

The herpetofauna of Ljubišnja Mountain, Montenegro

For Montenegro, detailed distribution data of amphibian and reptile species are largely missing, especially in the northern regions. Previous herpetological studies covered only limited areas, mostly National Parks (DŽUKIĆ 1991; CRNOBRNJA-ISAILOVIĆ & DŽUKIĆ 1995; TOMOVIĆ et al. 2008; POLOVIĆ & LJUBISAVLJEVIĆ 2010), leaving herpetologically unexplored areas; Ljubišnja Mountain is one of them. The most detailed accounts on the herpetofauna of northern Montenegro enumerate 25 species inhabiting the Massif of Durmitor and the Tara River Canyon (DŽUKIĆ 1991), and 18 species that inhabit Bjelasica Mountain (TOMOVIĆ et al. 2008) (Table 1). The present note provides information of amphibian and reptile species of Ljubišnja Mountain, and such it contributes to the general knowledge of the Montenegrin herpetofauna.

Ljubišnja Mountain belongs to the Dinaric Mountains. It is situated in the extreme north-west of Montenegro, close to the border with Bosnia and Hercegovina. The mountain rises between the rivers Čehotina and Tara and borders on the Massif of Durmitor. Maximum altitude is 2,238 m a.s.l. at the Dornjača Peak, while the lowest elevation is reached at 505 m a.s.l. in the valley of the Čehotina River. The Ljubišnja Mountain area is characterized by temperate mountainous coniferous forests, alpine meadows and pastures, cultivated fields, and numerous ponds and

springs. Acidophilous *Picea* forests dominate the montane to alpine levels and temperate shrubs such as *Pinus mugo* and *Rhododendron hirsutum* are widespread. The study area occupies a surface of about 380 km², the centroid coordinates are 43°21'03.1"N; 19°09'39.7"E.

Non-systematic visual encounter field surveys were conducted in 12 localities during 2012 (20 person days in three excursions in July, August and September). Most specimens were just observed, some were captured for identification and subsequently released on site. In addition, the authors collected and identified animals killed by predators, cars or local people. The latter cadavers were preserved in 70 % ethanol and stored in the herpetological collections of the Natural History Museum of Montenegro (NHMM) under accession numbers L405, L406, N93a - N101a. Amphibian and reptile species were identified using the appropriate literature (RADOVANOVIĆ 1951; ARNOLD & OVENDEN, 2002; KWET 2009). A total of 145 observations were recorded for amphibian and 53 for reptile species (Table 2).

Out of 17 amphibian and 36 reptile species known from the territory of Montenegro (DŽUKIĆ 1991, 1995; CRNOBRNJA-ISAILOVIĆ & DŽUKIĆ 1995; LJUBISAVLJEVIĆ et al. 2007; TOMOVIĆ et al. 2008; POLOVIĆ & LJUBISAVLJEVIĆ 2010) (Table 1), nine amphibian (53 %) and 11 reptilian species (31 %) were detected in the study area: three Caudata (*Salamandra salamandra*, *Lissoletriton vulgaris*, *Mesotriton alpestris*), six anurans (*Bombina variegata*, *Bufo bufo*, *Bufo viridis*, *Pelophylax ridibundus*, *Rana*

Table 1: Diversity of the herpetofauna. The Ljubišnja Mountain (this study) is compared with the Durmitor Massif plus Tara River Canyon, Bjelasica Mountain and the whole of Montenegro. [*] - DŽUKIĆ 1991, 1995; CRNOBRNJA-ISAILOVIĆ & DŽUKIĆ 1995; LJUBISAVLJEVIĆ et al. 2007; TOMOVIĆ et al. 2008; POLOVIĆ & LJUBISAVLJEVIĆ 2010. #) - three species of sea turtle included.

Taxa	Ljubišnja Mountain (this study)	Durmitor Massif and Tara River Canyon (DŽUKIĆ 1991)	Bjelasica Mountain (TOMOVIĆ et al. 2008)	Montenegro (summarized from[*])
Caudata	3	3	2	7
Anura	6	8	7	10
Σ Amphibia	9	11	9	17
Chelonia	0	1	0	6 #)
Sauria	4	6	4	15
Ophidia	7	7	5	15
Σ Reptilia	11	14	9	36
Σ Total	20	25	18	53

Table 2: Amphibian and reptile species found in 12 localities at Ljubišnja Mountain, Montenegro. n - number of specimens observed; 1 - Jabučno, 2 - Petibor, 3 - Šula, 4 - Izvor, 5 - Jezera, 6 - Popov do, 7 - Vrbica, 8 - Kosanica, 9 - Glibači, 10 - Vrba, 11 - Komini, 12 - Trišova poljana.

Family	Species	n	Locality number
Salamandridae	<i>Salamandra salamandra</i> (LINNAEUS, 1758)	5	9
	<i>Lissotriton vulgaris</i> (LINNAEUS, 1758)	8	5
	<i>Mesotriton alpestris</i> (LAURENTI, 1768)	10	5
Bombinatoridae	<i>Bombina variegata</i> (LINNAEUS, 1758)	8	1, 2, 3, 4, 5, 7
Bufonidae	<i>Bufo bufo</i> (LINNAEUS, 1758)	15	4, 5, 10, 11, 12
	<i>Bufo viridis</i> LAURENTI, 1768	13	4
Ranidae	<i>Pelophylax ridibundus</i> (PALLAS, 1771)	51	9, 4
	<i>Rana dalmatina</i> BONAPARTE, 1840	20	1, 2, 6, 9
	<i>Rana temporaria</i> LINNAEUS, 1758	15	9, 10, 11
Lacertidae	<i>Lacerta agilis</i> LINNAEUS, 1758	24	4, 7, 10
	<i>Lacerta viridis</i> (LAURENTI, 1768)	6	1, 4, 7, 9, 10, 11
	<i>Podarcis muralis</i> (LAURENTI, 1768)	9	1, 2, 4, 7, 8, 9, 11
Anguidae	<i>Anguis fragilis</i> LINNAEUS, 1758	3	4, 8, 10
Colubridae	<i>Natrix natrix</i> (LINNAEUS, 1758)	3	5, 8, 11
	<i>Natrix tessellata</i> (LAURENTI, 1768)	2	8, 9
	<i>Coronella austriaca</i> LAURENTI, 1768	2	4, 10
	<i>Dolichophis caspius</i> (GMELIN, 1789)	1	4
	<i>Zamenis longissimus</i> (LAURENTI, 1768)	1	7
Viperidae	<i>Vipera ammodytes</i> (LINNAEUS, 1758)	1	1
	<i>Vipera berus</i> (LINNAEUS, 1758)	1	1

dalmatina, *Rana temporaria*), four lizards (*Lacerta agilis*, *Lacerta viridis*, *Podarcis muralis*, *Anguis fragilis*) and seven snakes (*Natrix natrix*, *Natrix tessellata*, *Coronella austriaca*, *Dolichophis caspius*, *Zamenis longissimus*, *Vipera ammodytes*, *Vipera berus*) (Table 2). Listed species belong to 15 genera and 8 families. The most abundant species among the amphibians were *Pelophylax ridibundus* (PALLAS, 1771) ($n = 51$ records) and *Rana dalmatina* BONAPARTE, 1840 ($n = 20$) and among the reptiles *Lacerta agilis* LINNAEUS, 1758 ($n = 24$) and *Podarcis muralis* (LAURENTI, 1768) ($n = 9$).

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