

Carnivores from the Middle Miocene deposits of Grund (Lower Austria)

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(With 2 textfigures and 1 plate)

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Abstract

The carnivore remains from the Middle Miocene of Grund (MN5, Lower Austria) are described. An upper carnassial can be assigned to *Semigenetta sansaniensis*, which is the first record of this species in Austria. The scarce postcranial remains can only be identified as Carnivora indet. The caput femuri is probably close to the mustelids while the phalange remain could fit into the morphology of the amphicyonids.

Zusammenfassung

Die Raubtierreste aus der mittel-miozänen Fundstelle Grund (MN5, Niederösterreich) werden beschrieben. Ein oberer vierter Prämolare kann der *Semigenetta sansaniensis* zugeordnet werden und ist damit der erste Nachweis dieser Art in Österreich. Die wenigen postcranialen Reste können nur als Carnivora indet. bestimmt werden. Das caput femori ist mustelidenartig, dagegen könnte die Phalange am ehesten der Amphicyoniden-Morphologie entsprechen.

Key words: Carnivora, Viverridae, *Semigenetta*, Grund, MN5, Middle Miocene, Austria.

1. Introduction

The material was recovered during an excavation of the Institute of Palaeontology Vienna in 1998. ROETZEL et al. (1999) published a description of the excavation and the stratigraphy of the situation in Grund. A detailed interpretation is currently in progress (PERVESLER & ROETZEL, in prep.). After these authors, the evaluation of the profiles (B1, B2) indicate a fast change between erosion and sedimentation. Sedimentation took place in channels. At the base of profil B1 a small vertebrate fauna was found together with pulmonate snails, marine mollusc shell and pelites. Vertebrates suffered of abrasion probably because of high energy transportation. Gudrun Daxner-Höck gave the provisional faunal list in ROETZEL et al. (1999) and also made the age determination into MN5 on the presence of *Cricetodon* (DAXNER-HÖCK, this volume).

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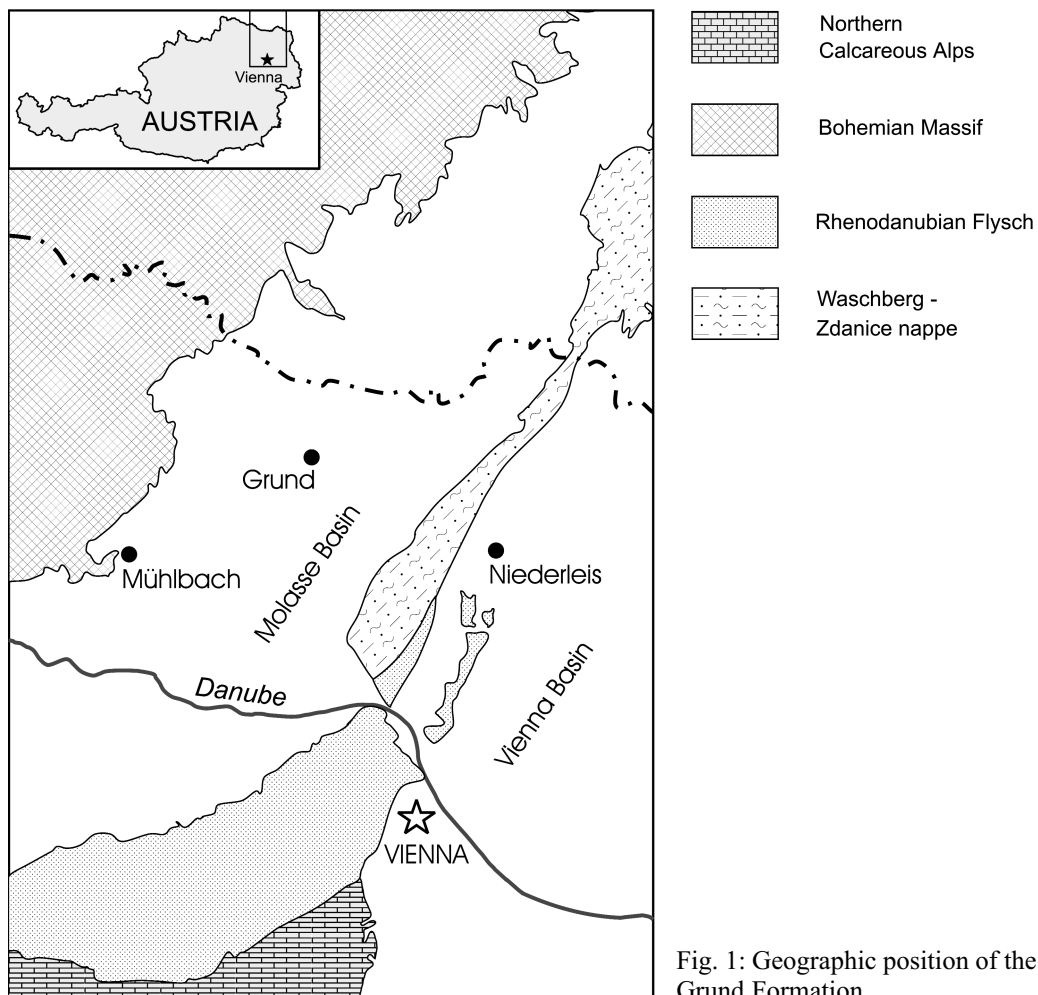


