

Unusual occurrence of the Bicoloured White-toothed Shrew (*Crocidura leucodon*) in a fir-beech forest in central Slovakia (Soricomorpha: Soricidae)

Netypický výskyt bielozubky bielobruchej (*Crocidura leucodon*) v jedľovo-bukovom lese na strednom Slovensku (Soricomorpha: Soricidae)

Peter LEŠO, Andrea LEŠOVÁ & Rudolf KROPIL

Faculty of Forestry, Technical University in Zvolen, T. G. Masaryka 20, SK–960 53 Zvolen, Slovakia; leso@vsld.tuzvo.sk; lesova@vsld.tuzvo.sk; kropil@vsld.tuzvo.sk

received on 30 September 2008

Abstract. A subadult individual of *Crocidura leucodon* was captured in an unusual habitat at the locality Mláčik, Kremnické Vrchy Mts. (central Slovakia), geomorphologically belonging to the West Carpathians. The site does not correspond to habitat preferences of the species, since the locality is situated in an extensive fir-beech forest complex at the altitude of 850 m a. s. l. The distance to the continuous unforested area is around 5 km. In Slovakia, the species has not been found in a similar habitat before.

Key words. *Crocidura leucodon*, fir-beech forest, West Carpathians, Kremnické vrchy Mts.

The bicoloured white-toothed shrew, *Crocidura leucodon* (Hermann, 1870) is distributed in the central and southern parts of Europe as well as in the Palaearctic part of Asia, from 5° W to 55° E and from 35° to 53° N (MITCHELL-JONES et al. 1999). *C. leucodon* inhabits mainly open country, particularly in agricultural landscapes, at the northern edge of its range it tends to associate with urban areas (MITCHELL-JONES et al. 1999). In central Europe, the species occurs in lowland and hilly areas, prefers mainly warm and dry sites of steppe and forest-steppe character, and avoids continuous forest complexes (FERIANCOVÁ-MASÁROVÁ & HANÁK 1965, SLÁDEK & MOŠANSKÝ 1985, ANDĚRA & HORÁČEK 2005).

A subadult individual of *C. leucodon* was captured in an unusual habitat at the locality Mláčik, Kremnické Vrchy Mts. (central Slovakia), geomorphologically belonging to the West Carpathians, on 26 October 2007. The site did not correspond to habitat preferences of the species. The locality is situated in an extensive fir-beech forest complex at the altitude of 850 m a. s. l., geographical coordinates 48° 40' N, 19° 01' E. The forest stand on the site was composed of beech (*Fagus sylvatica* – 36%), fir (*Abies alba* – 34%), ash (*Fraxinus excelsior* – 20%), maple (*Acer pseudoplatanus* – 8%) and elm (*Ulmus montana* – 2%). The age of the canopy was around 100 years. The shrub layer was poorly developed, being composed of natural regeneration of the parent stand. The composition and density of herbaceous vegetation was variable. The site typologically belongs to the *Abieto-Fagetum* forest type group (ZLATNÍK 1959). The distance between the trapping point and the closest ecotone was 60 m (mature forest / clearing with 1–2 m high, dense young stand). The distance to the closest open habitat (forest tree nursery) was approximately 500 m.

The distance to the continuous unforested area was around 5 km. The Chmela-type live traps (placed on a quadrate of 90×90 m and spaced by 10 m) were used for capturing small mammals. The traps were baited with dry cat food granules.

According to ANDĚRA (2000) and ANDĚRA & HŮRKA (1984), *C. leucodon* inhabits locations from 100 m up to 1100 m, most often up to 400 m a. s. l. MOŠANSKÝ (1980) described its sporadic occurrence at higher altitudes (up to 1100 m) in a close vicinity of mountain cottages, where it could be brought with foodstuffs delivery. In recent years, ANDĚRA (2003) and ZBYTOVSKÝ et al. (2004) referred to expansion of its area in the Czech Republic from the south and southeast to the northwest. ZBYTOVSKÝ et al. (2004) mentioned occurrence of one individual in a spruce forest 50 m from the forest edge in southern Bohemia. The species has not been found in a similar habitat in Slovakia. BALÁŽ et al. (2004) mentioned altitudinal distribution of the species in Slovakia from 100 up to 550 m a. s. l. (from lowland to submontane levels). Small mammals of the Kremnické vrchy Mts. were studied by other authors (NEDELJAK 1962, DUDICH & ŠTOLLMANN 1981, DUDICH et al. 1982, DUDICH 1987). The species has not been recorded in this mountain range before, however, its occurrence in suitable habitats can be expected.

The occurrence of the species in the unusual habitat may be a result of increasing fragmentation of the extensive forest complex in recent years. This fact is also documented by the expansion of some typical ecotone bird species to the area (*Oriolus oriolus* and *Sturnus vulgaris* bred at the studied locality only



Obr. 1. Charakter habitatu na lokalite výskytu bielozubky bielobruchej.
Fig. 1. Habitat at the locality of the bi-coloured white-toothed shrew record.

in the last two years). However, accidental occurrence of *C. leucodon* at the site cannot be excluded, for instance related to game feeding.

