

## MINERAL INVENTORY PROJECT – 2023

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### ABSTRACT

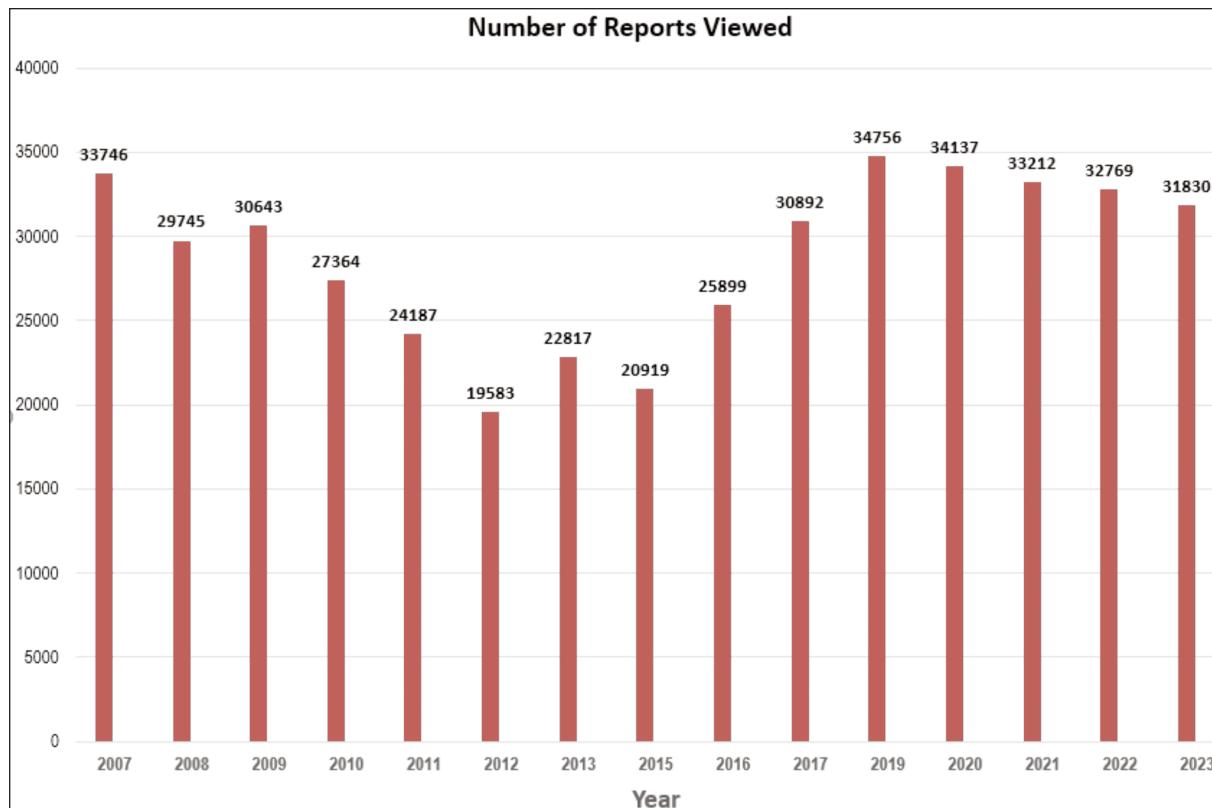
*The mandate of the Mineral Inventory Project is to document geological and mineral resource information on the Province's mineral occurrences and to make the information available to the public. Updates in 2023 were Province-wide with an emphasis on critical minerals.*

### INTRODUCTION

The Mineral Inventory Project maintains the principal repository for geological information on the Province's mineral resources. The Mineral Occurrence Data System (MODS) is a digital mineral occurrence database containing over 7400 records. It is recognized as an important mineral exploration tool and is consistently used by the mineral exploration and mining industries (Figure 1). Updating the

database continued in 2023 Province-wide, using data taken mainly from mineral industry press releases and assessment reports.

