



# **Taseko Prosperity Gold-Copper Project**

## **Appendix 5-5-C**

# BASELINE RARE PLANT SURVEY REPORT FOR THE TASEKO MINES LTD. PROSPERITY PROJECT SITE

A summary of the results of rare plant surveys completed by  
Mike Ryan and Terry McIntosh on behalf of Madrone Consultants in 1997

June 3, 2006

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## **1.0 INTRODUCTION**

This document summarizes the objectives, methods, and results of a rare plant inventory undertaken in 1997 at the Prosperity Mine Site near Taseko Lake in the western Cariboo Region (Madrone 1999). This inventory was completed in order to satisfy part of the requirements of a broad-based environmental assessment in preparation for the development of a mine in the area.

AXYS Environmental Consulting Ltd. has requested this summary for use as a baseline for incremental rare plant surveys that will be completed in 2006. The proposed work will both update and expand upon the previous inventory. Accordingly, AXYS has also requested recommendations for the proposed plant inventory.

## **2.0 SUMMARY OF 1997 RARE PLANT PROJECT**

### **2.1 Objectives**

The main objectives of the rare plant inventory were to survey the proposed Prosperity Mine footprint to determine whether provincially rare species of plants, as determined by the British Columbia Conservation Data Center (CDC), were present in the area, and, if found, to identify any potential impacts to these elements and to develop mitigation accordingly. The search effort focused on vascular plant species, bryophytes (mosses and liverworts), and lichens.

### **2.2 Methods**

#### ***1. Background Research***

A list of red and blue-listed plants reported from the Chilcotin Forest District was obtained from the CDC (Appendix 1; Red listed species are native species that are considered extirpated, endangered, or threatened in British Columbia; Blue listed species include any native species considered to be vulnerable in British Columbia). Existing occurrence records for the Taseko Lake area were then obtained from the CDC. Forty-two species were listed that could potentially occur within the study area boundaries (Appendix 2).

Data on the ecology and habitat, as well as identification features for each of these species was then summarized using information provided in available references, including Hitchcock and Cronquist (1973), Douglas et al. (1989-1994), MacKinnon et al. (1992), and Parish et al. (1996). Based on this information and the CDC data, the probability of occurrence within the study area for each species and its potential habitat was assessed. This information is listed in Appendix 2.

Herbarium specimens of some of these species were examined and photographed at the University of British Columbia, University of Victoria, and the Royal B.C. Museum in order to assist in field identification. Photographs were later annotated and used as field identification aids.

Based on the derived habitat information, sites that had the highest potential to support rare species within the study area were identified on aerial photographs.

These areas would be the main focus of the rare plant inventory. They included non-forested vegetation such as open grasslands on south or west-facing slopes, sparsely vegetated basalt bluffs and ridges, and wetlands, including small ponds. In addition, old forests and forests associated with limited terrain features such as floodplains were selected for detailed investigation. A number of the sites were outside the actual mine footprint.

The majority of the background research was completed by the project botanists, T. McIntosh, Ph.D., and M. Ryan, M.Sc.. They were also primarily responsible for the fieldwork, although only in the main mine footprint area. Apparently, there were no detailed plans to investigate for rare plants along the transmission line corridor, although these may have been searched for by the lead ecologists during the sensitive ecosystem portion of the project.

## ***2. Field Research***

Fieldwork was conducted in two phases, from June 8 to June 15 and from August 8 to 15. These times enabled the botanists to investigate the flora during the late spring and mid to late summer flowering seasons. Wetland communities were studied more extensively during the second phase as most of the dominant sedges and grasses were mature and were more readily identified at that time.

The rare plant inventory was undertaken by walking meandering transects that intersected as many of the key habitats as possible. Eighty-nine sites were investigated with sites having the greatest likelihood of supporting rare plants sampled disproportionately. Sites with a low likelihood of supporting rare plants, including the young pine forests, received only a low sampling effort. Although Madrone produced a map showing the locations of the rare plant inventory plots, it was not available for this report.

Specimens of unknown plant species were collected and identified later through microscopic examination, comparison with existing herbarium specimens, and through using available floras, in particular Douglas et al. (1989-1994). A plant list representing all of the plants that were encountered during the survey was derived.

## **2.3 Results**

Appendix 3 is the plant list that was completed during and after the field work. No rare plants were found in the areas that were to be impacted by the mine operation. Madrone (1999) noted that, possibly because of the timing of the field work, some rare plant species may have been overlooked, but also noted that the fieldwork was thorough, exceeding any previously documented levels of effort for a project of this type in the province. It was concluded that it was unlikely that any provincially rare plant occurred within or adjacent to the mine footprint area.

## **3.0 RECOMMENDATIONS**

### **3.1 Updated CDC List for the Study Area**

Although the Madrone (1999) rare plant survey was thorough, it was completed nine years ago and, although the plant species probably have not changed, the CDC Red and Blue lists have changed (some species have been added or deleted, and some species have had their ranking adjusted). The CDC lists, therefore, need to be updated and compared to the past CDC list as well as the plant list in Appendix 3. Further, the CDC has updated their website and rare plant information, including distribution maps, is more readily available than in 1997.

The CDC provides lists of provincially rare species based on information derived from various projects and individual surveys. Because of the extent of the Chilcotin Region, and the fact that many areas in this region have not been explored in detail, the lists that CDC provides for this region may not be complete. It may be prudent to examine lists from adjacent regions to see if rare plants from these areas have the potential to be found in the study area. Further, it may also be valuable to review all of the plants in Douglas et al. (2002) to see if they have potential to be in the study area.

### **2. COSEWIC and SARA-listed Plant Species**

Since 1997, a number of changes have occurred with respect to some provincial rare plants at the Federal level. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC; [www.cosewic.gc.ca](http://www.cosewic.gc.ca)) has assessed the relative danger of disappearance from Canada of a number of plant species. Based on the information from Status Reports, COSEWIC designated these species as Not At Risk, or as Threatened, Endangered, or Special Concern. Species that have been designated by COSEWIC may then qualify for legal protection under the Species At Risk Act (SARA; [www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)).

Both the COSEWIC and, if applicable, the SARA sites should be consulted as to whether rare plant species that have been listed by these organizations are or have the potential to be present in the study area.

### **3. Field Manual**

Madrone (1999) developed a field manual based, in part, on photographs of herbarium material. This should also be completed for the Taseko project as well, since many of the drawings (mainly from Douglas et al. 1998-2001) used in the draft AXYS field guide are inadequate (we inspected this guide on Thursday, June 1, 2006, during a visit to the AXYS office). Photographs from the internet can also be an invaluable tool in a field guide. However, this may not be necessary as all unknown plants will be collected during the field work portion of the project.

