

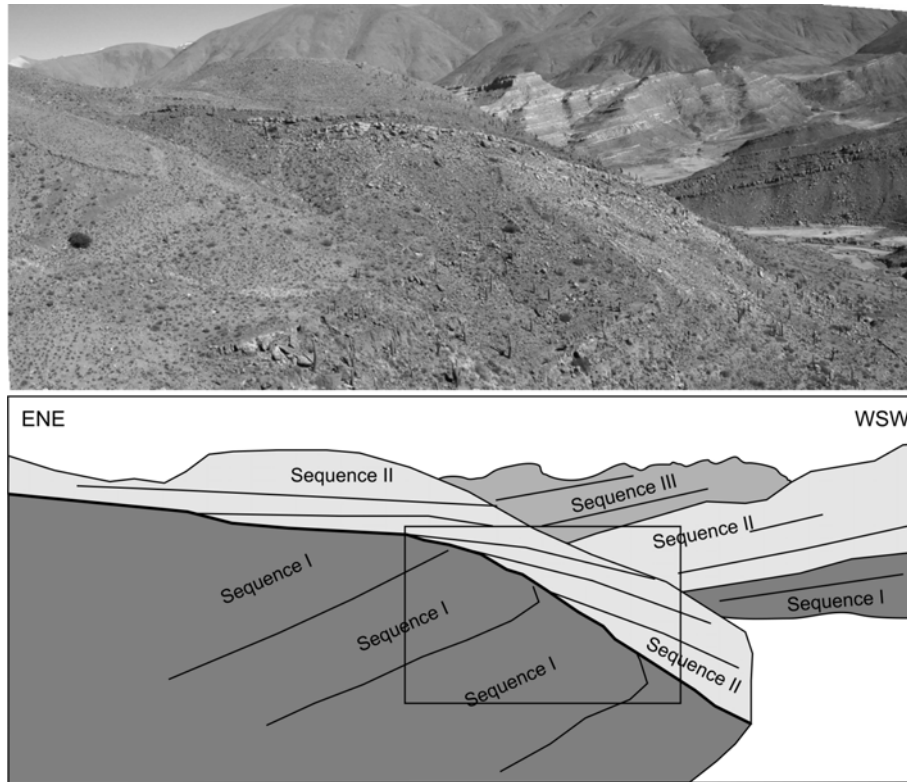
Data Repository Item 2007058**Hogn et al.****Stratigraphic and structural evidences for syntectonic sedimentation**

Figure DR1: Syntectonic angular unconformity between Sequences I and II of the Quebrada de los Colorados Formation. Just below the main discordance (thicker line) we interpret is preserved the back-limb of an anticline related to a blind or covered fault. High angularity between Sequences I and II suggests that a high rate of deformation enhanced the erosion of the anticline frontal limb. Deceleration of uplifting and erosion give place to sedimentation of the sequence II, which defines onlap relationships on sequence I. At the bottom right of the photo, sequence III displaying other facies is observed. Box in sketch indicates the location of Fig. 1C of the main paper.

