

## **THE PERMIAN-TRIASSIC BOUNDARY IN WYOMING: THE CASE OF THE DISAPPEARING PARACONFORMITY**

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Long-standing interpretations of paleontologic, sedimentologic, and stratigraphic evidence from Permian-Triassic marine sequences in western Wyoming have suggested an interruption in deposition of several million years' duration between the two systems, even though physical evidence of unconformity is subtle and somewhat equivocal. We postulated that an unconformity of this duration should be more pronounced in paralic and non-marine facies in central and southeast Wyoming than in adjacent inner-shelf marine facies in westcentral Wyoming. Therefore, we correlated an erathem boundary-bearing sequence from westcentral Wyoming (where it is faunally controlled) to southeast Wyoming (where it is non-fossiliferous) and studied this sequence for evidence of hiatus. The correlations were made using surface sections, surface gamma-radiation logs, and subsurface log suites.

In southeast Wyoming, the lithostratigraphic equivalent to the systemic boundary in westcentral Wyoming is located within a redbed-evaporite sequence traditionally interpreted as having accumulated in paralic and/or terrestrial depositional environments. Physical evidence of disconformity at this surface in southeast Wyoming is no greater, and is in places less, than at several other horizons within the boundary-bearing sequence. Also, petrologic examination of the terrigenous clastic units below, through, and above the boundary-bearing sequence in central and southeast Wyoming suggests notable stability of the depositional environment. Southeastward stratigraphic thinning of various units within this boundary-bearing sequence is demonstrable; however, compelling evidence of regional truncation is not evident, and the stratigraphic thinning appears to be due to primary depositional processes rather than post-depositional erosion during hiatus.

We interpret slow, episodic, yet generally continuous deposition of evaporite and siliciclastic units in southeast Wyoming across the Permian-Triassic boundary. If true, then conventional biostratigraphic estimates of the duration of a hiatus separating Permian inner and middle-shelf carbonate facies from overlying Triassic siliciclastics in western Wyoming appear to be overly long, and may need re-evaluation.