

o staništima Europske komisije. Rezultati ovog istraživanja daju doprinos poznavanju prisutnosti i raširenosti gmazova i vodozemaca u zagrebačkoj okolici te na Natura 2000 području "Vejalnica i Krč" i u Značajnom krajobrazu "Goranec". Prikupljeni podaci mogu pomoći djelatnicima Javne ustanove "Maksimir" i prilikom upravljanja tim područjem.

Ključne riječi: herpetofauna, Natura 2000, "Vejalnica i Krč"

REPTILES AND AMPHIBIANS OF THE VUGROVEC AREA

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Faunistic research of reptiles and amphibians in Croatia are not so commonplace, especially in the continental part. Here I present the results of an 11-year inventarisation study of reptiles and amphibians in the village of Vugrovec and its environs, near Zagreb, conducted from 2004 till 2014. A part of the research area falls under the new Natura 2000 site "Vejalnica and Krč" and another one under the Significant landscape "Goranec". Both are being administered by the Public institution "Maksimir". Reptiles were caught by hand, sometimes with the use of special gloves and snake hooks. Amphibians were caught by hand and handheld nets. The caught individuals were photographed and released afterwards at the same spot in the shortest time possible. A total of 11 reptile and seven amphibian species were recorded. One of the reptile species is introduced – the Hermann's tortoise, *Testudo hermanni* (Gmelin, 1789). It does not occur naturally in this part of Croatia. Of special importance is the finding of *Bombina variegata* (Linnaeus, 1758), which is on Annexes II and IV of the European Commission's Habitats Directive. The results of this research contribute to the knowledge about the occurrence and distribution of reptiles and amphibians in the Zagreb area, and within the Natura 2000 site "Vejalnica and Krč" and the Significant landscape "Goranec". They can also be of use to the employees of the Public institution "Maksimir" for the creation of management plans for the two sites.

Key words: herpetofauna, Natura 2000, "Vejalnica and Krč"

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GMAZOVI I VODOZEMCI KAMENOLOMA BIZEK

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Na ovom posteru predstavljeni su rezultati faunističkog istraživanja gmazova i vodozemaca u neaktivnom kamenolomu Bizek, od 2008. do 2014. godine. Na istraživanom području su raznolika staništa: mješovita šuma bukve, hrasta i graba okružuje kamenolom sa sjeverne, istočne i zapadne strane. Termofilni elementi dominiraju na zapadnoj strani, dok na južnoj šuma prelazi u dvorišta i stambene objekte. Dva stalna vodotoka i jedna lokva su također prisutni, uz nekoliko povremenih vodotokova i lokvica. Jedinke obiju skupina su lovljene rukom, a u nekim slučajevima koristilo se štap s omčicom za guštere, kuke i rukavice za zmije te mreža za vodozemce. Pronađeno je sedam vrsta gmazova i sedam vrsta vodozemaca. Sve pronađene vrste su već poznate iz zagrebačke okolice. Zbog složenosti i nemogućnosti određivanja zelenih žaba (*Pelophylax* spp.) do vrste na temelju vanjskog izgleda, sve nađene jedinice ostavljene su na razini

svojite. Od posebnog značaja je nalaz žutog mukača, *Bombina variegata* (Linnaeus, 1758), koji je na Dodacima II i IV Direktive o staništima Europske komisije. Rezultati ovog istraživanja daju doprinos poznavanju prisutnosti i rasprostranjenosti vrsta gmazova i vodozemaca na samome rubu grada Zagreba i unutar Parka prirode Medvednica.

Ključne riječi: herpetofauna, Natura 2000, Park prirode Medvednica

REPTILES AND AMPHIBIANS OF BIZEK QUARRY

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This was a study of reptiles and amphibians which lasted from 2008 till 2014 in the inactive Bizek quarry, where we collected information on the presence of species belonging to those two groups. A variety of habitats occur in the quarry: a mixed deciduous forest of *Quercus* sp., *Fagus sylvatica* and *Carpinus betulus* surrounds the quarry to the north, east and west. Thermophilic elements are predominant on the western side, while on the southern side the forest gives way to yards and housing. Two permanent streams and a pond are also present, along with some intermittent streams and puddles. We caught animals by hand and, in some cases, we also used a stick with a noose for lizards, gloves and hooks for snakes, and a net for the amphibians. We found seven reptile and seven amphibian species in the quarry, all of which are already known from the surroundings of Zagreb. Frogs belonging to the genus *Pelophylax* Fitzinger, 1843 were identified down to the genus level only, because of the complexity of the determination and the inability to reliably identify them on the basis of external morphology. The finding of *Bombina variegata* (Linnaeus, 1758), which is on Annexes II and IV of the European Commission's Habitats Directive, is of special significance. The results of this study contribute to the knowledge of the occurrence and distribution of suburban reptiles and amphibians within the Nature Park Medvednica.

