

Current distribution of *Cricetus cricetus* in Bohemia, Czech Republic (Rodentia: Cricetidae)

Současné rozšíření křečka polního (*Cricetus cricetus*) v Čechách (Rodentia: Cricetidae)

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Abstract. During the period 2012–2016, distribution of the common hamster, *Cricetus cricetus*, was monitored in Bohemia, Czech Republic. Between the harvest and subsequent field ploughing, i.e. in August and September, we visited all regions in which occurrence of the species after 1990 was reported in previous studies. There, in every square of the K. F. M. E. mapping grid we checked at least four harvested crop fields, i.e., cereals (preferably wheat and barley), sometimes also alfalfa and various vegetables, and examined also field balks and road ditches. In addition, during all parts of the year we recorded hamster road casualties. Also some personal reports by experienced co-workers were used. Altogether, we recorded hamster presence in 290 sites covering 75 K. F. M. E. squares. The area of the hamster occurrence in Bohemia consists of one big and one small sub-areas, most probably isolated from each other. They form a strip ca. 250 km long and mostly ca. 30–60 km wide. It runs from the lowlands along lower reaches of the Ohře river, through the Prague Plateau, lowlands along the Labe river up to the Svitavská pahorkatina Upland. The easternmost confirmed localities were near Svitavy. The altitude of most of the hamster localities varies between 130 and 300 m, in the Pražská plošina Plateau up to 400 m (altitudes of four exceptional localities near Svitavy are between 462 and 503 m). In some lowland regions of Bohemia the hamster is still common and locally abundant. The hamster prefers deeper soils, mostly various types of chernozem, luvisol and cambisol. It avoids moist places and extensive fields of maize and rape. All our hamster localities are situated in plots of the open agricultural landscape covering several tens of square kilometers. The hamster is also able to inhabit ruderal places in the periphery of villages and towns. During the second half of August and first half of September, the number of dead hamsters in roads increased considerably, suggesting that the traffic causes a not inconsiderable portion of hamster mortality.

Key words. Common hamster, *Cricetus cricetus*, distribution, Czech Republic.

INTRODUCTION

Occurrence of the common hamster, *Cricetus cricetus* (Linnaeus, 1758), in the Czech Republic is well documented at least from the beginning of the Holocene (HORÁČEK & LOŽEK 1988). Although during the so-called forest optimum period, in the Atlantic (ca. 4,000–6,000 BP) its distribution was considerably reduced, the Neolithic occupation (ca. 5,000 BP) accompanied by a partial deforestation enabled the species to survive in some places. Later, at the end of the Subboreal (ca. 1,000 BP), the so-called open-ground elements expanded again. Together

with the common hamster, also the European ground squirrel (*Spermophilus citellus*) and the common vole (*Microtus arvalis*) belonged among them (HORÁČEK & LOŽEK 1988). Later, the hamster adapted successfully to the conditions of the cultural steppe. According to the results by GRULICH (1975) who mapped the hamster distribution in 1948–1950, it appears that the species attained the maximum distribution in the region as late as in the half of the 20th century. At that time, the hamster inhabited (with the exception of the Horní Poohří region) nearly the whole territory of the Czech Republic up to the altitude of ca. 500 m a. s. l. Still in 1972–1975, its distribution remained practically unchanged (VOHRALÍK & ANDĚRA 1976). Even ANDĚRA & BENEŠ (2001) who summarized all available records of the distribution of the hamster in the period between the late 19th century and the late 20th century did not mention any changes in the distribution of the species.

However, already in the early 21st century, during a detailed study of the mammal fauna of two hilly regions of eastern Bohemia (Bohemian-Moravian Highland [Českomoravská vrchovina] and Svitavy Highland [Svitavská pahorkatina]), it appeared that the distribution of the hamster is only scarce there and differs considerably from the situation ascertained in the region 50 or 30 years ago (ANDĚRA et al. 2010, ZBYTOVSKÝ et al. 2004, 2011). ANDĚRA (2011) who repeatedly summarized the occurrence of the hamster in the Czech Republic during the period between 1990 and 2011 stated a dramatic retreat of its distribution range, especially at the altitudes above 400 m a. s. l. Similarly, TKADLEC et al. (2012), based on a partially different data-set, outlined the distribution of the hamster in the Czech Republic between 2000 and 2010. All the above authors agreed that in comparison with the situation between 1948 and 1975, as described by GRULICH (1975) and VOHRALÍK & ANDĚRA (1976), the area of the hamster distribution in the Czech Republic has decreased considerably. A very similar situation was found also in Poland (ZIOMEK & BANASZEK 2007) and Germany (MEINIG et al. 2014). Considering the fact that during the last decades a dramatic retreat of the hamster affected the whole European part of its distribution range and it seems that it is still continuing (SUROV et al. 2016), we decided to ascertain the status of the Bohemian hamster population after 2011, i.e. after the last mapping of its distribution.

In contrast to the previous large-scale mapping of the hamster distribution in the Czech Republic (GRULICH 1975, VOHRALÍK & ANDĚRA 1976, TKADLEC et al. 2012) summarising mostly the data from questionnaires and secondary information by other persons, our survey is, by ca. 95% based on the original fieldwork performed by the authors.

MATERIAL AND METHODS

During the period 2012–2016, the distribution of the common hamster was monitored in Bohemia, with a minute penetration into Moravia. Between the harvest and subsequent field ploughing, i.e. in August and September, we visited all Bohemian regions in which the occurrence of the species after 1990 was reported by ANDĚRA & BENEŠ (2001) and ANDĚRA (2011). There, in each square of the K. F. M. E. (i.e., Kartierung der Flora Mitteleuropas) mapping grid we checked at least four harvested crop fields, i.e., cereals (preferably wheat and barley), sometimes also alfalfa or various vegetables, and examined also field balks and road ditches. In every such field we passed a transect of ca. 2,500 m, searching for hamster burrows. In addition, during all parts of the year we recorded hamster road casualties. Also some personal reports by experienced co-workers were used. As a supplementary method in searching for hamster localities, we used the NDOP database of species records managed by the Nature Conservation Agency of the Czech Republic and information provided by farmers, hunters and regional naturalists. However, nearly all the above mentioned information on hamster occurrence was personally verified by the authors in the field. Geographical names used in the text mostly follow DEMEK & MACKOVČIN (2006).

RESULTS AND DISCUSSION

List of localities

In the records obtained directly by the authors, their names are not mentioned. Otherwise, name of the informant is given; in brackets [], name of the district (okres) is given.

5448: Most II [Most], at night, an ind. observed crossing the road I/13 near the housing estate of Chanov, 50° 30' 16.2" N, 13° 40' 18.6" E, 249 m a. s. l., September 2013, M. CHOCHEL. – **5450: Lovosice** [Litoměřice], a young roadkill, 50° 30' 29.8" N, 14° 05' 30.8" E, 149 m a. s. l., 12 September 2014, B. FRANĚK; – two burrows in a cornfield stubble, 50° 30' 24.9" N, 14° 05' 20.0" E, 148 m a. s. l., 4 September 2015. – **Píšťany** [Litoměřice], based on the information by Mr. ŠULC who frequently observed hamsters in vicinity of his house (Píšťany, No. 85) we found hamster holes in three locations: two burrows in a cornfield stubble, 50° 31' 07.8" N, 14° 04' 33.7" E, 131 m a. s. l.; three holes situated on both sides of the flood-protection dam, 50° 31' 09.8" N, 14° 04' 32.9" E, 131 m a. s. l.; four holes in the water-side of the flood-protection dam, 50° 31' 11.0" N, 14° 04' 46.4" E, 131 m a. s. l., 10 September 2016. – **Žalhostice** [Litoměřice], a young ind. killed by a dog in garden of the PANÍK's family, 50° 31' 29.4" N, 14° 05' 58.8" E, 149 m a. s. l., 1 November 2014, B. FRANĚK. – **5546: Droužkovice** [Chomutov], a roadkill, 50° 25' 02.3" N, 13° 26' 47.0" E, 298 m a. s. l., July 2014. – **5547: Havraň** [Most], according to the owner of a house adjoining a field, in 2012 his dog killed a hamster in his garden, 50° 25' 18.4" N, 13° 36' 50.3" E, 292 m a. s. l., August 2012; five burrows in a cornfield stubble, some of them dug over by wild boars (predation success unknown), 50° 25' 12.6" N, 13° 36' 43.0" E, 293 m a. s. l., 30 August 2013. – **Sušany** [Chomutov], four burrows in balks along a small cornfield, 50° 27' 19.9" N, 13° 32' 10.8" E, 297 m a. s. l., 4 September 2014. – **5548: Bedřichův Světec** [Most], a roadkill, 50° 27' 11.0" N, 13° 44' 13.9" E, 291 m a. s. l., 28 August 2010, M. PORTEŠ. – **5549: Vojničky** [Louny], a burrow in a cornfield stubble, 50° 25' 46.1" N, 13° 57' 44.7" E, 188 m a. s. l.; three burrows in a cornfield stubble, 50° 25' 35.0" N, 13° 58' 00.8" E, 190 m a. s. l., 4 September 2015. – **5550: Brozany nad Ohří** [Litoměřice], a burrow in a cornfield, 50° 26' 54.9" N, 14° 08' 01.4" E, 203 m a. s. l., 2 May 2013. – **Čížkovice** [Litoměřice], a burrow in a cornfield, 50° 28' 27.1" N, 14° 01' 49.7" E, 185 m a. s. l., 2 May 2013. – **Hostěnice u Brozan** [Litoměřice], two typical active burrows with piles of soil, situated ca. 50 m from each other, 50° 25' 51.9" N, 14° 08' 38.0" E, 155 m a. s. l., 12 August 2016. – **Slatina pod Hazburkem** [Litoměřice], two burrows in a cornfield, 50° 26' 19.1" N, 14° 03' 08.3" E, 182 m a. s. l., 2 May 2013. – **Žabovřesky nad Ohří** [Litoměřice], a burrow in a cornfield stubble, 50° 24' 46.8" N, 14° 05' 57.8" E, 160 m a. s. l., 31 July 2015. – **5551: Krabčice u Roudnice nad Labem** [Litoměřice], seven burrows in a cornfield stubble, 50° 24' 33.3" N, 14° 18' 40.6" E, 271 m a. s. l., 4 September 2015. – **5552: Bechlín** [Litoměřice], a burrow in a ploughed field, 50° 24' 44.2" N, 14° 20' 38.8" E, 238 m a. s. l., 4 September 2015. – **5554: Kovanec** [Mladá Boleslav], several burrows in the alfalfa field, 50° 24' 53.9" N, 14° 46' 18.3" E, 318 m a. s. l., 23 September 2012, L. JEŘÁBKOVÁ; – one burrow in a cornfield stubble, 50° 24' 44.9" N, 14° 46' 54.2" E, 275 m a. s. l., 11 August 2015. – **5556: Sukorady u Mladé Boleslavi** [Mladá Boleslav], several burrows in the alfalfa field, 50° 25' 37.6" N, 15° 00' 49.1" E, 225 m a. s. l., 29 September 2012, L. JEŘÁBKOVÁ. – **5558: Jinolice** [Jičín], a roadkill near the railway crossing, 50° 28' 42.8" N, 15° 20' 03.7" E, 342 m a. s. l., 15 July 2016, M. KAFTAN. – **Veliš u Jičína** [Jičín], a burrow in a cornfield stubble, 50° 23' 58.2" N, 15° 19' 57.5" E, 275 m a. s. l., 4 September 2016. – **5646: Račetice** [Chomutov], a burrow in a cornfield stubble, 50° 18' 38.0" N, 13° 21' 46.7" E, 255 m a. s. l., 30 August 2013. – **5647: Bitovozev** [Louny], a roadkill on the road Louny–Chomutov, 50° 22' 01.2" N, 13° 38' 39.1" E, 229 m a. s. l., 5 September 2014. – **Žatec** [Louny], a roadkill, 50° 18' 49.3" N, 13° 31' 07.8" E, 281 m a. s. l., August 2013, M. GUTZER; a roadkill, 50° 18' 39.7" N, 13° 31' 52.3" E, 272 m a. s. l., 29 August 2015, M. GUTZER; a roadkill, 50° 18' 34.3" N, 13° 32' 34.1" E, 261 m a. s. l., 20 September 2015, M. GUTZER; a roadkill, 50° 18' 41.9" N, 13° 32' 56.6" E, 257 m a. s. l., a roadkill, 50° 18' 57.8" N, 13° 32' 46.4" E, 257 m a. s. l., 26 August 2016. – **Žiželice u Žatce** [Chomutov], a roadkill, 50° 22' 49.6" N, 13° 33' 09.0" E, 283 m a. s. l., 4 September 2014. – **5648: Rvenice** [Louny], seven burrows in a cornfield stubble, 50° 23' 15.9" N, 13° 41' 00.6" E, 227 m a. s. l., 25 September 2014. – **Výškov u Počerad** [Louny], two burrows in a cor-

