

## New records of *Hypsugo savii* in the Czech Republic

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**Abstract.** Ten new records of the Savi's pipistrelle (*Hypsugo savii*) are reported from the Czech Republic. Year-round occurrence of the species as well as new records of its reproduction provide further evidence of resident populations. All existing records come from southern Moravia. The town of Brno and its surroundings represent the northernmost area with regular reproduction of the species in Central Europe. All new records were obtained in urban and sub-urban habitats, thereby supporting the hypothesis on synanthropic tendency of currently expanding populations of this species.

***Hypsugo savii*, distribution, Central Europe**

### Introduction

The Savi's pipistrelle, *Hypsugo savii* (Bonaparte, 1837), is a Western Palearctic species inhabiting mostly Mediterranean and sub-Mediterranean regions within its distribution range (Horáček & Benda 2004). Northward expansion of this species from the area south of the Alps to Central Europe has been documented recently (Spitzenberger 2001, Danko 2007, Görföl et al. 2007, Reiter et al. 2010). In the Czech Republic, the species was recorded for the first time in Žabčice (ca. 20 km south of Brno, southern Moravia) in 2001 (Gaisler 2001). The second record pertained to a sub-adult female found in Brno during winter time (Gaisler & Vlašín 2003). In 2006, reproduction of the Savi's pipistrelle in the country was evidenced by the capture of a post-lactating female in the centre of Brno (Bartonička & Kaňuch 2006), suggesting that the species may have already established a reproducing population in this town (see also Anděra & Hanák 2007, Hanák et al. 2010). The aim of this study is to summarize new and thus so far unpublished records of the Savi's pipistrelle from the territory of the Czech Republic.

### Records

All records listed below are given in the following format: mapping square number, cadastre, locality name, coordinates, altitude, date, details on the method used and number of individuals registered, author, measurements and/or other details where available.

- 6765**, Brno, Gorkého 4 (49° 12' 01" N, 16° 36' 01" E, 234 m a. s. l.), 20 July 2009, fledged juvenile male found on the window sill of a shop in the ground floor of a town-house (leg. J. Dobiáš & Z. Řehák), forearm length (LAt) 27.3 mm, weight (G) 3.4 g, banded (ring NM Praha TB24545) and released;
- 6765**, Brno-Židenice, Nopova street 96, rest home (49° 12' 00" N, 16° 38' 47" E, 223 m a. s. l.), 27 July 2010, a barely fledged male found on the wall of the building (leg. R. Zajíček), LAt 28.7, G 4.1 g;

- 6865**, Brno-Nové Sady, Soukenická street 3 (49° 11' 18" N, 16° 36' 19" E, 204 m a. s. l.), 12 March 2009, subadult male found on the terrace on the 2nd floor of an old block of flats (leg. Bláhová & Z. Řehák), LAt 32.8 mm, G 6.3 g;
- 6865**, Brno, Poříčí 16, Faculty of Education, Masaryk University (49° 11' 13" N, 16° 35' 47" E, 203 m a. s. l.), 27 March 2009, subadult male in the building (leg. Z. Sommerová & Z. Řehák), LAt 33.3 mm, G 5.1 g;
- 6865**, Brno-Horní Heršpice, Kšírova street 220 (49° 09' 56" N, 16° 37' 00" E, 197 m a. s. l.), 2 December 2005, injured male found on the terrace of the Müllers' family house (leg. Müller & P. Koutný);
- 7162**, Znojmo, Husovy sady park, near a fountain in the lower part of the city park (48° 51' 17" N, 16° 03' 14" E, 285 m a. s. l.), 29 July 2010, at least 2 inds. detected (leg. A. Reiter);
- 7162**, Znojmo, Masarykovo square (48° 50' 59" N, 16° 03' 07" E, 280 m a. s. l.), 7 February 2010, injured adult male found on a pavement (leg. A. Reiter), LAt 33,6 mm, G 4,5 g, cadaver deposited in zoological collection of the National Museum Praha under the number NMP 92569;
- 7162**, Znojmo, vicinity of the Louka monastery, southern parts of the city (48° 50' 30" N, 16° 03' 21" E, 208 m a. s. l.), 23 May 2009, at least 3 inds. detected (leg. R. K. Lučan);
- 7266**, Lednice, chateau park (48° 47' 58" N, 16° 48' 23" E, 170 m a. s. l.), 14 May 2009, at least 1 ind. detected (leg. T. Bartonička), sonogram and spectrogram (Fig. 1);
- 7267**, Břeclav, old city castle (48° 45' 37" N, 16° 52' 35" E, 162 m a. s. l.), 16 July 2007, at least 1 ind. detected (leg. R. K. Lučan).

