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Tertiary Gliridae (Dormice) of Austria

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(With 2 plates)

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Abstract

The known fossil glirids of Austria are almost restricted to the Eichkogel bei Mödling locality in the Vienna Basin and Kohfidisch in the Burgenland. Comparison of these two glirid assemblages suggests a near but not complete identify at the generic and specific levels. *Glis* is absent at Eichkogel, and the counterpart of the Eichkogel species *Vasseuromys thenii*, may have a somewhat less complex molar pattern in specimens from Kohfidisch. Other elements are very probably identical.

Zusammenfassung

Die bekannten fossilen Gliriden von Österreich sind fast ausschließlich auf den Eichkogel bei Mödling im Wiener Becken und Kohfidisch im Burgenland beschränkt. Ein Vergleich dieser zwei Gliriden-Vergesellschaftungen macht eine nahe, aber nicht vollkommene Identität bezüglich Gattung und Art wahrscheinlich. *Glis* fehlt am Eichkogel und das Gegenstück der Eichkogel-Art *Vasseuromys thenii* kann bei Exemplaren aus Kohfidisch ein etwas weniger komplexes Molarenmuster haben. Andere Elemente sind höchstwahrscheinlich identisch.

The fossil dormice of the Austrian Tertiary are, as far as we can determine, known almost entirely from two localities, Eichkogel bei Mödling of the Vienna Basin, and Kohfidisch of the Burgenland. Otherwise there is a record only of *Eomuscardinus sansaniensis* from Göriach in Styria. A diversified glirid fauna is known from the Neudorf fissures on the March River, but this fauna is actually in Czechoslovakia. Work completed by DAXNER-HÖCK & de BRUIJN (1981) on the Eichkogel glirids has indicated the need for a further comparison of these species with those known from Kohfidisch. The relationship is very close, and distinctions are largely those of nomenclature rather than reality, as the following discussion will show. Since a listing of the Kohfidisch fauna in 1980, one new glirid has been identified in the Kohfidisch collections, *Glis* cf. *G. minor*, based on a single tooth. *Glis* is the "common" dormouse of western Europe today.

Published faunal lists from Eichkogel and Kohfidisch are as follows.

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Eichkogel bei Mödling (as of 1981)

*Muscardinus pliocaenicus**Vasseuromys thenii**Myomimus dehmi**Glirulus lissiensis*

Glirid, gen. and sp. indet.

Kohfidisch (as of 1980)

*Muscardinus austriacus*Cf. *Myomimus multicristatus*Cf. *Myomimus dehmi**Paraglrulus* cf. *P. lissiensis**Graphiuroops austriacus*

Family Gliridae

***Muscardinus austriacus* BACHMAYER & WILSON, 1970**

Muscardinus austriacus was originally named by us as a subspecies of *M. pliocaenicus*. Later (1980) the subspecies was raised to a full species, as more material became available. Other authors (DAXNER-HÖCK & de BRUIJN 1981; SULIMSKI & al. 1979), however, have not recognized the name even at a subspecies level. We think, on the other hand, based on distinctions given by us in 1980, that *M. austriacus* is a valid taxonomic unit. The molar root system in *Muscardinus* from Eichkogel is probably nearly the same as at Kohfidisch, in-so-far as the description by DAXNER-HÖCK & de BRUIJN permits comparison. The pattern of M₁ seems also in agreement, and differs from those shown by KOWALSKI in development of six cross-crests rather than the usual five (in three of four specimens figured ²).

Measurements of specimens from Kohfidisch and Eichkogel also agree as much as measurement agreement can be expected with different workers. The following measurements of *M. austriacus* are corrected measurements as explained in BACHMAYER & WILSON 1980, p. 356.

| <i>M. austriacus</i> | | | Eichkogel- <i>Muscardinus</i> (after DAXNER-HÖCK & de BRUIJN) | |
|-----------------------------|-----------|-----------|--|-----------|
| | L | W | L | W |
| M ₁ | 1.47—1.71 | 1.02—1.29 | 1.39—1.60 | 1.07—1.35 |
| M ₂ | 1.29—1.40 | 1.26—1.38 | 1.19—1.40 | 1.17—1.45 |
| M ₃ | 0.96—1.16 | 1.09—1.32 | 0.96—1.15 | 1.25—1.33 |
| P ₄ | 0.41—0.55 | 0.56—0.64 | 0.54 | 0.60 |
| M ₁ ¹ | 1.22—1.61 | 1.00—1.11 | 1.30—1.50 | 1.02—1.26 |
| M ₂ ¹ | 1.21 | 1.12—1.16 | 1.23—1.37 | 1.11—1.37 |
| M ₃ ¹ | 1.03 | 1.04 | 1.00—1.17 | 1.04—1.16 |

Whatever nomenclature is employed, the Kohfidisch and Eichkogel material seemingly represents the same species.

