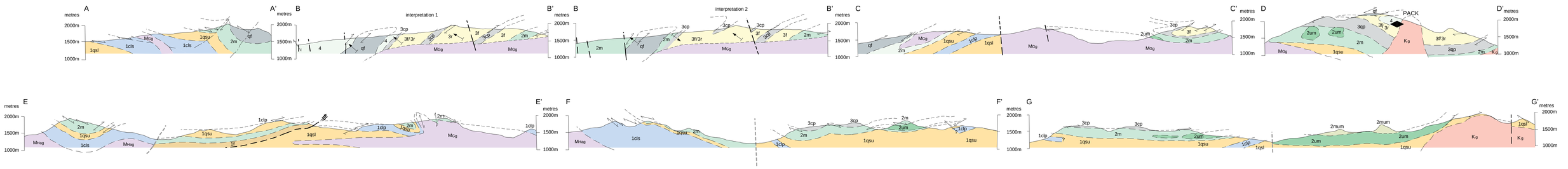
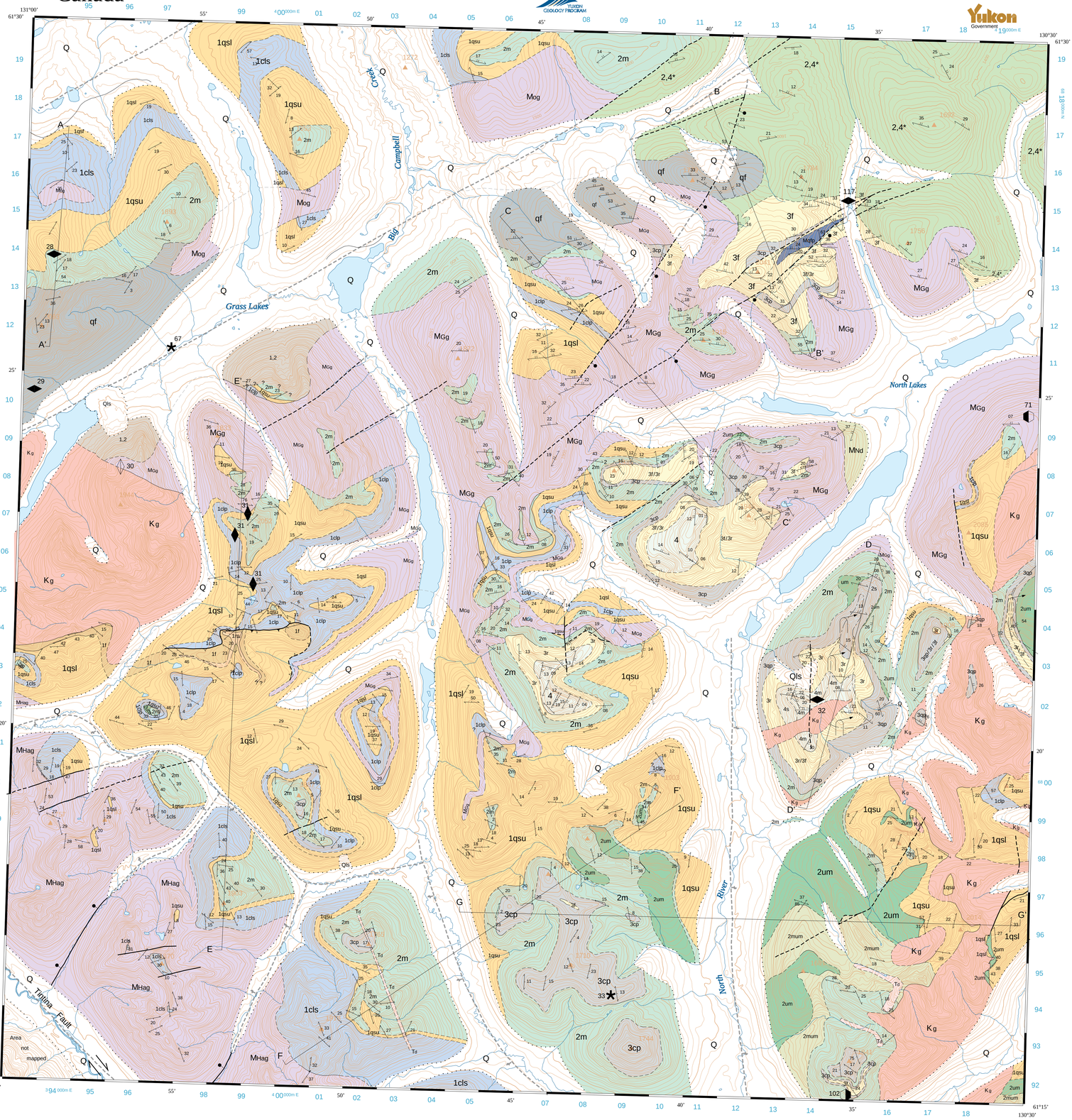


Canada

Yukon Geology Program

Yukon Government



LEGEND

QUATERNARY

- Q — Unconsolidated alluvium, colluvium and lacustrine and glacial deposits
- Qls — landslide debris

INTRUSIVE ROCKS

TERTIARY

- Td — North-northeast trending undeformed, brown, clay-altered feldspar porphyry dykes and light grey aphyric felsite dykes.

