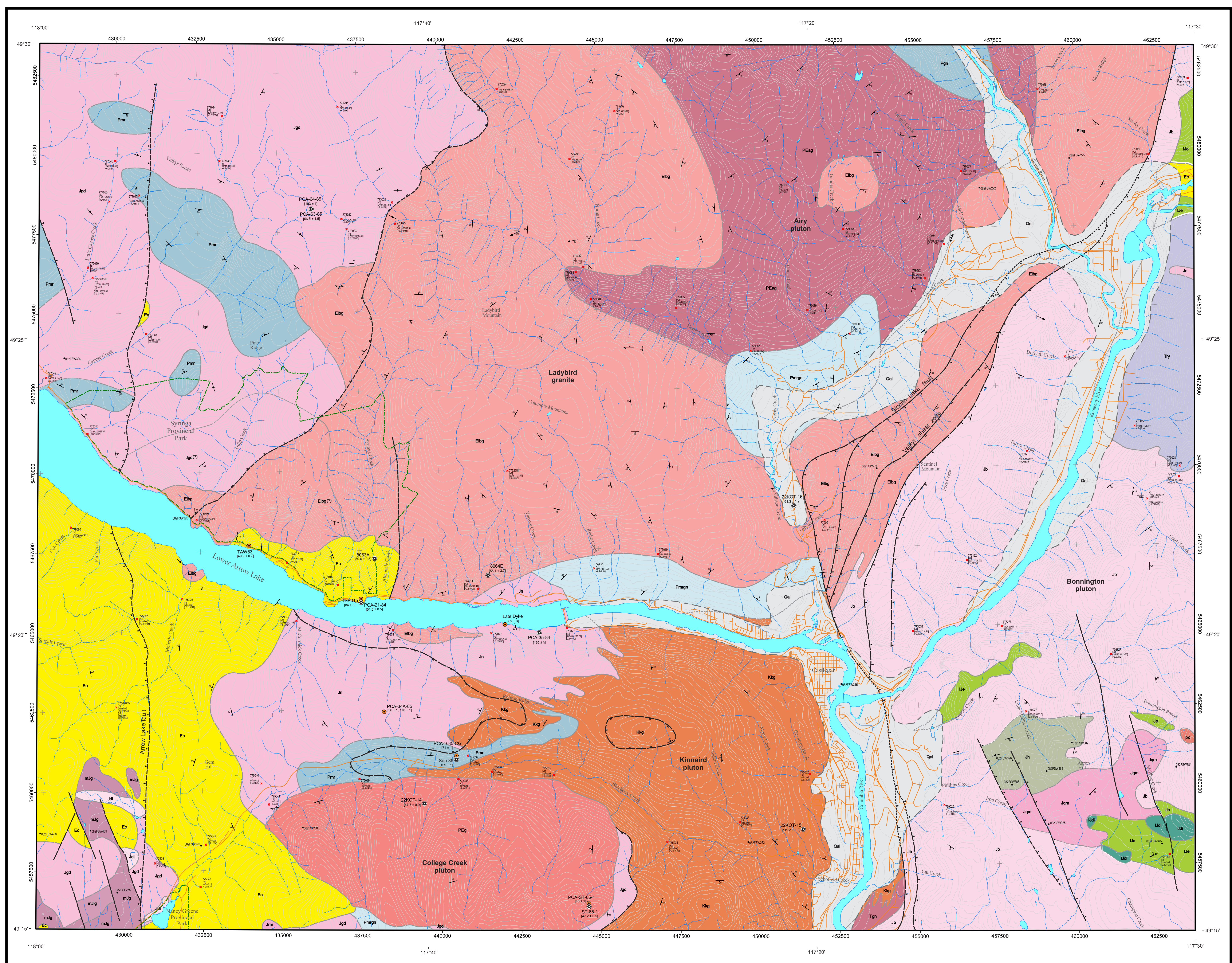
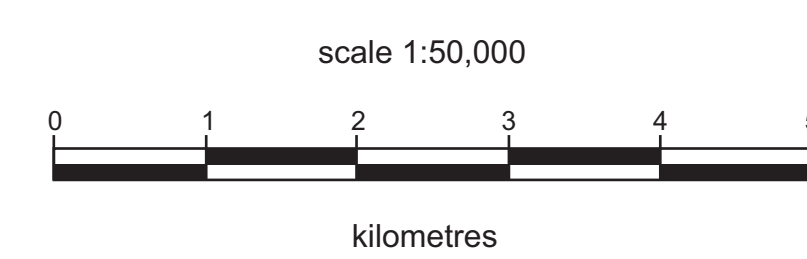