The MODS consists of data summaries including location, geological descriptions, mineralogy, deposit type, work histories, resource and/or reserve statistics, analytical results and bibliography on known mineral occurrences. It offers fast and easy access to mineral occurrence information



**Figure 1.** Number of MODS reports viewed per year from 2005–2023 (data for 2014 and 2018 unavailable).

reflecting all of Newfoundland and Labrador. The main delivery point for the MODS data is the Geological Survey of Newfoundland and Labrador website. Clients can search the database using either the “Geoscience Atlas” (<https://geoatlas.gov.nl.ca/>) or the MODS “Search Form” (<https://gis.geosurv.gov.nl.ca/mods/mods.asp>). It provides a current, high-quality, online mineral-deposit database that helps to accurately define the Province’s mineral potential and highlight its prospectivity.

## MINERAL OCCURRENCE DATA SYSTEM (MODS)

The MODS data are housed within an Oracle database management system; however, data entry is achieved using an application of the Microsoft-Access database software (Stapleton *et al.*, 2005). Microsoft-Access connects to the Oracle database using Object Database Connectivity technology (ODBC).

MODS data are obtained from three main sources: mineral industry assessment reports/press releases, government and academic reports. Data is reviewed to ensure compliance with the MODS coding standards before information is delivered to clients as occurrence specific, mineral inventory reports *via* the Geoscience Atlas and the MODS query form. Fields from the MODS database record (Table 1) are downloadable from the Geoscience Atlas, which gives clients the ability to use the data in a GIS environment.

The MODS internet application is dynamically linked to the Oracle database, which serves as the common platform for all of the Geological Survey’s databases. This enables efficient sharing of information between the databases giving clients same-day access to updated information.

## 2023 UPDATES

Areas updated in 2023 include parts of 1L, 1M, 1N, 2D, 2E, 2M, 11P, 11O, 12A, 12B, 12G and 12H (Newfoundland; Figure 2), and 3D, 3E, 13A, 13N, 14D, 23B, 23G, 23H and 24A (Labrador) (Figure 3). Updates are implemented Province-wide with a focus on documenting occurrences of critical minerals.

## CRITICAL MINERALS

Following the release of Newfoundland and Labrador’s Critical Minerals Advantage plan (DIET, 2023), the MODS is being used to create a general reference report detailing the Province’s critical mineral endowment and potential. The document will include general information about each ele-

**Table 1.** Field and field descriptions from MODS for GIS record

Depname	Usual name
Altname	Alternate name
Recid	Record ID number
Nmino	National mineral inventory number
Comname	Major commodity present
Modslabel	Symbol for major commodity present
Commods	Secondary commodities present
Deptpe	Deposit type; coded genetic classification of deposit
Desc	Description of deposit type
Status	Indicating amount of work done, and hence the amount of information available on a deposit
Producer	Producer - Commodity is extracted for sale
Developed	Developed Prospect - Reserves or demonstrated resources of the commodity can be calculated, but the commodity has not yet been produced ( <i>i.e.</i> , three dimensional data plus grade)
Past Producer	Past Producer Dormant - The commodity is no longer produced, although there are known reserves or demonstrated resources
Exhausted	Past Producer Exhausted - The commodity is no longer produced and there are no longer reserves or demonstrated resources
Prospect	Prospect - Two-dimensional data and grade are available, but not enough data to calculate reserves
Showing	Showing - Mineralization exists in outcrop with little information known about its spatial extent; assay data exists
Indication	Indication - An indication of the existence of the commodity ( <i>i.e.</i> , field observation, map symbol)
Depchar	Deposit description
Geoprov	Geological province
Tectbelt	Tectonostratigraphic zone
Strunit	Stratigraphic unit
Stratigrap	Stratigraphic age of the host unit
Rocks	Rock type(s) associated with deposit
Trench	Trenching? y = trenching done
DDH	Number of drillholes into the deposit
Working	Type of mine workings
Underground	Underground - u
Open Pit	Open Pit or Quarry - o
	Underground and Open Pit - uo
Adit	Adit? y = adit present
Shaft	Shaft? y = shaft present
Utmeast	Easting coordinate
Utmnorth	Northing coordinate
Utmzone	UTM Zone

