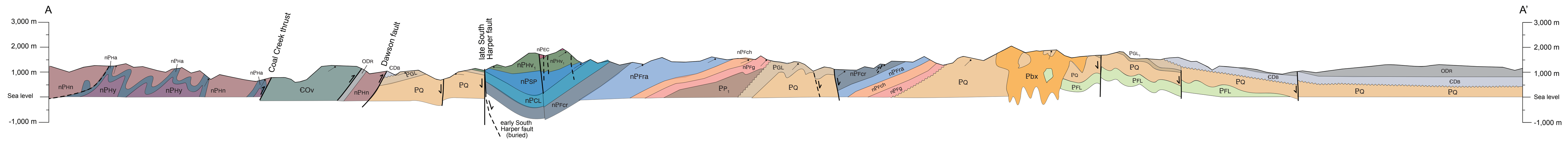
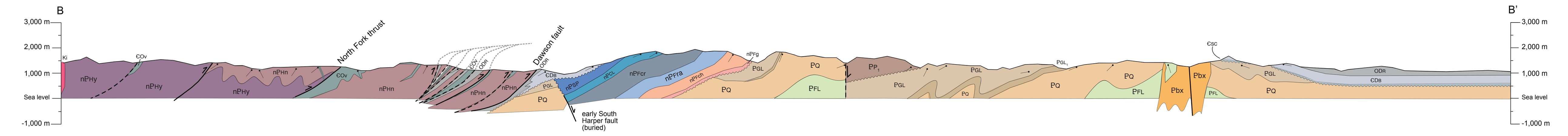
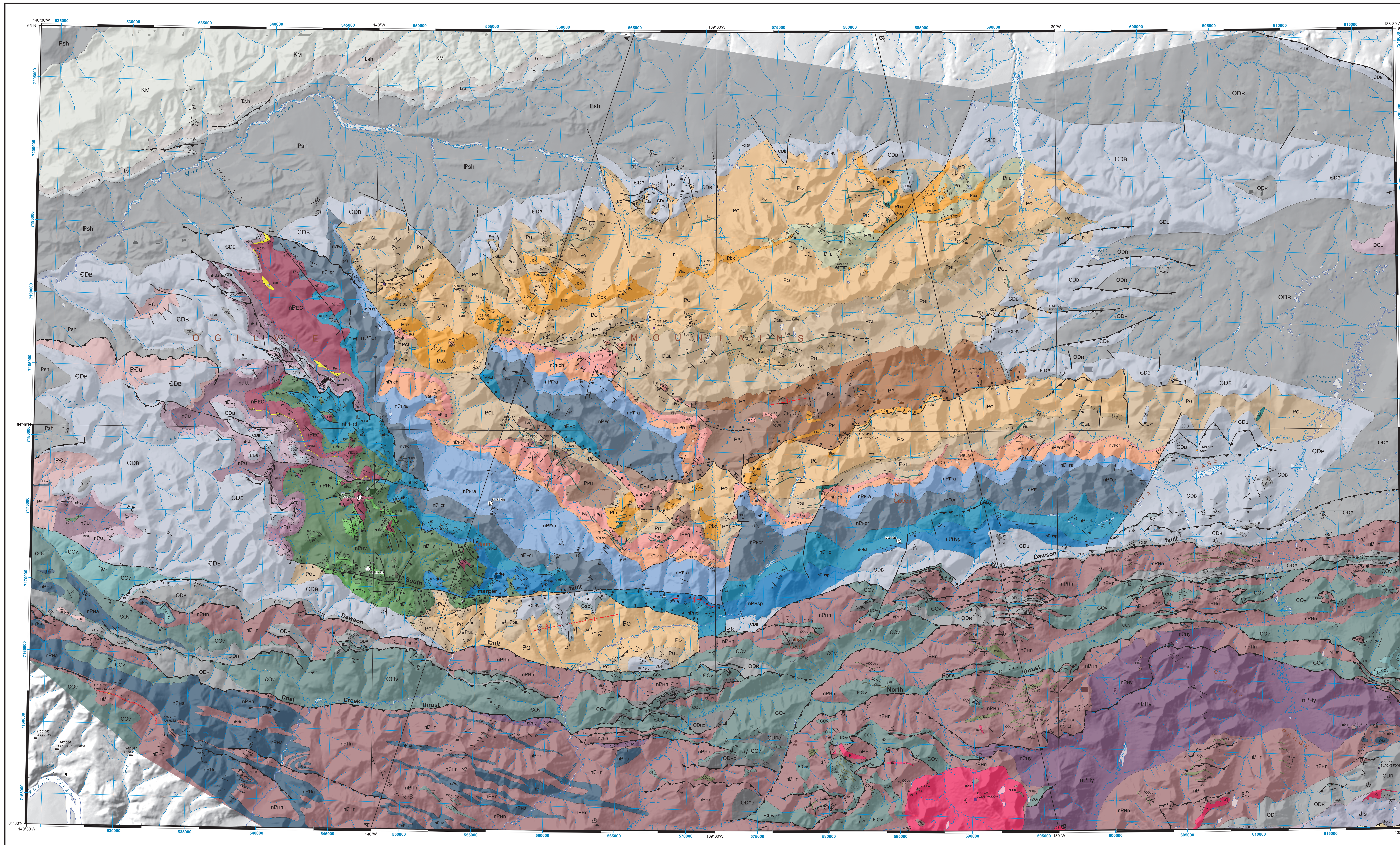
YUKON GEOLOGICAL SURVEY

