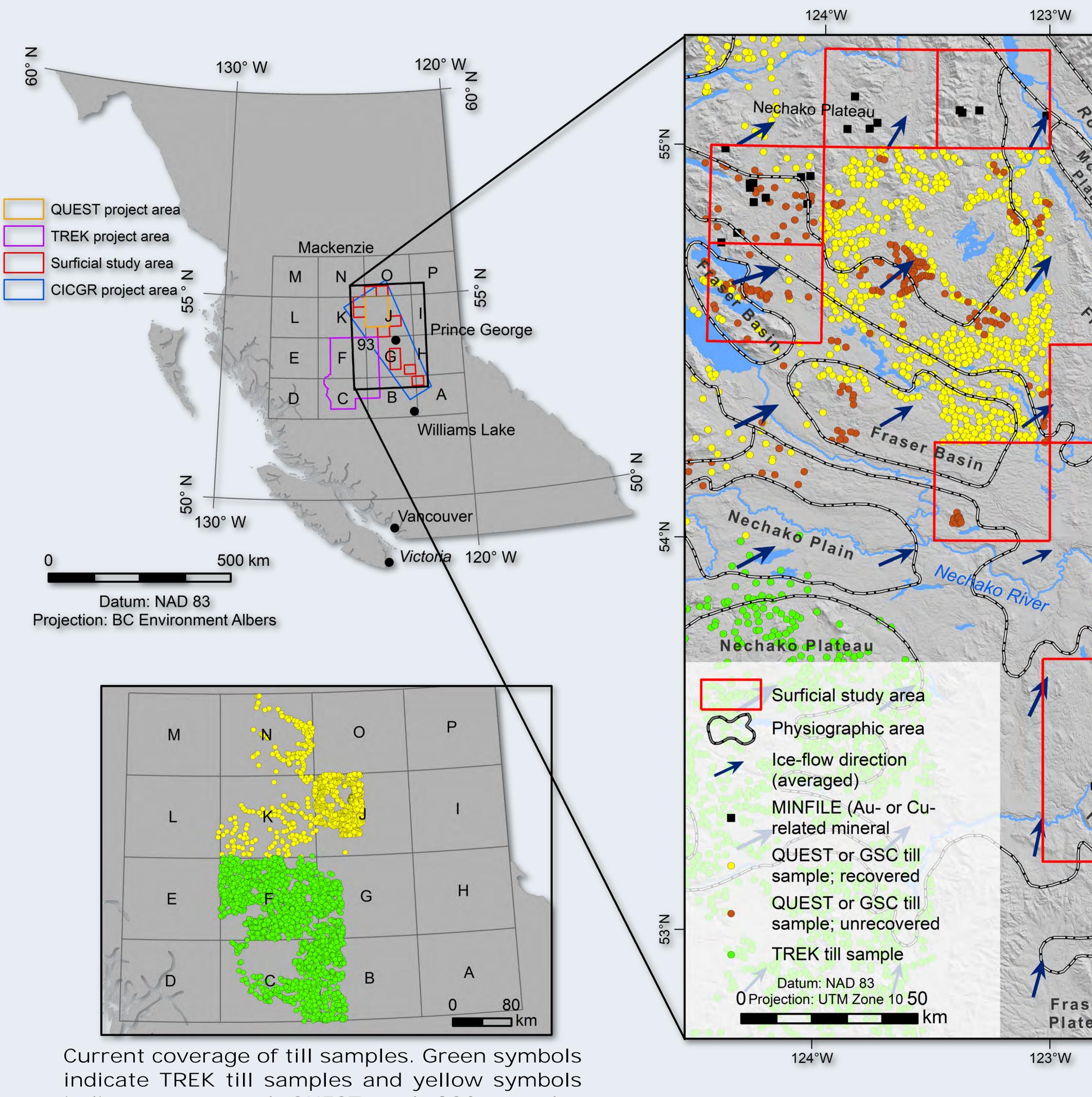


Surficial Geology Central Interior Copper-Gold Research Project Geoscience BC's CICGR project seeks to investigate the potential for new mineral deposits in the central part of British Columbia's Interior Plateau. The region has significant Cu-Au mineral potential, however, exploration has been hindered by extensive glacial drift which obscures underlying and prospective bedrock. As part of the CICGR project, this surficial exploration program aims to generate high-quality baseline data for roughly 8 600 km2, integral to promoting and supporting successful Surficial geology mapping – 1:50 000-scale surficial mineral exploration in this challenging setting. Combined with data from the TREK (Jackaman et al., 2015) and QUEST (Ward et interpretations following standardized GSC protocols with minor al., 2013) projects, the results of this study will extend the coverage of directly comparable geochemical and mineralogical data refinements to emphasise ground conditions that affect till and surficial mapping to a large, nearly continuous portion of central BC. sampling programs. The surficial exploration component of the CICGR program addresses three key objectives: Surficial geology 1: 50 000 scale surficial geology interpretations; • compilation of historical surface sediment data and reanalysis of available archived till survey samples; and Tb - Till: blanket p - Alluvial; plain • new and infill till geochemical and mineralogical surveys. At - Alluvial; terrace Cv - Colluvial; veneer GFt - Glaciofluvial; terrace Major reworking Minor reworking QUEST project area TREK project area Mackenzie Surficial study area CICGR project area ° Nechako Plain Datum: NAD 83 Projection: BC Environment Albers Nechako Plateau Surficial study area Physiographic area Ice-flow direction averaged) MINFILE (Au- or Cuelated mineral QUEST or GSC till 3. Drift thickness mapping - Drift thickness is based sample; recovered on the surface expression of map units and provides a QUEST or GSC till relative estimate of sediment thickness to help determine sample; unrecovered effort to access bedrock (e.g. at surface; hand-dug pits; **TREK till sample** shallow excavations; drilling required). 1 12 1 Flateau

