

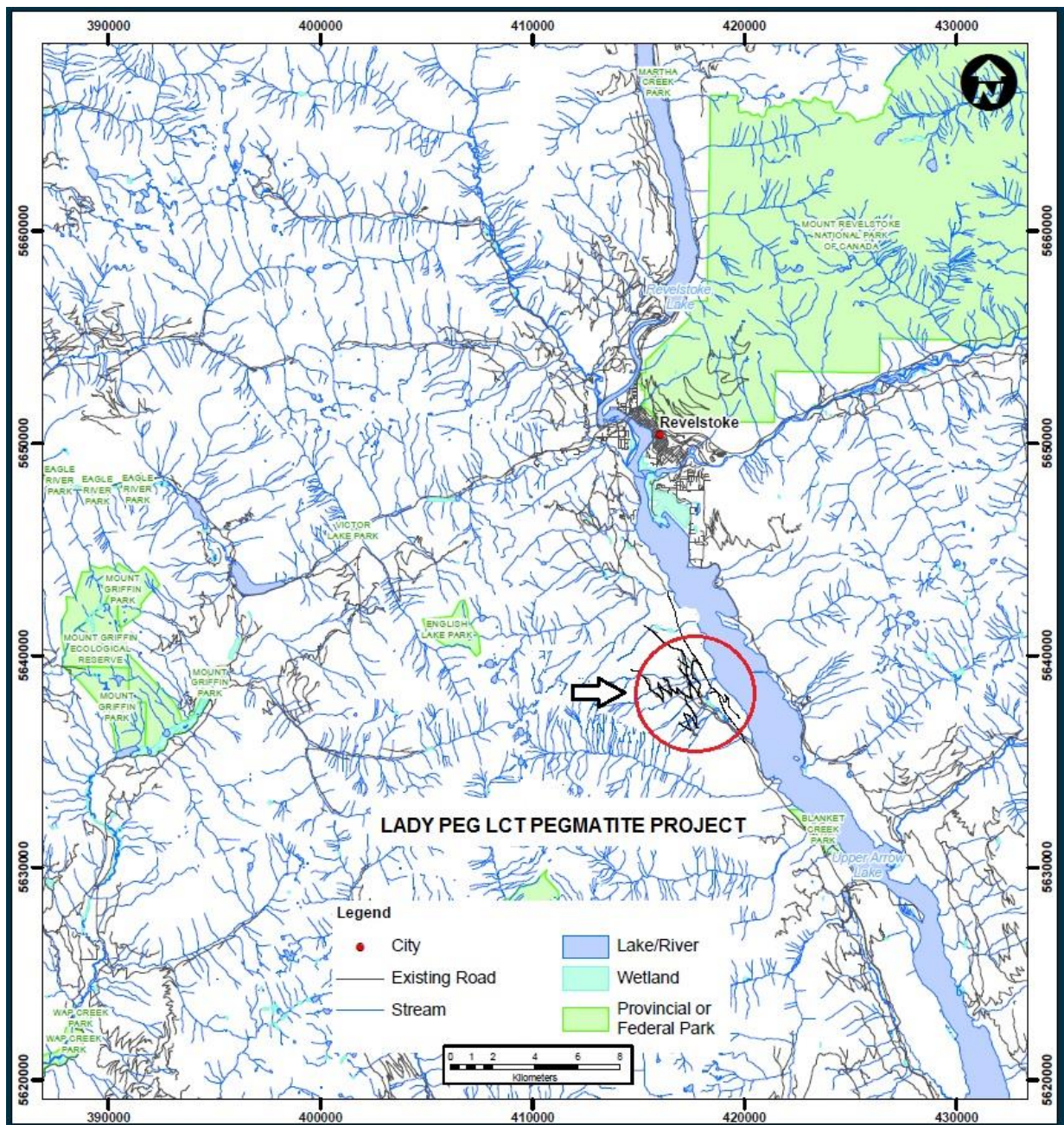
# LADY PEG PROJECT

## LCT Pegmatite and Gemstone Target

The Lady Peg project was acquired to cover very prospective geology for hosting numerous LCT pegmatite bodies that are enriched with Rare Earth Elements, Lithium, Tourmaline and Beryl