Fig. 1: Geographic position of the Grund Formation

2. Systematic palaeontology

Viverridae GRAY, 1821

Semigenetta HELBING, 1927

Type species: *Semigenetta repelini* HELBING, 1927

Included species: *S. laugnacensis* DE BONIS, 1973

S. elegans DEHM, 1950

S. sansaniensis (LARTET, 1851)

S. grandis CRUSAFONT & GOLPE, 1981

S. ripolli PETTER, 1976

Viverridae are characterized by an elongated auditory bulla, transversal depression at the ectotympanic-entotympanic boundary and the presence of a weak parastyl on P⁴ (WOZENCRAFT 1989, GINSBURG 1999). *Semigenetta* shows a reduced talonide which is smaller than the trigonide. Furthermore, the talonide carries not three cusps as in other Viverridae but one and one cutting crest. M₂ is reduced (see HEIZMANN 1973). The few postcranial remains from *Semigenetta* HELBING 1927 do not differ much from the recent *Genetta*, whereas the latter has still 2 upper molars but *Semigenetta* only one (ROTH 1989).

Three larger species are assumed by HEIZMANN (1973), which probably belong to one lineage: *S. laugnacensis*, *S. elegans*, *S. sansaniensis* whereas DE BONIS (1994) argued for a fourth species – *S. steinheimensis*. In contrast to the summary by GINSBURG (1999) both authors agreed that *S. repelini* (HELBING, 1927) from Captieux belongs to *S. sansaniensis*. I follow HEIZMANN (1973) because the few specimens from Steinheim and Vieux-Collognes show only a rather large size variation, which can easier be explained for the time being by sexual dimorphism than by two different species in one locality.

The even larger *S. grandis* from Castell de Barberà (CRUSAFONT & GOLPE 1981; GOLPE 1981) originates probably from a different lineage. It appears at MN9, parallel to the smaller *S. sansaniensis* from Rudabanya and the even smaller *S. ripolli*. Two smaller forms of *Semigenetta* were described as *S. cadeoti* (ROMAN & VIRET 1934) from La Romieu and *S. ripolli* (PETTER, 1976) from Can Llobateres. *S. cadeoti* may belong to *Herpestes* as was suggested by ROTH (1989) and followed by WERDELIN (1996), but he prefers to keep this genus distinct from the recent one and refers to it as *Leptoplesictis*. Though both species are rarely known till now they surely belong to another lineage than the hitherto mentioned species. This is verified by the following characters: *S. cadeoti* is very small and the M₁ has a well developed metaconide as well as a longer talonid than e.g. *S. elegans*, which is the smallest form in the *S. elegans-sansaniensis* line (DEHM 1950). Although *S. ripolli* (PETTER 1976, Can Llobateres, MN9) is as small as *S. elegans* (MN4), it is chronologically distinct.

