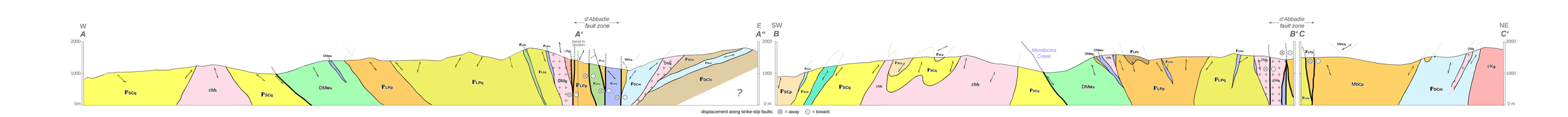


Yukon Geological Survey

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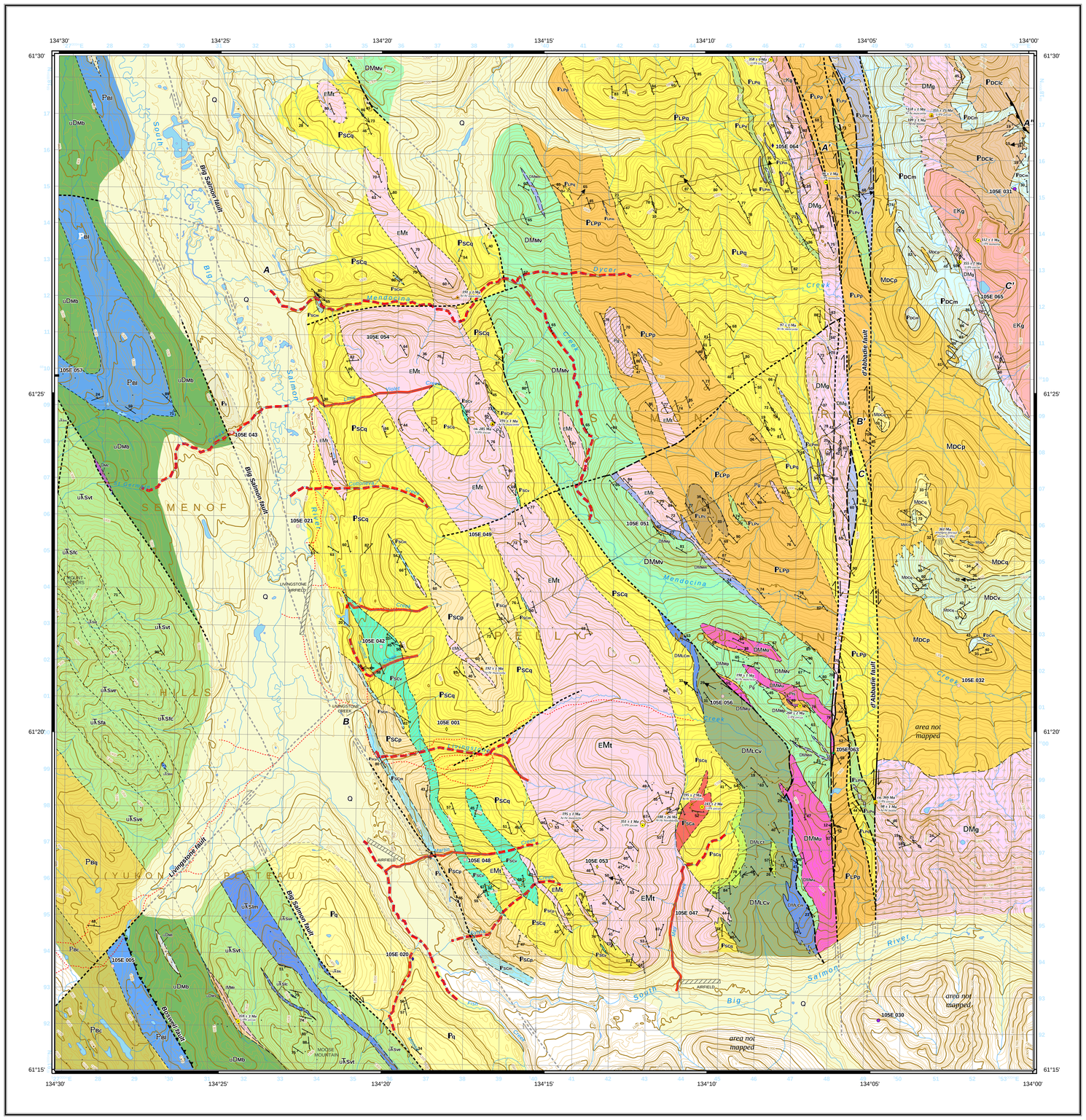




