

## On the occurrence of *Pipistrellus nathusii* in central Slovakia

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**Abstract.** An adult male of *Pipistrellus nathusii* was found near the Môt'ová reservoir at the periphery of the Zvolen town in central Slovakia on 6 October 2012. Observations of the species are very rare in this area and this short note also comments on occurrence of the species in Slovakia during migration.

**Central Europe, migratory species, montane areas, Nathusius' pipistrelle**

The Nathusius' pipistrelle, *Pipistrellus nathusii* (Keyserling et Blasius, 1839), has a western Palaearctic distribution. In continental Europe, the species breeds mainly in its northern and eastern parts (Vierhaus 2004, Dietz et al. 2009). It is a typical migratory bat having autumn migration routes in the southwest direction across the continent (Hutterer et al. 2005). Geographical distances between breeding areas and hibernacula (even more than 1900 km have been recorded) are the biggest among the European bats (Vierhaus 2004). In Slovakia (central Europe), the species distribution exhibits a distinct pattern with occurrence concentrated in two separate areas, in the western and eastern parts of the country. On the other hand, records of the species are very rare in the other parts of the country and almost no data are available from the region of central Slovakia (Danko et al. 2012). In this short note I describe a single record obtained from the Zvolenská kotlina basin, an area surrounded by several mountain ridges – some of them exceeding 1500 m a. s. l.

On 6 October 2012, one adult male of *P. nathusii* was found freshly dead on a road close to the reservoir of Môt'ová, at the periphery of the Zvolen town in central Slovakia (48° 33.6' N, 19° 09.6' E, 308 m a. s. l.). The species affiliation of the individual (forearm length 32.8 mm, head and body length 45.8 mm, tail length 37.2 mm) was determined unambiguously using diagnostic morphological features based on dental characteristics, penis shape and extension of uropatagium pelage (Dietz et al. 2009).

Migratory behaviour of this species has not yet been confirmed in Slovakia by banding data (see Gaisler et al. 2003), however, the country is on the midway of the migration routes used by this species (Hutterer et al. 2005). Here the bat is observed most often during spring and autumn seasons (Danko et al. 2012), as in central Europe reproduction of *P. nathusii* is rare and has been recorded during last decades only (e.g. Gelhaus & Zahn 2010). Actually there is no breeding record from Slovakia and records of males largely prevail (Danko et al. 2012). Both areas of the frequent species occurrence consist mainly of lowlands with remains of broadleaved forests and numerous water bodies, which are habitats preferred by this bat species (e.g. Ciechanowski et al. 2009, Lundy et al. 2010). This suggests that large rivers such as the Morava and Váh rivers in western Slovakia and the Laborec and Bodrog rivers in eastern Slovakia are the main migration flyways of the species (cf. Furmankiewicz & Kucharska 2009). In central Slovakia (the area south of the upper catchment of the Váh river), only one observation of *P. nathusii* has been recorded until now, by an ultrasonic bat-detector (Ceľuch & Kropil 2008). However, to make correct species determination, an overlap in echolocation calls with *Pipistrellus kuhlii* (Kuhl, 1817) – the

species currently spreading its distribution range in central Europe – needs to be considered (see e.g. Zsebők et al. 2012). Although it seems that *P. nathusii* has been adapting its range in response to recent climate change (Benda & Hotový 2004, Lundy et al. 2010), it most likely avoids (does not pass frequently) montane areas of central Slovakia during migration.

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### References

- BENDA P. & HOTOVÝ J., 2004: Nález zimujícího netopýra parkového (*Pipistrellus nathusii*) na jižní Moravě [Hibernation record of *Pipistrellus nathusii* in southern Moravia (Czech Republic)]. *Vespertilio*, **8**: 137–139 (in Czech, with an abstract in Czech).
- CELUCH M. & KROPIL R., 2008: Bats in a Carpathian beech-oak forest (Central Europe): habitat use, foraging assemblages and activity patterns. *Folia Zoologica*, **57**: 358–372.
- CIECHANOWSKI M., ZAJĄC T., BILAS A. & DUNAJSKI R., 2009: Nathusius' pipistrelles *Pipistrellus nathusii* (Chiroptera) reveal different temporal activity patterns in wooded and open riparian sites. *Mammalia*, **73**: 105–109.
- DANKO Š., KÜRTHY A. & KAŇUCH P., 2012: Večernica parková – *Pipistrellus nathusii* [Nathusius' pipistrelle – *Pipistrellus nathusii*]. Pp.: 374–377. In: DANKO Š. & KRÍŠTOFÍK J. (eds): *Cicavce Slovenska: Rozšírenie, bionómia a ochrana* [Mammals of Slovakia: Distribution, Bionomy and Protection]. Veda, Bratislava, 712 pp (in Slovak).
- DIETZ C., VON HELVERSEN O. & NILL D., 2009: *Bats of Britain, Europe and Northwest Africa*. A&C Black Publishers, London, 400 pp.
- FURMANKIEWICZ J. & KUCHARSKA M., 2009: Migration of bats along a large river valley in southwestern Poland. *Journal of Mammalogy*, **90**: 1310–1317.
- GAISLER J., HANÁK V., HANZAL V. & JARSKÝ V., 2003: Výsledky kroužkování netopýrů v České republice a na Slovensku, 1948–2000 [Results of bat banding in the Czech and Slovak Republics, 1948–2000]. *Vespertilio*, **7**: 3–61 (in Czech, with an abstract in English).
- GELHAUS M. & ZAHN A., 2010: Roosting ecology, phenology and foraging habitats of a nursery colony of *Pipistrellus nathusii* in the southwestern part of its reproduction range. *Vespertilio*, **13–14**: 93–102.
- HUTTERER R., IVANOVA T., MEYER-CORDS C. & RODRIGUES L., 2005: *Bat Migrations in Europe. A Review of Banding Data and Literature*. Federal Agency for Nature Conservation, Bonn, 162 pp.
- LUNDY M., MONTGOMERY I. & RUSS J., 2010: Climate change-linked range expansion of Nathusius' pipistrelle bat, *Pipistrellus nathusii* (Keyserling & Blasius, 1839). *Journal of Biogeography*, **37**: 2232–2242.
- VIERHAUS H., 2004: *Pipistrellus nathusii* (Keyserling und Blasius, 1839) – Rauhhaufledermaus. Pp.: 825–873. In: KRAPP F. (ed.): *Handbuch der Säugetiere Europas*. Band 4: Fledertiere. Teil II: Chiroptera II. Vespertilionidae 2, Molossidae, Nycteridae. Aula-Verlag, Wiebelsheim, x+582 pp.
- ZSEBŐK S., ESTÓK P. & GÖRFÖL T., 2012: Acoustic discrimination of *Pipistrellus kuhlii* and *Pipistrellus nathusii* (Chiroptera: Vespertilionidae) and its application to assess changes in species distribution. *Acta Zoologica Academiae Scientiarum Hungaricae*, **58**: 199–209.

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