Semigenetta sansaniensis (LARTET, 1851)

H o l o t y p e : *S. sansaniensis* LARTET, 1851

M a t e r i a l : GRU-B1-1: left maxillar fragment with broken distal root of P³, P⁴ (10,3 x 5,5 mm) and alveolus of M¹ (NHMW 2002z0155/0001). P⁴ consists of a slender metacone blade, the paracone is about the same length as the metacone blade. The protocone is well developed, antero-lingually detached from the paracone, and at the same proximal distance as the parastyle. The tiny parastyle is connected to the paracone by a small crest. A cingulum is developed at the lingual base of the metastyle. The alveoli of M¹ are preserved and indicate a triple rooted M².

D i s c u s s i o n : *Semigenetta* is quite conservative in its morphology but varies considerably in size through time. HEIZMANN (1973) and DE BONIS (1994) used this variability to distinguish the different species. In Fig. 1 this is done for the upper P⁴ from Grund. Without taking any morphological differences into account, size alone places this tooth into *S. sansaniensis* (fig. 2). *S. laugnacensis* is the smallest representative and reported from MN2b. *S. elegans* is slightly larger than *S. laugnacensis* and only known from MN3 and MN4 (ROTH 1989, GINSBURG 1989, DEHM 1959). Morphological similarities are the very small parastyle and the cingulum developed at the lingual base of the metastyle.

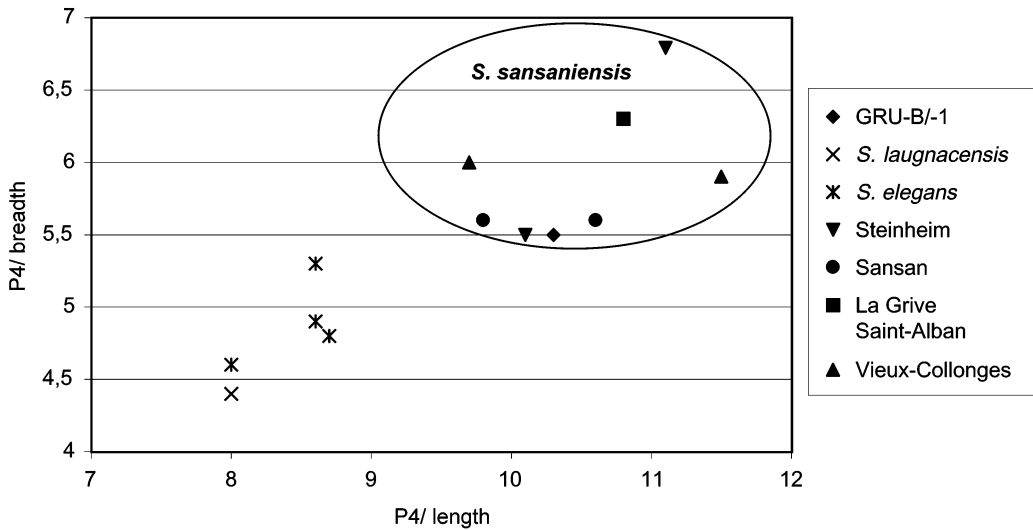


Fig. 2: P⁴ scatter diagramm of *Semigenetta*, length versus breadth

Comparison with Austrian specimens: '*Viverra*' *miocenica* was described by PETERS (1869) from Eibiswald/Styria (MN5). PETERS (1869) described the mandible fragment with P₃ and P₄: "similar to *Vzibethoides* and *V. sansaniensis* but because of the P₄ where the posterior accessory cusp is suppressed and the anterior one is projected forward it cannot be assigned as *V. sansaniensis*." A definite determination is not possible so far because no M₁ or P⁴ were found and for the time being it should be referred as Viverridae indet.

