Acta Herpetologica 3(2): 167-173, 2008
ISSN 1827-9643 (online)

First record of *Vipera ursinii graeca* in Albania (Reptilia: Serpentes, Viperidae)

Zoltán Korsós[1], Zoltán Barina[2], Dániel Pifkó[2]

[1] *Department of Zoology, Hungarian Natural History Museum, Baross u. 13, H-1088 Budapest, Hungary. Corresponding author.* E-mail: korsos@nhmus.hu
[2] *Department of Botany, Hungarian Natural History Museum, Könyves Kálmán krt. 40, H-1087 Budapest, Hungary.*

Submitted on 2008, 15th January; revised on 2008, 2nd July; accepted on 2008, 18th August.

Abstract. In the framework of the botanical and zoological expeditions of the Hungarian Natural History Museum to the Balkans, a specimen of *Vipera ursinii graeca* was observed in the southern Nemerçke Mountains of Albania. It is the first record of the subspecies outside Greece, but zoogeographically it belongs to the northern Pindos Mountain range.

Keywords. *Vipera ursinii graeca*, new record, Southern Albania.

Herpetofauna of Albania may still surprise us with interesting records, although several accounts already exist (Werner, 1920; Kopstein and Wettstein, 1921; Karaman, 1939; Bruno, 1989; Haxhiu, 1998). This is especially true for the southern mountaneous area which is still scarcely visited by naturalists. For several years, the Hungarian Natural History Museum has been organizing regular collecting trips to the Balkans, including those remote parts of Albania, and accumulates floristic and faunistic information about the "white spots" of the country (Farkas and Buzás, 1997; Fehér et al., 2004). Here we present a new record of the rare *Vipera ursinii graeca* Nilson et Andrén, 1988 which was known to occur only in the Pindos Range of Greece, until now.

The meadow or steppe vipers of Europe, the *Vipera* (*Acridophaga*) *ursinii* group is divided into several subspecies (Nilson and Andrén, 2001) which inhabit mountaneous (*V. u. ursinii* in France and Italy, *V. u. macrops* in the Dinaric and Sardo-Pindic mountain ranges, *V. u. graeca* in Greece) and lowland (*V. u. rakosiensis* in Hungary, *V. u. moldavica* in Romanian Moldova, *V. u. renardi* in Ukraine) grassy habitats. All the populations are nowadays fragmented and isolated, and under serious human (mainly agricultural) pressure, hence the whole species group is listed at the highest priority level of international nature conservation categories (e.g., in the appendices of the Bern Convention, the

EU Habitat Directive, the Natura 2000, the IUCN Red List, and the CITES Washington Convention; Corbett, 1989). The two main groups, the mountain grassland and the lowland steppe subspecies, not only differ in terms of ecological requirements, but morphological and developmental traits as well as differences in reproduction biology were also described (Baron et al., 1996; Korsós and Újvári, 2000; Nilson and Andrén, 2001; Filippi and Luiselli, 2002).

In 1982, a local and isolated population of small-sized *ursinii* viper was discovered in the Pindos Mountains of Central Greece (Dimitropoulos, 1985). Nilson and Andrén (1988) described it as *V. u. graeca*, with the diagnostic differences in the low number of subcaudals (18-21 females, 20-27 males), much reduced number of head scales (fewer loreals, only 6-7 supralabials) and posterior dorsal scale rows, midbody scale rows sometimes reduced to 17, and a much reduced colour pattern. Morphological analyses were later completed with biochemical differences, too (Joger et al., 1992; Nilson and Andrén, 2001), which showed that *graeca* can be characterised with a unique serum albumin pattern, and it forms a common evolutionary lineage with *macrops*. Localities in Greece were listed as Tzoumerka Mountain, Lakmos or Peristeri Mountain, and Koziakas Mountain. All these belong to the Pindos Range about 1800-2000 m a.s.l., and this can be true for the new locality presented here as well.

The new observation of an adult specimen of *Vipera ursinii graeca* was made at a locality situated in Southern Albania, District of Përmet (Rrethi i Përmetit), Nemerçke Mountains (Mali i Nemerçkes). The viper specimen was found and photographed (Fig. 1) at the north-eastern slope of Mount Poliçani, 400 m north-east of Peak Poliçani (Maja e Poliçanit, 2138 m), at about 1900 m above the sea level. Exact geographical coordinates are not presented because of conservation reasons but they can be obtained from the authors.

Fig. 1. *Vipera ursinii graeca* on Mount Poliçani, Albania (photo D. Pifkó).

Date of observation is the 23rd of May, 2006, in the late afternoon (around 1600 h), weather conditions were clear, warm and sunny.