### **3. Field Work**

The methods employed by Madrone (1999) should be used during the 2006 rare plant survey of the main mine site. They provided the basis for an intensive investigation of this area. However, the proposed access road will also be investigated for rare plants and this can either be completed by walking the proposed road footprint (intensive) or by selecting, through the use of aerial photographs, habitats/polygons of

high potential rare plant presence. The survey of the transmission line corridor should focus only on those sites where impacts will occur (access roads, poles).

#### **4.0 REFERENCES**

- Madrone Consultants Ltd. 1999. Taseko Mines Limited Prosperity Project Vegetation Data Draft Report 1997-1998. Report prepared for Taseko Mines Ltd., Vancouver, B.C.
- Douglas, G.W., G.B. Straley, & D. Meidinger, D. 1989-1994 (eds.). The Vascular Plants of British Columbia. Special Report Series Parts 1-4. British Columbia Ministry of Forests, Victoria.
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- Douglas, G.W., D. Meidinger, & J.L. Penny. 2002. Rare Native Vascular Plants of British Columbia. 2nd edition. Province of British Columbia, Victoria.
- Hitchcock, C.L. & A. Cronquist. 1973. Flora of Pacific Northwest. University of Washington Press, Seattle.
- Parish, R., R. Coupé, & D. Lloyd (eds.). 1996. Plants of Southern Interior British Columbia. Lone Pine Publishing, Vancouver.
- MacKinnon, A, J. Pojar, & R. Coupé (eds.). 1992. Plants of Northern British Columbia. Lone Pine Publishing, Vancouver.

**Appendix 1.** CDC Rare Vascular Plant Tracking List for the Chilcotin Forest District, April 26, 1999.

SCIENTIFIC NAME	COMMON NAME PROVINCIAL	GLOBAL	PROVINCIAL
	LIST	RANK	RANK
APOCYNUM MEDIUM	WESTERN DOGBANE	G5? S2S3	BLUE
ARABIS LEMMONII VAR	LEMMON'S ROCKCRESS BLUE	G5T4?	S1?
DREPANOLOBA			
ARABIS LIGNIFERA	WOODY-BRANCHED ROCKCRESS	G5 S2S3	BLUE
ARNICA CHAMISSONIS SSP INCANA	MEADOW ARNICA BLUE	G5T?	S1?
ATRIPLEX ARGENTEA SSP ARGENTEA	SILVERY ORACHE RED	G5T5	S1
BOTRYCHIUM ASCENDENS	UPSWEPT MOONWORT	G3 S1?	BLUE
BOTRYCHIUM SIMPLEX	LEAST MOONWORT	G5 S1?	BLUE
CAMISSONIA BREVIFLORA	SHORT-FLOWERED EVENING-PRIMROSE	G5 SH	RED
CAREX HELEONASTES	HUDSON BAY SEDGE	G4 S2S3	BLUE
CAREX HYSTERICINA	PORCUPINE SEDGE	G5 S1?	BLUE

CAREX SAXIMONTANA	ROCKY MOUNTAIN SEDGE	G5 S2S3	BLUE
CAREX SIMULATA	SHORT-BEAKED SEDGE	G5 S2S3	BLUE
CAREX XERANTICA	DRY-LAND SEDGE	G5 S2S3	BLUE
CASTILLEJA TENUIS	HAIRY OWL-CLOVER	G5 S1	RED
CHENOPODIUM DESICCATUM	NARROW-LEAVED GOOSEFOOT	G5 S2	RED
CREPIS OCCIDENTALIS SSP PUMILA	WESTERN HAWKSBEARD RED	G5T5	S1
DRABA ALPINA	ALPINE DRABA	G4 S1?	BLUE
DRABA DENSIFOLIA	NUTTALL'S DRABA	G5 S1?	BLUE
DRABA GLABELLA VAR GLABELLA	SMOOTH DRABA BLUE	G4G5T4	S2S3
DRABA RUAXES	COAST MOUNTAIN DRABA	G3 S2S3	BLUE
DRABA VENTOSA	WIND RIVER DRABA	G3 S1?	BLUE
EPILOBIUM CILIATUM SSP	PURPLE-LEAVED WILLOWHERB BLUE	G5T?	S2S3
WATSONII			
ERYTHRONIUM MONTANUM	WHITE GLACIER LILY	G4 S2S3	BLUE
FESTUCA MINUTIFLORA	LITTLE FESCUE	G5 S1?	BLUE
GALIUM MULTIFLORUM	SHRUBBY BEDSTRAW	G5 S1	RED
JUNCUS ALBESCENS	WHITISH RUSH	G5 S2S3	BLUE
JUNCUS REGELII	REGEL'S RUSH	G5 S2S3	BLUE
MELICA SPECTABILIS	PURPLE ONIONGRASS	G5 S2S3	BLUE
MONTIA CHAMISSOI	CHAMISSO'S MONTIA	G5 S1?	BLUE

MUHLENBERGIA GLOMERATA	MARSH MUHLY	G5 S2S3	BLUE
PELLAEA ATROPURPUREA	PURPLE CLIFF-BRAKE	G5 S1?	BLUE
POLEMONIUM BOREALE	NORTHERN JACOB'S-LADDER	G5 S2S3	BLUE
POLEMONIUM CAERULEUM SSP AMYGDALINUM	TALL JACOB'S-LADDER	G?T?S1?	BLUE
POLEMONIUM ELEGANS	ELEGANT JACOB'S-LADDER	G4 S2S3	BLUE
POTENTILLA DIVERSIFOLIA VAR PERDISSECTA	DIVERSE-LEAVED CINQUEFOI BLUE	G5T4	S2S3
POTENTILLA NIVEA VAR	FIVE-LEAVED CINQUEFOIL BLUE	G5T4	S2S3
PENTAPHYLLA			
POTENTILLA OVINA	SHEEP CINQUEFOIL	G4 S1?	BLUE
RANUNCULUS PEDATIFIDUS	BIRDFOOT BUTTERCUP	G5 S2S3	BLUE
SCIRPUS ROLLANDII	SMALL DEER-GRASS	G3Q S2S3	BLUE
SCOLOCHLOA FESTUCACEA	SPRANGLE-TOP	G5 S2S3	BLUE
SENECIO PLATTENSIS	PLAINS BUTTERWEED	G5 S2S3	BLUE

