



## ASSESSMENT REPORT TITLE PAGE AND SUMMARY

**TITLE OF REPORT: Geology of the Silver Fox Property**

**TOTAL COST: \$45131.52**

AUTHOR(S): Douglas Anderson  
SIGNATURE(S):

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YEAR OF WORK: 2012

PROPERTY NAME: Silver Fox

CLAIM NAME(S) (on which work was done): 515408, 519022, 519048, 519679, 704424, 704425, 835422, 835423, 835424, 835425, 835426, 835427, 835948, 835949, 835951, 835952, 835953, 835954, 835955, 835956, 835958, 835960, 835963, 836264, 836265, 836267, 836268, 836269, 836270, 836272, 836273, 836275, 836276, 836278, 836279, 836280, 836282, 837422, 837423, 837424, 837425, 837427, 851642, 851643, 851644, 851645, 851646, 851648, 851684, 851685, 898049, 986834, 986838, 999062.

COMMODITIES SOUGHT: Copper and Silver

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 082GSW058

MINING DIVISION: Fort Steele

NTS / BCGS: 082G/4

LATITUDE:  $49^{\circ} 09' 00''$

LONGITUDE:  $115^{\circ} 39' 00''$  (at centre of work)

UTM Zone: 11

EASTING: 495000

NORTHING: 5446000

OWNER(S): S.J. Kennedy and D.E. Lavoie

MAILING ADDRESS: 2290 DeWolfe Ave., Kimberley, B.C., V1A 1P5

OPERATOR(S) [who paid for the work]: Kootenay Silver Inc.

MAILING ADDRESS: 1820 – 1055 W. Hastings Street, Vancouver, B.C. V6E 2E9

REPORT KEYWORDS (lithology, age, stratigraphy) Proterozoic Creston Formation, part of Purcell Supergroup; Stratabound copper-silver; Spar Lake model; also base metal veins with oxides.

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:  
Assessment reports: 31658, 30660, 26609, 28623, 28069, 26018, 25799, 20753, 10907.

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (in metric units)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping	16000 hectares	Mapping on all claims	\$28414.40 \$16717.12
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for ...)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres, number of holes, size, storage location)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling / Assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale/area)			
PREPATORY / PHYSICAL			
Line/grid (km)			
Topo/Photogrammetric (scale, area)			
Legal Surveys (scale, area)			
Road, local access (km)/trail			
Trench (number/metres)			
Underground development (metres)			
Other			
			<b>TOTAL COST</b> \$45131.52



# Geology of the Silver Fox property, Purcell Mountains, southeastern British Columbia (Year 2)

NTS map sheet 082G/4  
1:20,000 trim map sheets 082G002, 003, 012, 022  
centered at 49°09'N and 115°39'W

Fort Steele Mining Division

by

**BC Geological Survey  
Assessment Report  
33379**

Douglas Anderson, P.Eng.  
100-2100 13<sup>th</sup> Street S., Cranbrook, B.C., V1C 7J5

Claim owners:

Sean J. Kennedy.  
2290 DeWolfe Ave., Kimberley, B.C., V1A 1P5

and

Darlene E. Lavoie  
2290 DeWolfe Ave., Kimberley, B.C., V1A 1P5

Claim operator:

Kootenay Silver Inc.  
1820 - 1055 W. Hastings Street  
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Geology of the Silver Fox property, Purcell Mountains,  
southeastern British Columbia

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Frontispiece

View to the south, along the Yahk valley and fault.  
In foreground is part of the intense alteration associated with the Sara vein system.  
The Sara vein is located in the lower left of photo.

## **Introduction**

The Silver Fox property comprises 20,471 hectares of mineral tenures in southeastern British Columbia, owned by S. Kennedy and D. Lavoie and optioned to Kootenay Silver Inc. These tenures are located in the southern Purcell Mountains, extending from just south of Moyie Lake approximately 30 km to the United States border. They mainly overlie middle Proterozoic metasediments of the Creston Formation, rocks that are correlative with the host rocks of the Spar Lake, Montanore and Rock Creek silver-copper deposits in Montana.

Most claims were acquired in 2010 after regional prospecting programs located stratabound copper mineralization similar to that in Montana as well as extensive zones of hydrothermal alteration. These claims were tied in to previously acquired claims in the north that have had considerable past exploration with discovery of several east-west trending oxidized lead-zinc silver veins associated with zones of intense fault-control alteration.

Mineralization in the northern part of the property is believed to be within a northwest-trending structural-tectonic zone that includes the St. Eugene and Society Girl deposits immediately northwest of the Silver Fox property, the Silver Pipe and Sara veins on the property and the Jake Creek stratabound copper mineralization, immediately northeast of the Sara vein. Controls of mineralization farther south are less well understood, but appear to be related to favourable host lithologies in the Creston Formation and north to northwest-trending faults.

This report is based on reconnaissance mapping (1:20000) over the entire 34 kilometre length of the property. It is Phase 2 in the mapping program begun in 2011 and continues the follow-up campaign to positive rock geochem results (Kennedy, 2011 and 2012) and the results of the 2011 silt geochemical survey (Jackaman, 2012). There are two target types on the property including Pb-Ag-Zn veins, possibly of a Coeur d'Alene style and stratabound copper-silver of the Spar Lake type.

### **Claims**

The Silver Fox property comprises 54 mineral tenures as show on Figure 2 and listed in Appendix 1. The claims are registered to Sean J. Kennedy and Darlene E. Lavoie and are in good standing until December 13, 2012. Kootenay Silver Inc. is the operator. These claims cover an area of 20,460.9 hectares (204.6 sq. km) centered at 598000E and 5445000N in the southern Purcell Mountains (Figure 1).

### **Location and access**

The Silver Fox property is located in the southern Purcell Mountains, extending approximately 34 km northward from the United States border to southeast of Moyie Lake. The southern Purcell Mountains are relatively subdued, typically covered by extensive evergreen forests: hemlock, pine, fir and larch. Elevations range from approximately 1100 meters in valley bottoms in the southern part of the area to 2400 meters at the summit of Yahk Mountain, the highest peak in the area. Yahk River and Gilnockie Creeks flow southward through the central and southern part of the area and Teepee Creek flows northeastward in the northern part of the area. These and numerous other creeks eventually drain into the Kootenay River drainage system.

A large part (>50%) of the area has been logged. Numerous logging access roads and spur roads provide ready access to most of the Silver Fox property. These logging roads can be accessed from Highway 3 near the south end of Moyie Lake and from Highway 93 near Jaffray.

