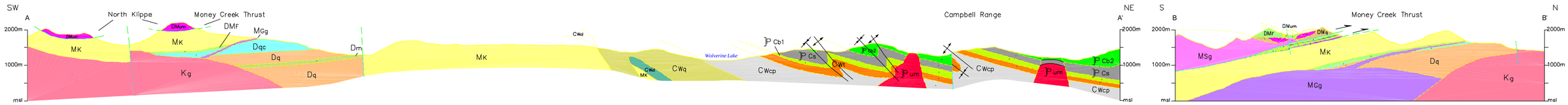
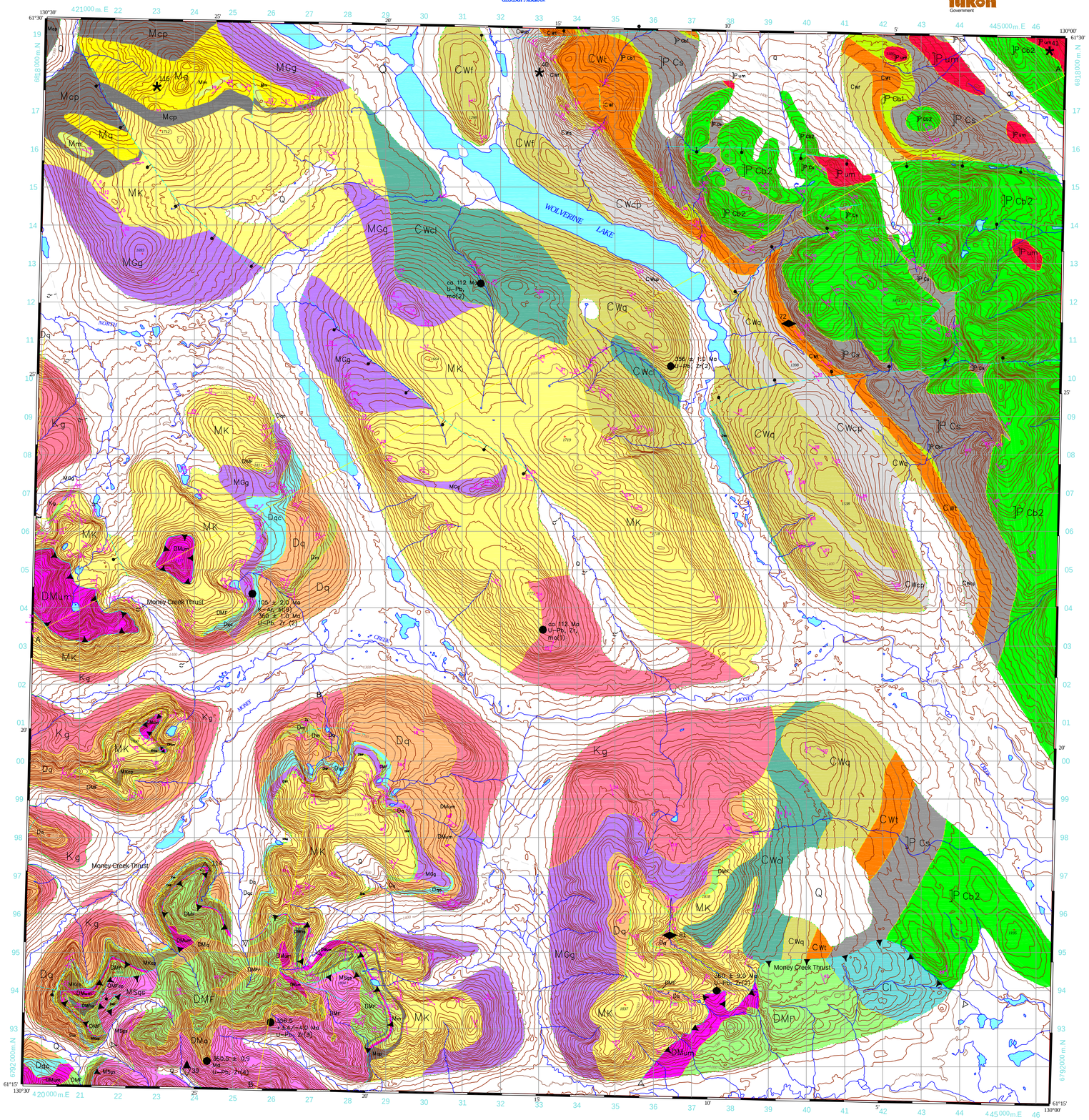


Canada



QUATERNARY

Q — Unconsolidated alluvium, colluvium, lacustrine and glacial deposits

INTRUSIVE ROCKS

CRETACEOUS

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

PENNSYLVANIAN to PERMIAN

Pum — Brown-weathering, dark green to black variably serpentinized ultramafic rock. Intrusive contacts locally preserved.

