Appendix 10. Regional Rare Plant Survey Program

ECOLOGIC CONSULTANTS
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PHONE: 604 803-7146

MEMORANDUM

DATE: 15 November 2017

TO: Brock Simons, M.Sc., R.P.Bio.

FROM: EcoLogic Consultants Ltd.

SUBJECT: Site C Regional Rare Plant Survey Program – 2016 and 2017 Field Season Overview

OBJECTIVES OF THE FIELD PROGRAM

Per BC Hydro's *Site C Clean Energy Project Regional Rare Plant Survey Program*, EcoLogic Consultants Ltd. (EcoLogic) has completed the 2016 and 2017 scope of work.

The key aspect of the program was to conduct regional rare plant surveys within the Regional and Local Assessment Areas in order to achieve the following:

1. Identify occurrences of the 18 directly affected rare plant species (as defined in the amended Environmental Impact Statement [EIS]), and rare plant species identified by the MOE's Conservation Framework requiring additional inventories to confirm or determine the status rank.
2. Determine if two critically imperiled rare plant species, *Erigeron pacalis* (Peace daisy) and *Rorippa calycina* (persistent-sepal yellowcress), occur elsewhere in the region.
3. Provide FLNRO and MOE (BC CDC) with the full element occurrence data and any other relevant findings for each rare plant documented.
4. Identify habitats that appear consistent with those of the target translocation rare plant species (as defined in the Experimental Rare Plant Translocation [ERPT] Program document [March 06, 2017]).

FIELD PROGRAM OVERVIEW

Regional rare plant surveys occurred over two years as per outlined in the Regional Rare Plant Survey Program document (April 2017).

The field team consisted of botanists Dr. Terry McIntosh and Jamie Fenneman (Ph.D. Candidate), both of whom have extensive experience conducting rare plant surveys within the Peace District and/or elsewhere in British Columbia.

The field team conducted rare plant surveys during one period in 2016: late-flowering period (August 11th to 18th) and during three time periods in 2017: early-flowering (June 1st to June 7th), mid-flowering (July 17th to July 21st), and late-flowering (August 23rd to 28th).

SITE SELECTION

Surveys occurred within six general areas in 2016 in the Peace River region: Beatton River, Leahy Pit Road, Upper Halfway River, Pouce Coupé River, Pine River and Cecil Lake area (Figure 1) and eight general areas in 2017: Rose Prairie, Cache Creek, Wilder Creek, Bear Flat and the adjacent Watson Slough, Beatton River, Area E, and along portions of the Peace River from just east of Taylor to part-way up Halfway River (Figure 2).

Survey efforts focused on areas that contained habitats that appeared consistent with those of the target regional rare plant survey species. Survey sites were also selected based on the following criteria:

1. occurred on land that could be accessed by truck, boat, or by walking and for which access had been obtained;
2. appeared undersampled and contained few or no known occurrences of rare species, based on the information provided by the BC Conservation Data Centre (BC CDC 2017) and/ or historic surveys; and
3. contained habitat that appeared consistent with those of the target translocation rare plant species.

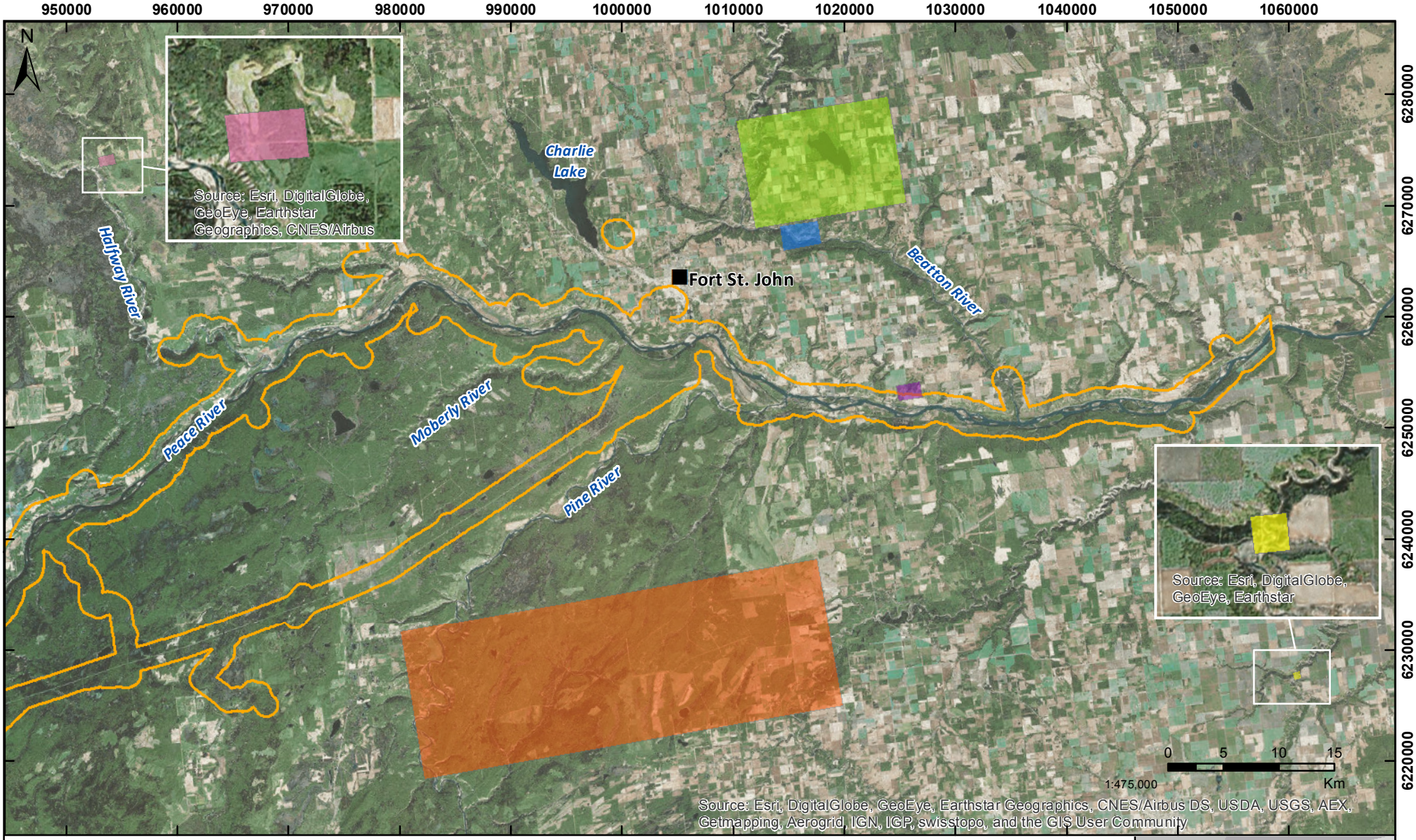
TARGET SPECIES DETECTION

The field team detected 21 CDC-listed rare plant species. Of these, five are target species for both the regional rare plant survey program and the ERPT program, nine are solely targets of the ERPT program, and seven are non-target rare plant species (Table 1). In total, 217 occurrences were documented: 56 in 2016 and 161 in 2017 (Figure 3). Neither the Peace daisy nor the persistent-sepal yellowcress were detected elsewhere in the region in 2016 or 2017. The full account for each occurrence is provided in Appendix 1 (2016 BC CDC Plant Observation Form BC Hydro Site C) and Appendix 2 (2017 BC CDC Plant Observation Form BC Hydro Site C). The element occurrence data for 2016 and 2017 was provided to the BC CDC on January 24th, 2017 and November 1st, 2017, respectively.

Table 1. Number of Element Occurrences documented during the 2016 and 2017 Regional Rare Plant Surveys

Scientific Name	English Name	Regional Rare Plant Survey Target (Y/N)	Translocation Rare Plant Survey Target (Y/N)	No. of Occurrences (2016)	No. of Occurrences (2017)	No. of Occurrences Total
Artemisia herriotii	Herriot's sage	Y	Y	5	23	28
Antennaria neglecta	field pussytoes	N	N	5	12	17
Avenula hookeri	spike-oat	Y	Y	5	12	17
Calamagrostis montanensis	Plains reedgrass	Y	Y	7	13	20
Carex backii	Back's sedge	N	N	0	1	1
Carex sprengelii	Sprengel's sedge	N	Y	0	1	1
Carex torreyi	Torrey's sedge	Y	Y	1	3	4
Carex xerantica	dry-land sedge	N	Y	2	22	24
Cirsium drummondii	Drummond's thistle	N	Y	0	12	12
Elymus albicans	Montana wildrye	N	N	1	0	1
Elymus lanceolatus ssp. *psammophilus*	sand-dune wheatgrass	N	N	1	0	1
Geum triflorum var. *triflorum*	old man's whiskers	N	Y	11	6	17
Lomatium foeniculaceum var. *foeniculaceum*	fennel-leaved desert-parsley	N	N	0	9	9
Oxytropis campestris var. *davisii*	Davis' locoweed	N	Y	0	19	19
Penstemon gracilis	slender penstemon	Y	Y	9	3	12
Polypodium sibiricum	Siberian polypody	N	Y	0	2	2
Potentilla pulcherrima	pretty cinquefoil	N	Y	1	11	12
Ranunculus cardiophyllus	heart-leaved buttercup	N	N	0	1	1
Ranunculus rhomboideus	prairie buttercup	N	Y[1]	0	8	8
Silene drummondii var. *drummondii*	Drummond's campion	N	Y	3	3	6
Symphyotrichum lanceolatum var. *lanceolatum*	panicled aster	N	N	5	0	5
Total No. of Occurrences				**56**	**161**	**217**

[1] *Ranunculus rhomboideus* is not currently a target species for further inventory but this species may be added to the Experimental Translocation Program.