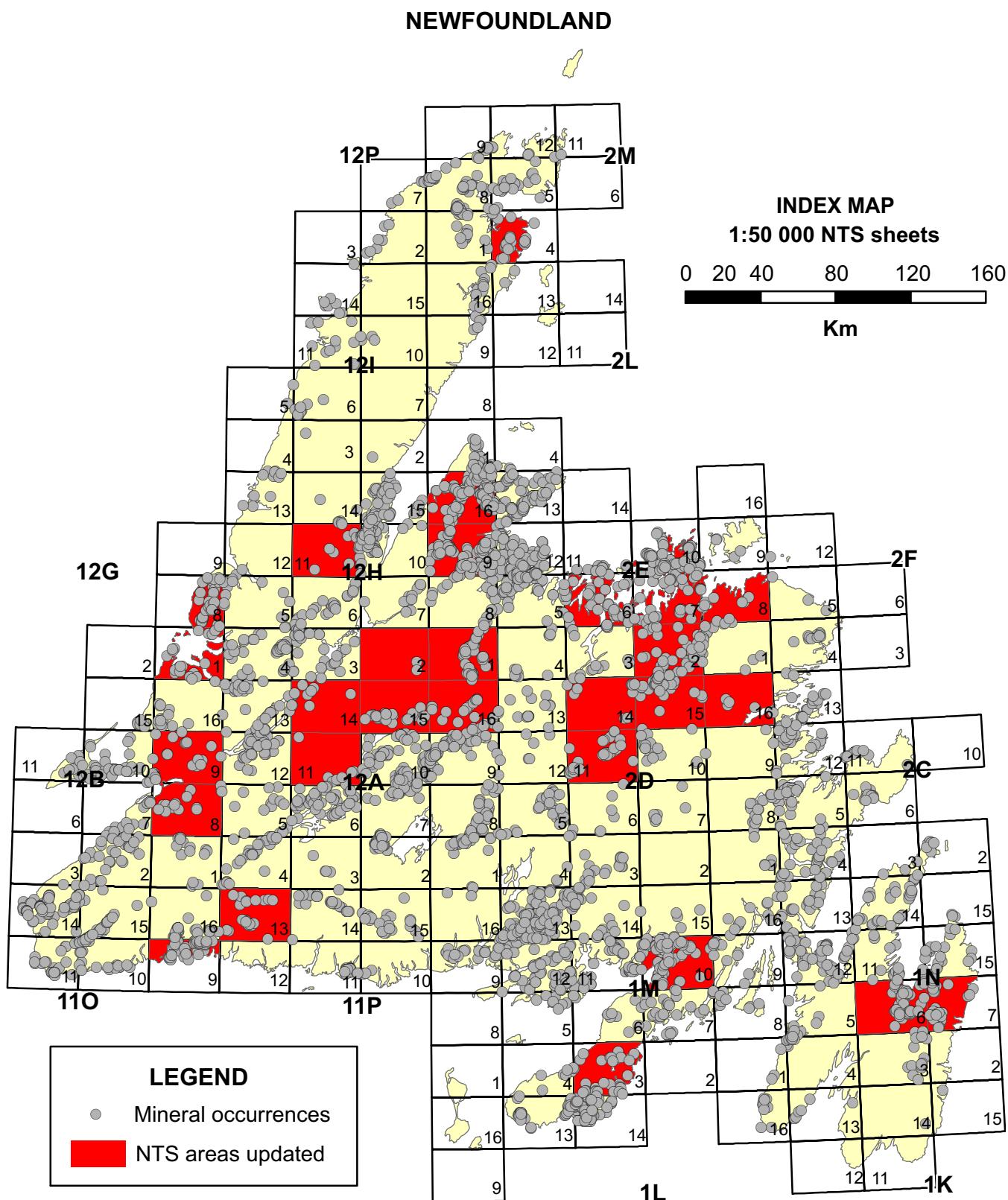


Figure 2. NTS areas updated, Newfoundland.

