Vertebrate trace fossils and environments of the Yacoraite Formation (Maastrichtian-Danian). New records from the Valle del Tonco tracksite, northwestern Argentina

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The Valle del Tonco tracksite is known since the 60´s by unpublished works by the Comisión Nacional de Energía Atómica; and after published works by R. N. Alonso in the 80´s. The track-bearing levels came from the Yacoraite Formation (Maastrichtian-Danian), which is part of the fill at the initial transgressive postrift stage of the Salta Group (Campanian?-Oligocene). The Yacoraite Formation is composed of interbedding clastic and carbonate strata, representing lacustrine-fluvial systems with fluctuating groundwater table and progradational-aggradational shoreline architecture. At the study area, three members are recognized, from base to top: Caliza Amblayo, Complejo Don Otto and Arenisca Pedro Nicolás. Two ichnosites were previously known therein: Quebrada de la Escalera and Quebrada del Tapón, and five ichnotaxa have been originally defined from these ichnosites. *Hadrosaurichnus australis*, related to theropods (initially to hadrosaurids), came from Quebrada de la Escalera; and four ichnogenera from Quebrada del Tapón: *Salfitichnus mentoor*, related to theropods; *Taponichnus donottoi* and *Telosichnus saltensis*, assigned to ornithopods (with doubts), and *Yacoraitichnus avis*, related to birds. The new ichnological records are from the Quebrada del Tapón, and from three new sites: (1) Quebrada del Tapón. I- Large ornithopod track, mesaxonic, tridactyl, subsymmetrical, with one pad impression in each digit and in the heel, from the same surface where the other ichnotaxa have been formally named. II- Several large, nearly homopodial, pentadactyl tracks composing quadrupedal trackways, probably produced by ornitischian dinosaurs. III- Several avian footprint-bearing surfaces; the tracks are small, tridactyl, poorly preserved, and isolated. IV- Specimens of cf. *Yacoraitichnus avis*, associated with *Palaeophycus* isp. and *Planolites* isp. V- Two surfaces with asymmetrical, trydactyl hand imprints, and a tridactyl foot imprint with elongated digital impressions, assigned to pterosaurs, associated with *Taenidium* isp. (2) Quebrada Sunchales Sur (25°37´24.5´´S; 65°54´51´´W), top of the Caliza Amblayo Member: I- Small, nearly homopodial, symmetrical, and tetradactyl manus-pes impressions, produced by a quadrupedal trackmaker, probably a hopping or galloping mammal. II- Two associated large ornithopod tracks, with thick digit imprints. III- Poorly preserved small tridactyl avian tracks, associated with *Taenidium* isp. IV- Isolated, medium sized, tridactyl theropodian track. V- Several tracks probably produced by ornitischian dinosaurs, similar to those from the Quebrada del Tapón. (3) Quebrada de El Candado (25º 34´54.96´´S; 65º 54´36.12´´W), in the middle of the Caliza Amblayo Member: I- Quadrupedal, moderately wide-gauge trackway, with heteropodial manus-pes sets, assigned to sauropods. II- Surface with tens of tracks, probably produced by ornitischian dinosaurs. (4) Quebrada Estrecho del Río El Tonco (25º 34´31.08´´S; 65º 56´49.02´´W), top of the Caliza Amblayo Member: I- A trackway with three symmetrical tridactyl footprints lacking morphological details, related to an indeterminate bipedal dinosaur. Vertebrate-invertebrate trace fossils are ascribed to the *Scoyenia* Ichnofacies *s.l.*