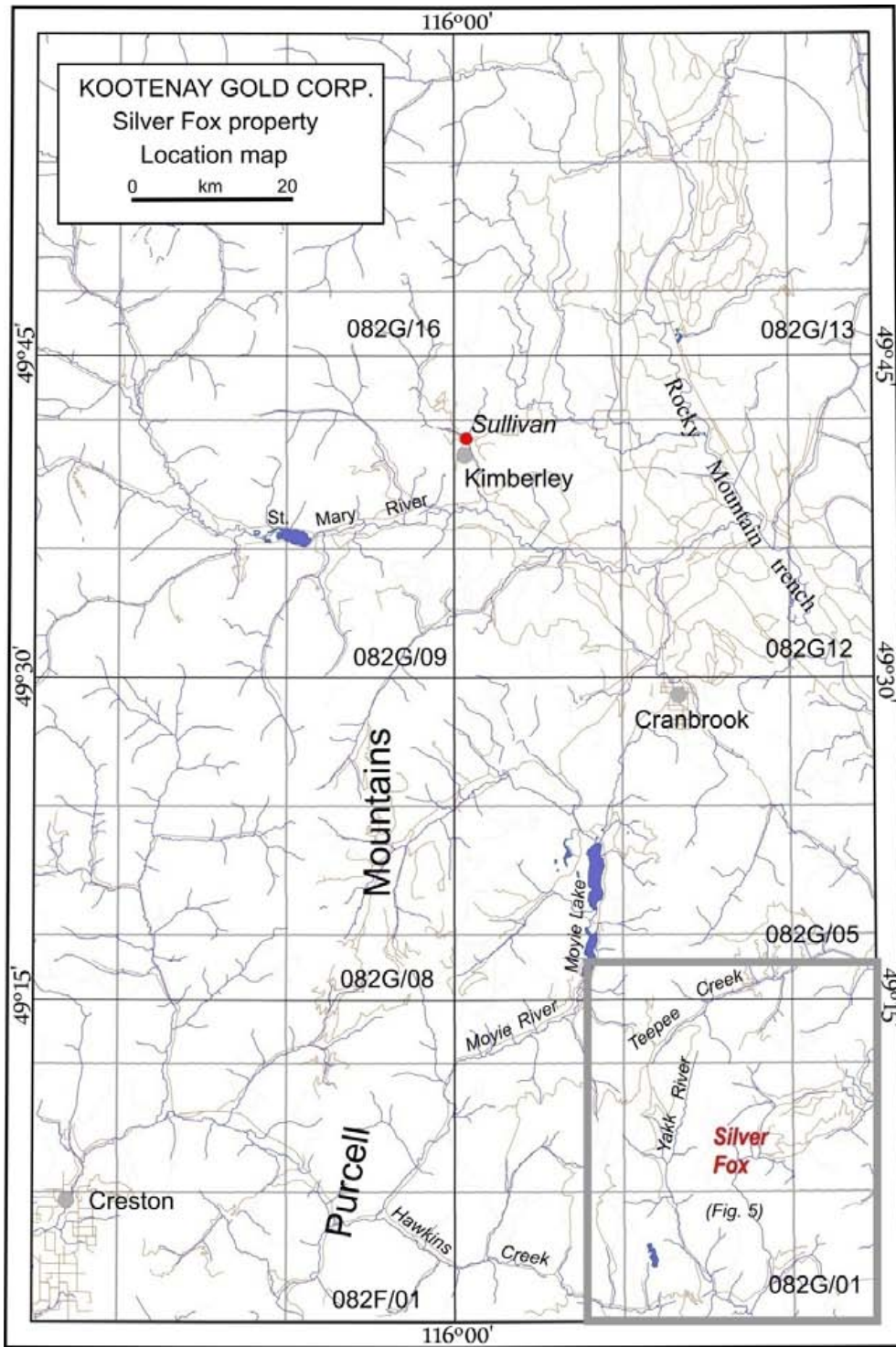


Figure 1: Property location map, southeastern British Columbia



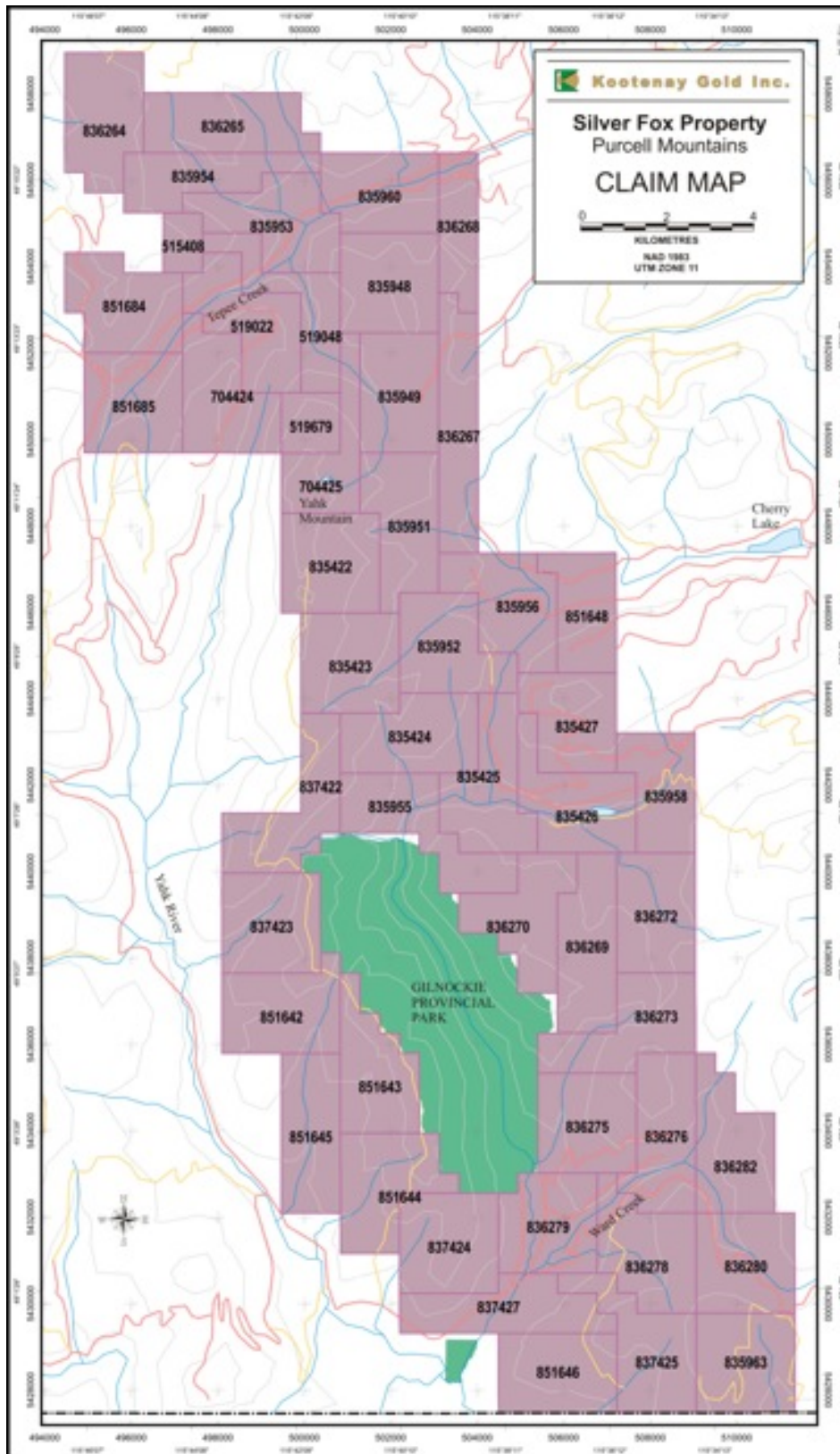


Figure 2: Silver Fox property claim map

## Exploration History

There is only one recorded mineral occurrence in the Springer Creek area, the Silver Pipe showing (BC Minfile 082GSW058), but some physical evidence of past exploration and several new occurrences have been discovered by recent prospecting and geological work. As well, the past producing St. Eugene vein system occurs immediately to the northeast, on the eastern slopes above Moyie Lake, and this system projects southeastward on to the Silver Fox property.

The St. Eugene vein system, which includes the St. Eugene deposit and extensions to the east (Society Girl) and west (Aurora and Guindon), was discovered in the late 1880s. It was in production from 1905 to 1916, producing approximately 79 kg of gold, 182,691 kg of silver, 113,034 tonnes of lead and 14,483 tonnes of zinc from 1.47 million tonnes of ore. More recent work on the St. Eugene vein system has included geological mapping, diamond drilling (Klewchuk, 2008), and an airborne AEROTEM/Magnetic survey that extended southward into the northern part of the Silver Fox property (Klein, 2006).

Considerable exploration has been done in the vicinity of the Silver Pipe showing, northwest towards Moyie Lake and southeastward across Teepee Creek towards the KRL (Sara) vein. This work is detailed in provincial government assessment reports (Table 1) and summarized below.

Report	Property Name	Operator	Work done	Author	Date
31658	KRL	Kootenay Gold	Prospecting	S. Kennedy	2010
30660	SP and KRL	Grandeur Resources	Geological mapping	D. Pighin	2009
29810	Moyie Lake	St. Eugene Mining Corp	Drilling, geochemical	P. Klewchuk	2008
29609	KRL	D. Lavoie, S. Kennedy	Prospecting	C. Kennedy	2008
28623	KRL	D. Lavoie	Prospecting	C. Kennedy	2006
28069	Silver Pipe	Sara Kennedy	Prospecting	C. Kennedy	2005
26018	DEK	L. Stephenson	Magnetometer VLF Survey	L. Stephenson	1999
25799	Erin	L. Stephenson	Magnetometer VLF Survey	L. Stephenson	1999
20753	Look	Kokanee Exploration Lt	Mapping Prospecting	L. Stephenson	1990
10907	Silver Pipe	Gulf International	Diamond drilling; soil geochemistry	D.A. Yeager C.K. Ikona	1983

Table 1: List of Assessment reports, Silver Fox property

The Silver Pipe (Pipeline showing) was originally staked following construction of the gas pipeline in the mid to late 1960s. The property, originally called the Dirk property, was

later renamed the Teepee property and comprised the Erdaco and Dirk claims. These were optioned to Mercury Exploration in 1969 who conducted some geological mapping, a ground magnetometer survey and trenching which defined the Gossan vein system with widths up to 5 meters and a strike length of approximately 400 meters (*see* summary in Yeager and Ikona, 1983). Yeager and Ikona (*op. cit.*) also note an EM survey done by Cominco in 1971 (J. Hamilton, internal Cominco Report, 1971).

The claims were allowed to lapse and subsequently restaked in 1980, then vended to R.G. Gifford who in turn vended them to Gulf International Ltd. Work by Pamican Development Ltd for Gulf International included a soil geochemical program, trenching, geological mapping and sampling (Yeager and Ikona, 1983). A geological map included in this 1983 report shows the location of 1982 diamond drill holes, although no reference is made to them in the text. The collars, with casing, are still visible.

Kokanee Exploration staked claims in the northern part of the Silver Pipe area in the late 1980s and conducted some reconnaissance geochemical and geological mapping (*see* summary in Stephenson, 1999). Prospecting by C. Kennedy in 1989 discovered the Jake showing south of Teepee Creek. Stephenson (1999) and Pighin (2009) both report that Auckland Resources drilled 7 holes totaling 307.7 metres in the area of the KRL property. and intersected “low-grade silver base metal mineralization associated with gabbro dykes”. However, as noted by Pighin (2009), the exact locations of these holes are not known.

The Erin claims were staked by L. Stephenson in 1992 to locate and evaluate the projected trend of the Pipeline showing and soil sampling, mapping and prospecting were subsequently carried out (Stephenson, 1999a). Considerable more work was done by Stephenson in the mid to late 1990s on the Erin and Dek claims; the Dek claims, staked in 1997 covered both the KRL and Silver Pipe veins. This work included geological mapping, additional prospecting and ground VLF and magnetometer surveys (*see* Stephenson, 1999a, 1999b).

