

*Xerotyphlops vermicularis* (MERREM, 1820), in the west Bulgarian Rhodope Mountains: rediscovery after more than 100 years

The Eurasian Blind Snake, *Xerotyphlops vermicularis* (MERREM, 1820), the only representative of the snake family Typhlopidae (Scolocophidia) in Europe (GRILLITSCH & GRILLITSCH 1993), is found in the southern parts of the Balkan Peninsula, specifically in former Yugoslavia (Croatia, FYR Macedonia, Montenegro, Serbia), Albania, Bulgaria, Greece and Turkey (GRILLITSCH & GRILLITSCH 1993; GASC et al. 1997; GRILLITSCH et al. 1999) where it represents a chorotype element of the Turano-Mediterranean fauna (JABLONSKI et al. 2012). However, the recent molecular data show that this traditionally accepted species is probably a species complex, since some populations from the Middle East show deep genetic divergences indicating their separate evolution since the end of Middle and Late Miocene (KORNILIOS et al. 2012). This species prefers xerothermic habitats with deep, dry and soft (sandy) soil where it can burrow, typically rocky slopes with low, sparse bush vegetation, open areas with stones as well as cultivated fields (GRILLITSCH & GRILLITSCH 1993).

The known edge of its distribution in the east of the Balkans is formed by several localities on Bulgarian territory (see BESHKOV & NANEV 2006; STOJANOV et al. 2011), from where it was originally published only at the beginning of the 20th century (KOVACHEV 1912; CHICHKOFF 1914). In Bulgaria, this species has a scattered distribution at altitudes below 500 m above sea level. It is found only in the southern parts of the country where it persisted from an earlier more extended distribution. Here it is found in warm valleys of the Struma River (south-western Bulgaria), the lower Maritsa River (Harmanli region), the Arda River (eastern Rhodope Mts.) and the Tundja River (Derventski Highlands, south-eastern Bulgaria), in which the Mediterranean climatic influence is strongest (BESHKOV 1998; STOJANOV et al. 2013). The center of distribution in Bulgaria is the Struma River valley, where the highest number of recent record localities

is known (BESHKOV & NANEV 2006; STOJANOV et al. 2011). Besides, there are historical records of *Xerotyphlops* from isolated localities south of Burgas (near Sozopol, Ropotamo) and the western Rhodope Mountains (near Varvara Village) (DOBREV & DIMITROV 1997; STOJANOV et al. 2011). In the latter case, the species is probably extinct due to complete biotope destruction caused by intensive building activities such as asphaltting of the vicinity of the hot mineral springs and urbanization (BESHKOV 1998; PETROV et al. 2006; BESHKOV & NANEV 2006; STOJANOV et al. 2011).

During a visit to the western Rhodope Mts., Eurasian Blind Snakes were discovered by the second author of this paper (PB), about five kilometers from the Village of Varvara (province Pazardzhik), between the villages of Varvara and Marko Nikolov in the Chepinska River valley. In total, three adult specimens, probably killed by a vehicle, were found on the road in two locations of the valley. One specimen (Fig. 1A) at 42.14038N/24.12875E (habitats Figs. 1D, 1E) and two specimens (Figs. 1B, 1C) at 42.13509N/24.12487E (habitat Fig. 1F), between 340-360 m a.s.l., on May 20, 2013. The location of the first finding was a newly reconstructed asphalt road, extending across the valley, and two specimens were found together near a place called "Banja I". The part of valley where the specimens were found has very steep walls. Suitable habitats between the walls of the valley and the river were available only in patches. The valley is xerothermic with short grass and bush cover on a rocky substratum. Five syntopic species of reptiles were found in this locality: *Lacerta viridis* (LAURENTI, 1768), *Podarcis muralis* (LAURENTI, 1768), *Anguis fragilis* LINNAEUS, 1758 complex, *Natrix tessellata* (LAURENTI, 1768) and *Vipera amodytes* (LINNAEUS, 1758).

In the past, only one specimen of *X. vermicularis* was found in this locality: "...at the second thermal spring, 6 km in Eli-Dere Gorge (now Chepinska River Gorge), May 1908" (KOVACHEV 1912; PETROV et al. 2006). According to PETROV et al. (2006), the original locality of finding was almost fully destroyed by intensive building activities, in the middle of the 20th century. That is why the potential current occurrence of the

species was doubtful (BESHKOV 1998; BESHKOV & NANEV 2006) but not impossible, considering to the low research efforts there (see PETROV et al. 2006). During the authors' visit to the valley, the anthropogenic interventions were obvious, including enlargement and reconstruction of roads and the local buildings. The presented finding of three specimens, after more than 100 years, substantiates the persistent occurrence of this species in the region of the western Rhodopes in spite of clear interferences into the surrounding landscape. Even though, only dead specimens were found, a viable population in the western Rhodopes is likely to occur. The Chepinska River valley is extended and hardly accessible, which both complicates the detection of the species and probably protects the population against deleterious human influences.

On the basis of the current chorological knowledge (STOJANOV et al. 2011), it seems that the population at Varvara Village is isolated from other Bulgarian populations of this species. Maybe the individuals in the western Rhodope Mts. are remnants of a formerly continuous population, that had extended through the Maritsa River valley into the Upper Thracian Plain. The species could have spread along the northern slopes of the Rhodope Mts., a belt of habitats that was fragmented by agricultural landscape transformation only in historical times. Still unanswered is the question whether or not *X. vermicularis* is present in other river valleys of the northern and north-western Rhodope Mts. where similar xerothermic habitats are available, e.g., the valleys of the Stara River (south of the town of Peshtera), Vacha River (near Krichim) or Chepelarska River (south of Asenovgrad). Another burrowing snake species, *Eryx jaculus* (LINNAEUS, 1758), was recorded in the region of these valleys (see PETROV et al. 2006; STOJANOV et al. 2011).

