

Mineral Resource Assessments Overview, 2001

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INTRODUCTION

The Yukon Mineral Resources Branch provides information on geology and mineral potential of areas undergoing land use planning. During the spring, 2001, Yukon government committed to identifying and making map notations of areas of interest for representation of 13 ecoregions. The identification of areas of interest makes use of regional mineral potential maps that are produced according to the methodology devised by the United States Geological Survey and refined by the British Columbia Geological Survey.

REGIONAL MINERAL POTENTIAL MAP OF YUKON

PHASE III: SELWYN BASIN

In December 2000, the Mineral Resources Branch hosted a six-day assessment workshop for Selwyn Basin. Selwyn Basin was examined in order to complete the third phase of a Yukon-wide mineral potential map. Selwyn Basin covers a 127 700-km² area bounded by Tintina Fault and allochthonous Yukon-Tanana Terrane rocks to the southwest, Dawson Thrust to the north, Yukon-British Columbia border to the south, and Yukon-Northwest Territories (NWT) border to the east (Fig. 1). The

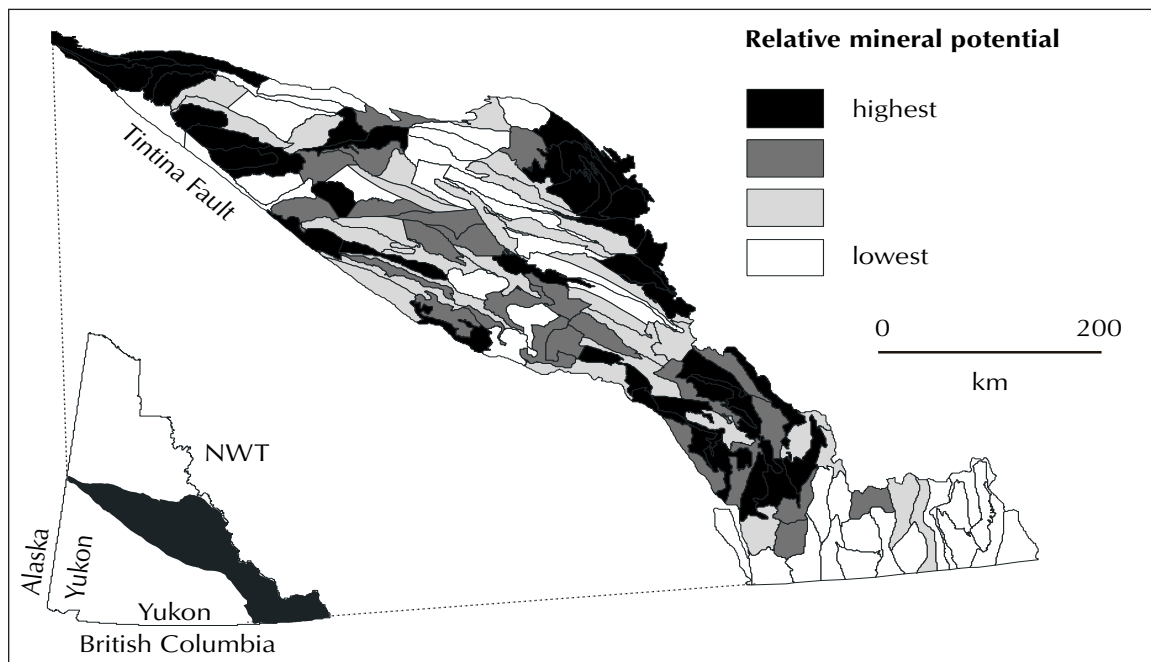


Figure 1. Mineral potential map of Selwyn Basin.

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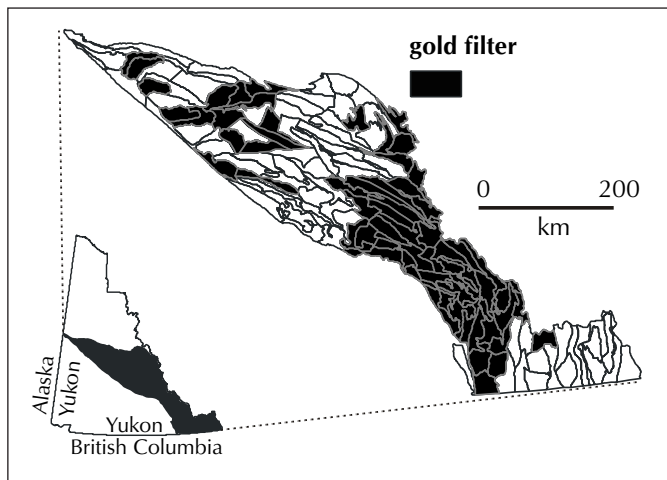