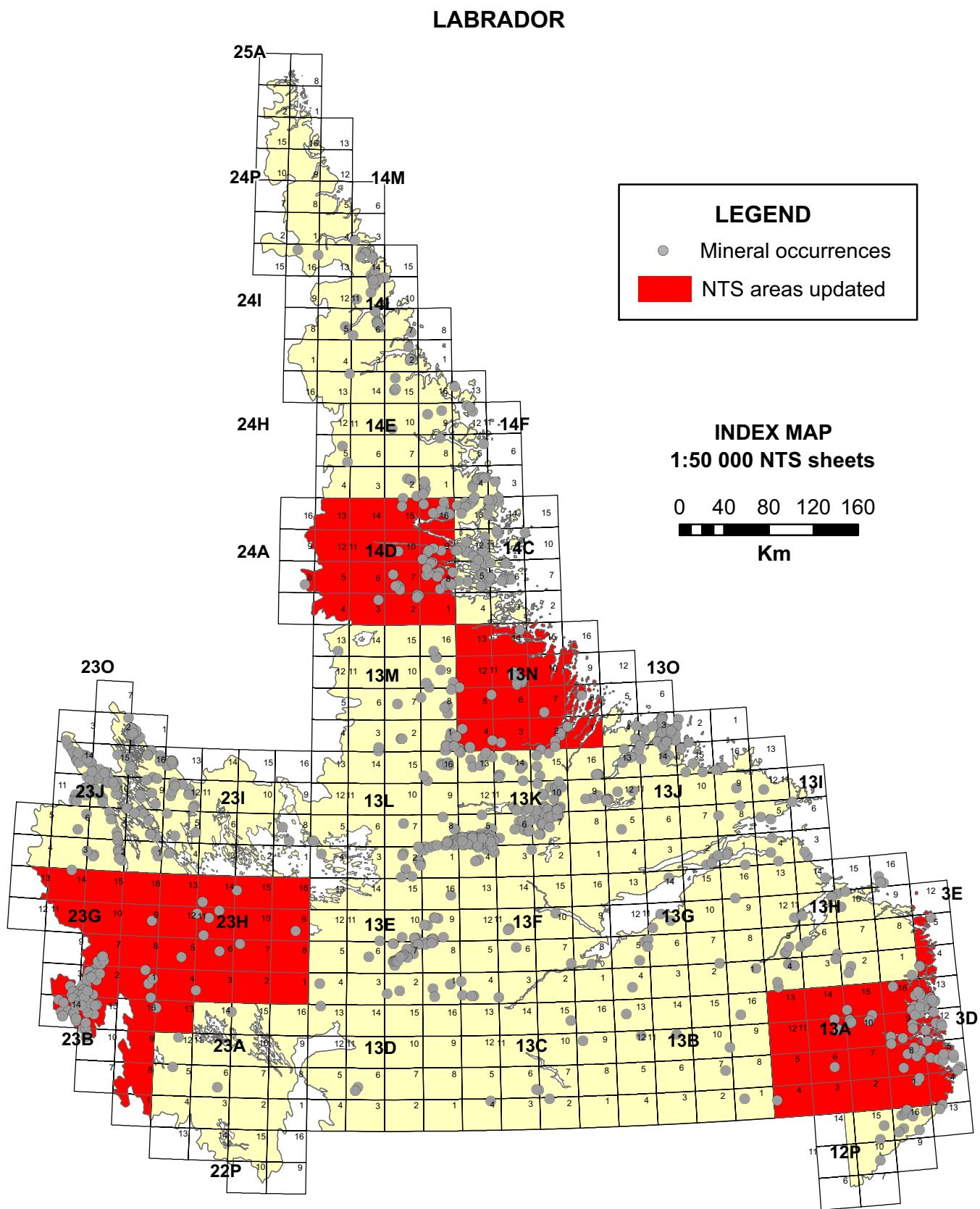


Figure 3. NTS areas updated, Labrador.

