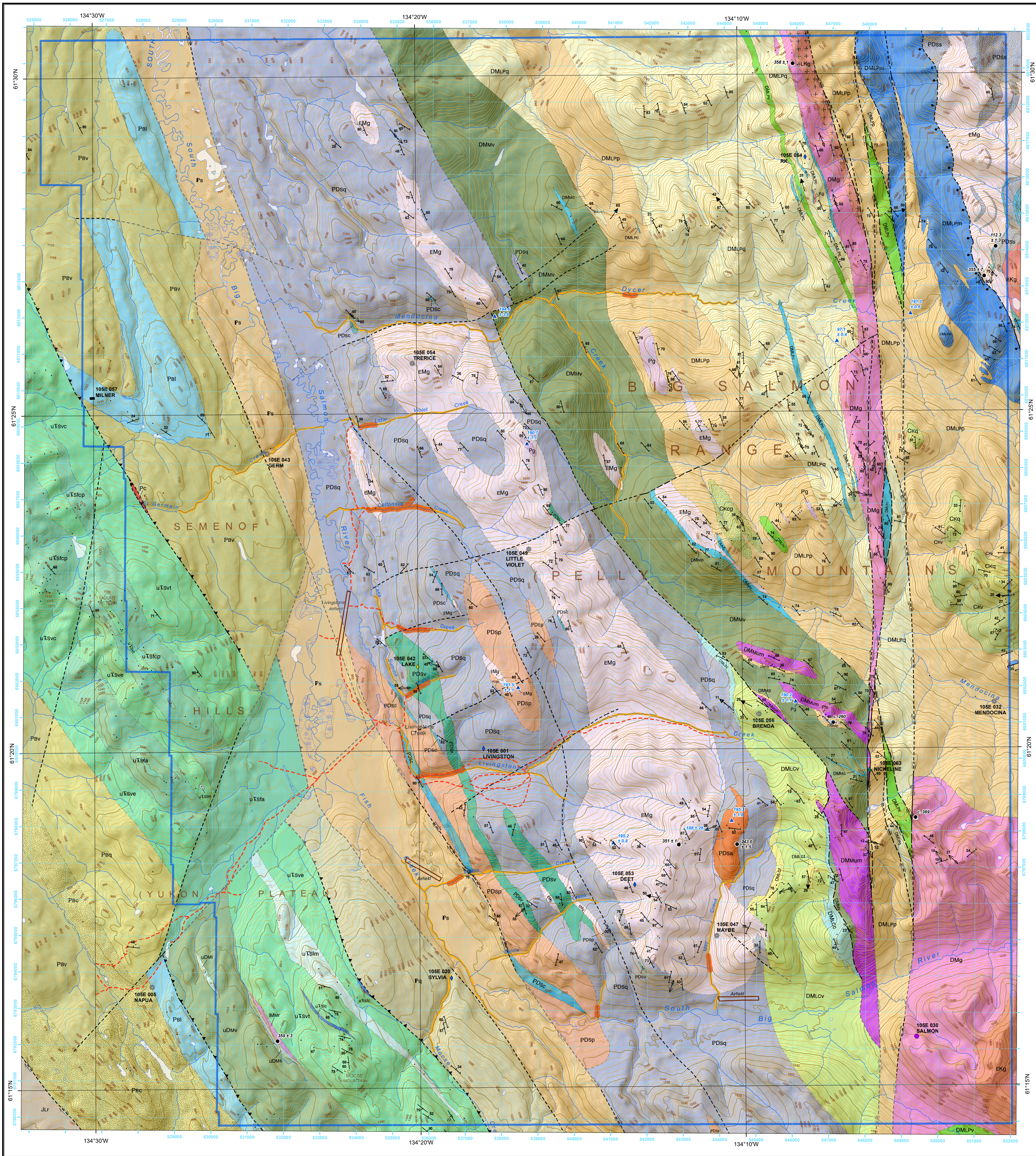


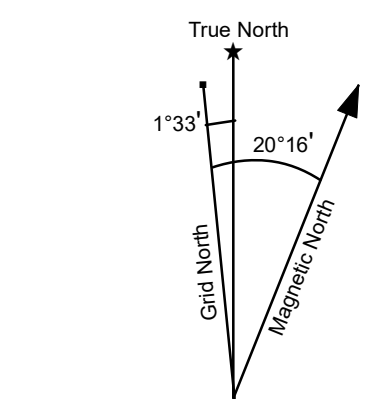


1:50 000-scale topographic base data produced by CENTRE FOR TOPOGRAPHIC INFORMATION, NATURAL RESOURCES CANADA. Copyright Her Majesty the Queen in Right of Canada. 30 metre shaded relief from GEOMATICS YUKON, www.geomatics.yukon.ca. ONE THOUSAND METRE GRID, Universal Transverse Mercator Projection, North American Datum 1983, Zone 8.