The habitat was a short-grass montane pasture on the eastern slope of the mountain chain, facing to the east, relatively declivitous (about 10-20 degrees), with steeper neighbouring slopes, on limestone bedrock (Fig. 2). Exactly at the locality where the specimen was found there were no rocky outcrops, but some smaller pieces appeared a couple of meters away. Plant species composition of the grassland included: *Sesleria* (probably *tenuifolia*) and *Poa* spp., *Ornithogalum oligophyllum*, *Corydalis solida*, *Scilla bifolia* agg., *Narcissus poeticus*, *Pedicularis* sp., and many other herbs not yet in flower. Snow also still covered some of the surroundings. The structure of the habitat was tussocky, with characteristic *Sesleria* aff. *tenuifolia*, and short *Poa* spp. inbetween.

Although the specimen was not collected for conservation reasons, it is clear from the photograph (taken by the botanist third author of the present paper) that this specimen was *V. u. graeca*. White labial sutures, low number (6 on one side) of supralabials, fragmented nasal scutes and colour pattern clearly distinguish it from *V. u. macrops*, the only other alternative (G. Nilson, pers. comm.). Total length of the specimen was about 60 cm, but no other measurements can be provided because the animal was not handled.

The mountainous populations of *Vipera ursinii* in the Balkan Peninsula have for a long time been assigned to the subspecies *macrops* Méhely, 1911. Its distribution range includes part of Croatia, Bosnia-Herzegovina, Montenegro, Serbia, Kosovo, Macedonia and northern Albania (Fig. 3). Data of its occurrences have been continuously accumulating (Méhely, 1911; Werner, 1920; Kopstein and Wettstein, 1921; Fejérváry, 1923; Burech and Zonkov, 1934; Karaman, 1939; Radovanović, 1941, 1964; Dimovski, 1964; Pasuljević, 1968; Bruno, 1989; Nilson and Andrén, 1997; Crnobrnja-Isailović, 2002; Tomović et al., 2004;

Fig. 2. Habitat of Albanian *V. u. graeca*, with the town Përmet in the background (photo D. Pifkó).

Fig. 3. Map of the Balkan Peninsula and Italy with the approximate distribution of the mountainous *Vipera ursinii* subspecies. 1 = *V. u. ursinii*; 2 = *V. u. macrops*; 3 = *V. u. graeca*. Question marks are unconfirmed records: Island Krk in Croatia, Mt. Lülin and the region of Shumen in Bulgaria. Star: New record of *V. u. graeca* in Southern Albania.

Sterijovski, 2006). Populations usually occur above 1000 m a.s.l., up to 2300 m. There are two dubious records in Croatia, on the Island of Krk at sea level (Werner, 1895, 1920; Schwarz, 1936; Karaman, 1939; Bruno, 1980), and Mt. Učka in Istria (Tvrtković et al., 2006). These records have never been reconfirmed in the field, and *V. u. macrops* is very rare in Croatia (Tvrtković et al., 2006). Other dubious records of a montane form of *V. ursinii* in the Balkan Peninsula are from Bulgaria, Mt. Lülin at 950 m a.s.l. and the region of Shumen (question mark in Fig. 3; Buresch and Zonkov, 1934; Beschkov, 1973; Westerström, 2002; Beshkov and Nanev, 2002), which are considered by some authors as ssp. *rakosiensis* (Beschkov, 1973; Nilson and Andrén, 1997). These populations are considered to be extinct (Nilson and Andrén, 1997; Beshkov and Nanev, 2002; Edgar and Bird, 2005).

The actual distribution area of *V. u. macrops* is confined mainly to the mountainous ranges of Bosnia-Herzegovina and Montenegro. Here, individuals are relatively frequently observed (Radovanović, 1941, 1964; Crnobrnja-Isailović, 2002; Tomović et al., 2004), whereas in the connecting borderzones of extreme South Serbia, West Kosovo and West Macedonia this snake species is very rare (Dimovski, 1964; Pasuljević, 1968; Sterijovski, 2006).

In Albania, *V. u. macrops* is recorded in the northern and eastern part of the country, in the mountains of Koritnik, Korab, Shar (or Sara, together with Kobilitsa) reaching

over to the neighbouring countries (Méhely, 1911; Werner, 1920; Fejérváry, 1923; Burech and Zonkov, 1934; Pasuljević, 1968; Bruno, 1989; Haxhiu, 1998; Sterijovski, 2006). The new locality in the south is strikingly geographically separated from these mountains, supporting its subspecific difference as well.

