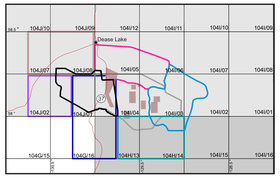
Previous mapping in the region



Fossil data

Sample	GSC no.	Easting	Northing	Location accuracy*	Unit	Age	Fossil descriptions	Identified by	Source
n/a	7872	432129	6436193	moderate	KSs	Cenomanian	*Sevel plants (Pseudocycas orjiae (Dawson) Bell, Araliaephyllum jamiesoni? Hollick, Dicotylophyllum spp.)*	W.A. Bell	Gabrielse (1998)
F72, F15h1, F15i1, F71,F15j,F72	C-095403, C-099640, C-099644	425041	6441756	moderate	KSs	late Albian to/or early Cenomanian?	n/a	n/a	Read (1983, 1984)
F15i1, F64	C-099628	425108	6441942	moderate	KSs	late Albian to/or early Cenomanian?	n/a	n/a	Read (1983, 1984)
F14d1, F61	C-099627	425165	6442088	moderate	KSs	late Albian to/or early Cenomanian?	n/a	n/a	Read (1983, 1984)
F15i1, F82	C-099625	425272	6441508	moderate	KSs	late Albian to/or early Cenomanian?	n/a	n/a	Read (1983, 1984)
F15i1, F80	C-099629	425306	6441633	moderate	KSs	late Albian to/or early Cenomanian?	n/a	n/a	Read (1983, 1984)
F15i1, F76, F15m1, F75	C-099624, C-099626	425411	6441667	moderate	KSs	late Albian to/or early Cenomanian?	n/a	n/a	Read (1983, 1984)
F15f1, F74	C-099630	425388	6441670	moderate	KSs	late Albian to/or early Cenomanian?	n/a	n/a	Read (1983, 1984)
F15c1, F65f1, F15d1, F66f1, F15e1, F67	C-099639, C-099641, C-099643	424841	6441830	moderate	KSs	late Albian to/or early Cenomanian?	n/a	n/a	Read (1983, 1984)
18BcS-6-46	V-012819	441906	6450931	high	lmJSPsv	In prep.	In prep.	M.L. Golding	Golding (pers. comm.)
81-MUCH-H-42F, F7	C-087659	438893	6453491	moderate	uTrSTvm	early Carnian	Conodonts (*Paragondolella inclinata* (Kovacs 1983); *Quadrialella lobata* (Orchard 2007), *Neogondolella inclinata* (Kovacs 1983)), ichthyoliths	M.L. Golding	Golding et al. (2017)
18CrBL-7-47	V-012828	438744	6453479	high	uTrSTvm	In prep.	In prep.	M.L. Golding	Golding (pers. comm.)
83-MUCP-H1F	C-102920	418367	6449507	low	T	early Carnian	Conodonts (*Neogondolella cf. liardensis* Orchard 2007; *Quadrialella lobata* (Orchard 2007))	M.L. Golding	Golding et al. (2017)
82-MUCR-12F, F16g1, F78	C-102771	425784	6441642	moderate	T	Triassic	Conodonts (*Neogondolella* sp.)	M.L. Golding	Golding et al. (2017)
F12d1, F51	C-102772	425842	6442366	moderate	T	Triassic?	Conodonts (ramiform elements), sponge spicules	M.J. Orchard	Read (1983, 1984), Gabrielse (1998)
F17	C-087660	441033	6450299	moderate	lmTrTvm	Late Ordovician-Cenozoic	n/a	n/a	Read (1984)
83-MUCR-25F, F8	C-102901	428193	6453099	moderate	lmTrTs	Triassic	Conodonts (*Neogondolella* sp.); other microfossils (aphaenomorph)	M.L. Golding	Golding et al. (2017)