CRETACEOUS

- Kg — Weakly foliated medium- to coarse-grained biotite-muscovite granite, generally equigranular[1]

MISSISSIPPIAN

Grass Lakes orthogneiss [2]

- MGg — Equigranular medium- to coarse -grained granitic to monzonitic orthogneiss.

Houle augen orthogneiss [2]

- MHag — Potassium feldspar megacrystic granitic augen orthogneiss.
- Mog — Undifferentiated granitic orthogneiss[3]
- Mqfp — Quartz-feldspar metaporphyry, variably foliated, mineralized and oxidized

North Lakes Metadiorite

- MNd — Foliated coarse-grained hornblende-biotite meta-diorite[4].

Age unknown

- 2mum — Biotite-actinolite-plagioclase amphibolite (meta-gabbro) and actinolite amphibolite (meta-pyroxenite)[3]

Age unknown

- 2um — Massive to layered metamorphosed ultramafic rocks including dunite and pyroxenite, locally serpentinized.

LAYERED METAMORPHIC ROCKS

PRE-MISSISSIPPIAN AND MISSISSIPPIAN

Unit 4

- 4 — Undifferentiated mafic (biotite-chlorite-actinolite-plagioclase) schist, carbonaceous phyllite and quartzite, and quartzofeldspathic grit arid psammite.
- 4m — Massive, punky calcareous biotite-plagioclase schist, subtly layered chlorite-actinolite-plagioclase schist
- 4s — Carbonaceous phyllite and quartzite, quartzofeldspathic psammite and grit

Unit 3

- 3 — undifferentiated felsic (quartz-muscovite-feldspar) schist, lesser carbonaceous phyllite and quartzite and mafic schist
- 3f — Light grey, tan to white platy quartz-muscovite shcist, locally with mm-scale quartz and feldspar augen
- 3r — Creamy tan to white, massive, cherty metarhyolite locally with quartz amygdules, and quartz and feldspar augen
- 3qp — Discontinous (traceable for over a kilometre but not throughout map area) bodies of calcareous muscovite-quartz psammite and grey quartzite.
- 3cp — Medium to dark grey carbonaceous muscovite-quartz schist or phyllite, quartzite, uncommon light grey marble.
- 1,2 — Units 1 and 2 are not differentiated for lack of date.

Unit 2

- 2m — Massive calcareous actinolite-plagioclase-chlorite-biotite schist, subtly layered plagioclase-actinolite-chlorite schist, and lesser carbonaceous phyllite and quartzite

Unit 1

- 1qsu — Upper quartzose metaclastic unit: biotite-muscovite quartz schist and micaceous quartzite, lesser quartz-pebble conglomerate and chlorite-biotite schist, uncommon grey carbonaceous quartzite. Narrowly transitional upward to Unit 2m
- 1clp — Calcareous quartz psammite, marble, calcareous chlorite-biotite schist and epidote-biotite-calcite-garnet calcsilicate schist; stratigraphically equivalent to Unit 1cls.
- 1cls — Calcareous garnet-biotite-muscovite schist and marble, rare garnet-biotite amphibolite; stratigraphically equivalent to Unit 1clp.
- 1qsl — Lower quartzose metaclastic unit: biotite-quartz-muscovite schist and lesser biotite-muscovite quartz schist and plagioclase-quartz-chlorite-biotite schist.
- 1m — Calcareous plagioclase-chlorite-biotite schist
- 1f — Quartz-feldspar-muscovite augen schist

Units of uncertain stratigraphic position

- qf — Discontinous (traceable for up to hundreds of metres) bodies of coarse-grained quartzofeldspathic sandstone and pebble conglomerate and lesser carbonaceous schist or phyllite.
- 2,4* — Undifferentiated mafic (plagioclase-biotite-actinolite-chlorite) schist and carbonaceous phyllite and quartzite; see cross-sections B-B' for two interpretations of the stratigraphic position of this unit.

