

Environmental Assessment for the Donald Development Corporation

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1 INTRODUCTION

1.1 Regulatory Requirements and Guidelines

There are project related provisions for environmental protection contained in the following legislation, acts, regulations and specifications:

Federal:

- *Canada Fisheries Act – Authorization of Work (Kootenay Fisheries Timing Windows)*
- *Migratory Birds Convention Act*
- *Canadian Environmental Protection Act*
- *Navigable Waters Protection Act*
- *Transportation of Dangerous Goods Act*
- *Land Development Guidelines for the Protection of Aquatic Habitat*

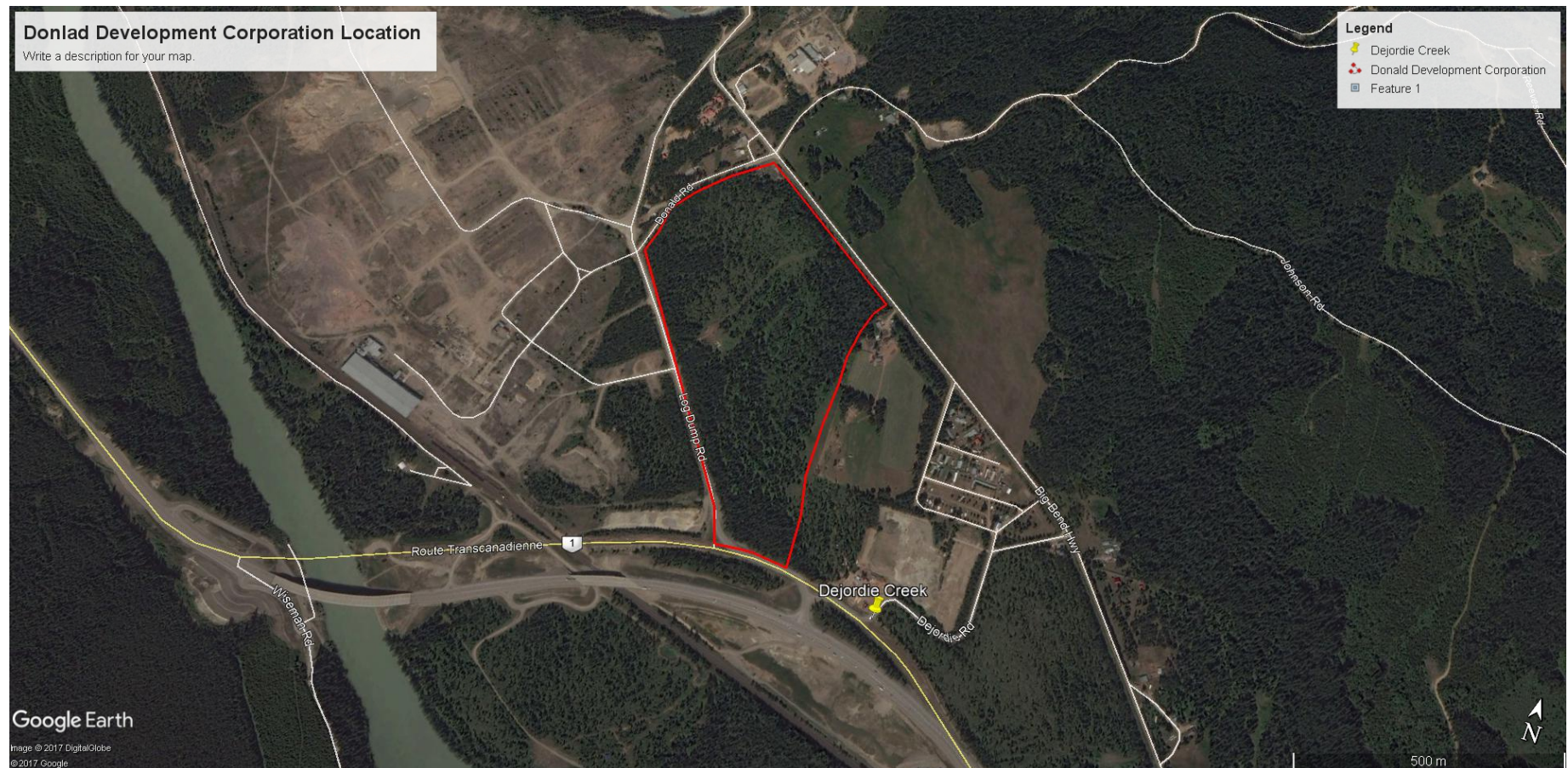
Provincial:

- *British Columbia Water Sustainability Act*
- *British Columbia Wildlife Act*
- *British Columbia Environmental Management Act*
- *British Columbia Heritage Conservation Act*
- *Standards and Best Practices for Instream Work; Stream Channel Maintenance*
- *A User's Guide to Working In and Around Water*
- *Environmental Best Practices for Highway Maintenance Activities*
- *Riparian Areas Regulation*

1.2 PROJECT LOCATION

The project location is in Donald BC. See Figure 1 for the location and Figure 2 for the map of the project area.

Figure 1 – Project Location



Donald Development Corporation

PROPOSED SUBDIVISION PLAN OF PART OF LOT 2, PLAN NEP11666 AND PART OF BLOCK D, SECTION 21, TOWNSHIP 28, RANGE 23, W5M, KOOTENAY DISTRICT

LOGGED

NOT LOGGED

SELECT LOGGED

SECTION 21
RGE 23 W5M

TRANS-CANADA HIGHWAY 1

DONALD ROAD

CARWILL AVENUE

COOK ST

COLLEPITTS CREEK

CALLIHOO BLVD

BLOCK D PLAN 1717

REMBLOCK D PLAN 1717

PLAN 18333

PLAN 17424

PLAN 11465

PLAN 23245

PLAN 11666

PLAN 17703

PLAN NEP65102

PLAN NEP23750

SECTION 21
RGE 23 W5M

LOT 1

LOT 2

LOT 3

LOT 4

LOT 5

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2 CONSTRUCTION IMPACTS

The project works related to environmental management are anticipated to include the following:

- Clearing, grubbing and stripping the project footprint.
- Roadway and drainage excavation.
- Logging.
- Clean-up and site planting.
- Site planning.

3 ENVIRONMENTAL COMPONENTS LIKELY TO BE AFFECTED

Within the area that is proposed to be used for the project there will be impacts to soils, vegetation and wildlife. Environmental components likely to be affected by project activities identified in the project description include:

- Erosion and compaction of soils.
- Disturbance of naturally vegetated areas.
- Disturbance of areas with weed infestation or invasive weed species and the potential of spreading weeds and seeds to previously native plant areas.
- Cultural resources have not been identified within the project area to date, but may be located/discovered. If there are any items found that appear to be artifacts, work will stop immediately and the Archaeological Branch of the BC Ministry of Forests, Lands, and Natural Resources Operations will be notified and consulted with prior to commencing ground disturbance activities.
- Potential impact to surface water (accidental spill of fuel, introduction of sediment or deleterious substances).
- Impacts to wildlife species as well as species with special conservation status as identified during a desktop review of the CDC database¹, details presented below.
- Loss of rare plants or rare plant habitat, if it was present.

3.1.1 Vegetation

A desktop review of the CDC database¹ for plant species and also ecological plant communities with conservation status through the Province of BC, COSEWIC, and/or SARA was completed using the following search criteria; Type - Plants, Region – Columbia Forest District - Rocky Mountain Forest District, Habitat Type – Forest, BEC Zones – ICH. A total of 22 plant species and 5 ecological plant communities with conservation status were returned from the queries. Complete lists of the CDC searches have been provided in Appendix A (plant species) and Appendix B (ecological plant communities) of this report. None of the conservation species identified by the CDC search were specifically located in the project area. The majority of the site has already been logged, Figure 2 the summer of 2017. The approximately volume harvested and removed offsite was approximately 853 cubic meters of