## Appendix 2. Review of potential rare plants within the Chilcotin Forest District.

Potential for occurrence rankings: 1 = very high, 2 = high, 3 = moderate, 4 = low, 5 = very low, 6 = nil potential for occurrence

<b>SCIENTIFIC NAME</b>	<b>COMMON NAME</b>	<b>PROV LIST</b>	<b>PROV RANK</b>	<b>GLOBAL RANK</b>	<b>HABITAT/ECOLOGY</b>	<b>IDENTIFYING FEATURES</b>	<b>POTENTIAL FOR OCCURRENCE</b>	<b>NOTES</b>
<i>Botrychium ascendens</i>	Upswept Moonwort	Blue	S1?	G3?	No information found			
<i>Botrychium simplex</i>	Least Moonwort	Blue	S1?	G5	vernal pools and ephemeral seepages in the lowland and montane zones	trophophore attachments strongly variable, those with simple blades usually attached high on the leaf, those with lobed, non-ternate leaves in the middle of the leaf, and those with ternate blades near the base of the leaf	2	
<i>Pellaea atropurpurea</i>	Purple Cliff-brake	Blue	S1?	G5	dry to mesic limestone rocks in the montane and subalpine zones	stipes and rachis sparsely pilose, dull; pinnae long-stalked, the basal ones with stalks 5-15mm long; sterile and fertile fronds dissimilar, the fertile exceeding the sterile ones	5	limestone absent from study area
<i>Apocynum medium</i>	Western Dogbane	Blue	S2S3	G5?	Valleys/lower mtns	Lobes acute to acuminate, leaves ascending, calyx gen at least half as long as corolla, pinkish corolla	2	flowers in northern parts of its range from mid to late July
<i>Arabis lemmonii</i> var. <i>drepanoloba</i>	Lemmon's Rockcress	Blue	S1?	G5T?	Mesic Meadows and talus slopes in the alpine zone, as well as meadows and ridges	petals rose-purple; gen pannose with tiny, grayish, freely branched hairs, arising from branched caudex, racemes 3-10 flowered, secund.	4-6	

<i>Arabis lignifera</i>	<b>Woody-Branched Rockcress</b>	Blue	S2S3	G5T5	sagebrush desert	siliques 1-1.5 (rarely 2)mm broad; basal leaves more greenish than grey; petals 6-9 mm, rose-pink to purplish	5-6	
<i>Arnica chamissonis</i> ssp. <i>incana</i>	<b>Meadow Arnica</b>	Blue	S1?	G5	very wet places or in water, tends to grows at lower elevations	herbage conspicuously silvery-tomentose, 5-10 pairs of leaves and a distinctive tufts of hairs on the tips of the involucral bracts; stalked and toothless leaves	5	known only from 7 stations in S BC
<i>Atriplex argentea</i> ssp. <i>argentea</i>	<b>Silvery orache</b>	Red	S1	G5	saline habitats or disturbed sites and fields in steppe vegetation and montane zones	gen strongly laciniate margins and strongly tuberculate-appendaged and greatly hardened sides; radicle superior; plant rounded, not weedy; leaf blades entire or slightly toothed, lanceolate to deltoid-ovate	5, 6	flowers July-August
<i>Camissonia breviflora</i>	<b>Short-Flowered Evening Primrose</b>	Red	SH	G5T?	dry open areas in the lowland zone	plants stemless; leaves in basal rosette, pinnatifid	4, 5	
<i>Castilleja tenuis</i> ( <i>Orthocarpus hispidus</i> )	<b>Hairy Owl-Clover</b>	Red	S1	G5	moist meadows and vernal pools in the lowland and steppe vegetation zones	lower lips of corollas more or less trisaccate—corolla white or yellow; bracts green throughout; lower lips of corollas with inconspicuous teeth; calyx 2-cleft with bifid segments	5, 6	
<i>Chenopodium leptophyllum</i> var. <i>oblongifolium</i>	<b>Narrow-Leaved Goosefoot</b>	Red	S2	G5T?	saline or alkaline sites in the steppe vegetation zone	leaves linear to lanceolate, mostly entire, usually white-farinose below	5, 6	
<i>Crepis occidentalis</i> ssp. <i>pumila</i>	<b>Western Hawksbeard</b>	Red	S1	G5T?	dry, open, sandy or gravelly sites in the steppe vegetation zone	involucres without gland-tipped hairs; Deeply lobed leaves with broad, pointed segments and yellowish to brownish achenes	5, 6	

<i>Draba alpina</i>	<b>Alpine Draba</b>	Blue	S1?	G4	dry meadows and rocky slopes in the subalpine zones; snowbeds, scree; strictly a high elevation species	dwarf tufted; branches densely clothed with old, persistent leaves, all basal, hairy on both surfaces; flowers are bright yellow; oval to elliptic silicles, hairy or glabrous	5, 6	
<i>Draba densifolia</i>	<b>Nuttall's Draba</b>	Blue	S1?	G5	mesic to dry openings, meadows, and cliffs from the upper montane to alpine zones	leaves not fleshy, linear to narrowly oblanceolate, midnerve prominent; silicles 2-7x2-3.5mm	5, 6	
<i>Draba glabella</i> var <i>glabella</i>	<b>Smooth Draba</b>	Blue	S1S3	G4G5T4	moist to mesic meadows and cliffs in the subalpine and alpine zones	lowest pedicel shorter than silicle; all of the cruciform and stellate hairs short-stalked; petals white; styles less than 0.5 mm long	5, 6	
<i>Draba ruaxes</i>	<b>Coast Mountain Draba</b>	Blue	S2S3	G2G3	dry meadows and cliffs in the subalpine and alpine zones	upper leaf surfaces with long, simple or once- or twice-forked hairs; stems and pedicels with simple, rarely forked hairs; leaves greater than 2 mm broad	5, 6	
<i>Draba ventosa</i>	<b>Wind River Draba</b>	Blue	S1?	G3	dry meadows and cliffs in the subalpine and alpine zones	silicles oval to ovate, densely and coarsely pubescent with simple and cruciate to stellate hairs	5, 6	
<i>Epilobium ciliatum</i> ssp <i>watsonii</i>	<b>Purple-Leaved Willowherb</b>	Blue	S2S3	G5T?	disturbed places, roadsides, fields and wet areas from the lowland to montane zones	underground turions absent; inflorescences sucorymbose, rhizomes short of lacking, bulb-like buds (offsets) present or absent; leaves opposite and lance-shaped, flowers small (2-8 mm long); fruits are long narrow capsules; plant is 0.5-1.5m tall	2	

