

New dinosaur tracks from the Late Cretaceous El Molino Formation of Toro Toro (Dep. Potosi, Bolivia)

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Abstract:

The El Molino Formation in the Toro Toro syncline (Department of Potosi, Bolivia) has long been known for its Cretaceous dinosaur tracks. They were briefly mentioned by BRANISA (1968). Giuseppe Leonardi led the first expedition in 1983 and mapped several surfaces. In 1984 he published the description of a trackway, *Ligabueichnium bolivianum* attributed to an ankylosaur. In his atlas (LEONARDI 1994) five larger surfaces with tracks and trackways of theropods and sauropods are figured. Most of the sauropod trackways can be attributed to the ichnotaxon *Calorckosauripus lazari* MEYER, MARTY & BELVEDERE, 2018. APESTEGUÍA et al. (2011) describe purported dromaeosaurid tracks from the Toro Toro Formation, however the site is in the El Molino Formation. The latter has been deposited in a lacustrine to fluvial environment.

We report here on several new surfaces situated on the Cerro de Huayllas, the Rio T'iratani and the Quebrada Chiflon. They are situated at the base and the top of the Middle member of the El Molino Formation (Maastrichtian: see VIGNOL et al. 2018).

The Cerro de Huayllas surfaces show tracks and trackways of minute (FL 13 cm) to large sized theropods (FL 35 cm) as well as parallel trackways of *C. lazari*. The Quebrada Chiflon comprises two surfaces of 1300 and 1600m² respectively, containing more than 1000 footprints of small to medium sized theropods. The Quebrada del Rio T'iratani site shows a surface with 30 theropod footprints in four trackways. One of the trackways consists of three consecutive imprints of a crouching theropod that may be attributed to Maniraptoriformes.

Keywords: lacustrine environment, dinosaur tracks, El Molino Formation, Maastrichtian, Toro Toro (Bolivia)

References

- APESTEGUÍA, S., DE VALAIS, S., CORDERO RÍOS, G. & MEDINA RAMÍREZ, O. (2011): New Ichnological Record from The Late Campanian Toro Toro Formation At Toro Toro, Potosí (Bolivia): First Probable Dromaeosaurid Tracks From South America: *Ameghiniana*, 48 (4): 662-667.
- BRANISA L. (1968): Hallazgo del amonite neolobites en la caliza miraflores y de huellas de dinosaurios en la formacion El Molino y su significado para la determinacion de la edad del „Grupo Puca“. *Bolletino Instituto Boliviano del Petroleo*, 8(1):16-29 .
- LEONARDI, G. (1984): Le Impronte Fossili Di Dinosauri. In: Bonaparte, J.F. Et Al., *Sulle Orme Dei Dinosauri*. Venezia, Erizzo, 1984. (Esplorazione e Ricerche, IX), 335 P.: 161-186 .
- LEONARDI, G. (1994): annotated atlas of South America tetrapod footprints (Devonian to Holocene) with an appendix on Mexico and Central America. *Companhia de Pesquisa de Recursos Minerais*, Xxiv, 248p.

MEYER, C.A., MARTY, D. & BELVEDERE, M. (2018): Titanosaur trackways from the Late Cretaceous El Molino Formation of Bolivia (Cal Orck'o, Sucre). *Annales Societatis Geologorum Poloniae* (2018), Vol. 88: 223-241.

VIGNOL-LELARGE, M.L., MENEGAT, R., MATOS, R. & GOMES ILHA, J. (2018): ^{13}C And ^{18}O isotopes preliminary data of the Upper Cretaceous carbonates from Torotoro, Potosí, Bolivia. 11th South American Symposium on Isotope Geology, Cochabamba, Bolivia, Doi:10.13140/Rg.2.2.26210.38086.