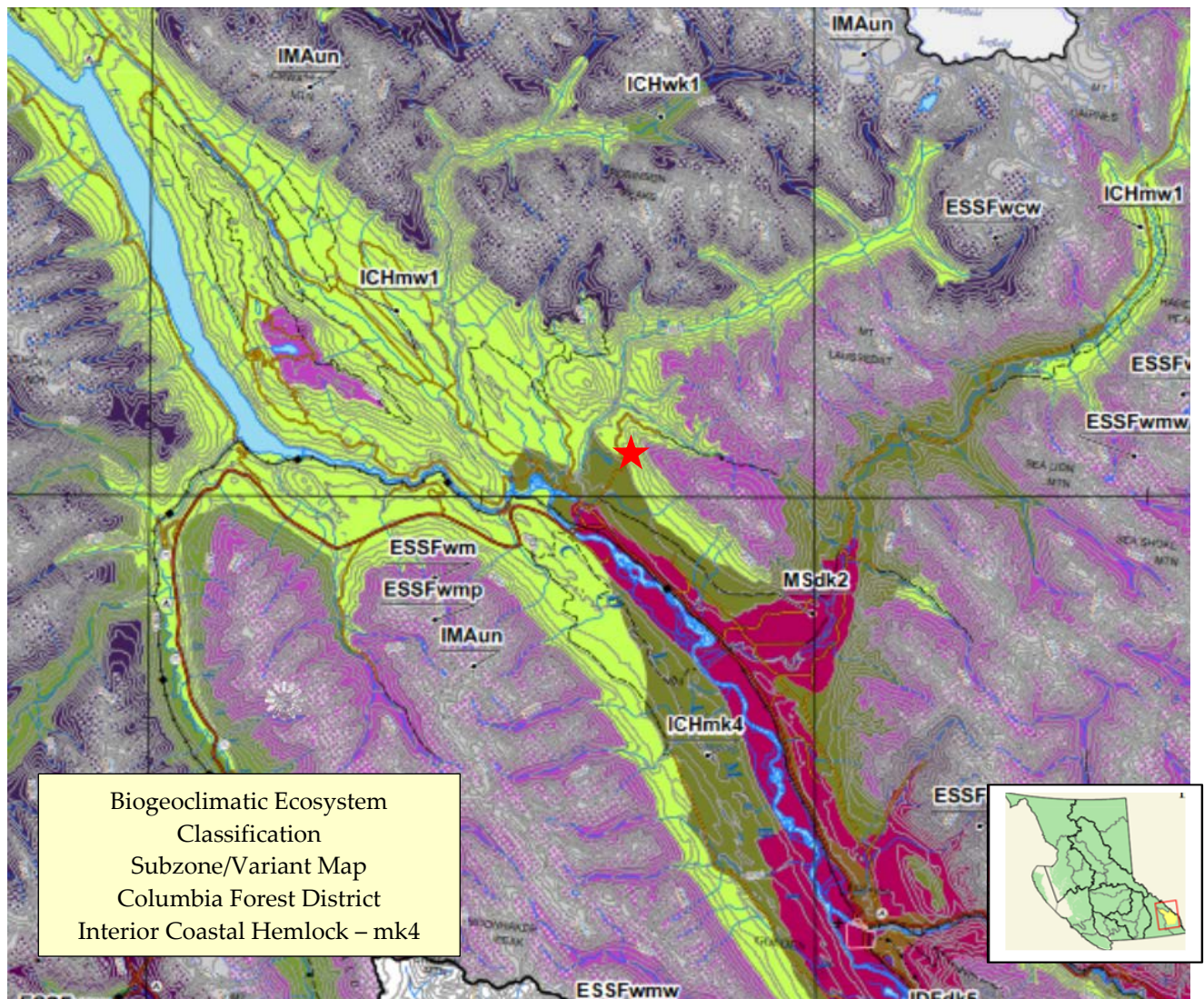
¹ Conservation Data Center. <http://maps.gov.bc.ca/ess/sv/cdc/>

merchantable timber. The timber was a mix of balsam, Fir, Hemlock, Larch, Lodgepole Pine, Spruce and White-Bark Pine and White Pine. Whitebark Pine is considered a blue listed species in BC, Endangered under COSEWIC and Endangered on the Species at Risk Act. Another plant species to note is the Macoun's Fringed Gentian but the documented location of the blue listed species is near the Columbia River where the Trans-Canada Highway crosses the River.

