PRELIMINARY INVESTIGATION OF THE BEDROCK GEOLOGY IN THE LIVINGSTONE CREEK AREA (105E/8)

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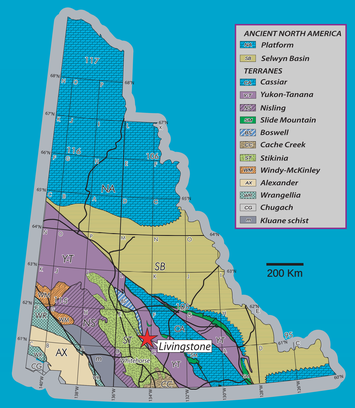
Introduction

Bedrock mapping of the Livingstone Creek area initiated in 2004:

- **Establish the stratigraphic framework of Yukon-Tanana terrane in the area, with respect to recent studies in Glenlyon and Finlayson Lake areas**
- **Provide first detailed bedrock map of this long-established placer Au camp**

Looking southeast at headwater of May Creek



Snowcap complex

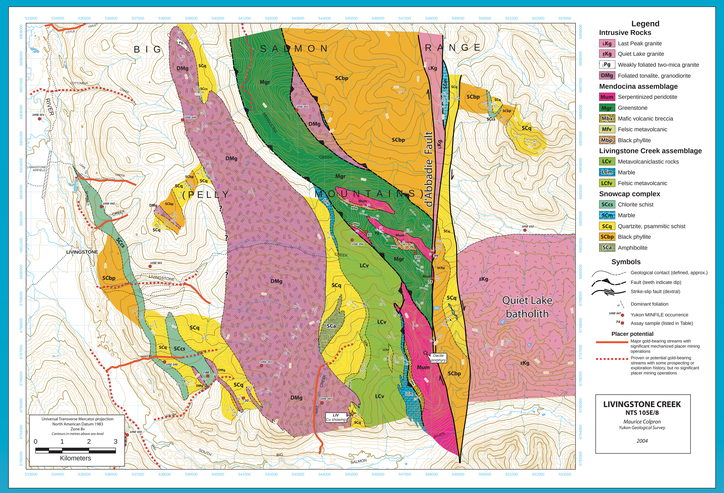
- Metasedimentary basement to Yukon-Tanana terrane
- Consists predominantly of quartzite, psammitic schist and graphitic phyllite, and subordinate chlorite schist and amphibolite
- Continental margin assemblage
- Chlorite schist is alkaline (OIB); amphibolite tholeiitic (MORB)
- Intruded by Mississippian tonalite and granodiorite

Quartzite interclated with pelite - Snowcap complex (SCp)

Graphitic phyllite - Snowcap complex (SCbp)

Cassiar terrane ?

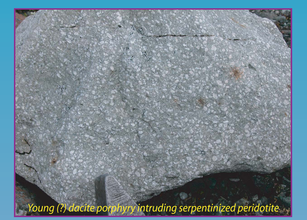
- Rocks NE of Mendocina Creek and east of d'Abbadie Fault currently considered part of Cassiar terrane
- Similar to Snowcap to west, but lower metamorphic grade
- Intruded by Mississippian tonalite and granodiorite plutons to the north
- Is this part of Yukon-Tanana terrane ??



Intrusive rocks

Strongly foliated tonalite (DMg)

Last Peak granite (LPg) - to the south of d'Abbadie fault



Young (?) dacite porphyry intruding serpentinized peridotite

Livingstone Creek assemblage

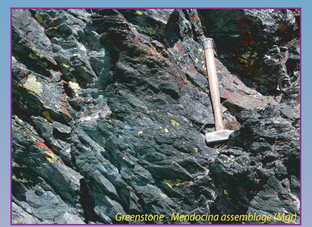
- Predominantly volcaniclastic rocks; minor greenstone, felsic meta-volcanic rocks and marble
- Arc assemblage ?
- Resemble the Carboniferous Little Salmon formation in Glenlyon area

Metavolcaniclastic rock - Livingstone Creek assemblage (LCv)

Felsic metavolcanic layer - Livingstone Creek assemblage (LCv)

Looking south at Mendocina - Livingstone Creek contact

Mendocina assemblage



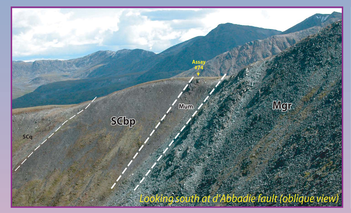
Greenstone - Mendocina assemblage (Mgr)

Serpentinized peridotite (Mum) intruded by felsic dike - Mendocina assemblage

- Greenstone (MORB), gabbro and serpentinized peridotite; minor carbonaceous phyllite and felsic metavolcanic
- Possibly correlative with the Fire Lake formation of the Finlayson Lake district

Deformation and Metamorphism

- **Rocks affected by at least three phases of deformation**
- **Strain is pervasive, locally mylonitic**
- **No primary textures preserved**
- **Metamorphosed to greenschist facies**
- **Ductile - brittle deformation along d'Abbadie Fault**



Looking south at d'Abbadie fault (oblique view)

Open folds deform transposition foliation in Livingstone Creek assemblage

Livingstone gold

Annabergite - secondary mineralization on millerite - peridotite along d'Abbadie Fault (assay# 74)

Mineral Potential

- It is estimated that more than 50,000 ounces of gold was recovered over the past 100 years from placers of the Livingstone camp
- Lode source remains ellusive
- VMS potential in Mendocina ?
- Ni-PGMs in peridotite ?
- New Cu-Au discovery (**LIV** - Cordilleran Minerals); intrusion-related?
- Limited exploration history