Numerous documented LCT type pegmatites are known to occur in the immediate area, as well as the discovery of coloured Tourmalines and Beryl's

The Lady Peg project is located approximately 10 km south of Revelstoke in southeast British Columbia. The Property is located on the eastern slopes of Mount Begbie, where numerous logging roads transect the property providing good road access and rock exposures for cost effective exploration.



Pegmatites in the Mount Begbie area are relatively well-known having been identified and described since the late 1800s (Jones, 1959; Mulligan, 1965), but have not been the subject of any significant or sustained level of modern exploration. The old reports describe the pegmatite bodies as being principally homogeneous, lenticular sill-like sheets and dykes, and typically up to two metres wide.

They primarily cut across the gneissic and schistose fabric in the host rock, but occasionally were noted to be at least sub-parallel to foliation. Their primary constituents include quartz, feldspar and black tourmaline with minor local concentrations of biotite, muscovite, garnet, beryl, lepidolite, and pink and green tourmaline.

Granitic pegmatite bodies of the rare metal LCT (lithium-cesium-tantalum) variety are known to occur in the area these and are the principal deposit type of interest. The value of lithium has been increasing in recent years predominantly because of growing demand for its use in the battery sector for such applications as electric vehicles. These pegmatites are also carrying anomalous levels of beryllium, niobium and tantalum.

The pegmatites have been the subject of limited, sporadic prospecting for gemstones but have not been systematically explored. Over the years, prospectors and gem hunters have sporadically explored the area, but little information is known of their endeavors, in part because of the need for them to maintain the locations of any finds a secret. No drilling or trenching has been conducted on the Property.

The Lady Peg project is underlain primarily by pelitic and semi-pelitic schists, and pelitic, semi-pelitic, and calc-silicate gneisses that form the cover assemblage of the Proterozoic and Paleozoic Monashee complex. Pegmatites in the Mount Begbie area have been known since the late 1800s but have been revisited recently because of their lithium content.