BEDROCK GEOLOGY LIVINGSTONE CREEK YUKON

SCALE 1:50 000
0 1 2 3 4 5
Kilometres

CONTOUR INTERVAL 20 METRES
Elevations in metres above Mean Sea Level



Use diagram only to obtain numerical values
APPROXIMATE MEAN DECLINATION 2016
FOR CENTRE OF MAP

105E/10 HOOTALINQUA	105E/9 TERAKTU CREEK	105F/12 SQUCH CREEK
105E/7 MASON LANDING	105E/8 THIS MAP	105F/5
105E/2 TESLIN MOUNTAIN	105E/1 BOSWELL MOUNTAIN	105F/4 FALLS CREEK

LEGEND

YUKON-TANANA TERRANE

MID TO LATE PERMIAN Sulphur Creek suite?

- Pg** variably foliated, medium to coarse-grained muscovite-biotite leucogranite, locally pegmatitic
- Pls** fine-grained, rusty weathering, strongly foliated felsic schist with relict quartz-plagioclase phenocrysts (U/Pb zircon - ca. 260 Ma)

MISSISSIPPIAN TO LOWER PERMIAN Kinkit assemblage

- CKcg** coarse-grained, strongly foliated arkosic grit, polyimictic pebble to cobble metaconglomerate
- CKq** light greenish-grey, fine to medium-grained quartzite, locally gritty and arkosic (youngest detrital zircons U/Pb, ca. 360 Ma); minor recessive grey phyllite
- CKsv** green chloritic phyllite/schist, magnetite-rich; local intercalations of graphitic phyllite and quartzite

LATE DEVONIAN - EARLY MISSISSIPPIAN Simpson Range suite

- EMg** strongly foliated to gneissic, light to medium grey, fine-grained metagranite, metagranodiorite, metatuffaceous, medium-grained, equigranular, strongly foliated jadeite-bearing granodiorite gneiss (U/Pb zircon - 351 ± 1 Ma)
- DMg** Grass Lakes suites moderately to strongly foliated, K-feldspar augen two-mica granite; protomylonitic to mylonitic near d'Abbadie fault (U/Pb zircon - 358 ± 1 Ma)

PALEOZOIC ? Loon Lake succession (Finlayson assemblage?)

- Ps** dark grey carbonaceous siltstone, quartz sandstone
- Pq** foliated, intercalated quartzite, siltstone and phyllite

DEVONIAN - MISSISSIPPIAN Last Peak succession (Finlayson assemblage)

- DMLPv** strongly foliated and lineated siliceous chloritic phyllite, quartzofeldspathic and epidote layers along foliation
- DMLpc** light grey to white marble; along contact with K-feldspar augen granite, brown weathering, medium-grey, fine-grained silicified marble
- DMLPq** tan weathering micaceous and calcareous quartzite and quartz-muscovite-chlorite schist; black, grey and white quartzite, locally gritty; tan marble horizons; minor carbonaceous phyllite
- DMLPp** black graphitic phyllite and quartzite; black calcareous metasilstone; minor light grey quartz-muscovite schist and micaceous quartzite; minor buff-weathering marble
- DMLPm** light grey to white, medium to coarse-grained marble; locally garnet-epidote-epidote skarn near Cretaceous granite

DEVONIAN - MISSISSIPPIAN Mendocino succession (Finlayson assemblage?)

- DMMc** marble
- DMMp** graphitic phyllite
- DMmv** fine-grained phyllitic greenstone, rarely massive; locally, medium to coarse-grained plagioclase-hornblende metagabbro
- DMMum** serpentinized peridotite, metagabbro; nephrite jade

DEVONIAN - MISSISSIPPIAN Livingstone Creek succession (Finlayson assemblage)

- DMLcd** fine-grained, quartz-muscovite-plagioclase white schist
- DMLcc** buff-weathering dolomitic marble and quartzite; light grey marble
- DMLcv** light green to light grey quartzite, quartz-muscovite-plagioclase-chlorite schist, minor greenstone
- NEOPROTEROZOIC - DEVONIAN?**
- PDsp** Snowcap assemblage dark grey to black carbonaceous phyllite and schist, quartzite, locally graphitic
- PDsc** light grey to white, medium to coarse-grained marble
- PDsa** dark green to black, fine-grained garnet amphibolite
- PDsv** light to medium green, variably siliceous, fine to medium-grained calcareous chloritic schist; locally contains layers of buff-weathering siliceous marble
- PDsq** quartzite, micaceous quartzite, quartz-muscovite-biotite schist, minor carbonaceous schist; locally quartz-pebble metaconglomerate
- PDss** medium grey quartz-plagioclase-muscovite-biotite schist, locally quartz-plagioclase-biotite-hornblende-epidote schist; coarse-grained andalusite-biotite schist; calc-silicate schist, marble, quartzite

