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The Late Miocene Rhinocerotids (Perissodactyla, Rhinocerotidae) from Samos Island - New Insights from the Historical T. Skoufos Collection

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Research Highlights

Report of craniodental material of the rhinocerotids *Chilotherium schlosseri*, *Miodiceros neumayri* and *Dihoplus pikermiensis* from the late Miocene of Samos Island, Greece, from the T. Skoufos collection. Based on the study of the mesowear, *C. schlosseri* is interpreted as a mixed feeder engaged in browsing.

Samos island is famous for its late Miocene fossil mammals, most of which come from localities in the Mytilinii Formation. Koufos et al. (2011) distinguished four successive mammal assemblages, covering a timespan between 8.0—6.7 Ma. The Samos rhinocerotids (Perissodactyla, Rhinocerotidae) are represented by four species: the tandem-horned *Dihoplus pikermiensis* (Toula, 1906) and *Miodiceros neumayri* (Osborn, 1900) along with the hornless *Chilotherium schlosseri* (Weber, 1905) and *Chilotherium samium* (Weber, 1905).

In the present work, we examined the systematic classification of unpublished rhinocerotid craniodental material from Samos, excavated in 1903 by Professor Theodoros Skoufos of the National and Kapodistrian University of Athens, and currently stored in the Athens Museum of Palaeontology and Geology (AMPG). The species identified in the collection are *M. neumayri*, *D. pikermiensis* and *C. schlosseri*. Amidst the most significant specimens were an almost complete juvenile *M. neumayri* maxilla, an adult *D. pikermiensis* mandible partly preserving both clades, a *C. schlosseri* mandible bearing part of the lower incisors, two partly preserved adult *C. schlosseri* skulls, and the skull of a juvenile *C. schlosseri*. For the present work we applied a preliminary mesowear scoring on the dentitions of the two *C. schlosseri* skulls (Fig. 1) following Mihlbachler et al. (2011).

The specimens were enclosed in two different types of fossil matrix. Type-A Matrix is a tuffaceous conglomerate of variant cocometry levels, whereas Type-B Matrix is a yellowish calcitic sandstone. Therefore, it can be deduced that the material originates from at least two different fossiliferous horizons, one characterized by the coexistence of *C. schlosseri* (n = 8) and *M. neumayri* (n = 1) and another, bearing both *C. schlosseri* (n = 1) and *D. pikermiensis* (n = 1). However, due to the lack of stratigraphic data, it was impossible to correlate the material to any known fossiliferous horizon and further geochemical studies are needed in order to check the validity of this observation.

The sympatry of *D. pikermiensis* and *M. neumayri*, along with an aceratheriine genus such as the derived *Chilotherium* or the more primitive *Acerorhinus* Kretzoi, 1942 is common in the Turolian localities of the Balkano-Iranian Province (Athanassiou et al., 2014; Giaourtsakis, 2022; Kampouridis et al., 2022). Concerning their autecology, different herbivory types have been proposed for the Samos rhinocerotids. Brachydont *D. pikermiensis* is interpreted as a browser and *C. schlosseri* as a mixed feeder, whereas *M. neumayri* as a grazer, based on the limited available material (Hullot et al., 2022). Consequently, a clear niche partitioning between the 3 species is proposed. The results of our mesowear analysis indicate that *C. schlosseri* was indeed a mixed feeder, probably more engaged in browsing. However, a more thorough study of the dental wear signal of the Samos rhinos is recommended for an accurate interpretation.

The majority of the craniodental material of the Samos rhinocerotids stored at the AMPG collection was assigned to *C. schlosseri. Chilotherium* is a genus very common in the relatively more open and arid late Miocene habitats of Anatolia and China, lacking from the more humid, forest-type habitats of Central Europe (Kampouridis et al., 2022). Therefore, a more arid, open habitat could be proposed for Samos during the Turolian, rather than those of the classical localities of Pikermi, Attica (Roussiakis et al., 2019) and Kerassia, Euboea Island (Kampouridis et al., 2019). This conclusion comes in agreement with previous research discussing the homogeneity of the Pikermian Biome (Kostopoulos 2009; Hullot et al., 2022).

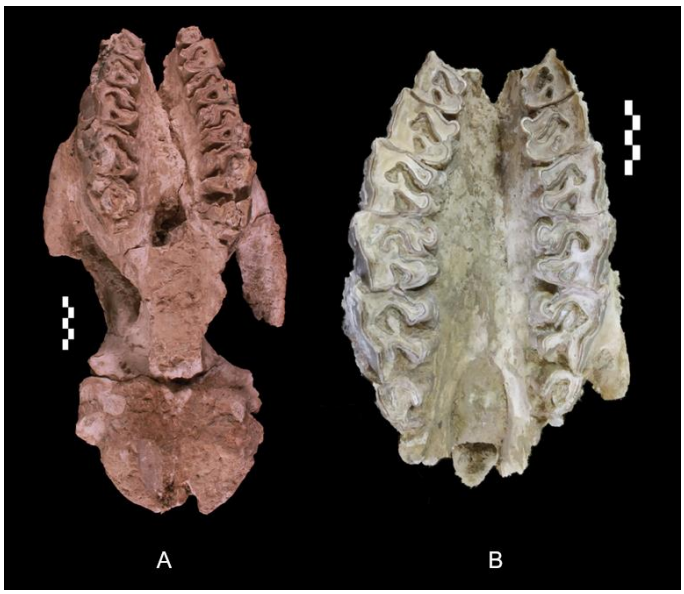

Figure 1. AMPG-SAM513 (A) and AMPG-SAM506 (B), *C. schlosseri* skulls, occlusal view. Scale: 5 cm.

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