ment/commodity identified as being critical to the province, and is arranged in a series of data sheets. Each data sheet includes sections with the following information: element definition, the source minerals from which the targeted elements are recovered, current market information, top global producers, global deposit model, the geological setting of critical minerals, and the number of provincial occurrences. In the report, occurrence locations are presented for Newfoundland and Labrador, along with tables containing additional data for the occurrences shown. In total, 34 minerals/commodities were identified as being critical (DIET, 2023). The critical-mineral plan included an engagement process with the mineral industry, Indigenous governments, other stakeholders and the public. The plan also took into consideration other jurisdictions (outside of Canada) need for critical minerals, as well as the need to facilitate the energy transition and climate-change action on a global scale. Critical mineral lists, in this province and in other jurisdictions, are subject to change and will be assessed and updated to reflect changing priorities. Figures 4 and 5 illustrate the locations of critical-mineral occurrences in Newfoundland and Labrador and include occurrences classified as prospect, as well as those above within the classification scheme of occurrences (see Legends in Figures 4 and 5).

## MODS USER STASTICS

The MODS is used by mineral explorationists to help guide their exploration programs and also by government in land-use planning. The 2023 web server statistics for the MODS indicate that it was accessed 31 830 times (Figure 1). Over the past fifteen years it has been consistently used, averaging 28 070 hits per year. A hit is logged when the user opens a MODS record. A detailed study of the 2013 web server statistics indicated that the database has a global audience. It is accessed most frequently from Canada and the commodity of greatest interest is gold (Stapleton *et al.*, 2015).

## SUMMARY

During 2023, significant efforts updated the database in terms of its critical-mineral content. The database is being

used to produce a detailed report that outlines the Province's resources of critical minerals and its critical mineral potential.

Consistent delivery of MODS data is achieved through the query form and the graphical interface, with both updated and new non-confidential records copied to the public domain on a 24-hour basis. This database provides the mineral exploration sector and other clients with a current dataset of the provinces mineral occurrences. The data generated by the Mineral Inventory Project contribute toward long-term benefits, evidenced by increased investment in the provincial mineral exploration and mining industries.