D. Lavoie and S. Kennedy staked the area around the Jake and Silver Pipe veins in 2005 and optioned them to Grandeur Resources Ltd. who conducted a program of prospecting and rock and soil geochemistry, mainly in the vicinity of the KRL (renamed Sara) showings (Kennedy, 2005; 2006; 2008). Many of the collected rock samples were float but returned high values in lead (>10,000 ppm), zinc (up to 4903 ppm, silver (>100 ppm) and gold (up to 4226 ppb). Detailed mapping by Pighin (2009) in the vicinity of the Sara vein differentiated the Creston Formation, outlined areas of intense alteration, defined structural controls and better defined and delineated the Sara vein.

A regional exploration and prospecting program, carried out mainly by Craig and Sean Kennedy, recognized extensive alteration in the Creston Formation that locally extended south to the United States border. Further prospecting and reconnaissance mapping, with discovery of stratabound copper mineralization, led to comparisons with stratabound copper-silver mineralization in northern Montana and subsequently a large tract of land, the Silver Fox property, was staked.

Work during the 2011 field season included a reconnaissance silt geochemical program (Jackaman, 2012), additional prospecting (Kennedy, 2012) and geological mapping. In 2012 the geological mapping was continued by D. Anderson as detailed in this report.

## **Regional Geology**

### ***Stratigraphy***

The property lies within the Purcell anticlinorium, a gently north plunging structure that is cored by Paleoproterozoic sedimentary and minor volcanic rocks of the Purcell Supergroup and flanked by unconformably overlying Neoproterozoic clastic and carbonate rocks of the Windermere Supergroup. These are generally overlain by either Cambrian or Devonian rocks, part of the North American “miogeoclinal” sequence.

The Purcell Supergroup, and correlative Belt Supergroup in the United States, comprises a syn-rift succession, the Aldridge Formation, and an overlying, generally shallow water post-rift or rift fill sequence, including the Creston and Kitchener Formations, and younger Purcell rocks (Höy, 1993) (Figures 3, 4).

The exposed part of the Aldridge Formation comprises more than 3000 meters of mainly turbidite deposits and numerous, laterally extensive gabbroic sills referred to as the Moyie intrusions. The gabbroic sills are laterally extensive, typically up to several hundred meters thick and can be traced over hundreds of square kilometers. Locally, particularly in areas of growth faulting, they cut across stratigraphy as dykes. Some of the Moyie sills have contact features that suggest intrusion into wet and partially consolidated sediments (Höy, 1993).

The Creston Formation (Figures 3, 4), host to mineralization on the Silver Fox property, is described in considerable more detail below. It comprises dominantly green, mauve and grey siltstone, argillite and quartzite with numerous structures indicative of shallow-water to subaerial deposition. It conformably overlies upper Aldridge argillite and siltstone and is overlain by carbonate rocks of the Kitchener Formation. The Creston Formation correlates with the Burke Revett and St. Regis formations of the Ravalli Group in the United States (Harrison, 1972; Winston, 1986) and the Appekunny and Grinnel formations in the southwestern Clark Range (Price, 1964). In the Purcell Mountains, the Creston Formation comprises three main subdivisions: a basal silty succession of thin-bedded grey to green siltstone and argillite, a middle succession of mauve, green and grey, thin to medium bedded siltstone quartzite and quartz arenite, and an upper succession of intermixed green argillaceous siltstone and minor quartz arenite (Hoy, 1993).

The Kitchener Formation is dominantly a carbonate unit between the Creston Formation and overlying siltites of the Van Creek Formation. It correlates with Empire and Helena Formations in western Montana (Winston, 1986) and the middle part of the Siyeh Formation in the Galton and Clark Ranges (Price, 1964). The formation is divisible into two members, a lower green dolomitic siltstone and an upper dark grey, carbonaceous, silty dolomite and limestone (Höy, 1993).

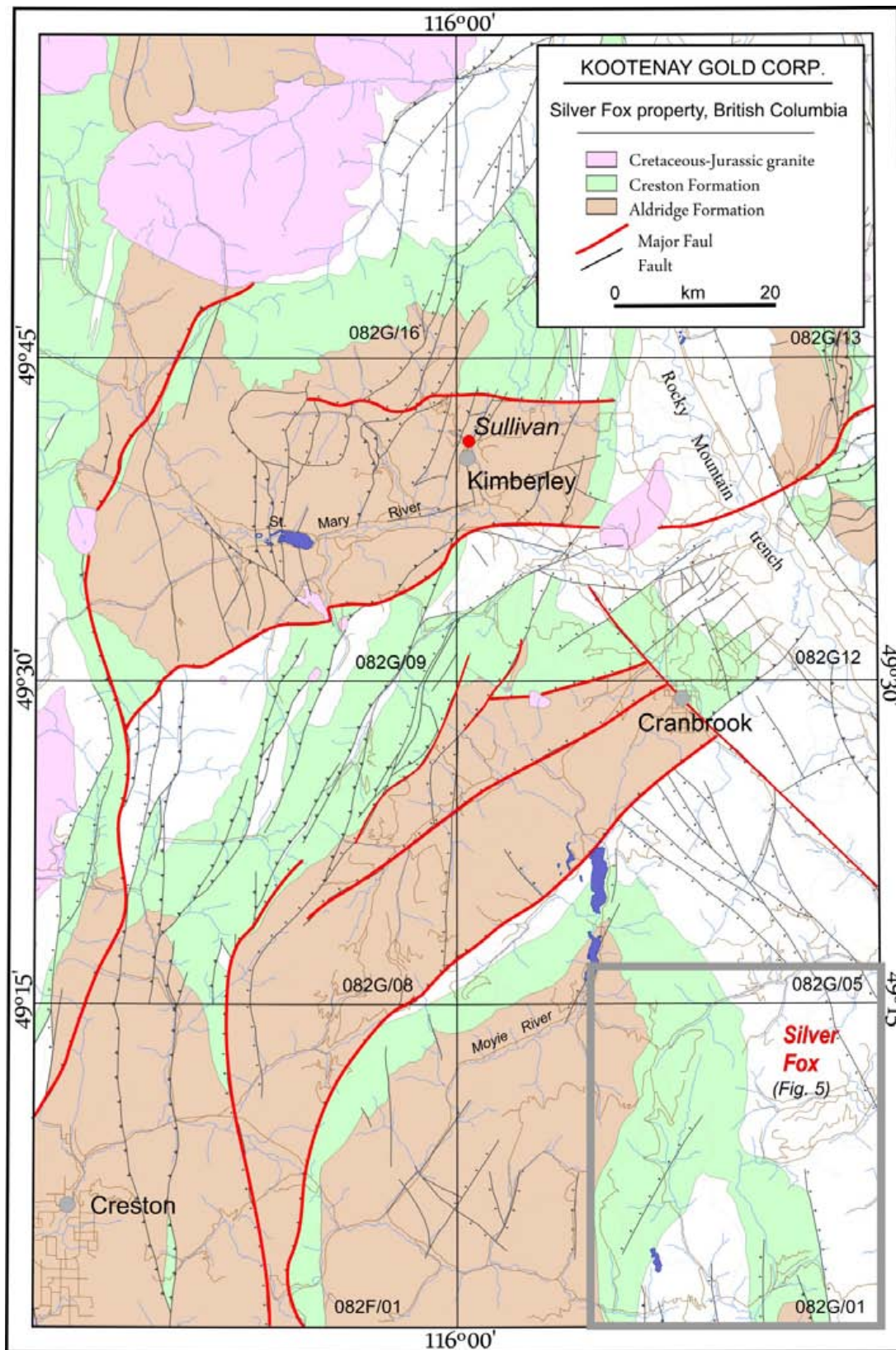


Figure 3: Regional geology, showing location of Silver Fox property (from Höy *et al.*,1995)

