

See discussions, stats, and author profiles for this publication at: <http://www.researchgate.net/publication/270879815>

A rapid survey of the herpetofauna of the Taia River Valley (Hunedoara County, Romania)

ARTICLE · DECEMBER 2014

DOWNLOADS

52

VIEWS

45

4 AUTHORS:



Paul Cristian Dincă

Universitatea Alexandru Ioan Cuza

3 PUBLICATIONS 0 CITATIONS

SEE PROFILE



Alexandru Strugariu

Universitatea Alexandru Ioan Cuza

61 PUBLICATIONS 186 CITATIONS

SEE PROFILE



Dan Laurentiu Stoica

Local Environmental Protection Agency in I...

10 PUBLICATIONS 9 CITATIONS

SEE PROFILE



Ștefan R. Zamfirescu

Universitatea Alexandru Ioan Cuza

36 PUBLICATIONS 73 CITATIONS

SEE PROFILE

A rapid survey of the herpetofauna of the Taia River Valley (Hunedoara County, Romania)

Paul C. DINCĂ^{1,2}, Alexandru STRUGARIU^{1,2*},
Dan L. STOICA³ and Ștefan R. ZAMFIRESCU^{1,2}

1. Faculty of Biology, "Alexandru Ioan Cuza" University of Iași, Carol I Blvd. No 20A, 700505, Iași, Romania.
 2. Moldavica Herpetological Group, Carol I Blvd. No 20A, 700505, Iași, Romania.
 3. Environmental Protection Agency of Iași (APM Iași), Th. Văscăuțeanu Str. No 10 bis; 700462, Iași, Romania.
- *Corresponding author, A. Strugariu, E-mail: alex.strugariu@gmail.com

Abstract. Amphibians and reptiles are declining worldwide and information on their detailed distribution is key to proper conservation initiatives. This paper presents the results of a rapid survey on the composition and distribution of herpetofauna from the Taia River Valley (Hunedoara County, Romania), one of the many unstudied areas of the Southern Carpathians. We recorded the presence of three species of amphibians (*Ichtyosaura alpestris*, *Bombina variegata* and *Rana temporaria*) and three reptile species (*Podarcis muralis*, *Lacerta agilis* and *Zootoca vivipara*). The internationally threatened Yellow-bellied toad (*Bombina variegata*) was the most common amphibian in the study area.

Key words: Southern Carpathians, amphibians, reptiles,
Bombina variegata, distribution.

Amphibians and reptiles are probably the most threatened groups of vertebrates, both of the groups facing significant global decline (Alford & Richards 1999, Gibbons et al. 2000). Because having detailed knowledge on their distribution is crucial for establishing conservation measures (Hartel et al. 2010, Bogdan et al. 2013), numerous herpetofaunal surveys have been conducted in Romania in recent years (Ghira et al. 2002, Gherghel et al. 2008, Strugariu et al. 2008, 2009, Covaciu-Marcov et al. 2009, Bogdan et al. 2011).

The Southern Carpathians, with dense coniferous forests and the highest mountain peaks in Romania, remain one of the last untouched ecosystem in the country and probably of all Europe (Vološčuk 2013). However, as logging areas grow yearly at a seedy pace and we see a high interest in the construction of micro-hydroelectric turbines on small river systems (WWF Romania 2013), anthropogenic pressures on these pristine habitats are increasing.

Despite the fact that over the years a number of studies have shed some light over the herpetofauna from the Southern Carpathians (Strugariu et al. 2009, Iftime et al. 2009, Iftime & Iftime 2010, 2011, 2013, 2014a,b, Dincă et al. 2013), many of the data are still over 50 years old (Fuhn 1960, Fuhn & Vancea 1961) and in need of reconfirmation and many white areas remain completely unstudied. The current paper presents the results of a rapid survey of the composition and distribution of herpetofauna on the Taia River Valley, one of the numerous previously unstudied areas from the Southern Carpathians.

