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Recent records of *Myotis dasycneme* in Austria

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Abstract. We present here the first Recent records of the pond bat (*Myotis dasycneme*) from Austria, made in Hohenau an der March, Lower Austria, near the March/Morava River. Furthermore, we summarize records from the neighbouring countries (Slovakia and Czech Republic), to draw a general picture of the occurrence of this species in the Lower Morava region. This region represents the southwestern border of the pond bat`s range in Central Europe. In order to answer pending questions concerning the status of this threatened species, a transborder research project is called for.

Pond bat, *Myotis dasycneme*, Recent records, Austria

Introduction

Despite being a member of the Holocene fauna in Austria, no Recent records exist for the pond bat in this country so far (Bauer 2001). However, records in the Czech Republic and Slovakia indicate that there are populations in the vicinity of the Austrian border (Gaisler et al. 2002, Řehák et al. 2003). Therefore one of the aims of the Bat Research Camp 2010 organised by the Austrian Coordination Centre for Bat Conservation and Research (KFFOE) in cooperation with the "Verein AURING" was the search for the pond bat in the area around Hohenau an der March, Lower Austria.

Evaluation of the presence of the pond bat in Austria is of interest, since the species is listed in Annex II and Annex IV of the EU Habitats Directive. Therefore, if the occurrence of the species in Austria is confirmed, conservation measures will be called for.

Material and methods

Study area

The study area is situated in the northeast of Lower Austria – close to the village of Hohenau an der March. The landscape surrounding the confluence of the Morava and Dyje Rivers is characterised by pronounced floodings during spring, although the dynamic of both rivers is strongly influenced by human interventions. Riparian forests have developed along the riversides, with the common oak (*Quercus robur*) and narrow-leaved ash (*Fraxinus angustifolia*) as the dominant and habitat-defining tree species, forming the typical *Fraxino pannonicae-Ulmetum*. These woods are managed as timber forests with a turnover time of 80 to 100 years. Backwaters and flood meadows create a complex mosaic of this floodplain habitat. The climate shows Pannonic influence with sufficient rainfall during hot summers followed by cold and dry winters. The weather station in Hohenau reports an average temperature of 10.8°C and a total rainfall of 450 mm in the year 2008, but the annual amount of rainfall can vary, from 325 mm in 1978 up to 733 mm in 1959 (Zuna-Kratky et al. 2000).

Mist netting

During the Bat Research Camp, five mist nets were set up around the "Pumpstation" (16.9° E, 48.5° N, 151 m a. s. l.) on 14 May 2010. Mist netting started at 8:30 pm and ended at 12:00 pm (CET). Four mistnets were situated at the edge of a small channel and the Morava River and one net was placed directly across the small channel. Species identification of *Myotis dasycneme* was based on the details given in Dietz et al. (2007), with special respect to size, forearm length (LAt),

size of hind foot (LTp), and the relatively small and rounded tragus (see Fig. 1). Mist netting was carried out under license from the nature conservation department of the government in Lower Austria (RU5-BE-517/003-2009).

Recording of echolocation calls

Bat echolocation calls were recorded using automatic recording devices (batcorder system, ecoObs, Nürnberg, Germany, www.ecoobs.com). The recordings were automatically analysed with the software packages bcAdmin 2.0 and batIdent 1.0 (ecoObs, Nürnberg, Germany). Subsequently the automatic classifications were checked manually for consistence and compared with reference calls and literature information (Ahlen 1990, Ahlen & Baagøe 1999). One batcorder was set up during the nights of 6–8 August 2009 and two to four batcorders were installed during the nights of 13–15 May 2010.

Results

A female pond bat was captured near the estuary of a small channel ("Reinwasserkanal") into the Morava River on 14 May 2010. The captured bat was an adult female (LAt 47.0 mm, LTp 10.9 mm; Fig. 1) with no palpable signs of pregnancy. The bat was captured at the bank of the channel in a tree line (*Populus* spp.), and close to the Morava River. Several other species, namely *Myotis daubentonii*, *Nyctalus noctula*, *Pipistrellus pipistrellus* and *P. pygmaeus*, were captured along with the pond bat.

In addition to the captured individual, ultrasound calls of pond bats were recorded at another three locations in the surroundings of the place of mist netting (Fig. 2). All locations were related to water bodies. One was in the vicinity of the site of mist netting, the other two were larger water bodies created and used by a sugar refinery as settling ponds and now managed by the "Verein AURING".

