

Chapter 1

Base and precious metals

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1A

Northern Superior Province (including the eastern part of the Opatoca Subprovince)

Serge Perreault

The Ungava region (Nunavik) covers a vast surface area of about 350,000 km². Although relatively underexplored, this region offers a very promising mineral potential.

Between 1998 and 2003, **Géologie Québec** completed 22 geological surveys within the scope of the Far North Program. In 2006, **Géologie Québec** continued its geological synthesis of the extensive territory covered by this program. Projects carried out by exploration companies in 2006 are listed in Table 1A and project locations are shown in Figure 1A.

Opatoca Subprovince

The Opatoca Subprovince comprises Archean metavolcano-sedimentary sequences and plutonic suites located between the Abitibi Subprovince to the south and the Opinaca and Ashuanipi subprovinces to the north (Hocq, 1994; Lamothe *et al.*, 1998; note that this Subprovince is not represented on the figure 1A, see the figure 1B and 1E for the localization of the projects). The eastern part of the Opatoca Subprovince is formed of the Brûlis Group, a basaltic to intermediate volcanic assemblage metamorphosed to the upper amphibolite facies, as well as hornblende-biotite granodiorite, hornblende monzogranite, and leucocratic biotite and locally hornblende-bearing tonalite (Lamothe *et al.*, 1988).

Paleoproterozoic Sedimentary Sequences

Paleoproterozoic continental sediments form autochthonous outliers which may be correlated with those of the Sakami Formation in the James Bay region and the Chakonipau Formation in the New Québec Orogen (Clark and Wares, 2006). These sedimentary outliers are preserved in half-grabens within the Saindon-Cambrien tectonic zone. They contain continental-type detrital rocks, comprising a lower unit from 1 to 100 m thick of mudstone, siltite, and green or red conglomerate, overlain by an upper km-scale unit of subarkosic and arkosic sandstone (Clark and Wares, 2006).


Sediment-Hosted Uranium

Outliers of Paleoproterozoic detrital rocks overlying the Archean basement of the Superior Province host uranium mineralization. The most significant occurrences are conformable and hosted in greenish argillaceous sediments located near the Archean/Proterozoic unconformity (Clark and Wares, 2006). The uranium mineralization occurs in sedimentary formations indicating reducing conditions at the base of the Sakami Formation. These mineralized zones are also associated with the presence of syn-sedimentary faults. The uranium mineralization is essentially composed of pitchblende. Most known showings of this type are associated with the Lac Gayot outlier (Sakami Formation).














Following work done in 2005 in order to comply with National Instrument 43-101 regarding the disclosure of a mineral resource, **Strathmore Minerals Corporation** (project 1, Figure 1A; Table 1A) released an inferred resource estimate for the Dieter Lake deposit of 21.42 Mt grading 0.057% U₃O₈ (equivalent to 24.42 million pounds of uranium). The company's estimate is based on drilling data by Uranerz released in the early 1980s. Uranium occurs as pitchblende within a shale and wacke unit of the Sakami Formation.

1A












Proterozoic

-  Volcano-sedimentary sequences of Paleoproterozoic basins.

Archean

-  Volcano-sedimentary greenstone belts.
-  **Opinaca:** Volcano-sedimentary sequences and plutonic rocks.
-  **La Grande:** Volcano-sedimentary sequences and plutonic rocks.
-  **Ashuanipi:** Charnockitic and granitic plutonic complexes with metamorphosed volcano-sedimentary belts at the granulite facies.
-  **Bienville:** Tonalitic and granitic plutonic complexes, with enderbite and charnockite; locally with volcano-sedimentary belts.
-  **Lepelle:** Granitic and charnockitic plutonic complexes.
-  **Utsalik:** Granitic and charnockitic plutonic complexes with rare volcano-sedimentary belts.
-  **Douglas Harbour:** Granitic and charnockitic plutonic complexes with volcano-sedimentary belts.
-  **Goudalie:** Tonalitic and charnockitic plutonic complexes, diatexites, volcano-sedimentary belts.
-  **Qualluviartuuq:** Volcano-sedimentary belts, tonalitic and granodiorite plutonic complexes.
-  **Lac Minto:** Volcano-sedimentary belts, tonalitic and charnockitic plutonic complexes, diatexites, granodiorite.
-  **Tikkerutuk:** Sedimentary belts, tonalitic and charnockitic plutonic complexes, diatexites, granodiorite.
-  **Inukjuaq:** Volcano-sedimentary belts of 3.8 to 3.0 Ga, tonalitic and charnockitic plutonic complexes.

Mineralization types

-  Au in iron formations
-  Volcanogenic Cu-Zn-Au-Ag
-  Au in shear zones
-  Porphyric Cu-Au-Ag-Mo
-  Ni-Cu-PGE's in komatiites
-  Cu in veins
-  Rare Earths
-  Uranium
-  Ni-Cu-PGE in mafic and ultramafic intrusions
-  Iron
-  Pb-Zn

 Mine

Figure 1A. Legend of exploration projects in the northern Superior Province for 2006.

