

**VII INTERNATIONAL SYMPOSIUM ON
MESOZOIC TERRESTRIAL ECOSYSTEMS**

ABSTRACTS

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Laguna Palacios Formation (San Jorge Basin) is composed of tuff, sandstones and mudstone facies originated in broad plains with subordinated and shallow fluvial courses (ephemeral?) under periodical volcanic ash rains. Variations in subaerial ash fall rates allowed the formation of stacked soils of different maturity. The most mature paleosols form distinct cornices along the outcrops, bearing an intricate network of bioturbations, mostly composed of root and invertebrate traces. Two different insect trace fossils could be recognized in these mature paleosols: remains of bee (Halictinae) nests and coleopteran pupal chambers. Fossil bee nests are composed of remains of subvertical tunnels with cells attached to them directly, without laterals, a typical construction of the subfamily of bees Halictinae. Similar constructions of halictines were reported from the Cretaceous of the United States, and attributed to *Celliforma dakotensis*. The finding reported herein constitutes one of the oldest evidences of bees in the fossil record and the third known report of bees of Cretaceous age. Coleopteran pupal chambers are discrete, ovoid structures, composed of an internal cavity having a smooth surface and an outer wall of rugose appearance composed of different layers of soil material. Such structures are constructed by the larvae of Curculionidae, Scarabaeidae and Tenebrionidae to pupate. Similar trace fossils were reported from the Asencio Formation (Late Cretaceous-Early Tertiary) of Uruguay, as *Rebuffoichnus casamiquelai*, and from the Djadokhta Formation of Mongolia (Late Cretaceous) as *Fictovichnus gobiensis*. Pupal chambers are abundant and occur together with root traces, meniscate tubes and other invertebrate tubes, whereas, bee nests appear with few root traces and pupal chambers suggesting that both insects chose different environmental conditions to nest. Most bees nest in bare, well drained soils exposed to sun of warm temperate xeric regions of the world suggesting for Laguna Palacios Formation an environment dominated by low vegetation and a seasonal climate, which is also compatible with the paleosol structure found. The two traces described herein are the first insect trace fossils of confirmed Cretaceous age recorded from paleosols of the southern hemisphere.

UNUSUAL CAUDAL SERIES OF TITANOSAURIDAE OF THE LATE CRETACEOUS IN THE RIO COLORADO FORMATION, NEUQUEN AND MENDOZA PROVINCES, ARGENTINA

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The outcrops widely exposed on both margins of the Colorado River, in the border of Neuquén and Mendoza Provinces, mainly belong to the Río Colorado Formation (Coniacian-Santonian). The fossils have been found in overflow and floodplain deposits. The Arroyo Seco locality (Mendoza) has yielded 70 bones belonging to two Titanosauridae sauropods. One of them has typical procoelous anterior caudals, distal anterior and middle caudals slightly procoelous. At Cañadon Río Seco, near Rincón de los Sauces city (Neuquén), more than 150 bones have been recovered. They belong to three Titanosauridae sauropods and to one not yet determinate theropod. A preliminary study of the Titanosauridae materials indicates that they belong to a new species. They have preserved cranial materials, cervicals, dorsals, sacrals and procoelous caudals, hind and forelimbs, scapular and pelvic girdle and osteoderms. One of these three specimens is very unusual: three articulated middle caudals are procoelous, amphicoelous and biconvex; and two posterior caudals are opisthocoelous and biconvex. The body caudal series are completely different from the other two sauropod specimens. Nevertheless, the neural arches are too similar. These features impede to separate them as two different species. The Loma del Lindero locality, close to Rincón de los Sauces city, has yielded 200 disarticulated bones belonging to two Titanosauridae specimens and one Abelisauridae theropod. Most of the Titanosauridae caudal vertebrae recovered are typically procoelous, but at least one is an opisthocoelous middle posterior caudal. It was assumed that Titanosauridae always have strongly procoelous middle caudals with occasional amphicoelous ones. However, these new findings show that at least some Titanosauridae have slightly procoelous, opisthocoelous and / or amphicoelous middle caudals. This evidence suggests that middle caudals may have multiple variable morphology along its tail. It is important to interpret at the family level isolated middle caudals in sites where we could expect to find typical Titanosauridae.

OF DICYNODONTS AND AMPHIBIANS : KEY NONMARINE ELEMENTS OF EARLY MESOZOIC NONMARINE FAUNAS

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Dicynodonts experience a renewed diversification during the Triassic with most terrestrial faunas dominated by dicynodonts, temnospondyl amphibians, cynodonts and rhycolosaurs. This has allowed for dicynodonts and amphibians to be key elements