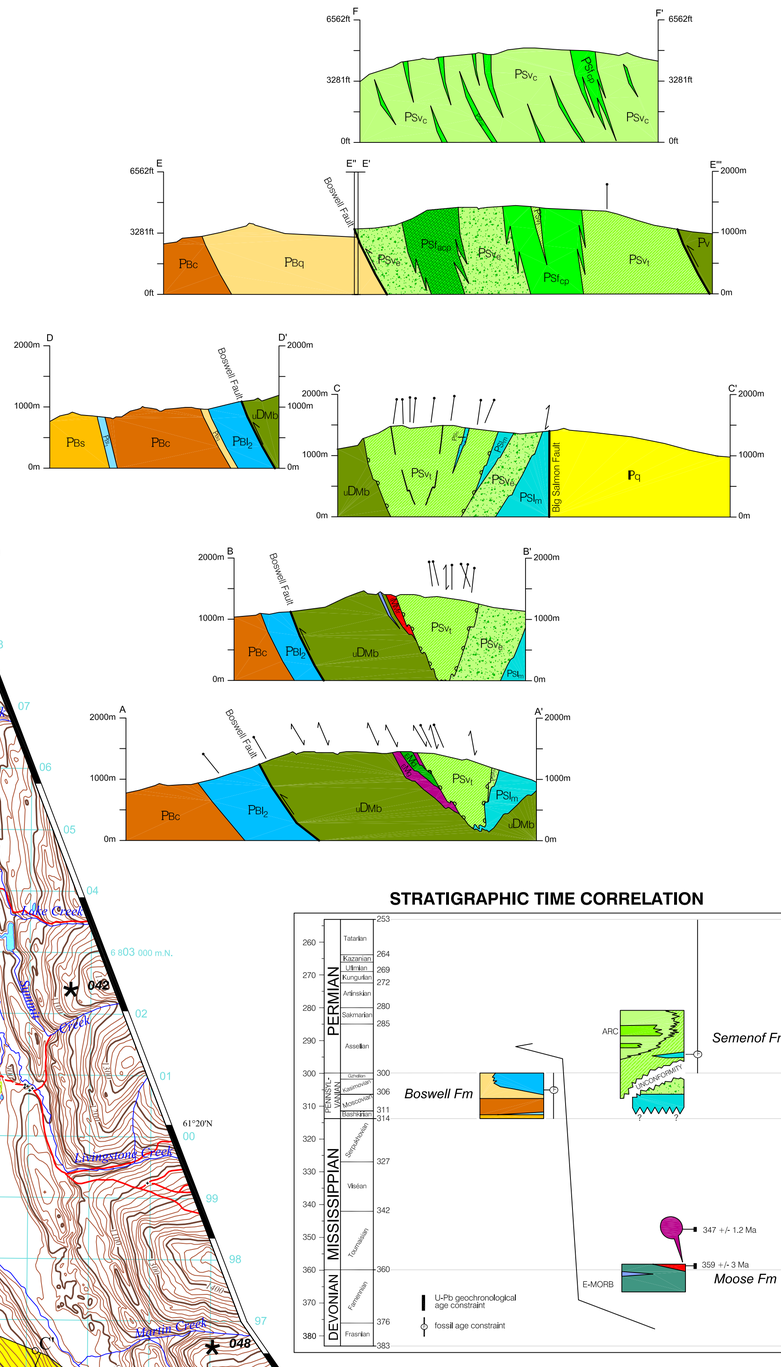
YUKON GEOLOGICAL SURVEY

Yukon
Energy, Mines and Resources

SCHEMATIC CROSS-SECTIONS



STRATIGRAPHIC TIME CORRELATION

LEGEND

INTRUSIVE ROCKS

EARLY MISSISSIPPIAN

- εMg — Medium- to coarse-grained, pink to green granite (U-Pb zircon age 347 ± 1.2 Ma); quartz-porphyritic texture is common in the northern part of this body; intrudes the dioritic phase (εMd)
- εMd — Fine- to medium-grained hornblende diorite; intruded by or in enclaves in the granitic phase (εMg)

LAYERED ROCKS

PERMIAN

Semenof Formation

Porphyritic flow Member

- PSlcp — *Clinopyroxene-plagioclase-phyric flow facies* - Clinopyroxene-plagioclase-phyric, light to medium grey/green massive, locally brecciated (△) and/or amygdaloidal mafic flows; locally oxidized to red/purple colour (pattern) in association with copper-filled amygdules (★) and sparse malachite
- PSlc — *Clinopyroxene-phyric flow facies* - Clinopyroxene-phyric, dark green, massive, amygdaloidal mafic flows
- PSlacp — *Amphibole-clinopyroxene-plagioclase-phyric flow facies* - Amphibole-clinopyroxene-plagioclase-phyric, medium to dark green, massive, locally brecciated, mafic flows