Key words: herpetofauna, Natura 2000, Nature Park Medvednica

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NEW REVISION OF THE CHECKLIST OF AMPHIBIAN FAUNA IN BOSNIA AND HERZEGOVINA

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Research of batrahofauna of Bosnia and Herzegovina (B&H) has a long tradition. It can be traced back to the O. Möellendorf PhD dissertation in 1873. The batrachological investigations in B&H could be divide on four periods: (1) The period of Ottoman Empire/Austro-Hungarian Monarchy (until 1918), (2) The period of the Kingdom of Yugoslavia (1918-1943), (3) The period of the Socialist Federal Republic of Yugoslavia (1943-1992) and (4) The period of independent B&H. The main aim of this paper is to give an update of biosystematic information and to

Reptiles and amphibians of Bizek quarry

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Introduction

Zagreb, the capital of Croatia, is also its largest city. It is situated between Medvednica Mt. in the north and the River Sava in the south. Expansion on the foothills of Medvednica started between the World Wars. While the biodiversity of suburban areas has been a subject of many studies, with conclusions being city expansion can have both negative and positive effects, depending on the group studied (see McKinney 2008 and references therein), no such study has ever been done on the herpetofauna on the edges of Zagreb. This is a study of reptiles and amphibians which lasted from 2008 till 2015 in the inactive Bizek quarry, where we collected information on the presence of species belonging to those two groups. The aim was to catalogue the reptile and amphibian species present there and to give a comparison with Medvednica Mt. as a whole.

Materials and Methods

The quarry is located on the very edge of the city of Zagreb. A variety of habitats occur here: a mixed deciduous forest of *Quercus* sp., *Fagus sylvatica* and *Carpinus betulus* surrounds the quarry to the north, east and west. Thermophilic elements are predominant on the western side, while on the southern side the forest gives way to yards and housing. A few meadows are still present, only one of which is regularly mowed each year. Two permanent streams and a pond are also present, along with some intermittent streams, ruts, and ponds (Fig. 2.). Animals were caught by hand and, in some cases, we also used a stick with a noose for lizards, gloves and hooks for snakes, and a net for the amphibians. Species were identified using standard identification keys and field guides (e.g. Arnold & Ovenden 2004, Kwet 2009). Frogs belonging to the genus *Pelophylax* Fitzinger, 1843 were identified down to the genus level only, because of the complexity of the determination and the inability to reliably identify them on the basis of external morphology. Animals were photographed and released at the same location where they were caught as soon as possible.



Fig. 2. Habitat types in the quarry. Left to right, top to bottom: rut, grassland in succession, stream in the forest, general view of a part of the quarry, pond in the forest, pile of garbage.



Fig. 1. Map showing the location of our study site, Bizek.



Fig. 2. Some species found in the Bizek quarry: male *Hyla arborea* (left), male *Vipera ammodytes* (center), melanistic *Zamenis longissimus* (right).

Results & Discussion

A total of seven reptile: *Anguis fragilis* Linnaeus, 1758, *Lacerta viridis* (Laurenti, 1768), *Podarcis muralis* (Laurenti, 1768), *Coronella austriaca* Laurenti, 1768, *Natrix natrix* (Linnaeus, 1758), *Zamenis longissimus* (Laurenti, 1768), *Vipera ammodytes* (Linnaeus, 1758); and seven amphibian species: *Bombina variegata* (Linnaeus, 1758), *Bufo bufo* (Linnaeus, 1758), *Hyla arborea* (Linnaeus, 1758), *Pelophylax* sp. Fitzinger, 1843, *Rana dalmatina* Fitzinger, 1838, *Ichthyosaura alpestris* (Laurenti, 1768), *Salamandra salamandra* (Linnaeus, 1758) were found in the quarry, all of which are already known from the surroundings of Zagreb (Tab. 1., Fig. 3.). Among the *Z. longissimus* individuals found were two melanistic ones. The finding of *Bombina variegata* (Linnaeus, 1758), which is on Annexes II and IV of the European Commission's Habitats Directive, is of special significance: dozens of individuals were seen every year, mostly in the NW part of the quarry, which would indicate that the population is stable. Janev Hutinec & Karaica (2010) recorded an additional three species on Medvednica, which we did not: *Natrix tessellata* (Laurenti, 1768), *Rana temporaria* Linnaeus, 1758, and *Triturus carnifex* (Laurenti, 1768). Of those three, only *R. temporaria* could maybe be present in Bizek, but this still needs to be confirmed.

Conclusion

The results of this study contribute to the knowledge of the occurrence and distribution of suburban reptiles and amphibians within the Nature Park Medvednica and Croatia in general. They can be of use in the conception of management plans for the area.