

The Eagle Ford Group Returns to Big Bend National Park, Brewster County, Texas

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ABSTRACT

The Upper Cretaceous succession in the Big Bend Region of West Texas is plagued by the continued use of provincial lithostratigraphic terms not used elsewhere in the state of Texas. These provincial terms greatly limit: (1) correlating these strata to coeval units in outcrops, as well as the subsurface, elsewhere in Texas; and (2) utilizing these outcrops as windows to examine strata coeval to economically important unconventional reservoirs within the Eagle Ford Group in the subsurface of South Texas.

However, with the use of petrophysical and geochemical techniques (handheld spectrometer, X-ray fluorescence [XRF], and stable isotopes), it is possible to identify and define the Eagle Ford and Austin groups, as well as potentially a remnant of the older Woodbine Group, within Big Bend National Park, Brewster County, Texas. Because the Hot Springs section is west of the classic Eagle Ford and Austin outcrops in the Lozier Canyon region of Terrell County (West Texas), the Big Bend outcrops also provide insights into lateral facies changes within these units.

As historically defined, within the Big Bend region, the Boquillas Formation overlies the Buda Formation and is overlain by the Pen Formation. Furthermore, the Boquillas Formation is divided into a lower Ernst Member and an upper San Vicente Member, while the Ernst Member is divided into four informal sub-members referred to as units 1 to 4 from the base upwards. Correlations from Lozier Canyon revealed that the Boquillas Formation at Hot Springs is equivalent to both the Eagle Ford and Austin groups in the Lozier Canyon region of West Texas. The Eagle Ford Group defined in Lozier Canyon is equivalent to units 1 to 3 of the Ernst Member at Hot Springs. Our work also suggests that unit 1 of the Ernst Member at Hot Springs is equivalent to the Lower Eagle Ford in Lozier Canyon, while units 2 and 3 of the Ernst Member at Hot Springs is equivalent to the Upper Eagle Ford at Lozier Canyon.

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