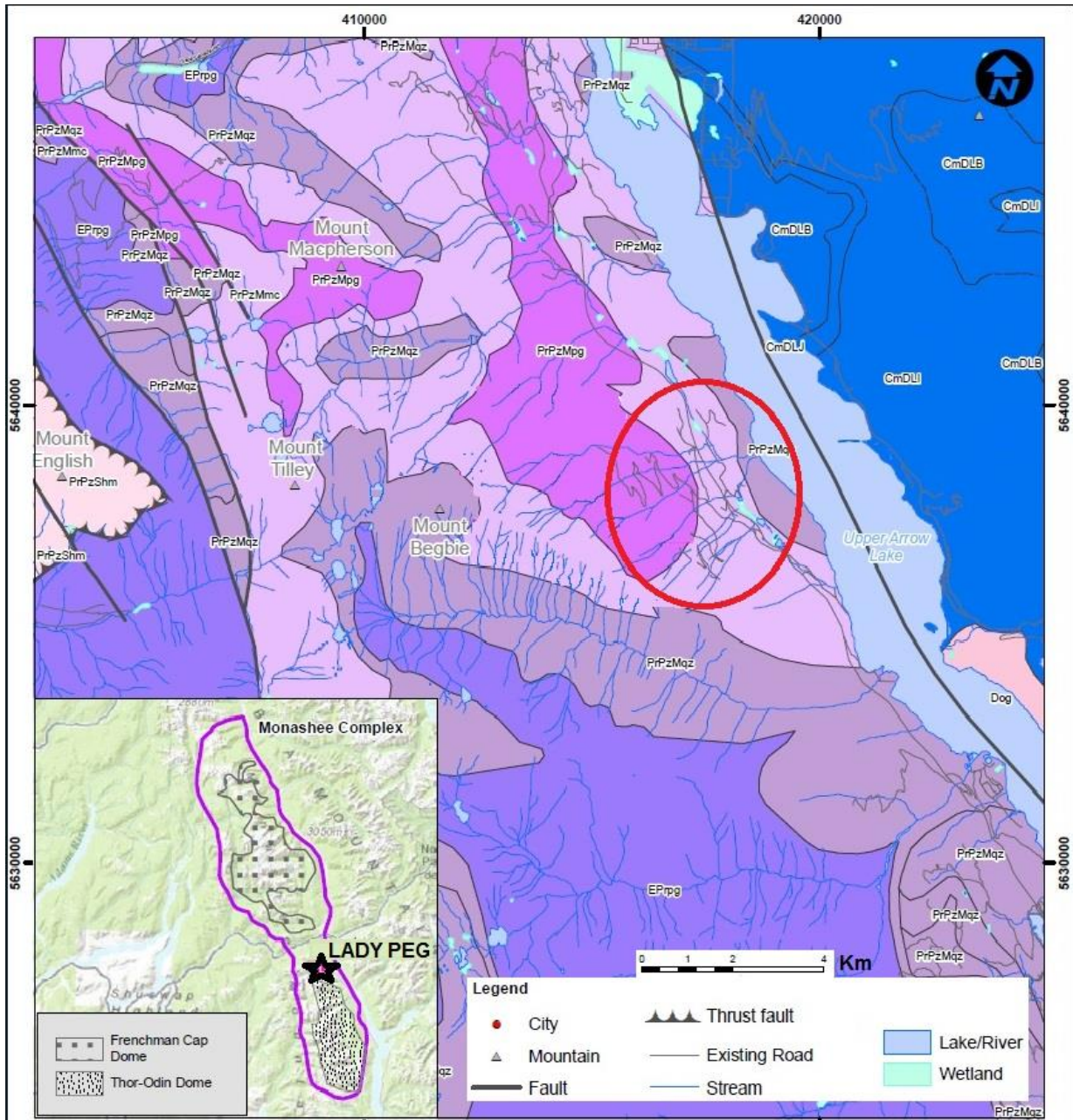
Prospecting in the area and has located several discrete pegmatite bodies, some of which contain zones with appreciable lepidolite and pink tourmaline. In 2012, a comprehensive study of a 0.5 km<sup>2</sup> area located just below the toe of the Mount Begbie glacier on an adjacent property, was completed by Andrea Dixon (2013). Her work comprised the first systematic documentation and scientific evaluation of rare metal LCT pegmatites in the area.

LCT pegmatite deposits can contain extractable amounts of several elements, including lithium, cesium, tantalum and niobium. The principal lithium-bearing minerals found in rare metal LCT pegmatite bodies worldwide, after Simandl et al. (2012), are: spodumene [LiAlSi<sub>2</sub>O<sub>6</sub>], petalite [LiAlSi<sub>4</sub>O<sub>10</sub>], minerals of the amblygonite [(Li,Na)Al(PO<sub>4</sub>)(F,OH)] - montebrasite [(LiAl(PO<sub>4</sub>)(OH))] series or SQI (spodumene-quartz intergrowths), and lithium-bearing micas such as lepidolite. [K(Li,Al)<sub>3</sub>(Si,Al)<sub>4</sub>O<sub>10</sub>(F,OH)<sub>2</sub>] and eucryptite [LiAlSiO<sub>4</sub>].

Cesium mainly occurs in the mineral pollucite; and tantalum mostly comes from columbite-tantalite. The tin mineral cassiterite, and the beryllium mineral beryl also occur in rare metal LCT pegmatites, as do several gemstones and high-value museum specimens of rare minerals. Among the gemstones are the beryl varieties emerald, heliodor, and aquamarine; the spodumene varieties kunzite and hiddenite; and watermelon tourmaline. LCT pegmatites are also mined for ultrapure quartz, potassium feldspar, albite, and muscovite.