82-MUCP-32F, F81	C-102768	428141	6441569	moderate	lmTrTs	Triassic	Conodonts (*Ellisonia* sp.; *Neogondolella* sp.)	M.L. Golding	Golding et al. (2017)
82-MUCP-34F, F12f, F47	C-102767	424747	6442663	moderate	lmTrTs	Triassic	Conodonts (*Neogondolella* sp., ramiform elements)	M.L. Golding	Golding et al. (2017)
83-MUCP-45F	C-102924	423390	6449831	low	lmTrTs	Triassic	Conodonts (*Neogondolella* sp.)	M.L. Golding	Golding et al. (2017)
82-MUCP-43F, F13	C-102769	424274	6442529	moderate	lmTrTs	Triassic	Conodonts (*Neogondolella* sp.); Conodonts (Megaconiform elements, *Neogondolella* sp. gr. *constricta* (Mosher and Clark 1965), Metaconiform ramiform elements), radiolarians (?*Archoclademus verbitskiae* Dumitrica, *Enaletroxiphaera? cornuf.Latrin.*, *Tandarnia?* sp., *Xiphosphaera* spp., *Xiphotaylora* spp.), sponge spicules	M.J. Orchard, E.S. Carter	Read (1983); Gabrielse (1998)
81-MUCH-1F, F22	C-087706	441253	6446299	moderate	lmTrTs	late Anisian-early Ladinian	Conodonts (*Neogondolella* ex gr. *transita* (Kozur & Mostler 1971); *Neogondolella* sp.)	M.L. Golding	Golding et al. (2017)
82-MUCP-35F, F40*, F12d	C-102768	424624	6442762	moderate	lmTrTs	late Anisian-early Ladinian	Conodonts (*Cratognathodus* sp.; *Neogondolella constricta* morphotype B Golding 2014; *Neogondolella* sp.; *Paragondolella* ex gr. *bidentata*=Kovacs 1984), Radiolarians	M.L. Golding	Golding et al. (2017)
82-MUCP-30F, F12b1, 82-MUCP-31F, F12c1	C-102764, C-102765	425001	6442791	moderate	lmTrTs1	late Anisian-early Ladinian	Conodonts (*Paragondolella* ex gr. *excelsa* Mosher 1968; *Paragondolella* ex gr. *bidentata*=Kovacs 1984), Ichthyoliths	M.L. Golding	Golding et al. (2017)
83-MUCP-39F	C-102918	418232	6448902	low	lmTrTs1	middle-late Anisian	Conodonts (*Neogondolella* ex gr. *constricta* (Mosher & Clark 1965); "*Neogondolella*"*ex gr. regalis* Mosher 1970; "*Neogondolella*" *regalis* morphotype gamma Golding 2014; *Nicoraella* s.p.?)	M.L. Golding	Golding et al. (2017)
F8	C-087501	418543	6446749	moderate	lmTrTs	Early-Middle Triassic	Conodonts (*Cornudina* sp.)	M.J. Orchard	Read (1983); Gabrielse (1998)
82-MUCP-64F, F12g	C-102770	424101	6442644	moderate	lmTrTs	latest Olenekian-late Spathian/early Anisian	Conodonts (*Chiosella timorensis* (Nogami 1966); "*Neogondolella*" ex gr. *regalis* Mosher 1970; *Triassospathodus* ex gr. *homeri* (Bender 1970))	M.L. Golding	Golding et al. (2017)
82-MUCP-25F, F14b, F59; 82-MUCP-P-26F, F14c, F60	C-102761, C-102762	425675	6442149	moderate	lmTrTs1	early Olenekian (Smithian)-Anisian, late Olenekian (Spathian)	C-102761: Conodonts (*Cornuliina* sp.) C-102762: Conodonts (*Neospathodus* cf. *triangularis* (Bender 1970); *Neoalternognathus* sp. A (Agematsu et al. 2008); *Spathicuspus spathi* (Sweet 1970); *Triassospathodus* ex gr. *homeri* (Bender 1970))	M.L. Golding	Golding et al. (2017)
