

Rediscovery of *Vipera ammodytes*
(LINNAEUS, 1758) at Uludağ-Bursa,
Turkey, after 62 years

Apart from a few doubtful Near East records (EISELT & BARAN 1970), the range of *Vipera ammodytes* (LINNAEUS, 1758) includes the southeastern Alps, central and southern Balkans, central Aegean islands, Anatolia and southern Georgia (high Kura valley) with a vertical distribution from sea

level to 2000 m (SINDACO et al. 2000). According to EISELT & BARAN (1970) and BARAN (1998), *V. ammodytes* is represented by three subspecies in Turkey: *V. a. montandoni* BOULENGER, 1904, known from the northern parts of Turkish Thrace; *V. a. meridionalis* BOULENGER, 1903, from Turkish Thrace, western and southern Anatolia; and *V. a. transcaucasiana* BOULENGER, 1913 from northeastern and eastern Anatolia (EISELT & BARAN 1970; BARAN 1998). The latter taxon is sometimes (NILSON et al. 1999; MALLOW et al. 2003) treated as a full species.

This species is one of the most widespread vipers of southern Europe, however, *V. ammodytes* records from western Turkey east of Thrace are rare. They refer to both observations and specimens in collections. VENZMER (1922) quotes a specimen from Polonezköy-İstanbul; EISELT & BARAN (1970) mentioned (i) an exuvia in the collection of O. STEMMLER (HStR 001070), Switzerland, collected by M. ERBSTÖSSER, 70 km south of İzmir, “in the mountains next to Kuşadası“, in March 1965, (ii) a specimen labeled “Cilicia - southern slopes of the Taurus Mountains“ (Cilicien - S-Hänge des Taurus-Gebirges) caught in 1895 from H. ROLLE and stored in the Natural History Museum in Vienna (NMW 13200) and (iii) an observation of *V. ammodytes* “south of Konya” by the mammologist G. NEUHÄUSER, the latter two records having been already mentioned by SCHWARZ (1936: 232, 233). BARAN (1976) was the first to refer to a male juvenile specimen of *V. ammodytes* caught in 1947 at Kirazlıyayla-Uludağ-Bursa (stored in the Museum of the Ege University - SZE 110.1957) and BARAN et. al. (2001) reported a male juvenile from the village Akçakese, between Kandıra and İzmit.

Recently, *V. ammodytes* was subject to systematic and phylogenetic studies by TOMOVIĆ (2006) and URSENBACHER et al. (2008). Due to their rareness in zoological collections, representatives of the north-western Anatolian population were not included in the abovementioned systematic studies.

Since 1947, this species was never documented again from the Uludağ-Bursa area, despite several published or unpublished field surveys (UĞURTAŞ 1989). The

present work deals with the morphology of six *V. ammodytes* specimens, recently collected in the Uludağ Kaplıkaya Valley, south of Bursa.

Field trips conducted in the Kaplıkaya Valley resulted in the catch of three juveniles, two subadults and one adult of *V. ammodytes* (one male and two females), collected during May and June 2009. The snakes were found in four different open and rocky sites in the forest, close to each other, and to the Kaplıkaya River, at altitudes between 760 and 1000 meters. The places were surrounded by trees (*Castanea sativa*, *Quercus frainetto*, *Carpinus betulus* and *Fagus orientalis*) and rich in the lizards *Darevskia rudis* (BEDRIAGA, 1886) and *Podarcis muralis* (LAURENTI, 1768).

The viper specimens were photographed in the field for the documentation of pattern and coloration characteristics, and then carried to the laboratory alive. Prior to making morphometric measurements and counts (Table 1), the vipers were anaesthetized by Ketamine injection (i.m.). The dose administered to the snakes was 60 mg/kg (ROSENBERG 1992). All of the specimens recovered from anesthesia. They were kept for one month in a terrarium, fed with lizards, *Podarcis muralis*, and released in their original habitat, so as not to inflict damage on the population.

For comparison, the characteristics of a female *V. ammodytes* specimen caught from Sapanca-Adapazarı, 120 km northeast of Bursa in September 2000 (Dokuz Eylül University, İzmir - ZDEU 99/2000, collected by Ç. ILGAZ and İ. BARAN) are presented (No. 7 in Table 1). Sapanca is in close vicinity to the type locality of *Vipera barani* BÖHME & JOGER, 1983 from where WERNER (1914) mentioned ‘*Vipera berus*’. NILSON et al. (1988), however, reported that only *V. ammodytes* was known to the shepherds of the Sapanca area.

