Alberta Palaeontological Society

REEFS BY THE ROADSIDE – a preliminary guide to easily accessible (by viewing or walking) Canadian fossil reef localities

Speaker: Leslie Eliuk, PhD, GeoTours Consulting Inc.

Location: In-Person Presentation

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Abstract:

Canada is blessed with many fossil reefs. Most are not easily accessible but a fair number are close enough to roads to be easily walked to or viewed. Surprisingly, there are even rare modern atypical Canadian reefs that are much harder to visit, being under cold water — deep-water coral thickets and sponge mounds occur offshore of our Arctic, Atlantic and Pacific coasts. For many Alberta geologists the most appealing reefs are a few kilometers below a road and accessible only by wells. This talk expands on my recently published Reefs by the Roadside ably edited by Howard Allen in his final APS Bulletin 2025-03 effort before 'retiring' after over 30 years editing. And he is perhaps the first to use my locality tables to find sites to add photographs to my article. Retirement and senior years are not a requirement. But, if getting around is now a problem (old baby boomer, creaky, lazy, limited time); then this is why I tracked down roadside reefs - maybe a bit late for me in my 80th year. There are many guides to roadside geology aimed at the interested public. In recent years some very good Canadian geological roadside guides have been published, many with emphasis on sites with scenic settings. However, it seems fossil reef examples, the quintessential carbonate — since most carbonate rocks owe their origin to organisms, both modern and fossil — have not been very much in evidence. After, an overview of fossil reefs through time showing some of their important changes, a trip across Canada visiting fossil reefs will try to remedy this shortcoming in guide books.

Several illustrated examples and a list of potential other sites across Canada are presented to rectify this oversight. The examples, most of which are not in road guides, include the clam-bearing Devonian Nisku beds overlying the well-known Nisku-Leduc reef interior beds at Grassi Lakes above Canmore; the Leduc reef margin at the Big Hill on the Jasper-Banff highway just south of the Columbia Icefield; the Ediacaran age Yellowhead carbonate platform near Mt. Robson; the "petrified beaver dam reef " (travertines or tufas) at Big Hill Springs Park, near Cochrane; and the Lower Cambrian oldest metazoan reef in Labrador and algal reefs of Cambrian age in Newfoundland and Carboniferous age in Nova Scotia. Even the Mesozoic is represented by Triassic reefs near Whitehorse, Yukon — rarities where mainly Paleozoic or Precambrian age reefs are the rule in Canada.

This is a work in progress. I hope that others will join in with contributions of other examples or details on some localities discussed from my table of reef localities by province. The main source of my data comes from the Canadian Reef Inventory Project (CRIP) and its products. It inspired the Carbonate Liars Club of carbonate enthusiasts (possibly now extinct) and the 1988 Canadian Society of Petroleum Geologists Memoir 13 Reefs of Canada and Adjacent Areas. Some localities have only been visited by me virtually on Google Maps street view and need you or someone you know to ground truth them. Please email information to leslie.eliuk@gmail.com or the Alberta Palaeontological Society (APS).

Biography:

Dr. Leslie Eliuk – GeoTours Consulting Inc. - semi-retired former Shell Canada exploration geologist, 1969-1999, and after a near decade at Dalhousie University a PhD in 2016 on Jurassic-Cretaceous carbonate platform by the major Sable Delta. Field trips like these to various reefs among other things partly explain the long time doing my PhD. Now I tag along on Tako Koning's Cretaceous-Paleogene (-Tertiary to us old folks) extinction-event field trips not too far from my first summer student job in paleontology collecting dinosaur shoulder blades near Trochu Alberta just a bit north of Three Hills. Like Tako I am also a University of Alberta graduate and an Honorary Member of the Canadian Energy Geoscience Association (CEGA former CSPG) but my career and helping was all in Canada. Our geology mentor, the late Professor Charlie Stelck said "Never retire!" Although we keep at geology for the joy of it; I actually was quite surprised to get a short paying contract job early this year on planning to put carbon dioxide back in Jurassic reefs I once helped take methane gas out of.