

Jelle W.F. Reumer<sup>1</sup>, Joop C. van Veen<sup>2</sup>, Albert J. van der Meulen<sup>3</sup>,  
Leen W. Hordijk<sup>4</sup> & John de Vos<sup>5</sup>

<sup>1</sup> Natuurmuseum Rotterdam

<sup>2</sup> Teylers Museum

<sup>3</sup> Institute of Earth Sciences

<sup>4</sup> Brielle

<sup>5</sup> Naturalis National Museum of Natural History

# The first find of small mammals (Desmaninae, Arvicolidae) from the Early Pleistocene Oosterschelde fauna in The Netherlands

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Three small mammal species have been recovered from sediments dredged from the bottom of the Oosterschelde estuary: *Galemys kormosi*, *Mimomys* cf. *plioaenicus* and *Mimomys* cf. *tigliensis*. This might be the oldest small mammal faunule so far known from The Netherlands.

De eerste vondst van kleine zoogdieren uit de vroeg-Pleistocene Oosterschelde fauna. – Drie soorten kleine zoogdieren zijn aangetroffen in sediment dat is opgebaggerd van de bodem van de Oosterschelde: *Galemys kormosi*, *Mimomys* cf. *plioaenicus* en *Mimomys* cf. *tigliensis*. Het betreft vermoedelijk de oudste fauna van kleine zoogdieren die tot nu toe uit Nederland bekend is.

Correspondence: <sup>1</sup> Jelle W.F. Reumer, Natuurmuseum Rotterdam, P.O.Box 23452, NL-3001 KL Rotterdam, The Netherlands (also for reprint requests); <sup>2</sup> Joop C. van Veen, Teylers Museum, Spaarne 16, NL-2011 CH Haarlem, The Netherlands; <sup>3</sup> Albert J. van der Meulen, Institute of Earth Sciences, University of Utrecht, P.O.Box 80021, NL-3508 TA Utrecht, The Netherlands; <sup>4</sup> Leen W. Hordijk, Banjaard 15, NL-3232 HB Brielle, The Netherlands; <sup>5</sup> John de Vos, Naturalis National Museum of Natural History, P.O.Box 9517, NL-2300 RA Leiden, The Netherlands

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## INTRODUCTION

Fossil mammals from the Oosterschelde estuary are known for over half a century (Drees 1986; De Vos *et al.* 1995, 1998 and references therein). Strata containing fossil mammals crop out below the water level in trenches of some 35-40 m depth. From 1951 onwards, once every year the fishing vessel ZZ8 (a mussel cutter) ventures out onto the estuary for dredging fossils. The mussel cutter pulls two dredge-nets for fishing mussels, one on each side of the ship. These nets, which have a width of about 150 cm, are towed behind the ship over the bottom of the Oosterschelde. A horizontal iron bar in front of the net, acting as a knife, penetrates a few centi-

meters into the sediment and subsequently the net becomes filled with mussels, starfishes, stones, oysters and, occasionally, mammalian fossils. So far, only larger mammals have been recorded that are supposed to belong to a fauna correlated to the TC3 pollen zone of the Tiglian (De Vos *et al.* 1998): *Mammuthus meridionalis*, *Anancus arvernensis*, *Equus* sp., *Stephanorhinus* cf. *etruscus*, *Cervus rhenanus*, *Eucladoceros ctenoides*, *Leptobos* sp., *Homotherium* sp., cf. *Hyaena perrieri*, and *Sus strozzii*. The collecting technique employed (i.e. the mesh width of the mussel nets) does not allow the recovery of smaller material.

During the expedition of the 6th of September, 1997, one of us (Van Veen) attached metal piping to the net as an experiment to recover a quantity of the actual sediment. We used an iron pipe of 7.8 cm bore (Fig. 1), attached to a grip on the before mentioned cutting iron bar in such a way that it would scrape through the bottom below the bar. During five pulls we were able to collect sediment; the pipe finally got lost during the sixth pull. A total of some 22 kg of sediment was thus made available. It has been sieved over metal sieves of 4 mm, 1.5 mm, 1 mm and 0.5 mm mesh width. As a result we found three identifiable dental elements and some postcranial material of smaller mammals. This rather good result for such little amount of sediment is an encouragement for further collecting activities, for which preparations are now being made.

Here, we wish to report the find of three small mammal taxa from the Oosterschelde sediments. Lower and upper case abbreviations in the descriptions of teeth refer to elements from the mandible and the maxilla, respectively.



