Neogene carnivores of Slovakia

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Abstract. The fossil findings of the Neogene carnivores are found relatively rarely in the Western Carpathians. In spite of it, so far eight Neogene localities with approximately thirty-five taxa of carnivores are known in the territory of Slovakia. Author gives an overview of these eight mammalian localities. The localities were correlated on the base of biochronological MN zonation of the continental Neogene of the Europe and Western Asia. Also, the carnivores associations and literature references for these localities are given.

Key words: Neogene, Biostratigraphy, Carnivores, Western Carpathians (Slovakia)

The Neogene Mammalian Localities and their Fauna of Carnivores

The findings of the Neogene fossil carnivores are found relatively rarely in Slovakia. In spite of it, so far eight Neogene localities with approximately thirty-five taxa of carnivores are known (Tab. 1). An overview of them is given in this paper.

The geologically oldest locality is Devinska Nová Ves – Štokerav limestone pit (MN 6, Astaracian, Lower? - Middle Badenian, Middle Miocene, Estimated age: 15.0 - 16.4 Ma.) is situated in a quarry at the left side of the railway from Bratislava to Brno (Fig. 1). The quarry is formed in the dark recrystallised Jurassic limestone with fissures running in the N - S direction. These fissures are often filled with sinter, cave sediments, sands, „terra rossa“ and „terra fusca“. A large quantity of the vertebrate bones has been discovered in two of them. The fossil remains of the carnivores have been described by Zapf (1950). They belong to five families: Mustelidae (Trocharion albanense F. MAJOR, 1903; Mustelidae gen. et spec. indet.), Amphicyonodonta- tidae (Alopecom leporhynchos (FILHOL, 1883)), Ursidae (Hemicyon sansaniensis LARTET, 1851; Hemicyon cf. sansaniensis LARTET, 1851; Ursus brevibruninus (HOFMANN, 1887)), Amphicyonidae (Amphicyon maior BLAINVILLE, 1842; Amphicyon cf. steinheimensis FRAAS, 1885) and Felidae (Ailuricus jordani KRETOZI, 1929; Pseudaelurus sp.).

The Devinska Nová Ves – Sandberg (MN 7/8, Astaracian, Late Badenian, Middle Miocene, Estimated age: 12.8 - 13.8 Ma.) is one of the best-known Miocene mammalian localities in Slovakia (Fig. 1). The locality is situated in the southern border of Devinska Nová Ves village and in the northwestern foothills of Devinska Kobyla. This significant paleontological site consist of the Badenian sands, sandy limestone, algal limestone and gravel layers. Rich terrestrial and marine fauna of the vertebrates and invertebrates has been discovered here. The marine fauna indicates a shallow littoral facies. Faunal list of the Sandberg fossil vertebrates is in the article from Holec and Sabol (1996), where these carnivorous taxa are put out: Mustelidae (Mionictis dubia (BLAINVILLE); Trocharion albanense F. MAJOR, 1903; Paleogale sp.), Pinnipedia (Potamotherium miocenicum (PETTERS, 1868); Pristhophoca vetusta ZAPFEE); Ursidae (Hemicyon sansaniensis LARTET, 1851 (H. goriacensis (TOULA, 1848) after Ginsburg, 1999); Ursus brevibruninus (HOFMANN, 1887)), Amphicyonidae (Amphicyon sp.; Pseudarctos aff. bavaricus Schlosser, 1899), Felidae (Pseudaelurus lorteti GAILLARD, 1899; Pseudaelurus turnauensis (HOERNES, 1882)).

The locality Devinska Nová Ves – Bonanza (MN 7/8, Astaracian, Late Badenian, Middle Miocene, Estimated age: 12.8 - 13.8 Ma.), which was discovered by Š. Meszároš in the year 1982, is situated in the same quarry as the locality Štokerav limestone pit (Fig. 1). It is in a large fissure running in the WN - ESE direction. Besides fossil remains of the terrestrial vertebrates the sediments contain also fossil remains of the marine vertebrates. Findings of frogs indicate the presence of an fresh-water environment in near vicinity of the locality (Holec et al., 1987). Representatives of three carnivorous families have been found here only: Mustelidae (Trocharion albanense F. MAJOR, 1903 and Plesictis sp.), Phocidae (Dephinophoca claytoni KORETSKY; Pristhophoca vetusta ZAPFEE; Phocidae gen. et spec. indet.) and Viverinidae (Viverininae gen. et sp. indet.).

