

## The first breeding records of *Pipistrellus nathusii* in Slovakia (Chiroptera: Vespertilionidae)

Prvé doklady reprodukcie večernice parkovej (*Pipistrellus nathusii*) na Slovensku  
(Chiroptera: Vespertilionidae)

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**Abstract.** Current climate changes have shifted the breeding and wintering ranges in *Pipistrellus nathusii*, similarly as in some other European bat species. Mainly the originally woodland species undergo the process of synurbanisation and occur more frequently in urban areas today. This short note describes two records of nursery colonies of *P. nathusii* from towns in eastern Slovakia.

**Key words.** Nursery colony, reproduction, Nathusius' pipistrelle, bats, Slovakia

The Nathusius' pipistrelle, *Pipistrellus nathusii* (Keyserling et Blasius, 1839) is a western Palearctic species with the distribution range reaching from western Europe to the southern Ural Mts., north of the Mediterranean Basin, northern Middle East and Transcaucasia (VIERHAUS 2004, DIETZ et al. 2009). This species is a highly migratory bat moving for hibernation to the southwest of its range (STRELKOV 1969, PETERSONS 1990, 2004). The current reproduction range of this species, previously known only in the northeastern part of its whole distribution range with the southern limits in central Europe being around 52–53° N, has recently shifted considerably southwards (ANCILLOTTO & RUSSO 2014). A similar shift, though in the opposite direction, was confirmed also for its wintering range (e.g. SACHANOWICZ et al. 2006, 2019), with an increasing number of winter records from central Europe (e.g. ŘEHÁK & FORAL 1992, BENDA & HOTOVÝ 2004, KAŇUCH 2012, JAHELKOVÁ et al. 2014).

In Slovakia, the species range includes two distinct regions with most records situated in the western and eastern parts of the country (DANKO et al. 2002, 2012), while findings in the central regions of Slovakia are very scarce (e.g. KAŇUCH 2012). The records collected in the period from April to October are concentrated to lowland riverine forest habitats, whereas hibernation was documented from urban habitats, although still very rarely (DANKO et al. 2012, NUSOVÁ et al. 2019). Since the first record of the species from the territory of Slovakia (1847; MÉHELY 1900), there was no evidence of a nursery colony or even of a sign of reproduction (DANKO et al. 2012). In this note we describe and discuss two new records indicating the presence of nursery colonies from two urbanised sites in eastern Slovakia. The species identification of the individuals was carried out using specific diagnostic features (pelage colouration, extension of the uropatagium hairs, distinct pattern of wing fibres, length of the fifth finger of the wing; see DIETZ et al. 2009).

The following records were made: (1) On 28 June 2019, three partially coated juvenile males were found in the stock of the grocery store in **Košice** (Važecká ulica street, Košická kotlina Basin; 48° 40' 35.1" N,



Fig. 1. A male *Pipistrellus nathusii* from Košice after reaching maturity in captivity (photo by Adriana HOLOŠKOVÁ, September 2019).

Obr. 1. Samec *Pipistrellus nathusii* z Košíc pod dosiahnutí dospelosti v opatere (foto Adriana HOLOŠKOVÁ, september 2019).

21° 17' 59.5" E, 192 m a. s. l.). They were fed with goat milk containing vitamin and mineral supplements and mealworms, until they were capable of flight. On 9 September 2019, after reaching maturity, two of them were released in Košice (Fig. 1); the third one with a developmental bone disorder was permanently handicapped and held captive. (2) On 7 July 2019, an injured lactating female with a female baby was found by citizens in their house yard in **Michalovce** (Partizánska ulica street, Východoslovenská nížina Lowland; 48° 45' 54.7" N, 21° 55' 41.5" E, 115 m a. s. l.). The adult female died shortly after the finding and emergency care was provided to the young in a similar way as in the previous case for approximately two months until it was able to fly independently. Then it was released in Košice.

In the last decades, extension of the breeding range of *P. nathusii* was observed in some European countries (e.g. Germany, the Netherlands, northern and central Italy; SCHMIDT 2000, RUSS et al. 2001, ZAHN et al. 2002, MARTINOLI et al. 2002, ANCILLOTTO & RUSSO 2014). Our observations are positioned within this new breeding range, and thus, support the picture of its considerable shift southwards together with the set of further new breeding records from central Europe (e.g. JAHELKOVÁ et al. 2000, LUČAN et al. 2007, GELHAUS & ZAHN 2010). Both observations presented in this note were made in eastern Slovakia, i.e. within the known area of species distribution in the country. However, the breeding records originated from urbanised habitats in towns, where we have recently confirmed also hibernation of the species (NUSOVÁ et al. 2019). This thus supports the already formulated hypothesis about a synurbanisation process in this originally woodland bat species (VIERHAUS 2004, DIETZ et al. 2009). Furthermore, our observations could be combined with the suggested shift of its hibernation range to the northeast as a response to the climate change (LUNDY et al. 2010). Because towns and cities could play a possible role of suitable habitat islands or stepping stones during the range expansion (SACHANOWICZ et al. 2019), they could even provide suitable habitats for the nurseries.

## SÚHRN

Súčasnú klimatickú zmenu spôsobili u niektorých druhov netopierov posun ich letného aj zimného areálu výskytu, pričom jedným z týchto druhov je večernica parková (*Pipistrellus nathusii*). Predovšetkým pôvodne lesné druhy netopierov prechádzajú procesom synurbanizácie a ich výskyt v mestských aglomeráciách je čím ďalej frekventovanejší. V tejto krátkej správe prezentujeme prvé zdokumentované výskyt materských kolónií sledovaného druhu netopiera v dvoch mestách na východnom Slovensku.

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