<i>Montia chamissoi</i>	<b>Chamisso's Montia</b>	Blue	S1?	G5	wet places (bogs, marshes, streambanks), montane at middle to lower elevations	perennial plants, rhizomatous and stoloniferous, generally with offsets along stolons and often with some of flowers changed to bulbils	5, 6	
<i>Myosurus minimus</i>	<b>Tiny Mousetail</b>	Blue	S2S3	G5	wet sites in the lowland and steppe vegetation zones	beak of achene rarely greater than 0.5mm; often with .100 achenes; sepals 3(5)-nerved; mature spikes mostly 15-50mm long	5	
<i>Polemonium boreale</i>	<b>Northern Jacob's Ladder</b>	Blue	S2S3	G5	mesic to dry meadows and rock outcrops in the montane to alpine zones	stems 0.8-3dm tall; leaflets distinctly pubescent (at least when young); corolla lobes rounded apically	4	
<i>Polemonium caeruleum</i> ssp. <i>amygdalinum</i>	<b>Tall Jacob's Ladder</b>	Blue	S1?	G?T?	wet to moist swamps and meadows in the montane or subalpine zones	stamens included in the corollas, markedly surpassed by the styles, leaves mainly basal, tufted, divided into 19-27 leaflets, lance shaped to elliptic; flowers pale blue or purplish, bell shaped in loose terminal clusters; petal lobes pointed and with tiny fine hairs along their margins	4	
<i>Polemonium elegans</i>	<b>Elegant Jacob's Ladder</b>	Blue	S2S3	G4	dry cliffs and scree slopes in the alpine zone	plants 0.5-1.5dm tall, stipitate-glandular or glandular-hairy throughout; leaflets opposite or offset, undivided; corolla generally 12-15mm; rounded heads of blue flowers.	5, 6	

<i>Potentilla diversifolia</i> var. <i>perdissecta</i>	Diverse-Leafed Cinquefoil	Blue	S2S3	G5T4	in the Chilcotin, descends to medium elevations in dry open forest	leaves +/- sericeous to glabrate, greenish; segments linear to oblong, up to 4mm broad; leaves more or less pinnate; leaflets dissected to base, and deeply divided into 5(-7) leaflets; flowers are yellow, showy and petals are notched at tips; tufted plant	3	
<i>Potentilla ovina</i>	Sheep Cinquefoil	Blue	S1?	G4	moist open areas in the montane zone; meadows to ridges and barren slopes	leaflets dissected nearly to the base into narrow linear segments, gray throughout; rarely at all lanate beneath	5, 6	
<i>Potentilla quinquefolia</i>	Five-leafed Cinquefoil	Blue	S2S3	G4	gravelly drainages and slopes in the montane zone	basal leaves in part 5-foliolate, dissected halfway to midrib; pubescence of stems mostly tangled	3	
<i>Ranunculus flabellaris</i>	Yellow Water-Buttercup (Yellow Water-Crowfoot <sup>4</sup> )	Red	S1	G5	ponds, shorelines and mudflats in the steppe vegetation and montane zones; in arid basins on plateaus	leaves, or at least the submerged ones, 3-5 times ternately dissected into ultimately filiform to narrowly oblong segments less than 2 mm wide; achenes corky-margined; strongly keeled on distal dorsal margin		last collected in 1949
<i>Ranunculus pedatifidus</i>	Birdfoot Buttercup	Blue	S2S3	G5	moist meadows in the montane to alpine zones	basal leaves 5-7 lobed at least half their length; nectary scales not ciliate; achene beaks curved	3	
<i>Senecio plattensis</i>	Plains Butterweed	Blue	S2S3	G5	dry, open montane forests	involucral bracts green throughout or purple in upper half; regular teeth along the edges of at least some basal leaves and is seldom densely woolly	3	found once between Williams Lake and Quesnel

<i>Carex heleonastes</i>	<b>Hudson Bay Sedge</b>	Blue	S2S3	G4	Bogs and fens in the montane zone	culms very rough below the head; perigynia cinereous or brown in age; the beak reddish brown at apex	3	
<i>Carex hystericina</i>	<b>Porcupine Sedge</b>	Blue	S1?	G5	swamps, shorelines and wet meadows in the steppe and montane zones	teeth of perigynia beaks straight; perigynia suborbicular in cross-section, more or less inflated, membranaceous or submembranaceous; rootstock with long slender horizontal stolons; ligules short, wider than long or about as wide as long; achenes broadly obovate	3	
<i>Carex saximontana</i>	<b>Rocky Mountain Sedge</b>	Blue	S2S3	G5	moist meadows in the montane and subalpine zones	lower pistillate scales leaflike, much longer than the perigynia and even longer than spike	3	
<i>Carex simulata</i>	<b>Short-Beaked Sedge</b>	Blue	S2S3	G5	wet, often calcareous, fens in the montane zone	Perigynia chestnut coloured, unequally biconvex; beak 1/5-1/3 of the body; rootstock slender; lower sheaths light brownish	3	
<i>Carex sychnocephala</i>	<b>Many-Headed Sedge</b>	Blue	S2S3	G4	shorelines and wet to moist meadows in the steppe and montane zones	Perigynia very narrow, 4.8-6.5mm long and 0.8-1.0mm wide, 5-7 times as long as wide; bracts leaf-like, conspicuously exceeding the head	3	
<i>Carex xerantica</i>	<b>Dry-Land Sedge</b>	Blue	S2S3	G5	grassland, open slopes and mountain parks, high plains to spruce-fir zone in mountains	inflorescences stiff, spikes approximate or aggregated; scales silvery throughout; 1 <sup>st</sup> 2 internodes collectively generally 10-18mm	3	