Impacts to vegetation include but are not limited to: vegetation clearing, loss of rare vegetation or plants species, and introduction of invasive species and colonization of non-native plant species.

Figure 3 shows the site's location (red star) within Biogeoclimatic Ecosystem Classification (BEC) mapping with subzone/variant classification for the Columbia Forest District (BC MoF, 2017). The project site is located within the following Biogeoclimatic Ecosystem Classification zones: Engelmann Spruce – Subalpine Fir (ESSF) and Interior Cedar Hemlock (ICH), as seen in the BC Forest District mapping figures provided below, Map 3 and Map 4. BEC zone mapping with subzone/variant classification for the Kootenay Region -Columbia Subunit - Selkirk Resource District (BC MoF, 2017).

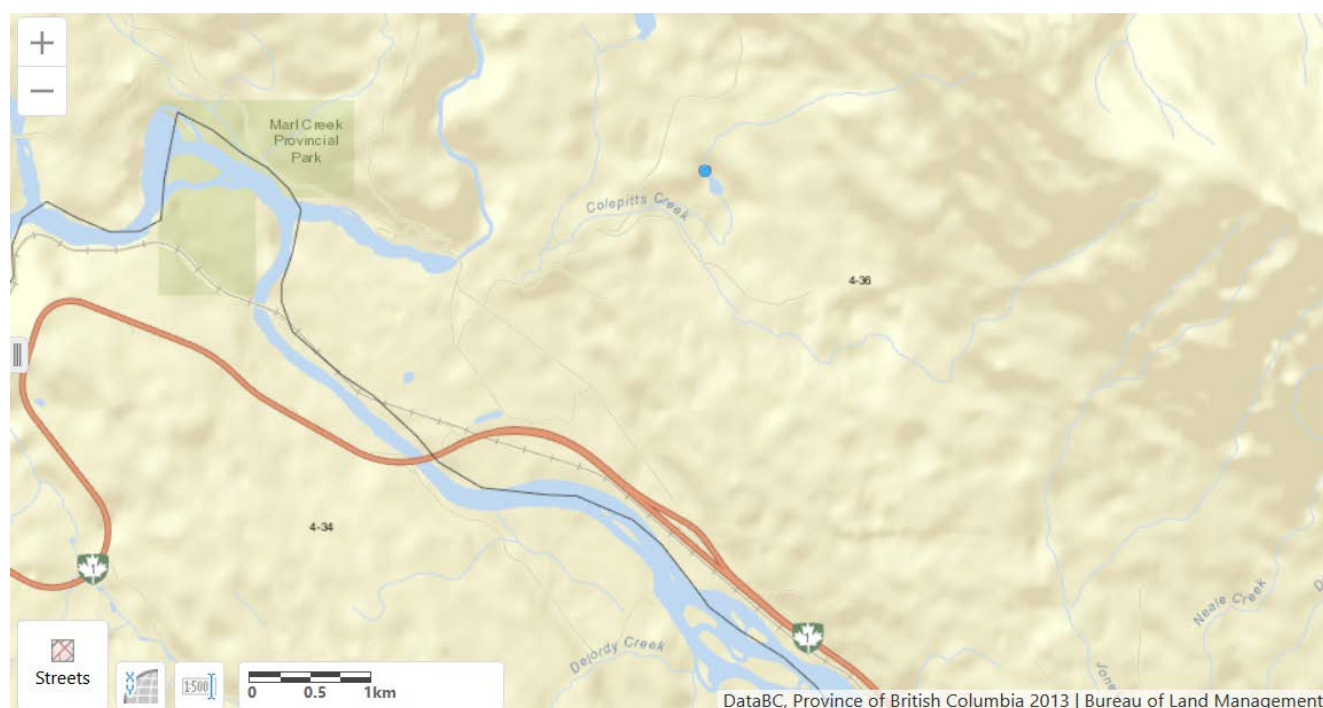
Figure 3 – BEC Zone Mapping



3.1.2 Wildlife

A desktop review of the CDC database for wildlife species with conservation status through the Province of BC, COSEWIC, and/or SARA was completed using the following search criteria: Type - Animals, Region - Columbia, Forest District - Columbia Forest District, Habitat Type - Forest, Riparian, Stream/River, BCG Zone - ICH. A total of forty species with conservation status were returned from the query. A complete wildlife species list from the CDC search has been provided in Appendix C of this report. None of the conservation species identified by the CDC search were specifically located in the project area. See Figure 4 for records of species in the project area. As the map shows, there were no records for this location.

Figure 4 – Field Records of Species with Conservation Status



