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Bioerosion in the Late Devonian placoderm remains from the Holy Cross Mountains, Poland

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We report the first occurrence of trace fossils in placoderm bones from the Upper Devonian of the Holy Cross Mountains. A taxonomic analysis of three ichnogenera revealed the earliest evidence of *Sulculites* (ie., *Sulculites bellus*), characterised by curved grooves known from the tortoise shells, the potential *Osteocallis?* isp. consists of irregular and shallow grooves, which were first described on dinosaur bones from continental deposits, while *Karethraichnus?* isp. being a deep and cylindrical boring, recognized for the first time in turtle shells. They show the evidence of post mortem erosional activity by organisms (e.g., worms) that penetrated the decaying carcasses to search for nutritional particles, graze microbial mats and colonize the osteic substrate. The massive dermal bones of placoderms seem to be appealing to scavengers, albeit rather as an opportunistic behaviour. Nevertheless, this uncommon finding may be caused by the relatively limited attention that has been paid to this phenomenon. The described traces also represent the oldest evidence of macrobioerosion in osteic substrate, as well as the oldest documented occurrence of these forms that have been known so far.

Key words: Placodermi, trace fossils, *Sulculites* , Famennian, Devonian, Holy Cross Mountains, Poland.

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