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Vertebrate trackways in Pleistocene eolianites on Antiparos (Cyclades, Greece)

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Yellowish calcarenites have been mapped at many localities along the NW coast of Antiparos. These sandstones, which form dm to 5 m thick layers unconformably resting on greenschist to amphibolite facies metamorphic rocks of the Attic-Cycladic Crystalline of the Central Hellenides, have been traced from below sea-level up to an elevation of approximately 80 m. Generally, the bedding and internal laminae are oriented parallel to the slope of the underlying crystalline rocks without forming any morphological terraces. Cross-bedding, with dip-angles >35°, has only rarely been recorded. Petrographically, the rocks are dominated by marine bioclasts including mainly corallinacean red algae, benthic foraminifers and fragments of gastropods and bivalves with siliciclastic components forming less than 20% of the rock, cemented by calcite. Grains are well-rounded and well-sorted, with grain sizes ranging from medium sand to granule sizes. Based on the areal distribution of the sedimentary structures (e.g. pin-stripe lamination, high-angle cross-bedding), the occurrence of terrestrial gastropod shells and the correlation with almost identical sandstones elsewhere in the Mediterranean, they most likely have both an eolian origin and a Pleistocene age.

At several localities, vertebrate tracks and trackways have been found in the sandstones; this is the first report of vertebrate trackways in Pleistocene sandstones of the Aegean. However, comparable trackways, both in age and size, have been reported on Mallorca and Sardinia. Tracks have been found on both exposed bedding surfaces and in cross-section, where tracks are concentrated along certain horizons; the tracks are about 11 cm wide and 4 cm deep. On bedding surfaces, at least two distinguishable trackways have been observed but, due to their overlapping and weathering, the differentiation between manus and pes impressions is challenging. This, and the relatively short length of individual trackways – the longest traceable trackway is only about 1,50 m long – make stride and pace measurements difficult. Track morphologies (e.g. preservation of a cloven hoof track) and trackway sizes indicate formation by an artiodactylous mammal with the size of a goat, deer or antelope. Track morphologies suggest that the traces were produced in moist sand.