The Mount Begbie area is part of the Shuswap Metamorphic Complex located in the southern part of the Omineca Belt of the Canadian Cordillera (Daly, 1917; Jones, 1959; Wheeler, 1965; Okulitch, 1984; Wheeler and McFeely, 1991).

The Omineca Belt consists of variably deformed and metamorphosed rocks of continental affinity that occur west of deformed Paleozoic continental margin sedimentary rocks and Neoproterozoic rocks of the Purcell Anticlinorium, and east of Mesozoic arc and back-arc sequences of the Intermontane Belt



## Regional Geology Legend

### Stratified Rocks



#### Cambrian to Devonian

- Lardeau Group - Broadview Formation (CmDLB) limestone, slate, siltstone, argillite
- Lardeau Group - Jowett Formation (CmDLJ) basaltic volcanic rocks
- Lardeau Group - Index Formation (CmDLI) mudstone, siltstone, shale fine clastic sedimentary rocks

#### Monashee Complex

##### Cover Assemblage (Proterozoic to Paleozoic)

- Unnamed (Dog) undifferentiated orthogneiss
- Monashee Complex (PrPzMpg) pelitic and semi-pelitic schist and gneiss; undifferentiated paragneiss
- Monashee Complex (PrPzMmc) calc-silicate gneiss; may be quartzitic; may contain lenses / layers of pelitic schist, quartzite, amphibole and marble
- Monashee Complex (PrPzMqz) quartzite (primarily quartz with varying amounts of feldspar); may contain lenses of pelitic schist

#### Basement Assemblage (Paleoproterozoic)

- Shuswap Assemblage (PrPzShm) undivided Shuswap Assemblage metamorphic rocks
- Unnamed (EPrg) paragneiss

