

An updated range chart for the Oligocene to recent west Eurasian Suidae. Variation in species richness

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ABSTRACT

The first intent to publish a complete range chart for the European Suidae was over 30 years ago (Van der Made, 1990). There have been important advances in dating and many papers have dealt with the systematics, nomenclature, and temporal distribution of these Suidae. Here, this information is united, and an update is presented. This range-chart also shows in a compact way the taxonomy and nomenclature as used in the NOW database.

The ages of the MN and MP units and a Spanish biozonation follow Hilgen et al. (2012) and Van Dam et al. (2006). Where the boundaries are drawn obliquely, this reflects the range of their uncertainty for the Spanish biozones, but only partially so for the MN units, because many of the criteria used for the correlation of the MN units are diachronic. In most cases, presence in a MN unit is marked as in the whole unit, while in other cases additional information (local biostratigraphy, magnetostratigraphy) shows a taxon to be present only in part of a MN unit. This is also the case when two chrono(sub)species of a lineage occur in the same biozone. These problems are dealt with as by Van der Made (2020). Localities in Anatolia are included (as also in the earlier range-chart), as well as from Kazakhstan and Israel, parts of west Eurasia that are not Europe.

The differences with the range chart from 1990 are shown in red (Fig. 1). A name written in red was not applied in 1990. A red line indicates that the species was not recognized as a distinct species. A red oblique line indicates a newly proposed ancestor-descendant relationship. Corrections to temporal ranges are not indicated. Most of these differences and those with publications of colleagues are discussed elsewhere (e.g., Van der Made, 2020).

In 1990, I followed Ginsburg (1974) for the Palaeochoeridae. Recently, many new names have been proposed for the Palaeochoeridae, but see the discussion by Van der Made (2020). There are two types of Oligocene Palaeochoeridae. *Doliochoerus* (= *Propalaeochoerus*) has narrow upper molars with convergent lingual roots and with the distal cusplet on the m1–m2 close to the hypoconid and includes *Doliochoerus leptodon* (= *Doliochoerus quercyi*) and its likely descendant *Doliochoerus elaverensis*, which has a longer third molar. *Palaeochoerus* has wide upper molars with divergent lingual roots that are connected with a bony plate and m1–m2 with the distal cusplet in the middle. It includes *Palaeochoerus aquensis* and its likely smaller descendant *Palaeochoerus typus*.

Whereas the range chart of 1990 had just over 40 species and subspecies, the updated one has over 60. The diversity is lower in the Oligocene than in the Middle Miocene, but the temporal ranges are longer. This could reflect the lesser density of fossils, a slower rate of evolution, or lower temperatures and atmospheric pCO₂. Species diversity parallels that of the Plio-Pleistocene, when temperatures and pCO₂ declined.

KEYWORDS: Range chart; Suidae; Palaeochoeridae; Suidae; Biostratigraphy.

REFERENCES

- Ginsburg, L. (1974). Les Tayassuidés des phosphorites du Quercy. *Palaeovertebrata*, 6, 55-85.
- Hilgen, F. J., Lourens, L. J., & Van Dam, J. A. (2012). The Neogene period. In F. M. Gradstein, J. G. Ogg, M. B. Schmitz, & G. M. Ogg (Eds.), *The geologic time scale 2012* (pp. 923-978). Amsterdam: Elsevier.
- Van Dam, J. A., Aziz, H. A., Álvarez Sierra, M. Á., Hilgen, F. J., Van den Hoek Ostende, L. W., Lourens, L. J., Mein, P., Van der Meulen, A. J., & Peláez-Campomanes, P. (2006). Long-period astronomical forcing of mammal turnover. *Nature*, 443, 687–991.
- Van der Made, J. (1990). A range chart for European Suidae and Tayassuidae. *Paleontologia i Evolució*, 23, 99-104.

Van der Made, J. (2020). The Suoidea from the Middle Miocene of Gračnica (Bugojno Basin, Bosnia and Herzegovina)—evolution, taxonomy, and biostratigraphy. *Palaeobiodiversity and Palaeoenvironments*, 100, 321-349.

