

Cretaceous Shoreface Successions within Moosebar Formation Outcrop, Crescent Falls, Nordegg, Alberta

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The Moosebar Formation is a transgressive marine unit, which outcrops at Crescent Falls, Alberta. It belongs to the Luscar Group and is lower Albian in age. Two coarsening upward parasequences can be observed and studied in significant detail at this location. High-resolution outcrop studies are beneficial when determining stratigraphic relationships over large distances. Our study had a two pronged phase; 1) the identification of lithologies, sedimentary structures, mineralogy, and contacts present and 2) an integrated ichnological analysis. The conclusions will aid in developing a better understanding of transgressive marine environments within the Western Canadian Sedimentary Basin. An abundance of shoreface features can be observed within the two coarsening upward parasequences. The lower parasequence is characterized by heavily bioturbated mudstones with observable trace fossils characteristic of the *Cruziana* Ichnofacies assemblage. This gradates into a sand dominated succession with pervasive gutter casts and high-energy sedimentary structures. The upper parasequence is characterized by a less visibly bioturbated mudstone with abundant microscopic shell fragments, followed by amalgamated HCS and tempestite beds with frequent *Skolithos* type colonization suites. Capping the succession is a low angle SCS sandstone and 20 cm thick pebble sized lag. Our outcrop observations place the Moosebar in a storm dominated marine shoreface environment punctuated by rapid and episodic sedimentation in an overall transgressive environment.