New record localities of five snake species in Turkey

Nine snake specimens from five species caught during herpetological excursions to Thrace, the Black Sea and Eastern Anatolia between March and September 2010-2011, are presented here because of their interesting record localities. Ventral scales were counted according to the method of DOWLING (1951). The material is stored in the Museum of the Faculty of Arts and Sciences, Çanakkale Onsekiz Mart University and incorporated into the collection of ZDEU-ÇOMU (Zoology Department, Ege University-Çanakkale Onsekiz Mart University), Turkey. For the head, and body and tail lengths, digital calipers and a tape measure were used, respectively.

Typhlops vermicularis
MERREM, 1820

Material: 1 specimen, ZDEU-ÇOMU 118/2010, Uçmakdere Village, Şarköy, Tekirdağ, 40.786534°N, 27.364436°E, 24 m a.s.l., 12.06.2010.

The specimen is typical in all traits (Table 1). A record from Istanbul by BODENHEIMER (1944) was however, not specified whether originating from Europe or Asia. The rare records from Turkish Thrace were mapped in GASC et al. (1997) and SINDACO et al. (2000).

Eryx jaculus turcicus
(OLIVIER, 1801)

Material: 1 male, ZDEU-ÇOMU 119/2010, Hoşköy Village, Şarköy, Tekirdağ, 40.713612°N, 27.312203°E, 9 m a.s.l., 12.06.2010. Roadkill specimen in bad condition. Snout-vent length: 458 mm; tail length: 52 mm.

There is a record from Istanbul by BODENHEIMER (1944). The rare records from Turkish Thrace were mapped in GASC et al. (1997) and SINDACO et al. (2000).

Hemorrhois ravergieri
(MÉNÉTRIES, 1832)

Material: 1 female, ZDEU-ÇOMU 120/2010, Tunceli, 39.124316°N, 39.560500°E, 1,191 m a.s.l., 15.04.2010. The specimen found within the range of the species (BARAN & ATATÜR 1998; SINDACO et al 2000) is typical in all traits (Table 1).

According to the map provided by SINDACO et al. (2000), there is no record of *H. ravergieri* in the region extending between Sivas and Bitlis. Now this gap is closed by our new record from Tunceli, but also by an earlier report of this species encountered near Kemaliye, Erzincan, in a previous study by DEMIRSOY et al. (2008) [*H. ravergieri*' nin Kemaliye (Erzincan)' dan kayıt edildiği proje metında ve referanslarda belirtilmeli].

Platyceps collaris
(MÜLLER, 1878)

