

**VEGETATION AND RARE PLANT SURVEYS OF
TEN SITES SELECTED FOR
MAINTENANCE / CONSTRUCTION PROJECTS SPRING 2007 –
W.A. SWITZER PROVINCIAL PARK**

Prepared for Parks, Conservation, Recreation and Sport Division,
Alberta Tourism, Parks, Recreation and Culture

by
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INTRODUCTION

This report contains the results of rare plant, and vegetation surveys conducted within ten project areas within William A. Switzer Provincial Park, approximately 19 km NW of Hinton, Alberta. Only a late spring rare plant survey was conducted, due to timing of anticipated maintenance and construction activities.

METHODS

Methods consisted of:

- . a literature review of ecological studies for the local and regional area,
- . a provincial Element Occurrence (EO) record database search,
- . a review of special plant communities and rare vascular plants that could potentially occur in the project area, and
- . a field survey.

The Park occurs within the Upper Foothills Natural Subregion (Natural Areas Committee 2006). A list of rare vascular floral taxa known or expected to occur in the Foothills natural region was compiled based on Wallis (1987) and Fairbarns *et al.* (1987), as well as the most currently available ANHIC tracking and watch lists (Gould 2006), and known rare plant occurrences for the Upper Foothills natural subregion. Distribution maps of numbers of populations/locations for rare Alberta plant species in Moss (1983), and Kershaw *et al.* (2001) were also reviewed. A list of special plant communities that are known or expected for the project area was also reviewed, based on Allen (2006).

The Alberta Natural Heritage Information Centre (ANHIC), Edmonton was contacted May 17th, 2007 for EO records of rare plants within the township(s) and range(s) within which the Park is located. Their database listed one tracked plant record for the S1S2-ranked *Cardamine pratensis*, and no special plant community EO records (J. Rintoul pers. comm.). A plant checklist of the park obtained from the ANHIC May 23rd, 2007 additionally contained rare plant species for which there are apparently no equivalent EO records, including the S1-ranked *Woodsia glabella*, *Carex hystericina*, *Erigeron hyssopifolius*, S2-ranked *Pellaea glabella*, *Potamogeton foliosus*, *Carex lacustris*, *Camassia quamash*, *Ranunculus glaberimus*, S2W-ranked *Carex capitata*, *Ranunculus occidentalis*, S2S3-ranked *Veronica catenata*, S4W-ranked *Carex lasiocarpa*, and SU-ranked *Poa stenantha* (see also Appendix 1). Status rankings are based on Gould (2006).

RESULTS

Rare plant surveys were conducted on May 28th, 29th, 30th, and 31st, 2007, using accepted standard techniques as per Alberta Native Plant Council guidelines (ANPC 2000). A plotless sampling survey technique was used to give the greatest range of variability to community types observed in the field. UTM coordinates (via GPS unit *Garmin GPSMap 60Cx*), photographs and/or voucher specimens of unknown or problematic plant species were taken, along with notes on plant communities or associations encountered. Vouchers were later identified and/or verified against type specimens and taxonomy texts. Appendix 1 presents a checklist of plant species observed during the 2007 spring survey.

Project areas were identified as per descriptions and mapping obtained from Alberta Tourism, Parks, Recreation and Culture (email from K. Vujnovic dated May 10, 2007). Project areas include Kelly's Bath tub Loop, Jarvis Lake Campground, Jarvis Lake Day Use area, Jarvis Lake Trails, Pine Bay

Group Camp, Trout Lake Trail, Kettle Trail, Beaver Ranch Group Camp, Halfway Campground, and Beaver Ranch-Graveyard Trails.

Preliminary results were submitted by telephone to K. Vujnovic, Alberta Tourism, Parks, Recreation and Culture on June 4th, 2007. Vegetation and flora are briefly described for each of the following ten project areas, as well as proposed mitigation measures, where appropriate.

KELLY'S BATHTUB LOOP (existing trail, and 2 new trail realignments)

The Kelly's Bathtub Loop trail is mostly forested by lodgepole pine-white spruce, with a sparse to moderately open shrub layer of bog birch, Canada buffaloberry, willow, rose and honeysuckle, above a ground layer of common bearberry, grasses and feathermosses. Common understory species include twinflower, wild strawberry, hairy wild rye. A new realignment with board walk, is proposed to cross a moist sedge-grass lakeshore meadow (B. Duffin, pers. comm.); this low-lying area contains species such as water sedge, bog violet, low willows, horsetails, arctic raspberry, elephant's-head, bluejoint and other grasses, currants, and Labrador tea-feathermoss hummocks. No rare plants were observed.