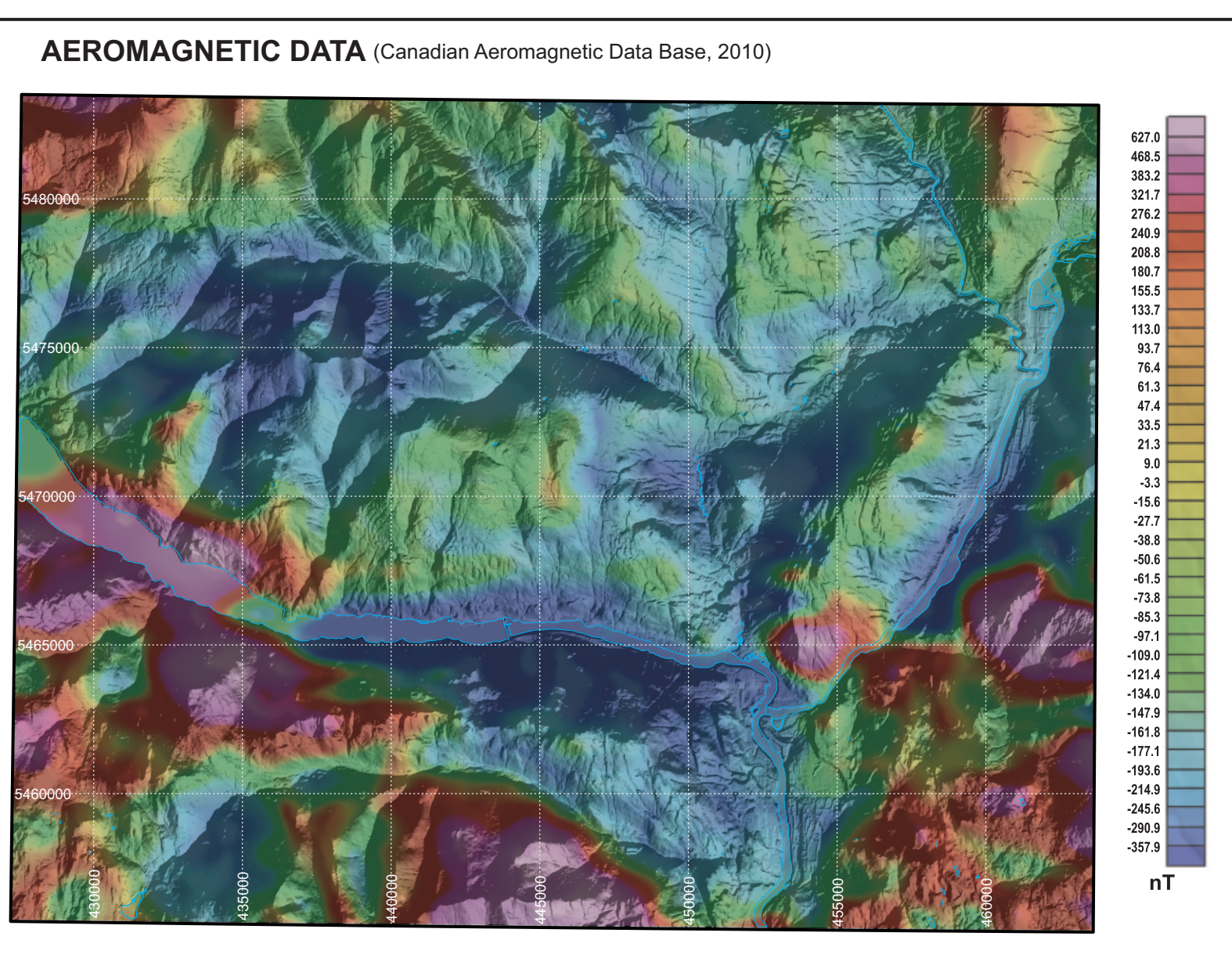
**Geology of the Castlegar map sheet (NTS 082F/05)**