3.1.3 Hydrology and Aquatic Resources

Dejordie Creek/ Colepitts Creek – Colepitts creek runs through the northeast corner of the property. iMapBC², accessed September 2017 show data for Dejordie/Colepitts Creek as having Western cutthroat population, visual observations of fry within the creek were observed on August 11, 2017. FIDQ database³ do not show observations for Colepitts Creek and Dejordie Creek is not found. This creek is considered fish bearing and should be treated as such. Logging within the northeast corner of the DDC property (Figure 2) was select logged and DDC representative Ken Woods stated that logging was set back 15 meters on either side of the creek. See Figure 5 for records of species in the project area. As the map shows, there were records of Western Cutthroat upstream of this location. As part of a simple assessment for the Riparian Areas Regulation a 15 meter default buffer and riparian area should be preserved on Colepitts Creek, as the creek is fish bearing. The buffer is meant to protect the creek with

² iMapBC, accessed 2017.

³ FIDQ; Fish inventories data queries, accessed 2017.

permanent and continuous vegetation, and riparian area. Upstream the creek borders/runs through other private properties. Downstream the creek passes through another private property, and then several culverts and under the TransCanada Highway, before feeding the Columbia River.

Figure 5 – Field Records of Western Cutthroat Observation with Conservation Status



3.1.4 Geology and Soils

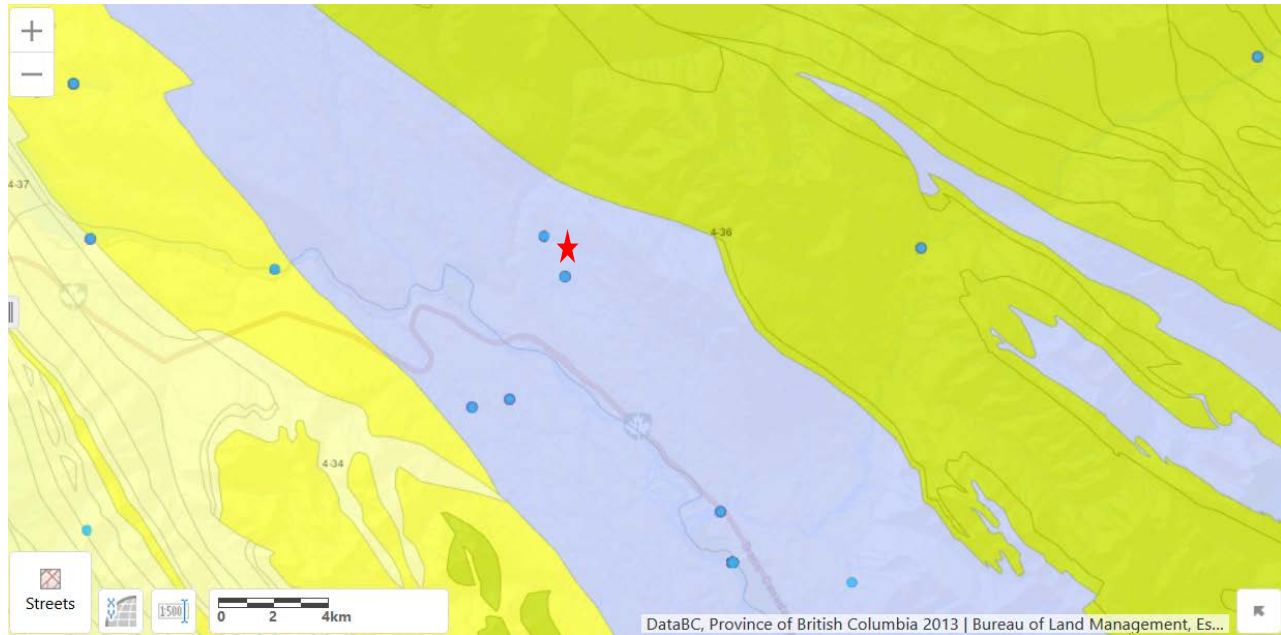
The geological information shows the site to have mudstone, siltstone, shale fine clastic sedimentary rocks.