SÚHRN

V októbri 2007 bol počas pravidelného odchyty drobných zemných cicavcov na hranici NPR Mláčik v Kremnických vrchoch (stredné Slovensko) odchytený subadultný jedinec bielozubky bielobruchej (*Crocidura leucodon*). Biotop nezodpovedal ekologickým nárokom druhu a v literatúre z územia ČR a Slovenska nie je známy podobný výskyt. Lokalita sa nachádza v nadmorskej výške 850 m, biotop predstavuje porast vo veku približne 100 rokov, tvorený najmä bukcom, jedľou a jaseňom. Nachádza sa uprostred rozsiahleho lesného komplexu, približne 5 km od jeho okraja. Vo vzdialenosti 60 m od miesta odchyty sa nachádza rúbanisko s hustým novozaloženým lesným porastom a 500 m lesná škôlka. Výskyt môže súvisieť s fragmentáciou lesov v danej oblasti.

ACKNOWLEDGEMENTS

The study was funded by the Slovak Science Grant Agency, project number 1/4383/07. We thank Alexander DUDICH for providing literature and unpublished data and Pavel GIBAS, Lucia NEDELOVÁ, Juraj JAKUBČEK, Martin VOROBEE and Juraj KONDRLA for their help in the field.

LITERATURE

- ANDĚRA M., 2000: *Atlas of the Mammals of the Czech Republic. A Provisional Version. Insectivores (Insectivora)*. Národní muzeum, Praha, 108 pp.
- ANDĚRA M., 2003: Vývoj areálu bělozubky bělobřiché (*Crocidura leucodon*) v ČR [Progress in the distribution range in the Bi-colored White-toothed Shrew (*Crocidura leucodon*)]. P.: 166. In: BRYJA J. & ZUKAL J. (eds.): *Zoologické dny. Brno 2003. Sborník abstraktů z konference 13.–14. února 2003*. ÚBO, Brno, 244 pp (in Czech).
- ANDĚRA M. & HORÁČEK I., 2005: *Poznáváme naše savce. 2. přepracované vydání [We Learn About our Mammals. 2nd Revised Edition]*. Sobotáles, Praha, 327 pp (in Czech).
- ANDĚRA M. & HURKA L., 1984: Zur Verbreitung der *Crocidura*-Arten in der Tschechoslowakei (Mammalia: Soricidae). *Folia Musei Rerum Naturalium Bohemiae Occidentalis, Plzeň, Zoologica*, **18**: 1–38.
- BALÁZ I., AMBROS M., DUDICH A. & STOLLMANN A., 2004: *Expansion of Soricidae in Slovakia and their dependency on altitude gradient*. Poster on the Conference “Fauna Carpathica”, Smolenice, Slovakia.
- DUDICH A., 1987: Príspevok k poznaniu fauny blch (Siphonaptera, Insecta) drobných zemných cicavcov Kremnických vrchov (Západné Karpaty) [Contribution on the knowledge of fleas (Siphonaptera, Insecta) of small terrestrial mammals of the Kremnické vrch Mts.]. *Kmetianum*, **8**: 333–350 (in Slovak).
- DUDICH A. & ŠTOLLMANN A., 1981: Opakovaný výskum drobných zemných cicavcov v Badínskome pralese [Repeated research of small mammals in the Badínsky Primeval Forest]. *Zborník lesníckeho, drevárskeho a poľovníckeho múzea v Antole*, **11**: 249–265 (in Slovak).
- DUDICH A., KOVÁČIK J. & ŠTOLLMANN A., 1982: Výskyt myšovky vrchovskej (*Sicista betulina*) a hrabáča tatranského (*Pitymys tatricus*) v Kremnických vrchoch [Occurrence of the northern birch-mouse (*Sicista betulina*) and Tatra vole (*Pitymys tatricus*) in the Kremnické vrchy Mts.]. *Kmetianum*, **6**: 260–264 (in Slovak).
- FERIANCOVÁ-MASÁROVÁ Z. & HANÁK H., 1965: *Stavovce Slovenska IV. Cicavce*. SAV Bratislava, 336 pp.
- MITCHELL-JONES A. J., AMORI G., BOGDANOWICZ W., KRYŠTUFEK B., REIJNDERS P. J. H., SPITZENBERGER F., STUBBE M., THISSEN J. B. M., VOHRALÍK V. & ZIMA J., 1999: *The Atlas of European Mammals*. Academic Press, London, 484 pp.
- MOŠANSKÝ A., 1980: Teriofauna východného Slovenska a katalóg mamalogických zbierok východného Slovenska. I. časť (Insectivora a Chiroptera) [Theriofauna of East Slovakia and catalogue of the mammal

- collection of East Slovakia. Part I . (Insectivora and Chiroptera)]. *Zborník Východoslovenského múzea – Prírodné Vedy*, **21**: 29–87 (in Slovak).
- NEDELJAK F., 1962: Drobné cicavce Badínskeho pralesa [Small mammals of the Badínský Primeval Forest]. *Biológia (Bratislava)*, **17**: 130–142 (in Slovak).
- SLÁDEK J. & MOŠANSKÝ A., 1985: *Cicavce okolo nás*. [Mammals Around of Us]. Osveta, Martin, 246 pp (in Slovak).
- ZBYTOVSKÝ P., ANDĚRA M. & HANÁK V., 2004: Drobní savci jižní části Českomoravské vrchoviny (Insectivora, Chiroptera, Rodentia) [Small mammals of the southern parts of the Českomoravská vrchovina Highland (Insectivora, Chiroptera, Rodentia)]. *Lynx, n. s.*, **35**: 141–245 (in Czech, with an abstract in English).
- ZLATNÍK A., 1959: *Přehled slovenských lesů podle skupin lesních typů* [Review of Slovakian Forests according to the Forest Types]. Spisy Vědecké laboratoře biocenologie a typologie lesa LF VŠZ Brno, 3 (in Czech).