<i>Erythronium montanum</i>	<b>White Glacier Lily</b>	Blue	S2S3	G4	moist meadows and open forests in the montane to alpine zones	leaves bright yellow-green, not mottled; flowers white (often drying pinkish), broadly lanceolate, much widened above	5	
<i>Festuca minutiflora</i>	<b>Little Fescue</b>	Blue	S1?	G5	dry, stony slopes in the alpine zone	lowermost lemmas 2.8-3.3mm long; leaf blades with a folded width of 0.2-0.4mm; ovary tops with a few stiff hairs	6	
<i>Juncus albescens</i>	<b>Whitish Rush</b>	Blue	S2S3	G5	wet calcareous fens in the montane zone (Chilcotin Plateau)	Bracts long acuminate or awned, larger than flowers; capsules pale, smaller than or equal to perianth	3	
<i>Melica spectabilis</i>	<b>Purple Oniongrass</b>	Blue	S2S3	G5	wet to dry meadows and open forest in the montane and subalpine zones	Glumes less than ½ the length of the spikelets; corms clustered, not remaining attached to the section of rhizome; Lemmas glabrous or scabrous	3	
<i>Muhlenbergia glomerata</i>	<b>Marsh Muhly</b>	Blue	S2S3	G4	wet to moist meadows, streambanks, bogs, irrigation ditches, lake margins, and hot springs in the steppe and montane zones	internodes dull, puberulent; lemmas pilose along margins and base; ligules less than 0.6mm long; anthers 0.8-1.5mm long; culms branch basally, semiterete; sheaths scarcely keeled	4	

<b><i>Scolochloa festuacea</i></b>	<b>Spangle-Top</b>	Blue	S2S3	G5	Ponds, marshes, lakeshores and streamsides in the steppe and montane zones, generally in standing water (shallow water)	culms up to 1.5m; liges membranous, 2-6mm, lacerate; blades flat, 5-10mm broad, firm, elongate and narrowed gradually to a slender tip; branches ascending and mostly naked below midlength; 1 <sup>st</sup> glume 4-6 mm, 3-nerved, 2 <sup>nd</sup> glume 5-7.5mm, 5-nerved; anthers 3-4mm; tall, stout perennial with creeping rhizomes; leaves flat; inflorescence is spreading, each spikelet has 3-5 florets; lemmas have a tuft of hairs at base;---easy to ID because the whitish colour of the empty heads can be readily identified from a distance. Often forms a tall border around shallow open water.	3	
<b><i>Trichophorum pumilum</i></b>	<b>Small Deer-Grass</b>	Blue	S2S3	G5	bogs, lakeshores and wet meadows in the subalpine and alpine zones	Culms cylindrical, smooth; culms rhizomatous; scales awnless or nearly so; spikelets ovate; bristles absent	5, 6	

**Appendix 3:** Plant list for the Prosperity Mine Study Area, 1997.

For the vascular plants, the list follows the format in Douglas et al. (1989-1994).

***GYMNOSPERMS***

CUPRESSACEAE

<i>Juniperus communis</i> L.	Common juniper
<i>Juniperus scopulorum</i> Sarg.	Rocky Mountain juniper

PINACEAE

<i>Abies lasiocarpa</i> (Hook.) Nutt.	Subalpine fir
<i>Picea glauca</i> (Moench) Voss	White spruce
<i>Pinus contorta</i> Dougl. ex Loud.	Lodgepole pine
<i>Pseudotsuga menziesii</i> (Mirb.) Franco	Douglas-fir

***PTERIDOPHYTES***

EQUISETACEAE

<i>Equisetum arvense</i> L.	Common horsetail
<i>Equisetum fluviatile</i> L. em. Ehrh.	Swamp horsetail
<i>Equisetum laevigatum</i> A. Br.	Smooth scouring-rush
<i>Equisetum pratense</i> Ehrh.	Meadow horsetail
<i>Equisetum scirpoides</i> Michx.	Dwarf scouring-rush
<i>Equisetum sylvaticum</i> L.	Wood horsetail

SELAGINELLACEAE

<i>Selaginella densa</i> Rydb.	Compact selaginella
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DRYOPTERIDACEAE

<i>Cystopteris fragilis</i> (L.) Bernh.	Fragile fern
<i>Woodsia scopulina</i> D.C. Eaton	Mountain cliff fern
<i>Woodsia</i> cf. <i>oregana</i> D.C. Eaton	Western cliff fern

OPHIOGLOSSACEAE

*Botrychium cf. lunaria* (L.) Sw.

Common moonwort

## **ANGIOSPERMS**

### **DICOTYLEDONS**

#### **APIACEAE**

*Heracleum lanatum* Michx.

Cow-parsnip

*Lomatium cf. dissectum* (Nutt.) Math. & Const.

Fern-leaved desert parsley

*Osmorhiza chilensis* H. & A.

Mountain sweet-cicely

#### **APOCYNACEAE**

*Apocynum androsaemifolium* L.

Spreading dogbane

#### **ASTERACEAE**

*Achillea millefolium* L.

Yarrow

*Agoseris aurantiaca* (Hook.) Greene

Orange agoseris

*Agoseris glauca* (Pursh) Raf.

Short-beaked agoseris

*Anaphalis margaritaceae* (L.) Benth. & Hook. f.  
ex C.B. Clarke

Pearly everlasting

*Antennaria microphylla* Rydb.

Rosy pussytoes

*Antennaria neglecta* Greene

Field pussytoes

*Antennaria parviflora* Nutt.

Nuttall's pussytoes

*Antennaria pulcherrima*(Hook.) Greene

Showy pussytoes

*Antennaria racemosa* Hook.

Racemose pussytoes

*Antennaria cf. umbrinella* Rydb.

Umber pussytoes

*Arnica chamissonis* Less.

Meadow arnica

*Arnica cordifolia* Hook.

Heart-leaved arnica

*Arnica latifolia* Bong.

Mountain arnica

*Arnica fulgens* Pursh

Orange arnica

*Artemisia campestris* L.

Northern wormwood

*Artemisia dracunculus* L.

Tarragon

*Artemisia frigida* Willd.

Prairie sagewort

*Artemisia ludoviciana* Nutt.

Western mugwort

*Artemisia* sp. (?*michauxiana*)

unidentified sage

<i>Aster borealis</i> (T. & G.) Prov.	Rush aster
<i>Aster ciliolatus</i> Lindl. in Hook.	Lindley's aster
<i>Aster conspicuus</i> Lindl. in Hook.	Showy aster
<i>Aster sibiricus</i> L.	Arctic aster
<i>Aster</i> sp.	Aster
<i>Cirsium</i> sp.	Thistle .
<i>Crepis</i> sp.	Hawksbeard
<i>Erigeron compositus</i> Nutt.	Cut-leaved daisy
<i>Erigeron speciosus</i> (Lindl.) DC.	Showy daisy
<i>Hieracium albiflorum</i> Hook.	White hawkweed
<i>Petasites frigidus</i> (L.) Fries	Sweet coltsfoot
<i>Petasites sagittatus</i> (Banks ex Pursh) A. Gray	Arrow-leaved coltsfoot
<i>Senecio pauperculus</i> Michx.	Canadian butterweed
<i>Senecio pseud aureus</i> Rydb.	Streambank butterweed
<i>Senecio streptanthiflorus</i>	Rocky Mountain butterweed
<i>Solidago canadensis</i> L.	Canada goldenrod
<i>Solidago multiradiata</i> Ait.	Northern goldenrod
<i>Solidago spathulata</i> DC.	Spike-like goldenrod
<i>Taraxacum officinale</i> Webber in Wiggers	Common dandelion
<i>Tragopogon dubius</i> Scop.	Yellow salsify