nfield stubble, 50° 23' 32.5" N, 13° 40' 20.8" E, 239 m a. s. l., 5 September 2014. – **5649: Panenský Týnec** [Louny], a marsh harrier observed hunting a hamster in a field, 50° 18' 17.5" N, 13° 54' 38.3" E, 352 m a. s. l., 5 April 2016, O. BUŠEK. – **Slavětín nad Ohří** [Louny], three burrows in a cornfield stubble, 50° 20' 59.7" N, 13° 53' 33.2" E, 212 m a. s. l., 3 September 2014. – **Smolnice** [Louny], a roadkill, 50° 19' 10.5" N, 13° 51' 56.0" E, 309 m a. s. l., 20 August 2012, J. MATĚJŮ & J. VĚTROVCOVÁ. – **Toužetín** [Louny], a roadkill, 50° 18' 25.1" N, 13° 53' 20.8" E, 353 m a. s. l., 4 September 2015. – **5650: Brníkov** [Litoměřice], three burrows in a cornfield stubble, 50° 22' 15.5" N, 14° 01' 41.2" E, 304 m a. s. l., 3 September 2014. – **Charvatce u Martiněvsí** [Litoměřice], three burrows in a cornfield stubble, 50° 21' 50.4" N, 14° 09' 41.2" E, 270 m a. s. l., 3 September 2014. – **5651: Bříza** [Litoměřice], a burrow in a cornfield, 50° 21' 07.9" N, 14° 12' 49.3" E, 231 m a. s. l., 2 May 2013. – **Černuc** [Kladno], a burrow in a cornfield, 50° 19' 02.1" N, 14° 12' 07.3" E, 218 m a. s. l., 2 May 2013. – **5652: Býkev** [Mělník], two burrows in a cornfield stubble, 50° 21' 51.5" N, 14° 25' 09.9" E, 170 m a. s. l., 19 September 2013. – **Kostomlaty pod Řípem** [Litoměřice], a burrow in a cornfield stubble, 50° 22' 38.8" N, 14° 21' 38.8" E, 185 m a. s. l., 3 September 2014. – **5654: Bezno** [Mladá Boleslav], a roadkill, 50° 22' 32.1" N, 14° 47' 54.9" E, 279 m a. s. l., 11 August 2015. – **Strenice** [Mladá Boleslav], a roadkill, 50° 22' 50.0" N, 14° 48' 05.0" E, 278 m a. s. l., 11 August 2015. – **5655: Jizerní Vtelno** [Mladá Boleslav], according to information by the owner of the house No. 139 in the village, his dog killed a hamster in 2015, we found a burrow in a cornfield stubble, 50° 21' 47.4" N, 50° 21' 47.4" N, 275 m a. s. l., 4 September 2016. – **5657: Bartoušov u Jičíněvsí** [Jičín], information on the occurrence of the hamster in the area between Keteň and Drahoraz was received from a manager of the Kopidlno game park, we found a burrow in a cornfield stubble, 50° 21' 43.1" N, 15° 19' 07.3" E, 246 m a. s. l., 4 September 2016. – **Drahoraz** [Jičín], four burrows in a cornfield stubble; owner of this field, Mr. ADAMEC informed us that few days before that he ploughed up two hamsters and found another one dead, 50° 21' 40.1" N, 15° 16' 55.3" E, 275 m a. s. l., 4 September 2016. – **5658: Nemyčeves** [Jičín], information on the occurrence of the hamster in the area was received from the local Mr. L. BÍLEK, we found two burrows in a cornfield stubble, 50° 23' 21.3" N, 15° 22' 25.0" E, 270 m a. s. l., 4 September 2016. – **Vitiněves** [Jičín], information on the occurrence of the hamster was received from the local Mr. L. BÍLEK, we found a burrow in a cornfield stubble, 50° 23' 27.2" N, 15° 22' 36.3" E, 265 m a. s. l., 4 September 2016. – **Žlunice** [Jičín], two burrows in a cornfield stubble (a local man informed us that a day before that his dog met a hamster there in grassy strip lining the adjacent road), 50° 18' 48.2" N, 15° 22' 41.0" E, 295 m a. s. l., 4 September 2016. – **5660: Rodov** [Hradec Králové], five burrows in a cornfield stubble, 50° 18' 38.8" N, 15° 49' 30.2" E, 262 m a. s. l., 21 August 2012. – **5661: Holohlavy** [Hradec Králové], ten burrows in a cornfield stubble, 50° 18' 23.8" N, 15° 50' 37.2" E, 253 m, 21 August 2012. – **Horní Dolce** [Náchod], two burrows in a cornfield stubble, 50° 21' 39.3" N, 15° 52' 58.7" E, 275 m a. s. l., 21 August 2012. – **Semonice** [Náchod], four burrows in a cornfield stubble, 50° 20' 05.8" N, 15° 52' 29.2" E, 254 m a. s. l., 21 August 2012. – **5745: Nepomyšl** [Louny], remnants of a hamster were found in a nest of the eagle owl, 50° 13' 32.0" N, 13° 19' 55.0" E, 385 m a. s. l., 20 June 2013, M. GUTZER. – **5746: Buškovice** [Louny], an ind. killed by a harvester, 50° 13' 53.7" N, 13° 22' 34.8" E, 355 m a. s. l., August 2012, M. GUTZER; a roadkill, 50° 13' 56.3" N, 13° 22' 25.0" E, 357 m a. s. l., 9 August 2015, M. GUTZER. – **Kněžice u Podbořan** [Louny], an ind. observed in a field, 50° 17' 19.6" N, 13° 24' 38.1" E, 254 m a. s. l., September 2014, M. GUTZER. – **Krásný Dvůr** [Louny], a burrow in a field, 50° 14' 53.1" N, 13° 23' 32.4" E, 304 m a. s. l., 22 September 2013, M. GUTZER. – **Podbořany** [Louny], two burrows in a cornfield stubble, 50° 14' 20.0" N, 13° 25' 07.7" E, 306 m a. s. l., 18 August 2014. – **Veliká Ves** [Chomutov], seven burrows in a cornfield stubble, 50° 17' 16.9" N, 13° 22' 45.6" E, 287 m a. s. l., a burrow in a cornfield stubble, 50° 17' 12.0" N, 13° 22' 20.0" E, 294 m a. s. l., 30 August 2013. – **5747: Měcholupy u Žatce** [Louny], two burrows in an unharvested field, 50° 16' 39.4" N, 13° 32' 14.1" E, 288 m a. s. l., 1 November 2014, M. GUTZER. – **5749: Klobuky** [Kladno], a burrow in a cornfield stubble, 50° 17' 03.9" N, 13° 58' 30.7" E, 297 m a. s. l., 4 September 2015. – **5750: Byseň** [Kladno], a roadkill, 50° 13' 58.5" N, 14° 02' 29.9" E, 300 m a. s. l., 12 August 2015. – **Lotouš** [Kladno], a roadkill, 50° 14' 51.8" N, 14° 02' 33.7" E, 271 m a. s. l., 12 August 2015. – **5751: Debrno** [Mělník], at dusk, an ind. observed in a stubble, 50° 12' 39.7" N, 14° 19' 06.2" E, 258 m a. s. l., 11 August 2015. – **5752: Líbeznice** [Praha-východ], a roadkill, 50° 12' 18.6" N,

