

PROJECTS RELATED TO IRON ORE

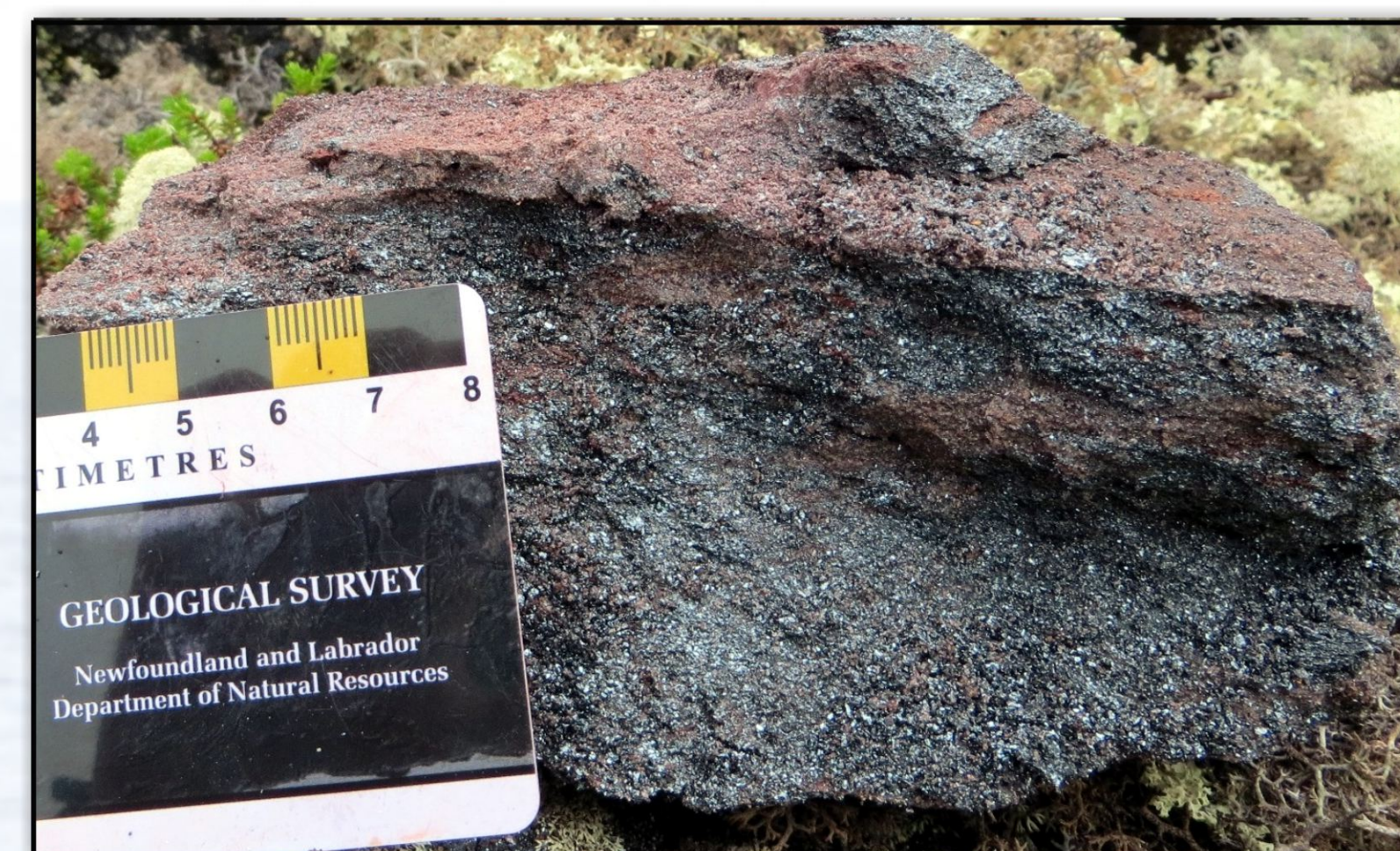
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The iron-ore industry is a vital component of the Provincial economy, and Labrador West is recognized as part of a world-class iron-ore district. In 2012, a new project directed at the iron-ore deposits in western Labrador commenced, and will increase our understanding of deposit geology, structural controls, mineralogy, geochemistry and several other factors. There are little current scientific data on these deposits. Fieldwork concentrated on the Julienne Lake iron-ore deposit, but also involved field visits to several active iron-ore exploration projects in Labrador.

Geological Assessment of the Julienne Lake Iron-Ore Deposit

Detailed work was completed on the Julienne Lake iron-ore deposit, approximately 27 km north of the towns of Labrador City/Wabush in western Labrador, where the Mineral Development Division completed a drilling program and preliminary metallurgical studies in 2010. Survey activity in 2012 included logging of diamond drill holes archived in Goose Bay and mapping of outcrops and exposed trenches around the deposit.

Initial results indicate that the deposit has undergone intense deformation, including recumbent folding and thrusting. The main rock type on the property is banded to massive quartz-specularite schist, with varying degrees of alteration and recrystallization. Intervals of pyrolusite-bearing, Mn-rich iron formation and lean white quartzite were also recorded, but account for less than 5% of the total thickness of iron formation in the logged drill holes. Current research is focused on identification of marker horizons in the Julienne Lake iron-ore deposit, which should enable a better understanding of the structure of the deposit. Systematic geochemical sampling was also completed, and this should assist in correlations between drill holes. Associated regional studies will explore comparisons between the Julienne Lake deposit and several other iron-ore deposits in the Labrador City/Wabush area.



Massive, friable quartz-specularite iron formation at Julienne Lake.



Tight folding and alteration in possible fold hinge.



Folds in banded iron formation (taconite), Gabbro Lake.



Aerial view of the Timmins No. 1 pit (IOC, exhausted) and construction of Tata Steel Minerals Canada processing facility.

Iron Ore in the Labrador Trough: Geological and Metallogenic Studies

Regional investigations related to iron ore in western Labrador in 2012 focused on systematic sampling of iron-ore deposits across the district. Exploration activity in the Labrador Trough remains high, driven by demand from emerging Asian economies. All known iron-ore deposits of potentially economic dimensions are now being re-examined, and there is also good potential for large undefined taconite and/or high-grade direct shipping ore (DSO) deposits in more remote and less-explored parts of the Labrador Trough. However, there is limited scientific information on these deposits and there is a need for improved knowledge of deposit geology, structural controls, mineralogy, geochemistry and several other factors.

In 2012, the survey visited active mining operations, advanced exploration projects and areas of new grass-roots exploration throughout the region. Samples were collected for laboratory investigations, including geochemical (trace element and REE) and isotopic analysis. Further sampling and mapping of specific deposits is planned for 2013. Field observations and geochemical data will provide an integrated database that can be used to assess regional variations in deposit geology, and also evaluate metallogenic models for these world-class iron-ore deposits. Such models may have important implications for exploration methodology.