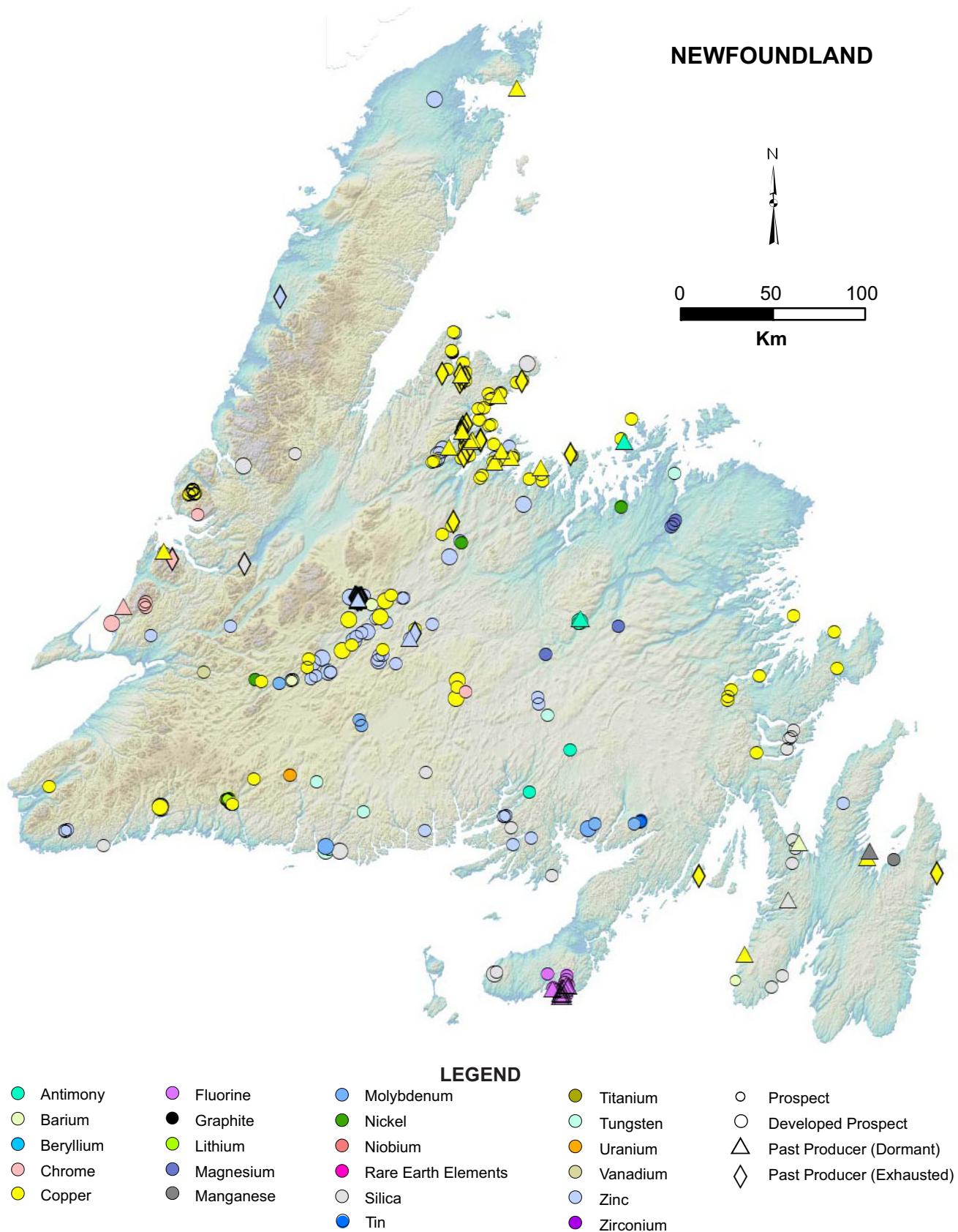
## REFERENCES

Department of Industry, Energy and Technology (DIET)  
 2023: Our Critical Minerals Advantage. Government of Newfoundland and Labrador, Department of Industry, Energy and Technology. Available from the website: <https://www.gov.nl.ca/iet/files/Critical-Minerals-Plan-Our-Critical-Minerals-Advantage.pdf>

Stapleton, G.J., Smith, J.L. and Adams, T.  
 2014: Mineral Inventory Project. *In Current Research*. Government of Newfoundland and Labrador, Department of Natural Resources, Geological Survey, Report 14-1, pages 129-134.

Stapleton, G.J., Smith, J.L. and Parsons, W.K.  
 2005: Mineral Occurrence Data System. *In Current Research*. Government of Newfoundland and Labrador, Department of Natural Resources, Geological Survey, Report 05-1, pages 253-256.

Stapleton, G.J., Smith, J.L., Schofield, M.D. and Adams, T.  
 2015: Mineral Inventory Database: Web Server Statistics. *In Current Research*. Government of Newfoundland and Labrador, Department of Natural Resources, Geological Survey, Report 15-1, pages 139-142.