Material: 1 male, ZDEU-ÇOMU 121/2010, Orhaniye Village, Kocaeli,

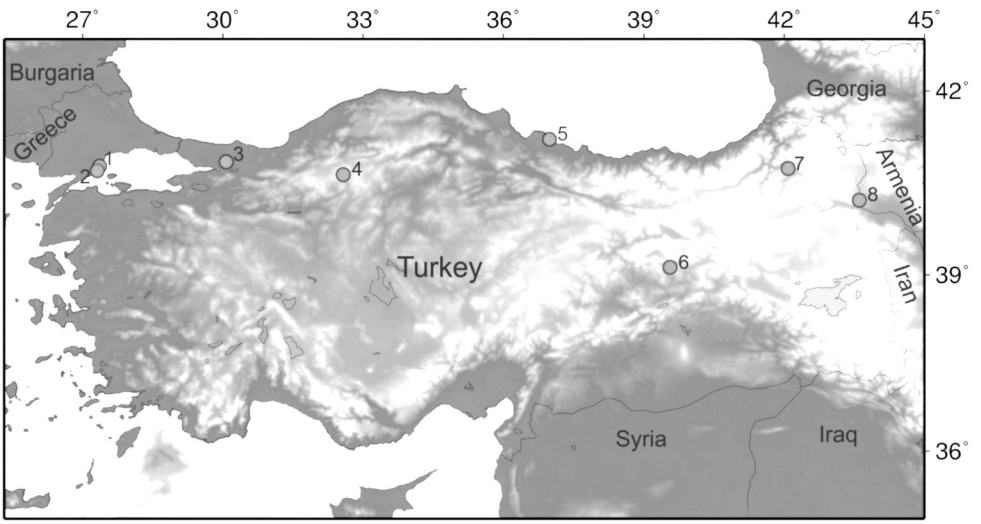

Fig. 1: Map showing the Turkish localities where the snake specimens were collected. 1 - Uçmakdere Village, Şarköy, Tekirdağ; 2 - Hoşköy Village, Şarköy, Tekirdağ; 3 - Orhaniye Village, Kocaeli; 4 - Kızılcahamam, Ankara; 5 - Terme, Samsun; 6 - Tunceli; 7 - Karnavas Village, Olur, Erzurum; 8 - Karabağ Village, Digor, Kars. Map created by Seaturtle maptool from www.seaturtle.org.

40.857676°N, 30.066900°E, 379 m a.s.l., 11.06.2010. The specimen is typical in all traits (Table 1). The rare records from Turkish Thrace were mapped in GASC et al. (1997) and SINDACO et al. (2000) under *Coluber rubriceps*. There is no record from Kocaeli in SINDACO et al. (2000).

According to SCHÄTTI et al. (2001), there is no record of *P. collaris* from the Province of Kocaeli making the specimen found in Orhaniye Village, Kocaeli the first collected from this region.

Macrovipera lebetina obtusa
(DWIGUBSKY, 1832)

Material: 2 males, ZDEU-ÇOMU 122/2010, Karnavas Village, Olur, Erzurum, 40.752714°N, 42.082093°E, 1,457 m a.s.l., 25.06.2010; 1 male, ZDEU-ÇOMU 65/2011, Karabağ Village, Digor, Kars, 40.236007°N, 43.606587°E, 1,559 m a.s.l., 24.06.2011.

The specimens are grayish-brown with indistinct blurred dorsal and lateral spots. Ventral side black-dotted on white ground. The end of the tail is yellowish. Pholidosis counts and measurements are presented in Tables 1 and 2.

There is broad consensus that the subspecies of east and north-east Anatolia is *obtusa* (DWIGUBSKY, 1832), whereas the systematic allocation of the south Anatolian individuals remained under debate (BILLING & SCHÄTTI 1984; NILSON et al. 1988; BAŞOĞLU & BARAN 1998; TOK et al. 2002; GÖÇMEN et al. 2005, 2007; STÜMPEL & JOGER 2009). The specimens of *M. lebetina* examined in the present study were identified as *obtusa* not only because of the record localities, but also in terms of dorsal pattern, head shape and the number of ventralia (BILLING & SCHÄTTI 1984; NILSON & ANDRÉN 1988; NILSON et al. 1988; GÖÇMEN et al. 2005).

According to the map provided by SINDACO et al. (2000), there is no record of this snake from between the Provinces of Erzincan and Kars. The specimens found in Erzurum close this gap.

Vipera ammodytes transcaucasiana
BOULENGER, 1913

Material: 1 juvenile, ZDEU-ÇOMU 123/2010, Terme, Samsun, 41.221522°N, 36.989176°E, 5 m a.s.l., 12.09.2010; 1

Table 1: Pholidosis counts and body measurements (in mm) of specimens examined: 1 - preocularia (left/right), 2 – postocularia, 3 - supralabialia, 4 - sublabialia , 5 - inframaxillaria, 6 - longitudinal scale rows at mid-body, 7 - dorsalia, 8 - ventralia (counted according to the method by DOWLING 1951), 9 - longitudinal scale rows at the base of the tail, 10 - subcaudalia, 11 - snout-vent length, 12 - tail length, 13 - pileus length, 14 - pileus width, 15 - rostrum height, 16 - rostrum width.

