

BCTS CARIBOO-CHILCOTIN

**FIELD GUIDE**

**TO**

**SPECIES IDENTIFICATION**



## BCTS Cariboo-Chilcotin Field Guide to Species Identification

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This book provides guidance for the identification of selected rare plants and rare animals, where identification will assist in their management. A selection of rare communities are also included, where information beyond what is in the standard MFR site series identification guide or the *Wetlands of BC* book. The species management issues are addressed in "Guppy, C.S. 2009. *Species of Management Concern for BC Timber Sales Cariboo-Chilcotin Business Area*. Unpublished report prepared for the BC Timber Sales, Williams Lake, BC" and summarized in "Guppy, C.S. 2009. Field Guide to Wildlife Habitat Management."

The digital (CD) plant identification resource "Interactive Plant Keys and Color Photos for British Columbia" from Flora ID Northwest (Oregon), [www.xidservices.com](http://www.xidservices.com) is strongly recommended.

## Animals Species at Risk

The animal species included in this section are species at risk that are possible to identify by non-experts, and where identification will assist in management. Species that are common and hence not worth recording, or not relevant to identify, are omitted.

### MAGNUM MANTLESLUG

Magnum Mantleslug is a medium-size native slug. It is light brown with darker spots and paired dark brown mantle stripes on the mantle. **The mantle** is on the front part of the back of the slug, and is very large, smooth or slightly granular with no folds or ridges; **it covers  $\frac{3}{4}$  of the length of the animal**. It is the only BC slug with such a large mantle; it grows to 7 cm long. It lives at all elevations in cool, moist relatively undisturbed forest with an intact duff layer, such as occurs in moist valleys, ravines, and talus areas. It lives under moist logs, pieces of bark, in depressions in moist earth and within talus. There are no known sites in the CCBA, but it is believed to occur here. An image is available at <http://www.mollus.ca/rforsyth/bc/cbupd.htm>.

### GREAT BASIN SPADEFOOT

Great Basin Spadefoot is the only spadefoot in BC. It is a toad-like amphibian that differs from the Western Toad by having eyes with **vertical pupils** (not horizontal), **no visible parotid gland** (a conspicuous, oval smooth area) on each side of the head, and **relatively smooth skin** (not very "warty"). It has well-developed, sharp-edged black tubercles or "spades" on the bottom of each hind foot, which are used for burrowing. The under surface is cream coloured or white, whereas the dorsal surface may be olive or grey with spots or streaks. The basic body shape is "rotund", rather than the relatively elongated and slender body of frogs. Spadefoots live in semi-arid habitats such as bunchgrass grasslands, sagebrush steppe, and open ponderosa pine or Douglas-fir forests in the BGxh, BGxw, IDFd3, and IDFx. No sites are known in the Central Cariboo FD, but the potential occur east of the Fraser River and south of Williams Lake.



Western Toad © Kristiina Ovaska



Great Basin Spadefoot © Mark Leppin.

### **GOPHER SNAKE, RACER AND RUBBER BOA**

There are 5 species of snake in the CCBA – Common Garter Snake, Western Garter Snake, Gopher Snake, Racer, and Rubber Boa. The first two species are common, the last three species are rare. The key to snake identification in the CCBA is to recognize the two common species; if the snake is not one of them, it is a rare species. There are no venomous snakes in the CCBA; however Gopher Snakes will hiss and make snorting noises while shaking their tails rapidly (similar to rattlesnakes).

The two **garter snakes** have a **mid-dorsal stripe running down the middle of their back**; the three **rare snakes** have **smoothly coloured or blotched backs**, and do not have a mid-dorsal stripe. Garter snakes may be seen anywhere in the CCBA at low to mid-elevations. The three rare species usually occur in the CCBA only in the **BG and IDfxm**, with rare records in adjacent BGC units. They use a variety of habitats from grasslands, bunchgrass, shrub-steppe to open coniferous forest and riparian areas. Key habitats are sandy soils and talus slopes for egg-laying and winter hibernation.

Gopher Snake and Racer are large snakes growing 1 – 2 m long; the Rubber Boa is smaller (< 75 cm).

**Gopher Snakes** back and sides are very light brown or yellowish-brown with superimposed dark brown-black squares running from the head to the tail; on the tail the squares become more like stripes or cross-bands. The under surface is creamy yellowish.

**Racers** are slender, stream-lined snakes with a large, long, flattened head and rounded snout. The back and sides are uniform slate-grey or olive green, sometimes blotched. The under surface is even vivid to whitish yellow (blotched in very young snakes).

**Rubber Boas** are smooth, stout-bodied snakes with the appearance and feel of soft rubber. The back and sides are shiny reddish-brown to yellow brown, The under surface is cream to yellow.