Fig. 1. Pond bat (*Myotis dasycneme*) captured at the Morava River, Hohenau an der March, Lower Austria.
Obr. 1. Netopýr popřežní (*Myotis dasycneme*) odchycený u řeky Moravy nedaleko Cáhnova nad Moravou [Hohenau an der March], Dolní Rakousy.

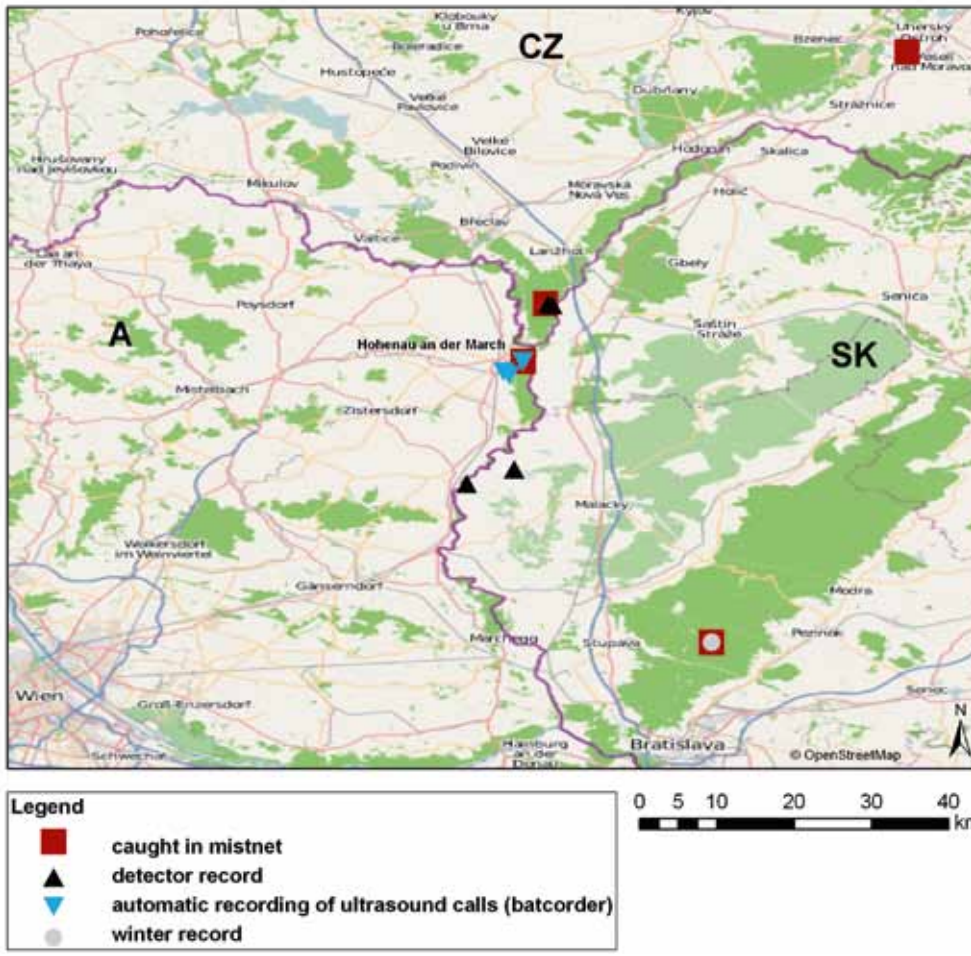

Fig. 2. Records of the pond bat (*Myotis dasycneme*) in the Lower Morava River area.
Obr. 2. Nálezy netopýra pobřežního (*Myotis dasycneme*) při dolním toku Moravy. Vysvětlivky: červený čtverec – odchyt do sítě; černý trojúhelník – záznam hlasu bat-detektorem; modrý trojúhelník – záznam hlasu automatickým detektorovým systémem (batcorderem); šedý kruh – zimní nález.

Discussion

The pond bat has been known as a rare element of the middle Pleistocene fauna in Austria, found in two caves in the eastern part of the country. There are also several records from the Holocene, mainly from the alpine areas in the Eastern Alps. However, no Recent records for Austria have been available (Bauer 2001).

The pond bat's patchy distribution ranges from northeastern France through Belgium, the Netherlands, Denmark, southern Sweden and the Baltic states to Russia. The species is also found in the German states of Mecklenburg-Western Pomerania, Brandenburg, Schleswig-Holstein,

North Rhine-Westphalia, Rhineland-Palatinate, Hesse, Thuringia, Lower Saxony and Saxony (Boye et al. 1999, Boye 2005). From Bavaria only few detector records exist so far and the status is unclear (Bach pers. comm., Meschede 2004). Furthermore the range expands through Poland, northern Czech Republic, eastern Slovakia and most of Hungary. In the south, the pond bat is found in northern Croatia, northern Serbia and northwestern Romania to the Black Sea near Moldova. From Belarus and Ukraine the distribution stretches as far as to central Siberia in the east (Dietz et al. 2007).