Characters															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
T. vermicularis															
1/1	-	4/4	5/5	-	24	-	-	20	-	276	4	-	-	-	-
H. ravergieri															
3/3	2/2	10/10	10/10	2/2	-	23	204	-	85	427	115	14.4	7.9	2.3	3.3
P. collaris															
2/2	2/2	8/8	10/10	2/2	-	19	189	-	94	410	154	11.6	5.2	1.8	2.5
M. lebetina															
-	-	10/10	14/14	2/2	-	25	170	-	-	880	-	-	-	7.1	7.6
-	-	10/10	14/14	2/2	-	25	173	-	44	610	81	-	-	4.2	4.8
-	-	11/11	13/13	2/2	-	26	168	-	48	990	145	-	-	8.3	7.5
V. ammodytes															
-	-	-/10	11/11	-	-	21	154	-	41	179	25	-	-	1.6	2.8
-	-	-/10	11/11	-	-	21	145	-	37	390	56	-	-	1.3	3.7

juvenile, ZDEU-ÇOMU 66/2011, Kızılcahamam, Ankara, 40.653522°N, 32.573497° E, 1,375 m a.s.l., 20. 06. 2011.

Records of *Vipera ammodytes* in Central Anatolia and along the Black Sea coast are rare. In the specimens under examination, the dark transversal spots do not form a continuous band on the dorsal side and the end of the tail is yellowish green.

There are seven scales across the pileus between the two supraoculars in both specimens and the number of overlapping scales on the rostral plate and the apicale is two. Between the eye and the supralabial plates there are two rows of scales. Further counts and measurements and are presented in Tables 1 and 2.

In previous studies, the *Vipera ammodytes* specimens of the regions central and eastern Black Sea and north-eastern and eastern Anatolia were assigned to the subspecies *transcaucasiana* BOULENGER, 1913 (EISELT & BARAN 1970; BARAN 1976; BARAN 1978; TOK & KUMLUTAŞ 1996; KUTRUP 1999; URSENBACHER et al. 2008) and those from western (Kuşadası, Aydın) and southern Anatolia (South Taurus Mountains), the Marmara Region (Uludağ, Bursa) and Thrace to the subspecies *meridionalis* BOULENGER, 1903 (EISELT & BARAN 1970; BARAN 1976; URSENBACHER et al. 2008). This largely agreed view persisted for decades (EISELT & BARAN 1970; BAŞOĞLU & BARAN 1980; BARAN & ATATÜR 1998; URSENBACHER et al. 2008). Deviating views were published by NILSON et al. (1988) who integrated all the Anatolian *V. ammodytes* in the subspecies *transcaucasiana*. and TOMOVIĆ (2006), who found *V. a. transcaucasiana* occurring in northern Anatolia and *V. a. montandoni* BOULENGER, 1904, in the European section of Turkey, with the specimens in the region of the Bosporus Strait potentially representing intermediate populations.

The specimen caught at Terme (Samsun) fits *V. a. transcaucasiana* BOULENGER, 1913, whereas the specimen from Kızılcahamam (Ankara) fits *V. a. montandoni* BOULENGER, 1904, according to the ranges of ventralia counts in TOMOVIĆ (2006). However, both resemble *transcaucasiana* in that (i) the transversal spots on the dorsal side are isolated, not forming a continuous zigzag band, (ii) the overlapping scales on the rostral plate and on the anterior section of the horn are arranged in two rows, and (iii) the end of the tail is yellowish green (BILLING & SCHÄTTI 1984; NILSON et al. 1988; GÖÇMEN et al. 2005). Therefore, the specimen of Terme was included in the sub-

Table 2: Pholidosis counts of three specimens of *Macrovipera lebetina obtusa* (DWIGUBSKY, 1832) and two specimens of *Vipera ammodytes transcaucasiana* (BOULENGER, 1913) and *Vipera ammodytes* cf. *transcaucasiana* under study. r/l – right/left side.