Figure 2. Gold filter applied to mineral potential rank, Selwyn Basin.

assessment area was separated into 127 tracts, which are defined by coherent geology, geochemistry, and/or mineral showings. Five geologists, considered to have outstanding field experience and knowledge of the geology and mineral deposit models applicable to Selwyn Basin, participated in the assessment workshop as expert estimators. The estimators examined all the data for a tract, and agreed upon which metallic mineral deposit models to apply to that tract. They evaluated the likelihood of finding new deposits of each type, while estimating the median tonnage of these deposits within the tract. Each geologist also evaluated the knowledge and experience of the other four estimators. The presence of known non-metallic deposits was recorded in the tract descriptions, however, the estimators did not evaluate potential for new non-metallic deposits. The evaluations were processed in the Mark3b Mineral Deposit Simulator software developed by the United States Geological Survey (USGS), and the 127 tracts were ranked on a relative scale from highest to lowest mineral potential. The resulting mineral potential map of Selwyn Basin (Fig. 1) shows four categories of potential for metallic mineral deposits.

Metallogenically speaking, Selwyn Basin constitutes a base metal anomaly that hosts some of the world's largest sedex deposits. The anomalously large tonnages and grades of sedex deposits in Selwyn Basin yielded a very high median tonnage (14.5 million tonnes, which is the size of the Tom deposit). The median tonnage for sedex deposits was discussed during the assessment workshop, and considered adequate, given that most deposits from which the median was calculated are in Selwyn Basin.

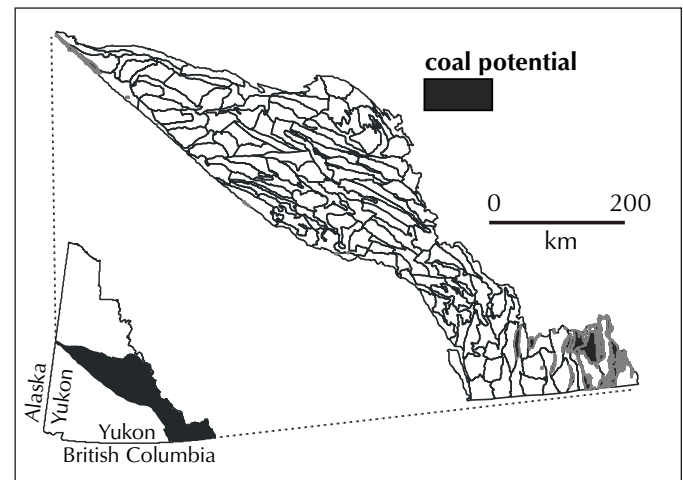


Figure 3. Map of Selwyn Basin displaying tracts that contain coal potential, showings, or deposits.

This high median tonnage resulted in the potential for sedex deposits overpowering potential for most other deposit types. Potential for gold deposits was particularly overpowered by potential for base metals. This is largely due to the fact that gold exploration is more strongly driven by economic factors such as access roads and high net smelter returns. To compensate for this discrepancy, an economic gold filter was applied to the mineral potential map (Fig. 2). The economic gold filter represents the upper half rank of potential for Carlin-type and plutonic-related gold, and is overlain on the mineral potential map to help identify areas of important gold potential.

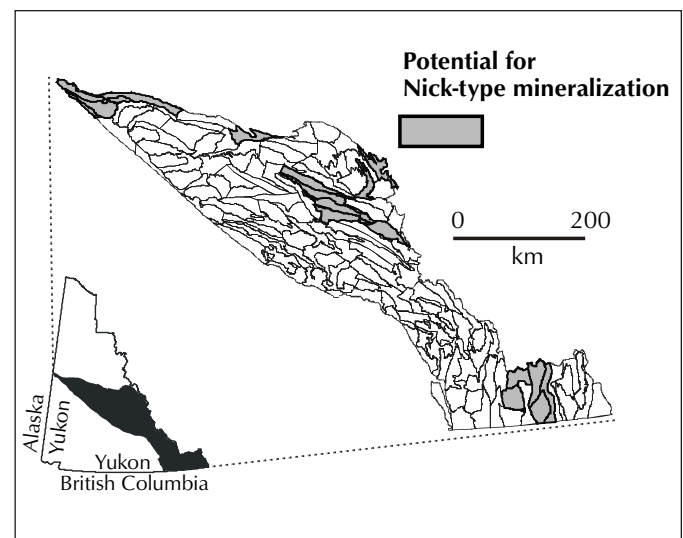


Figure 4. Map of Selwyn Basin displaying tracts that have potential for sedimentary-hosted nickel (Nick-type) mineralization.

