

Recent Discovery of an Extensive Stromatolite Outcrop in the Middle Cambrian Pika Formation, Lake Helen-Lake Katherine Area, Banff National Park

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Summary

The presence of minor stromatolite outcrops in the Lake Helen-Lake Katherine area, Banff National Park, have been known for several years, however, there does not appear to exist any published data on them. In 2004, David Gibson and Jim Dolph discovered an extensive outcrop (~800m by 10m) of exhumed, and well-preserved Stromatolite reef in the Middle Cambrian Pika Formation. A special feature of the outcrop is it allows an excellent view of the reef in three dimensions.

Fossil stromatolites represent the oldest form of life on earth, extending back some 3.7 billion years. They are considered to be accretionary microbial mats, commonly domal in habit. Stromatolites are still living today, most well known in Shark Bay, Western Australia.

In the Lake Helen-Lake Katherine area, the Pika Formation Stromatolites are generally 30 to 40cm in both height and diameter. They are elliptical in plan view which likely indicates the major paleocurrent directions. They are insitu, gently dipping, and fully exhumed. Both vertical and bedding plane sections are well exposed.

The stromatolite exposure is located on the east side of the unnamed ridge above Lake Helen on the north side of the hiking trail to Lake Katherine and Dolomite Pass. The beautiful 7km hike, with a 650m elevation gain, takes approximately 2.5 hours (one way). The purpose of this poster is to document and publicize the presence of this outcrop. The authors hope interested persons will enjoy seeing and examining them.

Acknowledgements

The Seniors' Outdoor Club of Calgary organized the hike to the Lake Helen and Dolomite Pass area. Dave Gibson remarked that we should keep our eyes open for stromatolites. We did, and we discovered this extensive outcrop.



Figure1: Bedding plane view of Middle Cambrian, Pika Formation Stromatolites



Figure2: Sectional view of Middle Cambrian, Pika Formation Stromatolites