MITIGATION: The low-lying sedge-grass meadow area where a boardwalk is proposed, has somewhat higher potential for rare plants later in the season, and may also be more sensitive to disturbance. Minimize disturbance through this area, during construction. A large old squirrel midden bordering this meadow should also be avoided.

Upland tree stands in new trail realignment segments have dbhs to 45 cm (18"); largest trees and standing dead snags (some utilized by woodpeckers, etc.) should be avoided wherever possible when developing new trail realignments.

JARVIS LAKE CAMPGROUND (new campstall)

A new campstall is proposed for a site next to existing stall #8 in the Jarvis Lake campground. The site is dominated by a black spruce / Labrador tea - (Canada buffaloberry) / feathermoss community, with hairy wild rye, bishop's-cap, beautiful sedge, leatherleaf lichens, rose, common pink wintergreen, common bearberry, dwarf horsetail, arnica, and short willow also present. A few introduced blue grass, and white clover are present near the road, and along old RofW edges. No rare plants were observed.

MITIGATION: Upland trees contain moderate amounts of arboreal lichens, which may include rare species (J. Marsh pers. comm.).

JARVIS LAKE DAY USE AREA (road connector)

A small, forested area will be cleared to connect the main entrance road, to an existing gravel turn-around area in the Jarvis Lake Day Use area, to facilitate traffic flow. The site is mainly dominated by mature aspen, with a small stand of young aspen saplings forming an 'island' near the edge of the gravel turn-around area. The main connector site contains mature aspen (dbh to 38 cm (15")) above a partially disturbed understory of sparse tall willow and aspen/balsam poplar saplings, low-bush cranberry, common bearberry, hairy wild rye, bunchberry, and wild strawberry. Other common species include common yarrow, white clover, dandelions, peavine, wintergreens, twinflower, sedges, bistort, cow parsnip, horsetails, bog cranberry, and aster, plus trace amounts of coralroot orchid, palmate-leaved coltsfoot, and larkspur, among others. The area exhibits previous disturbance in the form of weedy species; the young aspen sapling 'island' appears to have invaded the site after an earlier development. No rare plants were observed.

MITIGATION: Limit removal of mature aspen trees, and a rotten snag of value to wildlife, in the main connector segment, where possible. Upland trees may contain rare lichen species (J. Marsh pers. comm.).

JARVIS LAKE TRAILS (wide cross-country ski trails)

Approximately 13 km of trails were surveyed, including a 0.56 km loop near the Visitor Centre, the Hillside, Meadow Run, and Sunburst Run trails, plus other unnamed trail segments / connectors.

Hillside trail is dominated mostly by lodgepole pine - white spruce stands with a few veteran aspen, moderate shrub layers of Labrador tea-bog birch-willow, above feathermosses - (grasses).

Rolling Run is dominated mostly by open stands of white spruce-aspen-lodgepole pine, with some sapling and secondary canopy balsam fir regeneration, and more green alder presence. There are a few poorly drained segments with black spruce / feathermoss-sphagnum bog type vegetation.

Meadow Run consists of several large mature aspen stands (51 cm (20+”) dbh) near the west parking lot on the gravel access road (just east of a small bridge crossing a creek), interspersed with young stands of aspen – (balsam poplar) - white spruce / tall willow mixedwoods. One potentially rare buttercup was noted on the trail at 11U (UTM 0444960 5925685 +/- 7 m) at 1225 m asl. The plant was about 7.6-10 cm (3-4”) in height, in flower, but with undeveloped immature leaves and achenes. It could be *Ranunculus occidentalis*, and thus should be revisited later in the season, to determine to the species level. Mowing should not affect the plant at this stage of development. Portions of this trail contained the largest lodgepole pine yet (dbh to 66-71 cm (26-28”)); these are moderately closed stands with tall willow and balsam poplar regeneration in the tall shrub layer, and hairy wild rye understories. There were also mature stands of dense lodgepole pine - black spruce / feathermoss. A second potentially rare species, *Cardamine pratensis*, was noted in a seasonally drowned beaver channel or ditch in a low birch fen community. Numerous small plants were observed under water in a 2-3 m long stretch of the channel, all with pinnatifid leaves, but immature and pre-flowering. 11U (UTM 0445704 5926085 +/- 5 m) at 1208 m asl.