The habitat of *V. u. graeca* is very similar to that of *macrops*: typically it is a rocky, stony subalpine meadow (Fig. 2). The difference between the two subspecies seems to be in the altitude above sea level: the range of *graeca* is about 1750-2000 m, while that of *macrops* is 1000-2300 m. Although the altitude ranges are overlapping, *graeca* seems to have a narrower distribution range, which is supported by the observation that only it occurs at about 12 sites in southern and central mainland Greece only (M. Dimaki, pers. comm.). The vegetation in the habitat of our record (Mount Poliçani, 2138 m a.s.l.) is a short-grass mountain pasture; this is in contrast to the description given by Crnobrnja-Isailović (2002) and Sterijovski (2006), who characterised *macrops* biotopes as *Junipereto-Vaccinetum* (Bjelasica Mountain, eastern Montenegro, 1900 m) or *Calamintho grandiflorae-Fagetum* (Bistra Mountain, Macedonia, 1650-1900 m), respectively. Both are at least partially covered by ligneous bushes (Genera *Juniperus*, *Vaccinium*, *Fagus*) whereas these low-grown tree species are totally absent on Mount Poliçani (Fig. 2).

In conclusion, our data suggest that there are two different *Vipera ursinii* subspecies in Albania: *macrops* and *graeca*. Their ranges are widely separated in the northern and southern mountain chains of the country; the southeastern, inhabited by *graeca*, being connected over the Greek border to the Pindos Mountains. Because of the single observation, we suggest that more field work is required before any detailed conservation measures can be formulated regarding this endangered member of the *Vipera ursinii* group at the European scale.

ACKNOWLEDGEMENTS

We are most grateful to Dávid Murányi (Budapest, Hungary) for calling our attention to the importance of the observation, to Göran Nilson (Göteborg, Sweden) for confirming our identification, to Wolfgang Böhme (Bonn, Germany) and Balázs Farkas (Budapest, Hungary) for helping with literature, and especially to Maria Dimaki (Athens, Greece) for updating our distribution records for Greece.

REFERENCES

Baron, J.-P., Ferriere, R., Clobert, J., Saint Girons, H. (1996): Stratégie démographique de *Vipera ursinii ursinii* au Mont Ventoux (France). C. R. Acad. Sci. Paris, Sciences de la vie **319**: 57-69.

Beschkov, V. (1973): Über die subgenerische Zugehörigkeit der bulgarischen *Vipera ursinii* (Bonaparte, 1835) (Serpentes). Bull. Inst. Zool. Mus. Sofia **37**: 103-112.

Beshkov, V., Nanev, K. (2002): [Amphibians and Reptiles in Bulgaria]. Pensoft, Sofia-Moskva (in Bulgarian).

Bruno, S. (1980): L'erpetofauna delle isole di Cres, Trstenik, Plavnik e Krk (Kvarner, Jugoslavia). Atti Mus. civ. Stor. nat. Trieste **31**: 249-282.

Bruno, S. (1989): Introduction to a study of the herpetofauna of Albania. Br. Herp. Soc. Bull. **29**: 16-41.

Buresh, I., Zonkov, J. (1934): [Untersuchungen über die Verbreitung der Reptilien und Amphibien in Bulgarien und auf der Balkanhalbinsel. II. Teil: Schlangen (Serpentes)]. Izv. tsarsk. prirodonauch. Inst. Sofia **7**: 106-188. (in Bulgarian with German summary)

Corbett, K., Ed (1989): Conservation of European reptiles and amphibians. Christopher Helm, London.

Crnobrnja-Isailović, J. (2002): Another population of *Vipera ursinii macrops* Méhely, 1911 in Montenegro (Central Balkans). Herpetozoa **14**: 137-141.

Dimitropoulos, A. (1985): First records of Orsini's viper, *Vipera ursinii* (Viperidae), in Greece. Ann. Mus. Goulandris **7**: 319-323.

Dimovski, A. (1964): Beitrag zur Herpetofauna Mazedoniens. Fragm. Balc. **5**: 19-22.

Edgar, P., Bird, D.R. (2005): Action Plan for the conservation of the Meadow Viper (V*ipera ursinii)* in Europe. T-PVS/Inf (2005) 1 revised, Council of Europe, Bern.

Farkas, B., Buzás, B. (1997): Herpetologische Beobachtungen in den Nordalbanischen Alpen. Herpetofauna **19**: 10-18.

Fehér, Z., Erőss, Z., Kontschán, J., Murányi, D. (2004): Collecting sites of the zoological expeditions of the Hungarian Natural History Museum to Albania (1992-2003). Folia historico-naturalia Musei Matraensis **28**: 67-82.

Fejérváry, G.Gy. (1923): II. [Amphibians and reptiles]- In: A Magyar Tudományos Akadémia Balkán-kutatásainak tudományos eredményei, Vol. 1: Csiki Ernő állattani kutatásai Albániában, p. 7-65. Teleki, P., Csiki, E. Eds, MTA, Budapest. (in Hungarian)

Filippi, E., Luiselli, L. (2002): Investigazioni ecologiche e problematiche gestionali in *Vipera ursinii*. Gran Sasso-Monti della Laga Scientific Reports. Assergi, Aquila, Italy

Haxhiu, I. (1998): The Reptilia of Albania: Species composition, distribution, habitats. Bonn. zool. Beitr. **48**: 35-57.

