

New Herpetological Records in Mehedinți County (Romania) and their Importance for Conservation

Noi semnalări herpetologice din jud. Mehedinți (România)
și importanța lor pentru protecție

Alexandru IFTIME, Oana IFTIME

Abstract

Despite a large number of studies, the distribution of amphibian and reptile species is still incompletely known for the north-eastern part of the Mehedinți County. We present the results of a field trip in that area, resulting in new localities for a number of 10 amphibian and reptile species, including some species of special conservative interest.

Keywords: Mehedinți, new records, amphibians, reptiles, conservation

Introduction

The Romanian county of Mehedinți has a rich biodiversity, as it lies in a region of sub-Mediterranean climatic influences and has a diverse landscape, from the Danube floodplain to the Mehedinți mountains, with large hilly tracts and karstic regions (see, e.g., MĂCIU et al., ed., 1982). The herpetofauna of Mehedinți has been extensively studied over a long period of time (e.g. FUHN, 1960; FUHN & VANCEA, 1961; CRUCE & ȘERBAN, 1971; ȘERBAN, 1972; CRUCE & RĂDUCAN, 1975a,b; FUHN, 1975; GROSSU & POPESCU, 1975; CRUCE & RĂDUCAN, 1976; CRUCE, 1978; ȘERBAN, 1978; STROESCU, 1982; ANDREI, 1993; LAMBERT & COGĂLNICEANU, 1999; ROZYLOWICZ et al., 2003; IFTIME, 2004; ROZYLOWICZ & PĂTROESCU, 2004; ROZYLOWICZ, 2008; IFTIME et al., 2008; COVACIU-MARCOV et al., 2009; ROZYLOWICZ & DOBRE, 2010). However, perusing this literature reveals that most of the research effort was concentrated in the western and south-western parts of the county, that combine montane and sub-Mediterranean influences with a spectacular karstic landscape (FUHN, 1975; GROSSU & POPESCU, 1975; ȘERBAN, 1978; ANDREI, 1993; LAMBERT & COGĂLNICEANU, 1999; ROZYLOWICZ et al., 2003; IFTIME, 2004; ROZYLOWICZ & PĂTROESCU, 2004; ROZYLOWICZ, 2008; IFTIME et al., 2008), and in the Danubian floodplain which was subject to large-scale hydroelectric projects (FUHN, 1975; STROESCU, 1982).

Numerous works targeted *Testudo hermanni* alone, as an interesting, endangered and relatively easily observed species (CRUCE & ȘERBAN, 1971; CRUCE & RĂDUCAN, 1975a,b; CRUCE, 1978; ROZYLOWICZ et al., 2003; ROZYLOWICZ & PĂTROESCU, 2004; ROZYLOWICZ, 2008;

ROZYLOWICZ & DOBRE, 2010). COVACIU-MARCOV et al., 2009 stand alone by expanding their study area to the Blahnița plain in the southern half of the county. The hilly areas of the north-eastern part of Mehedinți county are therefore little studied to this day, with few records, mostly old (see COGĂLNICEANU et al., 2013a,b for a synthesis). Even some of the data used by ROZYLOWICZ, 2008 and ROZYLOWICZ & DOBRE, 2010 for this area may be old, as their data for the distribution of *T. hermanni* is apparently derived from either old literature or recent work which however took place outside the north-eastern region (ROZYLOWICZ & DOBRE, 2010, p. 191).

The region we studied lies in the north-eastern part of Mehedinți County, Romania, comprising a hilly region of low elevation (100-360 m a.s.l.), crossed by small rivers such as Coșuștea and Hușnița (tributaries of the Jiu River) and Blahnița (a tributary of the Danube). Geologically, the region is dominated by alluvial deposits. The climate here has less of the sub-Mediterranean influence which is felt in the south-western parts of the Mehedinți County (MÂCIU et alii, ed., 1982). The vegetation originally consisted of deciduous forests, dominated by various oak species (*Quercus petraea*, *Q. cerris*, *Q. frainetto*), hornbeam (*Carpinus betulus*, *C. orientalis*) and manna ash (*Fraxinus ornus*), with a diverse undergrowth. These forests are now fragmented, and interspersed with secondary pastures (with *Festuca rubra*, *F. valesiaca*, *Agrostis tenuis*, *Poa angustifolia*) and cultivated land (MÂCIU et alii, ed., 1982; field observations) (Fig. 1).