Yukon
Energy, Mines and Resources







LEGEND

CRETACEOUS

KM — **MONSTER FORMATION:** shale, sandstone and conglomerate (mainly Cenomanian)

Ki — **TOMBSTONE PLUTONIC SUITE:** hornblende ± biotite alkali feldspar syenite, hornblende-biotite monzogranite with clinopyroxene, hornblende diorite, tinguaite and biotite-clinopyroxene monzonite near margins

JURASSIC

Jls — **'LOWER SCHIST':** black, graphitic slate with interbedded brown siltstone; brownish-green argillite at base; black graphitic slate and phyllitic slate with lesser interbedded chert-pebble conglomerate and immature feldspathic greywacke in lower part; minor pale green siliceous phyllite in upper part

TRIASSIC

Tsh — dark grey to black shaly and platy, fetid micritic limestone; locally contains pelecypod fragments and small chert pebbles in upper part; thin-bedded, lithic-rich siltstone and shale in lower part

UPPER PERMIAN

PT — **TAKHANDIT FORMATION:** rusty to light grey weathering, grey and white, crystalline skeletal limestone; calcareous sandstone, chert pebble conglomerate, and sandy limestone in basal part (~25 m thick); locally interbedded black chert in middle part; partially silicified and dolomitized limestone in upper part

UPPER CARBONIFEROUS

MKHu — **KENO HILL QUARTZITE:** resistant, thick-bedded, massive fine-grained quartz sandstone; locally interbedded with black slate; fresh and weathered surfaces are dark grey to black

UPPER DEVONIAN TO CARBONIFEROUS

DCE — **EARN GROUP:** gun-steel blue weathering shale, chert-pebble conglomerate

UPPER DEVONIAN

DNR — **NATION RIVER FORMATION:** shale, sandstone, common coarsening- and thickening-upward cycles; locally black chert pebble conglomerate in black mudstone matrix; locally pyritic

MIDDLE ORDOVICIAN TO MIDDLE DEVONIAN

ROAD RIVER GROUP

ODR — black shale, argillite and slate; interbedded chert and quartz sandstone; graptolite fauna chiefly at base of chert beds

ODRc — black, medium-bedded chert (Middle Ordovician)

MIDDLE CAMBRIAN TO LOWER ORDOVICIAN

ЄOv — **DEMPSTER FORMATION:** amygdaloidal basaltic flows and breccia; mostly subaqueous (Abbott, 1997)

ЄOv1 — flow banded rhyolite and felsite, includes breccia and tuff

ЄOl — white weathering, grey streaked recrystallized limestone

ЄOdu — gabbroic dikes and sills interpreted to be subvolcanic to ЄOv (all south of the Dawson thrust)

ЄDB — **BOUVETTE FORMATION:** light grey to white, medium to thick-bedded, sucrosic dolomitic grainstone and packstone; locally oolitic and heavily silicified; locally medium-bedded silty dolomitic wackestone and packstone at base (up to 1430 m)

ЄSC — **SLATS CREEK FORMATION:** yellow-beige, silty dolostone with interbedded quartz sandstone and red siltstone; uncommon ripple marks, mud cracks, concretions and trace fossils

EDIACARAN TO LOWER CAMBRIAN

PЄu — undifferentiated and poorly exposed slate, phyllite, shale, sandstone, limestone and local altered volcanic breccia

