

## Geology and geochronology of the Fowle Lake area: evidence for Late Cambrian volcanism in southern New Brunswick

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The Fowle Lake area, located 50 km west of Saint John and 5 km northwest of the Belleisle Fault, contains the western-most exposures of Avalon in New Brunswick. It comprises Late Precambrian granitoids and mafic volcanic rocks, Silurian sedimentary rocks and a newly recognized succession of felsic and minor mafic volcanic, volcanoclastic and epiclastic rocks named the Mosquito Lake Road volcanics (MLRV).

A U-Pb (zircon) date from rhyolite within the MLRV gives an unambiguous age of  $515 \pm 3-2$  Ma (Late Cambrian). The rhyolite is conformably to disconformably overlain by the Matthews Lake beds (new name) comprising polymictic to quartzite-pebble conglomerate, thick-bedded quartzarenite and fine-grained sedimentary rocks. The Matthews Lake beds continue along strike to the Long Reach area, over 40 km to the northeast.

The MLRV and overlying Matthews Lake beds are in structural contact with Silurian sedimentary rocks to the north, along the ductile-brittle Wheaton Brook Fault. To the south they are in fault contact with granitoid rocks of the Ragged Falls Pluton, which yield an age of  $555 \pm 2$  Ma in the map area based on U-Pb dating of zircon. This confirms a similar, previously published date for the pluton 6 km to the northeast.

Early and Middle Cambrian rift-related volcanic rocks in the Long Reach and Beaver Harbour areas form part of an extensive linear belt bound to the northwest and southeast by the Wheaton Brook and Belleisle faults respectively. The MLRV which are situated within this belt, provides evidence for a protracted history of Cambrian volcanism in this part of the Avalon Composite Terrane.