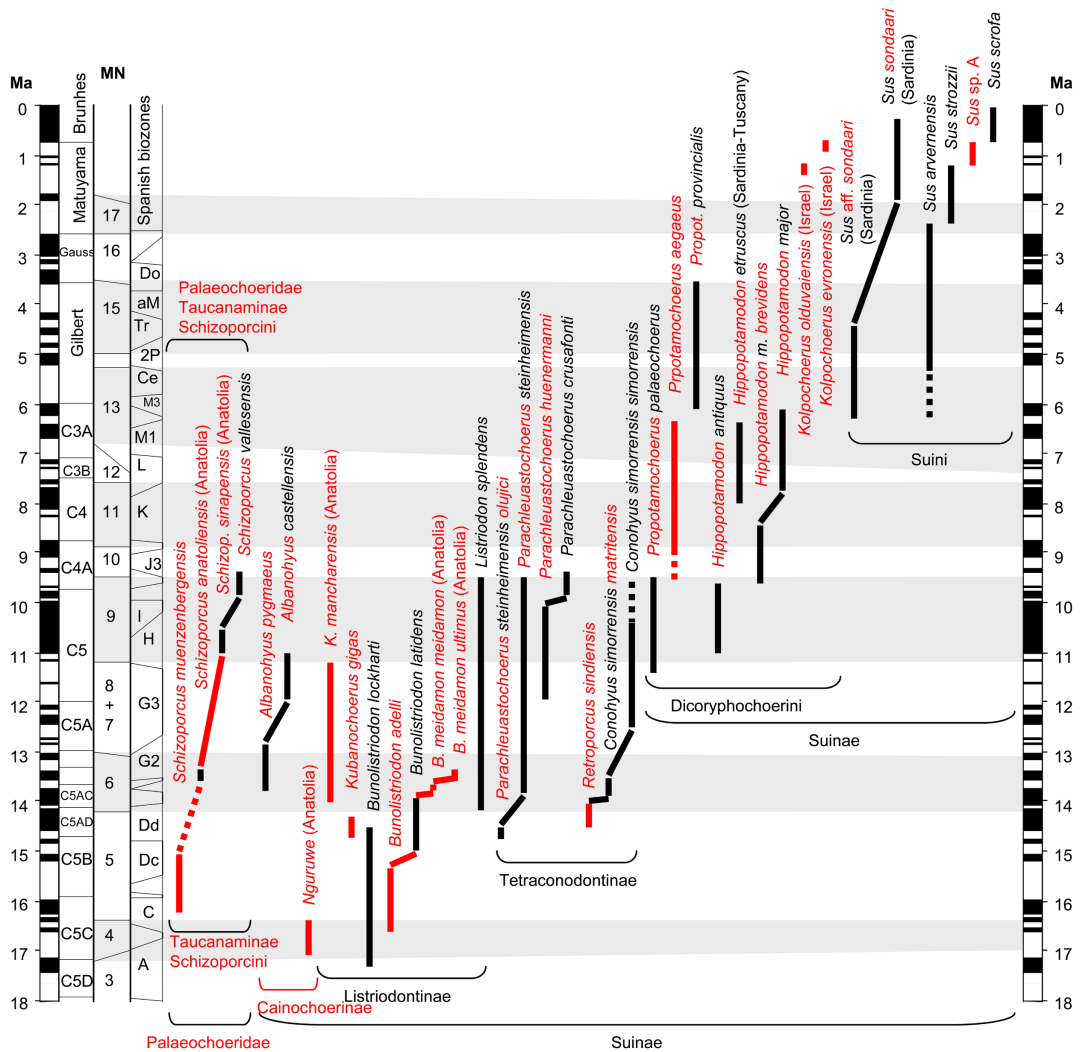


Figure 1. Range chart of the west Eurasian Suoidea.

