

## FIRST RECORD OF THE DICE SNAKE, *Natrix tessellata* (REPTILIA: COLUBRIDAE) FROM NORTH-EASTERN ROMANIA

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We present the first record for the dice snake (*Natrix tessellata*) from north-eastern Romania, based on a field survey conducted in July 2014. The origin of this apparently isolated population, as well as the apparent absence of the species from the Romanian bank of the Prut River are also discussed.

**Keywords:** Natricinae; distribution; new record; Romanian Moldavia; Prut River.

The Dice snake, *Natrix tessellata* (Laurenti, 1768), is a relatively large (>100 cm total length), semi-aquatic natricine colubrid. It is one of the Palearctic reptiles with the broadest distribution range, spanning from central Europe in the west towards Afghanistan and China in the east (e.g., Ananjeva et al., 2006; Mebert, 2011). *N. tessellata* is legally a strictly protected species in Romania since 1993 (Law 13/1993) and is currently listed as a species of community interest that requires strict protection (Annex IV of the E.U. Habitat Directive). A previous assessment of the species' distribution and conservation status in Romania listed the species as vulnerable (Strugariu et al., 2011).

Romania lies at the northern limit of the species' distribution range. While the species has been recorded from numerous locations in western Romania and Dobrogea (south-eastern Romania), very few populations have been identified in southern Romania or in Romanian Moldova (Strugariu et al., 2011; Cogălniceanu et al., 2013). Furthermore, one of the historically recorded *N. tessellata* populations from Romanian Moldova, the one from Tarcău (Neamț county), is presumed to be extinct (Gherghel et al., 2008, Strugariu et al., 2011). Thus, only three known locations for the this species have been recently confirmed in Romanian Moldova: two on the Siret River (Bacău county) and one in the

lower Prut River basin (Strugariu et al., 2011). Although the composition and distribution of the herpetofauna from the Romanian side of the Prut River basin has been intensively studied during the past two decades (e.g., Zamfirescu, 2002; Covaciu-Marcov et al., 2008; Strugariu and Gherghel, 2008; Strugariu et al., 2008, 2009), no further observations of the species have been reported until now.

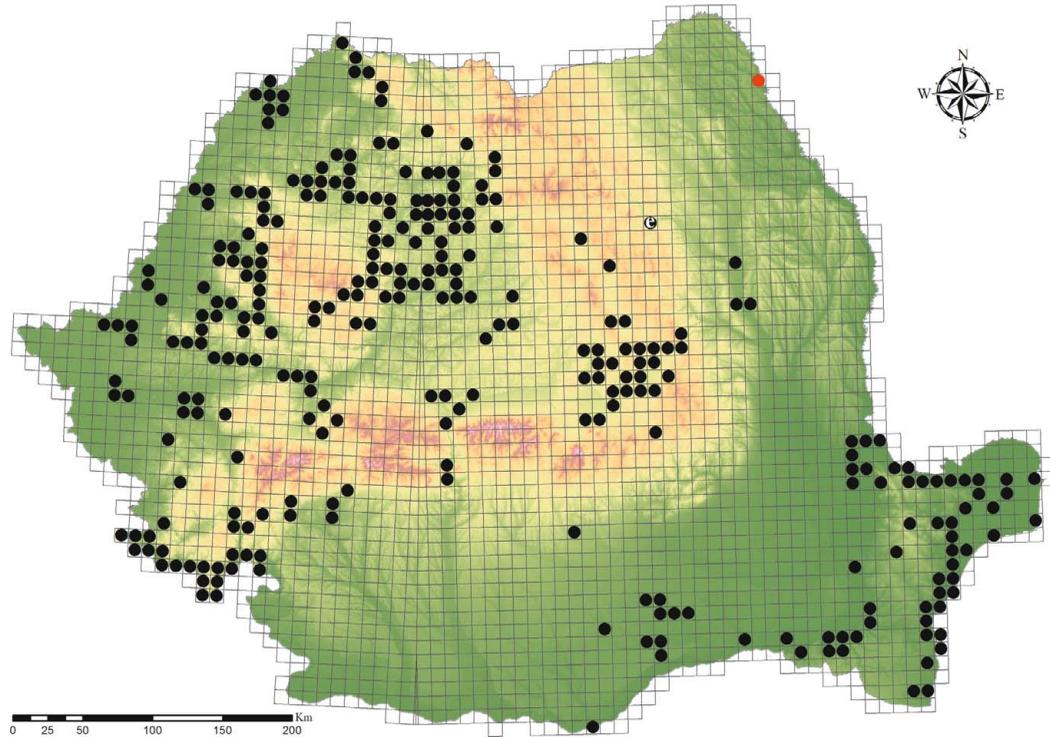
Here we provide the first evidence for the occurrence of *N. tessellata* in north-eastern Romania, in the upper Prut River basin, and discuss the possible regions of origin for this apparently isolated population.