HYLAND GROUP

nPHn — **NARCHILLA FORMATION:** maroon, green and grey argillite; local light grey chert, siltstone, sandstone; locally massive gritty sandstone; simple bed-parallel trace fossils in upper part

nPHfe — iron formation and jaspillitic chert

nPHa — **ALGAE FORMATION:** white-weathering grey limestone; heavily recrystallized (correlative with Risky Formation; Moynihan, 2014)

nPHy — **YUSEZYU FORMATION:** interbedded sandstone and shale; locally massive gritty sandstone, argillite, and chloritic schist (correlative with parts of June Beds, Gametrail, and Blueflower formations; Moynihan, 2014)

EDIACARAN TO LOWER CAMBRIAN

'UPPER GROUP' (WINDERMERE SUPERGROUP)

nPU3 — grey brown weathering, dark brown quartz wacke and arenite; interbedded with dark brown orange dolomitic wackestone and fine-grained siltstone; locally laminated black fetid silty limestone; rare coarse-grained to granule quartz wacke and discontinuous lenses of chert pebble conglomerate and cross-bedded quartz arenite; locally trace fossils, such as *Cruziana* and *Rusophycus*; (<170 m) (correlative with Ingta, Backbone Ranges, and Vampire formations; Macdonald et al., 2013)

nPU2 — thick-bedded, discontinuous, and massive white to buff-colored recrystallized dolostone with pervasive brecciation and secondary cements; overlain by ~100 m of thinly bedded, pink dolomitic siltstone, wackestone, and grainstone with hummocky cross-stratification and ripple cross-lamination; local fine-grained dolomitic sandstone and stromatolites (correlative with parts of June beds, Gametrail, and Blueflower formations; Macdonald et al., 2013)

nPU1 — jet black shale and finely laminated siltstone (correlative with the Sheepbed Formation; Macdonald et al., 2013)

CRYOGENIAN TO EDIACARAN

HAY CREEK GROUP (WINDERMERE SUPERGROUP)

nPHCu — poorly exposed siltstone and black shale succeeded by <10 m of dolostone breccia; sharply overlain by white to buff-colored, finely laminated dolostone with abundant bed-parallel (sheet-crack) cements and "giant wave ripples" (correlative with Ravensthroat formation; James et al., 2001)

RAPITAN GROUP (WINDERMERE SUPERGROUP)

nPEC — **EAGLE CREEK FORMATION:** dark green and maroon to yellow-orange massive and stratified diamictite, lithic wacke, conglomerate, and shale; locally dropstones, till pellets, and striated clasts; dominated by carbonate and volcanic clasts with minor quartzite clasts; some invasive basaltic flows (nPHv4); tuff horizon near base is dated at 716.47 ± 0.24 Ma (U/Pb CA-ID-TIMS zircon; Macdonald et al., 2010, 2011) (correlative with Rapitan Group)

NEOPROTEROZOIC

MOUNT HARPER GROUP (WINDERMERE SUPERGROUP)

nPHv4 — **MOUNT HARPER, UPPER SUITE:** orange-weathering tabular diabasic pillowed flows, breccia, tuff, and invasive flows within Eagle Creek Formation

nPHv3 — **MOUNT HARPER, UPPER SUITE:** blue-black weathering, andesitic basalt in columnar-jointed and shattered massive flows overlying angular flow shards ('hydroclastic breccia'); minor sills

nPHv2 — **MOUNT HARPER, UPPER SUITE:** light-orange weathering, rubble-forming, rhyolite flows, breccia and ignimbrite; locally quartz and plagioclase-phyric; dated at 717.43 ± 0.14 Ma (U/Pb CA-ID-TIMS zircon; Macdonald et al., 2010)

nPHv1 — **MOUNT HARPER, LOWER SUITE:** massive and pillowed andesitc flows, tuff-breccia, lapilli tuff, and block-and-ash breccia

nPHd — **MOUNT HARPER, LOWER SUITE:** NNW-SSE mafic feeder dikes and sills

nPSP — **SEELA PASS FORMATION:** heterolithic sandstone and conglomerate with pebble to boulder-sized angular and rounded clasts; clasts composed of dolostone, limestone, quartzite, and phyllite from underlying units; medium to thick-bedded, graded or massive, rare dolomitic mudstone, dusky red wackestone/mudstone; coarsening-up packages from mudstone to coarse-grained wackestone and sandstone (up to 1100 m) (correlative with Coates Lake Group; Macdonald et al., 2010, 2011; Strauss et al., 2014)

nPCL — **CALLISON LAKE FORMATION:** finely laminated sandstone, siltstone, and shale interbedded with laterally discontinuous stromatolitic bioherms at base; sharply overlain by medium-bedded dolostone with abundant domal stromatolites, microbialite, evaporite pseudomorphs and sedimentary talc horizons; at top interbedded black shale and stromatolitic dolostone; locally includes abundant chert and dolomitic silicified breccia; hosts vase-shaped microfossils; upper shale dated at 739.9 ± 6.1 Ma (Re-Os Isochron; Strauss et al., 2014) (correlative with Coates Lake Group; Abbott, 1997; Macdonald et al., 2010, 2011; Strauss et al., 2014)

