Introduction

A number of opaque nickel minerals (sulphides, arsenides and antimonides, as well as NiFe alloys) can occur as a product of serpentinization of ultramafic rocks, a variety of phases of Fe, Ni and Co minerals originate as these metals are released from the oxide-ultramafic-hosted olivine structure. In British Columbia, “some nickeliferous ore” was identified in silicified gold from Fraser River in 1888, and Bridge River, garnetite (Ni,Fe) on Wharton Creek (with native Cu nuggets) in Cassiar District (Redland, 1940), Laxa Creek (Kristensen, 1964) and garnetite in Yukon from Pelly River in 1908. In Cassiar asbestos deposit, O’Hanley et al. (1992) listed pentlandite and heazlewoodite. Recent discoveries of several countrared aureole zones have been reported over large tract of ultramafic rocks in the area between Fort St. James and Ogden Mountain (First Point Minerals, 2009). Auratite is also reported in 2008 from Dounce Lake area in northern BC. “Nickeliferous - Tumagain Project in a serpentinized Alaskan-type ultramafic intrusion contains some Ni in sulphur content like millerite and heazlewoodite (Harder Creek Nickel, 2009), the typical serpentinization products.

Provincial Ni distribution

Regional geochemical survey (RGS) resulted revealed numerous anomalies of Ni in order of 1000 to 3000 ppm in Stikine Mountains area, Atlin, and central and northern BC from Fort St. James to the Yukon border. These coincide with the distribution of ultramafic rocks.

What’s in it for you?

In view of a number of RGS geochemical anomalies in association with areas underlain by serpentinized ultramafic rocks, a significant potential for such new deposit type of nickel exist and presents new exploration target for British Columbia.

In British Columbia, recent discoveries of several countrared aureole zones over large tract of ultramafic rocks in the area between Fort St. James and Ogden Mountain suggests an economic potential of ultramafic belts for a possibility of bulk mineable nickel deposits (map from First Point Minerals, 2009).

More attention should be paid to the potential for non-sulphide nickel minerals.

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Serpentinization has been documented to produce secondary sulphide and non-sulphide minerals and British Columbia has considerable distribution of serpentinized ultramafics with RGS results suggesting nickel anomalies.

Opportunities for serpentinized Alaskan type intrusive are exploration targets for these types of nickel deposits.