

RESEARCH ARTICLE

**New Locality Record and Morphological Data of *Hemorrhois ravergieri* (Ménétries, 1832) (Serpentes: Colubridae) in Turkey**

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**Received:** 20.06.2019  
**Revision Requested:** 12.07.2019  
**Last Revision Received:** 20.07.2019  
**Accepted:** 25.07.2019

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**Citation:** Bulbul, U., Koc, H., Bayrak, M. O., & Kutrup, B. (2019). New Locality Record and Morphological Data of *Hemorrhois ravergieri* (Ménétries, 1832) (Serpentes: Colubridae) in Turkey. *Turkish Journal of Bioscience and Collections*, 3(2), 59–62. <https://doi.org/10.26650/tjbc.20190005>

## Introduction

The Spotted whip snake, *Hemorrhois ravergieri*, is widespread in Asia, through Afghanistan, Armenia, Azerbaijan, China, Georgia, India, Iran, Iraq, Israel, Jordan, Kazakhstan, Lebanon, Pakistan, Syria, Tajikistan, Turkey, Turkmenistan and Uzbekistan (Disi *et al.*, 2017). The species is common in sparsely vegetated rocky or stony areas, in montane regions (Disi *et al.*, 2017). Although the species is typically found in xerophytic vegetation, it can be found in sparsely forested areas (Khan, 2006) and along rivers (Ananjeva *et al.*, 2006). It has been classified as LC (Least Concern) in the IUCN Red List since 2017.

In Turkey, *H. ravergieri* has been recorded from the Mediterranean, Central Anatolia, Southeastern Anatolia, Eastern Anatolia and Black Sea regions (Baran & Atatür, 1998; Başoğlu & Baran, 1998; Sindaco *et al.*, 2000; Afsar

## Abstract

The Spotted whip snake, *Hemorrhois ravergieri*, has been known to be present in the Mediterranean, Central Anatolia, Southeastern Anatolia, Eastern Anatolia and Black Sea regions in the literature. Until now, its presence has only been reported in Artvin, Trabzon and Bayburt provinces in the Black Sea region of Turkey, in the literature. The locality record of the *H. ravergieri* from Gümüşhane Province in the Black Sea region was provided in the current study. The record extended the distribution of this species in Turkey. The pholidolial and morphometric characters, and color-pattern features of two female specimens are given in detail and compared with the specimens in the literature. The specimens examined were similar to *Hemorrhois ravergieri* specimens mentioned in the literature. Only a morphological character (the undivided anal plate) was observed to be different from the features given in the literature. The findings show that the Spotted whip snake can be found in other provinces with suitable habitats in the Black Sea region in Turkey.

**Keywords:** Spotted whip snake, Pholidosis, Distribution, Torul

*et al.*, 2013; Baran *et al.*, 2013; Sarıkaya *et al.*, 2017; Akman *et al.*, 2018). Up to now, in the Black Sea region, its presence has only been reported in Artvin, Trabzon and Bayburt provinces (Başoğlu & Baran, 1998; Sindaco *et al.*, 2000; Baran *et al.*, 2013).

The current study provided the locality record of *Hemorrhois ravergieri* in the Gümüşhane Province of Turkey (Fig. 1). We presented some pholidolial, morphometric characters and color-pattern features belonged to two adult specimens of the species.

## Material and Methods

In field study on 9<sup>th</sup> June 2019, 2 ♀♀ roadkill specimens (sex was identified by the absence of palpable hemipenes pockets) of *Hemorrhois ravergieri* were recorded from the Torul-Şiran highway in the Gümüşhane Province



**Figure 1.** The map showing the distribution area of *Hemorrhoids raverieri* in Turkey. Red circles represent the known distribution according to the literature, and the white star shows the new locality (our data). 1. Trabzon, 2. Bayburt, 3. Artvin, 4. Kars, 5. Iğdır, 6. Erzurum, 7. Ağrı, 8. Muş, 9. Elazığ, 10. Van, 11. Şırnak, 12. Bitlis, 13. Siirt, 14. Hakkari, 15. Erzincan, 16. Bingöl, 17. Tunceli, 18. Mardin, 19. Kahramanmaraş, 20. Malatya, 21. Mersin, 22. Adana, 23. Niğde, 24. Kayseri, 25. Sivas. Data from Başoğlu & Baran (1998), Sindaco *et al.* (2000), Afsar *et al.* (2013), Baran *et al.* (2013), Sarıkaya *et al.* (2017) and Akman *et al.* (2018).

(40°28'052"N, 39°22'300"E, 1098 m a.s.l.). After taking tissue samples for genetic analyses, the specimens were deposited in 70% ethanol. They were deposited in the Zoology Laboratory of the Department of Biology at the Faculty of Science, Karadeniz Technical University under KZL-352/06 June 2019, 2♀♀, Torul, Gümüşhane, leg. U. BÜLBÜL, H. KOÇ and M. O. BAYRAK.

We modified the system of Fathinia *et al.* (2010) for morphological counts and measurements. All pholidolial characters were examined under a stereomicroscope, and all specimens' morphometric features were measured using a digital caliper with an accuracy of 0.01 mm. The following pholidolial characteristics were evaluated: supralabial plates, preocular plates, postocular plates, infralabials, dorsal scales, ventral plates and subcaudal plates.