²) We should correct a slip of the pen in the BACHMAYER & WILSON 1980, p. 363, description of M₁ in which it is stated, "the metaloph and posteroloph are somewhat more strongly united internally, and a posterior centroloph lies between them which is short in four specimens and long in three". This should read, of course, "a posterior centroloph lies in front of them".

Cf. *Vasseuromys thenii* DAXNER-HÖCK & de BRUIJN, 1981

Pl. 1, Fig. 2, 3 and Pl. 2, Fig. 4, 5

The glirid specimens represented under the name Cf. *M. multicristatus* (de BRUIJN) present a real problem. Some specimens can be duplicated by Eichkogel material assigned by DAXNER-HÖCK & de BRUIJN to *Vasseuromys thenii*. Others seem to fit better the species *M. multicristatus*. On the whole, the Kohfidisch specimens seem to be less complex in crown pattern on the average than those from Eichkogel, and more complex than in *M. multicristatus*. Unlike the type of *Vasseuromys*, *V. rugosus*, the centrolophid of the molars does not extend to the outer wall of the teeth, and the lower molars have three roots instead of two. In both these characters the Eichkogel and Kohfidisch specimens agree. *M. multicristatus* also, however, has three roots, and the centrolophid falls short of the outer wall of the tooth in one of the three specimens of *M. multicristatus* figured by de BRUIJN in the type description. DAXNER-HÖCK & de BRUIJN give statistics on variation in secondary crests of the lower molars (1981, p. 161). The less complex creasing in lower molars from Kohfidisch can be seen by direct comparison.

| | Eichkogel | Kohfidisch |
|--|-----------------------------|-------------|
| (a) crest between metalophid and centrolophid | 75% | 17% |
| (b) crest between centrolophid and mesolophid | 50% | at best 17% |
| (c) 2 or 3 crests between mesolophid and posterolophid (except only one in M $\bar{3}$) | 50% with 2; 50% with 3 | 55% |
| (d) crest between anterolophid and metalophid | nearly 100% (one exception) | 100% |

M. multicristatus

(a) 2 yes; 1 no (b) 1 yes; 2 no (c) 1 yes; 2 no (d) 2 yes; 1 no

Thus it would seem that Kohfidisch and Eichkogel agree well in (c) and (d), and Kohfidisch is less complex in (a) and (b). Measurements are in fair agreement, but so they are with *M. multicristatus* for the few of the latter that were given by de BRUIJN in the type description (1966).

In view of the fact that the glirid faunas of Kohfidisch and Eichkogel are much alike in general, and that these localities are closer in age and geographic locality to each other than to the Spanish Vallesian species, we are making a reassignment of the Kohfidisch species to Cf. *Vasseuromys thenii*. We have considered and decided against establishing another new species for it.

Measurements

| Kohfidisch | | | | Eichkogel (from DAXNER-HÖCK & de BRUIJN 1981) | | | |
|-------------|-----------|-----------|---|---|-----------|----|--|
| | L | W | N | L | W | N | |
| P $\bar{4}$ | 0.61—0.85 | 0.73—1.04 | 6 | 0.66—0.83 | 0.85—1.00 | 8 | |
| M $\bar{1}$ | 1.02—1.30 | 1.29—1.46 | 4 | 0.98—1.35 | 1.23—1.42 | 17 | |
| M $\bar{2}$ | 1.22—1.30 | 1.23—1.36 | 2 | M $\bar{1}$ —M $\bar{2}$ not separated | | | |
| P $\bar{4}$ | 0.76—0.78 | 0.82—0.85 | 2 | 0.75—0.84 | 0.68—0.81 | 4 | |
| M $\bar{1}$ | 1.12—1.28 | 0.98—1.18 | 4 | 1.10—1.29 | 1.02—1.25 | 7 | |
| M $\bar{2}$ | 1.14—1.33 | 1.11—1.29 | 6 | 1.20—1.29 | 1.15—1.26 | 6 | |
| M $\bar{3}$ | 0.96—1.13 | 0.93—1.06 | 4 | 1.08—1.11 | 1.01—1.02 | 3 | |

Mymomimus dehmi (de BRUIJN, 1966)

The Kohfidisch and Eichkogel species seem to be the same, and we are accepting DAXNER-HÖCK & de BRUIJN's name for it.