	Inframaxillars r/l	Canthals r/l	Apicals	Circumoculars (supraoculars included) r/l	Supralabials r/l	Sublabials r/l	Dorsals (between ventrals #)	Preventrals +Ventrals	Subcaudals
M. lebetina (Karnavas, Olur)	2/2	3/3	2	16/16	10/10	14/14	25 (70-85)	3+170	-
M. lebetina (Karnavas, Olur)	2/2	3/3	3	16/16	10/10	14/14	25 (70-85)	1+173	44
M. lebetina (Karabağ, Digor)	2/2	4/4	3	18/17	11/11	13/13	26 (70-85)	3+168	48
V. ammodytes transcaucasiana (Terme)	-	-	2	12/12	10/-	11/11	21 (60-75)	3+154	41
V. a. cf. *transcaucasiana* (Kızılcahamam)	-	-	2	12/13	10/-	11/11	21 (60-75)	145	37

species *transcaucasiana*, whereas the specimen of Kızılcahamam was tentatively classified *Vipera ammodytes* cf. *transcaucasiana*.

According to the maps by NILSON et al. (1988) and SINDACO et al. (2000), there is no record of the species from between the Provinces of Kastamonu and Ordu on the Black Sea coastal band. The specimen found in the Province of Samsun completes the series of records from the Black Sea coastal provinces.

REFERENCES: BARAN, İ. & ATATÜR, M. K. (1998): Turkish Herpetofauna. Amphibians and Reptiles.- Çevre Bakanlığı, Ankara; pp. 214. BARAN, İ. (1976): Türkiye yılanlarının taksonomik revizyonu ve coğrafik dağılışları.- TÜBİTAK Yayınları, Ankara; 309: 1-177. BAŞOĞLU, M. & BARAN, İ. (1980): Türkiye sürüngenleri. Kısım II. Yılanlar.- Ege Üniversitesi Fen Fakültesi, Kitaplar Serisi, İzmir; 81: 1-218. BILLING, H. & SCHÄTTI, B. (1984): Vorläufige Mitteilung zum Subspezies-Problem bei *Vipera lebetina* (LINNAEUS, 1758).- Salamandra, Bonn; 20: 65-69. BODENHEIMER, I. S. (1944): Introduction into the knowledge of the amphibia and reptilia of Turkey.- İstanbul Üniversitesi Fen Fakültesi Mecmuası, İstanbul; (B) 9: 1-78. DEMIRSOY, A. & AKBULUT, A. & DURMUŞ, Y. & EKIM, T. & VURAL, M. & TOK, C. V. & YIĞIT, N. & AKBULUT, N. & IŞILOĞLU, M. & SESLI, E. & ERDAĞ, A. & KANDEMIR, A. & ASLAN, A. & SEVGILI, H. & ASLAN, N. & ÖZKURT, Ş. & TOSUNOĞLU, M. & YILDIRIM, F. & ÇALIŞKAN, S. & GÜMÜŞ, B. & ÇALIŞKAN, M. & DEMIR, E. & ALLI, H. & TÜRKEŞ, T. & PERKTAŞ, U. & ERDOĞDU, M. & SAYGILI, F. & YÜZBAŞIOĞLU, S. & ÖZBEK, U. & ÖZGÜR, M. & KAYA, S. & KOCATEPE, N. & KABALAK, M. & KARAHISAR, S. & METE, Ö. & DARILMAZ, M. & ALTINÖZLÜ, H. & DEMIRSOY, F. & KÖKMEN, S. (2008): Kemaliye (Erzincan) ve çevresinin biyoçeşitlilik açısından incelenmesi. The Scientific & Technological Research Council of Turkey (TÜBİTAK) ÇAYDAG 105Y016, 1-1216. DOWLING, H. G. (1951): A proposed standard of counting ventrals in snakes.- British Journal of Herpetology, London; 1: 97-99. EISELT, J. & BARAN İ. (1970): Ergebnisse zoologischer Sammelreisen in der Türkei. Viperidae,- Annalen des Naturhistorischen Museums; Wien; 74: 357-369. GASC, J. P. & CABELA, A. & CRNOBRNJA-ISAILOVIC, J. & DOLMEN, D. & GROSSENBACHER, K. & HAFFNER, P. & LESCURE, J. & MARTENS, H. & MARTÍNEZ RICA, J. P. & MAURIN, H. & OLIVEIRA M. E. & SOFIANIDOU, T. S. & VEITH, M. & ZUIDERWIJK, A. (Eds.) (1997): Atlas of amphibians and reptiles in Europe. Paris (Societas Europaea Herpetologica, Muséum National d'Histoire Naturelle & Service du Patrimoine Naturel, pp. 496 (Collection Patrimoines Naturels 29). GÖÇMEN, B. & ARIKAN, H. & MERMER, A. & LANGERWERF, B. & BAHAR, H. (2005): Morphological, hemipenial, and venom electrophoresis comparisons of the Levantine Viper, *Macrovipera lebetina* (LINNAEUS, 1758), from Cyprus and Southern Anatolia.- Turkish Journal of Zoology, Ankara; 30: 225-234. GÖÇMEN, B. & ARIKAN, H. & ÇIÇEK, K. & YILDIZ, Z. (2007): A serological comparison of the populations of the Levantine Viper, *Macrovipera lebetina* (LINNAEUS, 1758) in Cyprus and