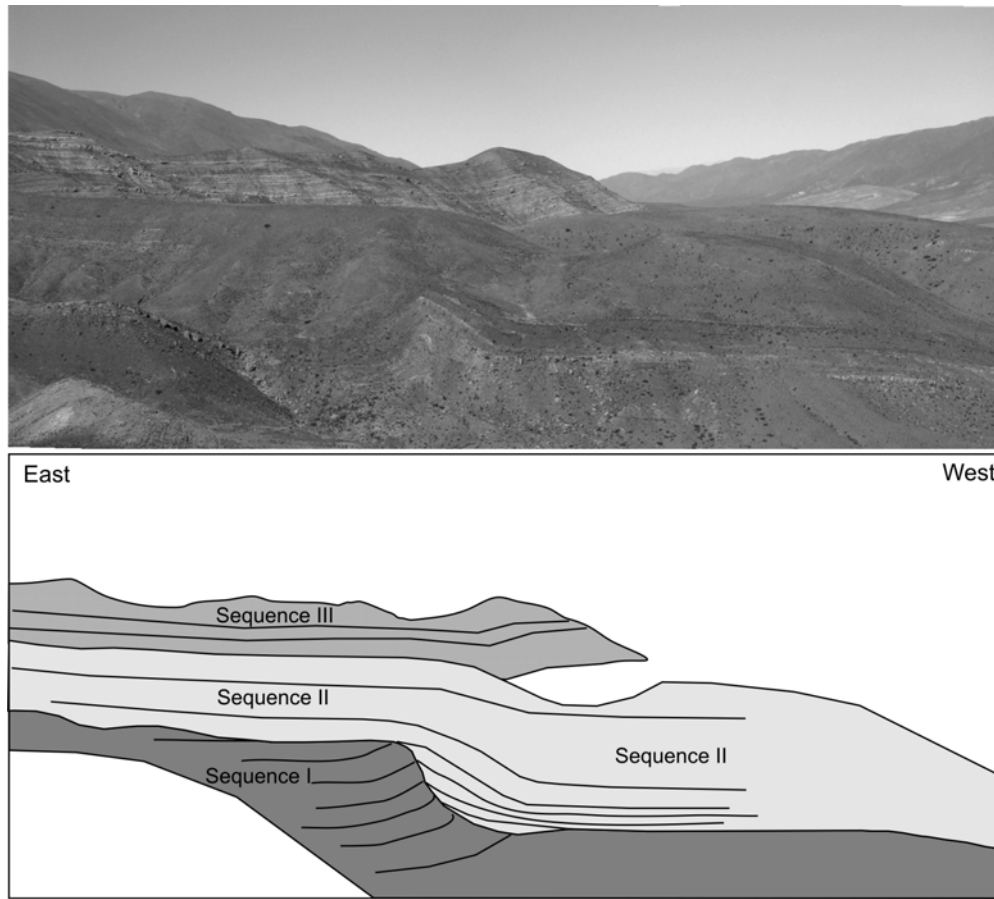


Figure DR2: General view of the internal angular unconformity showed in Fig. 1C of the main paper and Figure RDI1. Saladillo fault is located nearly 100 m east from the eastern border of the picture.

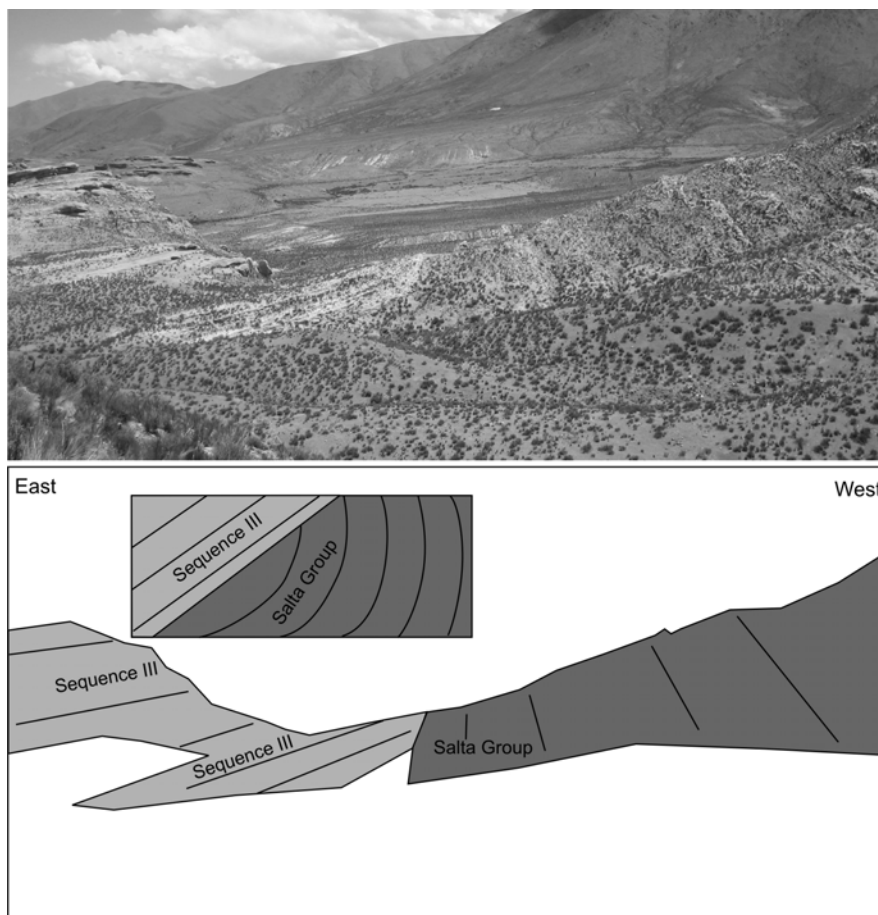


Figure DR3: Angular unconformity between sequence III of Quebrada de los Colorados Formation and postrift facies (Paleogene Santa Bárbara Subgroup) of the Salta Group. Box shows interpretation of relationships between both units. View of the western flank of the Saladillo syncline at the latitude of Saladillo School. Northward, on the same syncline flank, sequence II rests on Salta Group and further north, sequence II covers sequence I and Salta Group (see Fig. 1D of main paper). An angular unconformity is preserved between sequence I and Salta Group on the northern segment of the eastern flank of the syncline (del Papa et al., 2004). The Early to Middle Eocene age of the upper sections of the Salta Group (Santa Bárbara Subgroup, see Marquillas et al 2005 and references therein), the Middle Eocene age of the basal levels of Quebrada de los Colorados Formation, the variable relationships among Salta Group and sequences I, II and III, and the presence of both progressive and syntectonic angular unconformities within sequences I and II constitute strong arguments in favor of Middle Eocene deformation and sedimentation in the North Calchaquí Valley.