The study area is located in the Șureanu Mountains (Southern Carpathians), in the southeastern corner of Hunedoara County. The nearest localities are Petrila and Tirici at 4-5 km distance for the first point of observation. To the south our study area also partially overlaps a Natura 2000 Site (ROSCI0087 Grădiștea Muncelului-Ciclovina) and with Cheile Taia Natural Reserve. Field investigations were conducted during the 22nd and 23rd of August 2014 between 08:00 H and 18:00 H along a 9 km long transect, with elevations varying from 767 m to 1019 m A.S.L. Following field observations, we delineated six habitats with herpetofauna occurrence (Fig. 1). Amphibian and reptile individual were captured only for identification, if necessary, and were released in to the original habitats as soon as possible.

We documented three species of amphibians (*Ichtyosaura alpestris* (Laurenti, 1768), *Bombina variegata* Linnaeus, 1758, *Rana temporaria* Linnaeus, 1758) and three reptile species (*Lacerta agilis* Linnaeus, 1758, *Podarcis muralis* (Laurenti, 1768), *Zootoca vivipara* (von Jacquin, 1787) (Fig. 2). Images of several habitats where the species were recorded are shown in Fig. 3. The most widely spread amphibian species was *Bombina variegata*, occurring in five of the six sites, while the most common among reptile species was *Lacerta agilis*, being present in three of the six investigated areas (Table 1). All six species of herpetofauna are listed in the Council Directive 92/43/EEC and the Yellow-bellied Toad (*Bombina variegata*) is listed in the Annex 2 of the Council Directive 92/43/EEC, being a species of community interest whose conservation requires the designation of special areas for conservation (SAC).

The observations from the current survey represent the first herpetological data from the Taia River Valley. Other surveys from the neighbouring areas have reported the presence of seven species of herpetofauna: *Lissotriton vulgaris*, *Ichtyosaura alpestris*, *Bombina variegata*, *Hyla arborea*, *Lacerta agilis*, *Zootoca vivipara* and *Podarcis muralis* (Ghira et al. 2002, Cogalniceanu et al. 2013a,b). Also the standard data form for the Natura 2000 site ROSCI0087 lists two other species of herpetofauna in the area: the Smooth Newt (*Lissotriton vulgaris ampelensis*) and the

