Czech Republic and Slovak Republic

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Contents

Introduction

The fossil record of insectivores in Czech Republic comes from two different settings: A. in the stratified deposits in the North Bohemian tectonic rift (the sites; Tuchořice, the Open Mine Merkur-Nord near Chomutov, Dolnice and Františkovy Lázně (Franzensbad), and B. in the karstic fillings at Suchomasty. The richest occurrence of insectivores is in the coal seam in Merkur Nord; in the thermal spring travertines at Tuchořice the small mammals are generally very rare. Detailed taxonomic descriptions of the faunas are being prepared.

The record of fossil insectivores in the Slovak territory of the Western Carpathians are not as frequent as finds of rodents. In spite of it, thus far six out of fifteen sites with a record of Neogene mammals yielded remains of insectivores. The stratigraphically youngest finds are known from the Late Pliocene (MN 16a) site of Hajnáčka and the stratigraphically oldest ones come from the Middle Miocene terrestrial deposits of Devínska Nová Ves-Fissures (MN 6). Insectivore fossils have been found in fissure fillings, basin deposits, and maar sediments. However, most records consist of few specimens only (with the exception of these from sedimentary fillings of fissures).

The acronyms used in this article are:

DGP	Department of Geology and Paleontology, Faculty of Science, Comenius University, Bratislava, Slovak Republic
GMM	Gemer-Malohont Museum, Rimavská Sobota, Slovak Republic
NHMW	Naturhistorisches Museum Wien
NMP	National Museum Praha, Czech Republic
SNMB	Slovak National Museum Bratislava, Slovak Republic.

Insectivore faunas in the Neogene of the Czech Republic

MN 3

Tuchořice

Location – Czech Republic, Middle Bohemia.

Stratigraphy – The freshwater limestones of Tuchořice and Lipno are developed in three different facies of freshwater limestones (1. solid slab-like limestone 2. travertines, 3. carbonacous clays and gray marls) produced by several strong mineral (probably thermal-subthermal) springs along the southern tectonic lines of the rift. The site of "travertines" is most probably remnant of a hot spring cascade.

Literature – Cicha *et al*. (1972), Čtyroký *et al.* (1962), Fejfar (1974, 1990), Fejfar & Kvaček (1993), Fejfar *et al.* (2003).

Insectivores – Erinaceidae: *Galerix* cf. *aurelianensis* Ziegler, 1990. Plesiosoricidae: *Plesiosorex* cf. *soricinoides* (Blainville,1840). Talpidae: *Myxomygale* cf. *hutchisoni* (Ziegler, 1985), *Paratalpa* cf. *micheli* Lavocat, 1951, *Desmanella engesseri* Ziegler, 1985, *Talpa* sp. I, *Talpa* sp. II. Dimylidae: *Pseudocordylodon* sp., *Chainodus intercedens* (Müller, 1967), *Plesiodimylus huerzeleri* Müller, 1967. Soricidae: *Miosorex pusilliformis* (Doben-Florin, 1964), *Soricella discrepans* Doben-Florin, 1964, *Paenelimnoecus micromorphus* (Doben-Florin, 1964), *Florinia stehlini* (Doben-Florin, 1964), *Heterosorex neumayrianus* (Schlosser, 1887).

Taxonomic descriptions – Descriptions of the insectivore fauna are currently in preparation.

Storage of material – NMP.

Remarks – The layers on the site are rich in leaves, incrusted fruits, incrusted insects, rare endocranial casts (in "travertines"), but mainly in vertebrate remains (non-articulated scattered bones and teeth of both small and large mammals, in the lenses of dark carbonatic marls). Contrary to the facies of slab-like limestone, the deposits of travertines do not contain any remains of molluscs, possibly as an effect of the hot springs.

The Open Mine Merkur-Nord near Chomutov

Location – Czech Republic, North Bohemia.

Stratigraphy – Dark calcareous marls on the base of the so-called Main Brown Coal Seam. The strata belong to the central part of the North Bohemian rift graben – the so-called Chomutov-Teplice-Most basin. Earlier part of the Early Miocene (Eggenburgian), lower Orleanian.

Literature – Čtyroký *et al.* (1962), Fejfar (1974, 1990), Fejfar & Kvaček (1993), Fejfar *et al.* (1997), Fejfar *et al.* (2003).