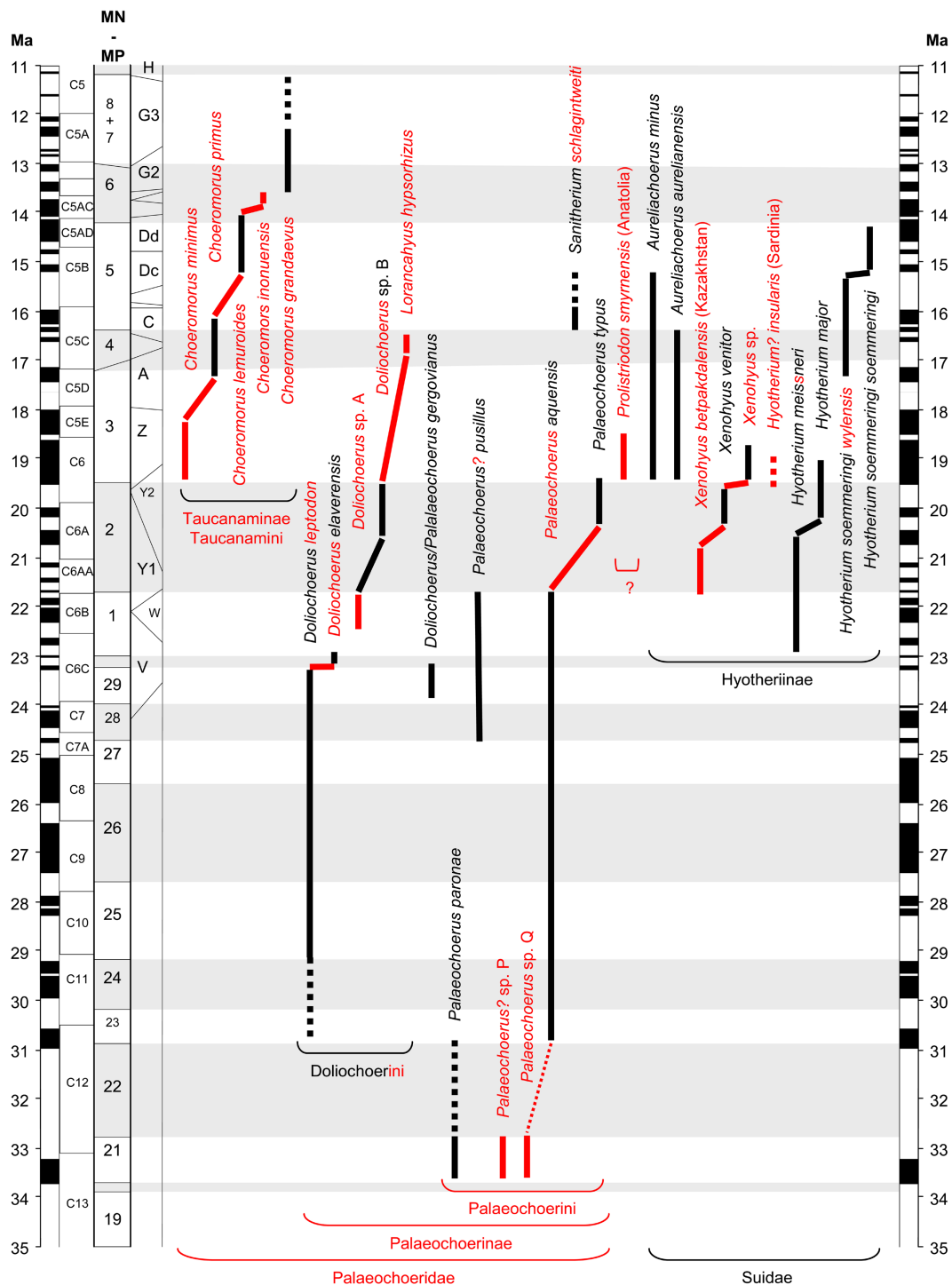


Figure 1 (Continuation). Range chart of the west Eurasian Suoidea.

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Sabadell (Barcelona), 16–18 November 2022



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