**Figure 4.** Newfoundland critical mineral occurrences (prospects, developed prospects and producers).

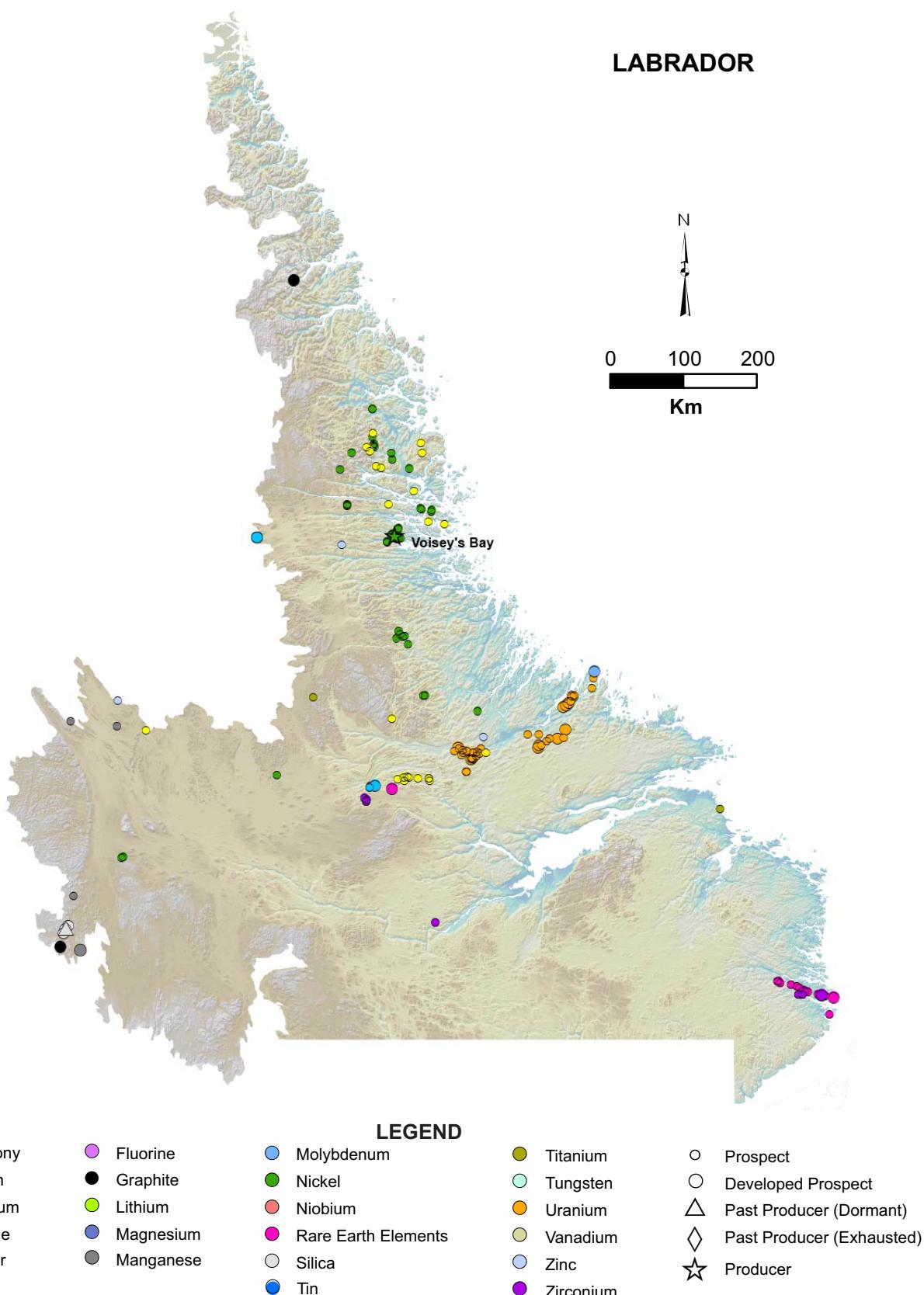


Figure 5. Labrador critical mineral occurrences (prospects, developed prospects and producers).

