Stertomys laticrestatus, a new glirid (dormice, Rodentia) from the insular fauna of Gargano (Prov. of Foggia, Italy)

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This is one of the papers in a series of monographs on the insular mammal faunas of the Gargano Peninsula in South Italy. It deals with the description of a new genus and species of a giant dormouse, *Stertomys laticrestatus*.

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Introduction

The Gargano fissure fillings were discovered by the second author in 1969. An introductory publication appeared in 1971. *Deinogalerix koenigswaldi*, a giant insectivore, was published by Freudenthal (1972, 1973), and an important publication on the genus *Deinogalerix* by Butler appeared in 1980. Ballmann published two papers on the bird remains (1973, 1976). Freudenthal (1976) studied the biostratigraphy of the Gargano fissures on the basis of the evolutionary stages of Muridae and Cricetidae. Willemsen (1983) described a giant otter, *Paralutra garganensis*, and Leinders (1984) studied one of the most remarkable taxa of the Gargano fauna, the new family of artiodactyls: Hoplitomerycidae.

Though these publications do give already some idea of the fauna of the archipelago that Gargano was a part of in late Miocene times, much work remains to be done, and in fact only a small part of the large collections has been published so far.

A third publication on the birds will be necessary; of the artiodactyls only the skull has been described so far, a lot of postcranial material is waiting for study. Among the Muridae only a few species of the genus *Microtia* have been described. A publication on the evolution of this remarkable genus is being prepared, and another genus of Muridae, identical or similar to *Apodemus,* has hardly been looked at at all. Other groups not yet studied are Amphibia, Reptilia, Chiroptera, Talpidae, Soricidae, Galericinae (other than *Deinogalerix*), Gliridae, Cricetidae, and Lagomorpha, but research on the Muridae, Cricetidae and Lagomorpha is being carried out.

The present paper deals with a gigantic glirid, possibly the largest representative of this taxon ever found. The reason for giving priority to the study of this dormouse was, that there still is doubt about the age of the Gargano fissure faunas, and more specifically about the moment at which the Gargano archipelago was populated by immigration from the mainland (Balkan), and the evolution towards gigantism began to take place. We hoped that the study of this gigantic glirid would cast some light on its taxonomic place and relationships, and more specifically would reveal which one of the many glirids from the European Miocene might be considered to be the ancestor of the Gargano species. This might have given a clue to the dating of the Gargano immigration, but unfortunately it has not been possible to solve this problem. Nevertheless it seemed worth while to publish our preliminary results.

Measurements are in tenths of millimeters, and were taken on a Leitz Ortholux microscope with mechanical stage and measuring equipment, as described by Freudenthal, 1966. The material is kept in the Rijksmuseum van Geologie en Mineralogie, Leiden, The Netherlands, under registration numbers RGM 258 157-258 180.

The field campaigns during which the material was collected were financed by the Nederlandse Organisatie voor zuiver-wetenschappelijk Onderzoek (Z.W.O.), the Consiglio Nazionale delle Ricerche (C.N.R.), and the Rijksmuseum van Geologie en Mineralogie, Leiden.

Systematic description

Family Gliridae Thomas, 1897
Subfamily Glirinae Thomas, 1897

Genus *Stertomys* gen. nov.

Type species — *Stertomys laticrestatus* gen. et sp. nov.

Derivatio nominis — From the Latin *stertere* = to snore, to sleep profoundly, and *mys* = mouse. Exaggeration of dormouse, in view of its extraordinary size.

Diagnosis — Very large-sized Gliridae with a complicated dental pattern, low ridges and a slightly concave occlusal surface. The upper cheek teeth have flat, low and very wide ridges, and the anteroloph, protoloph and metaloph end freely at the lingual border.

Differential diagnosis — *Stertomys* differs from all other extant and fossil dormice genera by its larger size, with the exception of the M_3 of Gliride n. gen. et n. sp. from Baccinello V1 (Engesser, 1983). It differs from *Eliomys (Tyrrhenoglis)* Engesser, 1976, *Eliomys (Maltamys)* Zammit Maempel & de Bruijn, 1982, *Leithia* Lydekker, 1895, *Hypnomys* Bate, 1918, and *Anthracoglis* Engesser, 1983 by the absence of an endoloph and by the presence of very wide, flat and low ridges of the upper cheek teeth.

Stertomys laticrestatus sp. nov.
Pl. 1, figs. 1, 2.