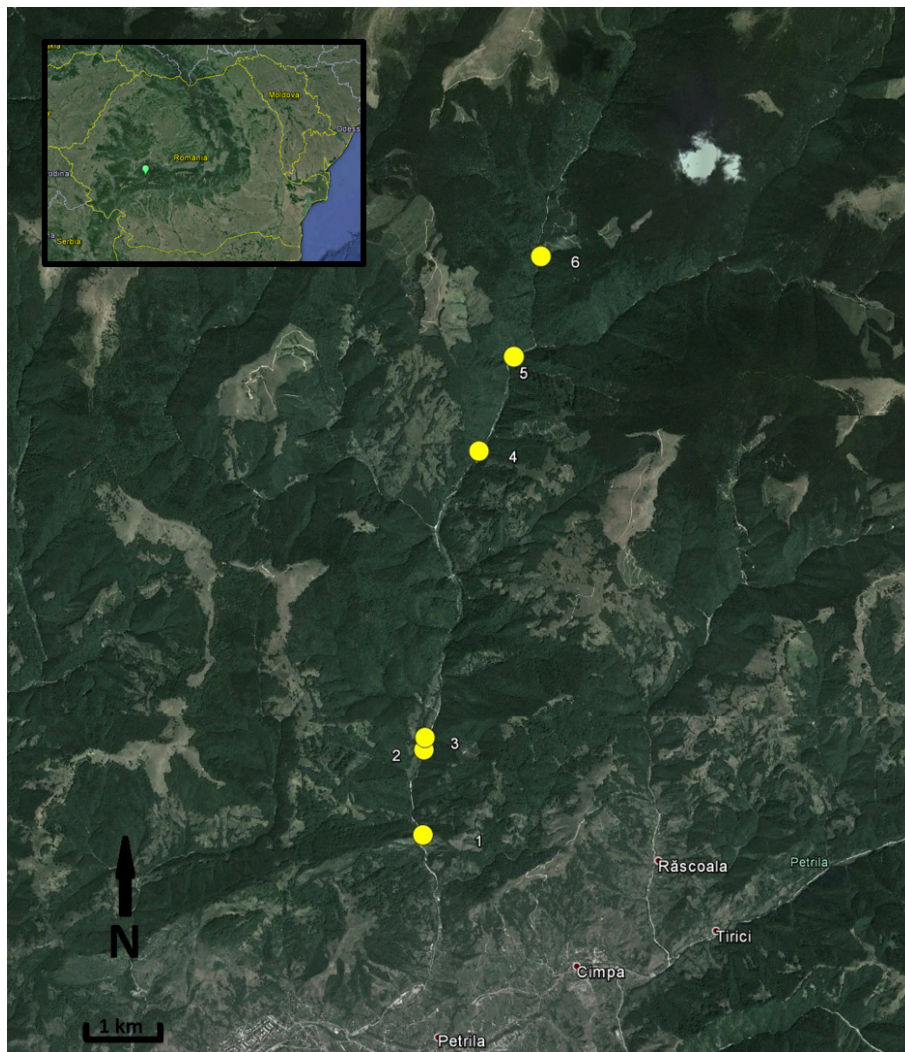


Figure 1. Location of the Taia River in Romania and the investigated sites from the area.

European Common Adder (*Vipera berus*). The current survey is the first to show the presence of the Common Frog (*Rana temporaria*) in the region, although being an abundant species in other similar habitats from the Southern Carpathians (e.g. Cogălniceanu et al. 2013b). Taking into consideration other surveys conducted in similar habitats throughout the Southern Carpathians we can acknowledge the potential presence of the next species of herpetofauna: *Triturus cristatus*, *Bufo bufo*,



Figure 2. Individuals of herpetofauna identified on the Taia River: a. *Zootoca vivipara*, b. *Lacerta agilis*, c. *Podarcis muralis*, d. *Rana temporaria*, e. *Ichtyosaura alpestris*, f. *Bombina variegata* (photos by A. Strugariu).

Bufo viridis, *Rana dalmatina*, *Hyla arborea*, *Anguis fragilis colchica*, *Darevskia praticola pontica*, *Lacerta viridis*, *Natrix natrix*, *Natrix tessellata*, *Coronella austriaca*, *Zamenis longissimus*, *Vipera ammodytes ammodytes* and *Vipera berus berus* (Fuhn 1960, Fuhn & Vancea 1961, Dincă et al. 2013, Iftime et al. 2009, Iftime & Iftime 2010, 2011, 2013, 2014 a,b, Strugariu et al. 2009). This being said, rapid surveys such as the present one, which are inexpensive to realize, can be useful in finding and assessing



Figure 3. Examples of habitats for the encountered herpetofauna: a - *Podarcis muralis* habitat; b.c. - *Bombina variegata* and *Ichtyosaura alpestris* habitat, d. *Lacerta agilis* habitat (photos by A. Strugariu).

Table 1. Site records for the amphibian and reptile species identified on the Taia River Valley during the present survey; site numbers correspond to the ones from Figure 1. Abbreviations: Ia- *Ichtyosaura alpestris*, Bv- *Bombina variegata*, Rt- *Rana temporaria*, La- *Lacerta agilis*, Pm- *Podarcis muralis*, Zv- *Zootoca vivipara*.

Station	Latitude (N)	Longitude (E)	Ia	Bv	Rt	La	Pm	Zv
1	45.47353°	23.41739°					X	
2	45.48371°	23.41749°	X	X		X		
3	45.48519°	23.41766°		X		X		
4	45.51814°	23.42644°		X	X			
5	45.52846°	23.43181°		X	X			X
6	45.53966°	23.43622°		X		X		X

important habitats and populations for internationally threatened species, such as *Bombina variegata*.

Acknowledgements. We are grateful to Cristina Strugariu for assistance during field-work and Iulian Gherghel and an anonymous reviewer for their comments on a previous draft of this paper.