1 ca. 112 Ma U-Pb determinations reported from this and similar bodies elsewhere in the Pelly Mountains (Mortensen, 1992 and personal communication, 1996).

2 Early Mississippian U-Pb age determinations reported from similar bodies elsewhere in Yukon-Tanana Terrane in the Pelly Mountains (Mortensen, 1992 and personal communication, 1996; Grant and Creaser, 1996.)

3 Concordant 365 Ma U-Pb age (J. Mortensen, personal communication, 1996)

4 Early Mississippian U-Pb age determinations reported from undeformed rocks thought to be equivalent to these rocks (Grant and Creaser, 1996).

SYMBOLS

- Geological contact (defined, approximate, assumed, covered)
- Fault (displacement unknown) (approximate, assumed, covered)
- Normal fault (circle on downthrown hangingwall) (approximate, assumed, covered,)
- Thrust fault (teeth on upthrown hanging wall) (approximate, assumed, covered)
- Recumbent fold axial surface trace (arrow indicates plunge of hinge)
- Limit of outcrop
- Foliation (main phase, generally parallel to compositional layering)
- Line of cross-section (A — A')
- Apparent dip of foliation in cross-section

MINERAL OCCURRENCES

Yukon Minfile

105G 028	◆	GYP	Pb, Zn, Cu
105G 029	◑	GEE	Pb
105G 030	◆	PIT	U, Ag, Cu, F
105G 031	◆	ROB	Ag
105G 032	◑	PACK	Pb, Zn, Cu
105G 033	★	TAK	work target
105G 067	★	LAWN	work target
105G 071	◑	MYDA	W
105G 088	★	COOKIE	work target
105G 102	◆	HOWDEE	W, Cu
105G 117	◆	KUDZ ZE KAYAH	Pb, Zn, Ag, Cu, Au

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The author would like to thank Jay Timmerman and Jennifer Jones for their able and enthusiastic field assistance; Paul MacRobbie and Neil O'Brien of Cominco for allowing the use of their contract helicopter, other logistical assistance and for sharing some of their insights into the regional geology; Ian Foreman and John Deighton of Columbia Gold Mines for allowing use of their contract helicopter and sharing information about the geology around the Fyre Lake deposit; Lee Pigage of Expatriate Resources for sharing his detailed mapping of Expatriate Resources' target areas and Doug Eaton of Expatriate Resources for giving Lee Pigage permission to share his data; Bob Krause and Graham MacDonald of Arcturus Resources for discussions about the geology of Arcturus' First Base target. Safe and reliable helicopter service was provided by Trans North Air, notably by pilots John Witham, Chris Guichon and Steve Soubliere.

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Murphy, D.C. and Timmerman, J.R.M., 1997. Preliminary geological map of part of Grass Lakes area, Pelly Mountains, southeastern Yukon. Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, Open File 1997-1.

This map supercedes Murphy and Timmerman (1997).

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

Digital cartography and drafting by Will vanRanden, Yukon Geology Program.

Store the map in a dark area to prevent colours from fading.

Last revisions made October 28, 1997.

RECOMMENDED CITATION

Murphy, D.C. 1997. Preliminary geological map of Grass Lakes area, Pelly Mountains, southeastern Yukon. Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, Open File 1997-3.

Copies of this map, the accompanying report and Yukon Minfile may be purchased from Geoscience Information and Sales, Exploration and Geological Services Division, Indian and Northern Affairs Canada, Room 102-300 Main St. Whitehorse, Yukon Y1A 2B5 Ph. 403-667-3204 Fax 403-667-3198.

Topographic base produced by SURVEYS AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND RESOURCES.

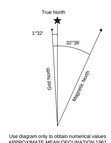
ONE THOUSAND METRE
Universal Transverse Mercator Grid
ZONE 8

GRASS LAKES
YUKON TERRITORY
SCALE 1:50 000

Miles 1 0 1 2 3 Miles

Metres 1000 0 1000 2000 3000 4000 Metres

CONTOUR INTERVAL 20 METRES
Elevations in Feet above Mean Sea Level
North American Datum 1983
Transverse Mercator Projection



Use diagram only to obtain numerical values
APPROXIMATE MEAN DECLINATION 1961
FOR CENTRE OF MAP
Annual change decreasing 7.9'

105 G/11	105 G/10	105 G/9
105 G/6	**105 G/7 THIS MAP**	105 G/8
105 G/3	105 G/2	105 G/1

Indian and Northern Affairs Canada
Exploration and Geological Services Division
Yukon Region

Open File 1997-3

Preliminary geological map of Grass Lakes area Pelly Mountains, southeastern Yukon

NTS 105G/7

by

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Yukon Geology Program