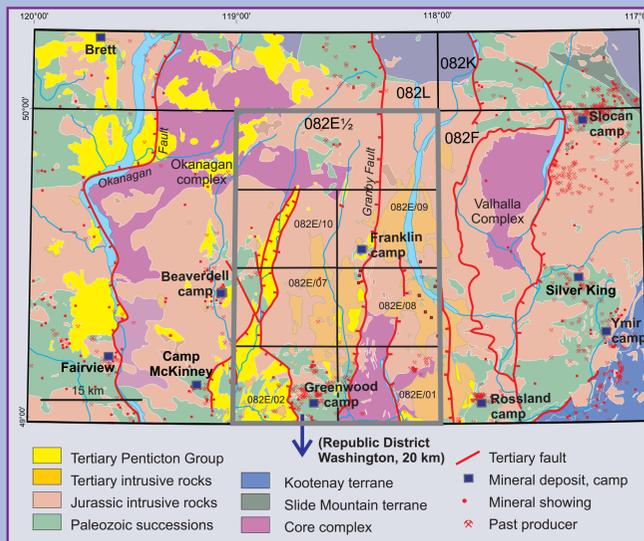


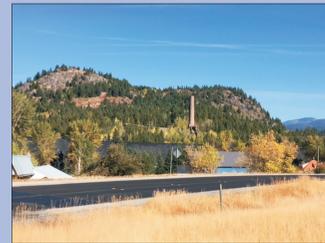
# Pentiction east-half metallogeny (082/E½)

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Tectonic assemblage map, southern B.C. showing mineral deposits and camps, major faults and locations of published Geoscience BC 1:50,000 maps.

## Greenwood camp



The Greenwood smelter operated from 1901-1918, fed mainly from the Motherlode mine.



Cu-Au mineralization within quartz veins, associated with listwanite altered ultramafic rocks at the Rif deposit, 3 km north of Rock Creek.

## Mineralization

Southern British Columbia, including the Boundary District, has a rich history of exploration and production of precious metals. Highland Bell camp produced 35 m oz Ag; Slokan, 4 m oz Ag; and Rossland, 2.75 m oz Au and 3.5 m oz Ag.

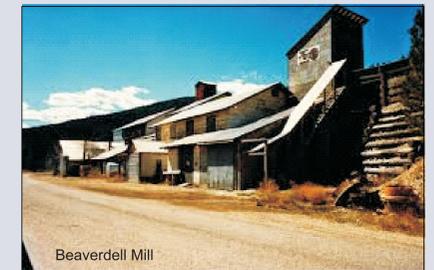
The Greenwood camp has produced 8 m oz Au and 5 m oz Ag from a wide variety of deposit types, including Au-Cu skarns, mesothermal precious- and base-metal veins, and epithermal veins. Exploration continues to be active, with recent targets including massive sulphide deposits and porphyry style mineralization.

The controls of various deposit types throughout Okanagan-east area are varied. Most deposits appear to be:

1. In the hangingwall of Eocene extensional faults
2. Within or closely associated with north-trending Eocene grabens
3. Along prominent northwest trending structures.

Their age is variable, related to episodic magmatism throughout the Mesozoic and early Tertiary, and to periods of deformation, including extensional faulting in the Eocene. These events are schematically illustrated below.