Site C Project

Distribution of 2016 Regional Rare Plant Surveys

Figure 1

Date: 11/14/2017

Map Number: BCH-017

Coordinate System: NAD 1983 UTM Zone 9N
Projection: Transverse Mercator
Datum: North American 1983

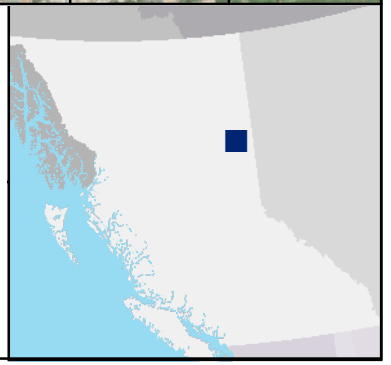
ECOLOGIC

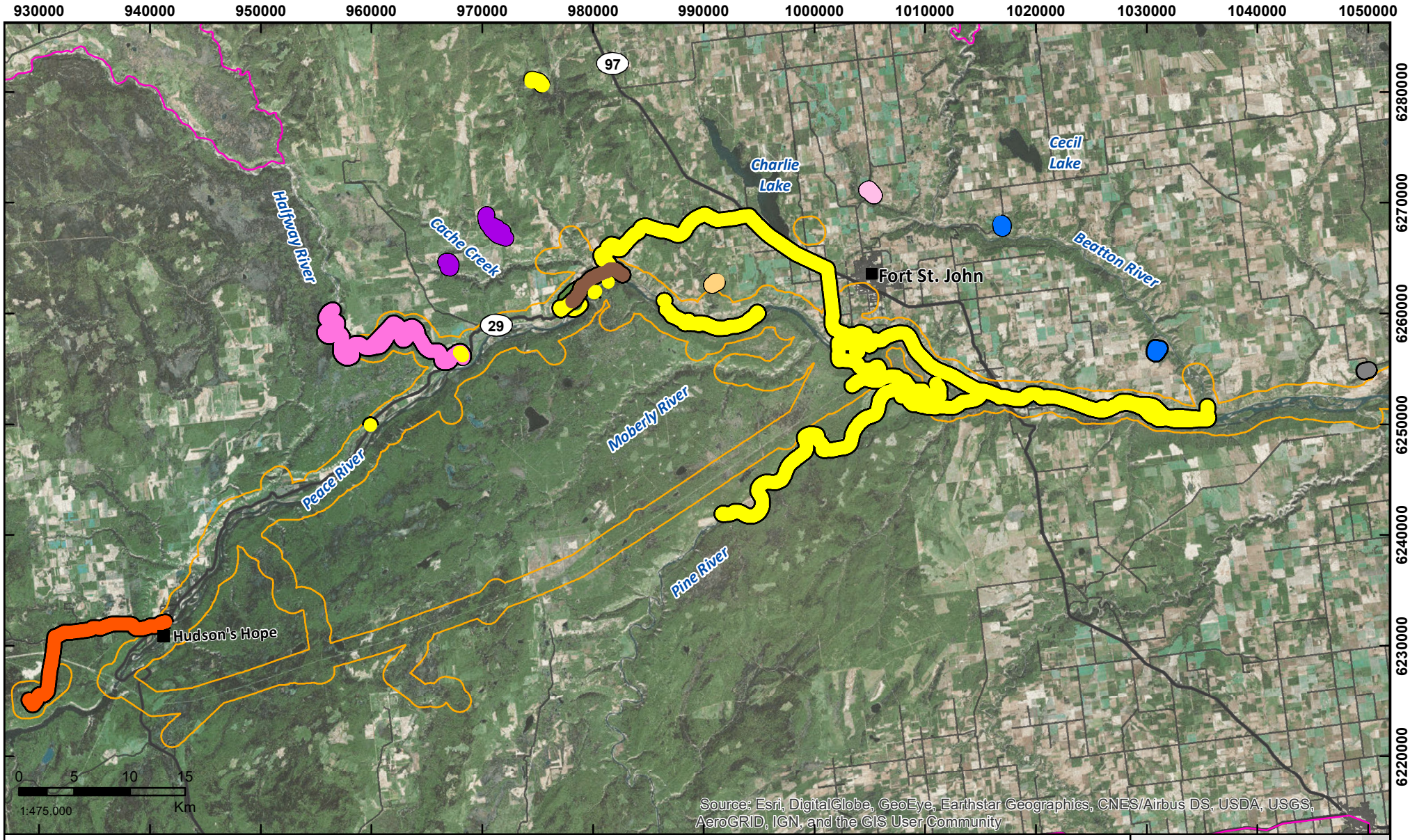
Legend

- Local Assessment Area

Location Name

- Beatton River
- Cecil Lake
- Leahy Pit Road
- Pine River
- Pouce Coupé River
- Upper Halfway River





Site C Project

Distribution of 2017 Regional Rare Plant Surveys

Figure 2

Date: 11/9/2017

Map Number: BCH-015

Coordinate System: NAD 1983 UTM Zone 9N

Projection: Transverse Mercator

Datum: North American 1983

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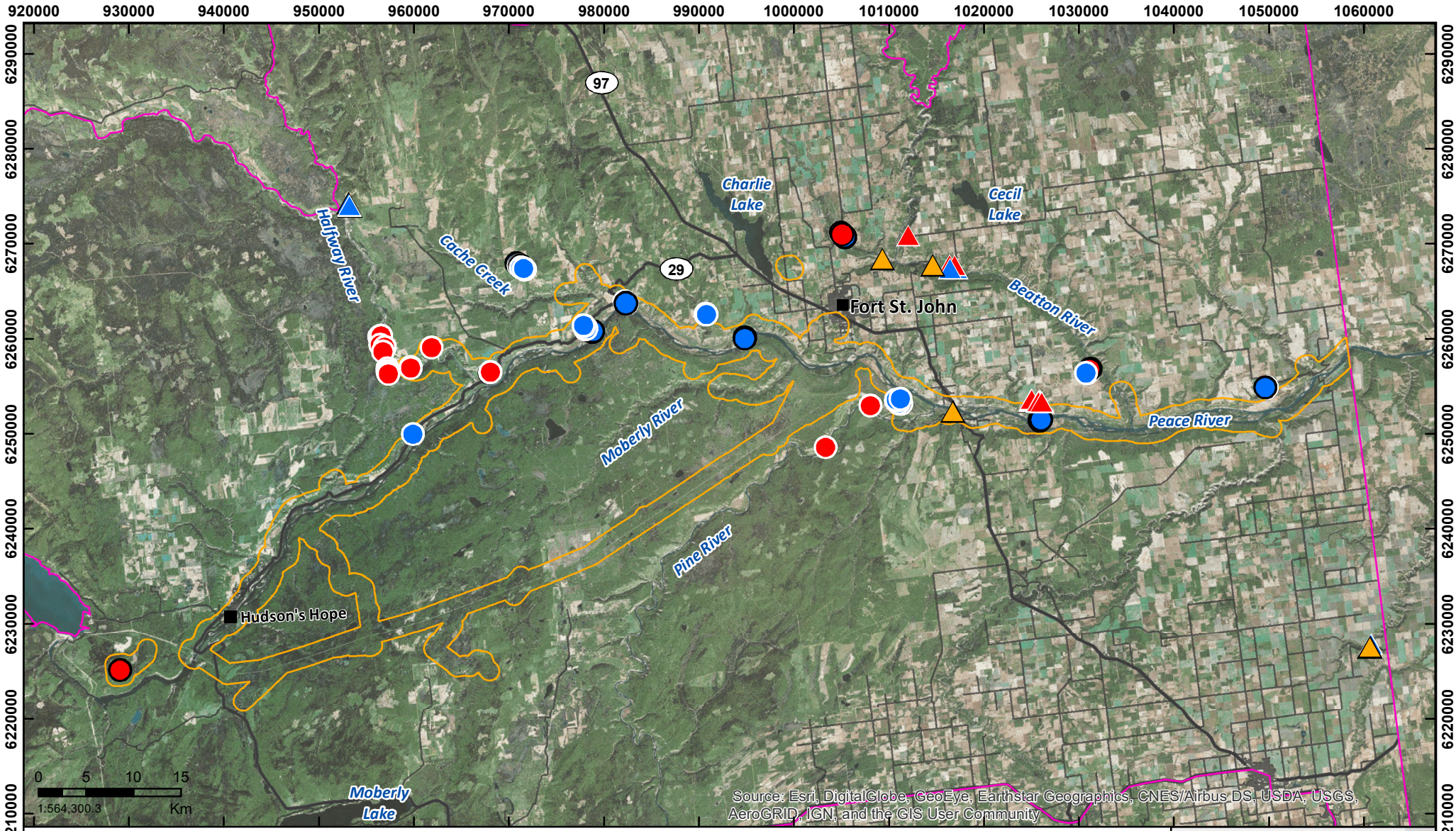
Legend