*1:50 000-scale topographic base data produced by CENTRE FOR TOPOGRAPHIC INFORMATION, NATURAL RESOURCES CANADA*

ONE THOUSAND METRE GRID
Universal Transverse Mercator Projection
North American Datum 1983
Zone 8

CONTOUR INTERVAL 20 METRES
Elevations in metres above Mean Sea Level

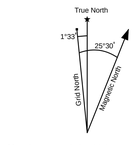
BEDROCK GEOLOGY

# LIVINGSTONE CREEK

YUKON

SCALE 1:50 000

0 1 2 3 4 5
kilometres




Use diagram only to obtain numerical values
APPROXIMATE MEAN DECLINATION 2005
FOR CENTRE OF MAP

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

# LEGEND

## QUATERNARY

**Q** — QUATERNARY: unconsolidated glacial, glaciofluvial and glaciolacustrine deposits; fluviatile silt, sand, and gravel, and local volcanic ash, in part with cover of soil and organic deposits

## INTRUSIVE ROCKS

### LATE CRETACEOUS

**LKg** — LAST PEAK GRANITE: fine- to medium-grained, weakly foliated biotite granite, locally K-feldspar porphyritic, commonly protomylonitic (U/Pb monazite - 96 ± 1 Ma).

### EARLY CRETACEOUS

**EKg** — DYCER CREEK STOCK: medium- to coarse-grained, unfoliated, biotite quartz monzonite (U/Pb monazite - 112 ± 1 Ma).

### PERMIAN

**Pfs** — fine-grained, rusty weathering, strongly foliated felsic schist (U/Pb zircon - 260 ± 2 Ma).

**Pg** — variably foliated, medium- to coarse-grained muscovite-biotite leucogranite, locally pegmatitic (U/Pb zircon - ca. 285 Ma).

### EARLY MISSISSIPPIAN

**EMt** — strongly foliated, light to medium grey, fine-grained tonalite gneiss; medium-grained, equigranular, strongly foliated hornblende-biotite granodiorite gneiss (U/Pb zircon - 351 ± 1 Ma).

### LATE DEVONIAN - EARLY MISSISSIPPIAN

**DMg** — moderately to strongly foliated, K-feldspar augen two-mica granite; protomylonitic to mylonitic near d'Abbadie fault (U/Pb zircon - 355 ± 7 Ma, 358 ± 1 Ma). South of Mendocina Creek, variably foliated, fine- to medium-grained hornblende-biotite diorite, locally K-feldspar porphyritic granodiorite (U/Pb zircon - ca. 369 Ma).

## LAYERED ROCKS

### STIKINIA

#### UPPER TRIASSIC - JURASSIC?

*Semenof formation (Simard, 2003)*

**uKsf** — PORPHYRITIC FLOW MEMBER: light to medium grey/green clinopyroxene-plagioclase-phyric basalt, locally brecciated and/or amygdaloidal (**uKsfc**); medium to dark green amphibole-clinopyroxene-plagioclase-phyric basalt, locally brecciated (**uKsfa**).

**uKsv** — VOLCANICLASTIC MEMBER: massive dark green, brown, purple and/or red, pebble to cobble volcanic conglomerate (**uKsvc**); well-bedded, light green, coarse-grained crystal and lithic tuff grading into fine-grained ash-tuff, minor lapilli tuff (**uKsvt**); massive, light to dark grey volcanic sandstone, minor black argillite, clast-supported pebble to cobble breccia (**uKsve**).

**uKsl** — LIMESTONE MEMBER: massive, light grey to beige, recrystallized limestone (**uKslm**); clast-supported, pebble to cobble limestone conglomerate, contains up to 30% angular basalt and ribbon-chert clasts (**uKslc**).

### BOSWELL ASSEMBLAGE

#### PENNSYLVANIAN

*Boswell formation (Simard, 2003)*

**PBl** — beige to grey limestone, commonly bioclastic.

**PBq** — rusty-weathering, medium-grained quartz sandstone.

**PBc** — calcareous, massive, poorly sorted polymictic conglomerate and litharenite; clasts include angular fragments of black chert, argillite, mafic and felsic volcanic rocks and limestone.