1A

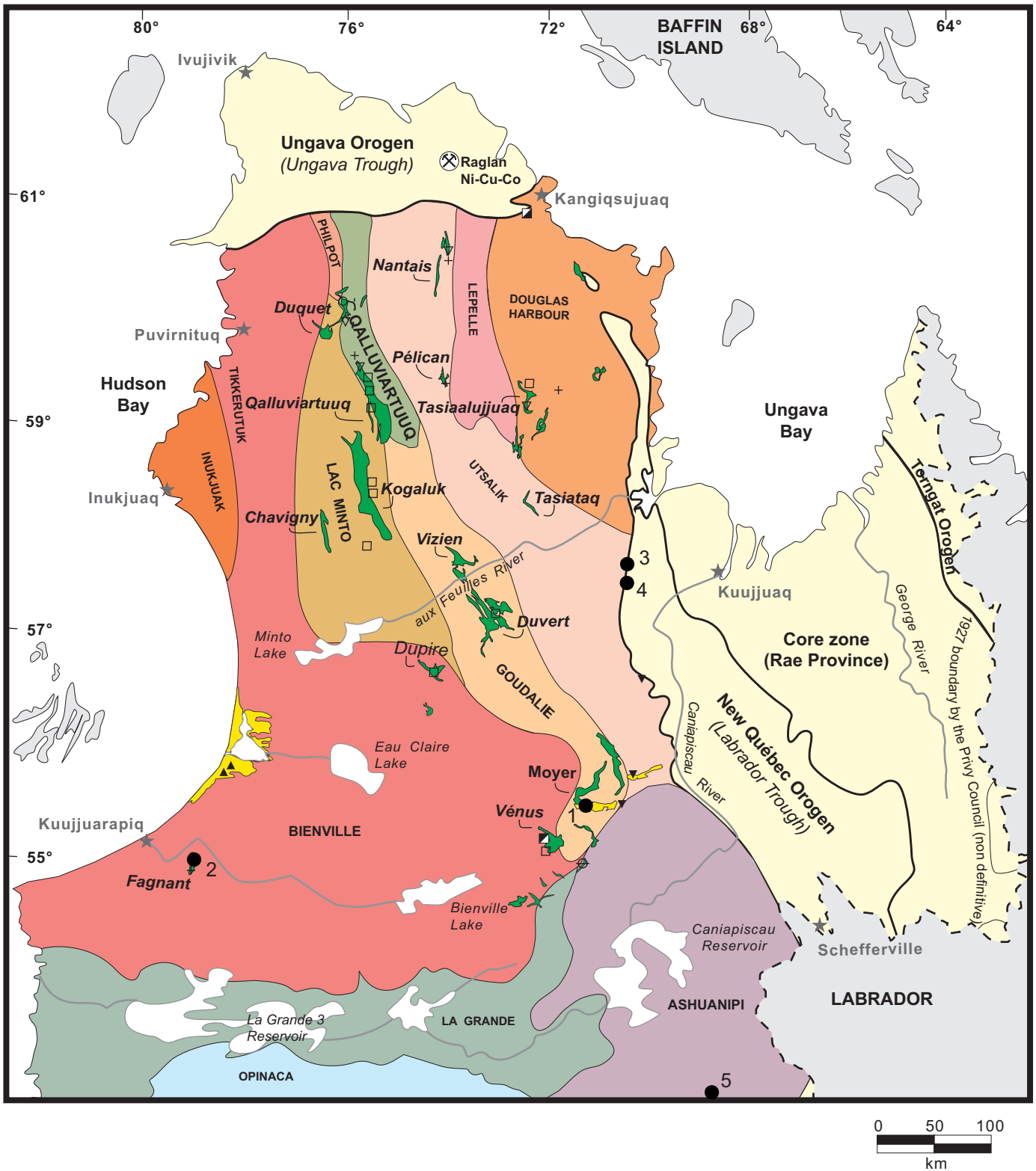


Figure 1A. Exploration projects in the northern Superior Province for 2006. Project 5 is located south of the limit of this map, in the NTS 23 C/10 map sheet.

TABLEAU 1A - Exploration projects in the northern part of the Superior Province for 2006 (see figure 1A).

Nos.	NTS	COMPANIES	PROJECTS	SUBSTANCES	WORKS ⁽¹⁾
1	23 M/15, 16	Strathmore Minerals Corporation	Dieter Lake	U	Re, TE
2	33 K/16, 33 N/01, 02	Niocan Inc.	Great Iron Whales	Fe	Re, TE
3	24 L/01	Uranor Inc.	Chioak	U	TE, Pg
4	24 E/16	Uranor Inc.	Adelaide	U	TE, Pg
5	23 C/10	SOQUEM INC	Courcy	Au, Ag	D(8;728), G, Pr, S

1 = see legend of abbreviations at Appendix II.

Note : project 5 is located south of the limit of map 1A.