F12k	C-102773, C-102774	424198	6442499	moderate	lmTrTs	Permo-Triassic	n/a	n/a	Read (1983)
82-MUCP-27F, F16a, F63	C-102763	425730	6442058	moderate	lmTrTs1	Changhsingian-early Olenekian (Smithian)	Conodonts (*Clarkina cf. carinata* (Clark 1959))	M.L. Golding	Golding et al. (2017)
11LCb-18-145A	V-002634	442227	6447864	high	lmTrTs	n/a	Barren	M.J. Orchard	Orchard (2012)
11LCb-18-145C	V-002635	442227	6447864	high	lmTrTs	n/a	Barren	M.J. Orchard	Orchard (2012)
11LCb-18-146	V-002636	442499	6447898	high	lmTrTs	n/a	Barren	M.J. Orchard	Orchard (2012)
80-MUCH-19F, F2	C-087100	420164	6456827	moderate	DPSs	Asselian-Capitanian	Conodonts (*Swelignathus* sp.), ichthyoliths	M.L. Golding	Golding et al. (2017)
80-MUCH-8F, F3	C-087099	416615	6456674	moderate	DPSs	Kungurian	Conodonts (*Mesogondolella* sp.; *Neostreptognathodus pseudopennatus* group; *Neostreptognathodus* cf. *pseudopennatus* (Wardlaw, Henry & Miller 1991)), ichthyoliths	M.L. Golding	Golding et al. (2017)
11DMO-28-231A, 11DMO-28-231B	V-002640, V-002641	419116	6459041	high	DPSs	Artinskian-Kungurian	Conodonts (*Mesogondolella* sp.; *Neostreptognathodus* sp.), abundant schwagerind fusulinaceans	M.L. Golding, E.W. Bamber	Golding et al. (2017); Bamber (2011); Logan et al. (2012)
11DMO-28-235	V-002641	420445	6457381	high	DPSs	Artinskian-Kungurian	Conodonts (*Neostreptognathodus* sp.)	M.L. Golding	Golding et al. (2017)
18BvS-24-224	V-012820	418605	6452961	high	DPSs	In prep.	In prep.	M.L. Golding	Golding (pers. comm.)
18BvS-25-230	V-012821	419575	6455728	high	DPSs	In prep.	In prep.	M.L. Golding	Golding (pers. comm.)
18BvS-25-232	V-012822	416214	6455974	high	DPSs	In prep.	In prep.	M.L. Golding	Golding (pers. comm.)
18BvS-26-262	V-012826	420216	6456841	high	DPSs	In prep.	In prep.	M.L. Golding	Golding (pers. comm.)
18BvS-34-350	V-012827	452841	6431196	high	DPSs	In prep.	In prep.	M.L. Golding	Golding (pers. comm.)
18CME-26-183	V-012829	421122	6454391	high	DPSs	In prep.	In prep.	M.L. Golding	Golding (pers. comm.)
18CME-26-184	V-012830	421233	6454347	high	DPSs	In prep.	In prep.	M.L. Golding	Golding (pers. comm.)
11LCb-16-127	V-002633	421992	6457865	high	DPSs	n/a	Barren	M.J. Orchard	Orchard (2012); Logan et al. (2012)
18BvS-27-251	V-012823	423337	6458204	high	DPSs	In prep.	In prep.	M.L. Golding	Golding (pers. comm.)
18BvS-27-255	V-012824	422812	6457681	high	DPSs	In prep.	In prep.	M.L. Golding	Golding (pers. comm.)
18BvS-28-258	V-012825	419680	6455888	high	DPSs	In prep.	In prep.	M.L. Golding	Golding (pers. comm.)