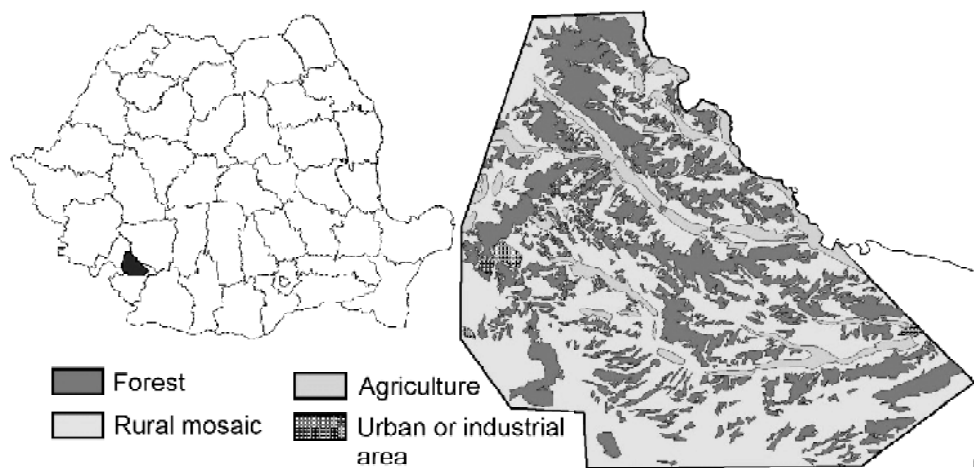


Fig. 1. Location of the study area in Romania and land use map of the study area, showing extreme fragmentation of forest habitat.

Fig. 1. Localizarea zonei studiate în România și harta folosinței terenurilor pentru zona studiată arătând fragmentarea extremă a habitatului de pădure

Material and Methods

Field investigations were performed in July 2015 using the visual transect method (see, e.g., COGĂLNICEANU, 1997). Photographs were taken whenever possible.

Results and Discussion

New distribution records were obtained for several species (*Triturus dobrogicus*, *Lissotriton vulgaris*, *Bombina variegata*, *Pelophylax ridibundus*, *Testudo hermanni*, *Emys orbicularis*, *Lacerta viridis*, *Podarcis muralis*, *Podarcis taurica*, *Coronella austriaca*) as well as a confirmation of the presence of *Testudo hermanni* in previously known locations.

Triturus dobrogicus (Danube crested newt). We found a population of this species at Prunișor, where it breeds in a small pond (Foto 1). It was previously recorded only in the lower Blahnița plain, along the Danube (COVACIU-MARCOV *et alii*, 2009) and on the now submerged island of Ada-Kale (FUHN, 1975). The morphological characteristics of the population from Prunișor are very interesting: the long, slim body and relatively short arms, as well as the black throat with white stippling, as well as the tendency of the black ventral spots to fuse longitudinally (Foto 2), are typical for *T. dobrogicus* (see, e.g., COGĂLNICEANU *et alii*, 2000). Larvae clearly show a lateral line (Foto 3) which is also characteristic for *T. dobrogicus* (CVIJANOVIĆ *et alii*, 2015). However, the overall light coloration of larvae is a characteristic of the Western subspecies *T. d. macrosoma* as opposed to the nominate *T. d. dobrogicus* in which larvae are black with orange gills (LITVINCHUK & BORKIN, 2000) bringing some support to the hypothesis of NAUMOV & BISERKOV, 2013 on the presence of *T. d. macrosoma* (and not *T. d. dobrogicus*) along the common Bulgarian/ Romanian section of the Danube, leaving *T. d. dobrogicus* the Danube Delta and adjacent areas. An alternative still rather unlikely explanation for the features of the Prunișor newts could be introgressive hybridization with *T. cristatus*. Indeed, the ventral pattern in Foto 2 can also be found in *T. cristatus* and/ or hybrids, but this is not conclusive, and the scarcity of *T. cristatus* in the area (found recently in only three places: in Jupânești by IFTIME *et alii* (2008), and in Malovăț and Cocorova by COVACIU-MARCOV *et alii* (2009), none particularly close to Prunișor; older records are known east of Strehăia, also far away – COGĂLNICEANU *et alii* (2013a) argues against hybridization. Also, if any hybridization occurred, it must by necessity have been long ago, with progressive loss of *T. cristatus* genes, since present-day specimens are 100% morphologically compatible with assignment to *T. dobrogicus*. These observations rather lead to discarding of the hybridization hypothesis. The *T. dobrogicus* population at Prunișor is dense, but isolated; it was found to contain adults and larvae of various stages. However, malformations are present, such as polymelia (Foto 4) and the pond is choked with various debris and garbage (Foto 1).

Lissotriton vulgaris (the Smooth Newt) was also found (only as larvae) at Prunișor, in the same pond as *T. dobrogicus*. While the record is also new, the

species is far more widespread and common than *T. dobrogicus* (e.g., IFTIME *et alii*, 2008; COVACIU-MARCOV *et alii*, 2009).

Bombina variegata (the Yellow-Bellied Toad). We found it at Păltinișu, our new record touching the edge of the species' distribution (see FUHN, 1960; COVACIU-MARCOV *et alii*, 2009). The population is small.

Pelophylax ridibundus (the Marsh Frog). It was found at Păltinișu, Ercea, Malovăț and Prunișor, which is not surprising given the general wide range and adaptability of this species.