T. Höy and W. Jackaman  
 Recommended citation: Höy, T. and Jackaman, W., 2024. Geology of the Castlegar map sheet (NTS 082F/05). Geoscience BC Map 2024-02-02; British Columbia Ministry of Mining and Critical Minerals, British Columbia Geological Survey Open File 2024-13, 1:50,000 scale.



- QUATERNARY**  
 Qal Alluvium
- PALEOGENE**  
**Eocene**  
 PEG College Creek pluton: leucocratic biotite quartz monzonite, granite (47.2 ± 0.5 ma; U-Pb Zr; Hunt and Roddick, 1988, 47.7 ± 0.9 ma; U-Pb Zr; Cecil, 2024)  
 Ec Coryell intrusion: syenite, monzonite, quartz monzonite; massive to porphyritic (51.5 ± 0.5 ma; U-Pb Zr; Parrish et al., 1985)
- PALEOGENE-Eocene**  
 Ebq Ladybird granite: undifferentiated granite, medium grained, locally porphyritic (55.1 ± 3.7 ma; U-Pb Zr; Ghosh, 1995)  
 PEag Airy pluton: K-feldspar megacrystic biotite ± hornblende quartz monzonite, locally foliated (63.5 ± 1.0 ma; U-Pb Zr; Parrish, 1991)
- MESOZOIC**  
**CRETACEOUS**  
 Kkg Kinnaird pluton: granite, quartz porphyry, locally foliated; granitic gneiss (71 ± 1 ma; K-Ar; Hunt and Roddick, 1989, 112.2 ± 1.2 ma; U-Pb; Cecil, 2024)
- JURASSIC**  
**MIDDLE JURASSIC**  
 Jn Nelson plutonic suite, undifferentiated granodiorite and granite  
 Jgd granodiorite, generally equigranular; minor granite  
 Jm monzonite, monzodiorite (probable phase of the Rossland monzonite)  
 mjg granite; fine to medium-grained, equigranular biotite-hornblende granite  
 mJg leucocratic granite; fine to medium grained granite with < 5% mafic minerals; includes distinctive boxy hornblende-quartz segregations  
 Jgm K-feldspar megacrystic quartz monzonite  
 Jdi diorite; dark typically medium grained and equigranular  
 Jb Bonnington plutonic complex: granodiorite, quartz monzonite; quartz diorite; porphyritic granite
- LOWER JURASSIC(?)**  
 px pyroxenite (age unknown)
- ROSSLAND GROUP**  
 Jh Hall Formation: siltstone, sandstone, conglomerate, argillite; minor lime units  
 Lie Elise Formation: undifferentiated volcanic and metasedimentary rocks; minor subvolcanic intrusions  
 Jldi diorite; probable Elise Formation subvolcanic intrusion
- TRIASSIC**  
 Try Ymir Group (possibly correlative with Rossland Group Archibald Formation); undifferentiated metasedimentary rocks - argillite, siltstone, grit; impure limestone, minor chert
- PALEOZOIC**  
**PENNSYLVANIAN to PERMIAN**  
 Pmr Mount Roberts Formation: siliceous siltstone, argillite, silty chert, minor sandstone; minor limestone; Pmr - limestone or dolomite  
 Pmrgn paragneiss, quartz-feldspathic mica schist, granofels; some pegmatite sheets and augen gneiss (includes the Castlegar Gneiss of Simony, 1979)  
 Pgn polydeformed metasedimentary rocks intruded by feldspathic paragneiss, amphibolite, calc-silicates, granitic layers
- DEVONIAN to TRIASSIC(?)**  
 Tgn Trail Gneiss: grey, intensely foliated biotite-diorite gneiss, hornblende gneiss; metagabbro, minor schist; amphibolite; granitic dikes, pegmatite

