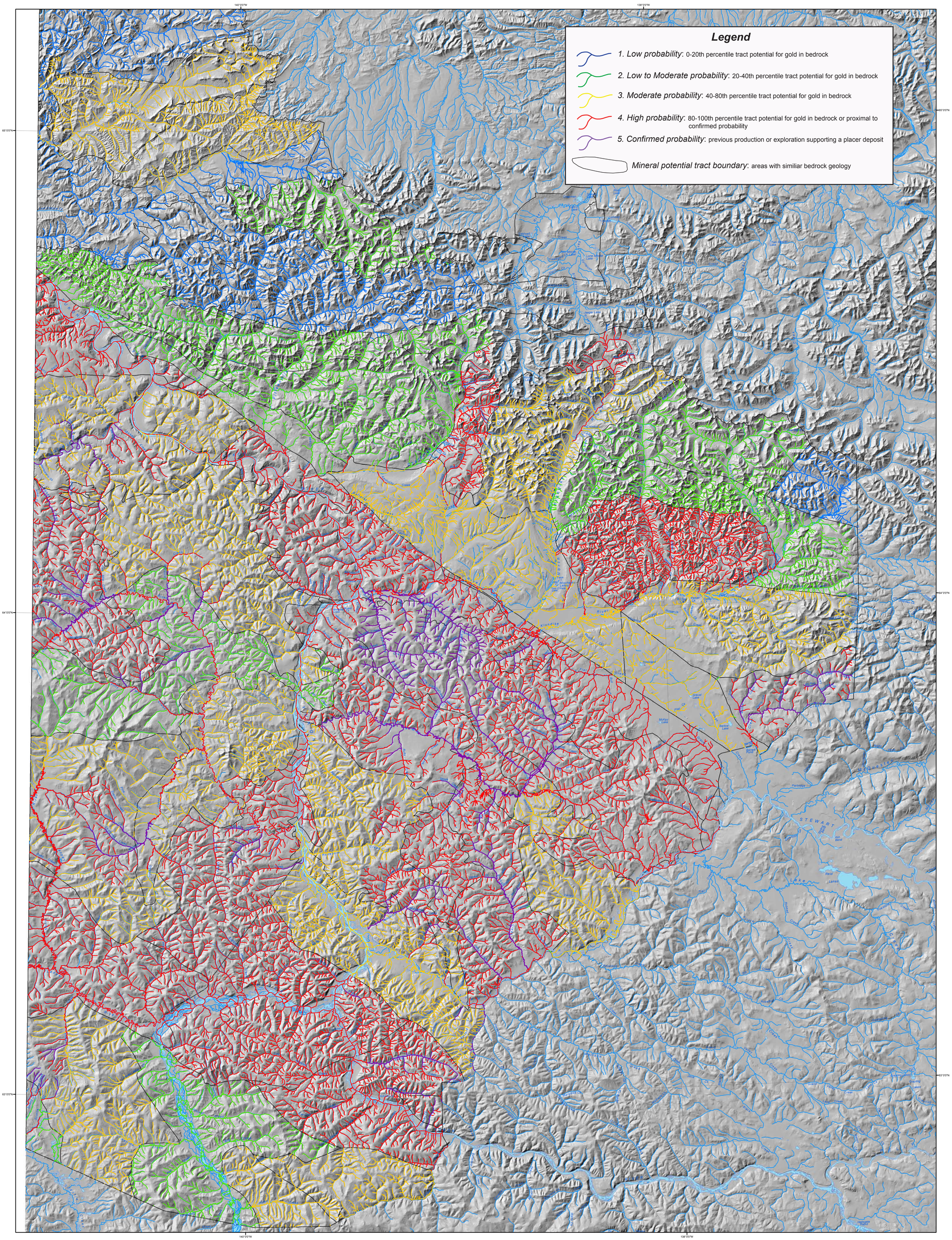
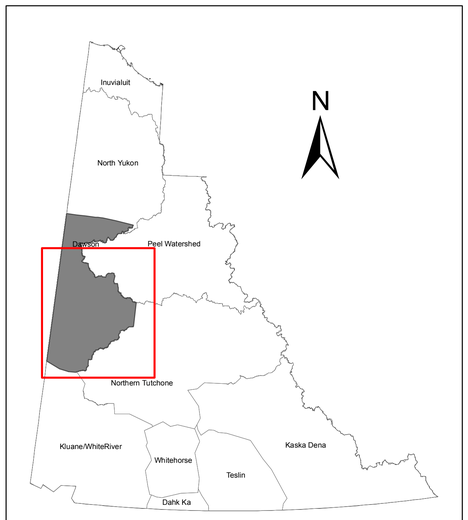
Placer Gold Potential Map
Dawson Land Use Plan





Yukon Land Use Planning Regions

Introduction
Placer mining has been an important economic driver within the Dawson land use planning area since the late 1800's. Key components make this area rich in placer gold: the region's favourable bedrock geology for gold mineralization; the highly dissected mountainous terrain (deep valleys); and the lack of glaciation. Equally important to the geological components are the existing placer mining heritage and culture that is embedded in the area. Placer mining requires a unique combination of skill sets that are found in few places around the world, yet exist in relative abundance in this area thanks to over 100 years of cumulative mining knowledge.