14° 29' 55.4" E, 204 m a. s. l., a roadkill, 50° 12' 07.9" N, 14° 29' 53.0" E, 206 m a. s. l., 11 August 2015. – **Neratovice** [Praha-východ], a roadkill, 50° 12' 43.2" N, 14° 25' 50.2" E, 251 m a. s. l., 3 July 2014, L. JEŘÁBKOVÁ. – **Postřižín** [Mělník], a roadkill, 50° 14' 32.7" N, 14° 22' 48.5" E, 203 m a. s. l., 30 April 2012, L. JEŘÁBKOVÁ. – **5753: Kostelec nad Labem** [Mělník], a burrow in a cornfield stubble, 50° 12' 30.8" N, 14° 34' 59.8" E, 183 m a. s. l., 19 September 2013. – **5754: Tuřice** [Mladá Boleslav], a roadkill, 50° 14' 59.3" N, 14° 45' 19.4" E, 193 m a. s. l., 5 September 2011, D. KRÁL. – **5755: Milovice nad Labem** [Nymburk], a roadkill, 50° 13' 30.5" N, 14° 54' 23.2" E, 199 m a. s. l., 10 August 2015. – **5756: Bobnice** [Nymburk], a roadkill, 50° 14' 03.8" N, 15° 03' 04.8" E, 200 m a. s. l., a roadkill, 50° 14' 18.2" N, 15° 03' 40.1" E, 200 m a. s. l., 10 August 2015. – **Všechlapy u Nymburka** [Nymburk], a roadkill, 50° 13' 32.1" N, 15° 01' 35.9" E, 198 m a. s. l., a roadkill, 50° 13' 45.4" N, 15° 01' 30.2" E, 198 m a. s. l., a roadkill, 50° 12' 52.9" N, 15° 01' 52.6" E, 194 m a. s. l., 10 August 2015. – **5757: Úmyslovice** [Nymburk], a roadkill, 50° 12' 20.0" N, 15° 10' 16.4" E, 191 m a. s. l., 10 August 2015. – **5758: Červeněves** [Hradec Králové], two burrows in a cornfield stubble, 50° 16' 40.8" N, 15° 28' 57.2" E, 240 m a. s. l., 23 August 2012. – **Hlušice** [Hradec Králové], a burrow in a cornfield stubble, 50° 15' 07.7" N, 15° 25' 25.5" E, 234 m a. s. l., 23 August 2012. – **Sloupno nad Cidlinou** [Hradec Králové], ten burrows in a stubble of a small cornfield at the outskirts of the village, 50° 15' 49.8" N, 15° 29' 54.1" E, 232 m a. s. l., 23 August 2012. – **5759: Boharyně** [Hradec Králové], a burrow in a cornfield stubble, 50° 12' 27.6" N, 15° 37' 19.5" E, 246 m a. s. l., 23 August 2012. – **Sloupno nad Cidlinou** [Hradec Králové], five burrows in a stubble of a small cornfield at the outskirts of the village, 50° 15' 47.6" N, 15° 30' 03.2" E, 230 m a. s. l., 23 August 2012. – **5760: Lochenice** [Hradec Králové], two burrows in a cornfield stubble, 50° 16' 09.0" N, 15° 48' 34.1" E, 252 m a. s. l., 23 August 2012. – **Plačice** [Hradec Králové], a burrow in a cornfield stubble, 50° 12' 48.9" N, 15° 46' 23.3" E, 242 m a. s. l., 23 August 2012. – **5761: Lochenice** [Hradec Králové], three burrows in a cornfield stubble, 50° 16' 16.7" N, 15° 50' 05.2" E, 235 m a. s. l., 22 August 2012. – **Piletice** [Hradec Králové], a burrow in a cornfield stubble, 50° 14' 29.9" N, 15° 51' 36.2" E, 231 m a. s. l., 22 August 2012. – **5762: Opočno pod Orlickými horami** [Rychnov nad Kněžnou], two abandoned burrows in a field, 50° 15' 50.4" N, 16° 06' 17.4" E, 275 m a. s. l., 22 August 2012. – **5850: Buštěhrad** [Kladno], a roadkill, 50° 08' 54.6" N, 14° 09' 54.3" E, 350 m a. s. l., 12 August 2015. – **Pletený Újezd** [Kladno], a roadkill, 50° 06' 14.3" N, 14° 07' 08.1" E, 400 m a. s. l., 29 August 2015. – **Unhošť** [Kladno], a roadkill, 50° 06' 07.9" N, 14° 08' 06.5" E, 401 m a. s. l., 7 September 2015. – **5851: Bělky** [Kladno], a roadkill, 50° 08' 02.8" N, 14° 13' 05.9" E, 304 m a. s. l., August 2015. – **Kněžves u Prahy** [Praha-západ], a burrow in a cornfield stubble, 50° 07' 04.9" N, 14° 14' 20.7" E, 352 m a. s. l., 18 August 2014. – **Kněžvka** [Praha-západ], a roadkill, 50° 07' 42.0" N, 14° 15' 46.1" E, 320 m a. s. l., 16 August 2014, M. PORTEŠ; a roadkill, 50° 07' 36.2" N, 14° 15' 56.1" E, 320 m a. s. l., 12 August 2015. – **Kozinec** [Praha-západ], two dead individuals found in a field, 50° 11' 49.6" N, 14° 17' 29.8" E, 296 m a. s. l., 5 May 2015, I. SCHNEIDEROVÁ. – **Přední Kopanina** [Praha-západ], a roadkill, 50° 07' 17.5" N, 14° 17' 21.6" E, 332 m a. s. l., 4 October 2014, J. ZÁRYBNICKÝ. – **Ruzyně** [Praha], an ind. captured by a peregrine falcon in the Václav Havel Airport, 50° 06' 18.7" N, 14° 15' 00.4" E, 350 m a. s. l., April 2013, J. ŘEZNIČEK. – **Středokluky** [Praha-západ], an ind. observed crossing a road, 50° 08' 08.6" N, 14° 15' 04.0" E, 307 m a. s. l., 18 October 2014, J. ZÁRYBNICKÝ. – **Tuchoměřice** [Praha-západ], a roadkill, 50° 07' 38.9" N, 14° 17' 08.9" E, 300 m a. s. l., 18 October 2014, J. ZÁRYBNICKÝ; repeated observations of hamsters inhabiting a field, 50° 08' 22.9" N, 14° 17' 30.4" E, 332 m a. s. l., from ca. 2000 till May 2015, L. ZETOVÁ. – **Tursko** [Praha-západ], a burrow in a road ditch, 50° 11' 26.7" N, 14° 18' 40.9" E, 313 m a. s. l., 23 September 2016. – **Velké Čičovice** [Praha-západ], a roadkill, 50° 09' 17.3" N, 14° 13' 49.9" E, 305 m a. s. l., 22 September 2013, V. ZAVADIL. – **5852: Dáblvice** [Praha], an ind. observed crossing a road, 50° 09' 17.2" N, 14° 29' 17.2" E, 253 m a. s. l., 20 May 2014, L. JEŘÁBKOVÁ; a roadkill, 50° 09' 13.9" N, 14° 29' 07.8" E, 259 m a. s. l., 22 May 2014, A. KRÁSA. – **Strážkov** [Praha], an ind. observed, 50° 07' 41.8" N, 14° 29' 18.3" E, 292 m a. s. l., 2 September 2013, M. NĚMCOVÁ; an ind. observed near its burrow in a garden, 50° 07' 28.5" N, 14° 28' 54.0" E, 286 m a. s. l., 10 July 2015, J. FARKAČ; three roadkills, 50° 07' 42.7" N, 14° 29' 10.6" E, 294 m a. s. l., May–July 2016, J. ČERVENÝ; an ind. killed by people in the garden colony in the Desenská street, 50° 07' 51.1" N, 14° 29' 55.2" E, 283 m a. s. l., 20 July 2016. – **Suchdol** [Praha], a roadkill, 50° 08' 23.2" N, 14° 21' 40.0" E, 269 m a. s. l., 23 Ju-

ly 2015, J. ZÁRYBNICKÝ. – **5853: Čakovice** [Praha], four burrows in a mown plot, 50° 09' 29.8" N, 14° 31' 05.2" E, 249 m a. s. l., 12 January 2016. – **Dehtáry** [Praha-východ], a roadkill on a highway, 50° 08' 06.7" N, 14° 38' 20.2" E, 250 m a. s. l., 31 July 2014, M. ŠVÁTORA. – **Horní Počernice** [Praha], two burrows in a cornfield stubble, 50° 06' 56.6" N, 14° 38' 33.9" E, 251 m a. s. l., 11 September 2013; a dead ind. found in a field, 50° 07' 27.8" N, 14° 36' 39.8" E, 253 m a. s. l., a dead ind. found in a field, 50° 07' 35.0" N, 14° 37' 07.4" E, 252 m a. s. l., 8 August 2014. – **Kbely** [Praha], two burrows, 50° 07' 46.3" N, 14° 32' 03.6" E, 275 m a. s. l., 13 April 2013, J. VESELÝ & J. VĚTROVCOVÁ. – **Letňany** [Praha], three inds. observed in a mown grassland plot, 50° 07' 53.3" N, 14° 31' 35.3" E, 275 m a. s. l., 7 August 2012, J. VESELÝ; three burrows, 50° 07' 27.4" N, 14° 31' 00.1" E, 280 m a. s. l., 13 April 2013, J. VESELÝ & J. VĚTROVCOVÁ; a dead ind. found near a bus station, 50° 08' 21.1" N, 14° 31' 01.9" E, 265 m a. s. l., 2 July 2014, K. MELOUNOVÁ; a dead ind., 50° 07' 53.5" N, 14° 31' 35.1" E, 275 m a. s. l., 29 March 2016, J. VESELÝ, L. HRŮZOVÁ & J. VĚTROVCOVÁ; a dead ind. found near the fence along the airport, 50° 07' 53.5" N, 14° 31' 35.1" E, 275 m a. s. l., 29 July 2016, J. VESELÝ. – **Radonice u Prahy** [Praha-východ], a roadkill, 50° 07' 55.0" N, 14° 37' 55.5" E, 251 m a. s. l., 20 August 2012. – **Třeboradice** [Praha], 11 burrows in a fallow ground, 50° 09' 30.7" N, 14° 31' 04.5" E, 249 m a. s. l., 12 January 2016. – **Vinoř** [Praha], a dead ind., 50° 08' 37.8" N, 14° 34' 37.8" E, 248 m a. s. l., 1 September 2015, M. STELLA. – **5854: Čelákovice** [Praha-východ], a roadkill, 50° 08' 58.2" N, 14° 43' 25.5" E, 222 m a. s. l., April 2013, Z. ČERVINKA. – **Jirny** [Praha-východ], a roadkill, ca. 1 km SW of Čelákovice, 50° 09' 04.0" N, 14° 43' 41.8" E, 205 m a. s. l., April 2013, Z. ČERVINKA. – **Mstětice** [Praha-východ], a burrow in a cornfield stubble, 50° 08' 58.5" N, 14° 41' 14.7" E, 229 m a. s. l., 19 September 2013. – **Nehvizdy** [Praha-východ], a roadkill, 50° 07' 52.1" N, 14° 45' 25.0" E, 205 m a. s. l., 9 September 2012; ca. 20 burrows in a cornfield stubble, 50° 08' 01.8" N, 14° 44' 20.4" E, 225 m a. s. l., 11 September 2013. – **5855: Lysá nad Labem** [Nymburk], an ind. observed in a field near the cynological club, 50° 11' 35.1" N, 14° 51' 20.6" E, 180 m a. s. l., August 2012, Z. LEŠTINA. – **Milčice u Peček** [Nymburk], a roadkill, 50° 07' 02.7" N, 14° 58' 48.3" E, 194 m a. s. l., 9 September 2014. – **Velenka** [Nymburk], several burrows in a grassy strip in the field, 50° 08' 09.7" N, 14° 52' 57.6" E, 198 m a. s. l., 1 November 2014, L. JEŘÁBKOVÁ. – **5856: Kostelní Lhota** [Nymburk], a roadkill, 50° 07' 22.5" N, 15° 00' 38.9" E, 190 m a. s. l., 4 August 2015. – **Písková Lhota u Poděbrad** [Nymburk], a roadkill, 50° 07' 46.4" N, 15° 04' 55.2" E, 186 m a. s. l., 15 June 2013, V. HANZAL. – **Vrbová Lhota** [Nymburk], a roadkill, 50° 06' 26.7" N, 15° 03' 37.1" E, 193 m a. s. l., 8 August 2015; a roadkill in a highway exit, 50° 07' 15.3" N, 15° 04' 26.3" E, 189 m a. s. l., 26 August 2016. – **5857: Kolaje** [Nymburk], a roadkill, 50° 09' 41.4" N, 15° 14' 46.8" E, 220 m a. s. l., 10 August 2012. – **Vrbice u Poděbrad** [Nymburk], two burrows in a field balk, 50° 10' 31.2" N, 15° 13' 36.4" E, 213 m a. s. l., 10 August 2015. – **5858: Nepolisy** [Hradec Králové], a roadkill, 50° 11' 08.4" N, 15° 27' 48.7" E, 226 m a. s. l., 10 August 2015. – **5859: Roudnice** [Hradec Králové], three burrows in a cornfield stubble, 50° 10' 08.3" N, 15° 39' 11.4" E, 240 m, 22 August 2012. – **5859: Kراتونohy** [Hradec Králové], five burrows in a cornfield stubble, 50° 09' 31.4" N, 15° 36' 42.6" E, 235 m a. s. l., 22 August 2012. – **Kříčeň** [Pardubice], five burrows in a cornfield stubble, 50° 06' 41.1" N, 15° 38' 27.7" E, 245 m a. s. l., 22 August 2012. – **Roudnice** [Hradec Králové], three burrows in a cornfield stubble, 50° 10' 08.3" N, 15° 39' 11.4" E, 240 m a. s. l., 22 August 2012. – **5860: Dolany u Pardubic** [Pardubice], five burrows in a cornfield stubble, 50° 06' 43.0" N, 15° 41' 10.3" E, 221 m a. s. l., 22 August 2012. – **Hříbsko** [Hradec Králové], three burrows in a cornfield stubble, 50° 11' 49.0" N, 15° 44' 55.9" E, 244 m a. s. l., 22 August 2012. – **Krásnice** [Hradec Králové], a roadkill, 50° 08' 37.1" N, 15° 43' 13.5" E, 235 m a. s. l., 13 September 2013. – **Lhota pod Libčany** [Hradec Králové], a burrow in a cornfield stubble, 50° 10' 24.9" N, 15° 40' 31.9" E, 240 m a. s. l., 22 August 2012. – **Urbanice u Praskačky** [Hradec Králové], a burrow in a cornfield stubble, 50° 11' 08.6" N, 15° 44' 00.2" E, 245 m a. s. l., 22 August 2012. – **5950: Unhošť** [Kladno], a roadkill, 50° 05' 43.5" N, 14° 08' 22.8" E, 401 m a. s. l., a roadkill, 50° 05' 04.1" N, 14° 09' 32.8" E, 399 m a. s. l., 22 September 2013, V. ZAVADIL; a burrow in a cornfield stubble, 50° 05' 43.1" N, 14° 07' 50.6" E, 400 m a. s. l., 4 August 2015; a roadkill, 50° 04' 28.6" N, 14° 09' 04.3" E, 399 m a. s. l., 11 June 2016, J. HORKOVÁ. – **5951: Dobříč u Prahy** [Praha-západ], five burrows in a field margin, 50° 00' 57.5" N, 14° 16' 08.5" E, 372 m a. s. l., 16 April 2015, J. VESELÝ. – **Dušníky u Rudné** [Praha-západ], a dead ind., 50° 02' 36.2" N, 14° 14' 28.4" E, 401 m a. s. l., 4 October