Table DR1: Characteristic features of the sedimentary sequences recognized in Saladillo and La Poma sites, northern Calchaquí Valley

| | Saladillo | | La Poma | | |
|-------------------------|--|---|---|---|---|
| Features | Sequences I and II | Sequence III | Sequence I | Sequence II | Sequence III |
| Basal sequence boundary | I: regional unconformity II: erosive, locally angular | Abrupt facies change, locally erosive | Regional unconformity | Abrupt facies change, shift in Paleoflows and provenance | Abrupt facies change, shift in provenance |
| Lithology | Massive siltstones-mudstones, paleosols trace-fossils, fine to coarse sandstones, minor conglomerate | Coarse to very coarse sandstones, pebbly to boulder conglomerate pebbly mudstones | Massive siltstones and mudstones, paleosols fine to coarse sandstones, minor conglomerate | Massive siltstones and sandy siltstones, fine to medium conglomerate, clast imbrication | Medium to coarse conglomerate, clast imbrication, pebbly mudstones |
| Main facies* | Fm, Sm, Sp, Gp | Gmm, Gh, Gp, Sm | Fm, St, Sp, Gp | Gmm, Gh, Gp, St, Fm | Gh, Gp, Gmm |
| Stacking pattern | Vertical stacking of overbank vertical and lateral stacking of shallow to sheet-like channels | Vertical and lateral shifting of main braided channels and bars, sheet-like mudflow deposits | Vertical stacking of overbank and vertical and lateral stacking of shallow channels | Vertical stacking of braided channels and bars. Minor floodplain aggradation | Stacking of sheet-like mudflow deposits and vertical-lateral shifting of braided channels |
| Paleoflow | Southwestward M=200° | Southward and eastward M=167° | Southwestward and southward M=205° | Northeastward M=205° | Northeastward M=73° |
| Main clasts composition | Granitic, low-grade metamorphic and minor Paleozoic orthoquartzite | Low-grade metamorphic, Paleozoic orthoquartzite, volcanics, K-T limestones and sandstones rocks | Granitic, low-grade metamorphic and minor Paleozoic orthoquartzite rocks | Low-grade metamorphic, granitic and Paleozoic orthoquartzite and volcanics rocks | Paleozoic orthoquartzite, volcanics, minor low-grade metamorphic, K-T sandstones and granitic rocks |

* Facies Code after Miall (1996)

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Marquillas, R., del Papa, C., and Sabino, I., 2005, Sedimentary aspects and paleoenvironmental evolution of a rift basin: Salta Group (Cretaceous-Paleogene), Northwestern Argentina: International Journal of Earth Sciences (Geologische Rundschau), v. 94, p. 94–113, doi 10.1007/s00531-004-0443-2.

Miall, A. D., 1996, The Geology of Fluvial Deposits: Sedimentary facies, Basin Analysis, and Petroleum Geology. Springer Verlag, 582 p., Berlín.

SYSTEMATIC PALEONTOLOGY

Order **Notoungulata** Roth, 1903

Suborder **Toxodonta** Scott, 1853

Family **Notohippidae** Ameghino, 1985 (*sensu* Bond and Lopez, 1993)

Notohippidae new gen. and sp.

Material: PVL-S C.B.02. Fragment of the anterior portion of the skull with all upper teeth except the right M3 and the right mandibular ramus with the complete dentary series poorly preserved except the incisors (only preserved in a plaster cast) and pm1.

This notohippid is closely related to *Pampahippus arenalesi* (Bond and López, 1993) from the Lumbrera Formation from Pampa Grande, Salta Province. This taxon was interpreted as a basal notohippid. Similarities with *Pampahippus arenalesi* include upper incisors forming an arc, an incomplete protoloph in the upper premolars, bunoid entoconid in the pm3-4 (plesiomorphic features also present in basal leontiniids from northwestern Argentina). However, the crown of the upper molars is slightly higher and with an angle between protoloph and ectoloph.

Family **Leontiniidae** Ameghino, 1895

Leontiniidae indet.

Material : PVL-S C.B.03 Incomplete skull including both partial premaxilla and maxilla with fragment of root of I2; alveoli of I3, C1 and P1; roots of left P2, P3 and P4; part of the crowns of the right P2? and portion of the crowns of the left M2 and M3. Fragments of nasals are also present. The upper dentition is complete: 3I-1C-4PM-3M. The teeth are brachyodont. No evident diastem is present. The root of the I2 is hypertrophied being one of the Leontiniid's diagnostic features.

Abbreviations PVL-S: Paleontología Vertebrados Lillo-Salta.