Joger, U., Herrmann, H.-W., Nilson, G. (1992): Molecular phylogeny and systematics of viperine snakes II. A revision of the *Vipera ursinii* complex. In: Proceedings of the Sixth OGM of Societas Europaea Herpetologica, Budapest 1991, p. 239-244. Korsós, Z., Kiss, I., Eds, Societas Europaea Herpetologica and Hungarian Natural History Museum, Budapest.

Karaman, S. (1939): Über die Verbreitung der Reptilien in Jugoslawien. Ann. Mus. Serb. Merid. **1**: 1-20.

Kopstein, F., Wettstein, O. (1921): Reptilien und Amphibien aus Albanien. Verh. zool.-bot. Ges. Wien **70**: 387-457.

Korsós, Z., Újvári, B. (2000): [Habitat choice and life history strategies: ecology of the grassland-dwelling vipers in Europe]. In: Synzoological Symposium, Abstracts, p. 17. Hornung, E., Korsós, Z., Eds, Hungarian Natural History Museum, Budapest. (in Hungarian).

Méhely, L. (1911): Systematisch-phylogenetische Studien an Viperiden. Ann. Mus. Nat. Hung. **9**: 186-243.

Nilson, G., Andrén, C. (1988): A new subspecies of the subalpine meadow viper *Vipera ursinii* (Bonaparte) (Reptilia, Viperidae), from Greece. Zool. Scr. **17**: 311-314.

Nilson, G., Andrén, C. (1997): *Vipera ursinii* (Bonaparte, 1835). In: Atlas of amphibians and reptiles in Europe, p. 400-401. Gasc, J.-P., Cabela, A., Crnobrnja-Isailovic, J.,

Dolmen, D., Grossenbacher, K., Haffner, P., Lescure, J., Martens, H., Martinez Rica, J.-P., Maurin, H., Oliveira, M.E., Sofianidou, T.S., Veith, M., Zuiderwijk, A., Eds, Societas Europaea Herpetologica and Museum National d'Histoire Naturelle (IEGB/SPN), Paris.

Nilson, G., Andrén, C. (2001): The meadow and steppe vipers of Europe and Asia the *Vipera* (*Acridophaga*) *ursinii* complex. Acta zool. Acad. Sci. Hung. **47**: 87-267.

Pasuljević, G. (1968): Prilog poznavanju herpetofaune Kosova. Zbornik Filozofskog fakulteta, Priština **1**: 61-74. (in Serbian)

Radovanović, M. (1941): Zur Kenntnis der Herpetofauna des Balkans. Zool. Anz. **136**: 145-159.

Radovanović, M. (1964): Die Verbreitung der Amphibien und Reptilien in Jugoslawien. Senckenber. biol. **45**: 553-561.

Schwarz, E. (1936): Untersuchungen über Systematik und Verbreitung der europäischen und mediterranean Ottern. Behringswerke-Mitteilungen **7**: 159-262.

Sterijovski, B. (2006): A new record of *Vipera ursinii* (Reptilia: Serpentes) from Macedonia. In: Herpetologia Bonnensis II. Proceedings of the 13th OGM of the Societas Europaea Herpetologica, p. 181-182. Vences, M., Köhler, J., Ziegler, T., Böhme, W., Eds, Societas Europaea Herpetologica and Zoologishes Forschungmuseum Koenig, Bonn.

Tomović, L., Crnobrnja-Isailović, J., Ajtić, R. (2004): A preliminary study of the population ecology of *Vipera ursinii macrops* from eastern Montenegro. Amphibia-Reptilia **25**: 316-320.

Tvrtković et al. (2006): Crvena knjiga vodozemaca i gmazova Hrvatske. Ministarstvo kulture, Državni zavod za zaštitu prirode [Red Book of the amphibians and reptiles of Croatia. Ministry of Culture, State Institute for Nature Consevation], Zagreb, 94 p.

Werner, F. (1895): Beitrage zur Kenntnis der Reptilien und Amphibien von Istrien und Dalmatien. Verh. zool.-bot. Ges. Wien **41**: 751-768.

Werner, F. (1920): Zur Kenntnis der Reptilien- und Amphibienfauna Albaniens. Zool. Anz. **51**: 21-24.

Westerström, A. (2002): On the situation of the Bulgarian *Vipera ursinii*. In: Population and Habitat Viability Assessment (PHVA) for the Hungarian Meadow Viper (*Vipera ursinii rakosiensis*). Workshop Report, p. 71. Kovács, T., Korsós, Z., Rehák, I., Corbett, K., Miller, P.S., Eds, IUCN/SSC Conservation Breeding Specialist Group, MN, USA.