

Geologic Map of the Nelson Canyon West Quadrangle,

Lincoln County New Mexico

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Quaternary Deposits

QHa Holocene alluvial deposits. These deposits are composed of weakly consolidated interbedded gravel, silt, and clay. They commonly form relatively flat deposits at the bottom of the wider drainages. They characteristically contain abundant dark, organic- and clay-rich soils at the surface. The deposits are commonly incised up to about 2-3 meters by the modern drainages.

Qal alluvial deposits. Interbedded silt, fine sand, and gravel. Exposed in some road and stream-cuts not far from the confluence of Rio Ruidoso and Rio Bonito. These deposits contain interbedded silt and locally derived gravel, but are less cemented than older yet unmapped Quaternary deposits and typically contain weakly developed pedogenic carbonate horizons. These deposits form relatively flat constructional surfaces that reside about 20 feet above the Holocene deposits (**QHa**).

Qc Colluvium. Rockfall, debris-flow, and poorly sorted alluvial deposits at the bases of cliffs, particularly along Tinnie Canyon. Texture and clast lithology variable. Thickness is generally <10 m thick but locally may be thicker. Colluvial deposits grade into local deposits of Qal.

Paleozoic Rocks

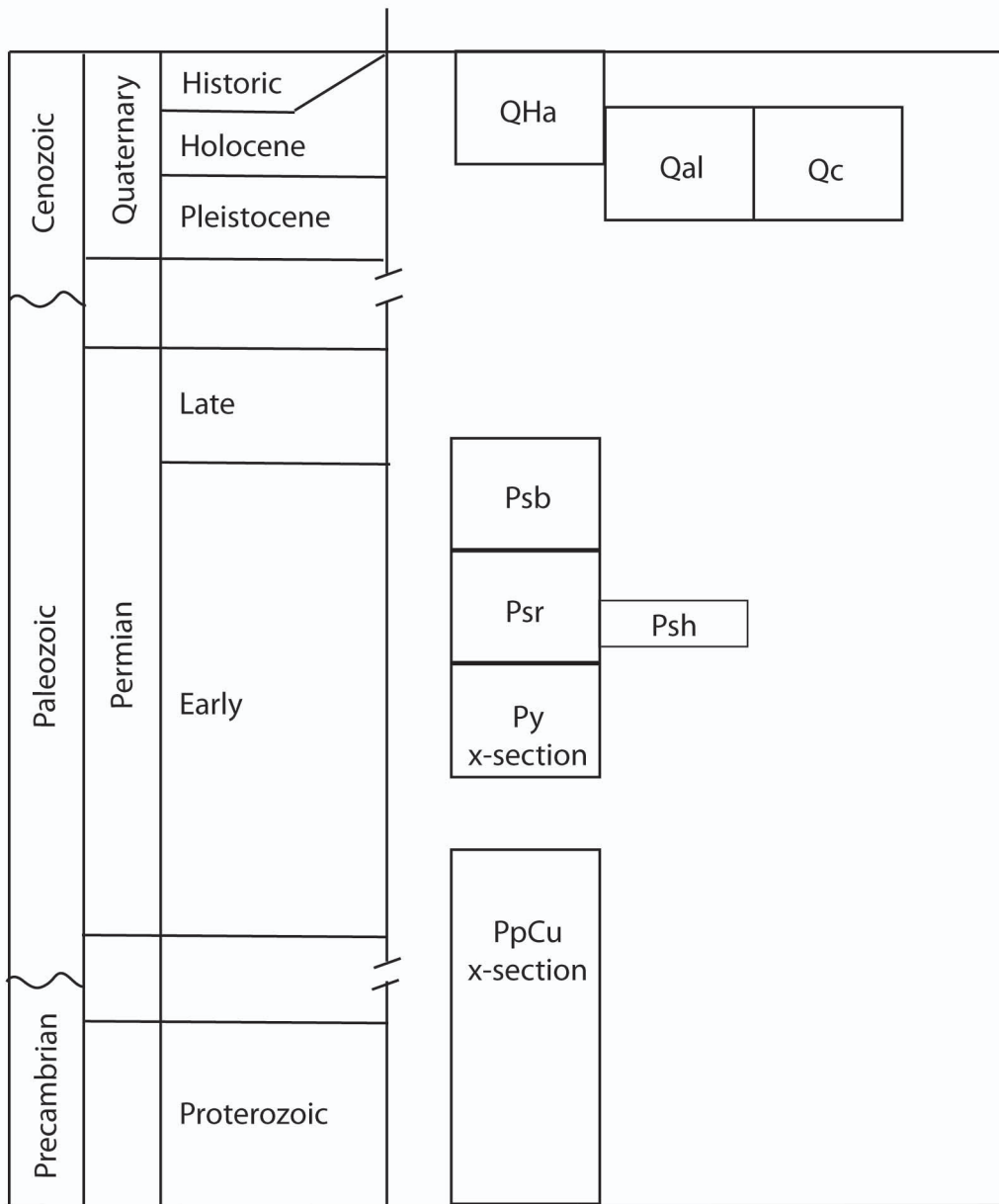
Ps San Andres Formation (Permian). Light to dark gray and bluish gray limestone and dolomite. Limestones and dolomites range from thin to very thick bedded, and are carbonate mudstones, wackestones, and grainstones. Freshly broken surfaces are darker gray than weathered surfaces and often fetid. Silty and sandy beds are common. Subdivision of the San Andres into the lower dominantly thick-bedded Rio Bonito Member (**Psr**) and upper dominantly medium- to thin-bedded Bonney Canyon member (**Psb**, Kelley, 1971) was based on aerial photograph interpretation. The members can be distinguished based on average bed thickness and continuity, and color, with the Bonney Canyon member being darker on average. Color and vegetation patterns give the Bonney Canyon member a distinctly striped appearance. A prominent sequence of ledge-forming, thick, white beds is present near the top of the Rio Bonito member and locally serves as a marker horizon on aerial photographs and in the field. The Hondo Sandstone (**Psh**) is a prominent marker bed within the Rio Bonito Member and provides a critical datum to map the complexly folded rocks in the western part of the quadrangle. The sandstone is