Rock Type Code: sf

Rock Class: sedimentary rocks

Original Description: Argillite, shale, limestone

Maximum age name: Cambrian (iMapBC, 2017).

Figure 6 – Bedrock Mapping for project location

3.2 Archeological and Cultural Resources

If any cultural resources or artifacts are encountered the Archaeological Branch of the BC Ministry of Forests, Lands, and Natural Resources Operations will be notified immediately, and site will be left undisturbed and intact. All wildlife artifacts will be left undisturbed within the site.

4 SUMMARY OF SITE AND RECOMMENDATIONS

The site is a forested area with Colepitts Creek running through the northeast corner of the property. The riparian area must be avoided. If a detailed field assessment is done, the Stream Protection and Enhancement Area (SPEA) can be determined more precisely. The setback distance for this fish bearing creek, with an existing high vegetative cover, should be a minimum of 15 meters on either side, for a total of 30 meters. This riparian area is to be left forested, to protect the fish, fish habitat and food, stream health and stream channel migration and stabilization. Trees should be felled away from the creek. No trees are to be dragged through the riparian area. A full site and riparian assessment under RAR may provide decreased setback due to residential dwellings and changes to the stream both up and downstream from the location. The assessment will provide a streamside protection and enhancement area (SPEA).

If there are any raptor nests in the area to be cleared they should be avoided. They are to remain in place and avoided year-round. Other nests (breeding birds) should be avoided during the breeding bird window unless deemed in-active. The breeding bird window for that area is April 1 to August 15th. A bird nest survey should be conducted prior to harvest if occurring out of this window. Clearing of the site should be in the fall/winter, prior to the breeding bird window, and to avoid disruption of nests.

If there are any Whitebark pine on site, it is recommended that they are avoided and the tree dripline around the tree be protected. Prior to clearing the site should be walked and any Whitebark pine identified and the protected area (dripline) flagged. Possible opportunities to offset felled Whitebark pine would be to plant a variety of species including Whitebark pine in buffer areas.