## Highland Bell Beaverdell camp

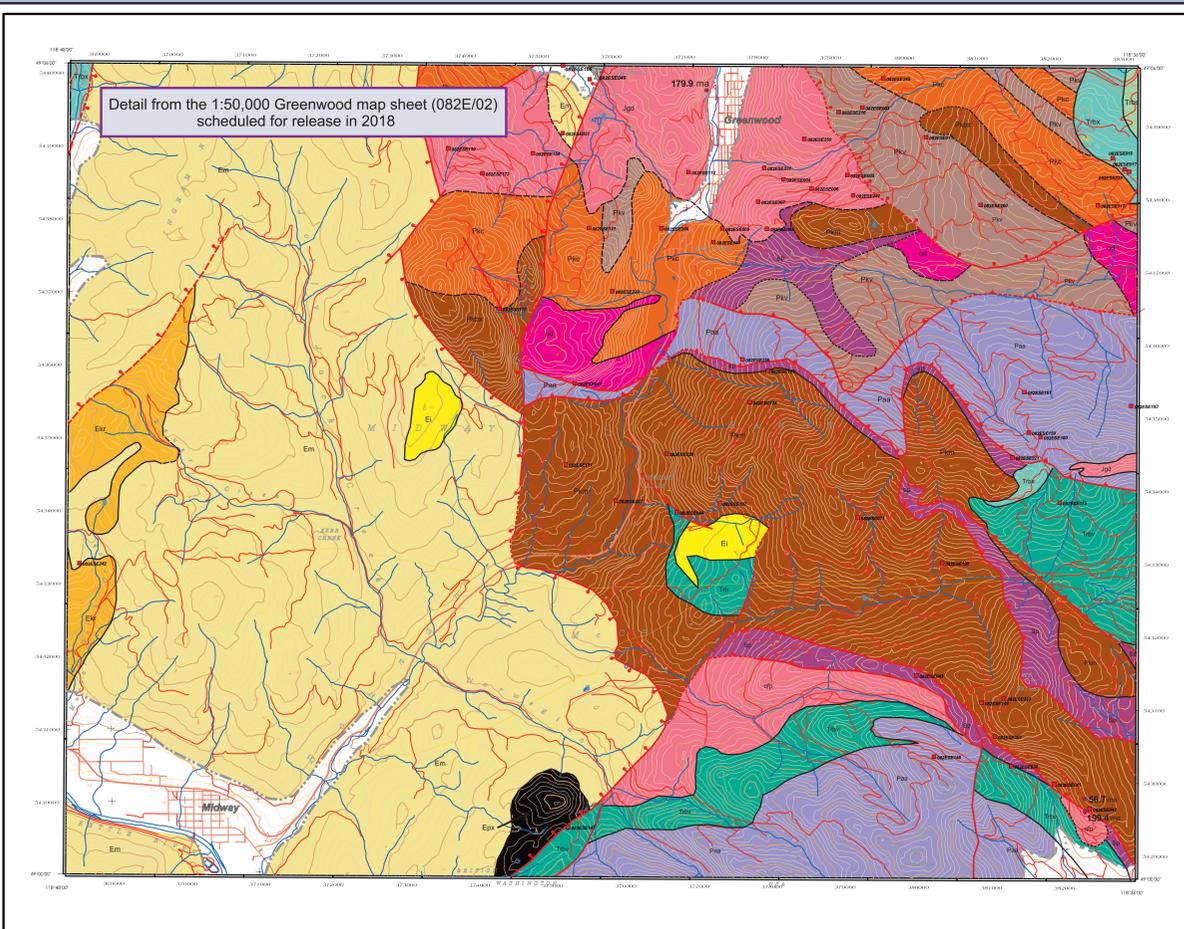


Beaverdell Mill



Spectacular wire silver

The Highland Bell mine in the Beaverdell camp was one of the largest and richest vein deposits in the district. From 1896 to 1991 it produced 34.7 m oz of silver from east-west trending rich Ag-Pb-Zn veins. Based on Pb-Pb isotopic studies of mineralization (Watson et al., 1982) and Ar-Ar dating of host intrusions (this study) the age of mineralization in the camp is determined to be Eocene.



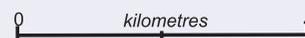
LEGEND	
<b>Tertiary</b>	<b>Paleozoic</b>
<b>Eocene</b>	<b>Carboniferous - Permian (?)</b>
mEc - Coryell intrusions	Pa - Attwood Formation
Ei - Eocene intrusions	Paa - argillite, siltstone
<b>Pentiction Group</b>	PK - Knob Hill Complex
Em - Marron Formation	Pkc - chert
Ekr - Kettle River Formation	Pkv - greenstone
Exp - slide breccia	Pkbc - chert breccia
<b>Mesozoic</b>	Pkm - schist, phyllite
<b>Jurassic</b>	od - "Old diorite"
Jgd - Nelson intrusions	sp - serpentine
<b>Triassic</b>	
qfp - Lexington intrusions	minifl mine, occurrence
Trb - Brooklyn Formation	age date
Trbv - fragmental greenstone	fault
Trbs - tuffaceous sandstone	thrust fault
Trbx - chert breccia	normal fault
	overburden
	contact; known, approximate