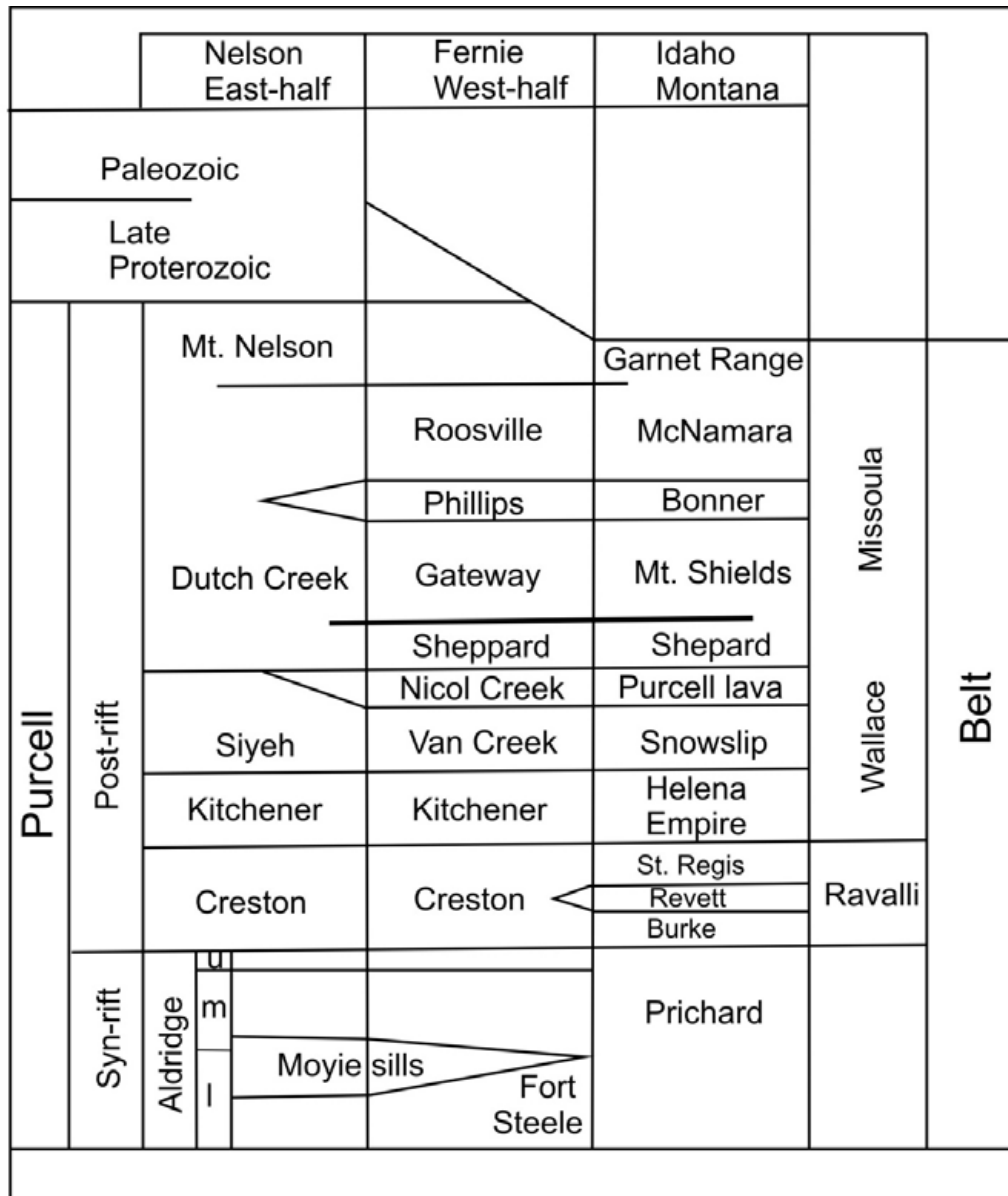


Figure 4: Correlation chart of Middle Proterozoic Purcell Supergroup (Canada) and Belt Supergroup (United States).

### *Structure and tectonics*

The Silver Fox property is within the Foreland Thrust and Fold belt, the most eastern physiographic belt in the Canadian Cordillera (Monger *et al.*, 1982). The belt is characterized by shallow, east verging thrust faults and generally broad open folds in rocks that range in age from the middle Proterozoic Purcell Supergroup to Phanerozoic miogeoclinal rocks. The Purcell Supergroup is mainly exposed in a broad, shallow north plunging anticlinal structure, the Purcell anticlinorium in the Purcell Mountains west of the Rocky Mountain trench.

Structures within the Purcell anticlinorium include east verging thrust faults, northeast trending, right lateral reverse faults, and open to tight folds (Höy, 1993). A complex array of normal faults that trend dominantly northward parallel to the Rocky Mountain trench cut the earlier thrust faults and associated faults.

The northeast-trending structures, including the St. Mary and Moyie faults, are within or parallel to a broad structural zone that cuts the Purcell anticlinorium, crosses the Rocky Mountain trench and extends northeastward across the Foreland thrust belt (Kanasewich, 1968). This zone is marked by a conspicuous change in the structural grain, from northerly north of the zone to northwesterly south of the zone, and by pronounced and fundamental changes in the thickness and facies of sedimentary rocks that range in age from Middle Proterozoic to early Paleozoic (Höy, 1993). Furthermore, the zone appears to have focused a variety of deposit and metallotects that range in age from the stratiform middle Proterozoic Sullivan deposit to Paleozoic carbonate replacement base metal deposits to gold and copper mineralization related to Jurassic and Cretaceous magmatism (Höy, 1982). The Silver Fox property lies along the southern edge of this structural zone, south of the east-northeast trending Moyie fault.

### **Property Geology**

The Silver Fox property was initially mapped by Leech (1960) as part of his regional study of the 1:250,000 Fernie map sheet. More recent work by Höy *et al* (1995) included some reconnaissance mapping and a compilation at 1:100,000 scale. The geology of the 1:20,000 Yahk map sheet, which covers the Silver Fox property, has been compiled recently by Brown and MacLeod (2010).

### **Stratigraphy**

The Silver Fox property is underlain primarily by the Creston Formation and it is the Middle Creston which is the target stratigraphy for mineral exploration. It correlates approximately with the Revett Formation of the northern U.S. which is host to the copper/silver deposits.

The Creston Formation is separable into three divisions which compare with the three members of the Ravalli Group in the U.S.:

Upper Creston (C3) ~ St. Regis Formation

Middle Creston (C2) ~ Revett Formation

Lower Creston (C1) ~ Burke Formation

It should be noted that the low percentage of outcrop and the lack of continuous sections of outcrop and faulting limit the ability to accurately determine the thickness and character of the Creston Formation on the Silver Fox property.

The footwall to the Lower Creston is the Aldridge Formation represented by the Upper Aldridge, a predominantly thin bedded sequence of rusty weathering, grey, thin bedded to

laminated argillites and siltstones. Beneath the Upper Aldridge is the upper part of the turbiditic, Bouma sequenced Middle Aldridge with rusty weathering, thin to thick bedded argillites to quartzites. These deeper exposures of footwall stratigraphy occur only on the west flank of the property and in a shallow plunging anticline immediately north of the U.S. border.

The Lower Creston is approximately 700 to 800 metres of dominantly argillaceous sediments. At its base it is transitional from the UA with light and dark, rusty weathering grey and green planar bedded, couplet-style beds changing up section into more green, thin bedded, more disrupted sediment styles in argillites and siltstones with minor argillaceous quartzite.

The Middle Creston (C2) has been the primary focus for the exploration mapping because of its exploration potential for copper/silver mineralization. The C2 section is variable vertically and identified units within the C2 change across the property. It is estimated to be 12 to 1400 metres thick but structural repetitions may contribute to an exaggerated thickness.

Overall the Middle Creston is comprised of thin to medium to thick bedded argillites to argillaceous quartzites to quartzites with a dominance of more quartzitic sediments. Overall grey weathering C2 is grey, green, and mauve on fresh surfaces. The rocks are mostly fine grained but coarse grained, reddish, lenticular arenites do occur locally throughout the C2. Sedimentary structures (indicative of shallow water, current activity, and subaerial exposure) include ripples, cross-beds, synerysis cracks and mud-chip breccias. Disseminated magnetite is fairly widespread.

On the basis of identifying the underlying C1 and overlying C3 fairly accurately, it is possible to subdivide the C2 into three separate composite intervals. The emphasis is placed on the presence and character of the more quartzitic portions of the stratigraphy, thus facilitating the separation of three packages.

In general, the lower C2 is characterized as an approximately 500 metre thick interval including four dominantly quartzite packages – defined as greater than 75% medium to thick bedded quartzites. The quartzites are interbedded with thin to medium bedded argillites and siltstones which are grey, green, or mauve in color. This basal section is present only on the western portion of the claim group. The lowest set of quartzites (QP1) is estimated to be 10 to 20 metres thick consisting of fine grained, light grey weathering orthoquartzite. Next up-section is the QP2 interval. This is light grey (sericitically altered) dominantly fine grained quartzite with ripples, mud-chip breccias and some coarse-grained beds. Minor copper is present. QP2 has been traced for about 2.5 kilometres but as for QP1 appears to terminate/undergoes a facies change across a northwest-trending fault. Above QP2 are two thinner quartzite-dominated packages as exposed at only one roadcut location. Labelled as QP2A and QP2B they are light weathering sequences comparable to QP2.





Figure 5 Quartzites of the QP2 Package

The middle portion of the C2 is estimated as 500 to 600 metres of dominantly thin to medium bedded argillites and siltstones which are green and grey in color with scattered mauve beds. The character of this mid C2 changes across the property but is consistently lacking in identifiable packages of quartzite.

The upper portion of the C2 is estimated as 300 metres thick but again limited outcrop, dip-slopes, and faulting make these estimates approximate only. This portion of the C2 is exposed across the property from Teepee creek to the US border. As indicated above, the individual units within vary across the property and have been equated from north to south on the basis of their stratigraphic position relative to the base of the Upper Creston (C3). At the Jake showing area there are two different quartzite intervals recognized. A lower quartzite package (QP3) 50 to 60 metres thick is medium to thick beds of quartzite and argillaceous quartzite which are grey weathering and fine to medium grained. There is iron carbonate spotting and apparent lenticular beds of coarse-grained quartz arenite mixed in. The upper QP4 package (host to the copper) is distinctly different than others in that it is a series of coarse-grained, quartz arenite units which occupy a significant portion of the section. These are white and reddish in color and contain carbonate cements. (Hoy et al, 2011).



Figure 6 Quartzites of the QP3 Package – note carbonate spotting

The Upper Creston (C3) is estimated as 500 to 600 metres near Jake Hill but may vary around the property. It is laminated to thin bedded, variably green and grey argillites and siltstones with lenticular carbonate beds. Mud-chip breccias, syneresis cracks, and cross-bedding are common. Probably correlative with the St. Regis Formation in Montana.

Above the C3 is a transitional unit included with the Creston Formation by some but as basal Kitchener by others. For this mapping the unit is C3Tr. It is characterized by thin bedded,

green and grey argillites and siltstones with more orange weathering carbonate beds, micro-grained argillites, and splashy limonite after pockets of pyrite.

The Kitchener Formation succeeds the C3Tr, the base of which is marked by medium to dark grey silty and argillaceous limestone and dolomite as thin beds. Often buff weathering, the Kitchener can also include dark units which are black argillites.

