

## First record of *Rhinolophus ferruequinum* in north-western Bohemia, Czech Republic (Chiroptera: Rhinolophidae)

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**Abstract.** A male greater horseshoe bat (*Rhinolophus ferruequinum*) was netted at the entrance to the abandoned Mauritius mine (50°23'32"N, 12°50'01"E; 1018 m a. s. l.) in the Krušné Hory Mts (Ore Mountains) on 2 September 2023. This is the first record of this species in north-western Bohemia and first record outside the hibernation period for the whole Bohemia. The site is situated beyond the northern limits of the continuous distribution range of the species. Mist netting campaigns during the swarming period have been taking place at the site regularly since 2005 (except 2006 and 2022) and *Rhinolophus ferruequinum* was never recorded there before.

**Key words.** *Rhinolophus ferruequinum*, swarming, Krušné Hory Mountains, Czech Republic.

An adult male individual of the greater horseshoe bat, *Rhinolophus ferruequinum* (Schreber, 1774) was netted at the entrance to the abandoned Mauritius mine on 2 September 2023 at 21:30 (Fig. 1). It weighed 23.3 g, the forearm length was 65.1 mm and got a ring CESON.ORG CZ05480. The netting lasted from 19:30 to 3:35 at two entrances to the old mine (the netting places were situated about 120 m from each other). Weather conditions were cloudy and windless during the netting, ambient temperature was 12.5–10.5 °C. The greater horseshoe bat was netted at the northern entrance to the mine (50°23'32"N, 12°50'01"E), where two 12 m long and 3 m high nets were installed around the horizontal bars, on the margin of a ca. 80 m deep shaft. The Mauritius mine is a large complex of underground corridors and caverns, where mining started in the 16th century and ended in 1891 (mining was later restored in 1941–1944) and over 10,000 tons of tin were extracted from the granites of the mine and its surroundings (SEJKORA et al. 2021). The landscape that surrounds the mine entrance is formed by heath with scattered trees, mainly spruces and rowans (Fig. 2).

The following additional species of bats were captured during the mist netting on 2–3 September 2023: *Myotis myotis* (34 inds. in total, 21 of them at the northern entrance), *M. nattereri* (24/21), *M. brandtii* (18/13), *M. daubentonii* (15/14), *Plecotus auritus* (15/12), *Myotis mystacinus* (3/0), and *M. emarginatus* (1/1). Altogether they were 111 individuals of eight species. *Myotis bechsteinii*, *Eptesicus nilssonii*, and *Nyctalus noctula* were also irregularly captured during the previous netting sessions.

In Central Europe, *Rhinolophus ferruequinum* reaches the northern limits of its regular distribution range in southern Germany, Austria, and Slovakia. The individuals found outside this continuous area in the

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Fig. 1 (top). *Rhinolophus ferrumequinum* male netted at the Mauritius mine, Krušné hory Mts., on 2 September 2023 (photo by P. TÁJEK).

Fig. 2 (below). The entrance to the Mauritius mine is surrounded by a heathland on old tailing heaps (photo by P. TÁJEK).

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Czech Republic or southern Poland are considered irregular migrants (KOHYT & POSTAWA 2007, ZUKAL et al. 2014, ČERVENÝ 2017). Since 1950, only ten records of the greater horseshoe bat were made in the Czech Republic (HANÁK 1962, GEISLER 1997, ČERVENÝ et al. 2006, ZUKAL et al. 2014, ČERVENÝ 2017, D. HORÁČEK 2023, unpubl. data), of which only four in Bohemia: in an adit at Mořina in the Bohemian Karst (23 March 1962), adit at Černá Řeka in the Bohemian Forest (4 December 2006), Rabí castle in south-western Bohemia (13 March 2017) and the Liščí cave in the sandstone rocks of Klokočské skály in north-eastern Bohemia (14 January 2023). The finding from the Krušné Hory Mts. thus represents the fifth recent finding in Bohemia and the first in the north-western part of Bohemia. This is also the first record outside the hibernation period in the whole Bohemia.

The findings in south-western Bohemia were most probably associated with an isolated and growing nursery colony of this bat in Hohenburg (Bavaria, Germany), as they are about 70 km and 132 km, respectively, away from Hohenburg (ČERVENÝ et al. 2006, ČERVENÝ 2017). There are no records of *R. ferrumequinum* in the neighbouring Saxony. The relation of the finding in the Krušné Hory Mts. with the colony in Hohenburg is thus also probable. The distance between the Mauritius mine and Hohenburg is 142 km, the distance between the Mauritius mine and Černá Řeka (the nearest previously recorded location) is 108 km.

The relatively high altitude of the site is surprising (1018 m a. s. l.). Another thermophilous bat species, *Myotis emarginatus* has started to appear at this site since 2018. It is probable that the local occurrence and recent spreading of both species to the locality is related to the environmental changes connected to the climate warming perceptible in the last decades.

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