Figure 1 The dredge-net used for the collecting of fossils; the attached metal pipe is clearly visible. (photo: J.W.F. Reumer)

## DESCRIPTIONS

order Insectivora

family Talpidae

subfamily Desmaninae

genus *Galemys* KAUP, 1829

*Galemys kormosi* (SCHREUDER, 1940)

Available material: 1 i1 dex (Fig. 2)

Description: the right lower first incisor that we found has a spade-shaped crown which is wider at its occlusal surface than at the base. The enamel covers the root at the anterior (lingual) side somewhat further than at the posterior (buccal) side. The crown shows a flat wear-surface, suggesting an adult age of the specimen. The laterally compressed root has a slight curvature and a conspicuous opening of the pulpa. The tooth is surprisingly similar to the specimen Te-443 from Tegelen as depicted by Rümke 1985, figure 5.2. A distal fragment of a metapode might possibly be attributed to this same species.

order Rodentia

family Arvicolidae

genus *Mimomys* FORSYTH MAJOR, 1902

The two arvicolid molars found are both M2 (second upper molar), elements that are not suitable for species determination. The combination

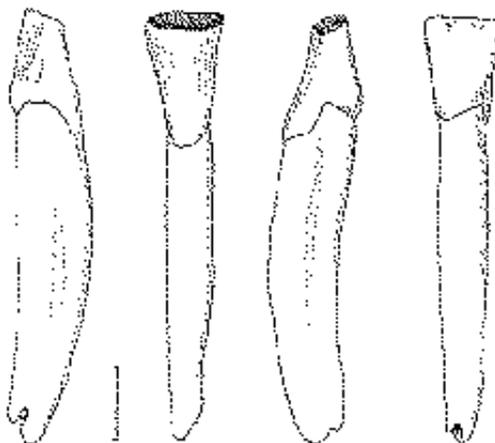


Figure 2 *Galemys kormosi*. Right i1, left to right: lateral view, anterior (lingual) view, medial view, posterior (buccal) view. Bar = 1 mm. (illustration: J.W.F. Reumer)

of presence of roots, *Mimomys*-type of differentiation of the enamel thickness and the general shape of the triangles indicates the genus *Mimomys*. The large difference in length between the two molars points to their belonging to different species.

***M. cf. pliocaenicus* (FORSYTH MAJOR, 1889)**

Available material: 1 M2 sin (Fig. 3)  
Measurements: length 2.36 mm; height 2.21 mm

**Description:** the occlusal surface shows four well separated dentine fields, and an enamel band that is thicker at the anterior than at the posterior sides of the triangles (*Mimomys*-type of differentiation). The enamel is interrupted at the three usual places in M2: at the two sides of the anterior loop and at the posterior end of the molar. This means that the enamel free areas are higher than 2.21 mm. The synclines contain crown cementum. There are three roots, the anterior two are not separated at their bases.

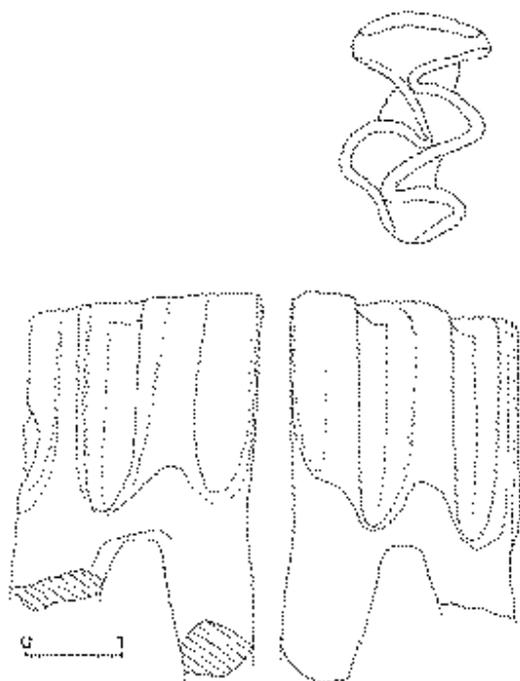


Figure 3 *Mimomys cf. pliocaenicus*. Left M2, left to right: lingual view, buccal view, occlusal view. Bar = 1 mm. (illustration: J.W.F. Reumer)

**Remarks:** the measurements and the number of roots fall inside the ranges of *M. pliocaenicus* from Tegelen (Tesakov 1998). The three roots make a determination as *M. savini* highly unlikely. The height of the enamel free areas at the anterior loop of the single M2 of *M. polonicus* from Deutsch-Altenburg 21 (1.98 and 2.12 mm; Rabeder 1981) is somewhat lower than the crown height of our specimen. Assigning the latter to *M. polonicus* seems therefore unlikely, but cannot be excluded.