Testudo hermanni (the Hermann's Tortoise). We found evidence of populations (adults – Foto 5, nests opened by dogs or other predators – Foto 6) in three points: at Oprănești, at Prunișor and at Livezile (the Broscari forest). Oprănești and Livezile are at or near points mentioned by ROZYLOWICZ & DOBRE (2010) and Livezile is close to a record of COVACIU-MARCOV *et alii* (2009); however, they constitute welcome confirmations for records which may have been quite old. Our new record at Prunișor makes an interesting demonstration that even in such a well-known and well-researched species new populations may still be found. The species appears to occupy various forest and forest-edge habitats. However, while in the southern part of Coșuștea hills the habitats appear little degraded, in the northern part (i.e. along the Coșuștea proper) cultivation and grazing extend up to the forest edge, wholly or partly obliterating the forest-grassland ecotone preferred by tortoises (ROZYLOWICZ & DOBRE, 2010). Nest predation was observed at Prunișor and Livezile; intact nests were also found. Whether the percentage of nests lost to predators is as high as estimated by ROZYLOWICZ (2008) and further quoted by ROZYLOWICZ & DOBRE (2010)¹ would require additional extensive observations. Likewise would the proper evaluation of population density and size².

Emys orbicularis (the European Pond Turtle). The species was found at Prunișor, in a small pond overgrown with vegetation (different and quite distant from the pond harbouring *T. dobrogicus*) – Foto 7. The population is probably small; it is interesting in its distance from both other records of this species (see, e.g., COVACIU-MARCOV *et alii*, 2009) and from river beds and other wetlands.

Lacerta viridis (the Green Lizard). This was found at Valea Copcii, Malovăț, Prunișor and Livezile, also not surprising given the general wide range and adaptability of this species.

¹ The predation rate was calculated as the number of predated nests per number of observed mature females. That is only correct if one is sure that no more unobserved females are present. Also, a female can lay more than one clutch/ nest per breeding season (see, e.g., FARKE *et alii*, 2015 and literature quoted therein).

² ROZYLOWICZ & DOBRE, 2010 evaluate overall population size for Romania, but their evaluation rationale is flawed and was not adopted by subsequent authors aware of their work (e.g. BERTOLERO *et alii*, 2011 – quoting a project report from 2009 by Rozyłowicz and Dobre which is, however, identical as to these data with their published 2010 paper).

Podarcis muralis (the Common Wall Lizard). It was found at Valea Copcii, not very far from known localities such as Malovăț, but interesting in that it inhabited a clayey ravine with trees and shrubs, and not a rocky/ stoney habitat. This species is also adaptable and widespread and even expanding its range (see, e.g., GHERGHEL *et alii*, 2009).

Podarcis tauricus (the Balkan Wall Lizard). It was found at Valea Copcii, not far from known localities such as Malovăț and Șimian.

Coronella austriaca (the Smooth Snake). It was found at Malovăț. This is an elusive species with few records in the area, despite extensive habitat (see, e.g., IFTIME *et alii*, 2008; COVACIU-MARCOV *et alii*, 2009).

Conclusions

Our findings enlarge the knowledge regarding the distribution area of ten amphibian and reptile species, all of which are protected (to various degrees) by Romanian law. Natura 2000 species such as *Triturus dobrogicus*, *Bombina variegata*, *Testudo hermanni* and *Emys orbicularis* stand apart – the newly found and confirmed populations present an opportunity for *in situ* conservation, especially given that reproduction was observed (chiefly in *T. dobrogicus* and *T. hermanni*). However, there is also evidence for threats that should be addressed in order to ensure long-term persistence of these populations.

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Alexandru IFTIME,
 „Grigore Antipa” National Museum of Natural History, Bucharest
 E-mail: aiftime@antipa.ro

Oana IFTIME
 University of Bucharest, Faculty of Biology
 E-mail: oiftime@gmail.com



Photo 1. Pond at Prunișor, habitat for *Triturus dobrogicus*, *Lissotriton vulgaris* and *Pelophylax ridibundus*
 Photo Oana Iftime



Photo 2. *Triturus dobrogicus*, recently dead metamorphic specimen from Prunișor showing body proportions, gular and ventral coloration. Photo Al. Iftime



Photo 3. *Triturus dobrogicus* larva, showing lateral line (see the arrow)
Photo Oana Iftime



Photo 4. *Triturus dobrogicus*, same dead specimen as in Photo 2, showing anterior polymelia (see the arrows)
Photo by Oana Iftime



Photo 5. *Testudo hermanni*, adult female from Oprănești
Photo by Al. Iftime.



Photo 6. Remains of a predated *Testudo hermanni* nest from Livezile
Photo by Al. Iftime.



Photo 7. *Emys orbicularis* from Prunișor
Photo by Oana Iftime