

# Particoloured bat *Vespertilio murinus* (Chiroptera) found hibernating in Lithuania for the first time

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The following 15 bat species have been found in Lithuania: Daubenton's Bat *Myotis daubentonii*, Pond Bat *Myotis dasycneme*, Brandt's Bat *Myotis brandtii*, Natterer's Bat *Myotis nattereri*, Whiskered Bat *Myotis mystacinus*, Brown Long-eared Bat *Plecotus auritus*, Barbastelle Bat *Barbastella barbastellus*, Serotine Bat *Eptesicus serotinus*, Northern Bat *Eptesicus nilssonii*, Common Pipistrelle *Pipistrellus pipistrellus*, Nathusius' Pipistrelle *Pipistrellus nathusii*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Noctule *Nyctalus noctula*, Leisler's Bat *Nyctalus leisleri* and Parti-coloured Bat *Vespertilio murinus* (Prūsaitė, 1972, 1988; Pauža, Paužienė, 1996; Balčiauskas et al., 1997, 1999; Pauža et al., 2004). Eight of those species are known to hibernate in Lithuania: *Myotis daubentonii*, *Myotis dasycneme*, *Myotis brandtii*, *Myotis nattereri*, *Plecotus auritus*, *Barbastella barbastellus*, *Eptesicus serotinus* and *Eptesicus nilssonii* (Prūsaitė, 1972, 1988; Pauža, Paužienė, 1996; Balčiauskas et al., 1997, 1999; Pauža et al., 2004). Common pipistrelle *Pipistrellus pipistrellus* was found only once during the winter season (Pauža, Paužienė, 1996). Seven species have been found hibernating in Vilnius city area: *M. daubentonii*, *M. dasycneme*, *M. brandtii*, *P. auritus*, *B. barbastellus*, *E. serotinus* and *E. nilssonii* (Baranauskas, 2001, 2003; Baranauskas et al., 2005a, 2005b).

**Key words:** bats, *Vespertilio murinus*, hibernation, Vilnius, Lithuania

## INTRODUCTION

Recently, two specimens of *Vespertilio murinus* Linnaeus, 1758 were found in the halls of modern buildings (Reval Hotel Lietuva and Palace of Parliament) in Vilnius. The city of Vilnius is situated in East Lithuania, at the confluence of the Neris and Vilnia Rivers. The territory of the city embraces ca 20 km from north to south and ca 10 km from east to west. Buildings cover 20.2% of the city territory. The remaining area is covered by greenery (43.9%), waters (2.1%), streets, roads and others (33.8%) (<http://www.gidas>). Only a few buildings are higher than 20 stores in Vilnius. One of them is the newly renovated 22-storey Reval Hotel Lietuva building standing on the bank of the River Neris in the middle of the city. The Palace of Parliament is situated on the bank of the same river, 800 m away from the Reval Hotel Lietuva building.

## MATERIALS AND METHODS

In one of the halls of the Reval Hotel Lietuva building, a bat was seen flying in the daytime on January 22, 2006. The bat was caught and identified as *Vespertilio murinus* (forearm 45 mm, male). Another bat was noticed flying in one of the halls of the Palace of Li-

thuanian Parliament on February 20, 2006. This animal was caught too and again was identified as a Parti-coloured Bat (forearm 44 mm, female). Both bats were identified using morphological features (Corbet, Harris, 1991; Macdonald, Barret, 1993; Dietz, Helversen, 2004). After external examination, both animals were released into one of the underground bat hibernation sites in Vilnius.

The specimen of *Vespertilio murinus* found in the Reval Hotel Lietuva Building was noticed during a period of unusually high temperature fluctuations occurring in the country; on January 18–22, the outside temperature fell down from 5 to 27 °C below zero in Vilnius. The second specimen of *Vespertilio murinus* was caught in one of the halls of the Palace of Lithuanian Parliament when the air temperature outside stayed about zero for several days. It is interesting to note that on the next day after the second animal of *Vespertilio murinus* was caught, a serotine bat was found flying in another building 400 m away from the Palace of Parliament.

## DISCUSSION

In Europe, *Vespertilio murinus* is distributed from northern Russia (61 °N) and southern Norway in the north to

south-western France, the Italian Alps, northern Greece and the Caucasus in the south. Small satellite populations or migrants are found in the Netherlands and southern Finland. The westernmost records of its breeding are known from eastern Denmark, north-eastern and south-western Germany and Switzerland. Numerous vagrants have been observed far away from their normal range, even as far as the Faroes (Novikov et al., 1970; Stebbings, 1988; Macdonald, Barrett, 1993; Mitchell-Jones et al., 1999; Horaček et al., 1999). In the northern part of its distribution range *Vespertilio murinus* is considered a migratory species (Стрелков, 1969). In November 1968, one animal (young male) of this species was caught in a wooden building situated in Leningrad region of Russia (Новиков и др., 1970). Until now, only two winter time finds of this species were known from north-eastern Europe (Стрелков, 2001). The results of bat-ringing and bat-banding have proved that long-distance flights over 1,000 km, characteristic only of migratory species, also occur in *Vespertilio murinus* (Masing, 1989; Hutterer et al., 2005).