#### Intrusive Rocks

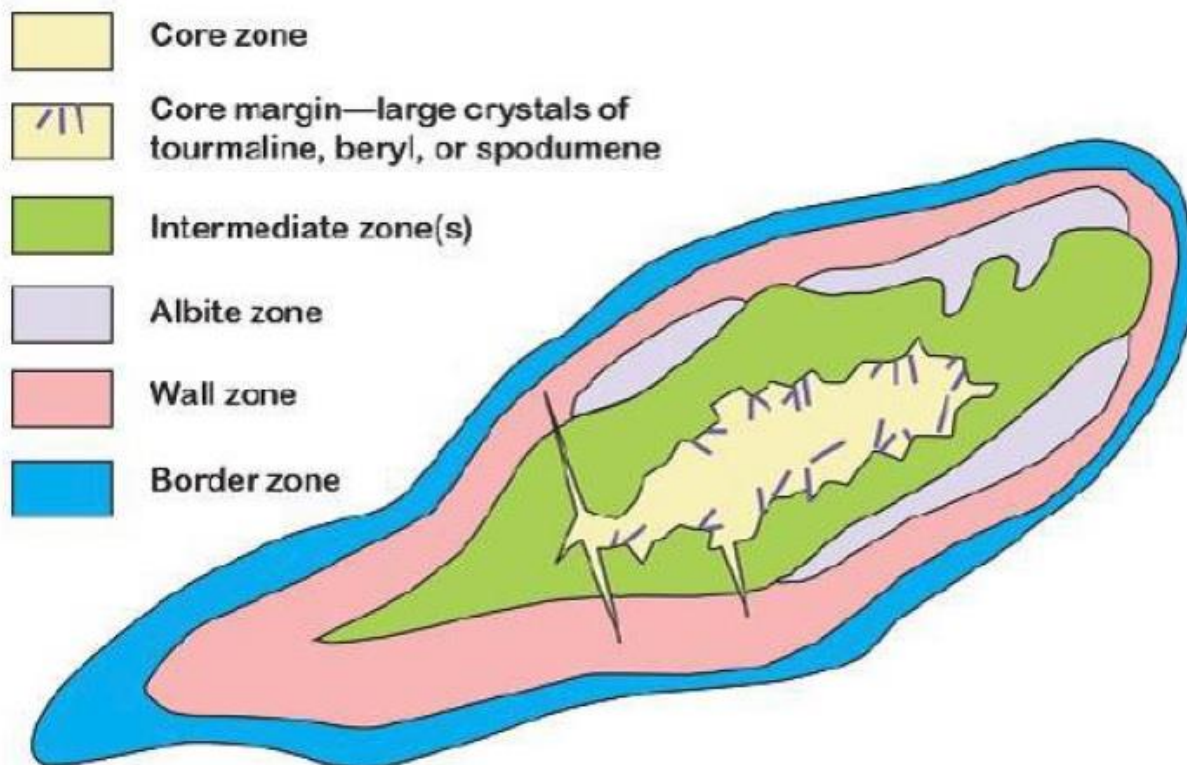
##### Mesozoic

- Unnamed (Kgd) granodioritic intrusive rocks

The Monashee complex is the lowest structural unit of the Shuswap Metamorphic Complex and un-roots rocks of ancestral North America. The Monashee complex contains two structural ‘culminations’ (or ‘domes’), Frenchman Cap in the north and Thor-Odin in the south, both of which consist of a core zone of Archean to Paleoproterozoic gneiss mantled by a cover sequence of unconformably overlying tightly folded Proterozoic and Paleozoic amphibolite facies metasedimentary rock and orthogneiss. The core zone and cover sequence of the culminations have experienced considerable deformation, high-grade metamorphism, late Paleocene-early Eocene anatexis, and Eocene brittle faulting (Dixon, 2013).

The property is underlain by rocks belonging to the cover assemblage of the Monashee complex (Kruse et al., 2005); the pegmatite bodies are hosted by this cover assemblage. Excellent bedrock exposure at higher elevations allows the pegmatites to be readily recognizable from their host rocks: they are light coloured, often more resistant to weathering, consist of large crystals, and form narrow elongate bodies that contrast with the primarily grey, foliated host rocks.

The pegmatites are typically tabular and dyke or sill-like, but lenticular forms are also known. They are not metamorphosed and only rarely display foliation and are believed to most likely have formed following the exhumation and decompression event that began in the late Paleocene (Dixon, 2013).



**Deposit-scale zoning patterns in an idealized LCT pegmatite**

The basic mineral assemblages observed in the pegmatites are quartz+feldspar+black tourmaline or quartz+feldspar+biotite; moderately fractionated assemblages also include muscovite, garnet, beryl, cordierite, and oxide minerals, while highly fractionated assemblages add Mn,Fe-phosphate minerals, Li-phosphate minerals, lepidolite, and multi-colored tourmaline (Dixon et al., 2014). Rose quartz is sometimes a constituent of the quartz core (Dixon, 2013).

Intrusive rocks in the area consist of the Paleocene to Early Eocene (Gosh and Parrish, 1995) S-type Ladybird leucogranite suite (Carr, 1991), and the Jurassic Kuskanax batholith and Galena Bay stock (Kruse et al., 2005; Read and Brown, 1981; Parrish and Wheeler, 1983).

It has been suggested that the Ladybird suite in part encompasses the Monashee complex, extending to the north and west of Mount Begbie (Carr, 1992; Lorencak, 2001). Others suggest that there may be migmatitic rock similar to the protolith of the Ladybird Suite at depth below Mount Begbie (Vanderhaege, 1999; Vanderhaege et al., 1999). Dixon (2013) suggests that given the large areal extent of the Ladybird granitic suite and the potentially migmatitic character of the rock beneath Mount Begbie that it is more likely that the pegmatites are related to the Ladybird suite than to any other exposed intrusion (Dixon 2013), even though the Kuskanax and Galena Bay intrusions are more proximal.