Sunburst Run (2.6 km) is dominated by open mature aspen / bluejoint, or bluejoint - rice grass meadows grading upward in elevation to forests of lodgepole pine - white spruce / Labrador tea / feathermoss, or lodgepole pine / Labrador tea / feathermoss. Some lower sites contain aspen - white spruce, with some balsam fir and pine regeneration in the 3.6-6 m (12-20’) ht. category. Common understory species in forested areas include bog cranberry, twinflower, small sedges, horsetails, bunchberry, northern bedstraw, club-mosses, and occasional low willow, honeysuckle, and sapling or seedling fir and pine.

MITIGATION: Mowing and brushing should not affect potentially significant plant species, which should be rechecked for later in the season by a botanist.

PINE BAY GROUP CAMP (parking stall expansion)

Parking stalls will be expanded in two areas with one area (A) receiving a bank cutting, with the overfill to be dumped downslope of the opposite parking area (B). A third parking site (C) will not be disturbed (next to garbage bin) (B.Duffin pers. comm.).

The upper parking stall site (A) is adjacent to a lodgepole pine - white spruce / Labrador tea / hairywild rye - feathermoss community, with young understory of balsam fir (3.6-4.6 m (12-15’) ht.), and occasional tall willow and green alder. Other common species include twinflower, bog cranberry, roses, and leatherleaf lichens. On the more exposed sunny bank, there are heart-leaved arnica, fireweed, wild strawberry, marsh felwort, toadflax, willows (mostly dead), and wintergreens, among others.

The lower parking stall site (B) is adjacent to a mature white spruce - lodgepole pine stand, with dead willow shrub layer, and hairy wild rye understory. Common species include Labrador tea, honeysuckles, bishop's-cap, arnica, aster, wintergreens, peavine, white camas, common yarrow, and toadflax, among others.

No rare plants were observed. Both sites contain trace to minor amounts of weedy species such as clovers, common plantain, and dandelions.

MITIGATION: Limit removal of mature trees, where possible.

TROUT LAKE TRAIL (trail reroute options)

Two segments of the Trout Lake Trail may be rerouted to avoid steepness of slope and subsequent potential safety, and erosion issues. The first reroute option area (Upper Trail) is near the trailhead, and will require significant cut and fill of the surrounding sideslope to reroute the trail. Alternately, stairs could be built on the existing steep portion of the trail. The second reroute option area (Lower Trail) is near the trail end at the lakeshore, and would require moderate to minimal cut into the surrounding slope, utilizing existing game trail networks instead. Alternately, stairs could be built on the existing steep portion of the trail (B. Duffin pers. comm.).

Upper trail: The sideslope reroute option was not flagged or marked at the time of survey, so a general survey of the entire sideslope and base area below the sideslope was surveyed. The sideslope is between 15-20 degrees, and no matter where a new trail is resited along its base, to ascend to the road means creating a new steep portion of trail (cannot be avoided). The existing trail and sideslope fall within an open-canopied mature white spruce - lodgepole pine / Labrador tea - hairy wild rye / feathermoss community. Willow, honeysuckles, common fireweed, and low bilberry were noted along with common species such as rose, Canada buffaloberry, twinflower, bunchberry, and wild strawberry. Some trees are mature to overmature; a large old squirrel midden occurs partway across the sideslope.

Lower trail: The reroute option was marked with flagging tape at the time of survey. The reroute falls within a mature white spruce - lodgepole pine / Labrador tea - hairy wild rye / feathermoss community on a mostly SSW-facing slope. Some of the older trees contain significant amounts of arboreal lichens. Understory shrubs are limited to a few tall willow, roses, Canada buffaloberry, and trace amounts of bog birch and honeysuckle. Common species include twinflower, bunchberry, wild strawberry, wintergreens, bishop's-cap, and arnica, among others.

No rare plants were observed at either site.

MITIGATION: The preferred option for the Upper Trail site will be to install a new staircase over the existing steep trail segment, which would minimize impacts to the vegetation resource. This will avoid removal of mature to older trees, disturbance to a large old squirrel midden, and loss of other vegetation.

The preferred option for the Lower Trail site is to reroute according to marked new location zigzag route down to the lakeshore. Note the rare plant survey was conducted along a preflagged route, using game trails as the existing 'centre-line' for the survey. Avoid removal of largest trees, where possible.