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5 REFERENCES

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APPENDIX A: PLANTS WITH CONSERVATION STATUS

Scientific Name	English Name	Prov Status	COSEWIC	BC List	SARA
Conifers					
<i>Pinus albicaulis</i>	whitebark pine	S2S3	E (Apr 2010)	Blue	1-E (Jul 2012)
Dicots					
<i>Androsace chamaejasme</i> ssp. <i>lehmanniana</i>	sweet-flowered fairy-candelabra	S2S3		Blue	
<i>Brickellia grandiflora</i>	large-flowered brickellia	S1	NAR (May 1996)	Red	
<i>Draba densifolia</i>	Nuttall's draba	S2S3		Blue	
<i>Draba lactea</i>	milky draba	S3		Blue	
<i>Draba porsildii</i>	Porsild's draba	S3		Blue	
<i>Draba ruaxes</i>	coast mountain draba	S3		Blue	
<i>Potentilla glaucophylla</i> var. <i>perdissecta</i>	diverse-leaved cinquefoil	S2S3		Blue	
<i>Potentilla ovina</i> var. <i>ovina</i>	sheep cinquefoil	S2		Red	
<i>Ranunculus pedatifidus</i> ssp. <i>affinis</i>	birdfoot buttercup	S3		Blue	
<i>Silene drummondii</i> var. <i>drummondii</i>	Drummond's campion	S3		Blue	
<i>Stellaria obtusa</i>	blunt-sepaed starwort	S3		Blue	
<i>Synthyris wyomingensis</i>	Wyoming kitten-tails	S2S3		Blue	
<i>Townsendia parryi</i>	Parry's townsendia	S2		Red	
Monocots					
<i>Calamagrostis montanensis</i>	plains reedgrass	S3		Blue	
<i>Carex krausei</i>	Krause's sedge	S2S3		Blue	
<i>Carex paysonis</i>	Payson's sedge	S1S3		Red	
<i>Carex pedunculata</i>	peduncled sedge	S2S3		Blue	
<i>Elymus curvatus</i>	beardless wildrye	S1		Red	
<i>Juncus triglumis</i> ssp. <i>albescens</i>	whitish rush	S3		Blue	
<i>Muhlenbergia filiformis</i>	slender muhly	S2		Red	
<i>Poa laxa</i> ssp. <i>banffiana</i>	Banff bluegrass	SH		Red	

APPENDIX B: PLANT COMMUNITIES WITH CONSERVATION STATUS

Scientific Name	English Name	Prov Status	BC List
<i>Pinus albicaulis</i>	Whitebark Pine	S2S3	Blue
<i>Populus trichocarpa</i> / <i>Symphoricarpos albus</i> - <i>Rosa spp.</i>	black cottonwood / common snowberry - roses	S2	Red
<i>Pseudotsuga menziesii</i> / <i>Calamagrostis rubescens</i> - <i>Linnaea borealis</i>	Douglas-fir / pinegrass - twinflower	S3	Blue
<i>Pseudotsuga menziesii</i> / <i>Mahonia aquifolium</i> / <i>Cryptogramma acrostichoides</i>	Douglas-fir / tall Oregon-grape / parsley fern	S2	Red
<i>Thuja plicata</i> - <i>Tsuga heterophylla</i> / <i>Equisetum arvense</i>	western redcedar - western hemlock / common horsetail	S3	Blue

APPENDIX C: WILDLIFE WITH CONSERVATION STATUS

Scientific Name	English Name	Prov Status	COSEWIC	BC List	SARA
Anaxyrus boreas	Western Toad	S4	SC (Nov 2012)	Yellow	1-SC (Jan 2005)
Ardea herodias herodias	Great Blue Heron, herodias subspecies	S3?		Blue	
Chordeiles minor	Common Nighthawk	S4B	T (Apr 2007)	Yellow	1-T (Feb 2010)
Coccythraustes vespertinus	Evening Grosbeak	S5	SC (Nov 2016)	Yellow	
Contopus cooperi	Olive-sided Flycatcher	S3S4B	T (Nov 2007)	Blue	1-T (Feb 2010)
Gulo gulo luscus	Wolverine, luscus subspecies	S3	SC (May 2014)	Blue	
Hirundo rustica	Barn Swallow	S3S4B	T (May 2011)	Blue	
Myotis septentrionalis	Northern Myotis	S3S4	E (Nov 2013)	Blue	1-E (Dec 2014)
Ovis canadensis	Bighorn Sheep	S3?		Blue	
Pekania pennanti	Fisher	S3		Blue	
Pinus albicaulis	whitebark pine	S2S3	E (Apr 2010)	Blue	1-E (Jul 2012)
Rangifer tarandus pop. 1	Caribou (southern mountain population)	S1	E (May 2014)	Red	1-T (Jun 2003)
Ursus arctos	Grizzly Bear	S3?	SC (May 2002)	Blue	