#### MISSISSIPPIAN AND OLDER

*Moose formation (Simard, 2003)*

**MMr** — rusty-weathering, pink quartz-feldspar-phyric rhyolite (U-Pb zircon - 359 ± 3 Ma).

**uDMb** — dark green, fine-grained, massive and pillowed basalt.

**uDMl** — light grey, massive limestone.

**uDMs** — green conglomeratic sandstone with volcanic and sedimentary clasts.

**DMc** — massive red chert.

### YUKON-TANANA TERRANE

#### PALEOZOIC (?)

*Loon Lake succession (Barresi, 2004)*

**Pq** — foliated, intercalated quartzite, siltstone and phyllite.

**Ps** — dark grey carbonaceous siltstone, quartz sandstone.

#### UPPER DEVONIAN AND OLDER

*Snowcap complex*

**PScv** — light to medium green, variably siliceous, fine- to medium-grained calcareous chloritic schist; locally contains layers of buff-weathering siliceous marble.

**PScm** — marble.

**PScq** — quartzite, micaceous quartzite, quartz-muscovite-biotite schist, minor carbonaceous schist; locally quartz-pebble conglomerate.

**PScp** — dark grey to black carbonaceous phyllite and schist, locally graphitic.

**PSCa** — dark green to black, fine-grained garnet amphibolite.

#### DEVONIAN-MISSISSIPPIAN ?

*Livingstone Creek succession*

**DMLcv** — light green to light grey quartzite, quartz-muscovite-plagioclase-chlorite schist, minor greenstone.

**DMLcm** — buff-weathering dolomitic marble and quartzite; light grey marble.

**DMLcf** — fine-grained, quartz-muscovite-plagioclase white schist.

#### DEVONIAN-MISSISSIPPIAN ?

*Mendocina succession*

**DMmu** — serpentinized peridotite, metagabbro.

**DMmm** — marble.

**DMmv** — fine-grained phyllitic greenstone, rarely massive; locally, medium- to coarse-grained plagioclase-hornblende metagabbro.

**DMmp** — graphitic phyllite.

#### UPPER DEVONIAN AND OLDER ?

*Last Peak succession*

**PLPc** — coarse-grained, strongly foliated arkosic grit, polymictic pebble to cobble metaconglomerate.

**PLPm** — light grey to white marble; along contact with K-feldspar augen granite (**DMg**), brown-weathering, medium-grey, fine-grained silicified marble.

**PLPv** — strongly foliated and lineated siliceous chloritic phyllite, quartzofeldspathic and epidote layers along foliation.

**PLPq** — tan-weathering micaceous and calcareous quartzite and quartz-muscovite±chlorite schist; black, grey and white quartzite, locally gritty; tan marble horizons; minor carbonaceous phyllite.

**PLPp** — black graphitic phyllite and quartzite; minor light grey quartz-muscovite schist and micaceous quartzite; minor buff-weathering marble.

#### MISSISSIPPIAN AND YOUNGER ?

*Dycer Creek upper succession*

**MDcq** — light greenish-grey, fine- to medium-grained quartzite, locally gritty and arkosic (detrital zircons [U/Pb] - ca. 360, 450, 560, 1790, 2500 Ma); minor recessive grey phyllite.

**MDcv** — green chloritic phyllite/schist, Mt-rich; local intercalations of graphitic phyllite and quartzite.

**MDcp** — graphitic phyllite and black calcareous metasiltstone.

#### UPPER DEVONIAN AND OLDER ?

*Dycer Creek lower succession*

**PDCm** — light grey to white, medium- to coarse-grained marble; locally garnet-diopside-epidote skarn.

**PDClc** — LOWER CLASTIC SUCCESSION: medium grey quartz-plagioclase-muscovite-biotite schist, locally quartz-plagioclase-biotite-hornblende-epidote schist; coarse-grained andalusite-biotite schist; calc-silicate schist, marble, quartzite; intruded by sheets of K-feldspar augen granite gneiss (**Mg**).

