Exceptional preservation of *Sphaerapus larvalis* in the Miocene Vinchina Formation of western Argentina

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The Miocene Vinchina Formation of western Argentina is made up of more than 5100 meters of siliciclastic sediments deposited mostly in fluvial environments, including transitions from braided and meandering, to anastomosing systems. The Upper Member of the unit is characterized by the conspicuous occurrence of braided fluvial deposits, composed of heterolithic multistory channels, gravelly bars, sandy bars, and very thin intercalations of floodplain fines facies, hosting invertebrate and vertebrate trace fossil assemblages. The present contribution deals with the outstanding preservation of *Sphaerapus* within these facies. In particular, the trace fossils studied were recorded at the sole of a massive fine to very fine-grained sandstone bed interbedded with laminated claystones and siltstones, representing sedimentation in overbank environments. The trace *Sphaerapus larvalis* occurs as a positive or negative hyporelief. It is characterized by several horizontal burrows displaying raised, often imbricated, oval blocks generating nodular margins, and sometimes developing a discontinuous open medial depression. Occasionally, the medial depression is irregularly filled by smaller blocks. Individual blocks are smooth, sub-rounded to oval, 1– 4 mm in diameter, and identical in composition to the surrounding matrix. The burrow widths range from 12 to 4 mm, and their courses are mostly straight with gentle curves and decimetric lengths. Primary successive branching and intersecting of burrows are also present. Ongoing research suggests that these traces reflect a shallow dwelling behavior in soft, fine grained substrates subaerially exposed but proximal to the water table as channel margins, interchannel areas, and marginal zones of local ponds.