Vipera ammodytes is characterized by the upturned process “horn” on the tip of the snout and the incomplete fragmentation of the frontal and parietal shields. In terms of these characteristics, it differs from all other vipers in the Near East. In the Uludağ specimens, the dorsum is gray with a dun-colored or brown longitudinal zigzag band, the edges of which are darker. The tip of the tail

Table 1: Morphological measurements (mm) and pholidosis counts of six specimens (1 – 6) of *Vipera ammodytes* (LINNAEUS, 1758) from the Uludağ Kaplıkaya Valley, south of Bursa, Turkey. The comparative data of a female *V. ammodytes* (7) from Sapanca-Adapazarı (Dokuz Eylül University, İzmir, ZDEU 99/2000) was included in this table. (m) – male, (f) – female, (j) - juvenile.

| Character | 1 (j) | 2 (j) | 3 (j) | 4 (m) | 5 (f) | 6 (f) | 7 (f) |
|--|-------|-------|-------|-------|-------|-------|-------|
| Tail length – TL (mm) | 30 | 30 | 31 | 56 | 45 | 60 | 49 |
| Snout-vent length – SVL (mm) | 230 | 263 | 245 | 416 | 361 | 478 | 530 |
| Rostral width - RW | 1.83 | 2.07 | 1.84 | 2.67 | 2.76 | 3.31 | 3.45 |
| Rostral height - RH | 2.24 | 2.09 | 2.21 | 2.91 | 3.00 | 3.67 | 3.96 |
| Number of ventrals | 147 | 150 | 151 | 150 | 147 | 151 | 152 |
| Number of apicals | 2 | 4 | 3 | 5 | 5 | 3 | 4 |
| Number of subcaudals | 39 | 37 | 34 | 38 | 41 | 40 | 29 |
| Number of longitudinal dorsal scale rows | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| Number of horizontal scale rows on rostrum | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Number of canthals | 3-3 | 4-4 | 4-4 | 3-3 | 3-3 | 3-3 | 3-3 |
| Number of supralabials | 9-9 | 9-9 | 9-9 | 9-9 | 10-10 | 9-10 | 10-9 |
| Number of supraoculars | 1-1 | 1-1 | 1-1 | 1-1 | 1-1 | 1-1 | 1-1 |
| Number of circumoculars | 13-11 | 10-11 | 12-12 | 12-13 | 12-12 | 11-12 | 11-11 |
| Number of loreals | 8-8 | 8-8 | 8-7 | 9-9 | 8-8 | 7-7 | 7-8 |
| TL/SVL | 0.13 | 0.11 | 0.13 | 0.13 | 0.12 | 0.13 | 0.09 |
| RH/RW | 1.22 | 1.01 | 1.20 | 1.09 | 1.09 | 1.11 | 1.15 |

is greenish-yellow and the body flanks bear a row of small, dun-colored maculations. The venter is yellowish-white, with black spots or marbled.

According to the number of scale rows forming the ‘horn’ and the ratio rostral height (RH) / rostral width (RW) given by EISELT & BARAN (1970) and TOMOVIĆ (2006), our specimens conform to the subspecies *V. a. meridionalis*. *Vipera a. montandoni* is characterized by higher values of RH/RW in both studies. There is a difference, however, between our specimens and the data for *meridionalis* in TOMOVIĆ (2006) concerning the number of ventrals. Our minimum and maximum values are compatible with all subspecies in that study. The number of horizontal scale rows forming the ‘horn’ in west Anatolian *ammodytes* is 3 or 5 (BARAN 1976), which is in agreement with our individuals. When the specimens are compared with the descriptions in BARAN et al. (2001) they can be attributed to *V. a. meridionalis* because of the number of circumoculars, supralabials, ventrals and longitudinal scale rows at midbody. The ratio RH/RW and the number of scale rows on the ‘horn’ of the İzmit specimen were, however, not indicated by these authors. The specimens from Uludağ and Sapanca have similar pholidosis characters and are regarded as *V. a. meridionalis* by the authors of this note.

The new record of the species *V. a. meridionalis*, which was not observed in the Uludağ area for 62 years, was represented by individuals of different ages (juveniles and adults) indicating a healthy population in this region.

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Fig. 1: *Vipera ammodytes meridionalis* from the Kaplıkaya Valley, Uludağ-Bursa, western Turkey.



Fig. 2: Habitat of *Vipera ammodytes meridionalis* at Kaplıkaya Valley, Uludağ-Bursa, western Turkey.

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