Yukon MINFILE Occurrences

MINFILE#	NAME	STATUS	DEPOSIT TYPE	COMMODITIES
105E 001	Livingston	Showing	Vein	Au-Ag-Pb-Cu
105E 020	Sylvia	Showing	Vein	Pb-Zn-Cu-Au-Ag
105E 021	Cottoneva	Unknown	Unknown	
105E 032	Mendocina	Unknown	Unknown	
105E 042	Lake	Unknown	Unknown	
105E 047	Maybe	Anomaly	Unknown	Pb-Au
105E 048	Marbee	Unknown	Unknown	
105E 049	Little Violet	Unknown	Unknown	
105E 051	Gord	Unknown	Unknown	
105E 053	Deet	Showing	Vein	Ag-Au-Zn-Sb-Pb-As
105E 056	Brenda	Unknown	Unknown	

Selected Assay Results

Samples are located on map (•)

		30	74-1	74-2	74-3	74-4	91	99-1	99-2	100	148
		magnetite gossan	← silicified ultramafic rock nickeline + annabergite →				dissem. Py-Po	altered granite →		dissem. Py-Cpy	magnetite gossan
Mo	ppm	0.45	1.11	1.35	1.05	1.53	0.77	1.28	2.05	0.65	0.26
Cu	ppm	45.40	9.69	12.44	5.02	18.83	73.98	102.01	49.14	280.00	22.97
Pb	ppm	1.17	1.30	9.25	1.63	3.39	0.43	2.26	7.39	0.52	3.29
Zn	ppm	23.2	6.1	34.6	14.3	20.7	47.0	56.9	121.7	41.0	175.5
Ag	ppb	60	38	57	33	69	14	82	49	895	21
Ni	ppm	12.4	741.1	79.7	45.8	3409.5	35.9	26.9	42.4	35.3	92.3
Co	ppm	0.8	32.7	6.9	2.8	140.3	30.8	4.1	7.2	48.6	44.5
Mn	ppm	89	47	30	42	35	617	41	88	459	702
Fe	%	5.91	1.19	0.76	1.23	1.75	4.50	1.92	3.63	4.79	9.30
As	ppm	0.4	1414.9	1576.6	426.8	3068.6	1.6	10.2	10.0	1.0	1.9
U	ppm	0.7	0.1	0.1	0.1	0.1	<.1	0.3	0.4	<.1	0.8
Au	ppb	0.5	4.0	0.4	0.8	3.4	0.5	0.9	2.2	2.5	0.5
Th	ppm	5.9	0.1	<.1	0.1	<.1	<.1	0.3	0.8	<.1	8.2
Sr	ppm	17.4	5.2	11.9	17.2	1.5	6.5	6.1	4.1	12.1	95.5
Cd	ppm	0.02	0.06	0.16	0.05	0.34	0.04	0.11	0.17	0.04	0.15
Sb	ppm	0.12	137.25	271.86	35.14	1822.10	0.68	8.80	10.20	0.24	0.29
Bi	ppm	0.04	0.03	0.03	0.07	0.03	<.02	0.05	0.08	<.02	0.03
V	ppm	71	9	21	8	22	102	100	30	81	116
Ca	%	0.18	0.02	0.02	0.01	0.01	0.85	0.01	0.01	0.92	3.67
P	%	0.039	0.001	0.001	0.003	<.001	0.096	0.036	0.034	0.134	0.554
La	ppm	9.2	1.1	<.5	0.6	<.5	1.6	0.9	2.7	0.9	75.9
Cr	ppm	26.0	173.4	217.1	66.2	269.5	42.4	49.9	26.0	39.0	67.9
Mg	%	0.28	0.02	0.02	0.01	0.02	1.70	0.01	0.02	1.97	3.40
Ba	ppm	229.0	112.2	12.1	38.3	34.1	15.1	9.9	31.5	40.1	153.0
Ti	%	0.026	<.001	<.001	0.001	<.001	0.332	0.003	0.003	0.430	0.080
B	ppm	<1	<1	<1	<1	<1	1	1	1	<1	1
Al	%	0.35	0.19	0.25	0.19	0.28	1.90	0.74	0.33	1.85	3.59
Na	%	0.100	0.007	0.002	0.001	0.001	0.055	0.003	0.002	0.011	0.015
K	%	0.06	0.01	0.01	0.03	<.01	0.05	0.01	0.06	0.01	0.39
W	ppm	<.1	0.1	0.2	<.1	0.2	<.1	0.3	0.4	<.1	<.1
Sc	ppm	1.0	0.6	1.4	0.6	1.6	3.3	6.7	2.6	1.6	7.9
Tl	ppm	0.05	0.13	0.37	0.04	0.67	<.02	0.02	0.07	<.02	0.07
S	%	0.12	0.11	0.01	<.01	1.24	0.43	<.01	<.01	1.5	0.01
Hg	ppb	6	91	157	51	158	<5	31	41	<5	5
Se	ppm	0.3	0.7	0.9	0.3	2.9	0.9	0.2	0.2	1.7	0.2
Te	ppm	0.04	0.02	0.04	0.03	0.07	<.02	0.04	0.04	0.03	<.02
Ga	ppm	3.5	1.9	1.7	0.8	13.4	4.9	2.7	1.3	3.0	18.8
UTM-E		541033	548085	548085	548085	548085	545566	548078	548078	547410	539620
UTM-N		6795414	6799693	6799693	6799693	6799693	6801492	6800718	6800718	6800686	6796061