

MYOTIS BRANDTII, EVERSMAAN 1845, NEW SPECIES FOR THE CHIROPTERA FAUNA OF MOLDAVIA (ROMANIA)

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Abstract. The authors recorded the species *Myotis brandtii*, Eversmann 1845, for the first time in Moldavia (Romania) presenting the sites, data and shelters characteristics along with a brief description including species morphometry, distribution and biology.

Keywords: *Myotis brandtii*, new species, Moldavia, identification characters

Rezumat. *Myotis brandtii*, Eversmann 1845, specie nouă pentru fauna chiropterelor din Moldova (România). Autorii înregistrează pentru prima dată specia *Myotis brandtii*, Eversmann 1845, în Moldova (România), prezentând locurile de colectare, datele și caracteristicile adăposturilor împreună cu o scurtă descriere, incluzând date morfometrice, distribuția și biologia speciei.

Cuvinte cheie: *Myotis brandtii*, specie nouă, Moldova, caractere de identificare

Introduction

From the 30 species of bats living in Romania, in the Moldavian area were recorded until now 18 species.

In Romania, Grimmberger (1993) recorded for the first time the species in Dobrudja (P. Liliecilor de la Gura Dobrogei, 1989 – Târgușor, Constanța County). *Myotis brandtii* was recorded in 1959, by Topál (Șieu (BN) – 1943.07 leg. Hommonay N., in 1954 Topál described this specimen as *M. mystacinus*, but later re-identified as *M. brandtii* without publishing this modification at the Museum of Natural Sciences, Budapest - Barti, 2005). Until now the species was found in: Maramureș County (KP 80 and GU 21), Bihor County (FS 15) (Murariu *et al.*, 2003) and various caves in Alba, Bihor, Cluj, Harghita County (MM31) and Covasna County (Borda, 1999; Barti & Kovács, 2000; Nagy *et al.*, 2000; Szanto, 2000, Barti & Agnes, 2005).

We found the species – as a new species for Moldavia – on October 10, 2004 in the Grota Mare - situated in the geological reserve “Dealul Repedeș”, Iași County. For the confirmation we have continued the research, managing to discover 2 new sites. Nine individuals were captured (2 ♀ and 7 ♂) in all 3 sites (Tab. 1.).

With regards to the distribution of the species in Europe, the recorded information states this species as being present in the north of England (except for Scotland), France, Belgium, Netherlands, East Germany, and Scandinavian Peninsula up to approximately 64° latitude, Poland, Latvia and Estonia. In the south the species can be found in Spain, Italy and the Balkan countries. The species can also be found in Asia, (Grimmberger & Schober, 1996). It is missing in Ireland, the Iberia, West of France, Greece and the Mediterranean islands. In the Balkan countries confined to the mountains (Dietz & Helversen, 2004).

Material and Methods

The individuals of *Myotis brandtii* were captured in 3 shelters: Grota Mare (Repedeș Hill, Iași County) - hibernating shelter, the attic of chalet Chitele (Natural Park Vânători-Neamț) - secondary summer shelter and at the entrance of Peștera Liliecilor

(Rarău, Suceava County) – mating shelter (7 individuals were captured using the mist-nets).

Grota Mare (coordinates: E 27° 38'62" / N 47° 05'12" / 322 m altitude) is located on the geological reserve “Dealul Repedea” – Iași. This cave is shelter for hibernation for 10 species of bats: *Myotis myotis*, *Myotis blythii*, *Myotis bechsteinii*, *Myotis daubentonii*, *Myotis nattereri*, *Myotis mystacinus*, *Plecotus auritus*, *Plecotus austriacus*, *Barbastella barbastellus* and *Myotis brandtii* (Ifrim & Valenciuc, 2005). It is dug in oolitic limestone. The entrance of the cave is surrounded by scattered shruberry that spread as far as the Repedea-Bârnova forest (with a total area of 15,000 ha), part of Bârnova-Dobrovăț forest.

Chalet Chitele (coordinates: E 26°08'03" / N 47°08'13" / 780 m altitude) is situated in the Natural Park Vânători-Neamț (with a total area of 30,181ha). 26,300 ha, 85% of the total surface of the park, are occupied by forest. The chalet is situated in the clearing with the same name, at the limit of the coniferous forest. In the front of the chalet there is a man-made pond, feeding site for approximately six species of bats: *Myotis daubentonii*, *Myotis nattereri*, *Myotis mystacinus/Myotis brandtii*, *Pipistrellus pipistrellus*, *Pipistrellus nathusii* and *Nyctalus noctula*.

Pestera Liliacilor (coordinates: E 25°33'41" / N 47°27'18" / 1492 m altitude) – Rarău Mountains (Suceava County), is a mating shelter for 9 species of bats: *Myotis myotis*, *Myotis blythii*, *Myotis bechsteinii*, *Myotis daubentonii*, *Myotis nattereri*, *Myotis mystacinus*, *Plecotus auritus*, *Eptesicus nilssonii* and *Myotis brandtii*. The cave is situated in the middle of the coniferous forest; the forested area represents 70% of the total area of the Rarău-Giumalău Massif.