NEOPROTEROZOIC

FIFTEENMILE GROUP (MACKENZIE MOUNTAINS SUPERGROUP)

nPFcr — **CRAGGY DOLOSTONE:** thick-bedded and massively recrystallized, silicified sucrosic dolostone; local ooids, coated grains, brecciated teepee structures, tabular clast conglomerate, intraclast breccia, low-angle and trough cross-stratification, microbialite, and low-relief stromatolites (>500 m thick) (correlative with Little Dal Group; Macdonald et al., 2012; Turner and Long, 2012)

nPFra — **REEFAL ASSEMBLAGE:** black to brown-coloured shale, siltstone, minor sandstone and conglomerate; carbonate grainstone, ribbon-bedded calcisiltite, intraclast breccia, and laminated micrite; local boundstone and stromatolite reefs flanked by reef talus and carbonate debris (up to 500 m thick); tuff horizon near top dated at 811.51 ± 0.25 Ma (U/Pb CA-ID-TIMS zircon; Macdonald et al., 2010, 2012) (correlative with Little Dal Group; Macdonald et al., 2012; Turner and Long, 2012)

nPFch — **CHANDINDU FORMATION:** basal maroon shale and siltstone with abundant mud cracks; transitions upward into cyclic shale, siltstone, and dolostone intervals with grainstone, stromatolites, or microbialaminite; local stromatolitic bioherms and poorly sorted, massive coarse-grained sandstone beds; upper part contains large carbonate olistoliths (possibly correlative with Katherine and Hematite Creek groups; Halverson et al., 2012; Macdonald et al., 2012; Long and Turner, 2012; Kunzmann et al., 2014)

nPFg — **GIBBEN FORMATION:** grey ribbon-bedded dolostone, oolitic grainstone, stromatolitic dolostone, and microbialaminite with tepee structures; thickens northward into several hundred metres of grey to black shale that transition up-section into pink ribbon-bedded limestone (possibly correlative with Katherine and Hematite Creek groups; Halverson et al., 2012; Macdonald et al., 2012; Long and Turner, 2012)

UNDIFFERENTIATED PINGUICULA GROUP

PP2 — orange to light blue weathering dolostone grainstone, micrite, and boundstone; locally stromatolitic with morphospecies *Minjaria* and *Conophyton*; locally upper black shale and minor dolomicrite with green weathering, planar-laminated siltstone and minor coarse-grained quartz arenite (equivalent to PR2 of Medig et al., 2014)

PP1 — weakly foliated, brown to grey-coloured siltstone, shale, and phyllite with irregularly dispersed large dolostone blocks and conglomerate interpreted as olistoliths and debris flows (Macdonald et al., 2012; equivalent to PR1 of Medig et al., 2014)

MESOPROTEROZOIC

Pbx — **WERNECKE BRECCIA:** dominantly ESE-trending intervals of yellow-brown weathering heteroclastic megabreccia; contains blocks of quartz sandstone, iron formation, and silicified carbonate clasts in hematite matrix

PALEOPROTEROZOIC

GILLESPIE LAKE GROUP (WERNECKE SUPERGROUP)

PGL — orange and brown-weathering, medium to thick-bedded dolostone; common domal and columnar stromatolites with prominent argillaceous intervals; minor maroon weathering argillite

PGL1 — grey dolostone, laminated and thin-bedded, rare slump folds and breccia, locally stromatolitic

QUARTET GROUP (WERNECKE SUPERGROUP)

PQ — thin to thick-bedded grey to brown sandstone, siltstone, and shale; rare slump structures, ripple and trough crossbedding common

FAIRCHILD LAKE GROUP (WERNECKE SUPERGROUP)

PFL — interbedded sandstone and siltstone; pinkish-weathering near and within breccia bodies; dark grey argillaceous layers and discontinuous white-weathering dolostone in upper part, rare bedded jaspillite and siltstone; locally dolomitic

PFL1 — pale grey to greenish grey and purple dolomitic limestone and siltstone; platy and ribbed weathering, rare stromatolites