Insectivores – Erinaceidae: *Galerix* cf. *aurelianensis* Ziegler, 1990. Plesiosoricidae: *Plesiosorex* cf. *soricinoides* (Blainville, 1840). Talpidae: *Myxomygale* cf. *hutchisoni* (Ziegler, 1985), *Paratalpa* cf. *micheli* Lavocat, 1951, *Desmanella engesseri* Ziegler, 1985, *Geotrypus* sp., *Talpa* sp. I, *Talpa* sp. II. Dimylidae: *Pseudocordylodon* sp., *Chainodus intercedens* Müller, 1967, *Plesiodimylus huerzeleri* Müller, 1967. Soricidae: *Miosorex pusilliformis* (Doben-Florin, 1964), *Soricella discrepans* Doben-Florin, 1964, *Paenelimnoecus micromorphus* (Doben-Florin, 1964), *Florinia stehlini* (Doben-Florin, 1964), *Lartetium* cf. *petersbuchense* Ziegler, 1989, *Heterosorex neumayrianus* (Schlosser, 1887).

Taxonomic descriptions – Descriptions of the insectivores are in preparation.

Storage of material – NMP.

Remarks – The locality used to be called Ahníkov. The dark calcerous marls of Merkur-Nord were also recorded around 1890 in the underground brown coal mines Marianna- and Prokopi at Skyřice, and around 1960 in the numerous deep drillings in the area of the today open mine Merkur-north at Chomutov.

MN 4

Dolnice

Location – Czech Republic, North Bohemia, Cheb Basin.

Stratigraphy – The strata belong to the most western part of the North Bohemian rift graben – the so-called Cheb basin. The sites Dolnice 1 - 3 are in the marginal (riparian) facies in the most western part of the basin. The greenish calcareous marls and clayey silts in the roof of the local so-called main brown coal seam in three horizons, Dolnice 1-3. Ottnangian, Middle Orleanian.

Literature – Cicha *et al.* (1972), Fejfar & Schmidt-Kittler (1984), Fejfar (1974, 1990), Fejfar & Kvaček (1993).

Insectivores – Erinaceidae: *Galerix* cf. *aurelianensis* Ziegler, 1990, *Lantanotherium* cf. *sansaniense* (Lartet, 1851). Plesiosoricidae: *Plesiosorex* cf. *germanicus* (Seemann, 1938). Talpidae: *Myxomygale* cf. *hutchisoni* (Ziegler, 1985), *Talpa minuta* Blainville, 1838, *Proscapanus* cf. *sansaniensis* (Lartet, 1851), *Desmanella engesseri* Ziegler, 1985, *Talpa* sp. I, *Talpa* sp. II. Dimylidae: *Metacordylodon* aff. *schlosseri* (Andreae, 1904), *Chainodus intercedens* (Müller, 1967), *Plesiodimylus huerzeleri* Müller, 1967. Soricidae: *Miosorex pusilliformis* (Doben-Florin, 1964), *Florinia stehlini* (Doben-Florin, 1964), *Allosorex gracilidens* (Viret & Zapfe, 1952), *Heterosorex neumayrianus* (Schlosser, 1887).

Taxonomic descriptions – Descriptions of the insectivores from Dolnice are in preparation.

Storage of material – NMP.

Remarks – The site belongs to the oldest European tertiary vertebrate localities, being discovered by Franz A. Reuss and J.W. Goethe around 1820. The site was formerly known under the names Dölitz or Döllitz. Excavations at Dolnice took place in the period 1962-1968 and in 1978.

MN 5

Františkovy Lázně

Location – Czech Republic, North Bohemia, Cheb Basin.

Stratigraphy – The greenish calcareous sandy marls - the marginal (riparian) facies of the so-called Cypris-Formation in the basin of Cheb, Karpatian, late Orleanian.

Literature – Cicha *et al.* (1972), Fejfar (1972, 1974, 1990), Fejfar & Kvaček (1993).

Insectivores – Erinaceidae: *Galerix* cf. *aurelianensis* Ziegler, 1990, *Atelerix* sp. Plesiosoricidae: *Plesiosorex* cf. *soricinoides* (Blainville, 1840). Talpidae: *Myxomygale* cf. *hutchisoni* (Ziegler, 1985), *Desmanodon* cf. *antiquus* Ziegler, 1985, *Proscapanus* cf. *sansaniensis* (Lartet, 1851), *Desmanella* aff. *engesseri* Ziegler, 1985, *Talpa* sp. I, *Talpa* sp. II. Dimylidae: *Metacordylodon* aff. *schlosseri* (Andreae, 1904), *Plesiodimylus* cf. *bavaricus* Schötz, 1985. Soricidae: *Miosorex pusilliformis* (Doben-Florin, 1964), *Florinia stehlini* (Doben-Florin, 1964), *Allosorex gracilidens* (Viret & Zapfe, 1952), *Dinosorex* cf. *zapfei* Engesser, 1975.