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* Location accuracy: High - GPS measurements (this study; Logan et al., 2012); Moderate - digitization of fossil locations from 1:50,000 scale map (Read, 1983; 1984) or 1:100,000 scale map (Gabrielse, 1998, Figure 14); Low - converted from latitude-longitude (Gabrielse, 1998, Appendix 2)

Geochronology data

Sample	Easting	Northing	Unit	Age (Ma)	Type	Mineral	Sample description	Source
H80-87F	423564	6452510	MPTvm	0.907±0.07	K-Ar	WR	Ol-Pl-phyric basalt lava flow	Read (1984), Breitsprecher and Mortensen (2004)[1]
H81-1KAR	441200	6438460	MPTvm	4.8±0.2	K-Ar	WR	Ol-Opx-phyric basaltic andesite volcanic residual	Read (1984), Breitsprecher and Mortensen (2004)[1]
H81-5KAR	454235	6430959	MPTvm	5.3±0.2	K-Ar	WR	Ol-Augite-phyric basalt volcanic residual	Read (1984), Breitsprecher and Mortensen (2004)[1]
H81-2KAR	447516	6437189	MPTvm	5.4±0.2	K-Ar	WR	Ol-Pl-phyric basalt volcanic residual	Read (1984), Breitsprecher and Mortensen (2004)[1]
GA-67-87	426050	6458139	MuPqm	145±7	K-Ar	Bi	Bt-Hbl Qtz monzonite; medium-grained, slightly megacrystic	Wanless et al. (1972)[2]
GA-67-97	426050	6458139	MuPqm	185.8±8	K-Ar	Hbl	Bt-Hbl Qtz monzonite; medium-grained, slightly megacrystic	Wanless et al. (1972)[2]
110V-3-41	428975	6454429	MuPqm	172±1.6	Ar-Ar	Hbl	Bt-Hbl monzonite dike; acicular Hbl	J. Logan (unpublished data)
11JLD-30-308	428617	6456487	MuPqm	172.2±1	U-Pb	Zrn	Hbl-Bt Qtz monzodiorite; equigranular to locally K-fs megacrystic	Logan et al. (2012). Not plotted on map, located in adjacent map area to the north
AN-79-635-1	426306	6455289	MuPqm	197±18	K-Ar	Hbl	Hbl-Bt-bearing granodiorite; massive, seriate, medium-grained with uncommon K-fs megacrysts	Stevens et al. (1982b)
GA-1390	448877	6449193	MJTSgr	143.3±6	K-Ar	Bt	Bt-Hbl granodiorite; medium- to coarse grained	Wanless et al. (1972)[2, *]
GA-1390	448877	6449193	MJTSgr	151.4±8	K-Ar	Hbl	Bt-Hbl granodiorite; medium- to coarse grained	Wanless et al. (1972)[2, *]
GA 2_9_61-2A	448499	6445159	MJTSgr	161.1±11	K-Ar	Hbl	Hbl-Bt granite; hypidiomorphic, medium- to coarse-grained	Wanless et al. (1972)[2, *]
GA 2_9_61-2A	448499	6445159	MJTSgr	170.7±8	K-Ar	Hbl	Hbl-Bt granite; hypidiomorphic, medium- to coarse-grained	Wanless et al. (1972)[2, *]
GA 2_8_61-2A	448499	6445159	MJTSgr	197.6±16	K-Ar	Bt	Granite	Leech (1963)[3, *]
n/a	445724	6450450	MJTSgr	ca. 164	K-Ar	Bt	n/a	Read (1984)[1]
AN-77-356	445724	6450450	MJTSgr	169±11	K-Ar	Hbl	Bt-bearing Hbl granite; equigranular, medium-grained	Stevens et al. (1982a)[1]