PROTEROZOIC UNDIFFERENTIATED

Pdu — mafic dikes and sills (possibly associated with Wernecke Breccia occurrences, Hart River Sills, Gunbarrel sills and dikes, and/or Mount Harper Volcanics)

SYMBOLS

geologic contacts (defined, approximate, inferred)

fault; movement not known (defined, approximate, inferred)

thrust fault (defined, approximate, inferred)

normal fault (defined, approximate, inferred)

fold axial trace (syncline)

bedding (upright, vertical, overturned) — 34, 46, 75

geochronology locality (U-Pb zircon; Re-Os whole rock) (age in million years) — 716.47 Ma, 739.9 Ma

fossil locality (Poulton et al., 1999)

apparent dip of bedding (in cross section)

MINERAL OCCURRENCES

(number and symbology refer to Yukon MINFILE database)

- Volcanogenic massive sulphide (Pb,Zn,Barite)
- Iron formation (Cu)
- Mississippi-valley type (Cu; Pb,Zn,Barite; unknown)
- Intrusion-related uranium (U)
- Polymetallic veins (Cu; Pb,Zn,Barite)
- Iron oxide breccias and veins (Cu; other)
- Coal
- Unknown, other

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RECOMMENDED CITATION

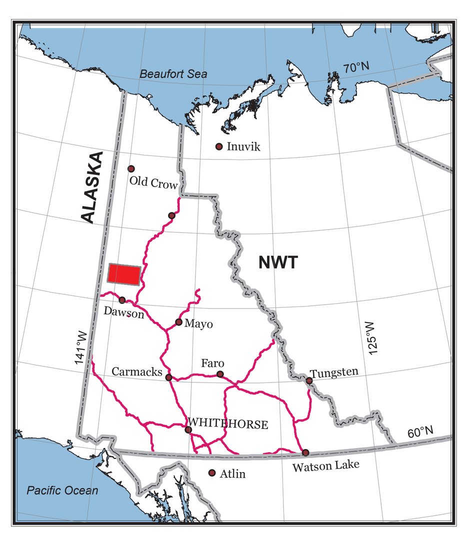
STRAUSS, J.V., ROOTS, C.F., MACDONALD, F.A., HALVERSON, G.P., EYSTER, A., and COLPRON, M., 2014. Geological map of the Coal Creek Inlier, Ogilvie Mountains (NTS 116B/10-15 and 116C/9,16) (1:100 000 scale). Yukon Geological Survey, Open File 2014-15.

Digital cartography and drafting by Justin Strauss, Harvard University, and Maurice Colpron, Yukon Geological Survey. Laurence Gagnon and Ryan Burke provided assistance with the data capture.

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

Paper copies of this map may be obtained from the Yukon Geological Survey, Energy, Mines and Resources, Yukon Government, P.O. Box 2703 (K-102), Whitehorse, Yukon, Y1A 2C6. Ph. 867-667-3201, Email: geology@gov.yk.ca.

A digital PDF (Portable Document File) file of this map and the Yukon MINFILE database may be accessed free of charge from the Yukon Geological Survey website: http://www.geology.gov.yk.ca.



1:50 000-scale topographic base data produced by CENTRE FOR TOPOGRAPHIC INFORMATION, NATURAL RESOURCES CANADA

30 metre hillshaded digital elevation model by YUKON GEOMATICS, YUKON GOVERNMENT

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FIVE THOUSAND METRE GRID
Universal Transverse Mercator Projection
North American Datum 1983
Zone 7

BEDROCK GEOLOGY

COAL CREEK INLIER
OGILVIE MOUNTAINS

YUKON

SCALE 1:100 000

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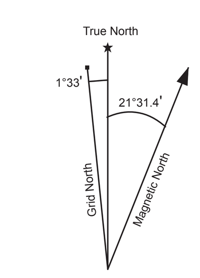
kilometres



Use diagram only to obtain numerical values
APPROXIMATE MEAN DECLINATION 2014
FOR CENTRE OF MAP

116FG OGILVIE RIVER	116H HART RIVER	106E WIND RIVER
116BC THIS MAP DAWSON	116A LARSEN CREEK	106D NASH CREEK
115NO STEWART RIVER	115P McQUESTEN	105M MAYO

Yukon Geological Survey
Energy, Mines and Resources
Government of Yukon

Open File 2014-15

Geological map of the Coal Creek Inlier, Ogilvie Mountains (NTS 116B/10-15 and 116C/9,16) (1:100,000 scale)

by

Justin V. Strauss, Charlie F. Roots, Francis A. Macdonald, Galen P. Halverson, Athena Eyster, and Maurice Colpron