MISSISSIPPIAN

Msg[2], MSgs — Simpson Range Plutonic Suite: M SG: generally unfoliated biotite-hornblende granite and quartz monzonite, locally faulted, chloritized and hematized; M SGS: strongly foliated and lineated mylonitic MSG

Mgg[3] — Grass Lakes Plutonic Suite: Strongly foliated and lineated, medium- to coarse-grained granitic to monzonitic metaplutonic rock. Generally equigranular although augen texture locally present. Locally discordant with earliest foliation.

DEVONIAN to MISSISSIPPIAN

DMq[3,4] — Mafic-poor quartz porphyritic granite. Cross-cutting relationships between granite and subvolcanic feeder dykes to DM F basalt flows suggests that granite and basalt are coeval and that granite is likely coeval with unit DMFR.

DMum — Brown-weathering, dark green to black, variably serpentinized ultramafic rock. Gabbro and/or pyroxenite locally present. In both hangingwall and footwall of the Money Creek Thrust, the unit is generally spatially associated, and inferred to be in intrusive contact, with DM F. In the footwall, the unit is also locally surrounded by unit D q, also presumably with intrusive contacts. The unit locally occurs as isolated klippe of the Money Creek Thrust sheet and along the Money Creek Thrust itself as light-coloured fish-scale talc- serpentine schist.

LAYERED ROCKS

PENNSYLVANIAN to PERMIAN (and possibly younger)

CAMPBELL RANGE SUCCESSION

Pcb2 — Coarse basaltic breccia, pillowed and massive basaltic lavas, gabbro, diabase, maroon and green chert. Foliated and tightly folded at eastern edge of Campbell Range Belt.

Pcs — Carbonaceous argillite, sandstone and grey quartz grit; diamictite; top is marked by several metres of green, possibly tuffaceous chert and cherty argillite. These strata pass to the northeast into varicoloured chert and argillite, chert-pebble conglomerate and Pennsylvanian limestone, possibly as olistoliths in conglomerate.

Pcb1 — Coarse basaltic breccia, pillowed and massive basaltic lavas, gabbro, diabase, maroon and green chert. Foliated and tightly folded at eastern edge of Campbell Range Belt.

CARBONIFEROUS

WOLVERINE LAKE SUCCESSION

CWt — Thinly interbedded (cm-scale) massive to granular siliceous rock and light coloured phyllite (metatuff and exhalite). Siliceous rock is pale-coloured, locally massive and bedded on metre-scale at base where associated with baritic iron formation. Darker near top where intercalated phyllite is dark grey. One band of platy brown limestone (CWl) in upper part of unit.

CWl — Tan to grey siliceous phyllite (C wl) and quartz-feldspar augen phyllite (CWq) of felsic volcanic and intrusive protolith

CWcp — Carbonaceous phyllite and quartz sandstone with glassy black quartz grains. Includes some siliceous phyllite and quartz-feldspar augen schist of volcanic protolith.

CWcl — Salt and pepper to dark grey coarse feldspathic meta-sandstone and grit. Shale chips common locally.

Cl — Medium grey to white, massive to foliated limestone, locally with crinoid and other macrofossil fragments.

UNCONFORMITY

MISSISSIPPIAN

Mcp, Mm, Mq — Carbonaceous phyllite (M cp), biotite-chlorite-actinolite-plagioclase mafic schist (Mm), quartzite (Mq), and rare feldspar-quartz-pebble metaconglomerate. Locally absent beneath unconformity.

MK[2], Mkcp — Kudz Ze Kayah felsic metavolcanic unit: Undifferentiated feldspar-muscovite-quartz felsic schist, feldspar- and rarely quartz-augen schist (meta-porphyry), thin calcite-plagioclase-biotite schist and lesser carbonaceous phyllite and grey quartzite (M Kcp). Magnetite iron formation occurs locally near the top of the unit in carbonaceous argillite and thin felsic schist. In the Money Creek Thrust sheet, the top of the Kudz Ze Kayah unit is locally marked by rusty bedded barite.