AN-77-356	445724	6450450	MJTSgr	169.6±1	U-Pb	Zrn	Bt-bearing Hbl Qtz monzonite; massive, equigranular and medium-grained	Anderson et al. (1982)[1]
AN-77-356	445724	6450450	MJTSgr	176±5	K-Ar	Bt	Bt-bearing Hbl granite; equigranular, medium-grained	Stevens et al. (1982a)[1]
AN-79-716-1	416119	6450283	MJTSgr	171±14	K-Ar	Hbl	Hbl-Bt granodiorite; massive, equigranular, medium-grained	Stevens et al. (1982b)[1]
AN-79-716-1	416119	6450283	MJTSgr	188±4	K-Ar	Bt	Hbl-Bt granodiorite; massive, equigranular, medium-grained	Stevens et al. (1982b)[1]
18CrBL-23-168	416221	6450048	MJTgt	In prep.	U-Pb	Zrn	Hbl-Bt Qtz monzodiorite	This study
18BvS-4-31	444229	6450735	lmJHMMvf	In prep.	U-Pb	Zrn	Felsic lapilli tuff	This study
110V-5-63	442712	6452113	lmJSPsv	No Zrn	U-Pb	Zrn (D)	Interbedded siliceous siltstone and fine- to medium-grained sandstone	Ivanov et al. (2012)
110V-5-65	442035	6451426	lmJSPsv	No Zrn	U-Pb	Zrn (D)	Medium-grained lithic feldspathic arenite	Ivanov et al. (2012)
R83-7KAR	433485	6442726	LTrCHgm	212±7	K-Ar	Hbl	Cpx-Hbl Qtz monzodiorite; medium-grained	Read (1984), Breitsprecher and Mortensen (2004)[1]
n/a	443419	6437407	LTrCHgm	ca. 222	K-Ar	Hbl	n/a	Read (1984)[1]
18CME-20-149	446599	6435095	LTrLGpl	In prep.	U-Pb	Zrn	Hbl-rich diorite to Qtz diorite; foliated, equigranular	This study
GA-67-98C	453864	6437328	LTrgb(?)	222.6±11	K-Ar	Hbl	Hbl diorite; mesocratic, medium-grained	Wanless et al. (1972)[2]
ZEGB-05TC	450041	6449776	LTrGLum	223.3±2	Ar-Ar	Hbl	Hornblendite to pyroxenite; layered to discordant	A. Zagorevski (unpublished data)
AN-79-609-2	449419	6449365	LTrGLum	227±14	K-Ar	Hbl	Hbl clinopyroxenite; massive, equigranular, medium- to coarse-grained	Stevens et al. (1982b)[1]
AN-79-607-1	449419	6449365	LTrGLum	230±15	K-Ar	Hbl	Hornblendite; massive, equigranular, medium- to coarse-grained	Stevens et al. (1982b)[1]
18BvS-27-246	424108	6458996	lmTrVm	In prep.	U-Pb	Zrn (D)	Interstratified mudstone, siltstone, siliceous argillite, very fine- to medium-grained sandstone	This study
18CME-18-137	444668	6444671	lmTrTs	In prep.	U-Pb	Zrn (D)	Very fine feldspathic arenite to siltstone	This study
18CME-27-182	448788	6451140	lmTrTs	In prep.	U-Pb	Zrn (D)	Fine- to medium-grained feldspathic arenite, siliceous argillite	This study
18BvS-27-252	422792	6457617	DPSs	In prep.	U-Pb	Zrn (D)	Maroon meta-coarse tuff to fine tuff	This study
18BvS-25-235	416864	6457496	DPSs	Insufficient Zrn	U-Pb	Zrn (D)	Phyllitic meta-argillite to meta-sandstone	This study