According to literature data, *Vespertilio murinus* hibernates in high buildings often situated in cities (Mitchell-Jones et al. 1999). It uses for hibernation the sites in the buildings above the ground (instead of underground rooms as most sedentary bat species do). This may be the cause why *Vespertilio murinus* is rarely found by bat experts in winter. In the neighbouring Poland, summer colonies of particoloured bat are known only from a few places. The species is much more frequent there during periods of autumn migration, mating and hibernation when it occurs in high buildings situated in towns and cities all over the country (Ciechanowski, 2001; Sachanowicz, Ciechanowski, 2005). In Denmark, *Vespertilio murinus* flies around high buildings in autumn and also hibernates in those buildings (Baagøe, 2001). Further to the north in Estonia, this bat has been observed until the end of September; after that time it is supposed to be missing from the country (Poots, Masing, 2001).

In Lithuania, particoloured bat is considered a strong migrant who has never been found in this country in winter (Prūsaitė, 1972, 1988; Lietuvos..., 1992; Pauža, Paužienė, 1996; Pauža et al., 2004). During warm season this species is found locally (Prūsaitė, 1988; Pauža et al., 2004). It seems more common in the southern and south-western parts of the country where it has been found in forests. Only a few nursery colonies of *Vespertilio murinus* are known in Lithuania. In the migration season, the species has been observed mostly in the western part of the country. Its migration begins in the first days of August and ends probably by mid-October. The latter statement is based on solitary animals found until October (Pauža, Paužienė, 1996). The bats return from hibernation sites situated in other countries presumably at the end of May (Prūsaitė, 1988; Pauža et al., 2004).

All the three bats found in buildings in the city of Vilnius in the midwinter of 2006 were obviously look-

ing for more suitable hibernation sites. Those bats changed their hibernation sites in the aboveground roosts probably because of low temperatures occurring in January. Additionally, in the same hall of the Palace of Parliament where *Vespertilio murinus* was found, a specimen of Pond Bat (male) was caught at the beginning of May a year before. It is not known which cavities of the buildings the bats used for hibernation, but most probably these were cavities in the ventilation system. Using this system, bats can easily penetrate inside the buildings.

In connection with the above observations, it is worth mentioning that some years earlier particoloured bats were found in the city of Vilnius also in autumn. Thus, in the late autumn (the end of October and the beginning of November) of 2001, about one month after the migration period had ended, two specimens of *Vespertilio murinus* were caught in modern buildings of Vilnius (Šmigelskas, Baranauskas, 2003; Baranauskas et al., 2005a). This observation leads to a hypothesis that *Vespertilio murinus* is a hibernator in the country. Two additional finds of this species in Vilnius in the midwinter of 2006 confirmed for the first time that particoloured bats spend winter in Lithuania.

## CONCLUSIONS

1. The finding of the particoloured bat in the cold season of the year in Vilnius changes our knowledge of the ecology of this bat species in Lithuania, and we may consider this bat species a hibernating in the country.

2. Though in Lithuania in autumn particoloured bats migrate in the southwestern direction, part of the population probably hibernate in the country, or there are bats arriving to hibernate from more northern parts of their habitat.

3. Particoloured bat seems to be one of a few bat species in Lithuania that hibernate in modern high buildings, though it is not found in common underground bat hibernation sites.

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**DVISPALVIS PLIKŠNYS VESPERTILIO MURINUS  
(CHIROPTERA) PIRMĄ KARTĄ RASTAS  
ŽIEMOJANTIS LIETUVOJE**

**S a n t r a u k a**

Penkiolika šikšnosparnių rūšių aptinkama Lietuvoje: vandeninis pelėausis *Myotis daubentonii*, kūdrinis pelėausis *Myotis dasycneme*, Branto pelėausis *Myotis brandtii*, Natererio pelėausis *Myotis nattereri*, ūsuotasis pelėausis *Myotis mystacinus*, rudasis ausylis *Plecotus auritus*, europinis plačiaausis *Barbastella barbastellus*, vėlyvasis šikšnys *Eptesicus serotinus*, šiaurinis šikšnys *Eptesicus nilssonii*, šikšniukas nykštukas *Pipistrellus pipistrellus*, Natuzijaus šikšniukas *Pipistrellus nathusii*, šikšniukas mažylis *Pipistrellus pygmaeus*, rudasis nakviša *Nyctalus noctula*, mažasis nakviša *Nyctalus leisleri* ir dvispalvis plikšnys *Vespertilio murinus*. Iki šiol Lietuvoje buvo aptinkamos žiemojančios aštuonios šikšnosparnių rūšys: *Myotis daubentonii*, *Myotis dasycneme*, *Myotis brandtii*, *Myotis nattereri*, *Plecotus auritus*, *Barbastella barbastellus*, *Eptesicus serotinus* ir *Eptesicus nilssonii*. 2006 m. sausio 22 ir vasario 20 dienomis du *Vespertilio murinus* individai buvo sugauti moderniuose Vilniaus miesto pastatuose. Dar du šios rūšies žvėreliai buvo aptikti Vilniuje 2001 metų vėlyvą rudenį. Visa tai aptariama straipsnyje, ir dvispalvis plikšnys dabar jau laikomas devintąja šikšnosparnių rūšimi, žiemojančia Lietuvoje.

**Raktažodžiai:** šikšnosparniai, *Vespertilio murinus*, žiemojimas, Vilnius, Lietuva