Like any mineral potential map, placer potential is based on the current state of knowledge that exists at the time of the plan. As exploration progresses new discoveries are made and new mineral potential attributes are realized for the region. A mineral potential map will never be perfect but it is necessary to help guide land use planning and can be used as a prospecting reference. It was decided to exclude the northern extent (low potential area) of the planning region for display purposes.

Placer potential classification system
The placer potential mapping process consisted of applying a classification rating of 1 (lowest) to 5 (highest) for all the streams within the planning area. Factors affecting a stream's potential included development history and hard rock mineral potential (gold deposit potential). Terrain attributes such as potential overburden thickness, water flow, or local topography were not factored into the rating due to the lack of knowledge for most unmined drainages.

Development history
The development history of a stream was determined by referencing two digital sources of data: 1) the Placer Development Status, which identifies current development, extensive development and historical development (Placer Stream Classification Model, 50K, Yukon Placer Watershed Atlas); and 2) Dawson Area Placer Activity Map (Lipovsky et al., 2001). From the first data source, if a stream was classified as having current, extensive, or historical development then it was given a "Confirmed probability" or a value of 5. From the second data set, or placer activity map, streams were classified into two categories: major gold-bearing streams having significant mechanized placer mining operations; and proven or potential gold-bearing streams with some prospecting or exploration history, but no significant mechanized placer mining operations. The major gold-bearing streams were given a "Confirmed probability" or a value of 5, whereas the streams with proven or potential placer gold deposits were given a "High" probability or a value of 4. A stream's classification was also increased to a value of 4 if a certain reach of that stream was classified as a value of 5, regardless of how the un-mined portion of that stream would have been rated according to the overall mineral potential tract value. This value-by-association assumption recognizes the fact that known existing placers are a good indicator for additional placers within a watershed.

Mineral potential tracts
The placer potential map utilized the mineral potential assessment to classify streams that have had no previous known placer development or exploration history. Mineral potential assessments utilize a variety of data such as bedrock geology, stream sediment geochemistry, and mineral occurrences to rank land tracts. Tracts are defined primarily on the basis of having similar geological characteristics. There is also an effort to make the tracts approximately the same size, which may result in large tracts being arbitrarily split (Kilby, 2012). Refer to Kilby (2012) for detailed information on the mineral potential assessment for the Dawson land use plan. The three relevant mineral (gold) deposit models that were used to classify streams for the placer potential mapping included gold in quartz veins, plutonic-related gold, and the White Gold deposit type. A probability value for each gold deposit type (potential for discovery) was assigned to each tract through the mineral potential mapping process. These values were converted to percentiles in the placer potential mapping in order to classify a tract with either low (0-20th), low-moderate (20th-40th), moderate (40th-80th) or high (80th-100th) gold deposit potential. For each tract the percentile ranking for each of the three gold deposit types was compared and the highest ranking was used to classify the water courses within that tract. No benefit was gained if multiple gold deposit types were valued high within a tract; only the highest percentile ranking was considered for the classification. The classification process also recognized that placer gold can be transported downstream across tract boundaries within a watershed. Therefore, classification values extend downstream even if the stream crosses into a tract with a lower probability for having favourable geology for gold mineralization.

Classification system
Once the placer potential value was determined a colour code was applied to the stream segments within the 1:50000-scale national topographic database watercourse layer in ArcView. The classification value assigned to a particular stream reach applies to all fluvial deposits within that section of the valley. This includes all bench (elevated paleo-placers) deposits that lie adjacent to the floodplain regardless of distance from the floodplain. Surficial geology maps can be referenced for the location of the more obvious bench landforms.
The Yukon Geological Survey digital surficial geology data is available at:
http://www.geology.gov.yk.ca/digital_surficial_data.html.

Limitations
Mineral assessments are based on the best geoscientific information available at the time of the study. Assessments must be revised as knowledge of the geology of an area and the types of mineral deposits that could occur within that area improves. This type of study represents a "best estimate at the time" on resources that are hidden in the ground and cannot be quantfied. Conclusions derived from such a study are only as sound as the data that are available for the evaluation.

References
Kilby, W., 2012. Dawson Land Use Planning Mineral Potential Assessment. Yukon Geological Survey, Unpublished document, 137 p.

Lipovsky, P., Lowey, G. and LeBarge, W., 2001. Dawson Area Placer Activity Map (1:250000 scale). Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, Open File 2001-36.

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Any revisions or additional geological information known to the user would be welcomed by the Yukon Geological Survey.

Paper copies of this map are available from the Yukon Geological Survey, Energy, Mines and Resources, Yukon Government, Whitehorse, Yukon. Ph. 867-667-3201, Fx. 867-667-3198, E-mail: geosales@gov.yk.ca.

A digital PDF (Portable Document Format) file of this map may be downloaded free of charge from the Yukon Geological Survey website: www.geology.gov.yk.ca.

Yukon Geological Survey
Energy, Mines and Resources
Government of Yukon

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Placer Gold Potential Map - Dawson Land Use Plan
(NTS 115N, O and part of 115P, 116B, C, F, G)
Yukon
(1:300000 scale)

by
Jeffrey D. Bond

CELEBRATING 20 YEARS 1992-2012
YUKON GEOLOGICAL SURVEY

Yukon
Energy, Mines and Resources

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SCALE 1:300000 kilometres