



ISSN 1330-0520

UDK 599.4:591.94:591.542(497.5)

original scientific paper / izvorni znanstveni rad

## THE POND BAT *MYOTIS DASYCNEME* IN CROATIA

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Tvrtković, N., Holcer, D. & Jalžić, B.: The Pond bat *Myotis dasycneme* in Croatia. *Nat. Croat.*, Vol. 10, No. 3., 221–227, 2001, Zagreb.

The pond bat *Myotis dasycneme* was recorded for the first time in Croatia. It was found wintering together with eight other bat species in Papuk Natural Park situated between the rivers Sava and Drava in the northeastern part of Croatia. Former mentions of the occurrence of *M. dasycneme* in Croatia were based on doubtful observations by Mojsisovics von Mojsvár in the 19<sup>th</sup> century.

**Key words:** bats, Croatia, *Myotis dasycneme*, first finding, wintering site

Tvrtković, N., Holcer, D. & Jalžić, B.: Močvarni šišmiš *Myotis dasycneme* u Hrvatskoj. *Nat. Croat.*, Vol. 10, No. 3., 221–227, 2001, Zagreb.

Krivo citirani podaci o nalazištima močvarnog šišmiša *Myotis dasycneme* iz starih radova austrijskog zoologa A. Mojsisovicsa von Mojsvára u XIX. stoljeću ispravljani su prvim nalazom ove vrste u Hrvatskoj. Močvarni šišmiš je nađen na zimovalištu s još osam vrsta šišmiša u Parku prirode Papuk, između rijeka Drave i Save u sjeveroistočnoj Hrvatskoj.

**Ključne riječi:** šišmiši, Hrvatska, *Myotis dasycneme*, prvi nalaz, zimovalište

### INTRODUCTION

August Mojsisovics von Mojsvár, professor of zoology in Graz/Austria noted in his paper »Streiftouren im Ried-Terrain von Bélye und in der Umgebung von Villány (Comitat Baranya in Ungarn)« (MOJSISOVICS 1882): »Ich selbst habe mit Bestimmtheit nur *Vespertilio dasycneme* Boie, Abends vor dem Enteneinfalle und zwar da in betraechtlicher Anzahl beobachtet«. At the time of this publication Bélye was a large private property that spread north of the Drava river between Mohács (today in Hungary) and Eszek (Osijek, today in Croatia). In a later communication »Zur fauna von Bélye and Dárda II.« (MOJSISOVICS 1884) he included *M.*



Fig. 1. Entrance of the 20 m deep ponor (swallow-hole) Uviraljka, wintering site of *Myotis dasycneme* on Mt. Papuk, Croatia. Photo: N. Tvrčković.

*dasycneme* in the list of mammals of this region without giving new informations on the occurrence of this bat.

In the book »Das Thierleben der österr.-ungar. Tiefebene« (MOJSISOVICS 1897) that summarises his entire previous research, he lists *M. dasycneme* only in Banat and »den mittleren Donau-gegenden« (p. 152), meaning area of Hungary and probably today's Vojvodina (Yugoslavia). In fact Mojsisovics nowhere strictly said that the species has been found in the area of today's Croatia.



Fig. 2. Pond bat *Myotis dasycneme* from Uviraljka ponor, Croatia. Photo: D. Holcer.

For two reasons Mojsisovics' data must be taken with caution. As the author did not mention the exact locality of his observations it remains unclear whether he saw these bats in today's Hungary or today's Croatia. Since there are no voucher specimens that confirm the species identity (MEHELY 1900) he could have seen an other species as well. We doubt that he could have recognised *Myotis dasycneme* in flight without catching it. Nevertheless, in later publications (PASZLAWSZKY 1918, TOPAL 1954, DJULIĆ 1959, DULIĆ & TORTIĆ 1960, DULIĆ & MIRIĆ 1967, HORÁČEK & HANÁK 1989) the place-names mentioned in the title of MOJSISOVICS (1884) Bélye and Dárda, now Bilje and Darda in Croatia, were wrongly used as localities in which *Myotis dasycneme* was recorded in Croatia. Only ĐULIĆ (1994) removed the pond bat from the list of bat species recorded for Croatia.