Derivatio nominis — *Laticrestatus*, after the Latin *latus* = wide, and *cresta* = ridge.
Holotype — Skull with two complete series of cheek teeth (Pl. 1, figs. 1, 2), RGM 258 157.
Type locality — San Giovannino, Gargano, Prov. Foggia.
Age — Late Miocene?
Diagnosis — For diagnosis and differential diagnosis, see genus.

Material and measurements

	length				width		
	min	mean	max	n	min	mean	max
P^4	29.9	31.0	32.4	8	30.0	31.7	33.5
M^1	38.5	39.1	39.9	10	38.9	41.5	43.4
M^2	38.8	39.7	41.8	11	39.2	42.3	43.6
M^3	30.3	32.4	33.5	7	33.2	37.1	39.3
P_4	28.6	30.7	32.7	2	27.5	28.8	30.0
M_1	38.2	41.1	43.3	6/5	32.0	34.7	37.1
M_2	37.8	41.7	42.6	10/9	34.7	38.8	41.9
M_3	33.2	35.2	37.1	5/4	29.6	32.2	34.2

Length right upper cheek teeth row of holotype (RGM 258 157): 146.0.
Length left upper cheek teeth row of holotype (RGM 258 157): 145.0.
Length left upper cheek teeth row of RGM 258 168: 143.0.

Description of the dental pattern

The occlusal surface is slightly concave. The main ridges are wide and low, and the valleys are narrow. Extra ridges tend to be situated near the labial borders in the upper molars, and near the lingual borders in the lower molars.

P^4 — The anteroloph, protoloph and metaloph end freely at the lingual border. The anteroloph is connected to the paracone on the lingual side. The anterior centroloph is connected to the paracone and it is shorter and narrower than the posterior centroloph. The posterior centroloph is connected to the metacone in four out of the eight specimens, and in the other four specimens it is an isolated ridge. The posteroloph is relatively short, and it is separated from the lingual end of the metaloph. On the labial side it is connected to the metacone in five specimens and it is separated by a shallow and narrow furrow in three specimens. The extra ridges are situated near the labial border of the tooth. The extra ridge between the anteroloph and the protoloph is partly melted together with the anteroloph. Four specimens have a small extra ridge between the protoloph and the anterior centroloph, and one specimen has a small extra ridge between the posterior centroloph and the metaloph. An extra ridge is present between the metaloph and the posteroloph. The lingual end of this accessory ridge ends freely, but labially it is connected to the posteroloph.

M^1 — The anteroloph and protoloph end freely at the lingual border. The anteroloph is labially separated from the paracone. The anterior centroloph is longer than the posterior one, and it is not connected to the paracone. The posterior centroloph is isolated from the metacone. The posteroloph is labially connected to the metacone in five out of the ten specimens. Lingually it meets the metaloph. In four specimens an extra ridge is present between the anteroloph and protoloph. Both lingual and labial ends of this accessory ridge are connected to the anteroloph. An extra ridge is present between the protoloph and anterior centroloph. There is also an accessory ridge between the metaloph and the posteroloph. Five specimens have a small extra ridge between posterior centroloph and metaloph.

M^2 — The dental pattern of the M^2 is more complicated than that of the M^1. The anteroloph and protoloph end freely at the lingual border. The anterior and posterior centroloph are separated from the paracone and metacone, respectively. The anterior centroloph is longer than the posterior centroloph. The lingual end of the posterior extra ridge is connected to the posteroloph. The posteroloph is lingually separated from the metaloph in six specimens, and labially the posteroloph is separated from the metacone. Five extra ridges are present; a very long one between the anteroloph and the protoloph, one between the protoloph and the anterior centroloph, one between the two centrolophs, one between the posterior centroloph and the metaloph, and one between the metaloph and the posteroloph. Two specimens have three extra ridges between the protoloph and the anterior centroloph.