- SYMBOLS**
- CONTACT OF ALLUVIUM .....  
 CONTACT: DEFINED, APPROXIMATE, INFERRED, HIDDEN .....  
 FAULT: DEFINED, APPROXIMATE, INFERRED, HIDDEN .....  
 NORMAL FAULT: DEFINED, APPROXIMATE, INFERRED, HIDDEN .....  
 THRUST FAULT: DEFINED, APPROXIMATE, INFERRED, HIDDEN .....  
 SHEAR ZONE: DEFINED, APPROXIMATE, INFERRED, HIDDEN .....
- BEDDING: INCLINED, VERTICAL, OVERTURNED, TOPS UNKNOWN .....  
 FOLIATION, CLEAVAGE: INCLINED, VERTICAL .....  
 FOLIATION (igneous intrusions & layered gneisses): INCLINED, VERTICAL .....  
 LINEATION: INCLINED .....
- MINERAL OCCURRENCE - SHOWING ..... MINFILE NO.
- U-Pb AGE DATE (Ma) ..... SAMPLE [DATE]  
 K/Ar AGE DATE (Ma) ..... SAMPLE [DATE]
- PROVINCIAL RGS SILT-SAMPLE SITE .....  
 (Au ppm by IAA)  
 (Ag ppm, Cu ppm, Pb ppm by ICP)  
 (Ag ppm, Cu ppm, Pb ppm by AAS)  
 rd: not determined
- ROAD .....  
 STREAM, RIVER, LAKE .....  
 PARK BOUNDARY .....



**SOURCES OF DATA**

BC Geological Survey (2017); MINFILE BC mineral deposits database; BC Ministry of Energy and Mines, BC Geological Survey, URL: <http://minfile.ca> [September 2011]. (update December 2017 with date of data download)

Canadian Aeromagnetic Data Base (2010); Geoscience Data Repository, Geological Survey of Canada, Earth Sciences Sector, Natural Resources Canada, Government of Canada.

Carr, S.D. (1986); The Valley shear zone and the Slocan Lake fault zone: Eocene structures that bound the Valhalla gneiss dome, southeastern British Columbia, M.Sc. thesis, Carleton University, Ottawa, Ontario.

Doyle, B. (2015); 2015 Rock geochemistry and UV mapping, Amazing Grace property, Castlegar area, southern British Columbia, BC Ministry of Energy and Mines, Assessment report 35679.

Høy, T. (2006); Geology and rock geochemistry, JJ property, southeastern B.C.; BC Ministry of Energy and Mines, Assessment report 28301.

Høy, T. and Dunne, K.P.E. (1998); Geological compilation of the Trail map-area, southeastern British Columbia, B.C. MEMPR, Geoscience map 1998-1.