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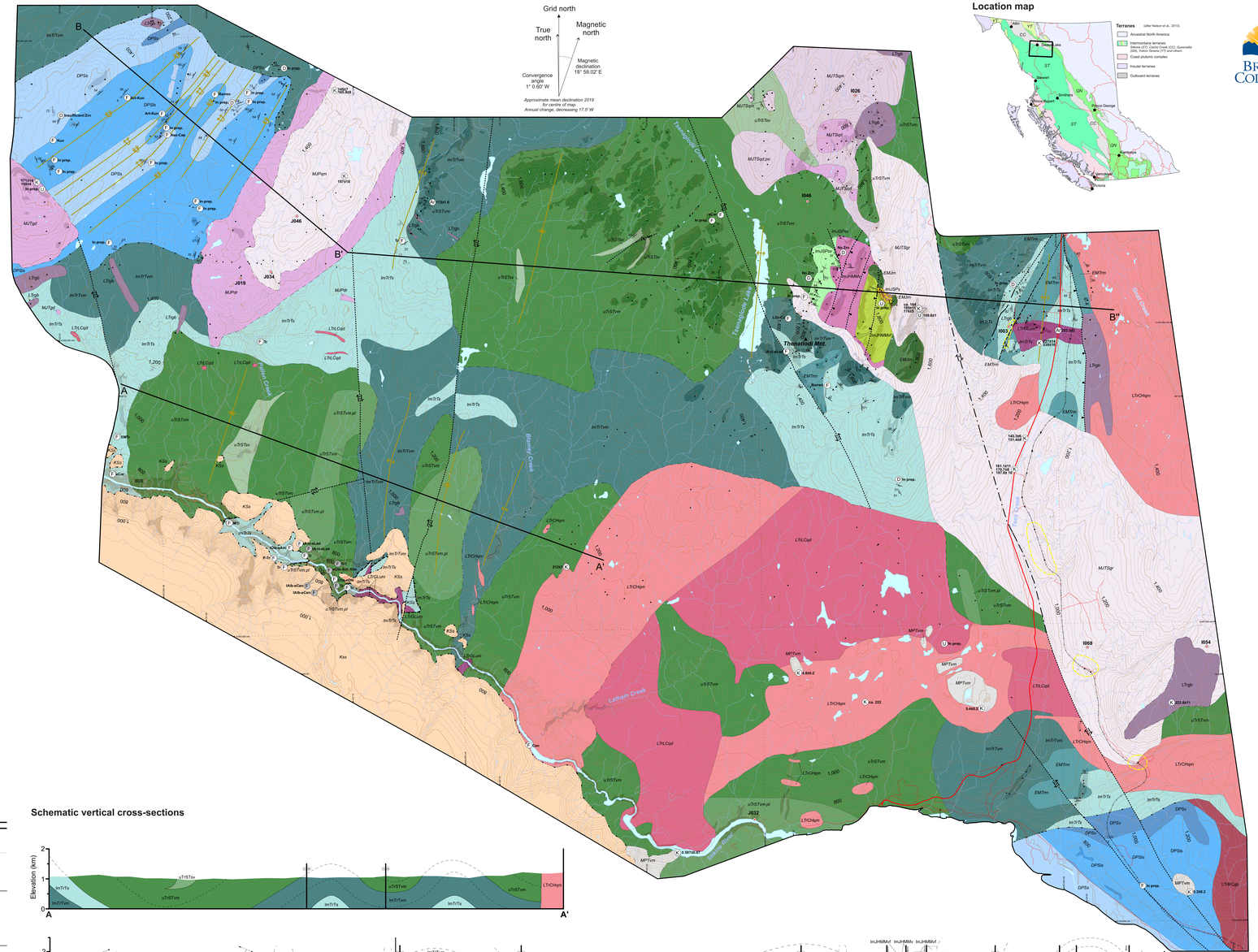
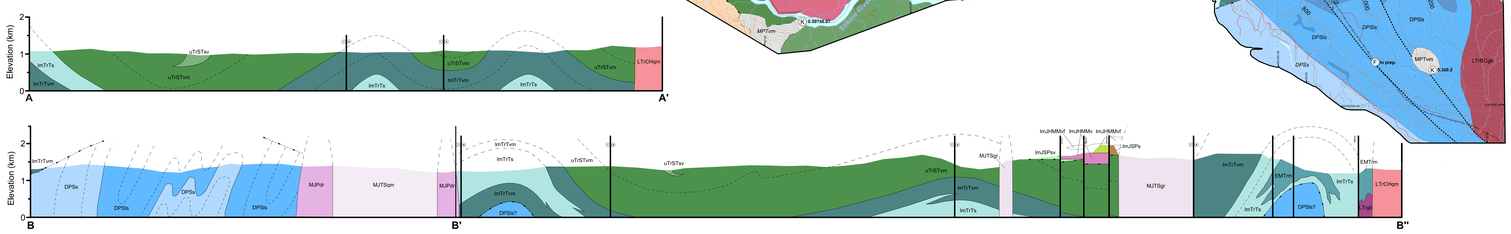
[1] recalibrated to IUGS constants by Breitsprecher and Mortensen (2004)

