

# **THE STRATIGRAPHIC DEVELOPMENT OF LARAMIDE SYNOROGENIC DEPOSITS: UNROOFING OF THE BEARTOOTH PLATEAU**

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Synorogenic sedimentary rocks exposed on the northeast perimeter of Beartooth Mountains, Montana and Wyoming, are records of tectonism and deposition in the central Rocky Mountains during the Laramide orogeny. The synorogenic units are mapped as Paleocene Fort Union Formation and Eocene Willwood Formation; this inconsistent nomenclature gives a muddled interpretation for regional events of the early Cenozoic. The coarse-grained deposits have not been well defined in terms of their age and relationship to Beartooth fault systems and the stratigraphic development of the Bighorn Basin. Synorogenic sediments are debated to be equivalent to Fort Union strata found in the northwestern Bighorn Basin, which are hosts to economically important resources such as coal and oil shale. The finer-grained Fort Union and Willwood basin strata have yielded cross-disciplinary data that provides one of the best continental records for climatic and biologic evolution during the early Paleogene. Understanding the interplay between tectonics, climate, terrestrial systems, and the production of natural resources remain fundamental problems in earth sciences.

This study involves a multi-disciplinary approach in order to understand proximal sedimentation from the Beartooth Uplift, and how the generation of this mountain plateau controlled the evolution of neighboring basins. Magnetic reversal and stable isotope stratigraphies will be constructed for the synorogenic stratotype section and matched to strata of the Bighorn Basin. Comparative petrology on sandstones collected from structurally and stratigraphically varying outcrops along the range front will be used to determine changes in source terranes as the Beartooth Plateau was drained in the Paleogene.