

First record of cf. *Polyonyx* sauropod trackway outside the Iberian Peninsula: Insight from Middle-?Late Jurassic red beds of Morocco

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Abstract:

A new dinosaur tracksite was discovered in continental red beds of the Isli Formation (late Bathonian-?Calloviaian) along the northern flank of the Ait Ali ou Ikkou Syncline in the Imilchil area, Central High Atlas, Morocco.

The area has an extraordinary scientific potential, as the layers, which have been deposited in a fluviolacustrine environment, contain at least fourteen track-bearing levels, which reveal a diverse dinosaur-dominated ichnofauna including the footprints of crocodylomorphs, pterosaurs, theropods, sauropods and ornithischians; and numerous invertebrate traces.

In this work, we focus on a longer sauropod trackway from the new locality, which is morphologically similar to the ichnogenus *Polyonyx* and which represents the first record of this morphotype outside of the Iberian Peninsula. The trackway is moderately to well-preserved and comprises nine consecutive manus-pes sets preserved as concave epireliefs. Characteristic features are low heteropody and asymmetry of manus prints with a large digit I (pollex) trace which is oriented medially, and with a large triangular claw I trace which is posteriorly oriented. Pes prints show four claw marks, I–II with an anterior orientation, and III–IV laterally oriented. Different from typical *Polyonyx* is the narrow gauge pattern vs. the wide gauge observed in the type trackway from Portugal.

This study suggests that the trackmaker, interpreted here as basal eusauropod, lived in an intra-continental silty-sandstone depositional environment, different from the limestone environments of the Iberia province, and compared with both marginal-sea (Portugal) or lacustrine (Spain) environments. The stratigraphic age of the High Atlas deposit is younger than the sites in Portugal (Bajocian-Bathonian) and older than the Spanish localities (Tithonian-Berriasian).

The new data from the Moroccan High Atlas give evidence of basal eusauropods in the Middle Jurassic-Early Cretaceous interval of northwestern Gondwana.

Keywords: Sauropod trackway, Bathonian, Isli Formation, Imilchil, Central High Atlas, Gondwana