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Biostratigraphy of the Santa Rosita Formation (Furongian-Tremadocian) in its type area, Eastern Cordillera, NW Argentina

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The Cambrian - Lower Ordovician stratigraphic units from the Eastern Cordillera were originally defined in the Santa Victoria Range, Salta Province, NW Argentina. At the southern margin of the Santa Victoria River, near the homonymous locality, the Santa Rosita Formation is conformably overlain by the Acoite Formation. These stratigraphic units are dated by means of conodont, graptolite and trilobite biostratigraphy in the type sections. The upper interval (ca. 700 m) of the Santa Rosita Formation consists of sandstones interbedded with purplish to grayish shales and occasional coquinas, which were sampled for microfossils. 15 carbonate samples (35 kg) were processed following standard laboratory techniques for conodont recovery. A number of species from the genera *Acanthodus, Acodus, Decoriconus, Drepanodus, Drepanoistodus, Iapetognathus, Kallidontus, Paltodus, Utahconus*, *Teridontus* and the protoconodont *Phakelodus* were recovered from 5 productive samples. The conodont elements exhibit a CAI 3 and correspond to the *Paltodus deltifer deltifer* Subzone of the *P. deltifer* Zone (middle Tremadocian, Tr2). Pelites of the Acoite Formation, at 300 m from its base, bear *Araneograptus murrayi* and *Thysanopyge* sp., whose ranges span the Tremadocian – Floian boundary. Conodonts and graptolites were also yielded by outcrops of the Santa Rosita Formation at the Nazareno area, 30 km to the south of the Santa Victoria type locality. The conodont associations were recorded from calcareous levels of the Alfarcito and Rupasca members, including *Drepanodus arcuatus, Drepanoistodus chucaleznensis, Teridontus gallicus, Utahconus humahuacensis, Acanthodus* sp. and *Utahconus* sp. They also integrate the eponymous subspecies from the *Paltodus deltifer pristinus* and *P. d. deltifer* subzones of the *P. deltifer* Zone (middle Tremadocian, Tr2). The Santa Rosita Formation correlates with a thick heterolithic succession at the Zenta Range, 120 km to the southwest of the Santa Victoria type area. This mostly siliciclastic succession intercalates calcareous concretions, coquinas and calcarenites bearing a significant conodont and graptolite fauna. Exposures of gray shales and subordinated coquinas near Abra de Santa Ana, produced a low diversity conodont fauna that incorporates *Acodus apex*, *Drepanoistodus chucaleznensis*, and *Drepanoistodus costatus*, which are referred to the lower part of the *Acodus deltatus – Paroistodus proteus* Zone. The *Araneograptus murrayi* Zone is suggested by a graptolite assemblage that includes *A. murrayi, Kiaerograptus* cf. *K. supremus,* and *Kiaerograptus*? sp., which was collected from strata overlying the conodont-bearing levels. These conodont and graptolite faunas indicate a late Tremadocian age (Tr3). Another locality on the road to Abra de Zenta, west of Santa Ana, contains *Hunnegraptus* cf. *H. novus*, *Hunnegraptus* spp. and *Paradelograptus* sp., allowing for the recognition of the *Hunnegraptus copiosus* Zone that typifies the uppermost Tremadocian. The studied assemblages include elements of wide intercontinental distribution as well as endemic forms from the Central Andean Basin, characterizing a faunal province with a particular signature.