## **Structure**

The Silver Fox property lies along the eastern limb of the Purcell Anticlinorium. The claims over the 30 kilometres from south to north cover three different structural blocks which vary in the form and intensity of their structural elements.

The southern third immediately north of the border contains the most diverse structural elements with large open folds with faulted limbs. This complexity of structure is a continuation of the numerous structural elements mapped by the USGS in Montana (see Harrison et al, Map 1-2267, Geologic and Structure Maps of the Kalispell 1°x2° Quadrangle). On the west flank a large, open syncline with a N-S fold axis cored by Kitchener Formation is separated from a similarly oriented anticline to the east by an arcuate normal fault. The anticline is cored by the oldest rocks on the property, the upper part of the Middle Aldridge. The limbs of the anticline are faulted limiting the breadth of the fold.

Moving north, the middle portion of the property is underlain by the continuation of the N-S structural grain but is dominantly an east-dipping panel of Creston cut by two north-trending normal faults, one in the Yahk river drainage and another to the east. These faults appear to converge towards the KRL area. There is one northwest-trending normal fault identified in the Sunrise creek area.

The northern block is a significant re-orientation of the overall structural grain on the property. Due to northwest-trending faults and in part influenced by the closure of the Moyie anticline, a three kilometre-wide structural panel extends from the northeast side of the property to the area of the St. Eugene Mine. The boundaries are determined by flanking left lateral offset faults which may in part have determined the orientation and emplacement of the mineralization and alteration (see next section). The 2011 assessment report by Hoy, Anderson and Seabrook details some of the lesser structural elements at the KRL and Jake Hill occurrences, again documenting the presence of northwest and west-trending faults.

## **Mineralization and Alteration (Summarizing previous reporting and making additional comments)**

In addition to the presence of Pb-Zn-Ag in cross-cutting veins there is the potential for sediment-hosted, stratabound copper-silver within the Middle Creston, based on comparisons with Montana and Idaho geology (Hartlaub, 2009). The Revett Formation in Idaho and Montana, roughly correlative with central part of the Creston formation, hosts numerous showings and three large copper-silver deposits. These include:

Troy Mine (Spar Lake)	80 M-t	0.7% Cu	43g/t Ag
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Rock Creek	124.2 M-t	0.72% Cu	45g/t Ag
Montanore	136 M-t	0.78% Cu	60g/t Ag
Snowstorm	0.8 M-t	4% Cu	6 oz/t Ag

The nearest deposit is Spar Lake, about 84 kilometres south of the Canadian border. The other two large deposits are some 23 to 25 kilometres southeast of Spar Lake.

The copper-silver deposits occur within the Mesoproterozoic Revett Formation, a package of quartzite, silty quartzite, siltite and argillite which is divided into sequences dominated by each of the lithologies. The ore-grade sulphides are dominantly in medium to coarse-grained, thin to thick bedded quartzites. At the Troy Mine, ores occur in the Upper and Lower members of the Revett with a vertical separation of about 500 feet. The mineralization crosscuts the sediments at shallow angles with ore grades confined to individual members. The ore occurs along oxide (hematite) to reduced (pyrite) boundaries between the chalcopyrite-ankerite and pyrite-calcite facies. (for more details see Boleneus et al, SIR 2005-5231)

A small study of the Teepee/Yahk River area under Geoscience BC by R. Hartlaub (1999) documented the presence of copper mineralization within the middle Creston; subsequent prospecting and rock geochemical sampling confirmed the presence of stratabound copper at several locations as well as regional alteration patterns that are assumed related to stratabound copper mineralization. The following descriptions of alteration and mineralization are based on mapping and prospecting, as well as compilation of data in the northern part of the area.

Past exploration on the Silver Fox property has been restricted to the northern part where the extension of the St. Eugene vein system is recognized at several locales. Several operators have pursued small lead-zinc vein showings in the Teepee creek area. Mapping, soil geochem, trenching and a small amount of diamond drilling have been used at the Silver Pipe and KRL locations as discussed in “Exploration history”.

Lead-zinc mineralization is present in cross-cutting structures which trend east-west at both the KRL and Silver Pipe showings. The occurrences are veins traced for hundreds of metres along strike, varying in width from 0.5 to 3.0 metres. Both veins are highly oxidized with the KRL (Sara) veins mainly quartz, cerussite, hemimorphite, and pyromorphite. Alteration is localized near the veins and faults, consisting of silica, hematite, and manganese oxides. The Silver Pipe vein is comprised mainly of iron and manganese oxides with base metal values.

The stratabound copper mineralization is primarily at Jake Hill (northeast of KRL) with chalcopyrite, malachite, and accessory galena, bornite, and pyrite. These minerals occur as disseminations, along fractures, and in quartz veins in clean, white to tan quartzites and calcareous siltstones. Most of the mineralization is confined to coarse-grained quartz arenites which occur as several horizons across the hill. A limited number of samples from this locale indicate the mineralization is geochemically anomalous in copper, silver, arsenic, antimony, barium, mercury, and manganese. There are other occurrences of copper as demonstrated by prospecting and rock geochem sampling –such as at Yahk Mountain, West of Ranger Lake, and Upper Gilnockie creek. The stream sampling program of 2011 defined at least five new areas where values for copper exceeded the 95<sup>th</sup> percentile, with silver anomalous as well.



Photo 4: Mineralized quartzite, Jake Hill stratabound copper zone; note malachite, MnO<sub>2</sub> (pyrolusite?) and jarosite alteration.

## Summary and Conclusions

The Silver Fox property is a large set of claims encompassing some 20,471 hectares in the Fort Steele M.D. Located in the southern Purcell Mountains, the claims extend from southeast of Moyie Lake about 30 kilometres to the U.S. border. The property overlies mostly middle Proterozoic metasediments of the Creston Formation, rocks correlative with the Burke, Revett, and St. Regis Formations of Montana/Idaho where the Revett hosts the Spar Lake, Montanore, and Rock Creek copper-silver deposits.

Previous exploration on the Silver Fox area has included historical work around the St. Eugene Mine and the Silver Pipe and KRL showings. These areas are included within a NW-SE structural panel incorporating mostly Middle Creston (C2) stratigraphy. The St. Eugene Mine and the showings to the southeast are localized by northwest and east-west trending structures within the three kilometre wide panel.

Recent exploration since 2010 on the Silver Fox has focused on the copper-silver potential within the Middle Creston (Revett equivalent). It has included prospecting, rock geochem sampling, a stream silt program and a mapping program at 1:20000 scale carried out for parts of the 2011 and 2012 field seasons.

This years mapping program continued to establish (from 2011 – Assessment Report 32645) the framework geology for the 30 kilometre long by up to 10 kilometre wide area

encompassing the Silver Fox property and some surrounding territory relevant to the geological setting. Structural elements were defined mainly as N-S faults and a northwest fault-bounded panel hosting Pb-Zn and Cu-Ag mineralization. The Middle Creston was sub-divided identifying higher percentage quartzite intervals at the base and top of the C2 with a middle section apparently devoid of quartzite units of significance.

The 2012 mapping program established the presence of quartzite sections within the Middle Creston stratigraphy. It also identified faults which define structural zones within which Pb/Zn and Cu/Ag occur. Mineralization has been established by previous programs so the important elements necessary for forming ore deposits exist and they compare favorably with the existing deposits in Montana and Idaho.

A continuation of the program is recommended and should include additional mapping, a focused soil geochem campaign, and initial drill testing of the upper QP3 and QP4 sections on Jake Hill.

## References

- Brown, D.A. and MacLeod, R.F. (2010): Geology, Yahk River, British Columbia; *Geological Survey of Canada*, Open File 6305, scale 1:50,000.
- Harrison, J.E. (1972): Precambrian Belt basin of northwestern United States: its geometry, sedimentation, and copper occurrences; *Geological Society of America, Bulletin*, volume 83, pages 1215-1240.
- Hartlaub, R. (2009): Sediment-hosted stratabound copper-silver-cobalt potential of the Creston Formation, Purcell Supergroup, southeastern British Columbia; *in Geoscience BC; Summary of Activities 2008, Report 2009-1*, pages 123-132.
- Höy, T. (1982): Stratigraphic and structural setting of stratabound lead-zinc deposits in southeastern British Columbia; *Canadian Institute of Mining and Metallurgy*, volume 75, pages 114-134.
- Höy, T. (1993): Geology of the Purcell Supergroup in the Fernie W-half map area, southeastern British Columbia; *B.C. Ministry of Energy and Mines, Bulletin 84*, 157 pages.
- Höy, T., Price, R.A., Legun, A., Grant, B. and Brown, D. (1995): Purcell Supergroup, southeastern British Columbia; *B.C. Ministry of Energy and Mines, Geoscience Map 1995-1*.
- Jackaman, W. (2012): Reconnaissance stream geochemical program, Silver Fox claims, southeastern British Columbia; *B.C. Ministry of Energy and Mines, Assessment report*, in press.
- Kanasewich, E.R. (1968): Precambrian rift: genesis of stratabound ore deposits; *Science*, v. 161, pp. 1002-1005.
- Kennedy, C. (2005): Prospecting report, SR Property, Fort Steele Mining Division; *B.C. Ministry of Energy and Mines, Assessment report 28069*, 9 pages.