2014, Z. PRAGER; a roadkill, 50° 02' 25.6" N, 14° 13' 52.0" E, 400 m a. s. l., 5 September 2015. – **Hostivice** [Praha-západ], a roadkill, 50° 04' 23.6" N, 14° 15' 26.6" E, 350 m a. s. l., 15 September 2014, M. KAFTAN & P. KOLMAN. – **Chrástany u Prahy** [Praha-západ], an ind. captured near a forest nursery, 50° 02' 34.9" N, 14° 15' 42.8" E, 389 m a. s. l., 21 July 2014, M. KAFTAN; a roadkill, 50° 02' 35.2" N, 14° 15' 22.1" E, 398 m a. s. l., a roadkill, 50° 02' 27.1" N, 14° 15' 00.6" E, 398 m a. s. l., 5 September 2015. – **Jeneč u Prahy** [Praha-západ], a roadkill, 50° 05' 13.1" N, 14° 11' 15.0" E, 378 m a. s. l., 22 September 2013, V. ZAVADIL. – **Ruzyně** [Praha], an ind. observed in the area of the Crop Research Institute, 50° 05' 12.4" N, 14° 18' 03.1" E, 357 m a. s. l., 8 June 2013, V. HANZAL. – **Zbuzany** [Praha-západ], a roadkill, 50° 00' 25.6" N, 14° 16' 50.9" E, 397 m a. s. l., 11 August 2015. – **5952: Sliveneč** [Praha], a burrow in a cornfield stubble, 50° 00' 29.0" N, 14° 21' 31.5" E, 320 m a. s. l., 4 September 2015. – **5953: Kolovraty** [Praha], at least ten burrows spread throughout a cornfield stubble, 50° 00' 05.4" N, 14° 38' 16.8" E, 317 m a. s. l., 18 August 2014. – **Uhříněves** [Praha], a burrow in an experimental cornfield, 50° 02' 03.3" N, 14° 37' 08.9" E, 296 m a. s. l., a burrow in an alfalfa field, 50° 01' 56.6" N, 14° 36' 53.8" E, 300 m a. s. l., 19 September 2013. – **5954: Břeží u Říčán** [Praha-východ], several roadkills, 50° 00' 47.5" N, 14° 41' 09.5" E, 353 m a. s. l., July–August 2014, L. JUŘICKOVÁ. – **Nová Ves II** [Kolín], a roadkill, 50° 04' 14.5" N, 14° 48' 50.7" E, 251 m a. s. l., 10 September 2012. – **Rostoklady** [Kolín], a roadkill, 50° 04' 17.6" N, 14° 46' 55.4" E, 262 m a. s. l., 10 September 2012; a roadkill, 50° 04' 17.6" N, 14° 46' 55.0" E, 262 m a. s. l., 26 August 2016. – **5955: Bylany u Českého Brodu** [Kolín], a roadkill, 50° 03' 22.4" N, 14° 54' 05.4" E, 247 m a. s. l., a roadkill, 50° 03' 21.3" N, 14° 54' 09.3" E, 243 m a. s. l., a roadkill, 50° 03' 19.3" N, 14° 54' 16.8" E, 245 m a. s. l., a roadkill, 50° 03' 20.8" N, 14° 54' 11.6" E, 245 m a. s. l., a roadkill, 50° 03' 28.1" N, 14° 53' 45.0" E, 251 m a. s. l., a roadkill, 50° 03' 31.5" N, 14° 53' 32.7" E, 251 m a. s. l., a roadkill, 50° 03' 33.5" N, 14° 53' 25.6" E, 251 m a. s. l., a roadkill, 50° 03' 08.4" N, 14° 55' 04.0" E, 258 m a. s. l., 10 September 2012; a roadkill, 50° 03' 13.0" N, 14° 54' 47.8" E, 253 m a. s. l., 10 May 2013, L. BERAN. – **Český Brod** [Kolín], a dead ind., 50° 03' 59.0" N, 14° 50' 13.8" E, 246 m a. s. l., 12 May 2013, L. BERAN; a roadkill, 50° 03' 42.5" N, 14° 51' 26.9" E, 237 m a. s. l., 26 August 2016. – **Hřiby** [Kolín], a roadkill, 50° 03' 05.0" N, 14° 55' 51.8" E, 257 m a. s. l., 10 September 2012; a roadkill, 50° 03' 07.9" N, 14° 55' 07.0" E, 258 m a. s. l., a roadkill, 50° 03' 08.5" N, 14° 54' 59.7" E, 257 m a. s. l., 26 August 2016. – **Chotouň** [Kolín], a roadkill, 50° 02' 56.5" N, 14° 57' 50.8" E, 250 m a. s. l., 10 September 2012. – **Chrástany u Českého Brodu** [Kolín], a roadkill, 50° 03' 06.8" N, 14° 55' 27.9" E, 259 m a. s. l., a roadkill, 50° 03' 03.3" N, 14° 56' 16.7" E, 253 m a. s. l., 10 September 2012. – **Kšely** [Kolín], a roadkill, 50° 03' 23.7" N, 14° 54' 00.4" E, 247 m a. s. l., a roadkill, 50° 03' 25.7" N, 14° 53' 53.5" E, 250 m a. s. l., a roadkill, 50° 03' 28.8" N, 14° 53' 42.1" E, 251 m a. s. l., 10 September 2012. – **Lipany u Vitic** [Kolín], a roadkill, 50° 03' 03.7" N, 14° 56' 10.3" E, 254 m a. s. l., 10 September 2012; a roadkill, 50° 03' 04.7" N, 14° 55' 55.3" E, 256 m a. s. l., a roadkill, 50° 03' 06.8" N, 14° 55' 26.7" E, 259 m a. s. l., 26 August 2016. – **Přistoupim** [Kolín], a roadkill, 50° 03' 35.4" N, 14° 53' 16.2" E, 251 m a. s. l., 10 September 2012. – **Třebovle** [Kolín], a roadkill, 50° 02' 58.2" N, 14° 57' 24.1" E, 249 m a. s. l., 26 August 2016. – **Vrbčany** [Kolín], a roadkill, 50° 02' 51.7" N, 14° 58' 57.1" E, 248 m a. s. l., 10 September 2012. – **5956: Blinka** [Kolín], a roadkill, 50° 02' 45.9" N, 15° 04' 00.8" E, 250 m a. s. l., 10 September 2012; a roadkill, 50° 02' 46.0" N, 15° 04' 00.2" E, 250 m a. s. l., 26 August 2016. – **Břežany I** [Kolín], a roadkill, 50° 02' 37.6" N, 15° 04' 55.9" E, 246 m a. s. l., a roadkill, 50° 02' 38.2" N, 15° 04' 51.8" E, 246 m a. s. l., a roadkill, 50° 02' 36.4" N, 15° 05' 04.0" E, 245 m a. s. l., a roadkill, 50° 02' 34.3" N, 15° 05' 17.9" E, 238 m a. s. l., a roadkill, 50° 02' 42.7" N, 15° 04' 22.4" E, 250 m a. s. l., a roadkill, 50° 02' 43.7" N, 15° 04' 15.5" E, 250 m a. s. l., September 2012; a roadkill, 50° 02' 35.5" N, 15° 05' 10.2" E, 242 m a. s. l., a roadkill, 50° 02' 42.5" N, 15° 04' 22.6" E, 250 m a. s. l., 26 August 2016. – **Chocenice u Břežan I** [Kolín], a roadkill, 50° 02' 23.8" N, 15° 06' 28.7" E, 234 m a. s. l., 26 August 2016. – **Kolín** [Kolín], a roadkill, 50° 02' 20.9" N, 15° 09' 46.3" E, 200 m a. s. l., 9 September 2012. – **Křečhoř** [Kolín], a roadkill, 50° 02' 21.1" N, 15° 06' 45.1" E, 234 m a. s. l., 10 September 2012. – **Kutlíře** [Kolín], a roadkill, 50° 02' 07.0" N, 15° 09' 04.5" E, 214 m a. s. l., 10 September 2012; a roadkill, 50° 02' 10.6" N, 15° 08' 40.8" E, 221 m a. s. l., 5 October 2015, M. ŠVÁTORA. – **Nová Ves I** [Kolín], a roadkill, 50° 02' 12.3" N, 15° 08' 20.2" E, 228 m a. s. l., 10 September 2012. – **Plaňany** [Kolín], a roadkill,

