

A Biostratigraphically Significant Section of the Upper Part of the Bell Canyon Formation, Northwestern Apache Mountains, West Texas

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A fifty to sixty meter thick continuous stratigraphic section of the upper half of the Bell Canyon Formation was measured and described in a box canyon about two miles east of Texas FM Road 2185 as part of an ongoing project to document the biostratigraphy of this unit in the northwestern part of the Apache Mountains, West Texas. The section is composed of siltstone, very fine grained sandstone, and interbedded carbonate with an upper conformable contact with about sixty to seventy meters of continuous exposure of the overlying Castile and Rustler Formations. The basal carbonate beds of this section form a coherent unit that contains microfossils which suggest age equivalence to the McCombs Limestone Member of the Bell Canyon Formation as described in the McKittrick Canyon area of the Guadalupe Mountains. The overlying siltstone and sandstone interval, with a few carbonate interbeds containing the fusulinacean *Codonofusiella*, appear to be stratigraphically equivalent to the upper part of the Ramsey Sand as present to the north and east of the Apache Mountains in the Delaware basin. The presence of the fusulinacean *Yabeina texana* in the basal part of the overlying carbonate unit suggests age equivalence to the basal part of the Lamar Limestone as exposed in the Guadalupe Mountains. This carbonate unit is cut and truncated by an extensive ten to fifteen meters thick fining upwards debris flow (gravite) at the base of the upper part of the section. Another thick (ten to fifteen meter) fining upwards carbonate debris flow overlies the first debris flow separated by a few meters of siltstone and is capped by seven meters of strata with the same identical succession of units (A through E) correlated (by conodonts) to the Reef Trail Limestone Member of the Bell Canyon Formation and described (EF section) in a recent paper of Nestell, Sweatt and Kennedy (2010) and exposed on Texas FM Road 2185. This measured section is significant in that it represents a long and continuous section of Upper Bell Canyon to Rustler age strata in the southern part of the Delaware basin that can be correlated biostratigraphically to similar aged sequences in the Guadalupe Mountains and Delaware basin areas to the north and west of the Apaches. One significant problem is that the members of the Bell Canyon Formation as named in the Guadalupe Mountains area can be carried biostratigraphically but not lithologically into the northwestern part of the Apache Mountains.