Paraglrirulus cf. *P. lissiensis* (HUGUENEY & MEIN, 1965)

DAXNER-HÖCK & de BRUIJN remove all but the type species from ENGESSER's genus *Paraglrirulus*, and place them in *Glirulus*. The chief distinction according to these authors between *Paraglrirulus* and *Glirulus* is the number of roots of the lower molars in which *Paraglrirulus* has two, and the latter three roots. Because of the small number of specimens and frequency in these in which the roots are broken away, they return *P. lissiensis* to *Glirulus*. Of any possible specific distinction in *lissiensis* from France and Austria they find as valuable only the free-ending anterior centroloph of the Eichkogel specimens. In ours, the centroloph usually unites with the protoloph externally, whereas in Eichkogel specimens the anterior centroloph ends generally as an independent cuspule. Mostly also, the internal end of the crest unites with the endoloph in Kohfidisch material. So far as can be determined, the root count at Kohfidisch is three for upper molars and two for lowers, as in Eichkogel specimens, although there are only three lower molars in which this can be determined. Nevertheless, these additional teeth add support to a consistent difference between *Paraglrirulus* and *Glirulus*. Size seems comparable at the two Austrian localities.

Graphiurops austriacus BACHMAYER & WILSON, 1980

DAXNER-HÖCK & de BRUIJN record as Glirid, gen. and sp. indet., a P $\bar{4}$ and two upper molars. They say of these teeth that they come in their opinion closest to the African Graphiurinae. Before learning of their material, we had come to the opinion that certain specimens from Kohfidisch, first reported (1978, p. 151) as Gliridae, indeterminant, and with tooth pattern, "remote from those of any glirid known to date", were actually most closely related to glirids now found south of the Sahara. Unfortunately for comparison with

Eichkogel, our material is all of lower molars. Almost certainly, however, they represent the same genus, and probably species, although our specimens may be slightly larger. In 1980, p. 367, we proposed the name *Graphiurops austriacus* for this Kohfidisch glirid.

***Glis* cf. *G. minor* KOWALSKI, 1963**

Pl. 1, Fig. 1

An isolated lower molar ($M_2^?$) from Kohfidisch collections made in 1976, seems to represent "the common dormouse of Europe", *Glis*, and is an addition to the fauna. The tooth is of a young individual, and no roots are preserved. It is about the size of *Glis minor* KOWALSKI, 1963 from Poland. The crown is relatively flat with four main crests and three shorter ones. Length of crown: 1.53, width: 1.59.

In summary, the Kohfidisch and Eichkogel glirids compare as follows.

| Kohfidisch (revised) | | Eichkogel (DAXNER-HÖCK & de BRUIJN 1981) |
|---|-----------------|--|
| <i>Muscardinus austriacus</i> | probably equals | <i>M. pliocaenicus</i> of DAXNER-HÖCK & de BRUIJN |
| <i>Myomimus dehmi</i> | equals | <i>M. dehmi</i> |
| <i>Paraglrulus</i> cf. <i>P. lissiensis</i> | equals | <i>Glirulus lissiensis</i> of DAXNER-HÖCK & de BRUIJN |
| <i>Graphiurops austriacus</i> | probably equals | Glirid, gen. and sp. indet. |
| Cf. <i>Vasseuromys thenii</i> | possibly equals | <i>Vasseuromys thenii</i> |
| <i>Glis</i> cf. <i>G. minor</i> | | |

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Explanation of Figures

Plate 1

Fig. 1. *Glis* cf. *G. minor* KOWALSKI, 1963. $M_2^?$, Occlusal view, $20\times$. — Kohfidisch. — NHM Wien, Nr. 1982/119.