- Local Assessment Area
- Regional Assessment Area

Area

- Area E
- Bear Flat
- Beatton River
- Cache Creek
- Halfway River
- Nelson Road
- Peace River
- Hudson's Hope
- Rose Prairie
- Watson Slough
- Wilder Creek

N



Site C Project

Rare Plant Locations (2016 and 2017)
Figure 3

Date: 11/10/2017
Map Number: BCH-018
Coordinate System: NAD 1983 UTM Zone 9N
Projection: Transverse Mercator
Datum: North American 1983

ECOLOGIC environmental consulting

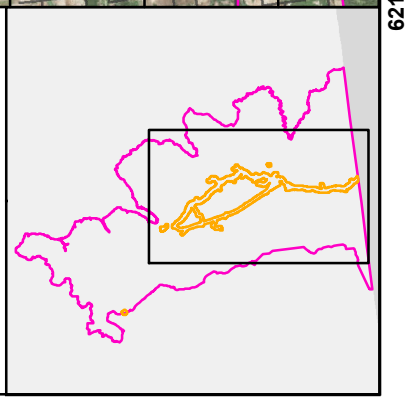
Legend

Rare Species Information

2017	2016	
●	▲	Target; BC CDC Red-Listed
●	▲	Target; BC CDC Blue-Listed
●	▲	Non-Target; BC CDC Red-Listed
●	▲	Non-Target; BC CDC Blue-Listed
●	▲	Non-Target; to be ranked in 2017

Local Assessment Area
Regional Assessment Area

N



The detected element occurrences varied by year and by survey area. In 2016, the field team detected occurrences at the Beatton River (8), Leahy Pit Road (27), Upper Halfway River (11), Pouce Coupé River (6), Pine River (2) and Cecil Lake area (1). In 2017, the field team detected occurences at Rose Prairie (19), Cache Creek (25), Wilder Creek (16), Bear Flat (6) and the adjacent Watson Slough (16), Beatton River (14), Area E (19), Nelson Road area (5), Rock Quarry (3) and along portions of the Peace River from just east of Taylor to part-way up Halfway River (39). The location of the detected occurences are provided in Appendix 3 (2016 Target and Non-Target Rare Plant Species Locations) and Appendix 4 (2017 Target and Non-Target Rare Plant Species Locations).

RECOMMENDATIONS ARISING FROM THE FIELD PROGRAM

ADJUSTMENTS TO TARGET SPECIES LIST

Based on the results of the field program, and the research conducted to support it, the field team recommends that eight species be removed from the target species list:

- ***Antennaria neglecta*** (field pussytoes) - This species is common across all of the grasslands in the Peace River valley, with the populations with potential to be lost due to the Site C Project representing a small proportion of the provincial populations.
- ***Artemisia herriotii*** (Herriot's sage) - This species is common throughout the Peace River Valley, with the populations with potential to be lost due to the Site C Project representing a small proportion of the provincial populations. Furthermore, it is primarily adapted to disturbed (naturally or unnaturally) habitats.
- ***Avenula hookeri*** **(**spike oat) - This species is common in the region within and outside of the Project footprint.
- ***Calamagrostis montanensis*** (plains reedgrass) - This species is widespread and common in the region within and outside of the Project footprint, especially in naturally eroding grasslands habitats.
- ***Erigeron pacalis*** (Peace daisy) - There have been a number of attempts in recent years to locate this plant at the reported site by several botanists, but no individuals have been observed.
- ***Geum triflorum*** **var.** ***triflorum*** (old man's whiskers) – An extremely common species in the grasslands of the region, and is expected to be downlisted as a species of concern in BC in the near future.
- ***Potentilla pulcherrima*** (pretty cinquefoil) - A common species in the region, and is expected to be downlisted as a species of concern in BC in the near future.
- ***Schizachyrium scoparium*** (little bluestem) - Existing reports in the Peace River region are all suspected of being erroneous, and it is likely that the species has been misreported as occurring

in the area. No reports are supported by voucher specimens; the only known photographs of the species in the Peace appear to be of *Nassella viridula* (green needlegrass).

Based on the results of the 2017 field season, and the research conducted to support it, the field team recommends that one species be added to the target species list:

- ***Ranunculus rhomboideus*** (prairie buttercup) – This red-listed species has a highly limited distribution in British Columbia. Several plants were detected in Watson Slough during the July 2017 field visit, but the seeds were already too mature to collect.

Natasha Bush

APPENDIX 1. 2016 BC CDC PLANT OBSERVATION FORM BC HYDRO SITE C

Appendix 1. 2016 BC CDC Plant Observation Form BC Hydro Site C

B.C. Conservation Data Centre: Plant Observation Form (for Red- or Blue-listed species)

Contact name	Jamie Fenneman	Terry McIntosh
Contact E-mail	botrychiophile@gmail.com	ttmcintosh@shaw.ca

Essential fields are highlighted in green, but please complete as many fields as possible. **Fields with purple headings have drop-down lists.**