No estimates were made for non-metallic minerals such as coal, jade, asbestos, emeralds and rhodonite. Likewise, potential for placer deposits was not evaluated. Coal potential and lithologies containing resources are represented in a separate map (Fig. 3). Potential for sedimentary-hosted nickel (Nick-type) mineralization is also represented on a separate map (Fig. 4), because it was agreed during the assessment workshop that the anomalous geochemical signature observed in the lower Earn Group is not likely to form a mineable deposit.

PHASE IV: SOUTHWEST YUKON (ONGOING)

A mineral assessment workshop for the 107 262-km² area between Tintina Fault and D'Abbadie Fault to the north and east, Denali Fault to the southwest, Yukon-Alaska border to the west, and Yukon-British Columbia border to the south is scheduled to take place in December, 2001. This is the final phase of a Yukon-wide mineral potential map, which is scheduled to be completed by January, 2002.

DETAILED MINERAL ASSESSMENTS

The Yukon Mineral Resources Branch conducts geological fieldwork and detailed mineral assessments to assist in land management guidelines for special management areas established under First Nation final agreements, and in areas of historical conservation interest.

DDHAW GHRO SPECIAL MANAGEMENT AREA

Ddhaw Ghro Habitat Protection Area Special Management Area (SMA) consists of 1610 km² in central Yukon (Fig. 5). The SMA occupies the southeastern portion of Mayo map sheet (105M), southwestern corner of McQuesten map sheet (115P), and northwestern corner of Glenlyon map sheet (105L). The northwestern corner of Ddhaw Ghro SMA is a densely vegetated area adjacent to the Klondike Highway, and approximately 25 km south of Stewart Crossing. Access is by helicopter from Mayo (approximately 75 km; Fig. 5).

A map notation designating McArthur Wildlife Preserve (#10-21) in what is now Ddhaw Ghro Habitat Protection Area Special Management Area (SMA) discouraged extensive exploration programs in the area since 1972. In 1974, the same area was proposed as an International Biological Program (IBP) site. The area was selected as a Special management area for the Selkirk and Na'Cho N'Y'ak Dun First Nations and given a Habitat Protection Area designation. Both Selkirk and Na'Cho N'Y'ak Dun First Nation Final Agreements state that the objective of Ddhaw Ghro Habitat Protection Area is "to conserve and protect important fish and wildlife habitat for the benefit of all Yukon people." The Special Management Area has been interim protected since 1997 for a period of three years. The area contained no active quartz or placer claims, or crown grants at the time of withdrawal. The land withdrawal was recently renewed through

