

Sequence Stratigraphy of the Upper Pennsylvanian Juniper Gulch Member of the Snaky Canyon Formation: east-central Idaho

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The Pennsylvanian sedimentary record is characterized by cyclothems deposited during high-amplitude (>40 meters), high frequency (100-400 k.y.) sea level fluctuations produced by Gondwana glaciation. However, the record of these events is poorly documented in the northern U.S. Rockies. The Upper Pennsylvanian Juniper Gulch Member (~600 meters thick) of the Snaky Canyon Formation is a mixed carbonate-siliciclastic unit, that is well-exposed in the mountain ranges (Lemhi, Lost River, and Beaverhead Ranges) of east-central Idaho, north of the Snake River Plain. The main goal of this investigation is to reconstruct the regional sequence stratigraphy of the Juniper Gulch Member, which will provide a better understanding of how sea level fluctuations related to Gondwana glaciation affected the generally subtidal western margin of Laurentia.

Recent fieldwork focused on three stratigraphic sections of the Juniper Gulch Member in the southern Lost River, Lemhi, and Beaverhead Mountains. Depositional facies include subtidal carbonate, algal boundstone, and very-fine grained possibly eolian sandstone. Cycles will be discerned from the measured sections based on facies stacking patterns and important depositional surfaces (i.e. flooding surfaces, and erosional surfaces). To determine the frequency of any cycles in this unit, fusulinid and condont samples will be identified to establish the high-resolution biostratigraphy of this unit. Relative sea level curves produced from the facies stacking patterns and biostratigraphy will be compared with published curves to determine their local (Idaho), regional (western U.S.), and possible global correlations.