KETTLE TRAIL

The Kettle Lake Trail falls within a predominantly lodgepole pine - white spruce - aspen mixedwood forest, with Labrador tea understory (E-facing slopes), and feathermoss ground layer. Canada

buffaloberry and common bearberry are more common on drier slopes. Fire scarring and standing dead trees are common, as well as windthrown and snow-bent aspen. The understory is diverse and includes species such as hairy wild rye, bog cranberry, bilberry, wild strawberry, twinflower, large-leaved avens, paintbrush, reed grass, heart-leaved arnica, bunchberry, white camas, sedges, horsetails, violets, valerian, hedysarum, milk vetch, and everlastings, among others. Parts of the trail appear to have been seeded previously, and species such as timothy, clovers, and introduced blue grasses were noted. The trail skirts the base of a large hill; aspen on this hill are mature, 24-27 m (80-90') tall, with average dbh of 35 cm (14"). No rare plants were observed.

MITIGATION: Avoid removal of largest trees when building connector section, where possible. Tall, large aspen have good interpretive and aesthetic value.

BEAVER RANCH GROUP CAMP (gravel pit and environs)

A new group camp will be built on and around a previously disturbed gravel pit site, which consists of a depressional area (at centre) dominated by tall willow and bog birch above grasses, plus the surrounding roadbed and environs.

The sandy/cobbly, somewhat compacted roadbed and environs is variously vegetated with low shrubs and herbs, including clovers, roses, dandelion, wild strawberry, mosses, bog cranberry, common yarrow, pussytoes, common bearberry, yellow rattle, fireweed, Canada buffaloberry, white camas, seedling and sapling white spruce, felwort, goldenrods, sweetgrass, bluegrasses, sedges, and hairy wild rye. Introduced awned brome is common in patches. Parking lot development will result in the removal of some poplar and bog birch; mature spruce and aspen (to dbh 35 cm (14+")) will be removed at the north edge of the gravel pit. No rare plants were observed.

MITIGATION: Avoid removal of largest trees and of any snags, where possible.

HALFWAY CAMPGROUND (new and existing trails)

An existing trail ~300 m long from the Beaver Ranch Ruins in the Halfway Campground will be brushed and gravelled; it runs southward through an open grass-awned sedge meadow with few shrubs or trees. Common species include willow, awnless brome, dandelions, dock, wild strawberry, common yarrow, yellow avens, golden alexanders, clovers, meadowrue, arnica, bluegrass, and sedges. Beaver have removed many sapling trees and willows in vicinity.

A small 200 m long informal trail extends from the south portion of the Halfway Group Use Area, and Beaver ranch Ruins, and will be formalized and gravelled. This trail traverses a bog birch-willow shrubland; a few scattered spruce saplings may be removed. No rare plants were observed.

MITIGATION: None required.

BEAVER RANCH-GRAVEYARD TRAILS (new trail)

An informal trail ~1 km in length extends from the Graveyard Lake parking lot northward toward Beaver Ruins, and will be upgraded to a formal new trail cut. The trail bisects a bog birch-willow shrubland, with very occasional scattered white spruce trees. Active beaver cuttings, and ungulate browse are common on shrubs and trees. The understory is dominated by grassy hummocks, with a sparse herb layer of wild strawberry, valerian, senecios, common plantain, clovers, arctic raspberry, coltsfoots, avens, dock, and geranium, among others. Most of the trail has been previously compacted to a distance of up to 1-1.3 m (3-4'). No rare plants were observed.

MITIGATION: None required.

SUMMARY

No rare plant species or special plant communities were observed during the spring rare vascular plant survey. Two potentially rare species observed along the Jarvis Lake Trails should be rechecked later in the season to determine to the species level.

The level of confidence in locating rare plants is a function of the time spent searching, plus appropriate season. The late May 2007 rare plant survey was early for detection of rare plant species; most flowering plants were just emerging from the ground and early-flowering species such as willows were in some cases, not even out yet in leaf. None of the habitats encountered were considered unique or unusual, based on the literature review, expected and known element occurrences in the project area or region, plus professional judgement by the botanist conducting the rare plant survey.

Recommended mitigation measures are indicated by site, in the aforementioned sections.

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APPENDIX 1.