The finding of a post-lactating female and two young individuals in the Soutok area (Okřehková tůň Pool), Moravia, less than 8 km north-northeast of Hohenau an der March suggests a close nursery colony. However, the roost could be situated either in the Czech Republic, Slovakia or in Austria. In the eastern part of Soutok, another three detector recordings were made at the Benediktova tůň Pool in May 2000 and above the Morava river in August 2000 (Gaisler et al. 2002; Fig. 2). Still, the species is considered rare in the region (Řehák et al. 2003).

Furthermore, a record with indication for reproduction of the pond bat was made in Veselí nad Moravou (SE Moravia), about 50 km northeast of Hohenau an der March (Lučan et al. 2007; Fig. 2). Thus, the pond bat is likely to have a viable and permanent population in the region and local reproduction is very probable. Additionally, Řehák et al. (1996) reported a slight enlargement of the pond bat´s distribution in the Czech Republic, although this consideration is mainly based on data from hibernacula.

In Slovakia, the species is listed as vulnerable (Žiak & Urban 2001). Several findings of pond bats are available, with the main distribution in the central and eastern parts of the country. No summer colonies are known so far, but could be expected for the Slovak Karst region (Matis et al. 2000). The closest Slovak records of pond bats to Hohenau an der March are two detector recordings near Gajary (Kürthy pers. comm.; Fig. 2). In August 2004 and on 18 August 2007, pond bats were mist-netted next to the Haviareň cave, Plavecké Podhradie (Noga 2007, Fig. 2).

Furthermore, findings from hibernacula exist in western Slovakia, such as from the Malé Karpaty Mts., the Tríbeč Mts. and Považské podolie (Matis et al. 2000) exist (Fig. 2). Lehotská (2002) gives details on two hibernating individuals found in Medené hámre on 26 February 2000 and one hibernating individual in the Haviareň cave on 2 March 2002 (Fig. 2).

The pond bat is a rare, sporadic species in Hungary but tends to form larger nursery colonies, especially in buildings along the Tisza and Danube Rivers. In Gemenc, one of the largest floodplain forests of the Danube River, colonies have been found in tree holes. Only few individuals can be found in caves during winter.

During a three-year bat survey made on the Tisza River, including the adjacent floodplain forests and the buildings in settlements near the river, pond bats were found primarily in those sections of the river where buildings, suitable for summer roosting were present within a 5 km distance. The pond bats used the attics, or holes behind the insulation of roof structures. In undisturbed places breeding colonies of several hundred individuals were found (Dobrosi 2005). Interestingly, a considerable part of the Hungarian population roosts in trees. These roosts are threatened by intensive forest management (Görföl & Dombi 2007).

In the Bakony Mts. of western Hungary, Paulovics (2007) found the pond bat for the first time in 1998. Since then, spreading of the species has been documented in that region. Observations of wintering bats and swarming individuals in the mating season were made (Paulovics 2007).

Since the pond bat is listed in Annex II and Annex IV of the EU Habitats Directive, it is necessary to clarify the status of this species in Austria. At the moment, answers to the following questions seem to be of the greatest priority: (1) Is there a viable population of the pond bat in Austria? (2)

Is there a reproductive population of the pond bat in Austria? (3) Where are the maternity roosts? (4) Where are the hibernation roosts?

Very probably some of the questions have to be answered in cooperation with the colleagues in Slovakia and the Czech Republic. Therefore a transborder project is called for.

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Souhrn

Recentní nálezy *Myotis dasycneme* v Rakousku. V příspěvku jsou popsány první nálezy netopýra pobřežního (*Myotis dasycneme*) v Rakousku. Jedna subadultní samice byla odchycena do sítě nad přítokem (kanálem) do řeky Moravy, nedaleko Cáhnova nad Moravou [Hohenau an der March] v Dolních Rakousích. Dále jsou sumarisovány nálezy v okolních zemích, Česku a Slovensku, a vykreslen výskyt tohoto druhu v oblasti dolního toku Moravy – tato oblast představuje jihozápadní okraj areálu netopýra pobřežního v Evropě. Aby mohly být zodpovězeny otázky týkající statutu této populace ohroženého druhu, bylo by vhodné nastolit přeshraniční výzkumnou spolupráci.

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