## MATERIAL AND METHODS

The unclear status of this species in the Pannonian lowland of Croatia, and data from its southern border of distribution in Hungary (MITCHELL-JONES *et al.*, 1999), gave us reason to try to find *M. dasycneme* in Slavonija (NE Croatia) during the period from November, 1998 to January, 2000. Only our sixth visit to potential summer and winter roosts of this species was successful. Besides visual observations, some specimens were examined and measured. Two voucher specimens of *Myotis dasycneme* were taken for the mammal collection of the Croatian Natural History Museum (CNHM), Zagreb (No 6109, 6110).

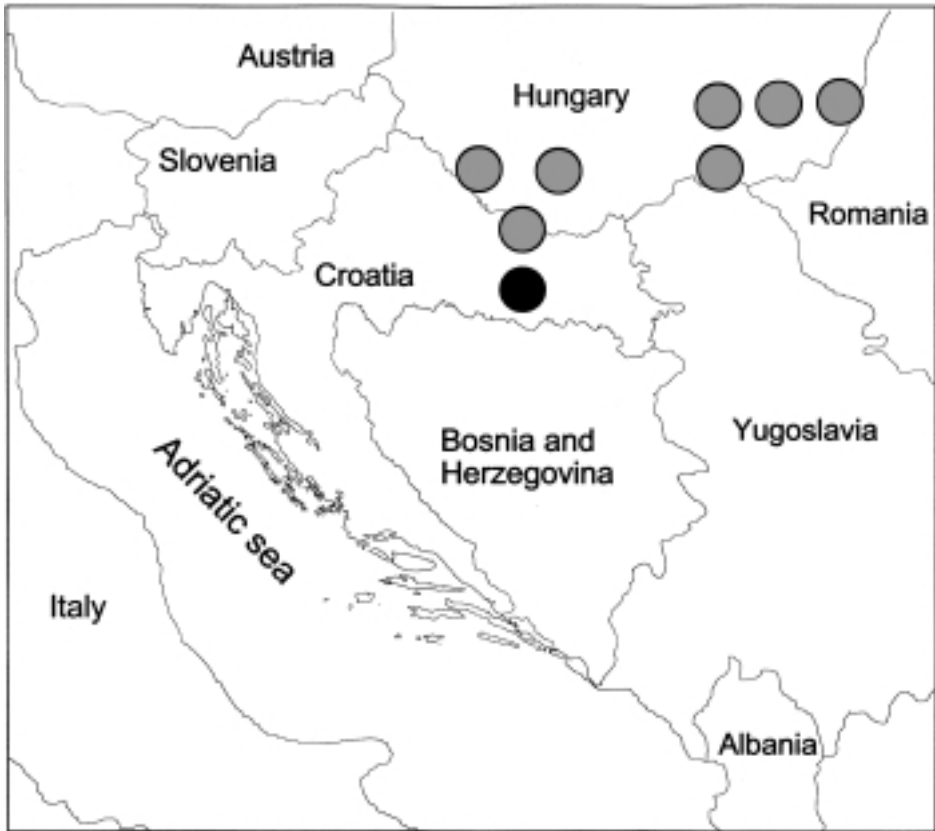
## RESULTS

On January 18, 2000 in the swallow hole (ponor) Uviraljka (780 m a.s.l., UTM YL04, Fig. 1) on Mt. Papuk, 35 km south of river Drava and 45 km north of river Sava, we found 6 males of *M. dasycneme* (Fig. 2). The bats were in a ponor (about 20 m deep swallow hole) together with other species (*Rhinolophus ferrumequinum*, *R. hipposideros*, *Plecotus auritus*, *Myotis brandtii*, *M. daubentoni*, *M. myotis* and *M. nattereri*). In the previous year, by mist netting at the entrance of the same ponor we caught also *M. bechsteini* and *M. emarginatus*. Air temperature near the hibernating bats was +5.9 °C, and water temperature of the creek that runs through the ponor was +2.5 °C. In total, we counted 235 bats in the ponor, but their number was surely greater since parts of the ponor are not accessible. Specimens of *M. dasycneme* were mostly solitary hanging near the bats of other species. One specimen was in the cluster with *M. daubentoni* which were hibernating in groups of about 30 to 50 animals. Four males were examined and measured (forearm 45, 45, 46 and 47 mm), two of them were subadult.