Exploration on the Lady Peg property is in its infancy and the limited historical work has demonstrated that the property area is host to swarms of granitic pegmatite bodies, and has confirmed that some individual pegmatite bodies are highly fractionated and host lepidolite and pink tourmaline-bearing zones within wall zones consisting of coarse-grained quartz, K-feldspar, muscovite and black tourmaline.

Most of the known pegmatite bodies for which descriptions exist, that were observed by previous operators are dyke-like and discordant with the dominant fabric of the host Monashee complex gneissic rocks, however concordant or sill-like pegmatite bodies have been noted.

Individual pegmatite bodies on an adjacent property persist along strike for more than 500 m and have been observed to outcrop over an elevation range of 2,060 – 2,190 m. At lower elevations and below timber line on the Lady Peg Property, there has been very limited exploration to date.

Geological data on the property has predominantly been generated by earlier workers. However, this older descriptive information is scant, consisting of brief written reports contained primarily in accounts of the geology of the adjacent properties.

The most recent work on the Begbie Mountain consists of intermittent prospecting and sampling in 2013-2015 and a scientific study of a 0.5 km<sup>2</sup> portion of a pegmatite field completed by Dixon (2013) and published in Dixon et al. (2014).

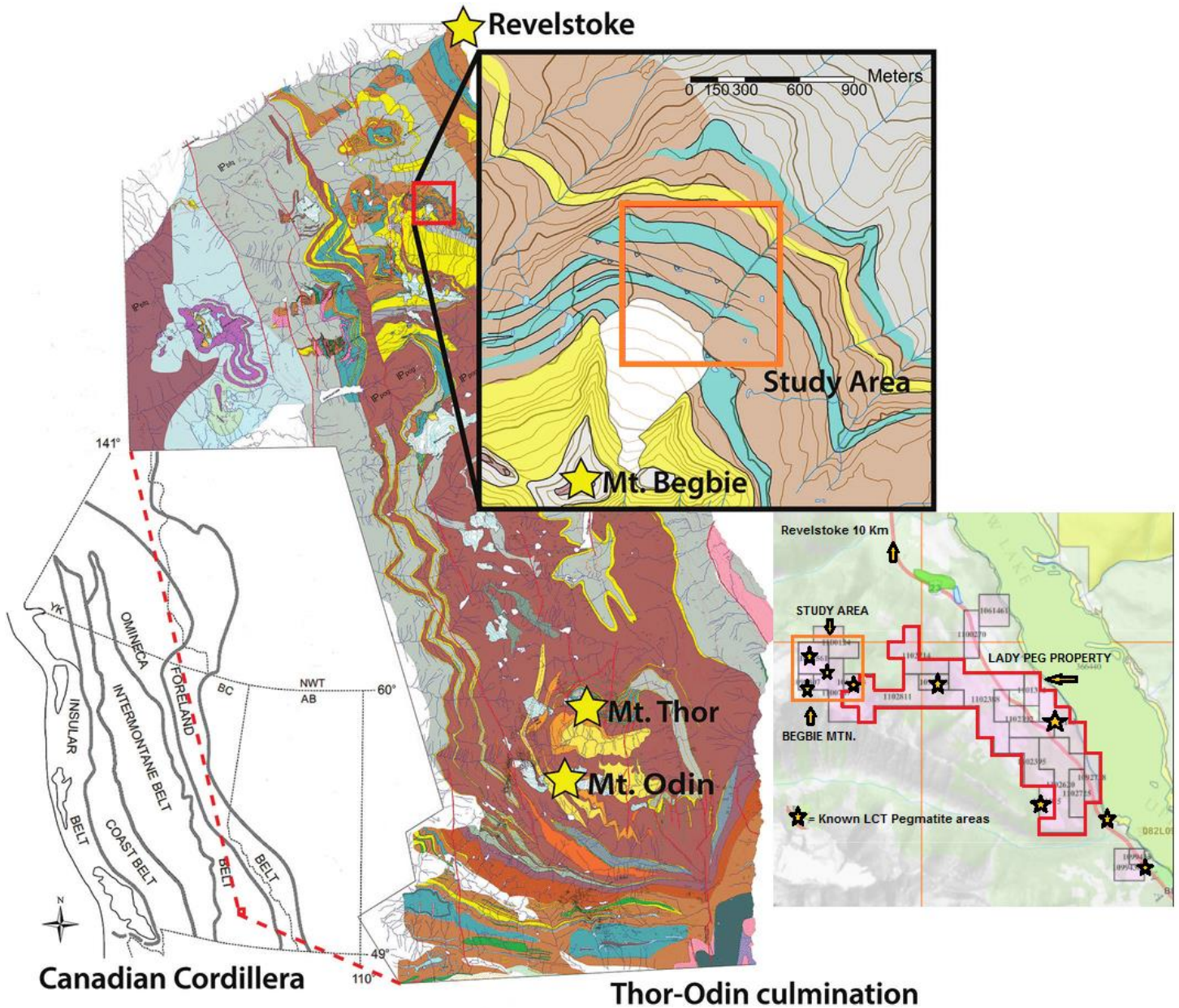
In 2016, a helicopter-supported visit to the Begbie Mountain was conducted and confirmed the presence of multiple granitic rare metal LCT type pegmatite bodies.