50° 02' 45.7" N, 15° 03' 04.7" E, 248 m a. s. l., 10 September 2012; a roadkill, 50° 03' 15.6" N, 15° 01' 17.7" E, 247 m a. s. l., 8 August 2015. – **Poboří** [Kolín], a roadkill, 50° 01' 26.1" N, 15° 03' 23.1" E, 262 m a. s. l., 8 August 2015, L. HRBKOVÁ. – **Svojšice u Toužimi** [Kolín], two roadkills, 50° 00' 42.5" N, 15° 03' 00.0" E, 266 m a. s. l., 8 August 2015. – **Velim** [Kolín], a roadkill, 50° 02' 32.0" N, 15° 05' 33.7" E, 236 m a. s. l., a roadkill, 50° 02' 34.5" N, 15° 05' 17.2" E, 238 m a. s. l., 10 September 2012. – **Vítězov** [Kolín], a roadkill, 50° 02' 26.1" N, 15° 06' 12.5" E, 229 m a. s. l., a roadkill, 50° 02' 19.6" N, 15° 06' 55.6" E, 237 m a. s. l., a roadkill, 50° 02' 16.3" N, 15° 07' 20.3" E, 242 m a. s. l., 10 September 2012. – **Žabonosy** [Kolín], a roadkill, 50° 01' 59.7" N, 15° 02' 07.2" E, 252 m a. s. l., L. HRBKOVÁ; two roadkills, 50° 01' 54.0" N, 15° 02' 13.1" E, 250 m a. s. l., 8 August 2015; a roadkill, 50° 02' 04.0" N, 15° 02' 02.2" E, 251 m a. s. l., 9 August 2015, L. HRBKOVÁ. – **5957: Pašinka** [Kolín], two burrows in a cornfield stubble, 50° 00' 09.0" N, 15° 11' 03.2" E, 258 m a. s. l., 8 August 2015. – **5961: Hostovice u Pardubic** [Pardubice], a burrow in a cornfield stubble, 50° 00' 28.1" N, 15° 51' 49.1" E, 237 m a. s. l., 8 August 2015. – **6051: Choteč** [Praž-západ], an ind. observed crossing over a drive near a parking place, 49° 59' 56.1" N, 14° 16' 51.7" E, 378 m a. s. l., 15 July 2015, J. HEJZLAR, F. NOVÁK & J. VESELÝ. – **Trněný Újezd** [Beroun], three inds. observed in a field, 49° 58' 15.7" N, 14° 13' 25.0" E, 383 m a. s. l., 15 September 2012, J. VESELÝ & L. VESELÁ. – **6052: Zlatníky u Prahy** [Praž-západ], three burrows in an alfalfa field, 49° 57' 28.2" N, 14° 29' 16.2" E, 353 m a. s. l., 19 September 2013. – **6053: Dobřejovice** [Praž-východ], three burrows in a cornfield stubble, 49° 58' 26.4" N, 14° 35' 13.8" E, 351 m a. s. l., 18 August 2014. – **Jesenice u Prahy** [Praž-západ], a burrow in a cornfield stubble, 49° 57' 58.6" N, 14° 30' 21.2" E, 348 m a. s. l., 19 September 2013. – **Modletice u Dobřejovic** [Praž-východ], an ind. killed by a cat, 49° 58' 17.0" N, 14° 36' 30.7" E, 378 m a. s. l., 24 August 2015, L. KUPKOVÁ. – **6056: Horní Chvatliny** [Kolín], a roadkill, 49° 58' 33.0" N, 15° 03' 07.2" E, 305 m a. s. l., L. HRBKOVÁ; a roadkill, 49° 58' 30.9" N, 15° 03' 17.9" E, 306 m a. s. l., a roadkill, 49° 58' 37.0" N, 15° 02' 29.3" E, 300 m a. s. l., 8 August 2015. – **Kbel u Rathoře** [Kolín], two roadkills, 49° 59' 25.3" N, 15° 09' 28.8" E, 289 m a. s. l., 8 August 2015. – **Kořenice** [Kolín], a roadkill, 49° 58' 45.4" N, 15° 08' 34.6" E, 325 m a. s. l., 9 August 2015. – **Pučery** [Kolín], a roadkill, 49° 57' 31.0" N, 15° 06' 13.7" E, 334 m a. s. l., 8 August 2015. – **Svojšice u Kouřimi** [Kolín], a roadkill, 49° 59' 31.2" N, 15° 02' 45.8" E, 302 m a. s. l., L. HRBKOVÁ; a roadkill, 49° 59' 24.5" N, 15° 02' 49.9" E, 301 m a. s. l., 8 August 2015. – **6057: Církvice u Kutné Hory** [Kutná Hora], a roadkill, 49° 57' 22.4" N, 15° 18' 59.6" E, 219 m a. s. l., 10 September 2012; a roadkill, 49° 56' 46.1" N, 15° 19' 44.2" E, 220 m a. s. l., 8 August 2014. – **Libenice** [Kolín], a roadkill, 49° 59' 37.7" N, 15° 15' 12.1" E, 203 m a. s. l., 26 August 2016. – **6058: Církvice u Kutné Hory** [Kutná Hora], a roadkill, 49° 56' 27.9" N, 15° 20' 12.7" E, 219 m a. s. l., 26 August 2016. – **Čáslav** [Kutná Hora], a roadkill, 49° 55' 52.3" N, 15° 22' 22.3" E, 238 m a. s. l., a roadkill, 49° 54' 39.3" N, 15° 24' 24.7" E, 249 m a. s. l., 10 September 2012; two roadkills, 49° 55' 49.8" N, 15° 22' 02.7" E, 240 m a. s. l., a roadkill, 49° 55' 33.0" N, 15° 23' 18.4" E, 233 m a. s. l., two roadkills, 49° 55' 01.5" N, 15° 24' 13.5" E, 247 m a. s. l., a roadkill, 49° 54' 53.6" N, 15° 24' 48.7" E, 244 m a. s. l., 8 August 2015; a roadkill, 49° 55' 16.4" N, 15° 23' 50.2" E, 240 m a. s. l., a roadkill, 49° 55' 31.3" N, 15° 23' 22.0" E, 233 m a. s. l., 26 August 2016; a roadkill, 49° 54' 54.8" N, 15° 24' 53.6" E, 243 m a. s. l., a roadkill, 49° 55' 50.8" N, 15° 22' 09.7" E, 239 m a. s. l., 27 August 2016. – **Dolní Bučice** [Kutná Hora], six roadkills, 49° 55' 29.4" N, 15° 27' 20.7" E, 227 m a. s. l., 8 August 2015; a roadkill, 49° 55' 29.5" N, 15° 27' 20.7" E, 227 m, 26 August 2016. – **Horní Bučice** [Kutná Hora], a roadkill, 49° 55' 15.0" N, 15° 26' 18.6" E, 233 m a. s. l., 26 August 2016. – **Nové Dvory u Kutné Hory** [Kutná Hora], a roadkill, 49° 58' 24.5" N, 15° 20' 06.5" E, 214 m a. s. l., 1 August 2013; a roadkill, 49° 58' 32.9" N, 15° 20' 37.1" E, 216 m a. s. l., 15 August 2013. – **Starkoč u Bílého Podolí** [Kutná Hora], a roadkill, 49° 55' 53.6" N, 15° 29' 58.8" E, 245 m a. s. l., 26 August 2016. – **Třebešice** [Kutná Hora], a roadkill, 49° 56' 10.8" N, 15° 20' 48.9" E, 231 m a. s. l., a roadkill, 49° 55' 49.5" N, 15° 21' 37.0" E, 250 m a. s. l., 10 September 2012; a roadkill, 49° 56' 12.6" N, 15° 20' 45.1" E, 225 m a. s. l., 8 August 2015. – **Vrďy** [Kutná Hora], four roadkills, 49° 55' 12.3" N, 15° 26' 07.7" E, 235 m a. s. l., 8 August 2015; a roadkill, 49° 55' 04.9" N, 15° 25' 35.3" E, 238 m a. s. l., 26 August 2016. – **6059: Starkoč u Bílého Podolí** [Kutná Hora], a freshly used burrow in a cornfield stubble, 49° 55' 48.3" N, 15° 30' 06.1" E, 249 m a. s. l., 27 August 2016. – **6060: Chrudim** [Chrudim], four burrows in a cornfield stubble, 49° 58' 26.8" N, 15° 47' 31.0" E, 252 m a. s. l., 2 August 2014;

a roadkill, 49° 57' 51.7" N, 15° 48' 56.8" E, 248 m a. s. l., 27 August 2016. – **Kočič** [Chrudim], a roadkill in the arrival to the Chrudim by-pass, 49° 56' 47.6" N, 15° 49' 27.9" E, 262 m a. s. l., 12 September 2016, A. REITER. – **Topol** [Chrudim], a roadkill, 49° 57' 34.2" N, 15° 49' 19.0" E, 252 m a. s. l., a roadkill, 49° 57' 38.5" N, 15° 49' 15.4" E, 252 m a. s. l., 27 August 2016. – **6061: Dolní Bezděkov** [Chrudim], a burrow in a cornfield stubble, 49° 57' 50.9" N, 15° 53' 12.1" E, 250 m a. s. l., a burrow in a cornfield stubble, 49° 57' 50.5" N, 15° 53' 03.7" E, 250 m a. s. l., 8 August 2015. – **Hrochův Týnec** [Chrudim], a roadkill, 49° 57' 21.6" N, 15° 54' 01.9" E, 250 m a. s. l., a roadkill, 49° 57' 26.9" N, 15° 54' 18.9" E, 250 m a. s. l., 27 August 2016. – **Kočič** [Chrudim], a roadkill on the highway, 49° 56' 50.7" N, 15° 50' 41.3" E, 264 m a. s. l., a roadkill on the highway, 49° 56' 56.8" N, 15° 50' 59.3" E, 254 m a. s. l., 24 June 2016; a roadkill, 49° 57' 03.8" N, 15° 52' 02.5" E, 255 m a. s. l., 27 August 2016. – **Nabočany** [Chrudim], a roadkill, 49° 57' 04.1" N, 15° 52' 29.0" E, 254 m a. s. l., 27 August 2016. – **6062: Ostrov** [Chrudim], a freshly used burrow in a cornfield stubble, 49° 58' 11.7" N, 16° 01' 21.50" E, 270 m a. s. l., 27 August 2016. – **6158: Čáslav** [Kutná Hora], a roadkill, 49° 53' 55.3" N, 15° 24' 25.6" E, 251 m a. s. l., 10 September 2012. – **Horky u Čáslavi** [Kutná Hora], a roadkill, 49° 52' 24.1" N, 15° 25' 59.8" E, 300 m a. s. l., 9 September 2012. – **6264: Hradec nad Svitavou** [Svitavy], a burrow in a cornfield stubble and a dead young ind. found nearby, 49° 44' 04.0" N, 16° 29' 53.2" E, 462 m a. s. l., 8 August 2015. – **Svitavy-předměstí** [Svitavy], two typical burrows in a cornfield stubble, 49° 45' 37.5" N, 16° 29' 57.7" E, 483 m a. s. l., 20 August 2016. – **6265: Čtyřicet Lánů** [Svitavy], at night, an ind. observed by the harvester driver in a field, 49° 44' 12.5" N, 16° 30' 36.1" E, 493 m a. s. l., 8 August 2015. – **Moravská Kamenná Horka** [Svitavy], an ind. in a stubble, 49° 44' 50.7" N, 16° 30' 38.3" E, 503 m a. s. l., 14 August 2015, J. MACH.