The material used: mist-nets, BATBOX DUET detector, magnifying glass (x10), bat identification keys (Grimmberger & Schober, 1996; Valenciuc, 2002; Murariu *et al.*, 2003; Dietz & Helversen, 2004).

Results and Discussion

Myotis brandtii is a forest bat, (it can be found more often in old deciduous forests) and, unlike *Myotis mystacinus* – that can be found in buildings – *Myotis brandtii* prefers the woodland and water areas. The hibernating sites are caves, mines and cellars (Boye & Dietz, 2005).

It belongs to the whiskered bat group that has gained two more taxa in the past years. Today, 4 species are described for this group: *Myotis brandtii*, *Myotis mystacinus*, *Myotis aurascens* and *Myotis alcahoae*. The former two species were not yet found in Romania. *Myotis brandtii* is a small-sized species, part of *Myotis* genus (forearm length is usually >33mm) (Dietz & Helversen, 2004).

For the identification we used the following characteristics:

1. The dentition is one of the most important features for the identification in the field (the skull measurements and the molecular methods, which are more precise, can not be used in the field work). The second upper premolar P² is situated on the inner side of the teeth row and it has 2/3 of the size of the first premolar (P¹), cingular cusp of the third premolar (P³) is much higher than P² (Figs. 1; 2). Using these characteristics, the species can be easily distinguished from *Myotis mystacinus*.

2. The tragus has a tip pointed forward; it surpasses the exterior indentation of the ear, almost in straight angle. The base of the ear and of the tragus is lighter (*Myotis mystacinus* has the ear and the tragus of the same colour, blackish-brown) (Grimmberger & Schober, 1996).

3. The fur (for adult individuals) on the dorsal side is with golden gloss. The colour can be used to separate the species from *Myotis daubentonii* and *Myotis mystacinus*, with the exception of juveniles that resemble *Myotis mystacinus*. All the naked parts of the skin are light-brown (unlike the dark brown of *Myotis mystacinus*).

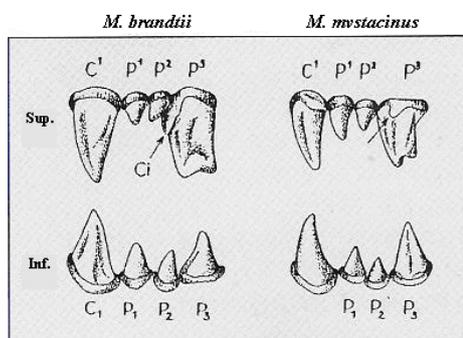


Figure 1. Dentition characteristics (Grimmberger & Schober, 1996).



Figure 2. *Myotis brandtii* - dentition characteristics (by courtesy of Adrian Done).

4. The penis is distinctly thickened at the end, unlike *Myotis mystacinus*; using this character *Myotis brandtii* can be mistaken for *Myotis daubentonii* that has a similar penis shape.

5. The spur has no epiblemma and the end is slightly prominent on the outside and measures 1/3 of the length of uropatagium. The foot is smaller than *M. daubentonii* and is hairless.

6. The bat detector was used for the active individuals, as a further means of accuracy, thus ruling out *Myotis daubentonii*. Although the emission frequency is the same (41kHz), the beat and the characteristics of the ultrasound are different.

As for the forearm length, the following measurements are presented: Grimmberger & Schober (1996): 33-39.2 mm, Dietz & Helversen (2004): 33-38.2 mm and Valenciuc (2002): 33.5-38 mm.

Table 1. Collected data regarding the presence of *Myotis brandtii* in Moldavia.

Shelter	UTM Code	No. indiv.	Date	F.A. (mm)	Body Length (mm)	Sex	Age	Parasites
Grota Mare	NN 42	1	24.10.04	33.5	40	♂	AD	YES
Chalet Chitele	MN 42	1	27.07.05	34.5	-	♀	AD	YES
Peștera Liliecilor	LN 96	7	4.08.05	35	-	♂	AD	NO
				32.8	-	♂	AD	NO
			6.08.05	36.6	-	♂	AD	NO
				36	-	♂	AD	NO
			26.08.05	36.6	-	♀	AD	YES
28.08.05	34.4	-	♂	AD	NO			
			28.08.05	34.5	-	♂	AD	NO

Conclusions

1. We have recorded *Myotis brandtii* as a new species for Moldavia.
2. We have identified 3 types of typical shelters of the species: Grota Mare (Repedea Hill, Iasi County) – winter shelter, the attic of chalet Chitele (Natural Park Vânători-Neamț) – secondary summer shelter, and at the entrance of Peștera Liliecilor (Rarău, Suceava County) – mating shelter.
3. 9 individuals were captured: 2♀ and 7♂.
4. For the identification the most important feature was the dentition.

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