* Location digitized from Read (1983; 1984) 1:50,000 scale maps



Schematic vertical cross-sections



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Geology compiled by Bram van Straaten and Curran Wearmouth

Cartography by Curran Wearmouth and Bram van Straaten

Acknowledgements:

We thank Sadye Butler and Natashia Drage for their capable and enthusiastic assistance during the field season, and Tundra Helicopters for safe flying.

British Columbia Geological Survey
Open File 2019-05

Preliminary bedrock geology of the Latham and Pallen Creek area

Parts of NTS Sheets 104I/04, 05; 104J/01, 08

Bram I. van Straaten and Curran D. Wearmouth

recommended citation:
van Straaten, B.I. and Wearmouth, C.D., 2019. Preliminary bedrock geology of the Latham and Pallen Creek area, British Columbia. Ministry of Energy, Mines and Petroleum Resources, British Columbia Geological Survey Open File 2019-05, 1:50,000 scale.

0 2 4 km

1:50,000 scale

Legend

(for detailed unit descriptions the reader is referred to van Straaten and Wearmouth, 2019)

Stratified rocks

Overlap assemblages

Miocene to Pleistocene, Tuya Formation

MPTvm Olivine basalt

Cretaceous, Sustut Group

KSs Sandstone, siltstone, shale and conglomerate

unconformity

Stikinia

Lower to Middle Jurassic, Hazelton Group

Lower to Middle Jurassic, Horn Mountain Formation

lmJHMM Felsic tuff, lapilli-tuff and coherent felsic rocks

lmJHMM Maroon volcanic breccia, tuff breccia, flows, lapillistone, lapilli-tuff and tuff

Lower to Middle Jurassic, Spatsizi Formation

lmJSPsv Volcaniclastic sandstone and siltstone

lmJSPs Siltstone and sandstone

unconformity

Upper Triassic, Stuhini Group

uTrSTsv Volcaniclastic sandstone and siltstone

uTrSTvm Mafic volcanic rocks; augite-plagioclase-phyric

uTrSTvm.pl Mafic volcanic rocks; plagioclase-phyric

Lower to Middle Triassic, Tsaybahe group

lmTrTvm Mafic volcanic rocks; plagioclase-augite phyric

lmTrTs Argillite, siliceous argillite, siltstone and sandstone

unconformity

Devonian to Permian, Stikine assemblage

DPSls Limestone, generally foliated

DPSv Tuff, crystal tuff and lapillistone; generally foliated

DPSs Meta-sandstone and phyllite

Intrusive rocks

Middle Jurassic, Three Sisters pluton

MJTSgr Hornblende-biotite quartz monzonite, monzogranite

MJTSqm Hornblende-biotite quartz monzodiorite

MJTSqd Biotite-quartz monzodiorite, granodiorite

MJTSqd.po Biotite-bearing hornblende-clinopyroxene diorite, coarse platy plagioclase porphyritic

Middle Jurassic, Tanzilla pluton

MJTgd Hornblende-biotite quartz monzodiorite, granodiorite

Middle Jurassic, Pallen Creek pluton

MJPqm Hornblende-biotite quartz monzonite

MJPdr Biotite-hornblende diorite, quartz diorite, quartz monzonite

Early to Middle Jurassic, Horn Mountain intrusions

lmJgm Augite-plagioclase-phyric subvolcanic intrusions

Late Triassic, Cake Hill pluton

LTrCHqm Hornblende quartz monzonite

Late Triassic, Latham Creek pluton

LTrLCqd Hornblende-rich quartz diorite

Late Triassic, gabbro

LTrgb Mafic-rich gabbro

Late Triassic, Beggerlay Creek pluton

LTrBCgp Clinopyroxene-hornblende-rich to hornblende-clinopyroxene-rich gabbro

Late Triassic, Gnat Lakes ultramafic intrusion

LTrGLum Plagioclase-bearing hornblendite to clinopyroxene-hornblende-rich gabbro

Early to Middle Triassic, Tsaybahe intrusions

EMTrm Plagioclase-augite-phyric subvolcanic intrusions

Symbols

Field station: 2011; 2012; 2016; 2018

Outcrop (darker shade)

Minfile (104)

Fossil sample site: surface, drill core

Geochronology sample site: U-Pb zircon, U-Pb detrital zircon, Ar-Ar, K-Ar

Bedding: tops unknown (inclined and vertical); tops known, right-way-up; tops known, overturned (grey bedding symbols from Read 1983, 1984)

Foliation (inclined, vertical); lineation (plunging, horizontal)

Contact: defined, approximate, inferred from aeromagnetic data, inferred

Unconformity: defined, approximate, inferred

Fault: defined, approximate, inferred from aeromagnetic data, inferred

Normal fault: defined, approximate, inferred from aeromagnetic data, inferred (dot on hanging wall)

Thrust fault: defined, approximate, inferred from aeromagnetic data, inferred (tooth on hanging wall)

Anticline, syncline, overturned synform, overturned antiform

Altered or gossanous rocks

Highway 37, rough road, railroad grade