Bored bones from the terrestrial middle Cretaceous Kem-Kem beds of southeast Morocco

Christina Shears-Ozeki
University of Portsmouth, School of Earth and Environmental Sciences, Portsmouth, UK PO1 3QL
UP790309@myport.ac.uk

PeerJ Preprints | https://doi.org/10.7287/peerj.preprints.3200v1 | CC BY 4.0 Open Access | rec: 28 Aug 2017, publ: 28 Aug 2017

Bored bones from the terrestrial middle Cretaceous Kem-Kem beds of southeast Morocco

Christina Shears-Ozeki
School of Earth and Environmental Sciences, University of Portsmouth, UK

During the last two decades, bioerosion of bone has become more widely investigated, with the earliest identified coming from mid-Triassic strata. Bioerosion has even been identified in bone fragments from a Jurassic theropod coprolite. Although the effects of this destructive process can lead to a loss of important information form the fossil record, understanding of bone bioerosion may be useful for identifying palaeoclimatic conditions in a variety of ancient fluvial settings.

Recent examination of bones of terrestrial fauna (mostly dinosaurs) form the middle Cretaceous Kem-Kem beds (?Albian-late Cenomanian) of southeast Morocco identified several distinctive bioerosional traces (surface scratches, bite marks [up to 10cm long] and borings in the form of channels and oval shaped chambers ~5mm diameter) from indeterminate producers. One heavily bored specimen suggests successive infestation during prolonged subaerial exposure.

Silicon moulding, thin sections and SEM analysis enabled investigation of the bones to determine the producers responsible, and evaluate their role in the taphonomy of ancient fluvial systems.

The bite marks can be attributed to macro predators/scavengers, whereas the borings and surface scratches, are comparable to traces produced by living insects including isopterans and the larvae of coleopterans. Microscopic scratches (approximately 1-2mm long) within the chambers and channels were also identified and considered fodinichnia and domichnia in the form of pupation chambers.

PeerJ Preprints | https://doi.org/10.7287/peerj.preprints.3200v1 | CC BY 4.0 Open Access | rec: 28 Aug 2017, publ: 28 Aug 2017