

## Geology of the Elmtree gold deposit, northern NB, Canada

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The Elmtree gold deposit, comprising the Discovery and West Gabbro zones, is located approximately 23 km northwest of Bathurst in the Elmtree ophiolitic Inlier. Approximately 245 m east of the West Gabbro Zone is the Discovery Zone. This small gold deposit is surrounded by deformed slates, greywacke and conglomerate of the Early to Middle Ordovician Elmtree Group (Ruitenberg et al. 1990). The West Gabbro Zone is hosted by a zoned metagabbro that is 3 to 40 m thick, 460 m long, and extends to a depth of at least 250 m. In the field and drill cores, a fine-grained ophitic metagabbro occurs at the margins and grades into a medium-grained subophitic and a coarse-grained metagabbro in the center (Paktunc and Ketchum 1989). This metagabbro discordantly intrudes deformed melange typified by black graphitic and grey partly cherty argillites and slates.

Gold mineralization occurs within predominantly dextral, east-west-trending, subvertical ductile to brittle shear zones (Tremblay and Dube 1991) that cut the metagabbro. The alteration and mineralization is associated with the strongest shear fabric in the metagabbros. Adjacent to these shear zones, the rocks are hydrothermally altered to a greenish grey phyllosilicate assemblage (distal). This assemblage is locally silicified and overprinted by carbonatization in proximity to shear-hosted, sulfide-bearing carbonate-quartz veins (< 30 cm wide). Near the thicker veins, the coarse-grained metagabbro contain more disseminated sulfides (Ruitenberg et al. 1990) than their unaltered or fine-grained equivalents and silicified zones contain arsenopyrite, pyrrhotite, pyrite, chalcopyrite, and gold (native and refractory). Gold values up to 23.8 g/t have been reported.

The objective of this study is to discern the origin of the hydrothermal fluids and to determine the principal controls of gold mineralization in relationship to the tectonic evolution of the sequence.

### References

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