

Palynological Correlation in Cretaceous Brookian Strata of the Colville Basin, Alaska North Slope.

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ABSTRACT

Cretaceous strata of the Brookian Plate Sequence comprise a thick and complex set of dominantly progradational siliciclastic sediments derived from the emergent ancestral Brooks Range, and deposited in the deep foreland Colville Basin. This basin-filling episode commenced in Albian time, and continued without major hiatus throughout the remainder of Cretaceous time. Recently, new attention has been focused on these strata, with the discovery of several significant petroleum reservoirs within strata ascribed to the Nanushuk Formation, of Albian-Cenomanian age. Standard lithostratigraphic nomenclature, derived from surface exposures in the Brooks Range, does not serve adequately to communicate stratigraphic relationships in the subsurface of the basin to the north. Relatively little comprehensive biostratigraphic information has been published from the region, but these strata ubiquitously contain rich and diverse palynological populations of both marine and terrestrial origin, highly valuable for establishment of a robust framework for correlation. The comprehensive presence of abundant palynological populations allows the application of a variety of analytical techniques providing strongly objective evaluations of time-related horizons, by means of correlating reliably repeatable data events, rather than subjective interpretations.