References

- Bogdan H.V., Ilieș D., Gaceu O. (2013): Conservation implications on present distribution of herpetofauna from plain areas of the Western Banat region, Romania, North-Western Journal of Zoology 9 (1):172-177
- Bogdan H.V., Ilieș D., Covaciu-Marcov S.D., Cicort-Lucaciu A.Ș., Sas I. (2011): Contributions to the study of the herpetofauna of the western region of the Poiana Ruscă Mountains and its surrounding areas, North-Western Journal of Zoology 7(1): 125-131
- Cogălniceanu D., Székely P., Samoilă C., Iosif R., Tudor M., Plăiașu R., Stănescu F., Rozyłowicz L. (2013 a): Diversity and distribution of amphibians in Romania. ZooKeys 296: 35-57
- Cogălniceanu D., Rozyłowicz L., Székely P., Samoilă C., Stănescu F., Tudor M., Székely D., Iosif R. (2013 b): Diversity and distribution of reptiles in Romania. ZooKeys 341: 49-76
- Covaciu-Marcov, S.D., Sas, I., Cicort-Lucaciu, A.Ș., Kovacs, E.H., Pinteaa, C. (2009): Herpetofauna of the Natural Reserves from Carei Plain: zoogeographical significance, ecology, statute and conservation. Carpathian Journal of Earth and Environmental Sciences 4(1): 69-80
- Dincă P.D., Strugariu A., Iftime A., Iftime O., Zamfirescu O., Zamfirescu Ș.R. (2013): Herpetofauna from the upper Topolog river basin (Romania). Scientific Annals of "Alexandru Ioan Cuza" University of Iași New Series, Section I Animal Biology. 59: 61-68
- Fuhn I.E. (1960): Amphibia. In: Fauna R.P.R., Vol. XIV, Fasc. 1, Ed. Academiei R.P.R., București. [In romanian]
- Fuhn, I.E., Vancea, Ș. (1961): Reptilia (Țestoase, Șoirla, Șerpi). In: Fauna R.P.R., Vol. 14, Fasc. 2. Ed. Academiei R.P.R., București. [In romanian]
- Gherghel I., Strugariu A., Ghiurcă D., Cicort-Lucaciu A.. (2008): The herpetofauna from the Bistrița river basin (Romania): geographical distribution. North-Western Journal of Zoology 4 (Supplement 1): S71-S103.
- Ghira I., Venczel M., Covaciu-Marcov S., Mara G., Ghile P., Hatel T., Torok Z., Farkas L., Racz T., Farkas Z., Brad T. (2002): Mapping of Transylvanian Herpetofauna. Nymphaea Folia naturae Biharae 29: 145-201

- Hartel T., Schweiger O., Öllerer K., Cogalniceanu D., Arntzen J.W., (2010): Amphibian distribution in a traditionally managed rural landscape of Eastern Europe: Probing the effect of landscape composition. *Biological Conservation* 143: 1118-1124
- Iftime A., Iftime O., Pop D. A., (2009): Observations on the herpetofauna of the Iezer-Păpușa Massif (southern Carpathians, Romania). *Herpetozoa* 22: 55-64
- Iftime I., Iftime O. (2010): Contributions to the knowledge of the eastern Jiu and upper Lotru drainage basins (Southern Carpathians, Romania). *Travaux du Muséum National d'Histoire Naturelle «Grigore Antipa»* 53: 273-286
- Iftime I., Iftime O. (2011): Note on the herpetofauna of the Vâlcan Mountains and their foothills (Southern Carpathians, Romania). *Travaux du Muséum National d'Histoire Naturelle «Grigore Antipa»* 54: 513-521
- Iftime I., Iftime O. (2013): Observations on the herpetofauna of the Buila-Vânturarița massif (Southern Carpathians, Romania). *Travaux du Muséum National d'Histoire Naturelle «Grigore Antipa»* 5: 93-101
- Iftime I., Iftime O. (2014): Notes on the herpetofauna of the Leaota Mountains, a "wildlife corridor" area. *North-Western Journal of Zoology* 10 (Supplement 1): S33-S37
- Strugariu A., Gherghel I., Zamfirescu R.Ș., Sahlean T.C. (2008): Spatial distribution of the herpetofauna from the upper and middle Moldova River Basin (Romania). *Travaux du Muséum National d'Histoire Naturelle «Grigore Antipa»* 51: 231-241
- Strugariu A., Zamfirescu Ș.R., Gherghel I. (2009): First record of the adder (*Vipera berus berus*) in Argeș County (Southern Romania). *Bihorean Biologist*: 163-166.
- Vološčuk I. (2013): From Research of the Carpathian Beech Virgin Forests to the World heritage. 5th Symposium for Research in Protected Areas, 10 to 12 June 2013, Mittersill Conference Volume: 789 - 794
- WWF- World Wide Fund for Nature (2013): Raport privind analiza legislației specifice din domeniul planificării și emiterii actelor de reglementare aferente construirii și funcționării microhidrocentralelor în România [In Romanian].