From Leoben (MN5) ZDARSKY (1909) reported *Viverra sansaniensis* but he already argued for another possibility: *V. leptoryncha* FILHOL, 1883. HEIZMANN (1973) agreed that this specimen has nothing to do with *S. sansaniensis*. The mandibular fragment with P₄ fits into the size distribution of *Semigenetta* but the posterior accessory cusp is placed very low and not close to the main cusp as known from viverrids. THENIUS (1948) assigned *V. leptoryncha* from Göriach to *Alopecodon*. A similar assignment of the Leoben specimen is probable.

Semigenetta indet. from Götzendorf (MN9, RÖGL et al. 1993) represents the latest occurrence of this genus in Austria. Unfortunately, the remains are too scarce to give a more detailed interpretation.

S. sansaniensis is known from Spain (Hostalets da Pierola, VILLALTA & CRUSAFONT 1943), France (Sansan, LARTET 1851; Vieux-Collogne, MEIN 1958; La Grive Saint-Alban, VIRET 1951; Captieux, HELBING 1927), Switzerland (Rümikon, HELBING 1927; Anwil, ENGESSER 1972), Germany (Steinheim, HEIZMANN 1973, Großlappen, STROMER 1940), Serbia (Sibnica, Mala Miliva; PETRONIJEVIC 1967), Hungary (Rudabánya), Ukraine (Grytsiv, Morlo pers. comm.), and now for the first time from Austria. Most of the localities are from MN5 but it is reported till MN9 (Rudabánya).

Caniformia gen. et spec. indet.

Material: GRU B1-1/ right fourth phalanx (26,7:7,4 mm), probably from a middle-sized amphicyonid; fragment of a cervical vertebra. – Inv.No. NHMW 2002z0156/0001.

Mustelidae gen. et spec. indet.

Material: GRU B1-1/ right caput femoris (10,2:10 mm), broken right under the joint facet. Form and size is mustelin-like. – Inv.No. NHMW 2002z0157/0001

Carnivora indet.

Material: vertebra fragment. – Inv.No. NHMW 2002z0158/0001.

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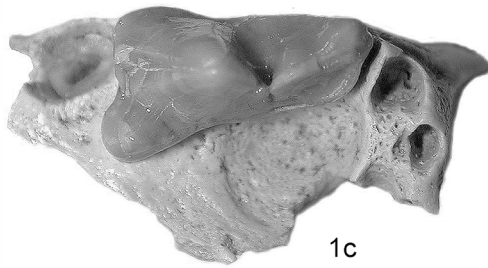
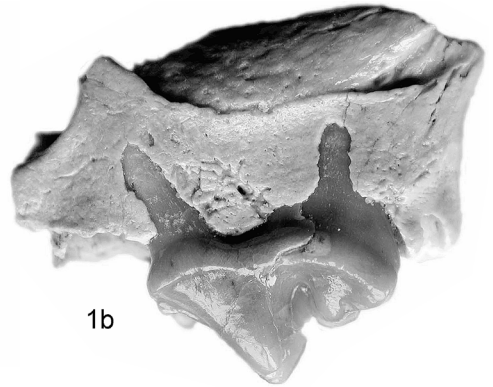
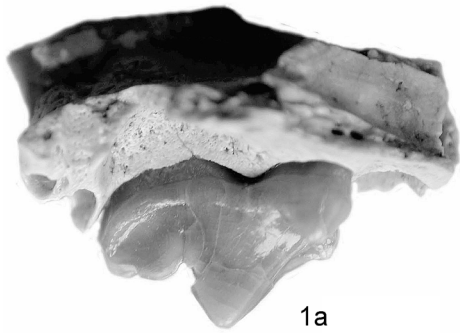
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Plate 1

- Fig. 1: *Semigenetta sansaniensis* (LARTET, 1851) (NHMW 2002z0155/0001), P⁴
a-lingual, b-buccal, c-occlusal
- Fig. 2: *Caniformia* gen. et spec. indet. (NHMW 2002z0156/0001), Phalange
- Fig. 3: *Mustelidae* indet. (NHMW 2002z0157/0001), caput femori.



1 cm