#### BERBERIDACEAE

<i>Mahonia</i> sp.	Oregon-grape
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#### BETULACEAE

<i>Alnus ?crispa</i> (Ait.) Pursh	Green alder
<i>Alnus tenuifolia</i> Nutt.	Mountain alder
<i>Betula glandulosa</i> Michx.	Scrub birch
<i>Betula occidentalis</i> Hook.	Water birch
<i>Betula papyrifera</i> Marsh.	Paper birch

#### BORAGINACEAE

*Lithospermum ruderale* Dougl. ex Lehm.  
*Myosotis* sp.

Lemonweed gromwell  
Forget-me-not

#### BRASSICACEAE

*Arabis drummondii* A. Gray

Drummond's rockcress

*Arabis holboellii* Hornem.

Holboell's rockcress

*Cardamine ? pensylvanica* Muhl. ex Willd.

Pennsylvanian bittercress

*Cardamine occidentale* (S. Wats.) Howell

Western bittercress

*Draba aurea* Vahl. in Horn.

Golden draba

*Draba borealis* DC.

Northern draba

*Draba inserta* Pays.

Yellowstone draba

*Draba oligosperma* Hook.

Few-seeded draba

*Draba paysonii* Macbr.

Payson's draba

*Draba praealta* Greene

Tall draba

*Erysimum cheiranthoides* L.

Wormseed mustard

*Rorippa palustris* (L.) Bess.

Marsh yellow cress

#### CAPRIFOLIACEAE

*Linnaea borealis* L.

Twinflower

*Lonicera involucrata* (Richards.) Banks ex. Spring

Black twinberry

*Moehringia lateriflora* (L.) Fenzl

Blunt-leaved sandwort

*Sambucus racemosa* L.

Black elderberry

*Symphoricarpos albus* (L.) Blake

Common snowberry

#### CARYOPHYLLACEAE

*Cerastium arvense* L.

Field chickweed

*Minuartia rubella* (Wahl.) Hiern

Boreal sandwort

*Moehringia lateriflora* (L.) Fenzl

Blunt-leaved sandwort

*Silene*

Campion

*Stellaria*

Starwort

#### CERATOPHYLLACEAE

*Ceratophyllum demersum* L.

Common hornwort

#### CORNACEAE

*Cornus canadensis* L.

Bunchberry

*Cornus stolonifera* Michx.

Red-osier dogwood

#### CRASSULACEAE

*Sedum lanceolatum* Torr.

Lance-leaved stonecrop

#### DROSERACEAE

*Drosera angelica* Huds.

Great sundew

#### ELAEAGNACEAE

*Elaeagnus commutata* Behr. ex Rydb.

Silverberry

*Shepherdia canadensis* (L.) Nutt.

Soopolallie

#### EMPETRACEAE

*Empetrum nigrum* L.

Crowberry

#### ERICACEAE

*Arctostaphylos urva-ursi* (L.) Spreng.

Kinnikinnick

?*Cassiope*

*Kalmia microphylla* (Hook.) Heller

Western bog-laurel

*Ledum glandulosum* Nutt.

Trapper's tea

*Ledum groenlandicum* Oeder

Labrador tea

*Moneses uniflora* (L.) Gray

Single delight

*Orthilia secunda* (L.) House

One-sided wintergreen

*Phyllodoce empetriformis* (Sw.) D. Don

Pink mountain-heather

*Phyllodoce glanduliflora* (Hook.) Cov.

Yellow mountain heather

*Pyrola asarifolia* Michx.

Pink wintergreen

*Pyrola chlorantha* Sw.

Green wintergreen

*Pyrola picta* Sm.

White-veined wintergreen

<i>Rhododendron albiflorum</i> Hook.	White-flowered rhododendron
<i>Vaccinium alaskaense</i> Howell	Alaskan blueberry
<i>Vaccinium caespitosum</i> Michx.	Dwarf blueberry
<i>Vaccinium scoparium</i> Leib.	Grouseberry

#### FABACEAE

<i>Astragalus americanus</i> (Hook.) M.E. Jones	American milk-vetch
<i>Astragalus miser</i> Dougl. ex Hook.	Timber milk-vetch
<i>Astragalus robbinsii</i> (Oakes) A. Gray	Robbins' milk-vetch
? <i>Hedysarum</i>	
<i>Lupinus arcticus</i> S. Wats.	Arctic lupine
<i>Medicago sativa</i> L.	Alfalfa
<i>Oxytropis monticola</i> A.Gray (= <i>O. campestris</i> )	Mountain locoweed
<i>Trifolium hybridum</i> L.	Alsike clover
<i>Trifolium pratense</i> L.	Red clover
<i>Trifolium repens</i> L.	White clover
<i>Vicia americana</i> Muhl. ex Willd.	American vetch

#### GENTIANACEAE

<i>Gentiana</i>	Gentian
<i>Gentianella amarella</i> (L.) Borner	Northern gentian

#### GROSSULARIACEAE

<i>Ribes hudsonianum</i> Richards. in Frankl.	Northern blackcurrent
<i>Ribes lacustre</i> (Pers.) Poir. in Lamarck	Black gooseberry

#### ?HALORAGACEAE

?*Myriophyllum*

#### HIPPURIDACEAE

<i>Hippuris vulgaris</i> L.	Common mare's tail
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HYDROPHYLLACEAE

*Phacelia sericia* (Grah.) A. Gray

Silky phacelia

LAMIACEAE

*Mentha arvensis* L.

Field mint

LENTIBULARIACEAE

*Utricularia minor* L.

Lesser bladderwort

LINACEAE

*Linum perenne* L.

Western blue flax

MENYANTHACEAE

*Menyanthes trifoliata* L.

Buckbean

NYMPHAEACEAE

*Nuphar polysepalum* Engelm.

Rocky Mountain cow-lily

ONAGRACEAE

*Epilobium angustifolium* L.

Fireweed

*Epilobium ciliatum* Raf.

Purple-leaved willowherb

PARNASSIACEAE

*Parnassia fimbriata* Konig

Fringed grass-of-Parnassus

*Parnassia palustris* L.