## Geology of the Greenwood - Midway area southern British Columbia (Trim 082E007)

compiled by Trygve Hoy (2018) after Little (1983), Church (1986), Fyles (1990)

### References

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- Massey, N., Gabites, J.E., Mortensen, J.K. and Ullrich, T.D. (2010): Boundary project: geochronology and geochemistry of Jurassic and Eocene intrusions, southern British Columbia; MEMPR, Paper 2009-1.



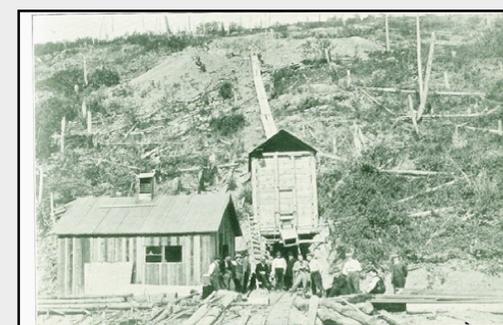
Mineralization	Lithologies	Age	Note
	Cover	Quaternary	
Basal Uranium Fuki, Donen	Kallis basal Kallis	Pliocene	Plateau basalts
	Upper		Rapid burial, intrusion of syenite, mineralization
Porphyry Mo Midas	Marron	Eocene	Widespread alkalic volcanism, graben fill
Epithermal Gold Republic	KR		Initiation of extensional faults, grabens
Silver Vein camps Beaverdell	Coryell syenite		Rapid uplift following Paleocene magmatism
Base metal veins Franklin camp	Paleocene-Eocene granite		deformation and magmatism
	middle Jurassic granodiorite		Triassic arc volcanism
	Trbx		Permo-Carboniferous arc volcanism, sedimentation
	Paleozoic basement		

## Age dating

A collaborative program with UBC (J. Gabites and R. Friedman) has included Ar-Ar and U-Pb zircon dating of selected samples within the Pentiction East map sheet. Preliminary data, as well as previously published data, are shown at left on the regional compilation map. The data, and geological mapping, constrains the age of mineralization in the Franklin camp, the evolution of the Rock Creek graben as well as associated mineralization.

Megacrystic granite (Plg) has been dated at ca. 63 ma, and granodiorite (Plgd) have variable Ar-Ar and U-Pb dates that range from ca. 50.2 - 67.7 ma (Table 1). Unconformably overlying volcanic rocks of the Marron Formation in the Rock Creek graben returned Ar-Ar dates from ca. 52.8 - 59.2 ma.

Coryell syenite, that locally cuts the Marron Formation, is dated at ca. 51-53 Ma (Parrish, 1988; Hunt and Roddick, 1991) and hence restricts the age of the Marron to ca. 57-52 Ma.



Showing Tunnel, Union Mine, Glory-hole above—Grand Forks M.D.

## Franklin camp

Mineralization in the Franklin camp was discovered in the early 1900s. The only significant producer, veins in the Union mine, produced 122,555 tonnes grading 14.1 g/T Au and 353 g/T Ag.

Mineralization within the camp is within the Middle Jurassic Averill intrusive complex and host late Paleozoic Anarchist Group. It comprises:

1. base- and precious-metal skarn
2. minor Pt-Pd-Ag in mafic and alkalic phases of the Averill Complex
3. base- and precious metals in shears and veins
4. Eocene(?) epithermal gold.

Union Mine, early 1930s.



Tuxedo Resources Ltd. Trenching at the IXL property, 2004 (photo - L. Caron)



Tuxedo Resources Ltd. Diamond drilling, IXL property, 2004 (photo - L. Caron)

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