

From the Mineral Inventory Files

The Lower Caledonia Beryl Pegmatite: Could there be Others?

In 1999, while conducting a Mineral Inventory field check of a gold prospect in Lower Caledonia, Guysborough County, I discovered outcrops of beryl-rich pegmatite. The pegmatite, located south of the West River St. Marys between the communities of Caledonia and Lower Caledonia, intrudes highly sheared Goldenville Formation rocks at the western end of an elongate, deformed leucomonzogranite pluton (Fig. 1). This beryl-rich pegmatite is likely the richest known in the province.

The mineral occurrence is described in detail in the *Minerals and Energy Branch Report of Activities 1999* (Report ME 2000-1, p. 175-182). The pegmatite and related leucomonzogranite are found within the West River St. Marys Fault Zone. This fault is the southernmost splay of the Cobequid-Chedabucto Fault System and forms the southern contact of the St. Marys Graben, a large rectangular block of Carboniferous sedimentary rocks which dominates the geology of

the central mainland. Older rocks south of the graben form a scarp of highly deformed metasedimentary rocks of the Cambro-Ordovician Meguma Group and several elongate granitic plutons of Devonian-Carboniferous age (Fig. 1). Deformation decreases in intensity within a short distance south of the fault zone.

The pegmatite forms a dyke striking 114° and consists of three large outcrops over a strike length of at least 125 m, and a width that varies from 10-12 m at its east end to 2 m at its west end (Fig. 1). The greatest beryl concentration occurs in the east outcrop where there is up to 30-40 modal % beryl. The pegmatite was noted in trenching and diamond-drilling conducted in this area for gold and base metals in the 1960s and 70s, but the presence of beryl was not recognized. Previous exploration also indicated other pegmatites in the area and over the last field season I visited some of these outcrops with the current mineral rights holder,

M. S. King (see www3.ns.sympatico.ca/one.king/new-be.htm), finding considerable beryl. The western end of the Lower Caledonia leucomonzogranite intrusion may have several zones and dykes of mixed pegmatite-leucomonzogranite within its endo- and exo-contact zones, and the pegmatitic portions of these "mixed zones" are potentially beryl-rich. From this I would suggest that the entire leucomonzogranite intrusion, especially its contact areas, should be examined for pegmatite.

The Lower Caledonia leucomonzogranite bears a close similarity in composition and geological setting to several other leucomonzogranite plutons intruding Meguma Group rocks along the West River St. Marys Fault (Fig. 1). Any and all of these other plutons could host beryl-rich pegmatite. These pegmatites may also be enriched in elements such as Ta, Nb, Cs, Rb, Li and Sn that are known to be associated with rare metal pegmatites of this type.

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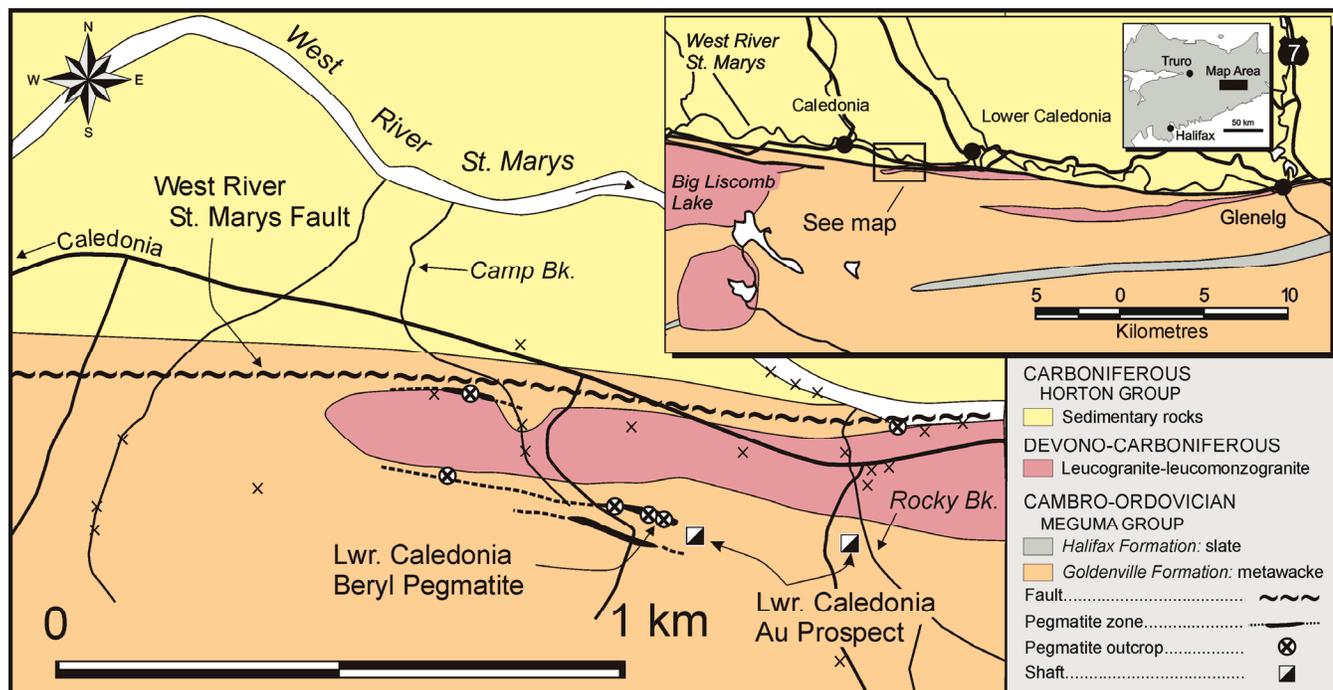


Figure 1. Geology map of the Lower Caledonia area, Guysborough County, showing the location of beryl pegmatites. Inset map shows other leucomonzogranite plutons which may host similar pegmatites.