Northern grass-of-Parnassus

PLANTAGINACEAE

*Plantago major* L.

Common plantain

POLEMONIACEAE

*Polemonium pulcherrimum* Hook.

Showy Jacob's ladder

POLYGONACEAE

<i>Polygonum amphibium</i> L.	Water smartweed
<i>Polygonum douglasii</i> Greene	Douglas' knotweed
<i>Polygonum viviparum</i> L.	Alpine bistort
<i>Rumex occidentalis</i> S. Wats.	Western dock

PRIMULACEAE

<i>Androsace septentrionalis</i> L.	Northern fairy-candelabra
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RANUNCULACEAE

<i>Actaea rubra</i> (Ait.) Willd.	Baneberry
<i>Anemone multifida</i> Poir.	Cut-leaved anemone
<i>Anemone parviflora</i> Michx.	Northern anemone
<i>Aquilegia formosa</i> Fisch. in DC.	Red columbine
<i>Ranunculus acris</i> L.	Meadow buttercup
<i>Ranunculus aquatilis</i> L.	White water-buttercup
<i>Ranunculus flammula</i> L.	Lesser spearwort
<i>Ranunculus gmelinii</i> DC.	Small yellow water-buttercup
<i>Ranunculus sceleratus</i> L.	Celery-leaved buttercup
<i>Thalictrum occidentale</i> A. Gray	Western meadowrue
<i>Thalictrum venulosum</i> Trel.	Veiny meadowrue

RHAMNACEAE

<i>Ceanothus velutinus</i> Dougl. ex Hook.	Snowbrush
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ROSACEAE

<i>Amelanchier alnifolia</i> (Nutt.) Nutt.	Saskatoon
<i>Fragaria vesca</i> L.	Wood strawberry
<i>Fragaria virginiana</i> Duch.	Wild strawberry
<i>Geum macrophyllum</i> Willd.	Large-leaved avens
<i>Geum triflorum</i> Pursh	Old man's whiskers
<i>Potentilla anserina</i> L.	Silverweed

<i>Potentilla arguta</i> Pursh	White cinquefoil
<i>Potentilla diversifolia</i> Lehm.	Diverse-leaved cinquefoil
<i>Potentilla gracilis</i> Dougl.	Graceful cinquefoil
<i>Potentilla hippiana</i> Lehm.	Woolly cinquefoil
<i>Potentilla palustris</i> (L.) Scop.	Marsh cinquefoil
<i>Potentilla ? uniflora</i> Ledeb.	One-flowered cinquefoil
<i>Rosa acicularis</i> Lindl.	Prickly rose
<i>Rubus arcticus</i> L.	Nagoonberry
<i>Rubus idaeus</i> L.	Red raspberry
<i>Sanguisorba canadensis</i> L.	Sitka burnet
<i>Sibbaldia procumbens</i> L.	Sibbaldia
<i>Spiraea betulifolia</i> Pall.	Birch-leaved spirea

#### RUBIACEAE

<i>Galium boreale</i> L.	Northern bedstraw
<i>Galium trifidum</i> L.	Small bedstraw
<i>Galium triflorum</i> Michx.	Sweet-scented bedstraw

#### SALICACEAE

<i>Populus balsamifera</i> L.	Balsam poplar
<i>Populus tremuloides</i>	Trembling aspen
<i>Salix arbusculoides</i> Anderss.	Northern bush willow
<i>Salix arctica</i> Pallas	Arctic willow
<i>Salix barclayi</i> Anderss.	Barclay's willow
<i>Salix bebbiana</i> Sarg	Bebb's willow
<i>Salix brachycarpa</i> Nutt.	Short-fruited willow
<i>Salix candida</i> Fluegge ex. Willd.	Hoary willow
<i>Salix drummondiana</i> Barratt ex Hook.	Drummond's willow
<i>Salix glauca</i> L.	Grey-leaved willow
<i>Salix planifolia</i> Pursh	Tea-leaved willow
<i>Salix sitchensis</i> Sanson ex Bong.	Sitka willow
<i>Salix</i> spp.	Unidentified willows

## SAXIFRAGACEAE

*Heuchera cylindrica* Dougl. ex Hook.

Round-leaved alumroot

*Mitella* sp.

Mitrewort

*Saxifraga bronchialis* L.

Spotted saxifrage

*Saxifraga occidentalis* S. Wats.

Western saxifrage

## SCROPHULARIACEAE

*Castilleja miniata* Dougl. ex Hook.

Scarlet paintbrush

*Collinsia parviflora* Dougl. ex. Lindl.

Small-flowered blue-eyed Mary

*Mimulus guttatus* Fisch. ex DC.

Yellow monkey-flower

*Pedicularis bracteosa* Benth. in Hook.

Bracted lousewort

*Penstemon fruticosus* (Pursh) Greene

Shrubby penstemon

*Penstemon procerus* Dougl. ex Graham

Small-flowered penstemon

*Rhinanthus minor* L.

Yellow rattle

*Veronica*

## VALERIANACEAE

*Valeriana dioica* L.

Marsh valerian

*Valeriana sitchensis* Bong.

Sitka valerian

## VIOLACEAE

*Viola adunca* J.E. Smith in Rees

Early blue violet

*Viola canadensis* L.

Canada violet

*Viola renifolia* A. Gray

Kidney-leaved violet

## MONOCOTYLEDONS

### CYPERACEAE

*Carex aquatilis* Wahlenb.

Water sedge

*Carex aurea* Nutt.

Golden sedge

*Carex canescens* L.

Grey sedge

*Carex capillaris* L.