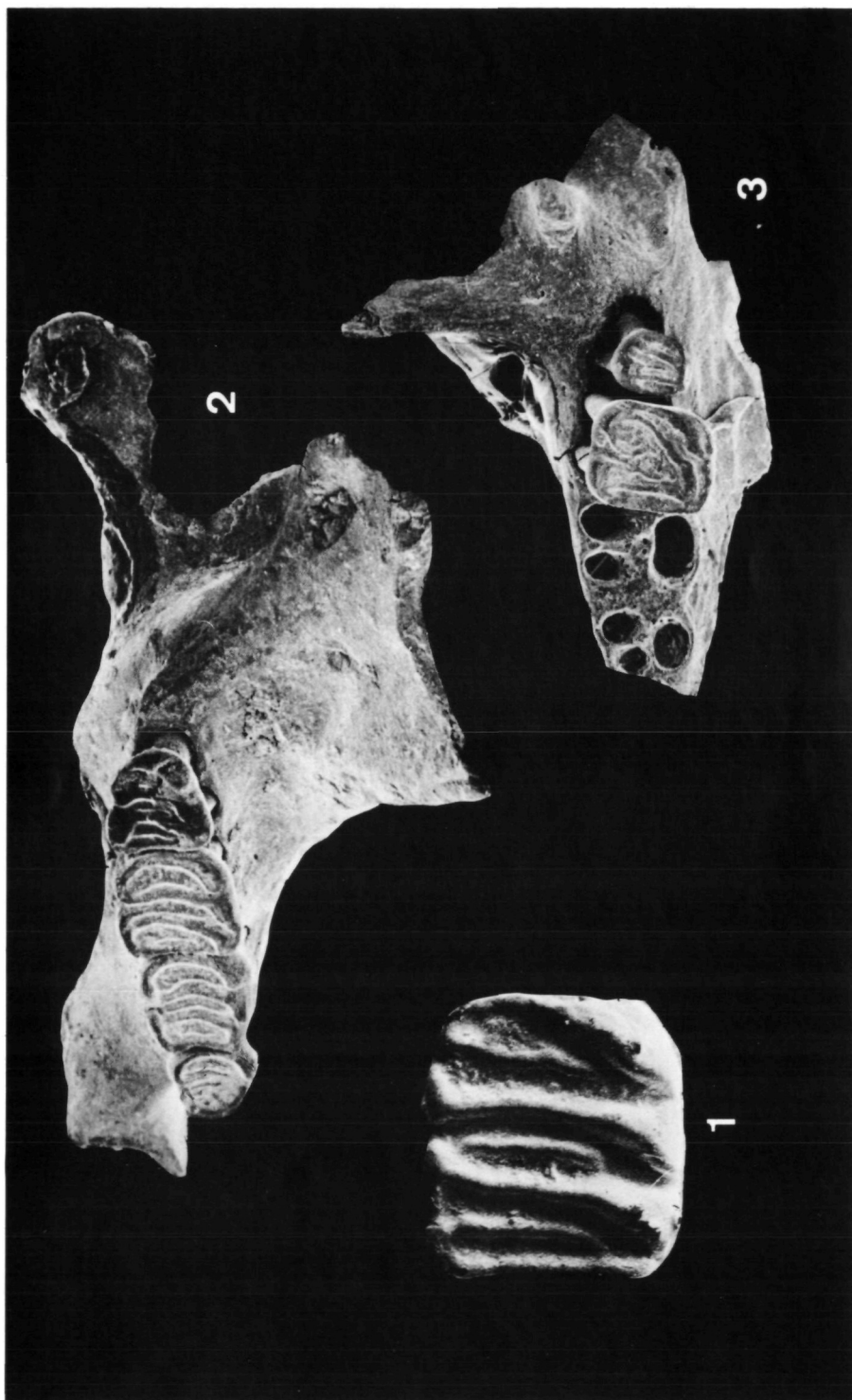
Fig. 2. Cf. *Vasseuromys thenii* DAXNER-HÖCK & de BRUIJN, 1981. Left lower jaw with P_4-M_3 , Occlusal view, $13\times$. — Kohfidisch. — NHM Wien, Nr. 1982/120/1.

Fig. 3. Cf. *Vasseuromys thenii* DAXNER-HÖCK & de BRUIJN, 1981. Right P_4-M_1 , Occlusal view, $12\times$. — Kohfidisch. — NHM Wien, Nr. 1982/120/2.

Plate 2

Fig. 4. Cf. *Vasseuromys thenii* DAXNER-HÖCK & de BRUIJN, 1981. Right lower jaw with M_2-M_3 , Occlusal view, $25\times$. — Kohfidisch. — NHM Wien, Nr. 1982/120/3.

Fig. 5. Cf. *Vasseuromys thenii* DAXNER-HÖCK & de BRUIJN, 1981. Left lower jaw with M_1-M_2 , Occlusal view, $10\times$. — Kohfidisch. — NHM Wien, Nr. 1982/120/4.





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