The least evolved pegmatites on the property consist of standard rock-forming minerals consistent with an S-type granite (quartz, k-feldspar, mica, plagioclase, amphibole and locally tourmaline) while others are more fractionated and locally include significant amounts of lepidolite, pink and/or green tourmaline (elbaite), red-brown garnet, pale green to pink beryl, petalite, pollucite, cordierite, columbite-tantalite, apatite and other phosphate mineral phases (Dixon et al., 2014). The pegmatite field studied by Dixon (2013) showed a mineralogical and geochemical zonation, but further examination is required in order to determine unequivocal exploration vectors.

The most conspicuous and recognizable lithium-bearing minerals recognized to-date include lepidolite, a pink to pale purple, generally medium to coarse-grained micaceous mineral, and pink variety of tourmaline (elbaite) which forms individual euhedral crystals up to 6 cm long, but more commonly occurs as radiating masses or clusters of three-sided elongate prisms. Less common is a pale green variety of tourmaline, or black-cored green tourmaline that may or may not be elevated in lithium but is spatially associated with (marginal to) zones bearing lepidolite and pink tourmaline. Some other lithium-bearing phases are relatively to very inconspicuous and uncommon to very rare and require enhanced mineral identification skills for them to be confirmed.

Despite the limited amount of exploration completed on Begbie Mountain, it has been demonstrated that fractionated pegmatites of the rare metal LCT type exist. These pegmatites locally contain appreciable amounts of lithium, principally in the form of lepidolite and pink and/or green tourmaline (elbaite).

Analytical data indicates that these pegmatites also contain significant amounts of other uncommon to rare metals, such as beryllium, cesium, rubidium and tantalum whose potential significance should not be discounted.