Current distribution

During the period 2012–2016, we recorded the hamster occurrence at 290 localities spread in 73 squares of the K. F. M. E. mapping grid, and from additional two mapping squares (5548, 5754), we received only slightly older records (from 2010 and 2011) by our experienced co-workers. After a detailed evaluation of all the above records we tried to estimate the current distribution of the hamster in Bohemia. In the process we considered also the type of habitat and used some trustworthy information from local people as well as the records published by ANDĚRA & GAISLER (2012) and TKADLEC et al. (2012). The map shows that the current area of distribution of the hamster in Bohemia consists of two sub-areas, most probably isolated from each other (Figs. 1, 3).

The most extensive sub-area encompasses lowlands, plateaus and adjacent hilly land along the lower reaches of the major Bohemian rivers, i.e. Labe/Elbe, Vltava/Moldau, and Ohře/Eger. The westernmost part of this population inhabits the Most Basin (Mostecká pánev). It is not populated equally, a more dense hamster occurrence was recorded between Pětipsy and Podbořany (5646, 5746), around Žatec (5647) and in the Blažim Plateau (Blažimská plošina) north-west of Postoloprty (5648). In the more elevated or marginal parts of the Most Basin (i.e., Čeradice Plateau [Čeradická plošina], Novosedly Terrace [Novosedelské terasy]) and also in the brown-coal mine area (which is well defined by the phytogeographic region of the Podkrušňohorská Basin), we did not find the species at all. The records near Buškovice (5746) and Nepomyšl (5745) document marginal occurrence of the hamster in the Rohozec Highland (Rohozická vrchovina) which is already a part of the Doupovské hory Mts. Similarly, the sporadic records from Chanov u Mostu (square 5448) and Bedřichův Světec (5548) are already inside the western marginal part of the České Středohoří Mts. However, in spite of a considerable effort, we did not find the hamster inside the České Středohoří Mts. In the eastern direction, the hamster inhabits the Lower Ohře Plateau (Dolnooharská tabule) where it is still widespread and even abundant in suitable places. Noteworthy records were made at the right bank of the Labe river

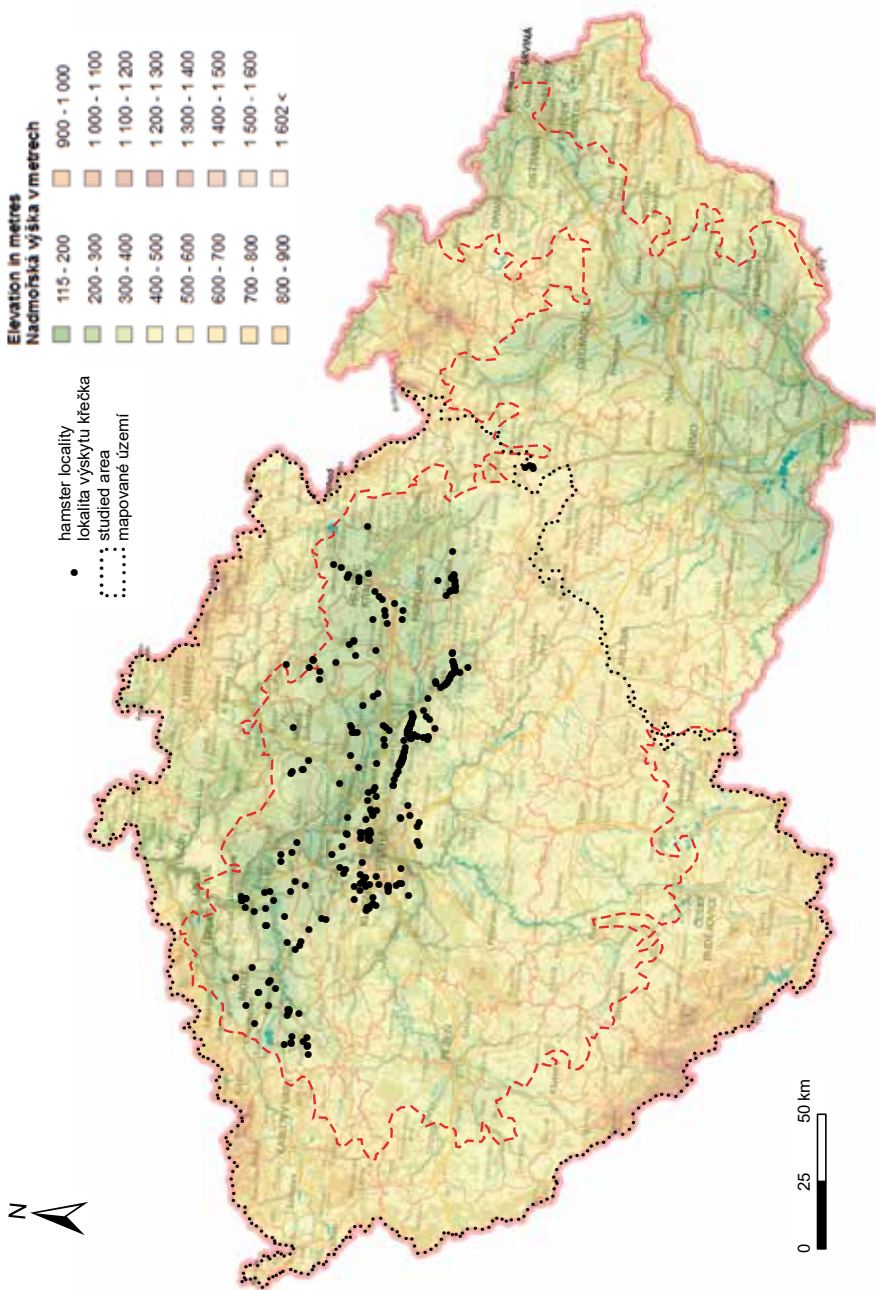


Fig. 1. Current distribution (2012–2016) of the hamster in Bohemia. Dashed red line indicates the maximum hamster distribution in the Czech Republic between 1948 and 1974 according to GRULICH (1975).

Obr. 1. Současné rozšíření (2012–2016) křečka v Čechách. Prerušovaná červená čára ukazuje maximální rozšíření křečka v letech 1948–1974 podle GRULICHA (1975).

near Pišťany and Žalhostice (5450) because they are the only right-bank records in this part of the Labe valley. In the southern direction, the hamster populates the Prague Plateau (Pražská plošina) where its occurrence is still continuous and the species is relatively abundant there. The hamster is abundant also in some marginal parts of Prague.

In the eastern direction, its distribution continues to the Middle Labe Plateau (Středolabská tabule). However, the situation on the two banks of the Labe river is different. While on the left bank the hamster is distributed continuously and in the area between Zámuky and Kutná Hora its distribution even reaches the lower parts of the Upper Sázava Highland (Hornosázavská pahorkatina) (6056), its occurrence on the right bank is only irregular. Here, we recorded its moderately abundant occurrence only around Nymburk (5856) from where it continued to the west near Milovice (5755) and Lysá nad Labem (5855). Otherwise, we recorded the hamster in the right-bank part of the Middle Labe Plateau only occasionally, and in extensive areas of the Rožďalovice Plateau (Rožďalovická tabule) and Městec Králové Plateau (Královéměstecská tabule), we obtained no data at all. An even lower number of records is available from the more northward situated Jizera Plateau (Jizerská tabule), where we recorded hamsters in the area between Skalsko (5554), Bezno (5654) and Mladá Boleslav (5556). The record near Tuříce (5754) suggests a possible connection between the above area and the hamster population around Nymburk and Milovice.

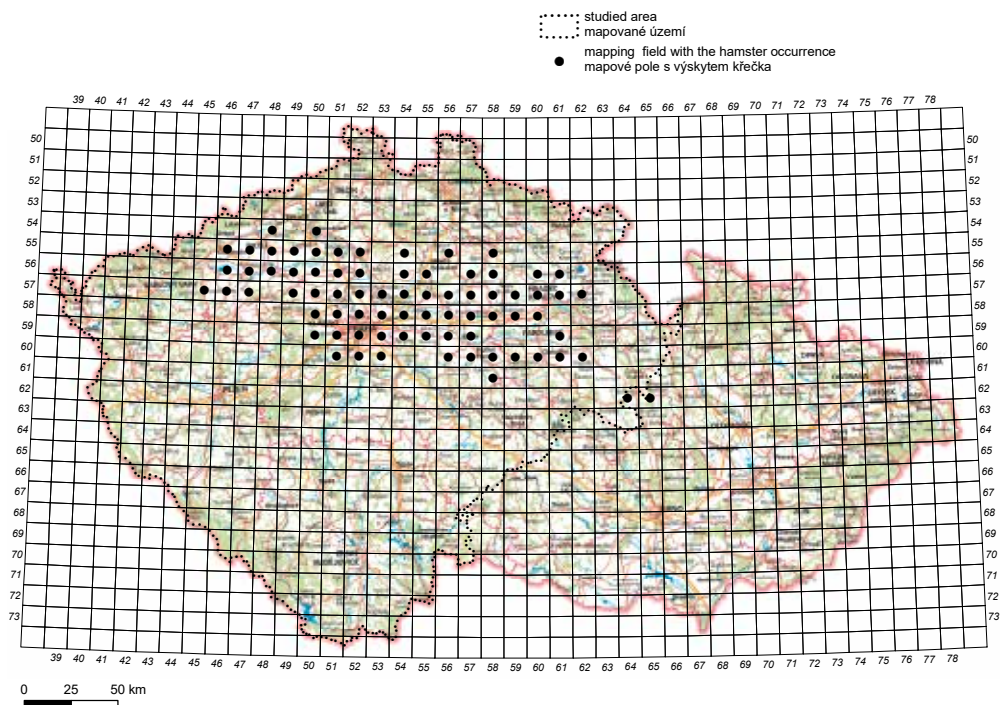


Fig. 2. Current distribution of the hamster in Bohemia shown in the K. F. M. E. mapping grid.
Obr. 2. Současné rozšíření křečka v Čechách zobrazené v mapovacím systému K. F. M. E.

To the east, the hamster range continues to the East Labe Plateau (Východolabská tabule). Its records are more abundant in the lowest part of the range along the Labe river, between Chlumec nad Cidlinou and Jaroměř and also in the region extending from the vicinity of Chlumec nad Cidlinou (5858) northwards to Nový Bydžov, Vysoké Veselí (5658), as far as to the Jičín Highland (Jičínská pahorkatina). In this region, we found the hamster in the vicinity of Jičíněves (5657) and Nemyčeves (5658). However, an isolated record is available even from a depression north of Jičín (5558). From the East Labe Plateau, the hamster distribution continues in the north-eastern direction to the Orlice Plateau (Orlická tabule); the records are only scarce there but they extend as far as to Opočno (5762).

