

# PROJECTS RELATED TO PRECIOUS METALS (Au, Ag)

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## Ongoing Research on Gold Metallogeny

Laboratory work, compilation and preparation of articles on gold mineralization in Newfoundland and Labrador continued in 2012 and is summarized in two Current Research articles documenting gold mineralization at the Reid deposit (Brady Property) and a number of gold occurrences in the western Avalon Zone. Collaborative work with Memorial University researchers, in part funded through the Research and Development Corporation, is an important part of both projects.

Field work in 2012 emphasized both new discoveries and poorly-documented occurrences, including the Huxter Lane, Brady and Virgin Arm projects in central Newfoundland and the Jacksons Arm and Viking projects in White Bay. Field work included mapping and sampling around these gold occurrences. This will be followed up with laboratory investigations including: visible/near-infra-red spectrometry, petrographic analysis, lithogeochemistry, isotopic geochemistry, mineral chemistry, fluid inclusion analysis and U-Pb and  $^{40}\text{Ar}$ - $^{39}\text{Ar}$  geochronology.

## Western Avalon Zone Epithermal Gold

Late Neoproterozoic epithermal systems are hallmarks of the Avalon Zone throughout the Appalachian Orogen. In Newfoundland, these systems, which locally host bonanza-grade mineralization, are widely developed along the western margin of the Avalon Zone from the Burin Peninsula to Bonavista Bay. Ongoing mineral exploration in the region continues to identify new targets and further expand areas of known mineralization.



Quartz-veined, altered, foliated tonalite of the Coney Head complex, Jackson's Arm area, western Newfoundland.



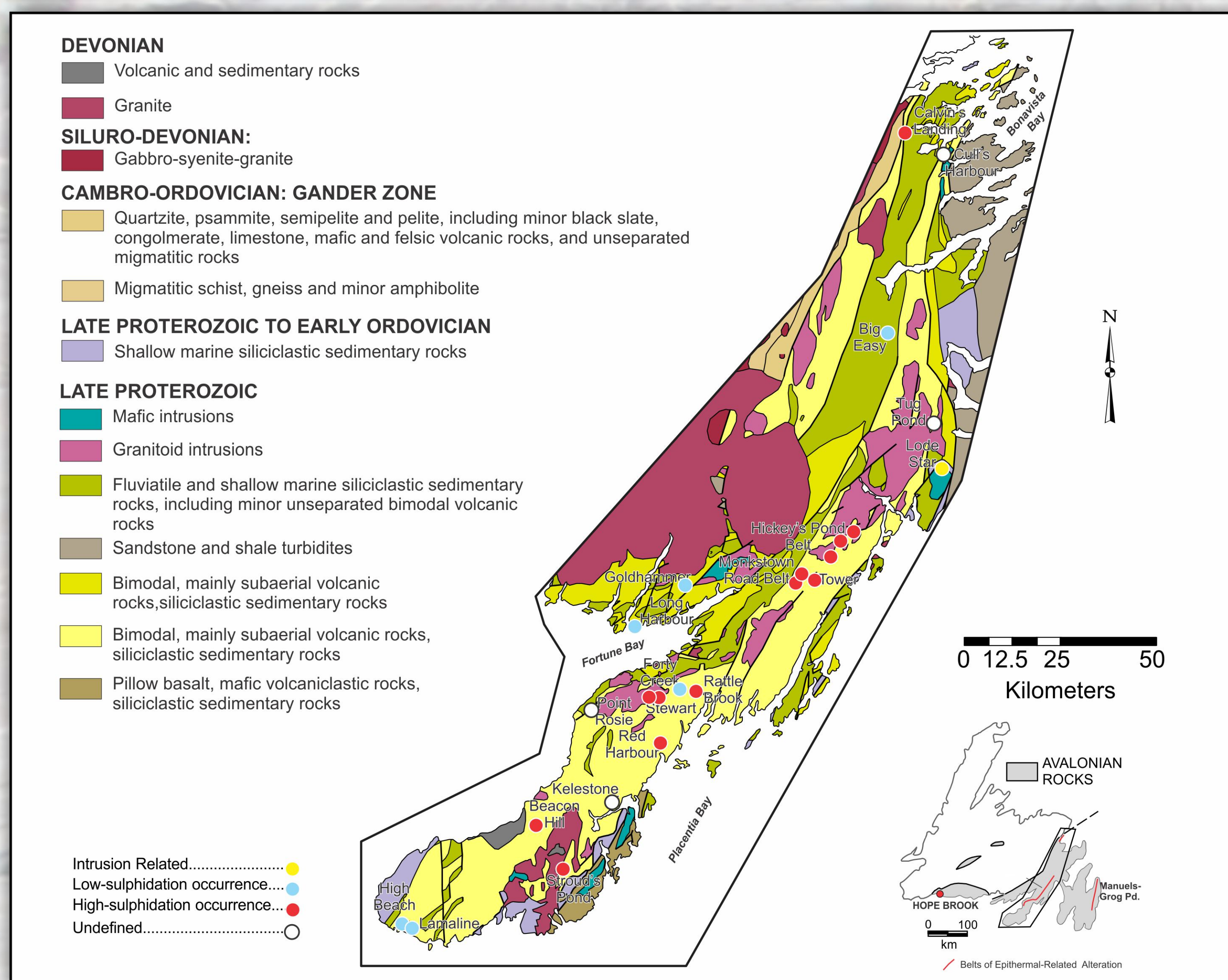
Quartz-veined, altered felsic dyke cutting Badger Group sedimentary rocks, Virgin Arm, New World Island.



High-sulphidation epithermal mineralization at Hickey's Pond, Burin Peninsula. Note vuggy quartz.



Low-sulphidation mineralization at the Long Harbour prospect, Fortune Bay. Note colloform and crustiform textures.



Epithermal gold mineralization in the western Avalon Zone.

Field work continued in 2012 throughout the western Avalon Zone. This region hosts both high- and low-sulphidation styles of epithermal gold mineralization, as well as possible porphyry-related targets. Field work included alteration mapping around known occurrences utilizing visible/ near-infra-red spectrometry, and systematic geochemical and geochronological sampling. The objective of the project is to improve knowledge of the timing and environments of gold mineralization, and identify additional prospective regions within the Avalon Zone.