVL	232	235	190	301	214	305
TL	51	51	39	61	47	66
RH	1.58	1.60	1.44	1.62	1.36	-
RW	2.46	2.50	2.02	2.50	2.10	-
ND	2.48	2.52	2.02	2.62	2.36	-
DOE	1.44	1.46	1.36	1.70	1.20	-
PL	7.38	7.44	6.52	7.36	6.42	-
PW	3.68	3.70	3.26	4.46	4.04	-
HH	2.86	2.82	2.38	3.38	3.26	-
SOL	0.76	0.80	0.70	0.78	0.70	-
FW	2.18	2.20	2.16	2.60	2.10	-
FL	2.58	2.62	2.40	2.70	2.50	-
AIML	1.56	1.52	1.40	1.74	1.60	-
PIML	1.28	-	-	1.32	1.28	-
PLL	3-4	3-3	3-3	3-4	3-4	3-3

Pholidolial characteristics: SRL is 6-6 and SL is 7-7 in the male specimen. V is 182 and LDS is 15. S is 55 and PoT is 2-2.

Morphometric measurements: SVL is 231.84 mm and TL is 50.73 mm. HH is 2.78 mm, while RH and RW are 1.58 mm, and 2.46 mm, respectively.

Comparisons of pholidolial characteristics and morphometric measurements of the Gözlüce specimen of *Rhynchocalamus melanocephalus* with those in the study of Avcı *et al.* (2008) and Franzen & Bischoff (1995) are given in Table 1.

Color-pattern

In the Gözlüce specimen; the dorsal color of the head and neck was glossy black. The black nuchal band reaches the ventral scales. The ground color of dorsum was yellowish-brown and there was no maculation. The spots on the dorsal formed a line on the tail. The ventral side was yellowish-white without any maculation (Fig. 2).

Discussion

In the present study, I provided a new locality record (Gözlüce-Yayladağı) of *R. melanocephalus* from the Hatay province of Turkey. According to the literature, the known records of the species in Turkey were only limited to the four localities in the Hatay province.

Pholidolial characteristics and morphometric measurements of the Gözlüce specimen were found similar to the other Turkish specimens reported (Franzen & Bischoff, 1995; Avcı *et al.*, 2008). Dorsal scales were smooth in 15 rows at mid-body (between ventrals 85-95) in the Gözlüce specimen. Rostrale enlarged and extended backward between internasals. Similar findings were reported by Avcı *et al.* (2008). Subcaudal plates of the Gözlüce specimen were 54 pairs. Franzen & Bischoff (1982) observed 57 pairs of subcaudals and Avcı *et al.* (2008) reported 53-56 pairs of subcaudals. According to Reed & Marx (1959), the numbers of diagnostically important pholidosis characters (supralabials and sublabials) of *Rhynchocalamus melanocephalus* were 6-6 (left-right) and 7-7 (left-right), respectively. Similarly, the numbers of supralabials and sublabials in the specimen of Gözlüce were found as 6-6 and 7-7, respectively.

The new locality record (Gözlüce-Yayladağı) of *Rhynchocalamus melanocephalus* revealed that the species can also be found in different parts of the Hatay province or in the surrounding provinces. The importance of continuing field surveys is clearly evident.

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