dominantly medium bedded quartz arenite, well rounded, and well sorted. The sandstone is approximately 10-18 m thick with the first 2 m being gold in color and the remainder is white to gray-white in color. Very low angle trough crossbeds and planar tabular beds are common and concretions are occur locally. Down Talley Canyon, Hondo is ~16.5 m thick but may be up to 18 m thick.

Py Yeso Formation (Permian). Yellow to tan siltstone and fine sandstone, red to pink muddy siltstone and fine sandstone, gray to tan silty limestone and dolomite, and white to gray gypsum. Siltstone and sandstones are thin to medium bedded and friable. Muddy siltstones and sandstones are laminated to very thin bedded. Limestones are very thin to thin bedded, rarely medium to thick bedded. In general, they are thinner bedded than overlying basal San Andres beds. Meter scale interbedding of carbonate, siltstone, and sandstone is common. Bedding dips are chaotic due to dissolution of gypsum and (and carbonates?) and individual beds are generally not traceable laterally for more than a few 10s of meters. Natural exposures are poor except in stream cuts and very steep slopes and the upper contact is usually mantled by colluvium and/or landslides from the overlying San Andres Formation. Base not exposed; approximately 510 meters in the State "N" #001 oil test well in the proximal Loco Canyon quadrangle to the south.

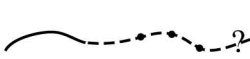
P•u - Permian to Proterozoic rocks - Paleozoic sedimentary rocks and Proterozoic igneous and metamorphic rocks, undivided (cross section only). Thickness of Sub-Yeso Paleozoic rocks approximately 645 meters in the State "N" #001 oil test well located in the proximal Loco Canyon quadrangle to the south.

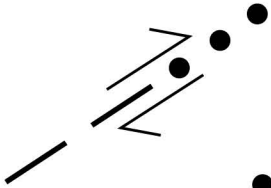
Nelson Canyon West 7.5 minute quadrangle correlation diagram

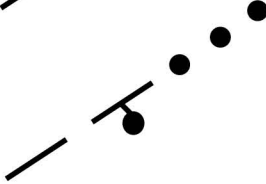


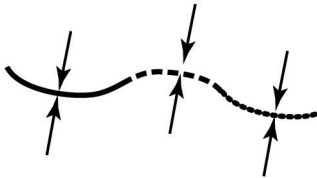
MAP AND CROSS SECTION SYMBOLS

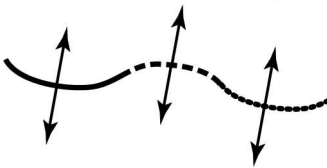
A |-----| A' Location of geologic cross section

 Geologic contact, solid where exposed and identification is certain, dashed where approximately located and identification is certain, dashed with ball where approximately located and identification is probable, queried where identification and location are uncertain.


 Strike-slip fault, dashed where intermittent or obscured, dotted where buried


 Normal fault, ball shown on downthrown side, dashed where intermittent or obscured, dotted where buried


 Syncline, dashed where approximately located, dotted where buried.

 Anticline, dashed where approximately located, dotted where buried

 Horizontal bedding

20°295  Dip and dip direction of bedding

 vertical joint

 Dip direction of bedding interpreted from air photos