DEVONIAN to EARLY MISSISSIPPIAN

DMF, DMFr, DMFcp — Fire Lake mafic metavolcanic unit: In the footwall of the Money Creek Thrust, the unit comprises massive to subtly layered biotite-plagioclase-actinolite-chlorite schist, and lesser carbonaceous phyllite and quartzite and grey marble. In the Money Creek Thrust sheet, in a large roof pendant of M SG, unit is tilted but essentially undeformed. In this setting, it comprises massive to pillowed basalt, maroon and green fragmental basalt, pink and green shale and cherty shale, tan greywacke and a middle member of pink to brown locally quartz-porphyritic rhyolite (DM FR). Cross-cutting relationships between dykes feeding basalt and dykes of DMq feeding unit DMFR indicate that they are coeval. Outside of the pendant, the unit is foliated and lineated, contains mappable bands of carbonaceous phyllite and quartzite and grey marble (DM FCP), and is overlain by an eastwardly thickening foliated limestone with Carboniferous conodonts (C l)

Dq, Dqc, Dm — Biotite-muscovite-feldspar-quartz schist, micaceous quartzite and psammite, quartz-biotite-muscovite metapelitic schist, and marble. Marble is locally thick and continuous enough to map as a separate member (Dqc). Biotite-plagioclase-actinolite-chlorite schist similar to DM F occurs locally near top of unit (D m)

[1] ca. 112 Ma U-Pb age determinations reported from similar bodies elsewhere in the Pelly Mountains (Mortensen, 1992 and personal communication, 1996)
[2] Mortensen, 1992 and personal communications, 1996-1999
[3] Grant, Creaser and Erdmer (1996); Grant (1997)
[4] Mortensen (1991)
[5] Mid-Pennsylvanian to Early Permian, based on radiolarians identified by Tekla Harms as reported in Plint and Gordon (1997)
[6] Tempelman-Kluit (1979)
[7] Mineral modifiers are listed in order of increasing abundance.
[8] Based on conodonts collected by Derek Rhodes, Cominco and identified by Mike Orchard, GSC (Report No. MJO-1997-14)
[9] Hunt and Roddick (1992)

MINERAL OCCURRENCES
Yukon Minfile

Volcanic-associated massive sulphide occurrences			
105 G/072	◆	Wolverine (Fetish)	Zn, Cu, Pb, Ag, Au (deposit)
105 G/081	◆	Money	Pb, Cu
Other occurences			
105 G/039	▲	Vincent	Cu, Ag, Pb, Zn
105 G/114	△	Lady Lee	Jade
Work Targets			
105 G/040	✱	Jay (Wol, Foot, FYD, Wolf)	
105 G/041	✱	Finlayson	
105 G/116	✱	Charlie	

SYMBOLS

Geological contact (defined, approximate)

Fault, displacement unknown (defined, approximate, covered)

Fault, reverse (tooth on hanging wall) (defined, approximate, covered)

Fault, normal ball on downthrown hanging wall

Bedding — 45

Foliation S1 , S2 — 37, 14

Line of cross-section — A, A'

Geochronology sample site (number in parenthesis refers to footnotes below lithologic legend) — 356.5 +3.4/−4.0 Ma U–Pb, Zr(3)

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RECOMMENDED CITATION

Murphy, D.C. and Piercey, S.J., 1999. Geological map of Wolverine Lake area, Pelly Mountains (NTS 105G/8), southeastern Yukon (1:50 000 scale). Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, Open File 1999-3.

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Keep this map in a dark area to keep colours from fading.

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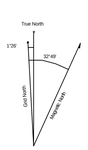
ONE THOUSAND METRE
Universal Transverse Mercator Grid
ZONE 9

WOLVERINE LAKE
YUKON TERRITORY
SCALE 1:50 000

Miles 1 0 1 2 3 Miles

Metres 1000 0 1000 2000 3000 4000 Metres

CONTOUR INTERVAL 20 FEET
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 2.9'

105 G/10	105 G/9	105 H/12
105 G/7 Grass Lakes Open File 1997-3	105 G/8 THIS MAP	105 H/5
105 G/2	105 G/1	105 H/4

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

Open File 1999-3

Geological map of Wolverine Lake area, Pelly Mountains (NTS 105G/8), southeastern Yukon (1:50 000 scale)

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