Volcaniclastic Member

- PSvc — *Volcanic conglomerate facies* - Massive dark green/brown/purple/red volcanic pebble to cobble conglomerate; rounded pebbles and cobbles, often highly amygdaloidal; unsorted, angular, crystal- and lithic-rich matrix
- PSvt — *Tuffaceous facies* - Well-bedded light green tuffaceous rocks; mainly coarse-grained crystal and lithic tuff grading into fine-grained ash tuff, with minor beds of lapilli tuff
- PSve — *Epiclastic facies* - Massive, dark to light gray, mainly volcanic-derived, coarse-grained lithic tuff with minor black argillite beds, and angular, locally-derived, clast-supported pebble to cobble conglomerate; limestone clasts are locally abundant

Limestone Member

- PSlm — *Massive limestone facies* - Massive light grey to beige, massive, moderately recrystallized limestone; abundant quartz veins
- PSlc — *Conglomeratic limestone facies* - Lenses of pebble to cobble, clast-supported limestone conglomerate; contains 15-30% of angular mafic volcanic and bedded chert clasts and 70-85% rounded fossiliferous limestone clasts

PENNSYLVANIAN AND OLDER

Boswell Formation

- PBl2 — Beige to grey limestone, lightly to moderately recrystallized; commonly bioclastic
- PBv — Massive dark green mafic volcanic and volcaniclastic rocks; forms resistant ridges within massive limestone (PBl2)
- PBq — Rusty weathering medium-grained quartz sandstone
- PBc — Calcareous, massive, poorly sorted polymictic conglomerate and litharenite; contains angular fragments of black chert, argillite, mafic and felsic volcanic rocks and limestone
- PBl1 — Beige to grey limestone
- PBs — Arkosic sandstone and interbedded siltstone

PENNSYLVANIAN (Moscovian)

- Pl — Beige to grey bioclastic limestone; lightly recrystallized

PENNSYLVANIAN AND OLDER

- Pv — Mainly massive dark green mafic volcanic rock, locally contains pillow structures (Pvp); well-bedded, light green tuffaceous volcaniclastic rocks (Pvc)
- Pc — Massive red chert
- Ps — Dark grey carbonaceous siltstone; quartz sandstone in places

MISSISSIPPIAN AND OLDER

Moose Formation

Felsic Member

- uMMr — Pink rusty quartz-feldspar porphyritic rhyolite (U-Pb zircon age at 359 ± 3 Ma)

Basalt Member

- uDMb — Dark green fine-grained massive and pillow basalt
- uDMl — Light grey massive limestone
- uDMs — Green conglomeratic sandstone with volcanic and sedimentary clasts

PALEOZOIC (?)

- Pq — Foliated interbedded quartzite and siltstone with minor muscovite schist intervals

SYMBOLS

- Geological contacts (defined, approximate, inferred)
- Unconformity (defined, approximate, inferred)
- Thrust fault (inferred, covered)
- Normal fault (inferred)
- Strike-slip fault (dextral; inferred, covered)
- Unknown movement fault (Inferred, covered)
- Fold axial surface trace (synform; upright, overturned)
- Limit of mapping
- Bedding (inclined, upright, overturned) — 34, 48, 57
- Dominant foliation (inclined, vertical) — 24, 90
- Dyke / vein — 67, 76
- Minor fault — 65
- Apparent dip of bedding, foliation (in cross-section)
- Field station
- Fossil locality — f1
- Geochronology sample (U-Pb; zr = zircon; number refers to Geochronology Table) — 359±2 Ma U-Pb, zr (1)
- Winter roads
- Trails
- Wetlands

ACKNOWLEDGEMENTS

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REFERENCES

Deklerk, R. (compiler), 2002. Yukon MINFILE - A database of mineral occurrences. Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada.

Poulton, T., Orchard, M.J., Gordey, S.P. and Davenport, P., 1999. Selected Yukon fossil determinations. *In:* Yukon digital geology, S.P. Gordey and A.J. Makepeace (eds.), Geological Survey of Canada, Open File D3826, also Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, Open File 1999-1(D), two CD-ROMS.

Tempelman-Kluit, D.J., 1984. Geology, Laberge (105E) and Carmacks (105I), Yukon Territory, Geological Survey of Canada, Open File 1101, 1:250 000 scale.