Southern Turkey.- North-Western Journal of Zoology, Oradea; 3 (2): 75-80. KUTRUP, B. (1999): The morphology of *Vipera ammodytes transcaucasiana* (Reptilia, Viperidae) specimens collected from Murgul (Artvin, Turkey).- Turkish Journal of Zoology, Ankara; 23 (4): 433-438. NILSON, G. & ANDRÉN, C. (1988): *Vipera lebetina transmediterranea*, a new subspecies of viper from North Africa, with remarks on the taxonomy of *V. lebetina* and *V. mauritanica* (Reptilia: Viperidae).- Bonner zoologische Beiträge, Bonn; 39: 371-379. NILSON, G. & ANDRÉN, C. & FLÄRDH, B. (1988): Die Vipern der Türkei.- Salamandra, Bonn; 24 (4): 215-247. SCHÄTTI, B. & BARAN, İ. & MANOUIR, P. (2001): Taxonomie, Morphologie und Verbreitung der Maskenschlanknatter *Coluber* (s.l.) *collaris* (MÜLLER, 1878).- Revue Suisse de Zoologie, Genève; 108 (1): 11-30. SINDACO, R. & VENCHI, A. & CARPANETO, G. M. & BOLOGNO, M. (2000): The reptiles of Anatolia: A checklist and zoogeographical analysis.- Biogeographia, Bologna; 21: 441-554. STÜMPEL, N. & JOGER, U. (2009): Recent advances in phylogeny and taxonomy of Near and Middle Eastern Vipers - an update.- ZooKeys, Sofia; 31: 179-191. TOK, C. V. & KUMLUTAS, Y. (1996): On specimens of *Vipera ammodytes taranscaucasiana* (Viperidae) from Persembe, Black Sea region of Turkey.- Zoology in the Middle East, Heidelberg; 13: 47-50. TOK, C. V. & CIHAN, D. & AYAZ, D. (2002): A new record of *Macrovipera lebetina obtusa* (Viperidae) from South-Eastern Anatolia.- Zoology in the Middle East, Heidelberg; 25: 23-26. TOMOVIĆ, L**.** (2006): Systematics of the nose-horned viper (*Vipera ammodytes*, LINNAEUS, 1758).- Herpetological Journal, London; 16**:** 191-201. URSENBACHER, S. & SCHWEIGER, S. & TOMOVIĆ, L. & CRNOBRNJA-ISAILOVIĆ, J. & FUMAGALLI, L. & MAYER, W. (2008): Molecular phylogeography of the nose-horned viper (*Vipera ammodytes*, (LINNAEUS, 1758)): evidence for high genetic diversity and multiple refugia in the Balkan peninsula.- Molecular Phylogenetics and Evolution, San Diego; 46**:** 1116-1128.

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