Taxonomic descriptions – Descriptions of the insectivores are in preparation.

Storage of material – NMP.

Remarks – The site was discovered in 1957 in the foundations of the new school building in Františkovy Lázně – Franzensbad, and was excavated in 1957-1958.

MN 10

Suchomasty

Location – Czech Republic, Middle Bohemia.

Stratigraphy – Reddish fissure fill in the „Red quarry", longitudinal along tectonic line, late Vallesian.

Literature – Fejfar (1990), Fejfar & Kvaček (1993).

Insectivores – Erinaceidae: *Lantanotherium sanmigueli* Villalta & Crusafont, 1944, *Erinaceus samsonowiczi* Sulimski, 1959. Talpidae: *Desmanella rietscheli* Storch & Dahlmann,

2000, *Talpa gilothi* Storch, 1978, *Talpa vallesensis* Villalta & Crusafont, 1944, *Archaeodesmana vinea* (Storch, 1978). Dimylidae: *Plesiodimylus crassidens* Engesser, 1980. Soricidae: *Asoriculus* sp., *Crusafontina kormosi* (Bachmayer & Wilson, 1970), *Paenelimnoecus repenningi* (Bachmayer & Wilson, 1970), *Petenyia dubia* Bachmayer & Wilson, 1970, *Dinosorex* n. sp.

Taxonomic descriptions – Descriptions of the insectivores are in preparation.

Storage of material – NMP.

Remarks – Suchomasty is also known as Červený lom (=„Red quarry") at Suchomasty.

Insectivore faunas in the Neogene of the Slovak Republic

MN 6

Devínská Nová Ves - Fissures

Location – Slovak Republic, south-western Slovakia, near Bratislava.

Stratigraphy – Two fissure fillings along tectonic lines (Spalte 1 and 2), Middle Badenian.

Literature – Cicha *et al*. (1972), Fejfar (1972, 1974, 1990, 1999), Zapfe (1949, 1951, 1953, 1960, 1979).

Insectivores – Erinaceidae: *Lantanotherium sansaniense* (Lartet, 1851), *Amphechinus intermedius* (Gaillard, 1899). Talpidae: *Proscapanus* cf. *sansaniensis* (Lartet, 1851), *Talpa minuta* Blainville, 1838, *Desmanella* sp., *Desmanodon* sp., "*Scaptonyx*" *edwardsi* Gaillard, 1899, Talpidae gen. et sp. indet. Dimylidae: *Plesiodimylus chantrei* Gaillard, 1897. Soricidae: *Dinosorex zapfei* Engesser, 1975 (type locality), *Allosorex gracilidens* (Viret & Zapfe, 1952) (type locality), *Lartetium dehmi* (Viret & Zapfe, 1952), Soricidae gen. et sp. indet.

Taxonomic descriptions – The insectivores from Devínská Nová Ves were described by Zapfe (1951). Engesser (1975) described the species *Dinosorex zapfei* on the basis of the material that Zapfe (1951) had attributed to *Heterosorex sansaniensis*. Viret & Zapfe (1952) described *Sorex dehmi* and *Sorex gracilidens*. The latter was defined exclusively on material from Devínská Nová Ves, *Sorex dehmi* was also described from material from La Grive. The humerus attributed by Zapfe (1951) to *Scaptonyx* (?) *dolichochir* differs from the holotype of that species (cf. Hutchison, 1974, fig. 17) in, among other features, the long teres tubercule (van den Hoek Ostende, pers. comm.). This type of humerus is typical for *Desmanodon*, a genus that was recently also recognised in late Middle Miocene fissure fillings in southern Germany (Ziegler, 2003).

Storage of material – SNMB, NHMW.

Remarks – The site is also known as Neudorf a.d. March.

Devínská Nová Ves - Bonanza

Location – Slovak Republic, south-western Slovakia, near Bratislava.