LEGEND EXPLANATION

- PLUTONIC SUITES:** grouping of plutonic rock units based on age, regional distribution and/or composition
- LAYERED ROCK ASSEMBLAGES:** regionally mappable units generally of Gorge or Formation rank

SYMBOLS

- geologic contacts (defined, approximate, inferred, covered).....
- fault; movement not known (defined, approximate, inferred, covered).....
- thrust fault (inferred, covered).....
- dextral strike-slip fault (defined, approximate, inferred, covered).....
- normal fault (defined, approximate, inferred).....
- bedding.....
- foliation (dominant).....
- elongation or mineral lineation.....
- intersection lineation.....
- fold axis (dominant phase).....
- radiometric date (U/Pb, ⁴⁰Ar/³⁹Ar) (age in Ma, ± 2σ).....
- field station.....
- placer potential (past-producing stream, potential gold-bearing stream).....
- trail.....
- airstrip.....
- VTEM survey area.....

NOTES

This map presents an interpretation of the bedrock geology of the Livingstone Creek area that has been revised from a previous Open File map (Colpron, 2005a). The revised interpretation was guided by the acquisition of a detailed VTEM Plus geophysical survey over the area in spring 2016 (Boulanger et al., 2016a,b, 200 m line spacing). The detailed magnetic data were particularly useful for increasing the accuracy of contact locations, and identifying additional structures, most notably a cryptic fault that occurs upstream (i.e. east) of many of the placer mining creeks in the district, but west of the large Mississippian pluton in the centre of the map area. The electromagnetic survey identifies a number of conductors across the area, some of which remain unexplained (see Colpron et al., 2017 for discussion). Bedrock exposure is locally hindered by Quaternary glacial and fluvial sediments, particularly in the South Big Salmon valley. Projection of the geology is guided by the geophysics in areas of extensive cover.

This revised interpretation of the bedrock geology of the Livingstone Creek area also benefited from additional geochemical and geochronological analyses conducted since the original fieldwork in 2004-2005. Details of the geology and geophysical anomalies are given in Colpron (2005b) and Colpron et al. (2017), including interpretations of the geochemical and geochronological data. The geological compilation of the Yukon-Tanana terrane benefited from unpublished maps and notes by J.L. Harvey (1996-1997), provided by S.D. Carr, and mapping by Gallagher (1999). The geology of the Semenof Hills, west of the South Big Salmon River, is after Simard (2003). Metasedimentary rocks of the Loon Lake succession were studied in detail by Barresi (2004).

Selected ⁴⁰Ar/³⁹Ar dates and two Devonian-Mississippian U/Pb dates are from Hansen et al. (1989, 1991; see also Breitsprecher and Mortensen, 2004). Other U/Pb dates in Yukon-Tanana terrane east of the Big Salmon fault are presented in Colpron et al. (2017) and Gallagher (1999). Three ⁴⁰Ar/³⁹Ar muscovite dates are unpublished data reported by Colpron (2005a). Older, less reliable K/Ar and Rb/Sr dates reported in Hansen et al. (1989) are not shown on this map. The 359 Ma date in the Semenof Hills, west of the Big Salmon fault, is unpublished data by R.L. Simard and J.K. Mortensen (2004) reported in Breitsprecher and Mortensen (2004).

Placer potential creeks are modified from Lipovsky et al. (2001) with past-producing segments provided by J.D. Bond in 2016, digitized from most recent imagery.

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RECOMMENDED CITATION

COLPRON, M., 2017. Revised geological map of Livingstone Creek area (NTS 105E/8), Yukon Geological Survey, Open File 2017-1, scale 1:50000. Digital cartography and drafting by Maurice Colpron, Yukon Geological Survey.

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) 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>.

The digital geology dataset for this map is part of the Yukon Digital Bedrock Geology that can be downloaded from: http://www.geology.gov.yk.ca/update_yukon_bedrock_geology_map.html.

Yukon Minfile Occurrences

Epigenetic

- Skarn Cu
- Skarn W

- Vein Au-Quartz
- Vein Polymetallic Ag-Pb-Zn-Au

Syngenic

- Ultramafic - Nickel

Industrial Minerals / Other

- Coal
- Unknown

Open File 2017-1

Revised Geological map of
Livingstone Creek area (NTS 105E/8)
(scale 1:50000)

by

Maurice Colpron