Guidance is available by moving the cursor over the red triangle in the top right hand corner of a field with a comment. * Fields data will not be shared. If waypoint file available, indicate waypoint #s to cross-reference waypoints to CDC observations.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Observer	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh
Taxon name	*Antennaria neglecta*	*Antennaria neglecta*	*Antennaria neglecta*	*Antennaria neglecta*	*Antennaria neglecta*	*Artemisia herriotii*	*Artemisia herriotii*	*Artemisia herriotii*	*Artemisia herriotii*	*Avenula hookeri*	*Avenula hookeri*	*Avenula hookeri*	*Avenula hookeri*	*Avenula hookeri*	*Calamagrostis montanensis*	*Calamagrostis montanensis*	*Calamagrostis montanensis*	*Calamagrostis montanensis*
Source of Report	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo
Location/Directions	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Upper Halfway River area, W. of Ft. St. John	Upper Halfway River area, W. of Ft. St. John	Upper Halfway River area, W. of Ft. St. John	Pouce Coupé River, SE. of	Pouce Coupé River, SE. of	Fish Creek, NE of Ft. St John	E of Pine River, NE of Ft. St John	Upper Halfway River area, W. of Ft. St. John	Upper Halfway River area, W. of Ft. St. John	Upper Halfway River area, W. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Beatton River area, E of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John
Habitat type	Grassland/shrub steppe	Grassland/shrub steppe	forest / grassland	Grassland/shrub steppe	forest / grassland	Riparian	Riparian	Riparian	Forest	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe
Habitat	in grassland-shrub matrix on open slope	in grassland-shrub matrix on open slope	along edge of open track near fence along pipeline right of way, grassy-shrub matrix at edge of forest	at edge of grassland-shrub matrix on open slope	grassland at edge of forest	eroding silty-sandy riverbank	silty-sandy alluvial deposition area	eroding silty-sandy riverbank and along stream	steep, eroding bank in open young forest; disturbed roadsides	south-west facing grassland slope	south-west facing grassland slope	south-west facing grassland slope	south-facing grassland slope	south-facing grassland slope	steep, eroding south-facing slope	south-facing grassland slope	along wildlife/livestock trail on south-facing grassland slope	south-facing grassland slope
Associated spp.	Symphoricarpos occidentalis, Rosa woodsii, Hesperostipa curtiseta	Elymus glaucus, Hesperostipa curtiseta, Comandra umbellata, near Prunus virginiana patch	Populus tremuloides, Festuca rubra, Spiraea betulifolia, Fragaria virginiana, Potentilla hippiana	Hesperostipa comata, Symphoricarpos occidentalis	Hesperostipa comata, Achillea millefolium, Symphoricarpos occidentalis	Equisetum palustre, Phalaris arundinacea, Salix interior, Poa palustris, Achillea alpina	Equisetum palustre, Phalaris arundinacea, Achillea alpina	Salix spp., numerous forbs and various grasses (e.g., Elymus sp., Phalaris arundinacea)	Populus balsamifera, Salix spp., numerous other herbs, forbs, and shrubs	Poa pratensis, Amelanchier alnifolia, Rosa acicularis, Stellaria longipes, Festuca rubra, Campanula rotundifolia, Achnatherum nelsonii, Koeleria macrantha	none recorded	none recorded	Hesperostipa curtiseta, Rosa woodsi, Carex sp.	Hesperostipa curtiseta	Elymus lanceolatus, Artemisia frigida, Symphoricarpos occidentalis, Rosa woodsii (although plant cover is ~only 10 %)	Hesperostipa curtiseta, Elymus glauca	few associates (some Hesperostipa curtiseta)	few associates (some Hesperostipa curtiseta)
***Landowner Name**	Crown land	Crown land		Crown Land	Crown Land	Crown Land	Crown Land	unknown	unknown	Crown	Crown	Crown	Crown	Crown	Crown	Crown	Crown	Crown
***Landowner permissions**	Permission to survey/collect/share	Permission to survey/collect/share	Landowner name unknown	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Landowner name unknown	Landowner name unknown	Permission to survey/collect/share data	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share data	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share
Survey Date (yyyy/mm/dd)	13/08/2016 and	16/08/2016 and	8/14/2016	8/14/2016	8/14/2016	8/15/2016	8/15/2016	8/18/2016	8/18/2016	8/14/2016	8/14/2016	8/14/2016	8/16/2016	8/16/2016	8/12/2016	8/16/2016	8/16/2016	8/16/2016
Zone	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Easting	652770	653511	583356	583331	583298	685931/685941	685958	638662, 638554	641436	583300	583222	583222	653540	653810	646183	653534	653550	653587
Northing	6223893	6223773	6250491	6250510	6250570	6195078/6195080	6195090	6240047, 6240094	6242312	6250543	6250740	6250740	6223805	6223721	6238410	6223788	6223806	6223808
Source for coordinate	GPS	GPS	GPS	GPS	GPS	GPS	GPS	GPS	GPS	GPS	GPS	GPS	GPS	GPS	GPS	GPS	GPS	GPS
Waypoint numbers (if applicable)	50	83	58	3m NE of 60	65	70/71	72	121 to 125	127-128	61	65	62	92	102	38	90	93	94
# of Individuals (exact)						4	about 23			20			10	10	55			
# of Individual (range estimates)	1- 50	1- 50	1- 50	1- 50	1- 50		1- 50	50-250	250-1000		1- 50	1- 50				1- 50	50-250	1- 50
Area Occupied: Length (m)	4	5	3	>1	1	10	20	140	40	10	1	1	4	5	10	1	16	14
Area Occupied: Width (m)	3	4	2	>1	0.5	2	5	25	40	10	1	1	3	5	3	1	0.5	0.5
Area Occupied (m^2)	12	20	12	>1	0.5	20	100	3500	1600	100	1	1	12	25	30	1	8	7
Description of Area Occupied	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat with one large cluster at west end along bank	scattered in area of unsuitable habitat along road but with one large cluster on eroding steep bank	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of mostly unsuitable habitat (appears to favour disturbed sites)	scattered in area of mostly unsuitable habitat (appears to favour disturbed sites)	scattered in area of mostly unsuitable habitat (appears to favour disturbed sites)	scattered in area of mostly unsuitable habitat (appears to favour disturbed sites)
Condition of Population (& potential threats to plants within occupied area)	excellent condition; no threats observed; past flowering	excellent condition; no threats observed; past flowering	excellent condition; no threats observed (although this site might be threatened by ROW clearing); past flowering	excellent condition; no threats observed; past flowering	excellent condition; no threats observed; past flowering	fair condition, typical riverine disturbance; no threats other than river erosion etc. which was severe at this site in 2016); flowering	good condition; typical riverine disturbance; no threats other than river erosion etc. which was severe at this site in 2016); flowering	typical riverine disturbance; no threats other than river erosion etc. which was severe at this site in 2016); flowering	plants along road have been driven over at times but large cluster on slope is composed of large, healthy individuals; this steep slope is eroding but this does not appear to negatively affect the population; flowering	excellent condition; no threats observed; fruiting	excellent condition; no threats observed; fruiting	excellent condition; no threats observed; fruiting	excellent condition; no threats observed; fruiting	excellent condition; no threats observed; flowering	fair condition; adjacent steep bank shows heavy erosion and may impact the cluster; fruiting	excellent condition, no disturbance; no threats; fruiting	excellent condition, and trail eroding which may benefit species; fruiting	excellent condition, and trail eroding which may benefit species; fruiting
Condition of Landscape (& potential threats at landscape level)	excellent condition; no threats observed	excellent condition; no threats observed	excellent condition; no threats observed (although habitat might be threatened by ROW clearing)	excellent condition; no threats observed; past flowering	excellent condition; no threats observed	fair condition; probable river erosion	good condition; probable river erosion	good condition; probable river erosion	mainly excellent condition to poor (along road); vehicle traffic is the main threat to a few plants	excellent condition; no threats observed	excellent condition; no threats observed	excellent condition; no threats observed	excellent condition; no threats observed	excellent condition; no threats observed	fair condition; adjacent steep bank shows heavy erosion and may impact the habitat	excellent condition, no disturbance; no threats	excellent condition, although trail eroding which may benefit species	excellent condition, although trail eroding which may benefit species
Recent (20-40 yrs) Landscape Disturbance	Grazing	Grazing	Grazing	Grazing	Grazing	Other	Other	Other	Other	Grazing	Grazing	Grazing	Grazing	Grazing	Other	Grazing	Grazing	Grazing
Overall Quality of Occurrence	Excellent	Excellent	Excellent	Excellent	Excellent	Fair	Good	Good	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Fair	Excellent	Excellent	Excellent
Elevation (m)	567	553	834	837	841	547 - 549	550	458	705	834	841	826	558	586	518	553	559	564
Slope (%)																		
Slope (°)	3-5	3-5	0-3	3-8	0-3	0	0 - 30 (along a bank and on flat)	0 - 40 (along a bank and on flat)	0 (along road) to 50	20	20	20	20	20	60	20	35	35
Aspect	south	south	south	south-west	south-west	none	none to north west	none to south	north-north-west	south-west	south-west	south-west	south-east	south-west	south-east	south	south	south
Crown closure	Open	Open	Partial	Open	Partial	Open	Open	Open	Partial	Open	Open	Open	Open	Open	Open	Open	Open	Open
Slope Position	Upper slope	Upper slope	Crest	Upper slope	Upper slope	Toe	Toe	Toe	Upper slope	Upper slope	Upper slope	Mid-slope	Upper slope	Upper slope	Upper slope	Upper slope	Upper slope	Upper slope
Moisture	Dry	Dry	Dry	Dry	Dry	Mesic(moist)	Mesic(moist)	Mesic(moist)	Dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry
Substrate/soil	silty loam	silty loam	silty loam	silty loam	silty loam	sandy silt	sandy silt	sandy silt	sandy silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact stony, sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt
General Notes	because this slope is extensive and only a relatively small portion was surveyed in detail, more patches are expected	because this slope is extensive and only a relatively small portion was surveyed in detail, more patches are expected		because this slope is extensive and only a relatively small portion was surveyed in detail, more patches are expected	because this slope is extensive and only a relatively small portion was surveyed in detail, more patches are expected	probably more plants along stream	probably more plants along stream	probably more plants along stream	probably more plants along slope	probably more plants along slope	probably more plants along slope	probably more plants along slope	probably more plants along slope	probably more plants along slope	probably more plants along slope	probably more plants along slope	probably more plants along slope	probably more plants along slope
Collector name (if different from observer)																		
Herbarium and Specimen Collection #	to be deposited into UBC	no specimen collected	no specimen collected	no specimen collected	no specimen collected	to be deposited into UBC	no specimen collected	to be deposited into UBC	no specimen collected	no specimen collected	to be deposited into UBC	no specimen collected	to be deposited into UBC	no specimen collected	to be deposited into UBC	to be deposited into UBC	no specimen collected	no specimen collected
Plot # (if applicable)																		
Photo details	available	available	available	available	available	available	photos of habitat available	available	available	available	available	available	available	available	available		available	available

B.C. Conservation Data Centre: Plant Observation Form (for Red- or Blue-listed species)

Contact name

Contact E-mail

Essential fields are highlighted in green, but please complete as many fields as possible. **Fields with purple headings have drop-down lists.**

Guidance is available by moving the cursor over the red triangle in the top right hand corner of a field with a comment. * Fields data will not be shared. If waypoint file available, indicate waypoint #s to crc