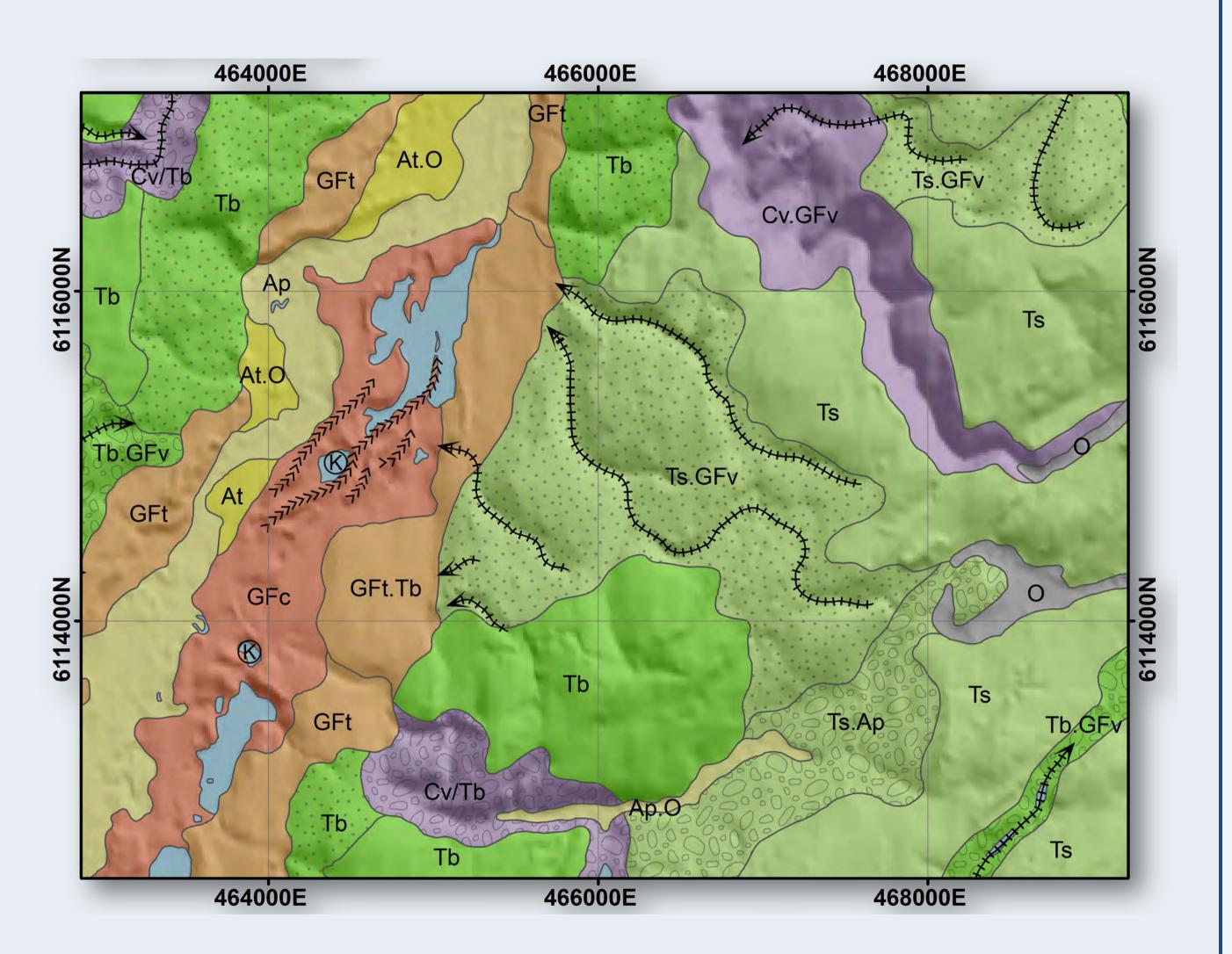


indicate recovered QUEST and GSC samples that will be reanalysed as part of this project.

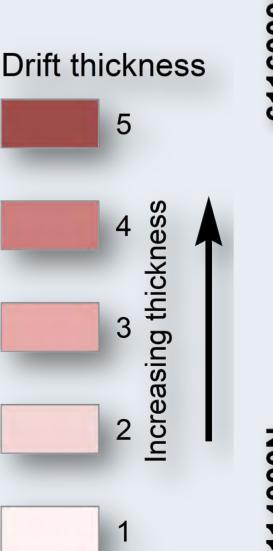
Mineral Exploration in Central British Columbia's Thick Surficial Deposits: Surficial Mapping to Inform Surface