Revisiting and exploring Middle-Late Triassic vertebrate tracksites in Ardèche (southern France)

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Abstract:

The southeastern border of the Massif Central is a key area for ichnology in France. Indeed, it concentrates many Middle-Late Triassic vertebrate tracksites in which several vertebrate ichnospecies have been defined since the 1960s. Many of these localities are now part of the Regional Natural Park of the Ardèche Mounts that became a UNESCO Geopark in 2015. Given the major scientific and patrimonial interest of this area, we have started a detailed, updated inventory of vertebrate tracks and trackways, checking already known sites and prospecting for new ones. At present, about 15 sites have been referenced and more than 600 tracks have been recorded. Anisian/Ladinian ichnoassemblages are dominated by pentadactyl chirothere tracks (*Chirotherium*, *Isochirotherium*, *Brachychirotherium*, *Sphingopus*), tridactyl *Coelurosaurichnus*-type tracks and small pentadactyl lacertoid *Rhynchosauroides*. Norian ichnoassemblages are largely dominated by tridactyl *Grallator* tracks but also contain *Otozoum*/*Pseudotetrasauropus* footprints and rare chirothere trackways. Interestingly, many of these fossil traces have been preserved in coarse sediments, apparently without any contribution of microbial mats. Using field observations, thin sections, as well as image contrasting techniques and 3D modelling, our project aims at revising the ichnodiversity of these sites based on statistical grounds, at understanding the taphonomic pathways involved and at protecting this remarkable ichnological patrimony.

Keywords: Ardèche, Triassic, ichnoassemblage, vertebrates, Geopark