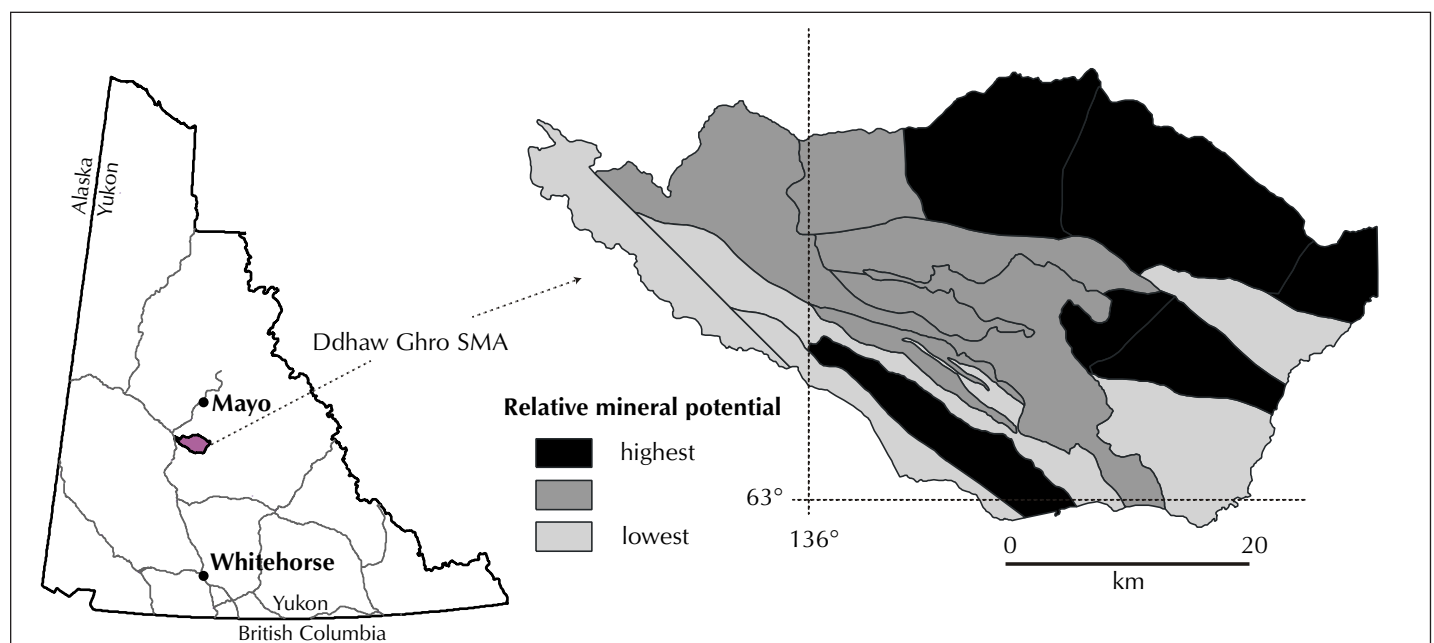


Figure 5. Mineral potential map of Ddhaw Ghro Special Management Area.

August, 2005, or until the completion of a management plan. The management plan may make recommendations regarding permanent land withdrawals.

Yukon government mineral assessment geologists carried out 1:20 000- and 1:50 000-scale geological mapping in Ddhaw Ghro SMA in the summers of 2000 and 2001, and hosted a mineral assessment workshop for the SMA in September, 2001. The SMA area was separated into 16 tracts of coherent geology in order to examine the geochemical, geophysical, or metallogenic character of each tract. Four geologists, considered to have outstanding field experience and knowledge of the area, participated in the two-day workshop. The experts examined all the data for each tract, and evaluated potential for discoveries of each plausible metallic mineral deposit type in each tract. At the end of the second day, the experts ranked the tracts by consensus, from highest to lowest mineral potential. The resulting mineral potential map (Fig. 5) displays three mineral potential categories. The experts recommended that further fieldwork be carried out to follow-up on a pronounced tungsten anomaly in the southern part of the SMA, and to map phases within the intrusive rocks.

FRANCES LAKE AREA

Yukon Territorial Resource base maps show several map notations of areas of conservation interest. Frances Lake map sheet (105H) contains a map notation of a proposed Territorial Park Reserve dated as of December, 1972. The map notation in an ecoregion, which is currently unrepresented by a Yukon Protected Area Strategy (YPAS) Goal 1 protected area, warranted performing a mineral resource assessment of central Frances Lake map sheet.

Yukon government mineral assessment geologists carried out fieldwork in central Frances Lake map area during the summers of 2000 and 2001, and hosted a mineral assessment workshop for central Frances Lake map sheet in November, 2001. The area between Robert Campbell Highway and Nahanni Range Road was divided into 21 tracts. Four geologists, considered to have outstanding field experience and knowledge of the area, participated in three two-day workshops. The experts examined all the

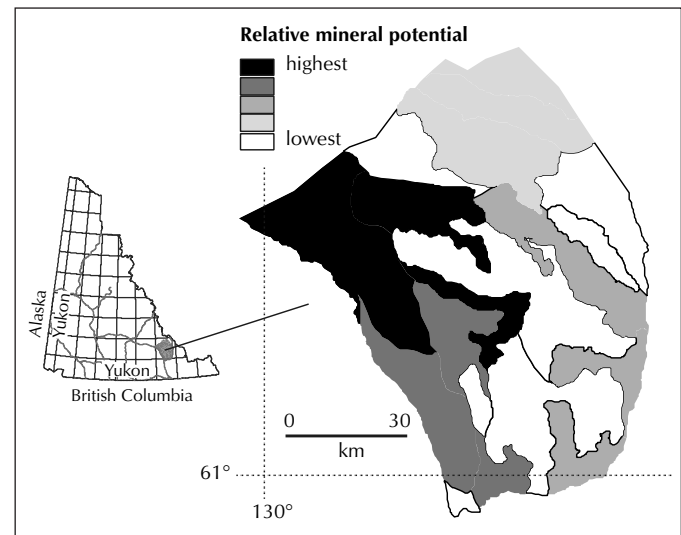


Figure 6. Detailed mineral potential map of central Frances Lake map area.

data for each tract, and evaluated potential for discoveries of each plausible metallic mineral deposit type in each tract. At the end of the workshop, the experts ranked the tracts by consensus, from highest to lowest mineral potential. The resulting mineral potential map (Fig. 6) shows four mineral potential categories. The experts recommended that further fieldwork be carried out to follow-up on a coincident multi-element geochemical anomaly and geophysical high feature in the low lands east of Robert Campbell Highway and south of Simpson Tower. Mapping phases within intrusive rocks in the northern part of Frances Lake map sheet has also been proposed.

EAGLE PLAINS ECOREGION

Fieldwork was carried out to follow-up on results from a regional geochemical survey carried out by the Geological Survey of Canada in the Eagle Plains area. Geochemical analyses yielded three multi-element anomalies immediately outside the Eagle Plains Ecoregion. No detailed mineral potential map of Eagle Plains Ecoregion is planned.