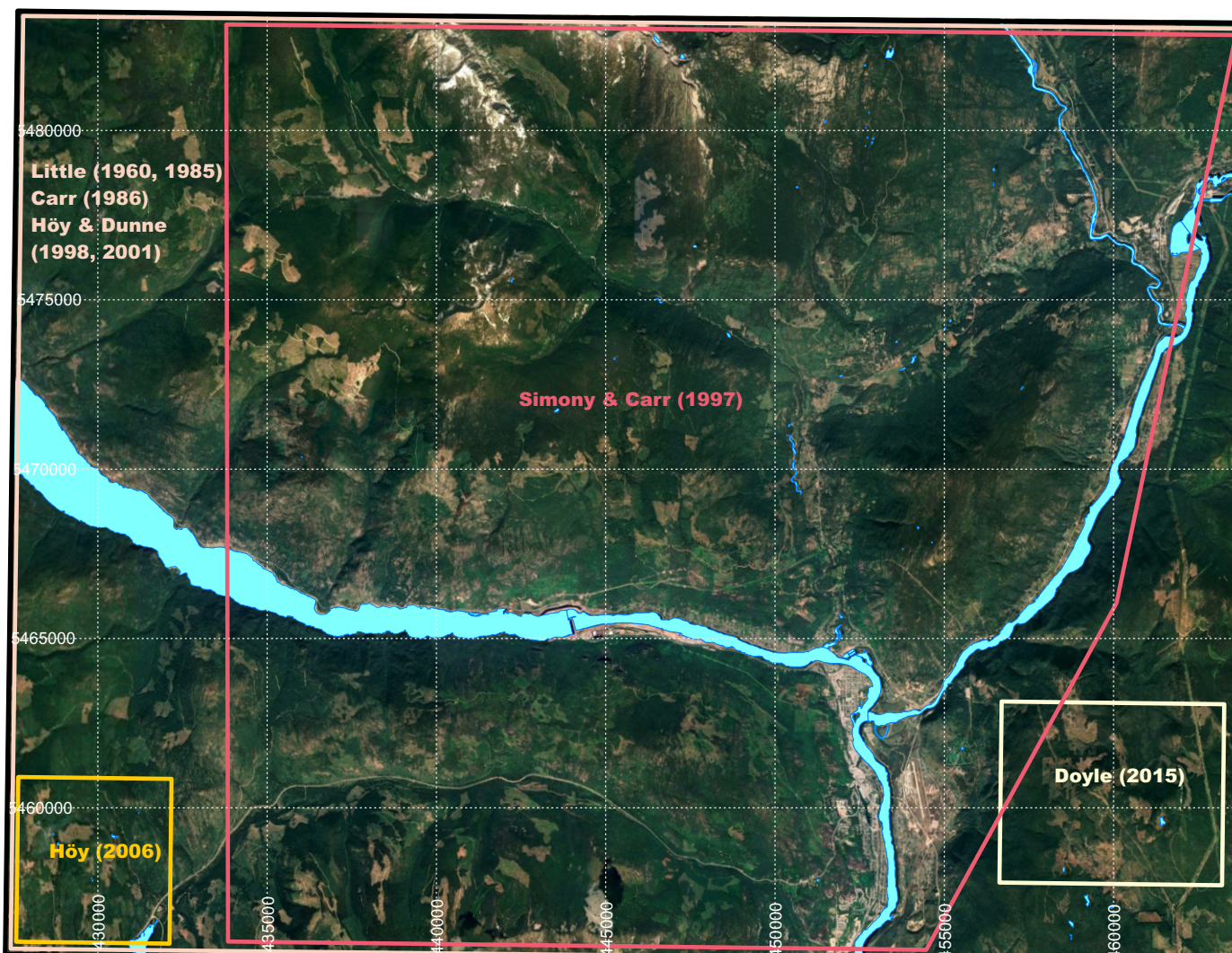
Høy, T. and Dunne, K.P.E. (2001); Metallogeny and mineral deposits of the Nelson-Rossland area: Part II: The early Jurassic Rossland Group, southeastern British Columbia, B.C. MEMPR, Bulletin 109.

Little, H.W. (1960); Nelson map-area, west-half, GSC, Memoir 308.

Little, H.W. (1965); Geology Nelson west-half, GSC, Open File 1195.

Simony, P.S. and Carr, S.D. (1997); Large lateral ramps in the Eocene Valley shear zone: extensional ductile faulting controlled by plutonism in southern British Columbia, Journal of structural geology, V. 19, pp. 769-784.

Simony, P., Savigny, J., Morrison, J.K. and Roback, R.C. (2006); Age and origin of the Trail Gneiss Complex, basement to Omineca Terrane near Trail, southeastern British Columbia; GAC, Special Paper 45, p. 505-515.