SPECIES CHECKLIST FOR WILLIAM A. SWITZER PROVINCIAL PARK

(observed May 28th to 31st, 2007)

LYCOPODIACEAE

Diphasiastrum complanatum ground-cedar
Lycopodium annotinum stiff club-moss

EQUISETACEAE

Equisetum arvense common horsetail (fertile shoots only)
Equisetum scirpoides dwarf horsetail
Equisetum sylvaticum woodland horsetail (young stems only)
Equisetum variegatum variegated horsetail

CUPRESSACEAE

Juniperus communis ground juniper
Juniperus horizontalis creeping juniper

PINACEAE

Abies bifolia subalpine fir
Larix laricina tamarack (one sapling only)
Picea glauca white spruce
Picea mariana black spruce
Pinus contorta lodgepole pine

POACEAE

Agropyron sp. wheat grass
Bromus inermis awnless brome
Calamagrostis canadensis bluejoint
Calamagrostis cf. rubescens pine reed grass (leave bases only)
Deschampsia cespitosa tufted hair grass
Hierochloa odorata sweet grass
Leymus innovatus (= *Elymus innovatus*) hairy wild rye
Oryzopsis sp. Indian rice grass (last year's heads)
Phleum pratense timothy
Poa spp. bluegrasses
Poa annua annual bluegrass
Poa cusickii or *sandbergii* Cusick's, or Sandberg's bluegrass (last year's heads)
Poa cf. pratensis Kentucky bluegrass
Schizachne purpurascens purple oat grass (last year's heads)
Trisetum spicatum spike trisetum (last year's heads)

CYPERACEAE

Carex spp. sedges (most mid-sized sedges leaf bases only)
Carex atherodes awned sedge
Carex aquatilis water sedge (last year's heads)
Carex concinna beautiful sedge (in bud and early flowering)
Carex concinnoides low northern sedge (in bud and early flowering)

LILIACEAE

Lilium philadelphicum var. *andinum* western wood lily
Maianthemum canadense var. *interius* wild lily-of-the-valley
Smilacina cf. stellata star-flowered Solomon's-seal (pre-budding)

Zigadenus elegans

ORCHIDACEAE

Calypso bulbosa

Coeloglossum viride (= *Habenaria viridis*)

Corallorhiza maculata or *striata*

Corallorhiza trifida

Platanthera cf. *hyperborea* (= *Habenaria hyperborea*)

Platanthera obtusata (= *Habenaria obtusata*)

white camas

Venus'-slipper (in bud and flower)

bracted bog orchid (pre-bud; leaf shoots)

spotted, or striped coralroot (last year's dead stems only)

pale coralroot (stem shoots up)

northern green bog orchid (basal leaf and stem shoot)

blunt-leaved bog orchid (basal leaf and stem shoots)

SALICACEAE

Populus balsamifera

Populus tremuloides

Salix spp.

Salix bebbiana

Salix discolor

balsam poplar

aspen

willows (most not in leaf yet; male catkins out on some plants)

beaked willow

pussy willow

BETULACEAE

Alnus crispa

Betula glandulosa

Betula papyrifera

Betula pumila

green alder

bog birch

white or paper birch (one sapling only)

dwarf birch

SANTALACEAE

Comandra umbellata

bastard toadflax (in bud)

LORANTHACEAE

Arceuthobium americanum

dwarf mistletoe

POLYGONACEAE

Polygonum viviparum

Rumex acetosa

alpine bistort (leaves only)

green sorrel (leaves only)

CARYOPHYLLACEAE

Cerastium sp.

Moehringia lateriflora

chickweed

blunt-leaved sandwort

CERATOPHYLLACEAE

Ceratophyllum demersum

hornwort

RANUNCULACEAE

Anemone multifida

Anemone parviflora

Delphinium cf. *glaucum*

Ranunculus spp.

Ranunculus gmelinii

Ranunculus sp. (*occidentalis*?)

Thalictrum occidentale

cut-leaved anemone

small wood anemone

tall larkspur (new shoots only)

buttercup (leaves, various)

yellow water crowfoot

buttercup

western meadow rue

BRASSICACEAE

Cardamine sp. (*pensylvanica*, or *pratensis*?)

bitter cress, or meadow bitter cress

SAXIFRAGACEAE

Mitella nuda

bishop's-cap; mitrewort

GROSSULARIACEAE*Ribes sp.**Ribes lacustre**Ribes cf. oxycanthoides**Ribes triste*

currant or gooseberry

bristly black currant

northern gooseberry

wild red currant

ROSACEAE*Dryas drummondii**Fragaria virginiana**Geum aleppicum or rivale**Geum macrophyllum**Potentilla cf. diversifolia**Potentilla fruticosa**Potentilla gracilis**Rosa acicularis**Rosa woodsii**Rubus arcticus ssp. acaulis*

yellow mountain avens

wild strawberry (in leaf, bud or flower)