- Kennedy, C. (2006): Prospecting program, KRL Property, Fort Steele Mining Division; B.C. Ministry of Energy and Mines, Assessment report 28623, 9 pages.
- Kennedy, C. (2008): Prospecting report on the KRL Property; B.C. Ministry of Energy and Mines, Assessment report 29609, 10 pages.
- Kennedy, S. (2010): Rock geochemistry, KRL property, Fort Steele Mining Division, southeastern British Columbia; B.C. Ministry of Energy and Mines, Assessment report 31658, 5 pages.
- Kennedy, S. (2012): Prospecting report on the Silver Fox property, southeastern British Columbia; B.C. Ministry of Energy and Mines, Assessment report, in press.
- Klein, J. (2006): Report on a helicopter-borne Aerotem II/Magnetic survey over Moyie Lake and Monroe Lake grids, SE British Columbia, executed by Aeroquest Limited; B.C. Ministry of Energy and Mines, Assessment report 28450, 41 pages.
- Klewchuk, P. (2008): Assessment report on diamond drilling, North Structure area, Moyie Lake, British Columbia; *B.C. Ministry of Energy and Mines*, Assessment report 29810, 32 pages.
- Leech, G.B. (1960): Geology Fernie (west-half), Kootenay District, British Columbia; *Geological Survey of Canada*, Map 11-1960.
- Pighin, D.L. (2009): The SP and PRL claims, southeastern B.C.; *B.C. Ministry of Energy and Mines*, Assessment report 30660, 17 pages
- Stephenson, L. (1999): Report on a geological mapping and prospecting program, Look Property, Cranbrook, B.C.; B.C. Ministry of Energy and Mines, Assessment report 20753, 10 pages.
- Stephenson, L. (1999a): Report on a magnetometer and VLF EM geophysical survey, Erin Property; *B.C. Ministry of Energy and Mines*, Assessment report 25799, 7 pages.
- Stephenson, L. (1999b): Report on a magnetometer and VLF geophysical survey, Dek Property; *B.C. Ministry of Energy and Mines*, Assessment report 26018, 12 pages
- Yeager, D.A and Ikona, C.K. (1983): Geological and geochemical report on the Silver Pipe 1-16 mineral claims, Moyie Lake area; B.C. Ministry of Energy and Mines, Assessment report 10,907.

## Appendix 1 List of Claims

	Tenure Number	Claim Name	Owner	Map Number	Orig. Stake Date	Good To Date	Status	Area
1.	515408	SP	132094 (100%)	082G.022	Jun-27-2005	Dec-13-2012	GOOD	126.5350
2.	519022	KRL	132094 (100%)	082G.022	Aug-13-2005	Dec-13-2012	GOOD	527.4060
3.	519048	KRL 2	132094 (100%)	082G.022	Aug-14-2005	Dec-13-2012	GOOD	400.8020
4.	519679	KRL 3	132094 (100%)	082G.022	Sep-04-2005	Dec-13-2012	GOOD	189.9460
5.	704424	KRL 04-10	132094 (100%)	082G.022	Jan-23-2010	Dec-13-2012	GOOD	527.5704
6.	704425	KRL 05-10	132094 (100%)	082G.012/022	Jan-23-2010	Dec-13-2012	GOOD	379.9387
7.	835422	KRL 06-10	142365 (100%)	082G.012	Oct-08-2010	Dec-13-2012	GOOD	527.935
8.	835423	KRL 07-10	142365 (100%)	082G.012	Oct-08-2010	Dec-13-2012	GOOD	528.1525
9.	835424	KRL 08-10	142365 (100%)	082G.012	Oct-08-2010	Dec-13-2012	GOOD	528.3202
10.	835425	KRL 09-10	142365 (100%)	082G.012	Oct-08-2010	Dec-13-2012	GOOD	528.4385
11.	835426	KRL 10-10	142365 (100%)	082G.012/013	Oct-08-2010	Dec-13-2012	GOOD	528.4733
12.	835427	KRL 11-10	142365 (100%)	082G.012	Oct-08-2010	Dec-13-2012	GOOD	464.8987
13.	835948	KRL 12-10	142365 (100%)	082G.022	Oct-14-2010	Dec-13-2012	GOOD	527.3183
14.	835949	KRL 13-10	142365 (100%)	082G.022	Oct-14-2010	Dec-13-2012	GOOD	506.4601
15.	835951	KRL 14-10	142365 (100%)	082G.012	Oct-14-2010	Dec-13-2012	GOOD	527.8481
16.	835952	KRL 15-10	142365 (100%)	082G.012	Oct-14-2010	Dec-13-2012	GOOD	507.0073
17.	835953	KRL 16-10	142365 (100%)	082G.022	Oct-14-2010	Dec-13-2012	GOOD	527.1879
18.	835954	KRL 17-10	142365 (100%)	082G.022	Oct-14-2010	Dec-13-2012	GOOD	421.6778
19.	835955	KRL 18-10	142365 (100%)	082G.012	Oct-14-2010	Dec-13-2012	GOOD	524.5569
20.	835956	KRL 19-10	142365 (100%)	082G.012	Oct-14-2010	Dec-13-2012	GOOD	528.0383
21.	835958	KRL 20-10	142365 (100%)	082G.013	Oct-14-2010	Dec-13-2012	GOOD	422.7539
22.	835960	KRL 21-10	142365 (100%)	082G.022	Oct-14-2010	Dec-13-2012	GOOD	484.9516
23.	835963	BLACK TOOTH	142365 (100%)	082G.003	Oct-14-2010	Dec-13-2012	GOOD	529.6923
24.	836264	KRL 22-10	142365 (100%)	082G.022	Oct-19-2010	Dec-13-2012	GOOD	526.9818
25.	836265	KRL 23-10	142365 (100%)	082G.022	Oct-19-2010	Dec-13-2012	GOOD	526.9791
26.	836267	KRL 24-10	142365 (100%)	082G.012/022	Oct-19-2010	Dec-13-2012	GOOD	527.6424
27.	836268	KRL 25-10	142365 (100%)	082G.022	Oct-19-2010	Dec-13-2012	GOOD	316.3192
28.	836269	KRL 26-10	142365 (100%)	082G.002/012	Oct-19-2010	Dec-13-2012	GOOD	528.7888
29.	836270	KRL 27-10	142365 (100%)	082G.002/012	Oct-19-2010	Dec-13-2012	GOOD	483.4412
30.	836272	KRL 28-10	142365 (100%)	082G.003/013	Oct-19-2010	Dec-13-2012	GOOD	507.5639
31.	836273	KRL 29-10	142365 (100%)	082G.002/003	Oct-19-2010	Dec-13-2012	GOOD	528.9604
32.	836275	KRL 30-10	142365 (100%)	082G.002/003	Oct-19-2010	Dec-13-2012	GOOD	524.2431
33.	836276	KRL 31-10	142365 (100%)	082G.003	Oct-19-2010	Dec-13-2012	GOOD	529.1933
34.	836278	KRL 33-10	142365 (100%)	082G.002/003	Oct-19-2010	Dec-13-2012	GOOD	529.4402
35.	836279	KRL 34-10	142365 (100%)	082G.002	Oct-19-2010	Dec-13-2012	GOOD	499.7333
36.	836280	KRL 35-10	142365 (100%)	082G.003	Oct-19-2010	Dec-13-2012	GOOD	529.4758
37.	836282	KRL 36-10	142365 (100%)	082G.003	Oct-19-2010	Dec-13-2012	GOOD	529.2259
38.	837422	KRL 100-10	142365 (100%)	082G.012	Nov-03-2010	Dec-13-2012	GOOD	527.0675
39.	837423	KRL 101-10	142365 (100%)	082G.002/012	Nov-03-2010	Dec-13-2012	GOOD	525.5498
40.	837424	KRL 102-10	142365 (100%)	082G.002	Nov-03-2010	Dec-13-2012	GOOD	516.3739
41.	837425	KRL 103-10	142365 (100%)	082G.002/003	Nov-03-2010	Dec-13-2012	GOOD	529.6493
42.	837427	KRL 104-10	142365 (100%)	082G.002	Nov-03-2010	Dec-13-2012	GOOD	508.3735
43.	851642	KRL-105-11	132094 (100%)	082G.002	Apr-13-2011	Dec-13-2012	GOOD	528.3347
44.	851643	KRL 106-11	132094 (100%)	082G.002	Apr-13-2011	Dec-13-2012	GOOD	475.6669
45.	851644	KRL 107-11	132094 (100%)	082G.002	Apr-13-2011	Dec-13-2012	GOOD	523.4464
46.	851645	KRL 108-11	132094 (100%)	082G.002	Apr-13-2011	Dec-13-2012	GOOD	507.9986
47.	851646	KRL 109-11	132094 (100%)	082G.002	Apr-13-2011	Dec-13-2012	GOOD	508.5056
48.	851648	KRL 110-11	132094 (100%)	082G.012	Apr-13-2011	Dec-13-2012	GOOD	401.3184
49.	851684	KRL 111-11	132094 (100%)	082G.022	Apr-13-2011	Dec-13-2012	GOOD	527.3772
50.	851685	KRL 112-11	132094 (100%)	082G.022	Apr-13-2011	Dec-13-2012	GOOD	527.5868
51.	898049	KRL 113-11	142365 (100%)	082G.002/012	Sep-19-2011	Dec-13-2012	GOOD	528.7672
52.	986834	KRL 114-12	132094 (100%)	082G.022	May-16-2012	May-16-2013	GOOD	337.4181
53.	986838	KRL 115-12	132094 (100%)	082G.022	May-16-2012	May-16-2013	GOOD	505.999
54.	999062	KRL 116-12	132094 (100%)	082G.022	Jun-19-2012	Jun-19-2013	GOOD	400.3609



