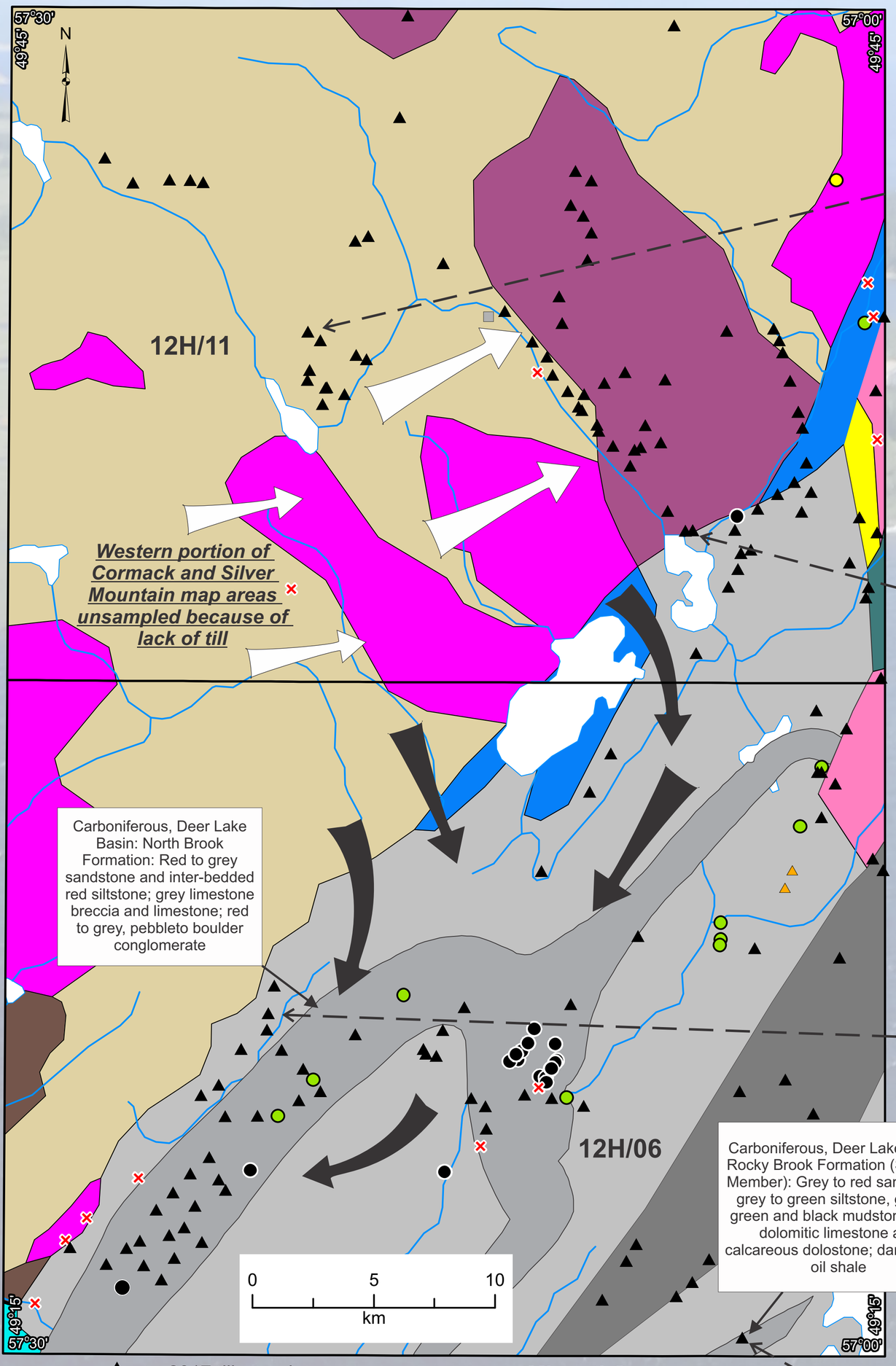
Quaternary mapping and till sampling in Cormack (NTS 12H/06) and Silver Mountain (NTS 12H/11) map areas

Sarah Hashmi

Newfoundland Labrador
Natural Resources

Introduction

Quaternary mapping and till sampling studies were initiated in the Cormack (12H/06) and Silver Mountain (12H/11) map areas as part of the GSNL's ongoing regional surficial mapping and sampling program. Previous work by industry and the GSNL have shown that the survey areas are prospective for Au, Cu, Ni, PGE, U and hydrocarbons; however, these studies have been impeded by significant till cover.



2017 till samples

Older ice-flow

Younger ice-flow

Carboniferous
Siliciclastic and evaporitic sediments

Silurian to Devonian
Granitoid suites

Silurian to Devonian
Mafic intrusions

Silurian
Sub-aerial mafic and felsic volcanics

Devonian to Carboniferous
Sandstone, shale, and conglomerate

Cambrian
Carbonate rocks

Mineral Occurences

Bitumen/Oil Shale
Copper
Gold
Nickel
Uranium
Other

Late Proterozoic to Ordovician
Siliciclastic and carbonate rocks

Late Proterozoic to Cambrian
Siliciclastic sediments and volcanics

Middle Proterozoic
Mafic and anorthositic intrusions

Middle Proterozoic
Granitoid suites

Early to Middle Proterozoic
Granitoid gneiss and paragneiss

Objectives

1) Map the surficial geology,
2) Reconstruct past glacial environment,
3) Regional till sampling survey to aid in the interpretation of geochemical and indicator mineral signatures,
4) Characterize surficial responses associated with known mineral occurrences, and
5) Identify surficial anomalies associated with previously unknown mineralization.

Sample description
Sample: 17SH1131
Landform : Till blanket
Structure: Massive
Matrix: Silty sand
Clast percent & size: 35% granule to boulder-sized
Clast description: silt-capped,faceted, bullet-shaped
Weathering: a few *in situ* weathered clasts.

Till provenance
Likely derived from orthopyroxene-bearing tonalitic and quartz diorite gneiss of the Long Range Gneiss Complex.

Munsell chart
Grey 5Y 6/1

Sample description
Sample: 17SH1066
Landform : Till blanket
Structure: Massive
Matrix: Silty sand
Clast percent & size: 40% granule to boulder-sized
Clast description: silt-capped,faceted, bullet-shaped
Weathering: a few *in situ* weathered clasts.

Till provenance
Likely derived from medium-grained biotite-hornblende granite of the East Addies River pluton of the Long Range Gneiss Complex.

Munsell chart
Light pink 8.5Y 8/4

Sample description
Sample: 17SH1043
Landform : Till blanket
Structure: Massive, fissile
Matrix: Silty sand
Clast percent & size: 20% granule to boulder-sized
Clast description: faceted, bullet-shaped
Weathering: none visible.

Till provenance
Likely derived from red to grey sandstone and interbedded red siltstone of the North Brook Formation.

Munsell chart
Dark red 7.5R 3/8

Sample description
Sample: 17SH1034
Landform : Till blanket
Structure: Massive, fissile
Matrix: Silty sand
Clast percent & size: 35% granule to boulder-sized
Clast description: silt-capped, faceted, bullet-shaped
Weathering: none visible.

Till provenance
Likely derived from the Rocky Brook Formation (Spillway Member), which comprises grey to red and brown siltstone, calcareous siltstone, grey to green mudstone, minor red to grey sandstone, dolomitic limestone and dark brown oil shale.

Munsell chart
Brown 7.5YR 5/4