Sediment Data Compilation, and Till Sample Reanalysis and Collection in the CICGR Project Area

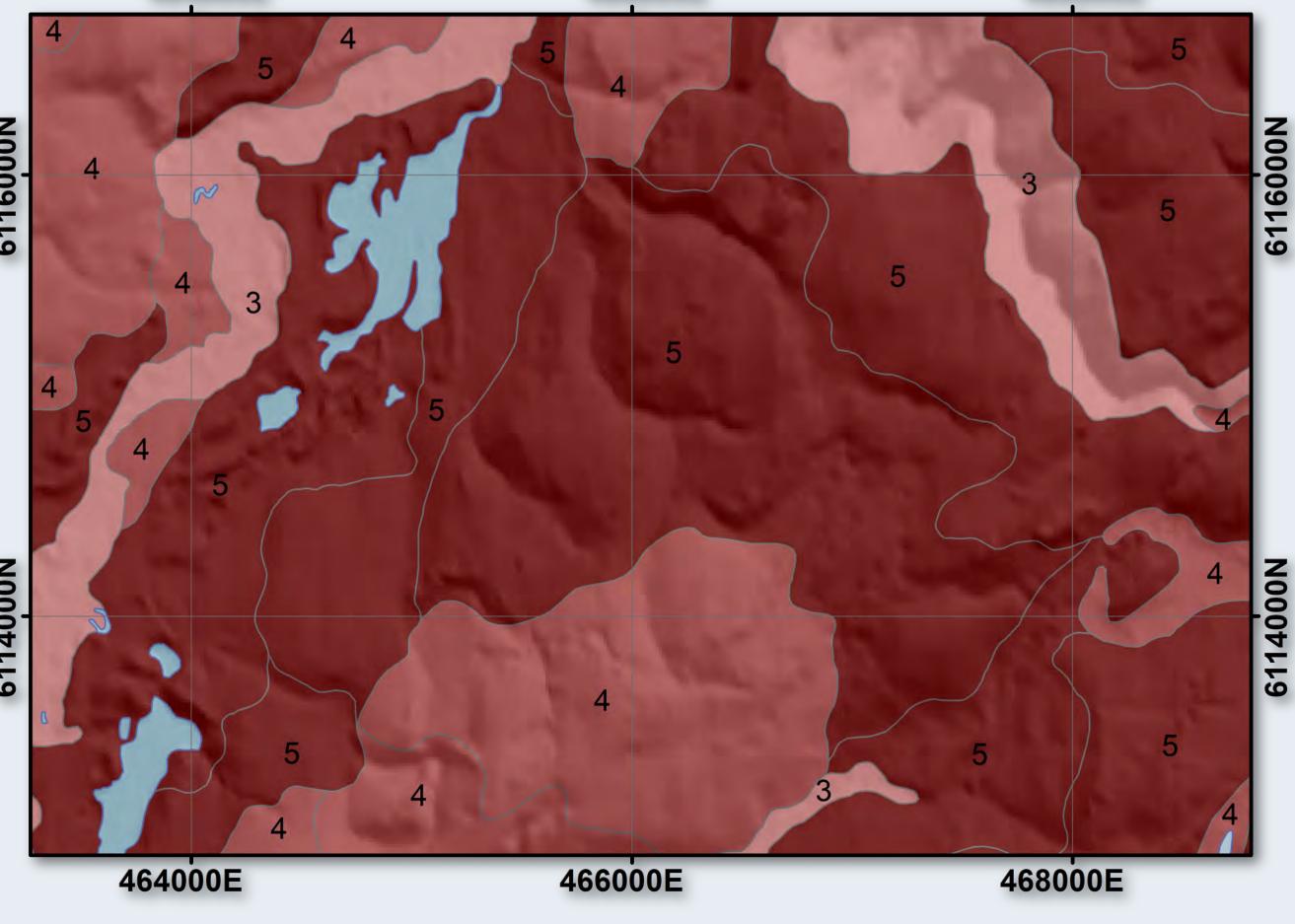
Dave Sacco¹, Wayne Jackaman², and Cory McGregor¹ ¹Palmer, Vancouver, British Columbia ²Noble Exploration Services, Jordan River, British Columbia