## DISCUSSION

This finding confirms the presence of *M. dasycneme* in Croatia. According to the species distribution in MITCHELL-JONES *et al.*, (1999) the locality Uviraljka is one of the southernmost known hibernation sites of this species in Europe (Fig. 3). It remains unknown where the summer habitat of the specimens of Papuk is. These are most probably specimens from subpopulation north from Papuk, where species has been found before, along the river Drava in neighbouring Hungary (MITCHELL-JONES *et al.*, 1999). In Donji Miholjac (UTM BR77) near the Drava river, an amateur ornithologist, Mr. Zdravko Tadić, caught in a mist net on May 11, 2000 a bat whose dimensions (forearm 44.7, ear 16.9, tail 47.9 mm), weight (17.6 g) and description (long feet!) suited the pond bat. Unfortunately, this finding has not been properly documented. Another possibility is that *M. dasycneme* inhabits suitable feeding habitats south of Papuk Mt. along the river Sava and its tributaries.

*M. dasycneme* is a species that in northern and central Europe inhabits almost exclusively areas of lowland river basins and canals with stagnant waters and riparian vegetation. With its islet-like distribution and low abundance of local populations it may be threatened, e.g. by water drainage and stream regulations (HORÁČEK, 1999). Due to the specialisation in prey hunting and its specific way of catching insects, mostly above larger water bodies that are recently more and more polluted and lacking their usual insect fauna, this species appears on the IUCN list of the most threatened animals (IUCN, 2000) as *vulnerable species* (VU). In Europe, an action plan for the protection of this species has been already prepared (LIMPENS *et al.*, 2000) and proposed from EC as part of the Bern Convention. Therefore, Uviraljka ponor (actually in protected »Papuk Natural Park«) should be legally protected as a zoological reserve, nationally important multi-species bat site (six threatened species – four VU and two LR.nt), as soon as possible. At the same time, an assessment of the status



**Fig. 3.** Southern border of distribution of the pond bat *Myotis dasycneme* in central Europe after DOBROSI (1995), MITCHELL-JONES *et al.* (1999) and ROER (2001) with new finding site marked with a black point.

and enabling of protection of this probably Europe's southernmost subpopulation as well as inspection of potential summer habitats of *M. dasycneme* in Croatia, should be conducted.

#### ACKNOWLEDGMENTS

We are grateful to Mr. I. Novotny from Orahovica and speleologist D. Lacković (CHNM) for their help in the field, to dr. K. Bauer (NHMW) for help in finding old papers of A. Mojsisovics, and to dr. F. Spitzenberger for her help for suggestions and critically reading drafts of paper. The research was carried out under the project »Croatian terrestrial vertebrate fauna«, No 183006, of the Ministry of Science and Technology of Republic of Croatia.

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## S A Ž E T A K

Močvarni šišmiš *Myotis dasycneme* u Hrvatskoj

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Iako je močvarni šišmiš (*Myotis dasycneme*) bio navođen kao član faune sisavaca Hrvatske (DJULIĆ, 1959; ĐULIĆ & TORTIĆ, 1960; ĐULIĆ & MIRIĆ, 1967; HORÁČEK & HÁNAK, 1989), izostavljen je iz prve Crvene liste ugroženih sisavaca (ĐULIĆ u DRAGANOVIĆ (ur.), 1994) jer detaljnijim pregledom radova A. Mojsisovicsa koji su citirani kao jedini izvorni podaci (PASZLAWSZKY, 1918) nije potvrđeno da je ova vrsta zabilježena za Hrvatsku. Novija karta rasprostranjenja močvarnog šišmiša u Europi (MITCHELL-JONES i ost., 1999) dala nam je poticaj da ipak potražimo ovu vrstu u Hrvatskoj. Kao rezultat trogodišnjeg istraživanja, *M. dasycneme* je konačno pronađen u zimovalištu u ponoru Uviraljka ispod vrha planine Papuk (danas područje Parka prirode Papuk). Uz njega je u istom ponoru pronađeno čak osam vrsta šišmiša (*Rhinolophus ferrumequinum*, *R. hipposideros*, *Plecotus auritus*, *Myotis brandtii*, *M. daubentoni*, *M. myotis*, *M. nattereri*, *M. emarginatus*) od čega je ukupno čak šest vrsta na IUCN listi ugroženih, pa ovaj lokalitet treba što prije posebno zaštititi kao jedno od nacionalno važnih staništa šišmiša. To je i obveza prema Bernskoj konvenciji, te u okviru direktive o zaštiti prirodnih staništa i divlje faune i flore članica Europske zajednice kojima se Hrvatska želi pridružiti.