**AGE DATES**

SAMPLE	UTME	UTNM	UNIT	HOST	DESCRIPTION	AGE (ma) ± ERROR	SYSTEM	MINERAL	LAB	REFERENCE
22KOT-14	439490	545955	College Ck pluton	quartz monzonite	47.7 ± 0.9	U/Pb	Zircon	CSU	Cecil (2024)	
22KOT-15	451341	545862	Kinnaird pluton	granite	112.2 ± 1.2	U/Pb	Zircon	CSU	Cecil (2024)	
22KOT-16	451198	545870	Kinnaird pluton	granite	61.3 ± 1.2	U/Pb	Zircon	CSU	Cecil (2024)	
BO84E	441535	546077	Ebq Ladybird granite	leucocratic granite	55.1 ± 3.7	U/Pb	Zircon	UBC	Ghosh (1995)	
BO84A	437862	546277	Ec	Coryell intrusion	50.8 ± 0.5	U/Pb	Zircon	UBC	Ghosh (1995)	
ST85-1	444620	545631	PEag	College Ck pluton	hb-bi granite	47.2 ± 0.5	U/Pb	Zircon	GSC	Hunt & Roddick (1988)
13P015	437832	546000		diabase dyke	84 ± 3	K/Ar	Whole rock	GSC	Hunt & Roddick (1988)	
Late Dyke	442027	546160		mafic dyke	62 ± 3	K/Ar	Whole rock	GSC	Hunt & Roddick (1988)	
PCA-ST-85-1	444620	545631	PEag	College Ck pluton	granite	45 ± 1	K/Ar	Hornblende	GSC	Hunt & Roddick (1988)
PCA-9-85-CO	440450	546100	Kkg	Kinnaird pluton	hb-bi-ksp megacrystic granodiorite	71 ± 1	K/Ar	Hornblende	GSC	Hunt & Roddick (1988)
PCA-34-85	435215	545240	mjb	Nelson intrusion	hb-quartz diorite	49.9 ± 0.7	U/Pb	Zircon	GSC	Hunt & Roddick (1993)
TAWB3	433992	546770	Ec	Coryell intrusion	recrystallized tr-pb-fsp gneiss	193 ± 1	U/Pb	Zircon	GSC	Parrish et al. (1985)
PCA-64-85	432077	547265	mjb	Nelson intrusion	muscovite pegmatite	56.5 ± 1.5	U/Pb	Zircon	GSC	Parrish et al. (1985)
PCA-63-85	441184	548141	mjb	Nelson intrusion	intergranular leucocratic syenite	170 ± 1	U/Pb	Zircon	GSC	Parrish et al. (1985)
PCA-35-84	442899	546491	mjb	Nelson intrusion	diorite	165 ± 5	U/Pb	Zircon	GSC	Parrish et al. (1985)
PCA-21-84	437832	545900	Ec	Coryell intrusion	hb-bi-pb syenite	51.5 ± 0.5	U/Pb	Zircon	GSC	Parrish et al. (1985)
Sep-85	440450	546100	Pmr	Mount Roberts Form.	gneiss	109 ± 1	U/Pb	Zircon	GSC	Spears & Parrish (1988)

**SOURCES OF DATA - Age Dates**

Cecil, R. (2024); California State University, Pers. Comm.

Ghosh, E.K. (1995); Canadian Journal of Earth Sciences, v. 32, p. 1168-1680.

Hunt, P.A. and Roddick, J.C. (1988); Radiogenic age and isotope studies; Geological Survey of Canada, Paper 88-2, Report 2.

Hunt, P.A. and Roddick, J.C. (1989); Radiogenic age and isotope studies; Geological Survey of Canada, Paper 89-2, Report 3.

Hunt, P.A. and Roddick, J.C. (1993); Radiogenic age and isotope studies; Geological Survey of Canada, Paper 93-2, Report 7.

Parrish, R.R. (1991); Radiogenic age and isotope studies; Geological Survey of Canada, Paper 91-2, Report 5.

Parrish, R.R., Carr, S.D. and Parkinson, D.L. (1985); Eocene extensional tectonics and geochronology of the southern Omineca belt, British Columbia and Washington; Tectonics, v. 7, p. 181-212.

Spears, F.S. and Parrish, R.R. (1986); Petrology and cooling rates of the Valhalla Complex, British Columbia, Canada; Journal of Petrology, v. 37, p. 733-763.