The second sub-area of hamster occurrence, at present most probably isolated from the first one, is the region encompassing the south-eastern margin of the East Labe Plateau and a part of the Svitavy Highland. In the north, this sub-area is isolated from the former one by the Labe floodplain where the habitats are mostly unsuitable for the hamster. In the west, these sub-areas are separated by the woody bulge of the Železné hory Mts. However, the separation of the two sub-areas may not be absolute as the area not inhabited by the hamster is not wider than 11–15 km. In the second sub-area, the majority of records are concentrated in the close proximity

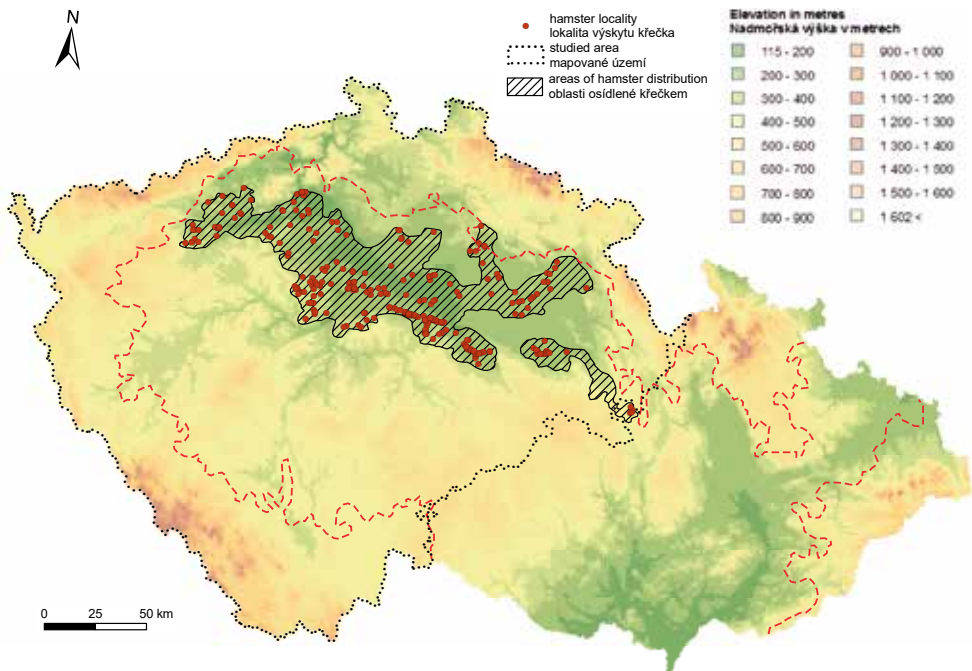


Fig. 3. Estimation of the current area of distribution of the hamster in Bohemia. Dashed red line indicates the maximum hamster distribution in the Czech Republic between 1948 and 1974 according to GRULICH (1975).

Obr. 3. Odhad současného areálu rozšíření křečka v Čechách. Přerušovaná červená linie ukazuje maximální rozšíření křečka v ČR v letech 1948–1974 (podle GRULICHA 1975).

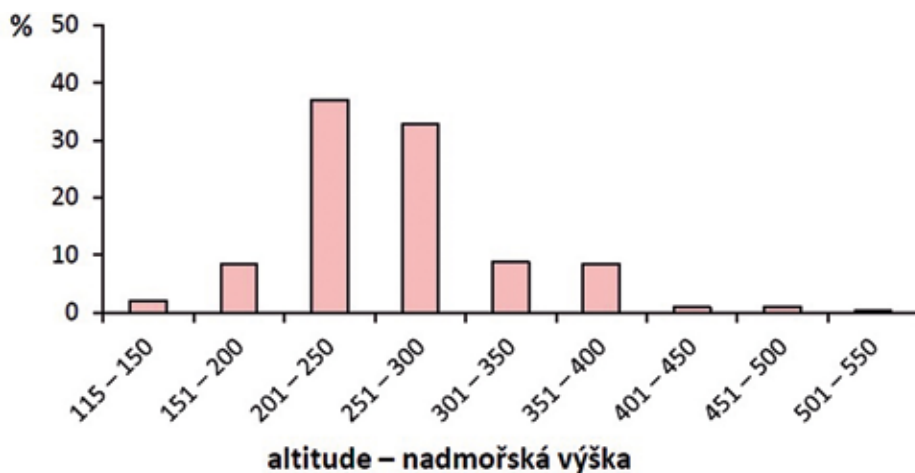


Fig. 4. Distribution of the Bohemian hamster localities in relation to altitude (in metres).
 Obr. 4. Rozložení českých lokalit výskytu křečka podle nadmořské výšky v metrech.

of Chrudim and Hrochův Týnec (6060, 6061), while they are only rare a bit farther. Another local centre of the hamster occurrence is the vicinity of Svitavy, situated already few kilometres in Moravia (6264, 6265). In other parts of the Svitavy Highland, the hamster is most probably extremely rare. As we have several verbal (unfortunately, not verified by us in the field) reports on the hamsters still surviving in the vicinity of Luže (6162), Zámorsk (6062), and Horní Újezd (6163, 6263), the connection between the Chrudim and Svitavy hamster populations cannot be excluded. That is why we consider the second sub-area as still continuous (Fig. 3)

Comparison of current and past distribution

From our results it is apparent that the retreat of the hamster in Bohemia (ANDĚRA & GAISLER 2012) is still in progress. In the recent past, the hamster inhabited all lowlands and hilly lands up to the altitude of ca. 500 m a. s. l., with the exception of two westernmost regions (Upper Ohře region and the Aš Promontory) (cf. dashed red line in Figs. 1, 3). From the period before 1990, there are hamster records from at least 317 squares of the mapping grid (GRULICH 1975, VOHRALÍK & ANDĚRA 1975, ANDĚRA & BENEŠ 2001, ANDĚRA et al. 2010, VOHRALÍK 2011, ANDĚRA 2016). Although some of these historical records may be not very trustworthy, it is probable that at that time the hamster inhabited even a bit larger area, as in the above publications, records from some suitable and therefore probably inhabited mapping squares in lowlands along the Labe river and in the Kladno region were missing. After 1990, the hamster was recorded mostly in lowlands, however, scattered records documented its survival also in the Semily region, Beroun and Plzeň Basins, Šumava Foothills (near Horažďovice and Strakonice), Benešov region and in some parts of the Bohemian-Moravian Highland (ANDĚRA 2011, ANDĚRA & GAISLER 2012). However, summarization of the data obtained during the period 2000–2010 by TKADLEC et al. (2012) is very similar to our results from the period 2012–2016. We recorded the hamster only in 75 mapping squares and our estimation of the contemporary hamster area in Bohemia co-

vers 92 mapping squares, at most (Fig. 2). In spite of a considerable effort, we did not find the hamster in four Bohemian provinces (i.e., Plzeňský kraj, Jihočeský kraj, Liberecký kraj, Kraj Vysočina) where its sporadic occurrence was documented as late as after 2000.

Factors affecting the hamster distribution

Factors which may be responsible for the retreat of the hamster in most of its European range have been recently discussed in detail by SUROV et al. (2016), they are thus not a subject of this paper. However, we tried to find a possible correlation between the contemporary distribution of the hamster in Bohemia and major environmental variables, e.g., altitude, climate, soil categories and the landscape cover.

From the map in Fig. 3 and the histogram in Fig. 4 it is apparent that the majority of hamster localities are situated at the altitudes up to 300 m a. s. l., only in the Prague Plateau up to 400 m a. s. l. Exceptions include four localities near Svitavy (6264, 6265) where we found hamsters at the altitudes between 462 and 503 m a. s. l. Therefore, it is clear that the shift of the hamster distribution into lower altitudes discovered by ANDĚRA (2011) is still continuing.

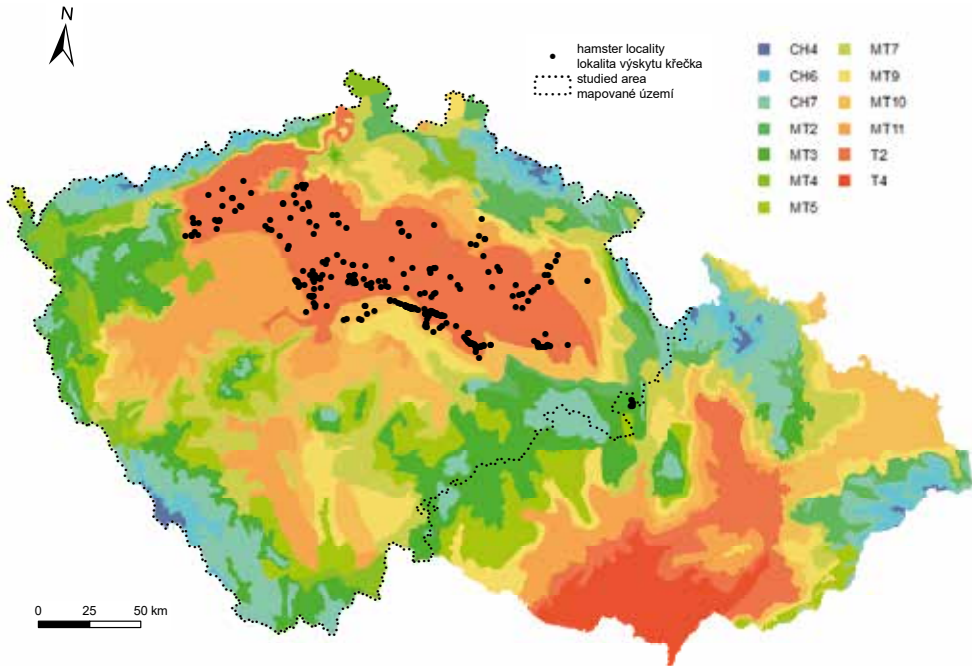


Fig. 5. Current distribution of the hamster in Bohemia in relation to climatic zones (these taken from QUITT 1971). Cold zones (CH4–CH7), moderately warm zones (MT2–MT11), warm zones (T2–T4).
Obr. 5. Současné rozšíření křečka v Čechách podle klimatických oblastí převzatých z QUITTA (1971). Chladné oblasti (CH4–CH7), mírně teplé oblasti (MT2–MT11), teplé oblasti (T2–T4).