The next locality near Devinska Nová Ves is Wait quarry (MN 7/8, Astaracian, Late Badenian, Middle Miocene, Estimated age: 12.8 - 13.8 Ma.). It is abandoned quarry in the western foothill of Devinska Kobyla, approximately 700 m southward of the Sandberg (Fig. 1). The site is situated in the Jurassic carbonates with transgressive horizontal layers of the Badenian sands, especially in the upper parts of the quarry. These sands contain a large quantity of the fish and seal (Pristhophoca vetusta ZAPFEE) fossil remains.
From the Miocene fissure filling of the magnesite quarry Košice – Bankov (MN 7/8, Astaracian, Sarmatian, Middle Miocene, Estimated age: 11.2 - 12.8 Ma.) in the Eastern Slovakia (Fig. 1) some cranial fragments of Lophoceon carpathicus Fejfar, Schmidt-Kittler et Zacharov, 1987 have been discovered. This genus from the family Viverridae is closely related to the Miocene Sivansasia Pilgrim and Euboticus Fejfar et Schmidtkittler reported from the central and southern Europe (Fejfar et al., 1987).

The loam pit of the brick yard in Borsky Svätý Jur (MN 11, Turonian, Upper Pannonian, Late Miocene, Estimated age: 7.5 - 9.0 Ma.) is situated 75 km N from Bratislava in the Vienna Basin (Fig. 1). Lithologically the locality is characterized by the clayey silts with sandy beds, silty sands and fine sands, which contain fossil remains of the ostracods, molluscs, and vertebrates. A large quantity of vertebrate remains belong to mammals. Besides representatives of the insectivores, rodents, artiodactyls and perissodactyls, the fossil carnivores have been found here too. They belong to individuals of the taxa Mustelidae (Eomellivora wimani Zdansky, 1924) (Luptak, 1985a) and Hyaenidae (Ictitherium viverrinum Roth et Wagner, 1854) (Luptak, 1985b).

The fossils of carnivores have been described from the sediments of fissures in the stone quarry Ivanovec near Trenčín (MN 15, Ruscinian, Romanian, Late Pliocene, Estimated age: 3.6 - 4.4 Ma.) together with a quantity of the micromammal fossil remains and other mammal findlings (Fig. 1). These carnivore remains belong to representatives of four families: Mustelidae (Lutra cf. bravardi Pometel, 1843 and Protoputorius sp.), Procyonidae (Parailurus sp.), Viverridae (Hesperoviverra carpathorum (Kretzoi et Fejfar, 1982)) and Hyaenidae (Hyaenidae gen. et spec. indet.)(Fejfar & Heinrich, 1985).

The locality Hajnáčka I (MN 16a, Lower Villafranchian, Romanian, Late Pliocene, Estimated age: 2.8 - 3.5 Ma.) is situated near Hajnáčka village in the Rimavská Sobota district in the southern Slovakia (Fig. 1) and was discovered in 1863. The fossiliferous sequence, which has been deposited in a small lake, consists mainly of the fine grained, tuffaceous and poorly indurated sediments (silty sands, tuffites and pyroclastic inclusions). The excavated fauna includes remains of the clams, fishes, reptiles, birds and mammals. The rare findings of the carnivores are represented by fossil remains of the individuals of the families Mustelidae (Lutra sp.), Procyonidae (Parailurus hungaricus Kormos, 1934), Felidae (Megantereon sp.), Hyaenidae (Ploicrocuta perrieri (Crozet et Jobert, 1828)) (Fejfar et al., 1990) and Ursidae (Ursidae gen. et spec. indet. (cf. Ursus minimus)).

The Neogene carnivores found in the Western Carpathians (Slovakia) cover a time span from the Middle Miocene to the Pliocene. The Middle Miocene carnivores were discovered mostly at the NE margin of the Vienna basin and are Middle to Late Badenian in age (MN 6 - MN 7/8, Astaracian). The age of the findings at the E margin of the Transcarpathian (East Slovakian) basin is the Sarmatian (MN 7/8, Astaracian). The fauna from the Borsky Svätý Jur at the margin of the Vienna basin is
Tab. 1. List of the Neogene Carnivores of Slovakia

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SLP - Štokarav limestone pit (MN 6), S - Sandberg (MN 7/8), B - Bonanza (MN 7/8), WQ - Walt quarry (MN 7/8), KB - Košice-Bankov (MN 7/8), BJ - Borsky Svatý Jur (MN 11), IT - Ivanovce near Trenčín (MN 15), H - Hajnáčka (MN 16a).

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References