## APPENDIX 2

### Silver Fox Project - Statement of Costs

#### Event# 5400572

##### Geological Mapping

Work performed: June 21 – Aug 10, 2012

D Anderson - Geologist, 25 Field days @ 500/day	\$ 12500.00
J Anderson - Field Assistant, 8 Field days @ 200/day	1600.00
Travel, Accommodations & 4X4 Charge	4770.00
Data compilation, research & drafting	3500.00
Report & Maps	3000.00
Admin Costs	<u>3044.40</u>
Total Expenditure	<u>\$28,414.40</u>

#### Event# 5416390

##### Continuation of above work program

Work performed: Sept 5 – Nov 12, 2012

D Anderson - Geologist, 12 Field days @ 500/day	\$ 6000.00
J Anderson - Field Assistant, 4 Field days @ 200/day	800.00
Travel & 4X4 Charge	2286.00
Data compilation, research & drafting	3000.00
Report & Maps	1840.00
Admin Costs	<u>1791.12</u>
Total Expenditure	<u>\$16,717.12</u>

### **APPENDIX 3**

#### **STATEMENT OF QUALIFICATIONS: D. Anderson**

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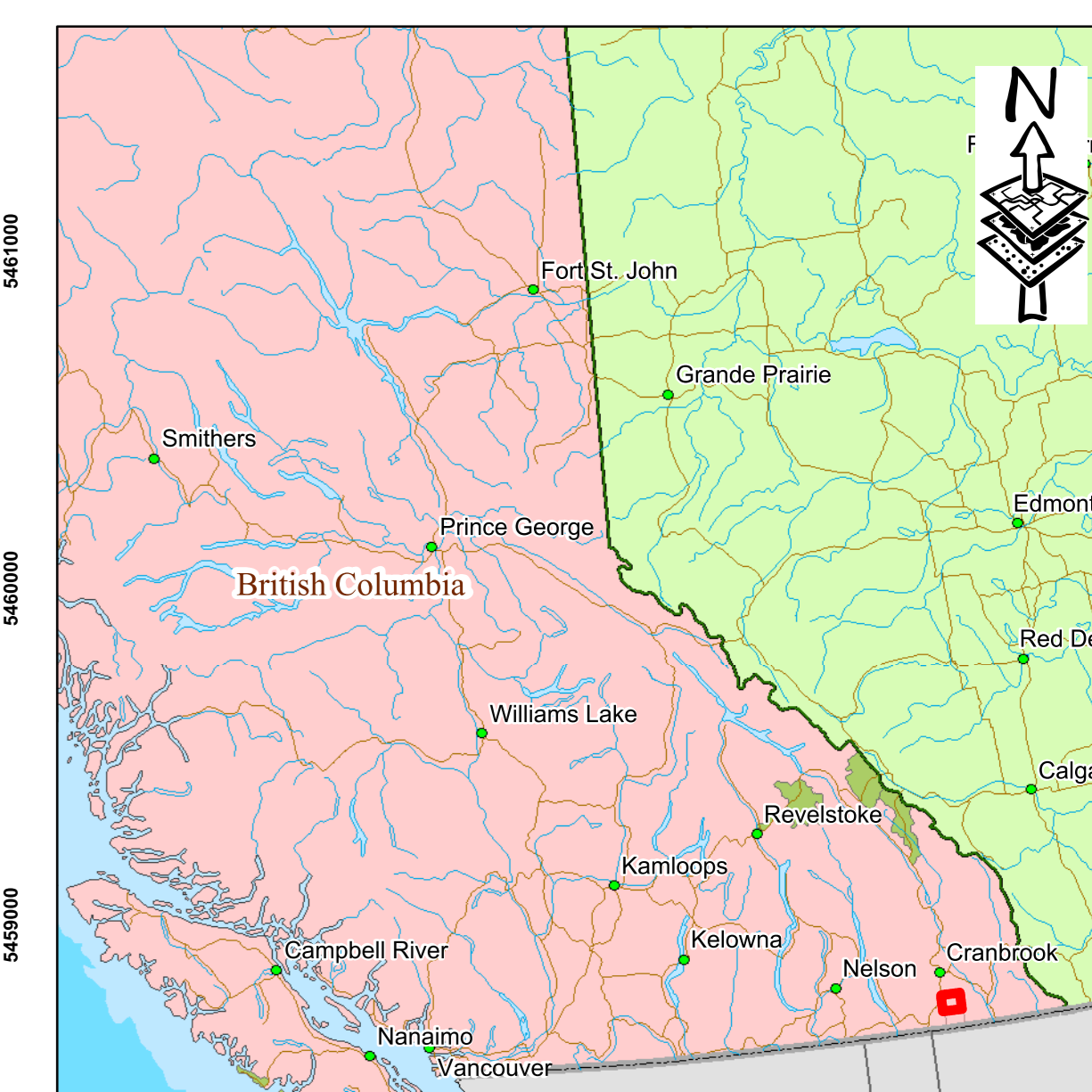
I, Douglas Anderson, Consulting Geological Engineer, have my office at #100 – 2100 13<sup>th</sup> St. South in Cranbrook, B.C. V1C 7J5.

I graduated from the University of British Columbia in 1969 with a Bachelor of Applied Science in Geological Engineering.

I have practiced my profession since 1969, mainly with one large mining company, in a number of capacities all over Western Canada and since 1998 within southeastern B.C. as a mineral exploration consultant.

I am a Registered Professional Engineer and member of the Association of Professional Engineers and Geoscientists of B.C., and I am authorized to use their seal.