yellow, or purple avens (basal leaves)

large-leaved yellow avens (basal leaves)

mountain cinquefoil (leaves)

shrubby cinquefoil

graceful cinquefoil (leaves)

prickly rose

common wild rose

dwarf raspberry

FABACEAE*Astragalus sp.**Hedysarum sp.**Lathyrus ochroleucus**Oxytropis cf. monticola**Oxytropis splendens**Trifolium pratense**Trifolium repens**Vicia americana*

milk vetch (leaves)

hedysarum (last year's stems)

cream-coloured vetchling

late yellow locoweed (leaves)

showy locoweed

red clover (leaves; last year's flower)

white clover

wild vetch

GERANIACEAE*Geranium cf. richardsonii*

wild white geranium (leaves)

VIOLACEAE*Viola adunca**Viola renifolia*

early blue violet (mostly in flower)

kidney-leaved violet (in bud and flower)

ELAEAGNACEAE*Shepherdia canadensis*

Canada buffaloberry

ONAGRACEAE*Epilobium angustifolium*

common fireweed (leaves)

HALORAGIDACEAE*Myriophyllum exalbescens*

spiked water-milfoil

APIACEAE*Heracleum lanatum**Zizia aptera*

cow parsnip (shoots up; most eaten to soil level)

heart-leaved Alexanders

CORNACEAE*Cornus canadensis*

bunchberry

PYROLACEAE*Orthilia secunda**Pyrola asarifolia**Pyrola cf. minor*one-sided wintergreen (in early bud)
common pink wintergreen (last year's stems)
lesser wintergreen (leaves)**ERICACEAE***Arctostaphylos uva-ursi**Ledum groenlandicum**Vaccinium caespitosum**Vaccinium vitis-idaea*common bearberry
common Labrador tea
dwarf bilberry (just beginning to leaf out)
bog cranberry**GENTIANACEAE***Gentiana prostrata**Gentianella amarella*moss gentian (basal leaves only)
felwort (last year's stems)**BORAGINACEAE***Mertensia paniculata*

tall lungwort (mostly basal leaves; 2 plants in bud)

LAMIACEAE*Mentha arvensis*

wild mint

SCROPHULARIACEAE*Castilleja cf. miniata**Pedicularis bracteosa**Pedicularis groenlandica**Rhinanthus minor*common red paintbrush (leaves)
western lousewort (leaves)
elephant's-head
yellow rattle (last year's stems)**PLANTAGINACEAE***Plantago major*

common plantain

RUBIACEAE*Galium boreale*

northern bedstraw

CAPRIFOLIACEAE*Linnaea borealis**Lonicera dioica**Lonicera involucrata**Viburnum edule*twinflor
twining honeysuckle (leaves)
bracted honeysuckle (leaves)
low-bush cranberry (leaves)**VALERIANACEAE***Valeriana dioica*

northern valerian (in bud or early flowering)

ASTERACEAE*Achillea millefolium**Agoseris sp.**Antennaria neglecta**Antennaria parvifolia**Antennaria cf. racemosa**Antennaria cf. rosea**Arnica sp.**Arnica cordifolia**Aster or Erigeron sp.**Aster laevis*common yarrow
false dandelion (leaves)
broad-leaved everlasting
small-leaved everlasting
racemose everlasting (basal leaves)
rosy pussytoes (basal leaves)
arnica (leaves)
heart-leaved arnica
aster, or fleabane (emerging leaves)
smooth aster (leaves)

Petasites frigidus var. *palmatus*

palmate-leaved coltsfoot (mostly leaves; a few pre-flowering)

Petasites frigidus var. *sagittatus*

arrow-leaved coltsfoot (leaves)

Senecio pauperculus

balsam groundsel (basal leaves)

Senecio streptanthifolius

northern ragwort (basal leaves)

Solidago sp.

goldenrod

Solidago spathulata

mountain goldenrod

Taraxacum laevigatum

red-seeded dandelion

Taraxacum officinale

common dandelion

NON-VASCULARS (incidental obs.)

Ptilium crista-castrensis

feathermoss

Pleurozium schreberi

feathermoss

Hylocomium splendens

feathermoss

Dicranum sp.

moss

Mnium sp.

moss

Aulacomnium sp.

moss

Sphagnum (green, red) spp.

peat moss

Cetraria sp.

lichen

Cladonia sp.

lichen

Cladina sp.

reindeer lichen

Peltigera spp.

leatherleaf lichen

Stereocaulon sp.

reindeer lichen