	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Observer	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh
Taxon name	*Calamagrostis montanensis*	*Calamagrostis montanensis*	*Calamagrostis montanensis*	*Carex torreyi*	*Carex xerantica*	*Carex xerantica*	*Elymus albicans*	*Elymus lanceolatus ssp. psammophilus*	*Geum triflorum* var. *triflorum*	*Geum triflorum* var. *triflorum*	*Geum triflorum* var. *triflorum*	*Geum triflorum* var. *triflorum*	*Geum triflorum* var. *triflorum*	*Geum triflorum* var. *triflorum*	*Geum triflorum* var. *triflorum*	*Geum triflorum* var. *triflorum*	*Geum triflorum* var. *triflorum*
Source of Report	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo
Location/Directions	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Pouce Coupé River, SE. of Ft. St	Leahy Pit area, E. of Ft. St. John	Upper Halfway River area, W. of Ft. St. John	Beatton River area, E of Ft. St. John	Beatton River area, E of Ft. St. John	Beatton River area, E of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John
Habitat type	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe
Habitat	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope	grassy swale on grassland slope	south-facing grassland slope	in thicket in grassland	south-facing grassland slope	rocky outcrop on grassland slope	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope
Associated spp.	few associates (some Hesperostipa curtiseta)	few associates (some Hesperostipa curtiseta)	Hesperostipa curtiseta	Symphoricarpos occidentalis, Drymocallis arguta, Monarda fistulosa var. menthifolia, Amelanchier alnifolia, Eurybia conspicua, Bromus inermis	Elymus sp., Achillea millefolium, Symphoricarpos occidentalis, Carex obtusata	Elaeagnus commutata, Prunus virginiana, Amelanchier alnifolia	none recorded	none recorded	Elymus lanceolatus, Achnatherum nelsonii spp. dorei, Comandra umbellata	Hesperostipa curtiseta, Solidago missouriensis, Antennaria cf rosea, Artemsia dracunculus, Artemsia frigida, Comandra umbellata	Poa pratensis, Hesperostipa curtiseta, Solidago missouriensis, Hieracium canadensis, Achillea millefolium	Hesperostipa curtiseta	Hesperostipa curtiseta	Hesperostipa curtiseta	Hesperostipa curtiseta	Hesperostipa curtiseta Solidago missouriensis, Koeleria macrantha, Oxytropis splendens	Hesperostipa curtiseta
***Landowner Name**	Crown	Crown	Crown	Crown	Crown	Crown	Crown	Crown	Crown	Crown	Crown	Crown	Crown	Crown	Crown	Crown	Crown
***Landowner permissions**	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share data	Permission to survey/collect/share	Permission to survey/collect/share data	Permission to survey/collect/share data	Permission to survey/collect/share data obtained	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share
Survey Date (yyyy/mm/dd)	8/16/2016	8/16/2016	8/16/2016	8/13/2016	8/13/2016	8/15/2016	8/13/2016	8/14/2016	8/12/2016	8/12/2016	8/12/2016	8/13/2016	8/13/2016	8/13/2016	8/16/2016	8/16/2016	8/16/2016
Zone	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Easting	653712	653745	653863	652831	653775	686021	653779	583202	646281	645503	645467	652750	652898	653045	653706	653743	653879
Northing	6223853	6223792	6223708	6224006	6223746	6195425	6226302	6250810	6238649	6238523	6238537	6223916	6224044	6223964	6223854	6223820	6223705
Source for coordinate	GPS	GPS	GPS	GPS	GPS	GPS	Google Earth	GPS	GPS	GPS	GPS	GPS	Google Earth	Google Earth	GPS	GPS	GPS
Waypoint numbers (if applicable)	97	100	103	55	101	75	NA	63	34	44	46	51			96	99	104
# of Individuals (exact)	20	1	8		3		1	1	8 - 10	3 - 4	>20		>10	>50	about 30	1	~20
# of Individual (range estimates)				1- 50		1- 50	1- 50	1- 50	1- 50	1- 50	1- 50	1- 50	1- 50	50-250	1- 50	1- 50	1- 50
Area Occupied: Length (m)	10	0.1	3	8	2	1	1	1	3	4	4	3	4	5	3	0.25	5
Area Occupied: Width (m)	0.5	0.1	2	3	0.25	1	1	1	2	3	3	3	3	5	2	0.25	3
Area Occupied (m^2)	5	0.01	6	24	0.5	1	1	1	6	12	12	9	12	25	6	0.0625	15
Description of Area Occupied	scattered in area of mostly unsuitable habitat (appears to favour disturbed sites)	scattered in area of mostly unsuitable habitat (appears to favour disturbed sites)	scattered in area of mostly unsuitable habitat (appears to favour disturbed sites)	scattered in area of suitable habitat (patches of shrubs in the grasslands)	in area of suitable habitat	in area of suitable habitat	in area of suitable habitat	in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat
Condition of Population (& potential threats to plants within occupied area)	excellent condition, and trail eroding which may benefit species; fruiting	excellent condition, and trail eroding which may benefit species; fruiting	excellent condition; no threats; fruiting	excellent condition; no threats; fruiting	excellent condition; no threats; fruiting	excellent condition; no threats; fruiting	excellent condition; no threats; fruiting	excellent condition; no threats; fruiting	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats
Condition of Landscape (& potential threats at landscape level)	excellent condition, although trail eroding which may benefit species	excellent condition, although trail eroding which may benefit species	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats
Recent (20-40 yrs) Landscape Disturbance	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing
Overall Quality of Occurrence	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Elevation (m)	602	588	581		583	590	550	828	534	621	627	573	605	595	600	600	581
Slope (%)																	
Slope (°)	35	35	25	10	20	20	NA	NA	15	15	10	15	15	15	10	10	15
Aspect	south	south	south	south	south	south	south	south	south	south	south	south	south	south	south	south	south
Crown closure	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
Slope Position	Upper slope	Upper slope	Upper slope	Upper slope	Upper slope	Upper slope	Mid-slope	Upper slope	Upper slope	Upper slope	Upper slope	Upper slope	Upper slope	Upper slope	Upper slope	Upper slope	Upper slope
Moisture	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry
Substrate/soil	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	sandy/rocky	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt
General Notes	probably more plants along slope	probably more plants along slope	probably more plants along slope	probably more plants along slope but too late in the year and most perigynia lost	probably more plants along slope but too late in the year and most perigynia lost	one plant was collected and identified as this species at a later dat so little information is available; probably more plants along slope but too late in the year and most perigynia lost	one plant was collected and identified as this species at a later date so little information is available; probably more plants along slope	one plant was collected and identified as this species at a later date so little information is available; probably more plants along slope	probably more plants along slope	probably more plants along slope	probably more plants along slope	probably more plants along slope	probably more plants along slope	probably more plants along slope	probably more plants along slope	probably more plants along slope	probably more plants along slope
Collector name (if different from observer)																	
Herbarium and Specimen Collection #	no specimen collected	no specimen collected	no specimen collected	to be deposited into UBC	to be deposited into UBC	to be deposited into UBC	to be deposited into UBC	to be deposited into UBC	no specimen collected	no specimen collected	no specimen collected	no specimen collected	no specimen collected	no specimen collected	no specimen collected	no specimen collected	no specimen collected
Plot # (if applicable)																	
Photo details	available			available	available				available				available		available		

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Terry McIntosh
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ss-reference waypoints to CDC observations.

	36	37	38	39	40	41	42	43
Observer	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh
Taxon name	*Geum triflorum var. triflorum*	*Geum triflorum var. triflorum*	*Penstemon gracilis*	*Penstemon gracilis*	*Penstemon gracilis*	*Penstemon gracilis*	*Penstemon gracilis*	*Penstemon gracilis*
Source of Report	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo
Location/Directions	Leahy Pit area, E. of Ft. St. John	Upper Halfway River area, W. of Ft. St. John	Beatton River area, E of Ft. St. John	Beatton River area, E of Ft. St. John	Beatton River area, E of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John
Habitat type	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe
Habitat	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope
Associated spp.	Hesperostipa curtiseta	Hesperostipa curtiseta	Poa pratensis, (Hesperostipa curtiseta)/(Danthonia intermedia)	Poa pratensis, (Hesperostipa curtiseta	Poa pratensis, Hesperostipa curtiseta, Antennaria cf rosea, Comandra umbellata	Comandra umbellata, Amelanchier alnifolia, Allium cernuum, Carex obtusata, Orthocarpus luteus, Elymus glaucus	Hesperostipa curtiseta, Comandra umbellata	Hesperostipa curtiseta
***Landowner Name**	Crown	Crown	Crown	Crown	Crown	Crown	Crown	Crown
*Landowner permissions	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share
Survey Date (yyyy/mm/dd)	8/16/2016	8/13/2016	8/12/2016	8/12/2016	8/12/2016	8/13/2016	8/13/2016	8/13/2016
Zone	10	10	10	10	10	10	10	10
Easting	653814	583351	645510	645484	646026	652770	652744	652898
Northing	6223529	6250488	6238847	6238871	6238793	6223893	6223962	6224044
Source for coordinate	GPS	GPS	GPS	GPS	GPS	GPS	GPS	Google Earth
Waypoint numbers (if applicable)	107	59	14	15	20	50	53	
# of Individuals (exact)		1	>20	about 10	5	>20	10	
# of Individual (range estimates)	1- 50	1- 50	1- 50	1- 50		1- 50		1- 50
Area Occupied: Length (m)	5	0.25	20	1	2	5	2	1
Area Occupied: Width (m)	3	0.25	10	1	1	2	2	1
Area Occupied (m²)	15	0.0625	200	1	2	10	4	1
Description of Area Occupied	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat
Condition of Population (& potential threats to plants within occupied area)	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats; fruiting	excellent condition; no threats; fruiting	excellent condition; no threats; fruiting	excellent condition; no threats; fruiting	excellent condition; no threats; fruiting	excellent condition; no threats; fruiting
Condition of Landscape (& potential threats at landscape level)	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats
Recent (20-40 yrs) Landscape Disturbance	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing
Overall Quality of Occurrence	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Elevation (m)	532	834	617	624	595	567	579	605
Slope (%)								
Slope (°)	15	10	15	15	15	15	15	15
Aspect	south	south	south-east	south-east	south	south	south	south
Crown closure	Open	Open	Open	Open	Open	Open	Open	Open
Slope Position	Upper slope	Upper slope	Upper slope	Upper slope	Upper slope	Upper slope	Upper slope	Upper slope
Moisture	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry	Very dry
Substrate/soil	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt
General Notes	probably more plants along slope	probably more plants along slope	probably more plants along slope; the plants were almost finished (dried up) so many were probably missed	probably more plants along slope; the plants were almost finished (dried up) so many were probably missed	probably more plants along slope; the plants were almost finished (dried up) so many were probably missed	probably more plants along slope; the plants were almost finished (dried up) so many were probably missed	probably more plants along slope; the plants were almost finished (dried up) so many were probably missed	probably more plants along slope; the plants were almost finished (dried up) so many were probably missed
Collector name (if different from observer)								
Herbarium and Specimen Collection #	no specimen collected	to be deposited into UBC	to be deposited into UBC	no specimen collected	no specimen collected	no specimen collected	no specimen collected	no specimen collected
Plot # (if applicable)								
Photo details	available		available	available			available	