The surficial interpretations improve the understanding of the surficial environment and implications to surface sediment data evaluation, support design and execution of till geochemical and mineralogical surveys; and supports future exploration efforts.



2. Till sampling suitability mapping - Till sampling suitability is derived from the surficial interpretations based on the distribution of subglacial till, the differentiation of till facies and the occurrence of postdepositional re-working of sediments (e.g. by meltwater). A multi-class suitability index is tailored to the results of the surficial mapping and used to attribute each polygon according to the proportion of suitable subglacial till for sampling.





Data Compilation and Reanalysis of Archive Samples

The reanalysis of till samples archived from previous regional geochemical surveys is a cost-effective method of significantly upgrading the utility of the associated geochemical datasets. Many of these projects were completed in the 1990s when sampling protocols were less strict, and a considerable amount of the original results were generated using analytical methods that are now outdated. Reanalysis by modern laboratory techniques and genetic interpretations of the sample medium informed by the surficial geology mapping will significantly upgrade older till geochemical datasets and create information that is directly comparable with new till data. Recovered character samples from QUEST

New Till Geochemical and Mineralogical Surveys

Till surveys will be informed by the surficial mapping products and conducted to established standards to produce high-quality analytical results that are consistent with current geochemical data. Sampling strategies will: 1) include new and infill sampling to attain target sampling densities; 2) provide new trace metal and mineral indicator data; 3) archive character samples for future analytical work; and 4) support exploration and environmenta research

A 1-2 kg subglacial till sample and 50 pebbles will be collected a every site while an additional 10-12 kg bulk sample will be collected at roughly half the density. Sampling locations will be based on an approximately 2 km, staggered grid aligned with ice

Till matrix will be analyzed for minor and trace elements by an ultra-trace aqua-regia digestion ICP-MS package for 53 elements and by INAA for total gold plus 34 elements. Major and minor elements will be determined by ICP-ES following a lithium metaborate/tetraborate fusion and dilute acid digestion. This analytical package will include loss-on-ignition by weight difference after ignition at 1000°C, plus total C and Sr by LECO analysis.

The bulk till samples will be processed for heavy and medium mineral concentrates (0.25–2.0 mm) for gold and porphyry copper indicator mineral identification and counts.