Unintentional introduction of the Eurasian Blind Snake into the Chepinska River valley due to human activities (e.g., transport of construction material), however, cannot fully be excluded. The occurrence of the snake at Varvara was debated with regard to mineral hot water springs, which were considered the main factor of the species' presence on the isolated locali-

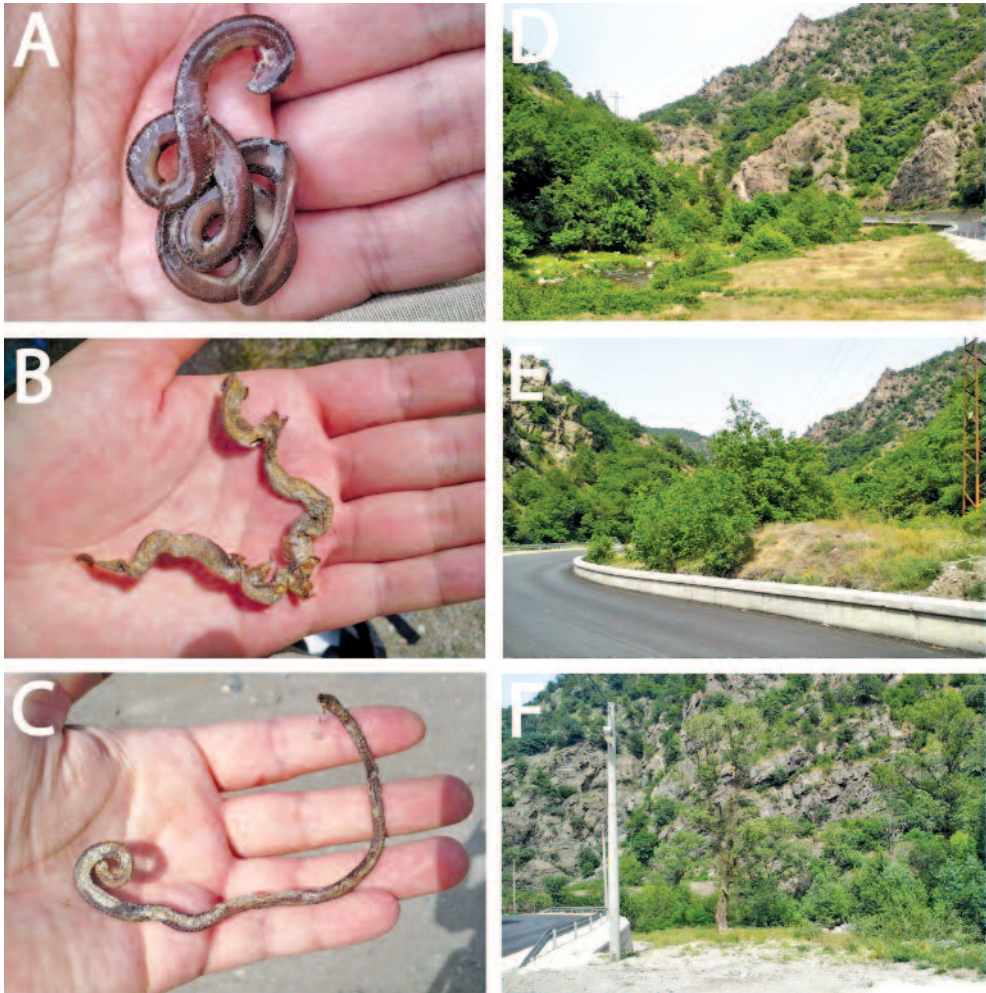


Fig. 1: Three roadkill specimens (A-C) of *Xerotyphlops vermicularis* (MERREM, 1820), found between the villages of Varvara and Marko Nikolov in the Chepinska River valley at 340-360 m a. s. l., on May 20, 2013 (province Pazardzhik, western Rhodope Mountains, Bulgaria) and the corresponding record localities (D-F).

A – Specimen from the first locality outside the thermal springs resort; B and C – specimens found at the thermal spring “Banja I”; D and E – habitat at the first locality; F – place of finding at the spring “Banja I”.

ty in the western Rhodopes (BESHKOV 1998). Such hot springs, which could be suited to improve the geo-climatic conditions in their vicinity, occur also at other places of western Bulgaria, e. g., Gorna Brestnitsa, Kozuch Hill near Rupite, Sandanski, Stara Kresna, and Vlahi. They represent localities where this species is known to occur (e.g., Kresna and Sandanski; see STOJA-

NOV et al. 2011) or, potentially, still unrecognized habitats of the species.

The present finding shows that this species escaped recent mapping activities in western Bulgaria (see WESTERSTRÖM 2005; PETROV et al. 2006; STOJANOV et al. 2011). May seems to be the main period of these snakes' supraterrrestrial activities, when they migrate at night in search of mates for re-

production (e. g., GRILLITSCH & GRILLITSCH 1993; VALAKOS et al. 2008; STOJANOV et al. 2011). Attempts to cross roads can be fatal to these slow animals which was probably the case of the found specimens. Successful future mapping of this secretive species should take into account these habits as well as the above considerations.

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