	44	45	46	47	48	49	50	51
Observer	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh	J. Fenneman/T. McIntosh
Taxon name	*Penstemon gracilis*	*Penstemon gracilis*	*Penstemon gracilis*	*Penstemon gracilis*	*Potentilla pulcherrima*	*Silene drummondii var. drummondii*	*Silene drummondii var. drummondii*	*Silene drummondii var. drummondii*
Source of Report	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo
Location/Directions	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Leahy Pit area, E. of Ft. St. John	Upper Halfway River area, W. of Ft. St. John	Beatton River area, E of Ft. St. John	Upper Halfway River area, W. of Ft. St. John	Upper Halfway River area, W. of Ft. St. John
Habitat type	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe
Habitat	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope	south-facing grassland slope	remnant grassland verge	south-facing grassland slope	open grassland slope	open grassland slope
Associated spp.	Hesperostipa curtiseta, Allium cernuum, Achillea millefolium, Comandra umbellata	Hesperostipa curtiseta, Elymus glauca	Hesperostipa curtiseta	Hesperostipa curtiseta	Potentilla hippiana	Hesperostipa curtiseta, Antennaria cf rosea, Comandra umbellata	Poa pratensis, Amelanchier alnifolia, Rosa acicularis, Stellaria longipes, Festuca rubra, Campanula rotundifolia, Achnatherum nelsonii, Koeleria macrantha	none recorded
***Landowner Name**	Crown	Crown	Crown	Crown	pipeline ROW	Crown	Crown	Crown
*Landowner permissions	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share	Landowner name unknown	Permission to survey/collect/share	Permission to survey/collect/share	Permission to survey/collect/share
Survey Date (yyyy/mm/dd)	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/14/2016	8/12/2016	8/14/2016	8/14/2016
Zone	10	10	10	10	10	10	10	10
Easting	653474	653556	653863	653881	583580	645535	583300	583298
Northing	6223716	6223786	6223708	6223697	6250504	6238501	6250543	6250570
Source for coordinate	GPS	GPS	GPS	GPS	Google Earth	GPS	GPS	GPS
Waypoint numbers (if applicable)	81	91	103	105		43	61	65
# of Individuals (exact)	3	5	2	6		2	8	2
# of Individual (range estimates)					50-250			
Area Occupied: Length (m)	2	8	3	1	200	0.5	3	0.25
Area Occupied: Width (m)	2	2	2	1	20	0.1	0.5	0.25
Area Occupied (m²)	4	16	1	1	4000	0.05	1.5	0.0625
Description of Area Occupied	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat	scattered in area of suitable habitat
Condition of Population (& potential threats to plants within occupied area)	excellent condition; no threats; fruiting	excellent condition; no threats; fruiting	excellent condition; no threats; fruiting	excellent condition; no threats; fruiting	excellent condition; probable disturbance by vehicles and ROW clearing; fruiting	excellent condition; no threats; fruiting	excellent condition; no threats; fruiting	excellent condition; no threats; fruiting
Condition of Landscape (& potential threats at landscape level)	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats	excellent condition; probable disturbance by vehicles and ROW clearing	excellent condition; no threats	excellent condition; no threats	excellent condition; no threats
Recent (20-40 yrs) Landscape Disturbance	Grazing	Grazing	Grazing	Grazing	Other	Grazing	Grazing	Grazing
Overall Quality of Occurrence	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Elevation (m)	543	555	581	577	810	601	834	841
Slope (%)								
Slope (°)	15	15	15	15	0	15	15	15
Aspect	south	south	south	south	none	south	south	south
Crown closure	Open	Open	Open	Open	Open	Open	Open	Open
Slope Position	Upper slope	Upper slope	Upper slope	Upper slope	Crest	Upper slope	Upper slope	Upper slope
Moisture	Very dry	Very dry	Very dry	Very dry	Mesic(moist)	Very dry	Very dry	Very dry
Substrate/soil	compact sandy-silt	compact sandy-silt	compact sandy-silt	compact sandy-silt	silty loam	compact sandy-silt	compact sandy-silt	compact sandy-silt
General Notes	probably more plants along slope; the plants were almost finished (dried up) so many were probably missed	probably more plants along slope; the plants were almost finished (dried up) so many were probably missed	probably more plants along slope; the plants were almost finished (dried up) so many were probably missed	probably more plants along slope; the plants were almost finished (dried up) so many were probably missed		probably more plants along slope; the plants were almost finished (dried up) so some were probably missed	probably more plants along slope; the plants were almost finished (dried up) so some were probably missed	probably more plants along slope; the plants were almost finished (dried up) so some were probably missed
Collector name (if different from observer)								
Herbarium and Specimen Collection #	no specimen collected	no specimen collected	no specimen collected	no specimen collected	to be deposited into UBC	to be deposited into UBC	to be deposited into UBC	no specimen collected
Plot # (if applicable)								
Photo details	available						available	

APPENDIX 2. 2017 BC CDC PLANT OBSERVATION FORM BC HYDRO SITE C

B.C. Conservation Data Centre: Plant Observation Form (for Red- or Blue-listed species)

Contact name | Terry McIntosh | Jamie Fenneman

Contact E-mail | ttmcintosh@shaw.ca | botrychiophile@gmail.com

Essential fields are highlighted in green, but please complete as many fields as possible. Fields with purple headings have drop-down lists.
Guidance is available by moving the cursor over the red triangle in the top right hand corner of a field with a comment. * Fields data will not be shared. If waypoint file available, indicate waypoint #s to cross-reference waypoints to CDC observations.