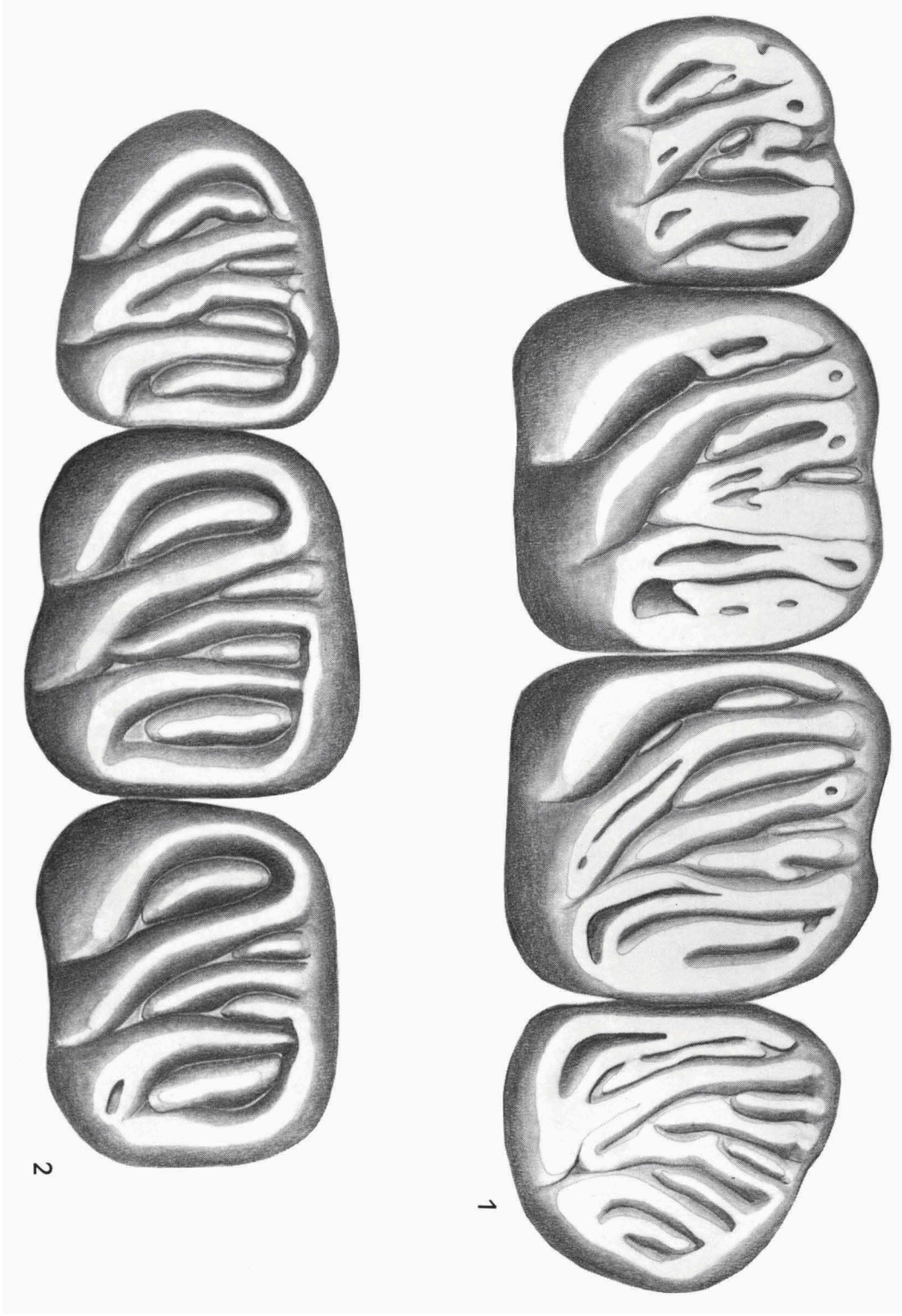
M^3 — The anteroloph is connected to the protoloph at the lingual border, but a narrow furrow is present between the lingual ends of protoloph and metaloph. The anteroloph is labially separated from the paracone. The anterior centroloph is isolated from the paracone. The posterior centroloph is connected to the labial border of the tooth. In one specimen the anterior centroloph is longer than the posterior one, and in three other specimens it is the reverse. Three specimens have fused centrolophs. Five extra ridges are present, which are situated at the same places as in the M^2. The anterior extra ridge is very long. The labial end of the second extra ridge ends freely, but the lingual end is connected to the anterior centroloph. The fourth extra ridge is labially connected to the metacone. The labial end of the posterior extra ridge bends backwards to meet the posteroloph.

P_4 — The anterolophid is labially isolated from the protoconid. The metalophid widens labially and it is connected to the labial end of the long centrolophid. The centrolophid is separated from the metaconid by a wide and deep furrow. The mesalophid is lingually separated from the posterolophid. Four extra ridges are present. The first one is present between the anterolophid and the metalophid, and both ends are connected to the anterolophid. The second and third ones are thin and isolated ridges on both sides of the centrolophid. The fourth extra ridge is long and wide and it is situated between the mesolophid and the posterolophid.