The study area is located at and in the vicinity of Stâncă Costești Reservoir, north-eastern Romania (north of Stâncă locality, Botoșani County; 47°50'15.12" N 27°13'45.12" E, elevation: 64 m a.s.l., Fig. 1). The reservoir is a man-made dam system on the Prut River and represents part of the border between Romania and the Republic of Moldova. The site lies in the Moldavian Plain, which is the central-northern part of the Moldavian Plateau, and belongs to the forest-steppe zone, subzone of the forest-steppe with mesophile species of *Quercus* (Chifu et al., 2014a). Around the studied site, the vegetation is mainly represented by floodplain forests with white willow, white poplar and black poplar, plantations of *Populus × canadensis* cv. *Marilandica* (Chifu et al., 2014d), forest steppe grasslands of the alliance *Jurineo arachnoideae – Euphorbion stepposae* (Chifu et al., 2014b) and weedy communities of the alliances *Onopordion acanthii*, *Dauco-Melilotion*, and *Galio-Alliarion* (Chifu et al., 2014c).

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**Fig. 1.** Distribution of *Natrix tessellata* in Romania. Map compiled using data from Strugariu et al. (2011) and Cogalniceanu et al. (2013) (black dots), the extinct population from Tarcău (black dot with “e” character inside) and new location documented in the current paper (red dot).



**Fig. 2.** The Prut River habitat south of the Stâncă Costești reservoir where *N. tessellata* individuals were observed in August 2013. Photo courtesy of H. A. Butnaru and I. Burciu.

The first information on the occurrence of *N. tessellata* in the region was made available to us with help of images received by the first author from H. Butnaru and I. Burciu (personal communication). Several *N. tessellata* individuals were observed during mid August, 2013, on the right bank of the Prut River, less than 1 km south of the Stâncă Costești reservoir (Figs. 2 – 3; H. Butnaru and

I. Burciu, personal communication). Subsequently, on July 7, 2014, we conducted a rapid herpetofaunal survey of the Stâncă Costești area, in order to verify the presence of *N. tessellata* in the region. During our herpetofaunal survey of the area, we observed 10 *N. tessellata* individuals (adults and juveniles) in the stilling basin, in close proximity to the dam. Individuals were observed basking on the paved banks, swimming or consuming fishes of the Gobiidae family (Figs. 3 – 4).

To the best of our knowledge, the current paper represents the first record for *N. tessellata* in North-Eastern Romania. The nearest known extant population of *N. tessellata* in Romania, from Bacău County, is located at ca. 140 km as the crow flies (Ghiurcă et al., 2005). The only other currently known Romanian population on the Prut River is located about 270 km south, as the crow flies (Strugariu and Gherghel, 2008). In the neighboring country of the Republic of Moldova, dice snakes have been reported to occur through the length of the Prut River, being regarded as a fairly common species (Tsurcan, 2012). Furthermore, *N. tessellata* was reported north of Stâncă Costești, in a near-by area located at 74 km away, in Ukraine (Kotenko et al., 2011). Thus, when taking into account the distribution of the dice snake in the neighboring countries of Moldova and Ukraine, the



**Fig. 4.** The Stâncea Costești reservoir where we recorded *Natrix tessellata* individuals during our field survey in July 2014. Photo courtesy of dr. L. E. Bolboacă.

presence of the species in Stâncea Costești area does not seem particularly surprising.

What is indeed intriguing is the apparent absence of the species from other Romanian shores of the Prut River. There are notable differences in habitat characteristics between the Romanian and Moldavian shores of the Prut River. While the Romanian banks appear as typical alluvial meadow, the Moldavian shores are frequently steep

and rocky (Tsurcan, 2012), representing ideal habitat for the relatively thermophilous *N. tessellata* (Mebert, 2011). The only other known population of dice snakes on the Romanian shore of the Prut River was reported from the Brateș Lake, just north of the city of Galați (Strugariu and Gherghel, 2008). As with the case of the habitat identified in the current paper, the Brateș Lake is also a man-



**Fig. 3.** *Natrix tessellata* individual with a Gobiidae fish, observed in August 2013, south of the Stâncea Costești reservoir. Photo courtesy of H. A. Butnaru and I. Burciu.



**Fig. 5.** Adult *Natrix tessellata* individual from the Stâncea Costești reservoir consuming a Gobiidae fish, in July 2014. Photo by Ș. R. Zamfirescu.

made structure, with paved banks. We thus suspect that, in the Prut River, *N. tessellata* is especially linked to rocky structures, either natural as present on the Moldavian shore, or artificial (i.e., paved banks) as present in the only areas where the species has so far been recorded on the Romanian shore. Therefore, although this excellent swimmer most probably reaches Romanian banks of the Prut River more frequently than previously thought, resident populations are not formed due to the absence or rarity of suitable terrestrial habitats, either for thermoregulation, hibernation or egg laying and incubation (Mebert, 2011). The lack of these habitat features are also believed to explain the relative rarity of the species in the Romanian Danube Delta (Strugariu et al., 2011). Our observations encourage further field surveys of other lakes that provide similar habitats, in order to complete the regional distribution of *N. tessellata* and to identify its dispersal ability and patterns, particularly along the Prut and Siret Rivers.

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