

# **Stratigraphy and Structural Geometry of the Liard, Kotaneelee, and Tlogotsho Ranges, SW Northwest Territories**

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## **ABSTRACT**

The Liard, Kotaneelee and Tlogotsho Ranges lie within the southern Franklin Mountains of the SW Northwest Territories. The Liard and Kotaneelee Ranges change markedly in structural trend, from NW-SE in the south to NNE-SSW in the north.

The study area is underlain by Lower Carboniferous to Lower Cretaceous strata. The Lower Carboniferous units are resistant and well exposed along the ranges, whereas the less competent Lower Cretaceous units are poorly exposed in valleys. The Lower Carboniferous section exhibits along-strike stratigraphic variations. For example, at approximately 60°55'N, upper Tournaisian rocks change from predominately limestone in the south to shale in the north.

In the southwest, the N-S trending Kotaneelee Anticline is replaced to the north by west-stepping en echelon box folds which also trend northward. The northwest portion contains a NE-SW trending asymmetric box-fold. A NW-verging thrust fault in the Tlogotsho Range places strata of the Prophet Formation on top of the Middle Mattson Formation. In the northeast, the structure of the Liard Range is defined by the SW-plunging Mattson Anticline. In the central region the Liard Range is dominated by tight N-S trending box anticlines. In the southeast, a NE-verging thrust fault places the Flett Formation above the Lower Mattson Formation.

The change in trend of the ranges and structures suggests that the amount of eastward tectonic transport varies from north to south, possibly due to lateral stratigraphic changes and/or variations in the strength of underlying décollement horizon(s).