The morphometric measurements in this study were the following: snout-vent length (SVL), tip of snout to anal cleft; tail length (TL), anal cleft to tip of tail; head width (HW), at widest point of head and head length (HL), tip of snout to posterior margin of the ear opening.

## Results

The specimens were found during a day excursion between 6-7 p.m. on 9<sup>th</sup> June 2019. The temperature was about 27 °C. *Dolichophis caspius* (Gmelin, 1789) and *Lacerta media* (Lantz & Cyrén, 1920) live in sympatry in the study area.

### Pholidolial characteristics

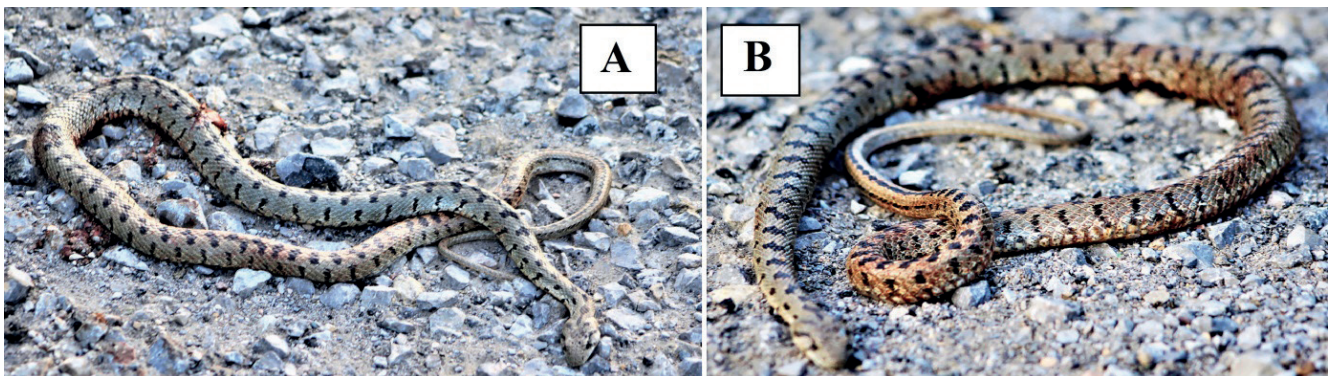
Supralabial plates were 10-9 (left-right) in the first female and 9-9 in the second female. The 5<sup>th</sup> and 6<sup>th</sup> supralabials were in contact with the eye in specimens. The number of infralabials was 9 (left-right) in the specimens. There was 1 (left-right) loreal and 2 temporal (left-right) plates in the specimens. The first 5 infralabials were in contact with the anterior chin shield. There were 22 keeled dorsals in the specimens (Table 1). The anal plate was not divided in both specimens.

### Morphometric measurements

The SVLs were 867 and 790 mm while the TLs were 257 and 155 mm for the first and second female specimens,

**Table 1.** Some pholidolial characteristics and morphometric measurements of the roadkill specimens of *Hemorrhoids ravergeri* from Torul, Gümüşhane. (L: left; R: right).

Characters	Fathinia et al. (2010)	Our data	
	10 adult and subadult specimens	1♀♀ (First one)	1♀♀ (Second one)
Supralabial Plates (L-R)	9-9/10-10	10-9	9-9
Preocular Plates (L-R)	3-3	3-3	3-3
Postocular Plates (L-R)	2-2	2-2	2-2
Loreal (L-R)	-	1-1	1-1
Temporalia	-	2-2	2-2
Infralabials (L-R)	10-10	9-9	9-9
Dorsal Scales	23	22	22
Ventral Plates	205-206	196	184
Subcaudal Plates	65-95	76	69
Snout-vent Length (SVL)	1020 mm	867 mm	790 mm
Tail Length (TL)	310 mm	257 mm	155 mm
Head Width (HW)	-	11.73 mm	10.97 mm

**Figure 2.** Two roadkill specimens of *Hemorrhoids ravergeri* found on Torul-Şiran highway. **A**-The first female specimen, **B**-The second female specimen.

respectively. The HW and HL were 11.73 and 10.97 mm and 19.40 and 18.64 mm for the first and second female specimens, respectively (Table 1).

### Color-pattern

In both specimens; the dorsal color of the head was light brown with dark spots. There were black spots extending backwards on the parietal plaques. The color of dorsarium was grayish brown, and there were separate dark spots, which are not fully rounded. The spots on the dorsal formed a line on the tail. Ventral surfaces were whitish with dark small spots (Fig. 2).

### Discussion

According to literature, the Spotted whip snake, *Hemorrhoids ravergeri*, has only been known to be present in the Artvin, Trabzon and Bayburt provinces in the Black Sea region of Turkey (Başoğlu & Baran, 1998; Sindaco *et al.*, 2000; Baran *et al.*, 2013). In the current study, we reported a new locality record (Torul of the Gümüşhane province) of the species in the region. The results indicate that this species can be found in other provinces with suitable habitats in the Black Sea region in Turkey.

Pholidolial characteristics and morphometric measurements of specimens were similar to those found in the studies of Fathinia *et al.* (2010), except the undivided anal plate.

The number of the specimens in the current study was low. More specimens should be investigated to evaluate the similarity of the Torul population with other populations in Turkey. Future detailed surveys may reveal new localities of the species in the Black Sea region of Turkey.

**Financial Support:** This study was not funded by a specific project grant.

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