Conclusion

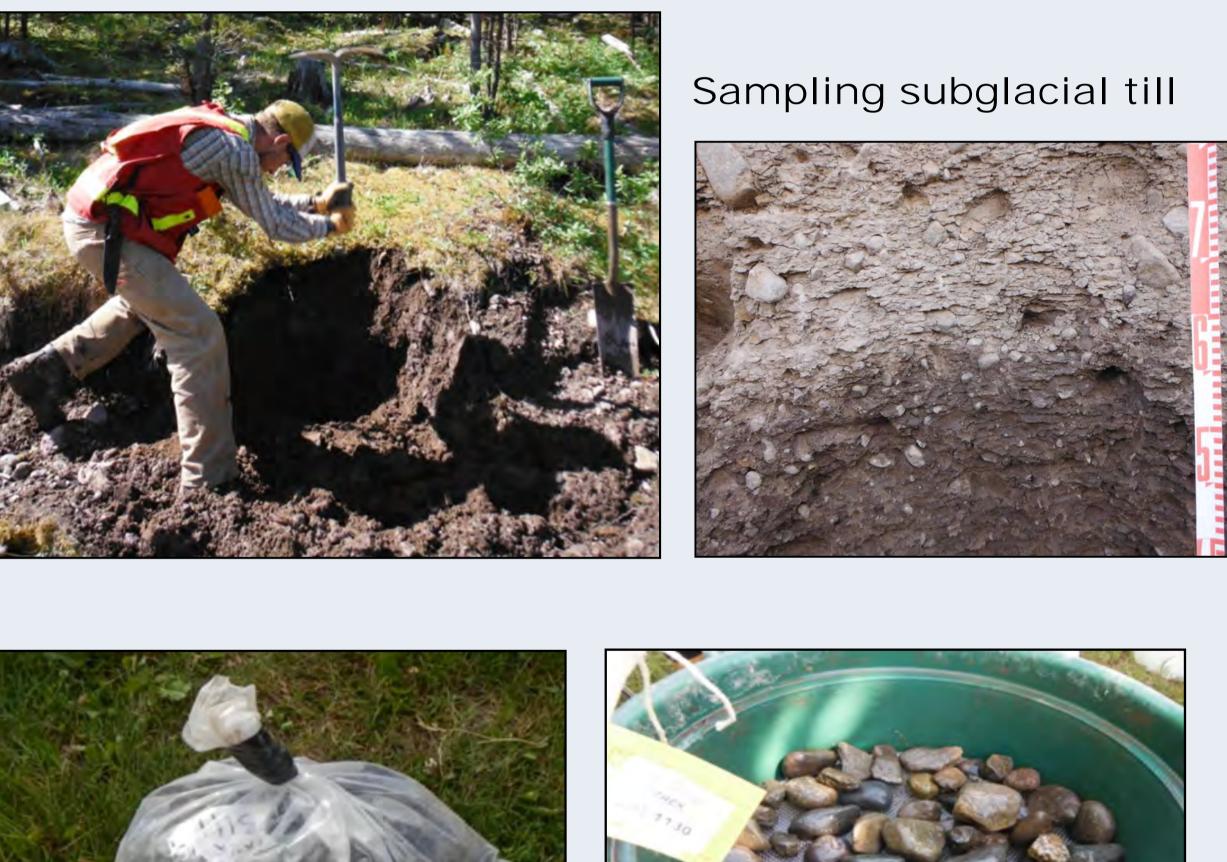
The integration of surficial mapping and results of surface sediment samples analyses into a comprehensive dataset contributes to the ongoing development of a province-wide, regional, exploration database. Survey methods conform to strict specifications; compiled information is comprehensive, compatible and reproducible; and the package complements a wide range of other ongoing geoscience initiatives and exploration activities. The project results, combined with data from the earlier TREK and QUEST projects, extend the coverage of comprehensive geochemical and mineralogical data to a large portion of central British Columbia, and will promote increased awareness in a highly prospective region, assist in the identification of new exploration targets and support follow-up activities.

Acknowledgements

This program was funded by Geoscience BC. The authors would like to thank A. Plouffe from the Geological Survey of Canada for his heroic efforts to recover archive samples from storage in Ottawa and his support in the development of this project. Assistance in archive sample recovery was also provided by R. Lett and T. Ferbey. A special thank you to B. Ward for his thorough review of the project, thoughtful comments and provision of unpublished data.











Example of till samples for geochemical and mineralogical analysis, archive, and pebble sample