## SYMBOLS

geologic contacts (defined, approximate, inferred, covered [grey])

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

thrust fault (inferred)

dextral strike-slip fault (defined, approximate, inferred, covered)

normal fault (defined)

bedding

foliation (dominant)

elongation or mineral lineation

intersection lineation

fold axis (dominant phase)

radiometric date (U/Pb, Ar/Ar, U/Pb detrital zircons) — 351 ± 1 Ma U/Pb zircon; 191 ± 2 Ma Ar/Ar muscovite; 361 Ma youngest detrital zircon (U/Pb)

field station

placer potential (past-producing stream, proven or potential gold-bearing stream)

trail

## NOTES

**1)** Geology of the Semenof Hills, west of the South Big Salmon River, is after Simard (2003).

**2)** Selected Ar/Ar dates and two Devonian-Mississippian U/Pb dates are from Hansen et al. (1989, 1991). The remaining U/Pb dates are unpublished data by S.D. Carr; three additional Ar/Ar muscovite dates are unpublished data by M. Colpron. Older, less reliable K/Ar and Rb/Sr dates reported in Hansen et al. (1989) are not shown on this map.

**3)** Detrital zircon dates from a quartzite of the Dycer Creek succession (**MDcq**) is unpublished data by M. Colpron.

**4)** Compilation of the geology of Yukon-Tanana Terrane has benefited from unpublished map and notes by J.L. Harvey, provided by S.D. Carr, and mapping by Gallagher (1999).

**4)** Metasedimentary rocks of the Loon Lake succession were studied in detail by Barresi (2004).

## REFERENCES


Barresi, T., 2004. Sedimentology, structure, and depositional setting of the Loon Lake sedimentary rock unit, southern Semenof Hills, central Yukon. Unpublished B.Sc. Honours thesis, Saint Mary's University, Halifax, Nova Scotia, 85 p.

Deklerk, R. and Traynor, S., 2005. Yukon MINFILE 2005 - A database of mineral occurrences. Yukon Geological Survey, CD-ROM.

Gallagher, C.S., 1999. Regional-scale transposition and late large-scale folding in the Teslin Zone, Pelly Mountains, Yukon. Unpublished M.Sc. thesis. Carleton University, Ottawa, Ontario, 199 p.

Hansen, V.L., Mortensen, J.K. and Armstrong, R.L., 1989. U-Pb, Rb-Sr, and K-Ar isotopic constraints for ductile deformation and related metamorphism in the Teslin suture zone, Yukon-Tanana terrane, south-central Yukon. Canadian Journal of Earth Sciences, vol. 26, p. 2224-2235.

Hansen, V.L., Heizler, M.T. and Harrison, T.M., 1991. Mesozoic thermal evolution of the Yukon-Tanana composite terrane: new evidence from $^{40}Ar/^{39}Ar$ data. Tectonics, vol. 10, p. 51-76.

Lipovsky, P.S., Lebarge, W., Bond, J.D. and Lowey, G., 2001. Yukon placer activity map. Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, 1:1 000 000.

Simard, R.-L., 2003, Geological map of southern Semenof Hills (part of NTS 105E/1,7,8), south-central Yukon (1:50 000 scale), Yukon Geological Survey, Open File 2003-12.


## RECOMMENDED CITATION

Colpron, M., 2005. Geological map of Livingstone Creek area (NTS 105E/8), Yukon (1:50 000 scale). Yukon Geological Survey, Open File 2005-9.

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.

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

Mineral Occurrences
Yukon MINFILE (Deklerk and Traynor, 2005)

| | | | | |
|---|---|---|---|---|
| | 105E 001 | Livingston | showing | Au, Ag vein |
| | 105E 005 | Napua | unknown | |
| | 105E 020 | Sylvia | showing | Pb, Zn vein |
| | 105E 021 | Cottoneva | unknown | |
| | 105E 030 | Salmon | showing | W skarn |
| | 105E 031 | Hitchens | showing | W skarn |
| | 105E 032 | Mendocina | unknown | |
| | 105E 042 | Lake | unknown | |
| | 105E 043 | Germ | anomaly | |
| | 105E 047 | Maybe | anomaly | Pb |
| | 105E 048 | Marbee | unknown | |
| | 105E 049 | Little Violet | unknown | |
| | 105E 051 | Gord | unknown | |
| | 105E 053 | Deet | showing | Au, Ag vein |
| | 105E 054 | Trerice | unknown | |
| | 105E 056 | Brenda | unknown | |
| | 105E 057 | Milner | anomaly | coal |
| NEW | **105E 063** | **Nickeline** | **showing** | **Ni ultramafic** |
| NEW | **105E 064** | **RK** | **showing** | **Pb, Ag? vein** |
| NEW | **105E 065** | **Dycer** | **showing** | **skarn** |


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Government of Yukon

Open File 2005-9


# Geological map of Livingstone Creek area (NTS 105E/8), Yukon (1:50 000 scale)


by

Maurice Colpron