Plate 1

Stertomys laticrestatus gen. et sp. nov. (aprox. ×1.3).
Fig. 1. P^4-M^3 sin. of holotype RGM 258 157.
Fig. 2. M_1-M_3 dext., RGM 258 158.

Plate 1



M_1 — The anterolophid is separated from the protoconid in one specimen, and in the other specimen a narrow connection is present. The metalophid is separated from the lingual border by a narrow and shallow furrow. The centrolophid is long, but it does not reach the labial border. Lingually it ends freely, and labially it is connected to the mesoconid. The mesolophid and posterolophid connect at the entoconid, thus forming a continuous U-shaped ridge. Four extra ridges are present; the first and last ones are wide and relatively long, the ones on both sides of the centrolophid are narrow and short and are situated near the lingual border.

M_2 — The anterolophid and metalophid meet at the labial border in three out of nine specimens. In the other six specimens they are separated by a deep furrow. The metalophid is connected to the metaconid. The long centrolophid is lingually isolated in four out of eight specimens and labially it is connected to the mesoconid in two specimens only. It does not reach the labial border of the tooth. The meso- and posterolophid are connected at the entoconid, thus forming a U-shaped ridge. In the anterior valley the extra ridge is wide and relatively long. In four specimens a second narrow extra ridge is present in the lingual part of the anterior valley. On both sides of the lingual part of the centrolophid a narrow extra ridge is present. The posterior extra ridge is wide and relatively long. Two anterior roots and one wide posterior root are present.

M_3 — The anterolophid and metalophid are separated labially in three specimens and in one specimen these ridges are connected. The metalophid is lingually connected to the metaconid. The long centrolophid is connected to the mesoconid in two out of the four specimens and lingually it is connected to the metaconid in three specimens. The mesolophid is separated from the posterolophid at the entoconid. Four extra ridges are present, which are the same ones as in the M_1.

Discussion

Gliride n. gen. et n. sp. from Baccinello V1 (Engesser, 1983) is the only dormouse exceeding the size of *Stertomys laticrestatus*. However, it is only represented by a M_3. This specimen has the flat, wide and low ridges, that are typical for the upper cheek teeth of *Stertomys laticrestatus*. The dental pattern of this M_3 is far more simpler than that of the M_3 of *S. laticrestatus*. The lower cheek teeth of *S. laticrestatus* do not possess these wide, flat and low ridges.

The dental pattern of *S. laticrestatus* is so different from the other insular dormice genera (*Eliomys [Tyrrhenoglis], E. [Maltamys], Leithia, Hypnomys,* and *Anthracoglis*) that any relationship must be excluded.

Stertomys laticrestatus is assigned to the subfamily Glirinae because of its slightly concave occlusal surface and its low ridges. Its dental pattern resembles most that of *Glis* Brisson, 1762. The most characteristic agreement is the protoloph and metaloph ending separately at the lingual border. Other resemblances are:
the labial position of the extra ridges in the upper cheek teeth;
the tendency of all ridges of the upper cheek teeth to end freely at the labial border;
the lingual position of the extra ridges in the lower cheek teeth;
the relatively large premolars.

Stertomys laticrestatus differs from *Glis* by the extremely wide and flat ridges of the upper cheek teeth, and the more complicated dental pattern. All the above mentioned resemblances suggest that *Stertomys* is a direct descendant of *Glis*.

The first documentation of *Glis* is from the Lower Miocene of Cetina de Aragon (Spain) and from the Lower Miocene of Oschiri (Sardinia, Italy). During the larger part of the Miocene it is a very rare element of the fossil micromammalian faunas in Western Europe, however. The fossil faunas from Central and Eastern Europe are less documented, but it seems that *Glis* is more common in this region during the Miocene. It is present in the Middle Miocene of Aliveri (Greece; van der Meulen & de Bruijn, 1982), in the Middle Aragonian of Franzensbad (Czechoslovakia), in the Upper Aragonian of Neudorf-Spalte (Czechoslovakia) and in the Lower Vallesian of Rudabanya (Hungary). After the Miocene *Glis* continues to be a common representative of the Central and Eastern European micromammal faunas. Consequently the moment of migration of *Glis* to the Gargano island remains obscure.

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