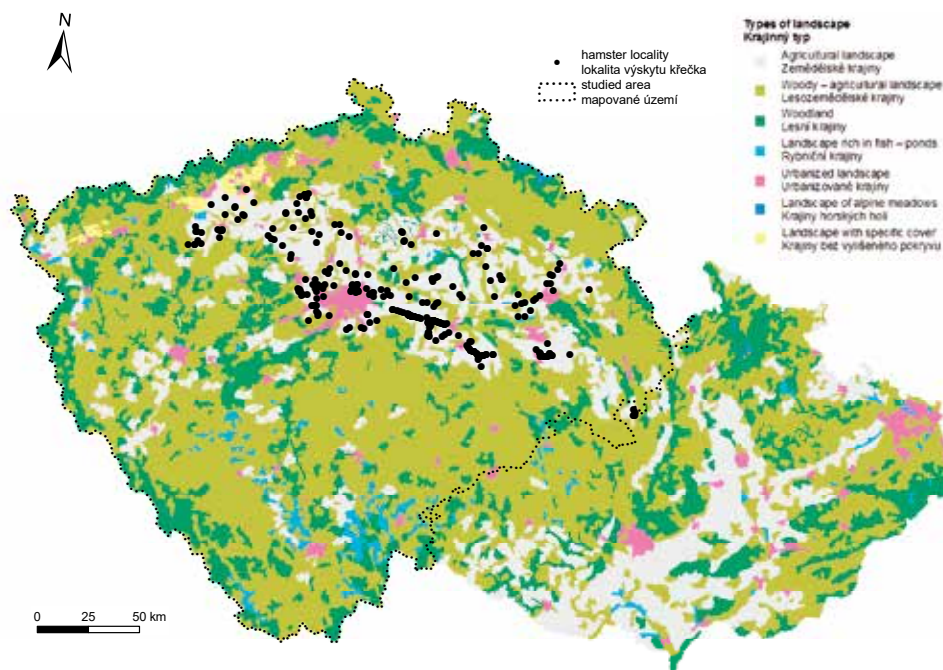


Fig. 6. Current distribution of the hamster in Bohemia in relation to the general landscape types (these taken from LÖW & NOVÁK 2008).

Obr. 6. Současné rozšíření křečka v Čechách vzhledem k rámcovému krajinnému typu (podle LÖWA & NOVÁKA 2008).

The map showing current distribution of the hamster in Bohemia in relation to climatic zones by QUITT (1971) reveals that nearly all hamster localities are confined to the Warm zone T2, with only a small overlap into the Moderately warm zone MT11 (Fig. 5). We found the hamster only exceptionally in the Moderately warm zone MT9. Four localities near Svitavy where the hamster population survives well even in the Moderately warm zone MT3 are very interesting. However, it should be noted that until the 1970s, the hamster commonly inhabited this climatic zone in the neighbouring parts of the Bohemian-Moravian Highland.

Most probably, the climate is not the only factor affecting distribution of the hamster in Bohemia because even the warmest climatic zone T2 is not completely inhabited by the species. It has been frequently reported that the hamster prefers deep and consistent soils, especially loess and various categories of the chernozem (e.g., VOHRALÍK & ANDĚRA 1976, WEINHOLD & KAYSER 2006). In our study, majority of the burrows found (more than 90%) were in the following soil categories: chernozems, haplic luvisol, some types of cambisol (extracted cambisol, arenic cambisol), calcareous regosol and phaeozem greyic. Occasionally, individual burrows were found also in other soil categories (Fig. 7). It was evident that the hamster avoids the stony soils and wet places.

In our opinion, the factors shaping the hamster distribution in Bohemia include also the landscape structure. All our hamster localities are situated in plots covering several tens of square kms of the open agricultural landscape (cf. classification by MEEUS 1995) (Fig. 6). The hamster is unable to survive for a long time in smaller field enclaves surrounded by woodland which are common in Bohemia at the altitudes above 350 m a. s. l. The reason is most probably the large-scale consolidation of fields and abolishment of balks between them, resulting in considerable homogeneity of crops. These changes started in the 1950s and continued intensively at least till the end of the 1980s. They well correspond with the hamster retreat in Bohemia. Our survey has documented that the hamster avoids some crops, recently grown at large scale, i.e. the maize and the rape. This may be connected with the hamster nutritional requirements as well as with difficulties to accumulate winter stores. That is why the commonly used scheme of change of agricultural plants, including for the hamster unsuitable maize and rape, considerably increases the probability of its extinction, especially in small populations from medium altitudes.

Habitats of the hamster

In general, the hamster is declared as a steppe or forest-steppe species inhabiting also stands of various types of agricultural plants (ANDĚRA & GAISLER 2012). Although in our survey we

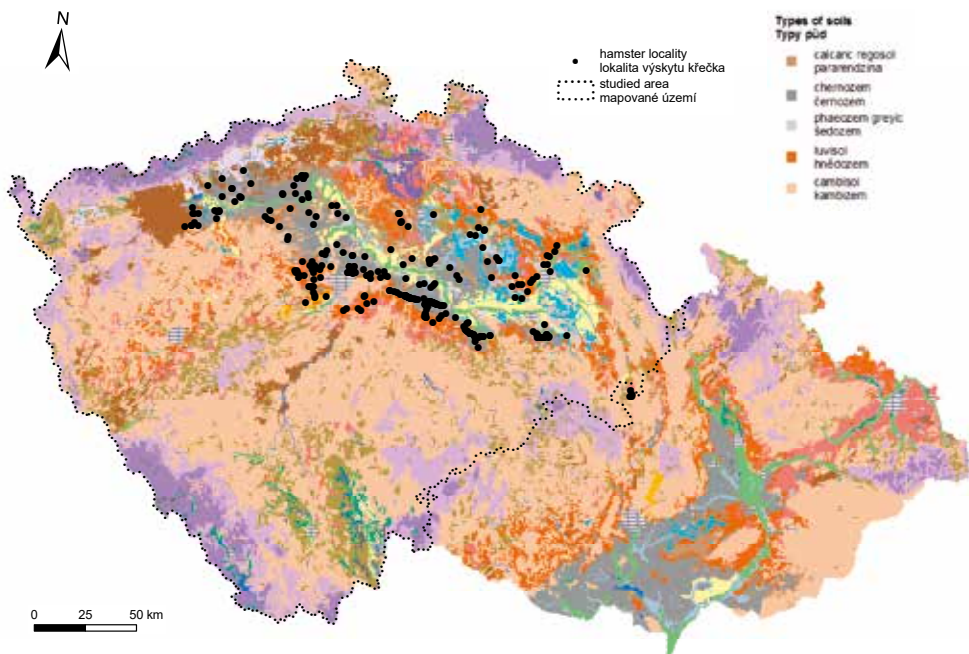


Fig. 7. Current distribution of the hamster in Bohemia in relation to principal soil types (these taken from NĚMEČEK et al. 2008).

Obr. 7. Současné rozšíření křečka vzhledem k hlavním půdním typům převzatým z NĚMEČKA et al. (2008).

checked above all cereal fields (and therefore our data are rather biased by this fact), we found the hamster also in other habitats. From a total of 270 burrows we found 78.1% in cereal fields (wheat and barley), 12.2% in ruderal vegetation (field balks, fallow land, abandoned plots), 3.7% in alfalfa, 3% in gardens, 2.6% in frequently mown meadows and 0.7% in vegetable fields (parsley). Especially the ruderal plots seem to be important habitats where the hamster is able to successfully survive in peripheral parts of towns and villages. From a total of 290 hamster localities, we found 16 (5.5%) inside towns or villages. Majority of these records came from the northern and western periphery of Prague and the nearby housing estates. According to the information provided by farmers, the hamster can inhabit also sugar-beet fields. We did not record hamster burrows in rape or maize fields. It should be mentioned that no hamster burrows were found in proximity of a forest. From a total of 184 hamster road casualties, only three individuals were found less than 100 m from a forest.

Road casualties and predation

Although our study was not focused on predation, during the field work we sometimes recorded conflicts between hamsters and predators. Also our co-workers and local people reported such cases to us. The hamster is hunted by domestic cats or dogs, mainly in fields neighbouring with the built up areas, sometimes also in gardens. Remnants of a hamster in the eagle owl (*Bubo bubo*) nest (5745) or an attempt by the marsh harrier (*Circus aeruginosus*) to catch a hamster (5649) were recorded occasionally. One hamster was captured by a tame peregrine (*Falco peregrinus*) guarding the Prague Airport (5851). Hamster burrows were very often partly opened by fox (sometimes probably also by domestic dogs), in some localities also by the wild boar.

During the field work, we often met farmers who reported numerous cases when a hamster was ploughed up and killed by an agricultural machine.

Road casualties make up a considerable portion of our records. Altogether, we found 184 hamsters killed in roads. From our 290 localities where we documented presence of the hamster, road kills were recorded in 163 localities. Most frequently, we recorded hamsters killed on roads in the second half of August and first half of September. We suppose that during this period, young hamsters try to establish their own home range and therefore they often cross roads. Such dispersion can be also supported by ploughing which is frequently performed just at this time.

Although it is impossible to make any quantification as we do not know the hamster population density in fields along roads, the above numbers suggest that the traffic causes a not inconsiderable portion of hamster mortality. Most of the killed hamsters were found in roads with intensive night traffic and surrounded by open agricultural landscape with suitable habitats. Most probably, the conclusions by KEMPER (1967) who supposed that the hamster is predisposed for road casualties by its behaviour, are correct. In the case of a quickly approaching object, the hamster does not escape but takes an upright warning posture and finally, at the last moment, it jumps against it (cf. also PETZSCH 1950). Although such behaviour may be effective in determent of some small predators, inexperienced dogs or people, it is completely fatal in a collision with a vehicle.

SOUHRN

V letech 2012–2016 jsme mapovali rozšíření křečka polního v Čechách. V období mezi žněmi a následnou orbou (srpen–září) jsme navštívili všechny oblasti Čech, kde byl ještě po r. 1990 výskyt křečka zaznamenán. Zde jsme v každém mapovém poli systému K. F. M. E. prohlédli nejméně čtyři strniště po

obilninách (převážně pšenice a ječmen), někdy též pole s vojtěškou, různými druhy zeleniny a prohlédli jsme také přilehlé polní meze a silniční příkopy. Na každém strništi jsme prošli transekt dlouhý cca 2500 m a hledali jsme nory křečků. Mimo to jsme během celého roku zaznamenávali křečky přejeté na silnicích. Využili jsme také zprávy, které nám dodali naši kolegové nebo spolehliví informátoři. Téměř všechny takto získané informace o výskytu křečků jsme ověřovali v terénu. Celkem jsme získali informace o výskytu křečka na 290 lokalitách umístěných v 75 mapových polích systému K. F. M. E. Areál křečka v Čechách je rozdělen na dvě, zřejmě vzájemně izolované části (obr. 3). Je zřejmé, že oproti situaci před rokem 1990 došlo v Čechách k výraznému zmenšení areálu rozšíření křečka. V Plzeňském, Jihočeském a Libereckém kraji a v kraji Vysočině jsme křečka již nezaznamenali. Křeček vymizel především ve středních polohách, většina lokalit dnes leží v nížinách, v nadm. výšce do 300 m, nejvýše položené čtyři lokality jsme zjistili v české části Svitavska v nadm. výškách 462–503 m (obr. 3, 4). Naprostá většina lokalit leží v teplé klimatické oblasti T2 (obr. 5). Křeček preferuje sušší a hlubší půdy typu černozem, hnědozem, kambizem apod. (obr. 7). Křeček v Čechách přežívá pouze v dostatečně rozsáhlých (nejméně několik desítek km² velkých) plochách otevřené zemědělské krajiny (obr. 6), dokáže osidlovat i ruderalní a kulturní stanoviště na okrajích obcí a měst. Zdá se, že se vyhýbá blízkosti lesa a neosidluje ani pole s kukuřicí nebo řepkou. Celkový počet 184 křečků, kteří byli nalezeni přejetí na silnicích na 163 lokalitách naznačuje, že doprava způsobuje významnou část mortality křečka, především v srpnu a září, kdy se rozsidlují mladí jedinci.

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