Observations in columns

Observer	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman
Taxon name	*Carex backii*	*Carex sprengelii*	*Carex torreyi*	*Carex torreyi*	*Carex xerantica*	*Carex xerantica*	*Carex xerantica*	*Cirsium drummondi*	*Cirsium drummondii*	*Cirsium drummondii*	*Cirsium drummondii*	*Lomatium foeniculaceum*	*Lomatium foeniculaceum*	*Lomatium foeniculaceum*
Source of Report	Observation form/specimen	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo
Location/Directions	Bear Flat west of Ft. St. John	Bear Flat west of Ft. St. John	Cache Creek area west of Ft. St. John	Wilder Creek area west of Ft. St. John	Wilder Creek area west of Ft. St. John	Bear Flat west of Ft. St. John	Area E, SSE of Ft. St. John	Watson Slough area, west of Ft. St. John	Watson Slough area, west of Ft. St. John	Watson Slough area, west of Ft. St. John	along Hwy. 29, NE of Hudson's Hope	Rose Prairie area, north of Ft. St. John	Cache Creek area west of Ft. St. John	Beatton River area SE of Ft. St. John
Habitat type	Riparian	Riparian	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe	Riparian	Forest	Anthropogenic	Anthropogenic	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe
Habitat	in dense willow thicket in seasonally wet gully	at edge of dense shrub-grass thicket alongside ATV trail	in swale in open grassland	open shrub-graminoid complex on extensive grassland slope; isolated and no disturbances observed; probably as close to pristine grassland as we have seen	mainly in grassland but also scattered in open shrub-graminoid complex; isolated and no disturbances observed; probably as close to pristine grassland as we have seen	grassland slope	flat grassland (remnant prairie0	in more or less undisturbed riparian shrub-herb complex adjacent to slough and *Picea* forest copses	open disturbed, possibly wet open forest-shrub complex, south of road and north of clearcut	mowed area along highway	open shrubby area alongside fence near highway	grassland-shrub complex	grassland-shrub complex	steep eroding grassland slope
Associated spp.	*Salix* . spp.	*Rosawoo/Prunvir/Galibor/ Alenaln/Viciame/Lathoch/ Thalocc* , *Salix* spp. (plus numerous others	*Rosawoo/Carepra/Ceraarv /Trifhyb/ Anteneg*	*Rosawoo/Alemaln/Fragvir/Penspro /Carepra/Maiaste/Ceraarv/Potearg /Schipur/Poapra/Carex xerantica/Avenula hookeri*	*Hespcur/Elymus spp./Koelmac/Geumtri/Rosawoo/A lemaln/Fragvir/Penspro/Carepro/M aiaste/Ceraarv/Potearg/Schipur/Po apra/Avenula hookeri*	*Antepar/Poapra/Antepar/ Bromine/Achimil/Hespcur*	all typical grassland associates; also with *Geumtri/Avenhoo/Calamon*	numerous shrub and herb species recorded on plot sheet	numerous shrub and herb species but none recorded	*Elymrep/Bromine*	none recorded	not listed but common grass/shrub species from Peace area	*Elymlan/Rosawoo/Taraxac um* sp./*Geumtri*	*Elymlan/Artefri/Amelaln*
***Landowner Name**														Duke Webb
*Landowner permissions	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Landowner name unknown	Landowner name unknown	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained
Survey Date (yyyy/mm/dd)	6/6/2017	6/6/2017	6/3/2017	6/5/2017	6/5/2017	6/6/2017	2017-8-8, 12, 13, 14	2017-6-6, 2017-7-17,18	7/18/2017	7/17/2017	7/19/2017	2017-06-1, 2	6/3/2017	8/25/2017
Zone	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Easting	611331	611331	600467	619584/619576	619651619584/619576/619589/61 9599/619632/	611178	638987/638954	606875/606878	606869/606957	606947	587848	634594/634652/634706/6 34707/634640	600441	659297
Northing	6237774	6237774	6242727	6235948/6235950	6235948/6235950/6235933/62359 41/6235924/6235935	6237996	6224944/6224889	6235563/6235571	6235470/6235533	6235528	6226073	6243030/6242972/6242907/ 6242873/6242831	6242740	6226718
Source for coordinate	GPS	GPS	GPS	GPS	GPS	GPS	GPS	GPS	GPS	GPS	GPS			
Waypoint numbers (if applicable)	34	34	9	22/23	22/23/24/26/27/28	40	2,3, 34-44, 50, 62, 71	43, 54-58, 54	65, 68	58	71	31, 35, 36, 37, 40	8	100-102
# of Individuals (exact)		1			11 mature flowering plants				but probably many 1st year rosettes present as well but none observed	1	7			
# of Individual (range estimates)	1- 50		50-250	50-250	2500-10 000	1- 50	2500-10 000	50-250				250-1000	1- 50	50-250
Area Occupied: Length (m)			40 X 5m	8 X 8m, 3 X 4m	~145 X 115 X 80m	4 X 3m	~800 X 900 X 600 X 700 m	~40 X 10m	~120 X 20m	0.5 X 0.5m	1 X 20m	300 X 20m	2 X 1m	~100 X 10 X 40 (wider at E
Area Occupied: Width (m)														
Area Occupied (m^2)	1	1												
Description of Area Occupied	in dense willow thicket in seasonally wet gully	at edge of dense shrub-grass thicket alongside ATV trail	in swale in open grassland	open shrub-graminoid complex in grassland	mainly in grassland but also scattered in open shrub-graminoid complex	grassland slope	flat grassland (remnant prairie0	in more or less undisturbed riparian shrub-herb complex adjacent to slough and Picea forest copses	open disturbed, possibly wet open forest-shrub complex, south of road and north of clearcut	mowed area along highway	open shrubby area alongside fence near highway	grassland-shrub complex	open grassland	steep eroding grassland slope
Condition of Population (& potential threats to plants within occupied area)	good; no threats	poor; ATV use frequent, hikers use trail often	Excellent; no threats	Excellent; no threats	Excellent; no threats	fair	excellent	excellent	good	poor; road maintenance continuous through growing season	good, protected near fence but may be mowed occasionally	excellent condtion, no threats	excellent condtion, no threats	excellent condtion, no threats, even though slope is naturally eroding
Condition of Landscape (& potential threats at landscape level)	eroding gully; flooding from dam	natural erosion from gully to north; flooding from dam	Excellent	Excellent	Excellent	degraded from extensive livestock grazing in the past but no recent activity; flooding from dam	gravel pit to east may be expanded	excellent; possible clearing in future; flooding from dam	fair; possible clearing in future; flooding from dam	poor; road maintenance continuous through growing season; flooding from dam	good	excellent condtion, no threats	excellent condtion, no threats	excellent condtion, no threats, even though slope is naturally eroding
Recent (20-40 yrs) Landscape Disturbance	Other	Other	Other	Other	Other	Grazing	Grazing	Other	Logging	Other	Other	Other	Other	Other
Overall Quality of Occurrence	Good	Good	Excellent	Excellent	Excellent	Fair	Excellent	Excellent	Fair	Poor	Good	Excellent	Excellent	Excellent
Elevation (m)	480	480	716	575	560-590	493	470	454-458	460	454	518	641 - 669m	714	563
Slope (%)														
Slope (°)	5	5	25	25	15 - 30	25	0		0	0	0	5 - 30	35	35-45
Aspect	south	south	south-west	south-west	south-west	south-west	none	none	none	none	none	south-west	south-west	south-east
Crown closure	Shade	Shade	Open	Open	Open	Open	Open	Partial	Partial	Open	Open	Open	Open	Open
Slope Position	Lower slope	Lower slope	Mid-slope	Upper slope	Upper slope	Lower slope	Level	Depression	Level	Level	Level	Upper slope	Mid-slope	Upper slope
Moisture	Mesic(moist)	Mesic(moist)	Dry	Dry	Dry	Dry	Dry	Mesic(moist)	Mesic(moist)	Dry	Mesic(moist)	Dry	Dry	Very dry
Substrate/soil	sandy silt	sandy silt	silt	silt	silt	silt	gravelly silty loam		unknown	gravelly silt	unknown	silt	silt	silt
General Notes	about 30 m south of Waypoint	also visited July 20 and collected achenes		two adjacent patches reported here	the UTMs listed here represent denser patches of the species, but it is scattered across the site		observed on numerous visits (4); the two UTMs listed here represent denser patches of the species, but it is scattered across the site (most of the additional Waypoints indicate small patches that were observed while completing transects)	population between Waypoints; seed collected	population between Waypoints; seed collected	seed collected		this represents 5 patches, each with multiple plants		dead plants but dried flower heads barely visible; the species is probably all along this slope so the count estimation may be low since they were difficult to observe
Collector name (if different from observer)														
Herbarium and Specimen Collection #	yes		yes		yes		yes	yes			yes		yes	
Plot # (if applicable)							RPT016	RPT001						
Photo details	none	available	available	available	available	available	available	available	available	available	available	available	available	available

Note re: 2017 data collection vs. 2016 data collection: In 2016 we collected detailed data on 5 taxa that we did not collect in 2017, *Antennaria neglecta* , *Artemisia herriotii* , *Avenula hookeri* , *Geum triflorum* var. *triflorum* , and *Potentilla pulcherrima* . These 5 taxa are commonly encountered in the Peace area and, due to time constraints, data were not collected. However, Waypoints and general habitat data are provided for each encounter at the end of this Excel sheet which should assist in reviewing and assessing CDC conservation ranks for the 5 taxa.