          D. Anderson            
Douglas Anderson, P. Eng.



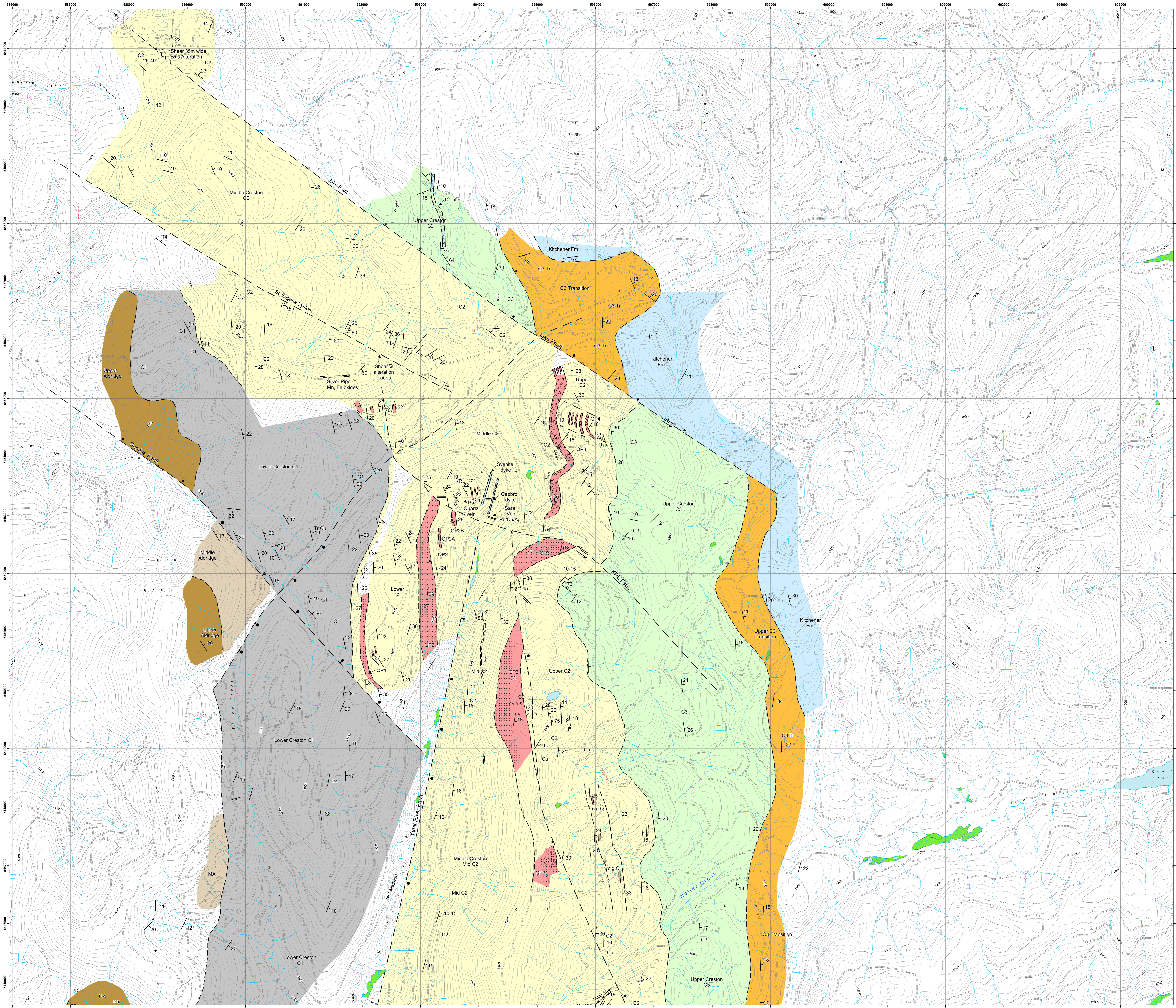
### Legend

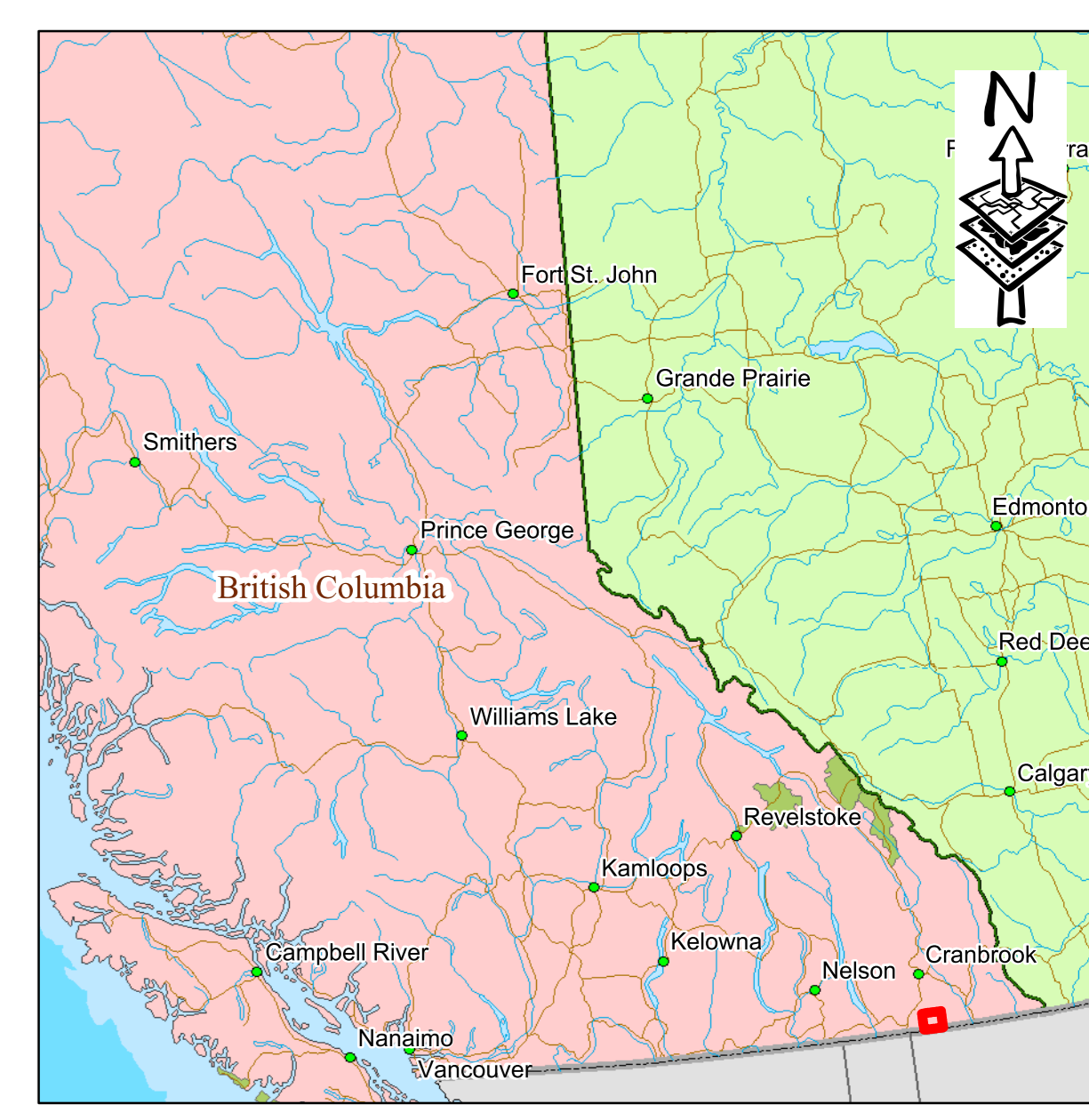
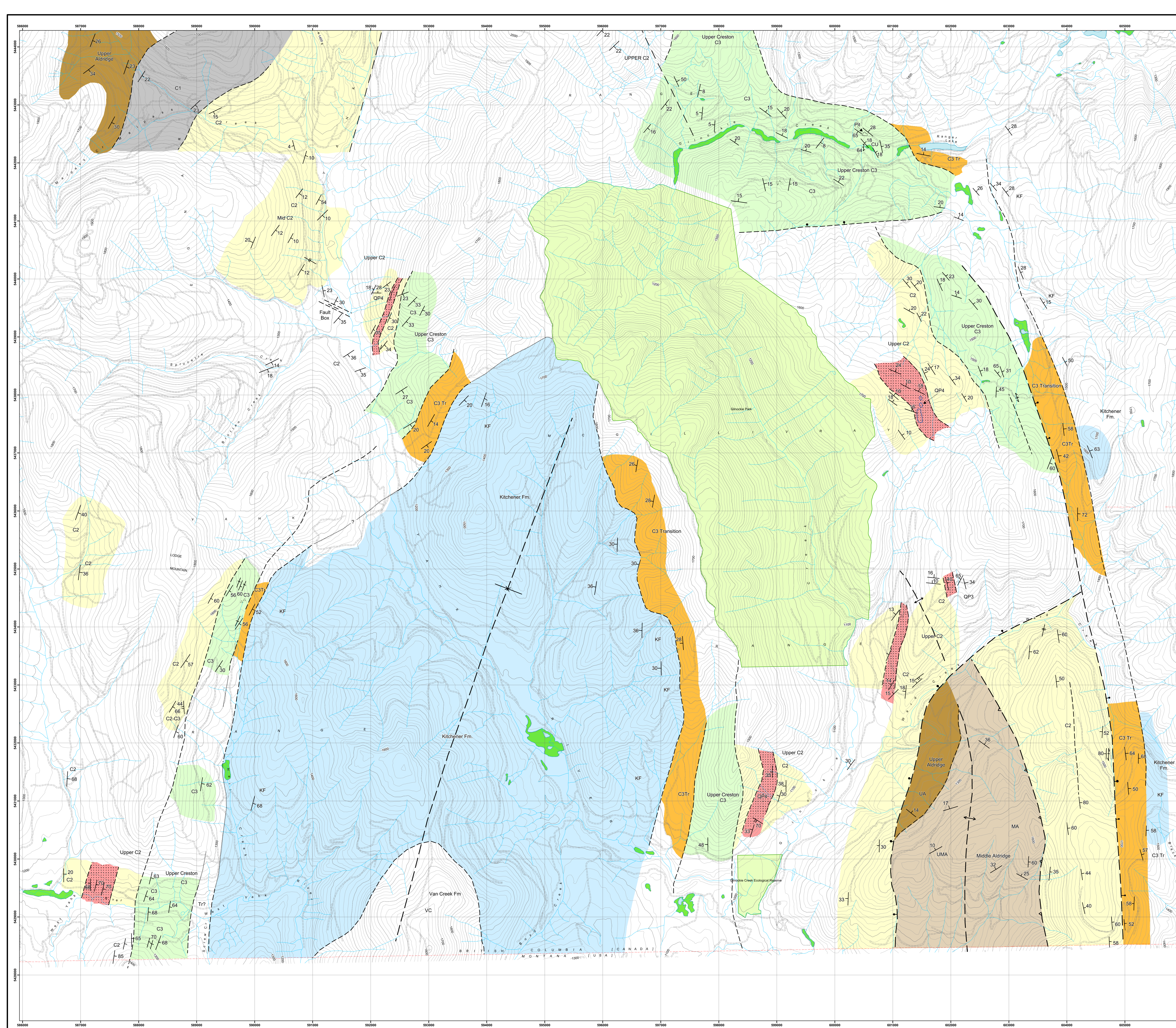
- Kitchener Fm
- Quartzite dominated
- C3 Transition (Lower Kitchener)
- Upper Creston - C3
- Middle Creston - C2
- Lower Creston - C1
- Upper Aldridge - UA
- Middle Aldridge - MA
- Geological Contact (defined, approximate, assumed)
- Normal Faults
- Anticline
- Syncline
- Bedding, inclined
- Bedding, vertical
- Bedding, horizontal
- Cleavage
- Vein
- MinFile Occurance
- Float
- Cu Copper in outcrop / subcrops
- Pb Lead in outcrop / subcrops
- Road System
- Rivers & Streams
- Minor Contours
- Major Contours
- Parks
- Wetlands
- Lakes

Projection: Nad 83 Zone 11 UTM  
1:20,000

## Geology Silver Fox Property North Half

Scale: 1:20,000	File No: SilverFox_Geology.mxd
Projection: Nad 83 Zone 11 UTM	Mapsheet: 082/G4





### Legend

- Kitchener Fm
- Quartzite dominated
- C3 Transition (Lower Kitchener)
- Upper Creston - C3
- Middle Creston - C2
- Lower Creston - C1
- Upper Aldridge - UA
- Middle Aldridge - MA
- Geological Contact (defined, approximate, assumed)
- Normal Faults
- Anticline
- Syncline
- Bedding, inclined
- Bedding, vertical
- Bedding, horizontal
- Cleavage
- Vein
- MinFile Occurance
- Float
- Cu Copper in outcrop / subcrops
- Pb Lead in outcrop / subcrops
- Road System
- Rivers & Streams
- Minor Contours
- Major Contours
- Parks
- Wetlands
- Lakes



Projection: Nad 83 Zone 11 UTM  
1:20,000

## Geology

### Silver Fox Property

### South Half

Scale: 1:20,000	File No: SilverFox_Geology.mxd
Projection: Nad 83 Zone 11 UTM	Mapsheet: 082G/4