**The pegmatite group on the northern slope of Mount Begbie, near Revelstoke, B.C., comprises more than 50 relatively small pegmatite bodies.** The pegmatites have diverse ranges of mineralogy; most of them are barren with micas and tourmaline as the only accessory minerals, but 12 dikes are more fractionated and correspond to beryl-columbite, beryl-columbite-phosphate, and lepidolite subtypes. These are located on adjacent properties owned by others. **The Lady Peg project's discovery potential for new Pegmatite bodies is considered excellent.**

Detailed study of tourmaline (dravite, schorl, fluor-elbaite, Mn-rich elbaite), cordierite-sekaninaite, garnet, rare element-bearing silicate minerals (beryl, chrysoberyl, bertrandite, euclase, trillithionite, Li-muscovite, petalite, pollucite), rare element-bearing oxide minerals (columbite-tantalite, bismutotantalite, Nb-rutile, cassiterite, hübnerite, qitianlingite), phosphate minerals (triplite, lithiophilite, Mn-rich apatite, xenotime, monazite), and zircon provides insight into the mineralogy and geochemistry of the individual dikes.



Columbite (circled in black) next to tourmaline from the BERYL pegmatite.

**Columbite (circled) next to Tourmaline Beryl Pegmatite**



Lepidolite in the core of the LI pegmatite on top of the knob.

**Lepidolite in the Li Pegmatite**

**Pictures of Pegmatites on Mount Begbie – On Adjacent Property owned by others**

Dixon, Andrea. 2013. Mineralogy and Geochemistry of Pegmatites on Mount Begbie, British Columbia. MSc Thesis, University of British Columbia.

DIXON, A., CEMPIREK, J. & GROAT, L.A. (2014) Mineralogy and geochemistry of pegmatites on Mount Begbie, British Columbia. Canadian Mineralogist 52, 129–164.

Fractionation within the pegmatite group increases from the southeast to the northwest, suggesting that the source pluton may be located to the southeast of the study area at depth, likely related to the Ladybird granite suite. Elevated Be and Li contents in sekaninaite, the occurrence of Mn-rich elbaite in a beryl-columbite-phosphate pegmatite, and the relatively common presence of hübnerite and qitianlingite in the Mount Begbie pegmatite group are unusual compared to rare element pegmatite fields worldwide.

It is recommended that a comprehensive prospecting, bedrock mapping and rock geochemical sampling program be completed in areas of good outcrop. Contour soil sampling should be considered for areas below tree line where outcrop is sparse and where the projection of pegmatites may be hidden beneath vegetation and shallow overburden.

The Lady Peg property requires substantial prospecting, geological mapping and systematic sampling to further delineate pegmatite bodies, particularly at lower elevations and along road cuts.

# Blue River

VERITY - FIR  
CARBONATITES



 = Available Rich River Projects  
 = Others  
**RARE EARTH TREND MAP**

# Nikavola Ni



# CARBIDE Ag-Zn-Ree Carbonatite



# COTTON BELT SILVER DRAGON CARBONATITE



# Keystone VMS Ag-Cu-Zn-Co



# Ren CARBONATITES



# REE



# CARBONATITES PEGMATITES



# LCT PEGMATITES



# CARBONATITES



# LADY PEG LCT PEGMATITES



# Revelstoke



# NYF PEGMATITES



**Legend**

**Mineral Titles (MTO)**

- TO (solid)
- LEASE
- CLAIM
- Reserves
- No Registration
- Conditiona
- Heritage/H stcr c Site

**Other Mining Layers**

- MINES
- PERMIT
- CR
- Drown Lay ers (Tantalis)
- UPPER SHUSWAR (VER)
- GREENSUSH LARME PROTECTED
- Local Regional Green spaces - Outline
- Local Regional Green spaces - Color Filled
- Federal Transfer Lands - Outline

**Administrative Boundaries**

- Local Regional Green spaces - Outline
- Local Regional Green spaces - Color Filled
- Federal Transfer Lands - Outline

**Map Information**

Center: 00°54'37", -118°18'47"

Scale: 1 : 541070

SRS: EPSG:3807

UTM Zone: 11

This map is a user generated static output from an Internet mapping site and is for personal reference only. The layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Printed using the Mineral Titles Online (MTO) application.



**This property has excellent further discovery potential**

This property is offered for sale by way of working option to purchase.

Preference given to companies willing to fund further exploration

For more information please contact

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