Observations in columns

Observer	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman	T. McIntosh/J. Fenneman
Taxon name	*Oxytropis campestri* s var. *davisii*	*Oxytropis campestri* s var. *davisii*	*Oxytropis campestri* s var. *davisii*	*Oxytropis campestri* s var. *davisii*	*Oxytropis campestri* s var. *davisii*	*Oxytropis campestri* s var. *davisii*	*Penstemon gracilis*	*Penstemon gracilis*	*Polypodium sibiricum*	*Ranunculus cardiophyllus*	*Ranunculus rhomboideus*	*Ranunculus rhomboideus*	*Ranunculus rhomboideus*	*Silene drummondii*	*Silene drummondii*	*Silene drummondii*
Source of Report	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/photo	Observation form/photo	Observation form/photo	Observation form/photo	Observation form/photo	Observation form/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo	Observation form/specimen/photo
Location/Directions	Peace River shore S of Watson Slough	Peace River shore W of Ft. St. John	Peace River shore W of Ft. St. John	Peace River shore W of Ft. St. John	Half Way River shore W of Ft. St. John	Peace River shore SE of Ft. St. John	Cache Creek area west of Ft. St. John	Bear Flat west of Ft. St. John	Rock Quarry W of Hudson's Hope	Rose Prairie area, north of Ft. St. John	Rose Prairie area, north of Ft. St. John	Rose Prairie area, north of Ft. St. John	Watson Slough area, west of Ft. St. John	Area E, SSE of Ft. St. John	Area E, SSE of Ft. St. John	Nelson Road area, ESE of Ft. St. John
Habitat type	Riparian	Riparian	Riparian	Riparian	Riparian	Riparian	Grassland/shrub steppe	Grassland/shrub steppe	Forest	Grassland/shrub steppe	Agricultural land	Agricultural land	Riparian	Grassland/shrub steppe	Grassland/shrub steppe	Grassland/shrub steppe
Habitat	cobbly, open shoreline bench along river	cobbly-sandy open shoreline bench along river	cobbly-sandy linear flat on shoreline bench along river	cobbly-sandy more or less forested shoreline bench along river	disturbed open flat along river	cobbly-sandy more or less forested shoreline bench along river	open grassland slope	open grassland slope	along cliff ledges and cracks in forest	grassland-shrub complex	hayfield near forest-shrubland	hayfield near forest-shrubland	in more or less undisturbed riparian shrub-herb complex adjacent to slough and *Picea* forest copses	flat grassland (remnant prairie)	flat grassland (remnant prairie)	grassland slope
Associated spp.	*Astraus/Melialb/Oxytspl/Astralp/Eurysib/Elymus* spp./*Artebor*	*Astraus/Melialb/Oxytspl/Astralp/Eurysib/Elymus* spp./*Artebor*	*Melialb/Popubal/Solialt/Artebor/Artecam* /etc. (more on plot sheet)	*Astraus/Melialb/Astralp/Popubal/Elymus* spp./*Artebor/Artecam* /etc. (more on plot sheet)	*Bromine/Poapal/Meliofl/Elymrep*	*Popubal/Eurysib/Achimil/Artecam*	*Anempat/Galibor/Comaumb/Viciame*	*Poapra/Antepar/Bromine/Achimil*	bryophytes	not listed but common grass/shrub species from Peace area	*Bromine, Rosawoo, Symplae, Geumtri* , etc.	*Bromine, Rosawoo, Symplae, Geumtr* i, etc.	*Rosawoo/Shepcan/Thalocc* / etc. (many species here)	all typical grassland associates; also with *Geumtri/Avenhoo/Calamon*	all typical grassland associates; also with *Geumtri/Avenhoo/Calamon*	Hespcur/Calamon/Elymus spp./*Sympalb/Amelaln*
***Landowner Name**																
*Landowner permissions	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained	Permission to survey/collect/share data obtained
Survey Date (yyyy/mm/dd)	7/18/2017	8/10/2017	8/10/2017	8/11/2017	8/28/2017	8/28/2017	6/4/2017	6/6/2017	7/19/2017	6/1/2017	6/2/2017	6/2/2017	6/6/2017	8/12/2017	8/12/2017	8/24/2017
Zone	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Easting	607599/607645	623447	618089	596457	585201	653542	601016, 601093	611195	555068	634595	634472	634472	606878	638951	638874	677386
Northing	6235173/6235187	6233126	6232476	6231788	6236557	6221772	6242247, 6242254	6237994	6204068	6243045	6243223	6243223	6235560	6224882	6225279	6223158
Source for coordinate							GPS	GPS					GPS	GPS	GPS	GPS
Waypoint numbers (if applicable)	61-63	13-17	18	24	119	151 (152-160 show polygon for occurrence)	13, 14	39		30	34	34	42-42 (marking individual plants or patches)	42	49	80
# of Individuals (exact)					3		3, 1	1		1 (~10 m NW of waypoint)			10 (in 6 clusters)	1	2	2
# of Individual (range estimates)	1000-2500	1000-2500	50-250	250-1000		1000-2500			1- 50		1- 50	1- 50				
Area Occupied: Length (m)	~100 X 30m	~100 X 65m	~20 X 15m	~30 X 40	0.5 X .25	~60 X 60	0.5 X 0.5m	0.5 X 0.5m	20 X 5m	0.25 X 0.25	10 X 10	10 X 10	~30 X 1m	0.01 X 0.01	0.01 X 0.01	0.01 X 0.01
Area Occupied: Width (m)																
Area Occupied (m^2)																
Description of Area Occupied	cobbly, open shoreline bench along river	cobbly-sandy open shoreline bench along river	cobbly-sandy open shoreline bench along river	cobbly-sandy more or less forested shoreline bench along river	disturbed open flat along river	cobbly-silty shoreline bench along river	open grassland slope	open grassland slope	along cliff ledges and cracks in forest	grassland-shrub complex	hayfield near forest-shrubland	hayfield near forest-shrubland	along trail to ponds from parking area in more or less undisturbed riparian shrub-herb complex adjacent to slough and Picea forest copses	flat grassland (remnant prairie)	flat grassland (remnant prairie)	grassland slope
Condition of Population (& potential threats to plants within occupied area)	excellent condtion	excellent condtion	excellent condtion	excellent condtion	poor condition as this appears to be a waif population exposed to flooding	excellent condtion	Excellent; no threats	fair	excellent	excellent condtion, no threats	excellent condtion, possible threat from haying	excellent condtion, possible threat from haying	good although appears to depend on trail opening for survival; none observed in shrubs away from trail	excellent	excellent	excellent
Condition of Landscape (& potential threats at landscape level)	excellent condtion; flooding from dam	excellent condtion; flooding from dam	excellent condtion; flooding from dam	excellent condtion; flooding from dam	poor condition as this appears to be a waif population exposed to flooding	excellent condtion	Excellent	degraded from extensive livestock grazing in the past but no recent activity; flooding from dam	excellent; possible destruction with rock quarry expansion	excellent condtion, no threats	good condtion, possible threat from haying	good condtion, possible threat from haying	good; possible clearing in future; flooding from dam	gravel pit to east may be expanded	gravel pit to east may be expanded	excellent
Recent (20-40 yrs) Landscape Disturbance	Other	Other	Other	Other	Other	Other	Other	Grazing	Other	Other	Other	Other	Other	Grazing	Grazing	Grazing
Overall Quality of Occurrence	Excellent	Excellent	Excellent	Excellent	Poor	Excellent	Excellent	Fair	Excellent	Excellent	Excellent	Excellent	Good	Excellent	Excellent	Excellent
Elevation (m)	433	423	425	449	488	407	750, 756	497	1005	668	665	665	458	472	465	563
Slope (%)																
Slope (°)	0	0	0	0	1	0	25	25	85-90	0	0	0		0	0	30
Aspect	0	0	0	0	1	0	south-west	south-west	south	0	0	0	north-west	none	none	south
Crown closure	Open	Open	Open	Open	Open	Open	Open	Open	Shade	Open	Open	Open	Partial	Open	Open	Open
Slope Position	Level	Level	Level	Level	Level	Level	Upper slope	Lower slope	Upper slope	Upper slope	Upper slope	Upper slope	Depression	Level	Level	Mid-slope
Moisture	Seasonal fluctuation (saturated/flooded to very dry)	Seasonal fluctuation (saturated/flooded to very dry)	Seasonal fluctuation (saturated/flooded to very dry)	Seasonal fluctuation (saturated/flooded to very dry)	Seasonal fluctuation (saturated/flooded to very dry)	Seasonal fluctuation (saturated/flooded to very dry)	Dry	Dry	Mesic(moist)	Dry	Mesic(moist)	Mesic(moist)	Mesic(moist)	Dry	Dry	Dry
Substrate/soil	stony silt	stony sand	stony sand	stony sand	sand	stony sand	silt	silt	sandstone rock	silt	silt	silt		gravelly silty loam	gravelly silty loam	silt
General Notes	seeds collected at this site; extent of the population roughly marked by the two waypoints	seeds collected at this site; possible center of the population marked by waypoint	seeds collected at this site; center of the population marked by waypoint	possible center of the population marked by waypoint; another large patch to south-west apparently (Randy Kirchbaum has data); site has been visited a number of times previously; seeds collected		the species drops out when stones stop on beach	waypoints indicate two sets of patches; probably more on slope but difficult to observe				many gone to seed therefore numbers probably low	many gone to seed therefore numbers probably low	species appears to depend on trail opening for survival; none observed in shrubs away from trail		seeds collected	both plants dead and seed dispersed
Collector name (if different from observer)																
Herbarium and Specimen Collection #	yes			yes	yes	yes							yes			
Plot # (if applicable)		RPT 007	RPT 008	RPT-010										RPT018		
Photo details	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available