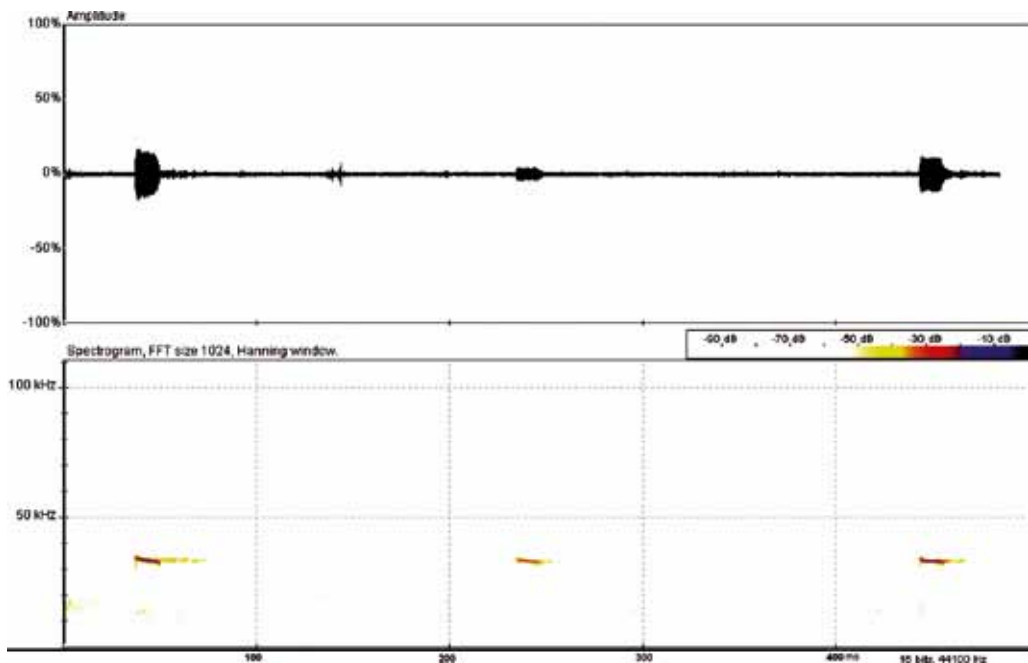


Fig. 1. Sonogram and spectrogram of the search-phase call of *Hypsugo savii* recorded in open space in the Lednice chateau park.

Obr. 1. Sonogram a spektrogram vyhledávací fáze hlasu *Hypsugo savii* zaznamenaného v otevřeném prostoru v zámeckém parku Lednice.

## Discussion

Ten new records of the Savi's pipistrelle were obtained in southern Moravia between 2005 and 2010. These new records have brought evidence of the occurrence of the Savi's pipistrelle in four further mapping squares where the species had not yet been recorded. Our data have increased the total number of records of the species in the Czech Republic to 14, all coming from southern Moravia. Year-round occurrence of the species as well as repeated evidence of its reproduction in the town of Brno suggests existence of a well-established population in the area.

Reiter et al. (2010) reviewed in detail spreading of the Savi's pipistrelle in Austria northwards along the piedmont of the Alps from Carinthia through Graz (Styria) to Vienna (Lower Austria) during the last two decades. Therefore, records from Moravian localities clearly demonstrate further spreading to the north, while Brno and its environs seem to be the northernmost point of the species regular occurrence and reproduction in Central Europe.

Majority of our records come from urban habitats. This situation well corresponds with observations from other Central European countries. Although the species mostly inhabits rocky natural habitats in its Mediterranean range (Horáček & Benda 2004), the newly established northernmost populations are most likely to be exclusively synanthropic (Spitzenberger 2001, Gaisler & Vlačín 2003, Bartonička & Kaňuch 2006, Lehotská 2006, Lehotská & Lehotský 2006, Danko 2007, Görföl et al. 2007, Reiter et al. 2010). Accordingly, Reiter et al. (2010) reported the highest flight activity of the Savi's pipistrelle in rocky habitats in southern Austria (Carinthia), while majority of the records from northern Austria come from urban areas. At the same time, no records of the Savi's pipistrelle were made during recent extensive bat surveys (including large scale bat-detecting) in the Thayatal National Park, northern Austria, i.e. the region with a significant proportion of suitable rocky habitats located within the range of established populations (Reiter et al. 2003, Hüttmeir et al. in press). Given the fact that Znojmo lies in close proximity of the Thayatal National Park, findings of the Savi's pipistrelle in this town support the hypothesis on its tendencies to synanthropy.

A similar situation has been reported for the Kuhl's pipistrelle (*Pipistrellus kuhlii*): its first record in the Czech Republic was also made in Znojmo, few hundred meters from one of the sites where the Savi's pipistrelle was recorded (Reiter et al. 2007). Similarly to the Savi's pipistrelle, the Kuhl's pipistrelle is known to be almost exclusively synanthropic in all recently colonised areas in Central and Eastern Europe (Godlevsky et al. 2000, Bogdanowicz 2004, Cefuch & Ševčík 2006, Danko 2007). Survival of Central European winters that may be much colder than in the (mostly) Mediterranean part of distribution range of both species may pose a significant constraint to their northward spreading. Apart from providing numerous roosting opportunities, urban habitats may enhance winter survival through the effect of urban heat islands causing general increase in winter temperatures within urban habitats (Schlunzen et al. 2010). Therefore, it seems that synanthropisation may stand behind the successful range expansion in both originally Mediterranean species.

## Souhrn

**Nové nálezy netopýra Saviova v České republice.** Článek uvádí deset nových nálezů netopýra Saviova v České republice v letech 2005–2010. Všechny pochází z území jižní Moravy; z hlediska síťového mapování rozšiřují známý výskyt druhu o čtyři mapovací pole. Nálezy v Brně a jeho těsném okolí dokládají opakovaně rozmnožování zdejší populace a dokumentují tak momentálně nejsevernější stálou populaci druhu ve střední Evropě. Mimo brněnskou aglomeraci byl výskyt ve více ročních obdobích zaznamenán ve

Znojmě, jednorázově pak v Lednici a v Břeclavi. Všechna pozorování pochází ze synantropního prostředí, což je v souladu s názorem řady autorů, že druh se šíří severním směrem a to právě v souvislosti s vazbou na lidská sídla.

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