***M. cf. tigliensis* TESAKOV, 1996**

Available material: 1 M2 sin. (Fig. 4)  
Measurements: length >1.57 mm; height 4.23 mm

**Description:** the posterior side of the molar is damaged. The damage of the occlusal surface is slight, and the length will not have exceeded the measured value by more than 0.1 mm. There are narrow connections between the dentine fields of the anterior loop and the anterior triangle, and between the two posterior triangles. This may be due to the juvenile stage of wear of the molar. The differentiation of the enamel thickness is of the *Mimomys* type, and is interrupted at the above mentioned places. The synclines are filled with crown cementum. The synclines are closed at their bases, but roots have not yet been developed.

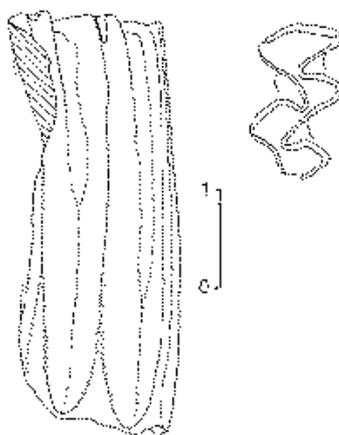


Figure 4 *Mimomys cf. tigliensis*. Left M2, left to right: buccal view, occlusal view. Bar = 1 mm. (illustration: J.W.F. Reumer)

**Remarks:** the length of this small molar falls in the lower part of the range for *M. tigliensis* (= *M. newtoni* in Freudenthal *et al.* 1976, = *M. blanci* in Van Kolfshoten *et al.* 1986, and Van Kolfshoten 1990) from Tegelen, its type locality (Tesakov 1998). The enamel free areas of the latter species are higher than they are in our specimen. The posterior side of the M2 from the Oosterschelde is not pointed as described for some young specimens from the type locality. The M2 of *M. reidi*, the second small *Mimomys* species from Tegelen, is larger (length minimally 1.70 mm, Tesakov 1998), has lower enamel free areas, and shows the widest connection between the two anterior triangles which in our *M. cf. tigliensis* M2 are well separated. *M. stranzendorfensis*, which has been found in a boring near Asperen (the Netherlands; van Kolfshoten 1990), has lower enamel free areas and the species is somewhat larger than the specimen of the Oosterschelde (Rabeder 1981).

**Taxonomical remark:** the availability and validity of the name of *Mimomys tigliensis* Tesakov, 1996 and of the taxon need some attention. The name was published in 1996 in the abstract volume of the INQUA-SEQS congress 'The dawn of the Quaternary', held in Kerkrade, the Netherlands, 16-21 June 1996 (Tesakov 1996). The publication meets the requirements of Art. 8 (a) 1-3, a disclaimer ex Art. 8 (b) is not given, and the name *M. tigliensis* conforms the linguistic requirements of Art. 11. Furthermore, the taxon is published with a description stating characters to differentiate the taxon ('*Mimomys tigliensis* sp. nov. is considered to be the ancestral form of *M. tornensis*. The new species is less hypsodont and smaller than *M. tornensis*.'), thus conforming Art. 13 (a) i. As the taxon is described conforming Art. 13, it can not be a nomen nudum. A statement (in this case "sp. nov.") indicating the intention of a new name is provided (General Recommendation E7). The publication violates General Recommendation E23, in which it is recommended that a name should not be published for the first time in an abstract. Other General Recommendations are also not met with, such as the recommendation to provide an

illustration (Gen. Rec. E17). However, the Recommendations do not have the force of rule and can thus be violated without making the name unavailable. It is also regrettable that a holotype has not been designated in the 1996 abstract; the entire collection of *M. tigliensis* specimens from Tegelen thus consists of syntypes, from which a lectotype should be chosen. It is here suggested that the specimen designated the holotype in the extensive description of the species (Tesakov 1998) be the lectotype. Summarizing, *Mimomys tigliensis* TESAKOV 1996 is an available name and a valid taxon.

#### AGE OF THE FAUNULE

The M2 of *M. cf. tigliensis* is very high-crowned and points to a late Villanyian age. The molar of *M. cf. pliocaenicus* and the presence of *Galemys kormosi* do not contradict this age determination. As already mentioned above, two finds of small mammals are known from the Netherlands that might predate, or be of the same age, as the present material: i.e. a *Mimomys* tooth (*M. cf. polonicus*) from a boring near De Meern and a tooth described as *M. stranzendorfensis* from a boring near Asperen (Van Kolfshoten 1990). These are, however, finds of single teeth; if the dating (Tiglian TC3) by De Vos *et al.* 1998 is correct, our small faunule from the Oosterschelde can thus be considered the oldest small mammal fauna so far known from The Netherlands.

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P.O.Box 23452, NL-3001 KL Rotterdam The Netherlands