RECOMMENDED CITATION

SIMARD, R.-L., 2003. Geological map of the southern Semenof Hills (part of NTS 105 E/1,2,7,8), central Yukon (1:50 000 scale). Yukon Geological Survey, Open File 2003-12.

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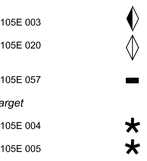
Keep this map in a dark area to keep colours from fading.



INDEX TO ADJOINING NTS MAPSHEETS

GEOCHRONOLOGY

(1) a sample of coarse grained rusty pink quartz-phyric granite (01MC205) yielded a concorcant U/Pb age of 347 ± 1.2 Ma (J. K. Mortensen, pers. comm., 2002).

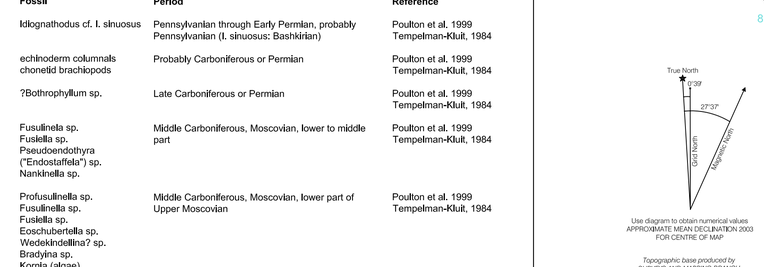
(2) a sample of rusty pink quartz-feldspar porphyritic rhyolite (02RLS-28-10) yielded a concordant U/Pb of 359 ± 3 Ma (J. K. Mortensen, pers. comm., 2003).

FOSSIL COLLECTION

	Sample No.	Fossil	Period	Reference
f1	C-087009	Idiognathodus cf. I. sinuosus	Pennsylvanian through Early Permian, probably Pennsylvanian (I. sinuosus: Bashkirian)	Poulton et al. 1999 Tempelman-Kluit, 1984
f2	C-79700	echinoderm columnals chonetid brachiopods	Probably Carboniferous or Permian	Poulton et al. 1999 Tempelman-Kluit, 1984
f3	C-82676	?Bothrophyllum sp.	Late Carboniferous or Permian	Poulton et al. 1999 Tempelman-Kluit, 1984
f4	C-82675	Fusulinella sp. Fusiella sp. Pseudoendothyra ("Endostaffella") sp. Nankinella sp.	Middle Carboniferous, Moscovian, lower to middle part	Poulton et al. 1999 Tempelman-Kluit, 1984
f5	C-82677	Profusulinella sp. Fusulinella sp. Fusiella sp. Eoschubertella sp. Wedekindellina? sp. Bradyina sp. Komia (algae) biserial forams	Middle Carboniferous, Moscovian, lower part of Upper Moscovian	Poulton et al. 1999 Tempelman-Kluit, 1984
f6	02RLS-28-2B	conodonts	Permian	M. Orchard, pers. comm. 2003

MINERAL OCCURENCE
Deklerk (2002)

	Yukon MINFILE		Name	Commodity
Vein				
	105E 003	◆	Mink, Beaver, Loon	Au-Cu (Ag-Pb)
	105E 020	◇	Sylvia	Zn-Pb (Ag-Au-Cu)
Coal				
	105E 057	▬	Milner	coal
Exploration target				
	105E 004	★	Bee	Cu
	105E 005	★	Napua	pyritic gossan
	105E 021	★	Cottoneva	placer potential?
	105E 041	★	Enof	Au
	105E 042	★	Lake, NC, REN, Solid, Lone, Cam	Au
	105E 043	★	Germ	Au
	105E 048	★	Marbee	placer potential?



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ONE THOUSAND METRE
Universal Transverse Mercator Grid
ZONE 8V

SOUTHERN SEMENOF HILLS
YUKON
SCALE 1:50 000

Miles 1 0 1 2 3 Miles
Metres 1000 0 1000 2000 3000 4000 Metres

CONTOUR INTERVAL 100 FEET
Elevations in feet above Mean Sea Level for NTS 105E/7
CONTOUR INTERVAL 20 METRE
Elevations in metre above Mean Sea Level for NTS 105E/1,2,8
North American Datum 1983
Transverse Mercator Projection

Yukon Geological Survey

Open File 2003-12

GEOLOGICAL MAP OF SOUTHERN SEMENOF HILLS
(part of NTS 105 E/1,7,8),
SOUTH-CENTRAL YUKON (1:50 000 scale)

by

Renée-Luce Simard
Dalhousie University