Stratigraphy – Fissure filling along tectonic lines, Late Badenian.

Literature – Holec *et al*. (1987), Sabol (in press).

Insectivores – Erinaceidae: *Lantanotherium* aff. *sansaniense* (Lartet, 1851), Erinaceidae gen. et sp. indet. Talpidae: *Talpa minuta* Blainville, 1838, *Storchia* n. sp. Dimylidae: *Plesiodimylus chantrei* Gaillard, 1897. Soricidae: *Dinosorex* cf. *zapfei* Engesser, 1975, Soricidae gen. et sp. indet. Lipotyphla gen. et sp. indet.

Taxonomic descriptions – The insectivores are described by Sabol (in press).

Storage of material – SNMB.

MN 9

Borský Svätý Jur

Location – Slovak Republic, south-western Slovakia.

Stratigraphy – Lacustrine basin deposits at an abandoned brickyard, Early Pannonian.

Literature – Joniak (2005).

Insectivores – Erinaceidae: *Schizogalerix* sp. Talpidae: Talpidae gen. et sp. indet. Soricidae: *Heterosorex* sp.

Taxonomic descriptions – Joniak (2005) gave only a list of the fauna.

Storage of material – DGP.

MN 10?

Dubná skala

Location – Slovak Republic, northern Slovakia, near Martin.

Stratigraphy – Two cross-sections in a limestone quarry, Pannonian.

Literature – Pipík & Sabol (in press).

Insectivores – Soricidae: *Paenelimnoecus* sp.

Taxonomic descriptions – A fragment of the left hemimandible with m2 of *Paenelimnoecus* was described by Pipík & Sabol (in press).

Storage of material – DGP.

MN 15

Ivanovce

Location – Slovak Republic, western Slovakia, near Trenčín.

Stratigraphy – Fissure fillings along tectonic lines, Late Ruscinian.

Literature – Fejfar (1961, 1964, 1966, 1990), Fejfar & Horáček (1983), Fejfar & Heinrich (1983, 1990), Fejfar *et al.* (1990, 1998), Fejfar & Sabol (2004).

Insectivores – Erinacidae: *Erinaceus* sp. Talpidae: *Talpa* sp. I., *Talpa* sp. II, *Desmana nehringi* Kormos, 1913, *Archaeodesmana* sp. Soricidae: *Asoriculus gibberodon* (Petényi, 1864), *Blarinoides mariae* Sulimski, 1959, *Beremendia fissidens* (Petényi, 1864), *Deinsdorfia fallax* (Heller, 1936), *Paenelimnoecus pannonicus* (Kormos, 1934), *Paenelimnoecus* sp., *Petenyia hungarica* Kormos, 1934, *Sorex minutus* Linnaeus, 1766, *Sulimskia kretzoii* (Sulimski, 1959), *Zelceina soriculoides* (Sulimski, 1959), *Allosorex stenodus* Fejfar, 1966 (type locality), *Paranourosorex gigas* Rzebik-Kowalska, 1975.

Taxonomic descriptions – *Allosorex stenodus* was described by Fejfar (1966). The other insectivore taxa were presented in lists of the fauna only. Descriptions are in preparation.

Storage of material – SNMB.

MN 16

Hajnáčka

Location – Slovak Republic, southern Slovakia, near Rimavská Sobota.

Stratigraphy – Infill of a maar lake (lacustrine sands, lacustrine tuffites, subaeric tuffs) during alcaline (basaltic) volcanic activity, Early Villanyian (= Villafranchian).

Literature – Fejfar (1961, 1964, 1966, 1990), Fejfar & Heinrich (1983), Fejfar & Horáček (1983), Fejfar *et al.* (1990), Fejfar & Sabol (2004), Lindsay *et al.* (1997), Sabol (2004).

Insectivores – Talpidae: *Talpa* cf. *minor* Freudenberg, 1914, *Talpa fossilis* Petényi, 1964, *Talpa* sp., *Desmana nehringi* Kormos, 1913. Soricidae: *Blarinoides mariae* Sulimski, 1959,

Beremendia fissidens (Petényi, 1864), *Deinsdorfia hibbardi* (Sulimski, 1962), *Petenyia hungarica* Kormos, 1934, Soricidae gen. et sp. indet.

Taxonomic descriptions – Descriptions of the insectivores were given in Fejfar (1964) and Sabol (2004).

Storage of material – SNMB, GMM.

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