

## First record of the four-lined snake *Elaphe quatuorlineata* (Lacépède, 1789) in Serbia

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**Abstract.** This paper presents the first record of four-lined snake *Elaphe quatuorlineata* in Serbia. In Serbia and Montenegro, according to the literature data, this species was found only in Mediterranean and submediterranean Montenegro. We present here data about founding site and suggest conservation measures for this species in Serbia.

**Keywords.** *Elaphe quatuorlineata*, first record, Serbia.

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Herpetofauna of Serbia generally consists of Mediterranean and middle European elements (Džukić, 1995). The main Mediterranean refugia for amphibian and reptile species are Metohia, where climatic influences from the Adriatic Sea spread through the Drim River valley (Pasuljević, 1968; Džukić and Pasuljević, 1979; Ajtić and Tomović, 2001) and the southernmost part of Serbia (i. e. Pčinja River valley, Crnobrnja-Isailović and Aleksić, 1999; Tomović et al., 2004).

Pčinja River is the left tributary of Vardar River a well known corridor for Mediterranean species that spread through the FYR of Macedonia to the north (Matvejev, 1961; Radovanović, 1964; Matvejev and Puncer, 1989). The occurrence of Mediterranean elements have been confirmed for the wide-ranging area in FYR of Macedonia: *Testudo graeca*, *Cyrtopodion kotschyi*, *Algyroides nigropunctatus*, *Lacerta trilineata*, *Podarcis erhardii*, *Pseudopus apodus*, *Typhlops vermicularis*, *Eryx jaculus*, *Platyceps najadum*, *Zamenis situla*, *Elaphe quatuorlineata*, *Malpolon monspessulanus* and *Telescopus fallax* (Karaman, 1931, 1939; Radovanović, 1951; Dimovski, 1963, 1966; Džukić, 1972; Brelih and Džukić, 1974). The presence of some Mediterranean reptile species in Pčinja River valley as the already mentioned taxa: *Podarcis erhardii*, *Platyceps najadum* and *Testudo graeca* (Džukić, 1995; Crnobrnja-Isailović and Aleksić, 1999; Crnobrnja-Isailović et al., 2004; Tomović et al., 2004) are further support to the assumptions, based on vegetation data, that strong Mediterranean influences spread along the Vardar and Pčinja River valleys far into the mainland (Mišić and Dinić, 1970; Randelović and Stamenković, 1974; Zlatković and

Randelović, 2004). Potential vegetation units at the Pčinja River valley include forests of Hungarian oak and Turkey oak – *Quercetum-frainetto-cerris* Rud. (1940) 1949 s. lat., which here display the influence of the Mediterranean, as well as moesian forests of Turkey oak – *Quercetum cerris moesiicum* E. Vuk. 1966 s. lat. (Jovanović et al. 1986), at altitudes of 600-1200 m.

General distribution range of the four-lined snake (*Elaphe quatuorlineata*) includes: most of the Apennine Peninsula, the Balkan Peninsula – Mediterranean parts of Slovenia, Croatia, Montenegro, Albania, Macedonia, Bulgaria, Romania; parts of Moldavia, Ukraine, the Russian Precaucasus, Kazakhstan, Turkmenistan and Iran (Böhme, 1997). But, populations previously regarded as subspecies *Elaphe quatuorlineata sauromates* were recently separated from *E. quatuorlineata* and raised to species rank (Lenk et al., 2001). According to Böhme (1997), in Serbia and Montenegro is present the subspecies *Elaphe quatuorlineata quatuorlineata*. Until now, four-lined snake was recorded only in southern Montenegro (e.g. Boka Kotorska, Bar, Ulcinj, Rumija, Skadar Lake region – Radovanović, 1951; Džukić, 1972; Böhme and Szczerbak, 1993; Crnobrnja-Isailović and Džukić, 1997).



**Fig. 1.** First record of four-lined snake *Elaphe quatuorlineata* in Serbia (National Grid UTM 10 x 10 km Reference).

During a field trip at the Pčinja River valley near the Macedonian-Serbian border (between Klenike village and St. Prohor Pčinjski Monastery, N42°38'33", E21°09'00", National Grid Reference, UTM 10x10 EM79, Fig. 1), on August the 11th 2005, one adult male of four-lined snake (*Elaphe quatuorlineata* Lacépède, 1789), was caught (by Ristić, N.). Individual was only photographed and immediately released (Fig. 2). Founding site is located at approximately 600 m a.s.l. Characteristic plant species of this area are *Quercus pubescens*, *Quercus cerris*, *Carpinus orientalis* and *Juniperus oxycedrus*. This individual was found in a rocky microhabitat facing south. Syntopic species were: *Testudo hermanni*, *Lacerta viridis*, *Podarcis erhardii* and *Platyceps najadum*.

This record extends the distribution range of *E. quatuorlineata* in this part of the species area, to the north (the closest record is Skoplje, over 50 km in a straight line to the



Fig. 2. Adult male of *Elaphe quatuorlineata* from Pčinja River region.

south or approximately 80 km following the Mediterranean corridor from Pčinja valley to Skoplje – Karaman, 1939; Dimovski, 1966). We suppose that this population is situated at the species distribution edge in the central part of the Balkans. Although we found only one adult individual, more detailed field research is needed to evaluate the population and conservation status of this species in Serbia. Having in mind the fact that this is the only founding site of this species in Serbia so far, *E. quatuorlineata* should urgently be added to the list of protected species in national conservation legislative of Republic of Serbia and to the Red Data Book of Serbia and Montenegro.

The presence of several Mediterranean species and very high diversity of amphibians and reptiles (Džukić, 1995) are the main arguments that suggest Pčinja River region to be included in the list of important herpetological areas in Serbia and Montenegro and for the Balkan Peninsula.

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