Hairlike sedge

<i>Carex capitata</i> L.	Capitate sedge
<i>Carex concinna</i> R. Br.	Low northern sedge
<i>Carex concinnoides</i> Mack.	Northwestern sedge
<i>Carex disperma</i> Dewey	Soft-leaved sedge
<i>Carex garberi</i> Fern.	Garber's sedge
<i>Carex gynocrates</i> Wormsk. ex Drej.	Yellow bog sedge
<i>Carex lanuginosa</i> Michx.	Woolly sedge
<i>Carex leptalea</i> Wahlenb.	Bristle-stalked sedge
<i>Carex media</i> R. Br. in Richards.	Scandinavian sedge
<i>Carex nigricans</i> C.A. Meyer	Black alpine sedge
<i>Carex pachystachya</i> Cham. ex Steud.	Thick-headed sedge
<i>Carex petasata</i> Dewey	Pasture sedge
<i>Carex saxatilis</i> L.	Russet sedge
<i>Carex utriculata</i> Boott in Hook.	Beaked sedge
<i>Carex</i> spp.	unidentified sedges
<i>Eleocharis palustris</i> (L.) Roem. & Schult.	Common spike-rush
<i>Kobresia myosuroides</i> (Vill.) Fiori & Paol.	Bellard's kobresia
? <i>Scirpus</i>	
<i>Trichophorum caespitosum</i> (L.) Hartm.	Tufted clubrush
IRIDACEAE	
<i>Sisyrinchium montanum</i> Greene	Mountain blue-eyed grass
JUNCACEAE	
<i>Juncus balticus</i> Willd.	Baltic rush
<i>Juncus tenuis</i> Willd.	Slender rush
<i>Luzula parviflora</i> (Ehrh.) Desv.	Small-flowered woodrush
<i>Luzula spicata</i> (L.) DC.	Spiked woodrush
LILIACEAE	
<i>Allium cernuum</i> Roth in Roem.	Nodding onion
<i>Smilacina stellata</i> (L.) Desf.	Star-flowered false Solomon's seal

*Zygadenus venenosus* S. Wats.

Meadow death-camas

#### ORCHIDACEAE

*Amerorchis rotundifolia* (Banks ex Pursh) Hult.

Round-leaved orchis

*Corallorhiza trifida* Chatelain

Yellow coralroot

*Goodyera oblongifolia* Raf.

Rattlesnake-plantain

*Listera cordata* (L.) R. Br. in Ait.

Heart-leaved twayblade

*Plantanthera dilatata* (Pursh) Lindl. ex. Beck

White bog orchid

*Plantanthera hyperborea* (L.) Lindl.

Green-flowered bog orchid

*Plantanthera stricta* Lindl.

Slender bog-orchid

*Spiranthes romanzoffiana* Cham.

Hooded ladies' tresses

#### POACEAE

*Agrostis scabra* Willd.

Hair bentgrass

*Alopecurus aequalis* Sobol.

Little meadow-foxtail

?*Arctagrostis latifolia* (R. Br.) griseb. in Ledeb.

Polargrass

*Bromus anomalus* Rupr. ex Fourn.

Nodding brome

*Bromun carinatus* Hook. ex Arn.

California brome

*Bromus ciliatus* L.

Fringed brome

*Bromus inermis* Leys.

Smooth brome

*Calamagrostis canadensis* (Michx.) Beauv.

Bluejoint

*Calamagrostis purpurascens* R. Br. in Richards.

Purple reedgrass

*Calamagrostis rubescens* Buckl.

Pinegrass

*Calamagrostis stricta* (Timm) Koel.

Slimstem reedgrass

*Cinna latifolia* (Trevir. ex Gopp.) Griseb. in Ledeb.

Nodding wood-reed

*Danthonia intermedia* Vasey

Timber oatgrass

*Danthonia spicata* (L.) Beauv. ex Roem. & Schult.

Poverty oatgrass

?*Deschampsia elongata* (Hook.) Munro ex Benth.

Slender hairgrass

*Elymus spicata* (Pursh) Gould

Bluebunch wheatgrass

*Elymus trachycaulus* (Link) Gould in Shinners

Slender wheatgrass

*Festuca occidentalis* Hook.

Western fescue

*Festuca saximontana* Rydb.

Rocky Mountain fescue

<i>Glyceria ? elata</i> (Nash.) M.E. Jones	Tall mannagrass
<i>Glyceria grandis</i> S. Wats. ex A. Gray	Reed mannagrass
<i>Glyceria striata</i> (Lam.) A.S. Hitchc.	Fowl mannagrass
<i>Hierochloa odorata</i> (L.) Beauv.	Common sweetgrass
<i>Hordeum jubatum</i> L.	Foxtail barley
<i>Koeleria macrantha</i> (Ledeb.) J.A. Schultes f.	Junegrass
<i>Oryzopsis asperifolia</i> Michx.	Rough-leaved rice grass
<i>Phleum alpinum</i> L.	Alpine timothy
<i>Phleum pratense</i> L.	Common timothy
<i>Poa alpina</i> L.	Alpine bluegrass
<i>Poa cf. cusickii</i> Vasey	Cusick's bluegrass
<i>Poa glauca</i> Vahl	Glaucous bluegrass
<i>Poa cf. palustris</i> L.	Fowl bluegrass
<i>Poa pratensis</i> L.	Kentucky bluegrass
<i>Poa secunda</i> J.S. Presl. in C.B. Presl.	Sandberg bluegrass
<i>Poa cf. wheeleri</i> Vasey	Wheeler's bluegrass
<i>Schizachne purpurascens</i> (Torr.) Swallen	False melic
<i>Stipa nelsonii</i> Scribn.	Columbian needlegrass
<i>Stipa richardsonii</i> Link	Spreading needlegrass
<i>Trisetum spicatum</i> (L.) Richt.	Spike trisetum

#### POTAMOGETONACEAE

<i>Potamogeton cf. crispus</i> L.	Curled pondweed
<i>Potamogeton</i> sp.	

#### SPARGANIACEAE

<i>Sparganium angustifolium</i> Michx.	Narrow-leaved bur-reed
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### **BRYOPHYTES AND LICHENS**

#### MOSSES

*Aulacomnium palustre*

*Brachythecium*  
*Brachythecium albicans*  
*Bryum caespiticium*  
*Bryum spp.*  
*Calliergon*  
*Ceratodon purpureus*  
*Climacium dendroides*  
*Dicranum fuscescens*  
*Dicranum scoparium*  
*Drepanocladus vernicosus*  
*Encalypta rhaptocarpa*  
*Eurhynchium pulchellum*  
*Grimmia pulvinata*  
*Hypnum*  
*Plagiomnium*  
*Pleurozium schreberi*  
*Pohlia nutans*  
*Polytrichum juniperinum*  
*Polytrichum piliferum*  
*Pterygoneurum ovatum*  
*Racomitrium*  
*Sanionia uncinata*  
*Sphagnum*  
*Sphagnum capillifolium*  
*Sphagnum fuscum*  
*Tomenthypnum nitens*  
*Tortula ruralis*

LIVERWORTS (HEPATICUS)

*Conocephalum conicum*

*Marchantia polymorpha*

*Barbilophozia hatcheri*

LICHENS

*Diploschistes muscorum*

*Peltigera*

*Cetraria nivalis*

*Stereocaulon*

*Cladonia*

*Cladonia*

*Cladonia*

*Cladina*

*Coelocaulon*

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