Racer © David Shackleton



Two Rubber Boas © Werner Eigelsreiter

### WESTERN PAINTED TURTLE

Western Painted Turtle is the only turtle native to the CCBA. The upper shell (carapace) is smooth, oval in shape and is dark olive-green to brownish-black in colour.

There are yellow stripes on the head, neck, tail, and legs superimposed on an overall green/brown body. The lower shell (plastron) is orange-red with a dark pattern that branches out over the surface. The introduced Red-eared Slider Turtle has distinctive red markings on the neck and head, which the Painted Turtle lacks. In the CCBA it occurs in the BG and IDFdk3, apparently only east of the Fraser River.



Western Painted Turtle © Peter Ballin

### BADGER

Badgers are squat medium-size carnivores with dense, coarse hair reaching nearly to the ground, giving the impression of an animal with very short legs.

The head has alternating black and white bands, with a white dorsal stripe, black in front of the eyes and white behind, black on the cheeks, and white in front of the ears. The legs are dark brown to black legs and the body hair is a mottled mix of white, black, grey, and reddish-brown. They have extremely long claws and rapidly burrow when disturbed or in pursuit of food.



Badger © David Shackleton

### BATS AND MYOTIS

Bat and myotis species (both are commonly called "bats") cannot be identified to species by most people without handling them. DO NOT handle them – not only might they bite you, but they are easily injured. It may be possible to photograph them, but do not break bark loose to do so. If bats are found roosting under tree bark or inside a hollow tree, just assume that they are one of the 5 rare species and protect the tree. This will only happen once every few years for BCTS.



Townsend's Big-eared Bat



Northern Myotis  
© Joseph

Poissant



Fringed Myotis  
(both to left © Anna  
Roberts)

### FISHER

Fishers are a medium-sized carnivores of the weasel family that have long, thin bodies, dense coats and long well-furred tails, pointed faces, rounded ears, and short legs.

Their fur is long, luxurious, and chocolate-brown in colour, with considerable grizzling patterns around the shoulders and back. Males are much larger than females. Fisher is two to three times the size of the similar American Marten, and has darker colouring, and shorter ears. The primary observation of interest for Fisher is a den site – usually in cavities in “wildlife trees”.



Fisher © Larry Davis

### GRIZZLY BEAR

Grizzly Bear have long, outer guard hairs of the Grizzly Bear that are often tipped with white, silver, or cream giving the bear a grizzled appearance; coat colour is usually brown but ranges from black to almost white. Grizzly Bear facial profiles are usually “dished-in” and a hump of muscle is normally present on the shoulders. The front claws on a Grizzly Bear are longer than on Black Bears, as long as 10 cm. The long front claws and hump of muscle on the shoulders are adaptations for digging. They are most commonly found in the mountain areas of the CCBA. The primary observation of interest for Grizzly Bear is a den site.



Photo © Fred Lang

### WOLVERINE

Wolverine are the largest members of the weasel family. They have stout bodies up to one metre in length with moderately bushy tails. They are dark chocolate brown over

most of the body with lighter coloured hair around the forehead and along a lateral stripe extending from the ears or shoulder to the lower back. Some individuals have a white patch on the neck and chest. The large head has a pale facial mask with a brown muzzle and a yellowish forehead and ears. They occur in all but the driest areas of the CCBA, but the only observation of interest is a den site, which is usually in the high subalpine.



Wolverine © Eric Lofroth

### AMERICAN AVOCET

American Avocet is a **distinctive large shorebird, with a long, slender, upturned bill, long spindly legs,** and a long neck; wings and back are boldly patterned with black and white; belly and flanks are white; head and neck and are rusty in breeding plumage, grey in basic plumage; juveniles have a cinnamon wash on the head and neck. They are typically seen **feeding along the margins of alkaline lakes.**

See also Long-billed Curlew

### AMERICAN BITTERN

American Bittern is a **stocky, medium-size heron with a straight pointed bill, relatively short neck and legs,** and somewhat pointed wings. The wing span is just over 1 m. The colour is brown with darker flight feathers, the bill is dull yellow with a dusky tip on the upper mandible, and the legs and feet are greenish yellow. An elongated black patch extends from below the eye down the side of the neck, and the throat is white. Walking is slow and stealthy; flight is rapid and usually low. When disturbed, they often freeze in an upright, concealing posture, with head and bill upturned. They are typically seen **in tall emergent vegetation along the borders of lakes, marshes, and rivers.**

### AMERICAN WHITE PELICAN

American White Pelican are **huge, mostly white waterbirds with partly black wings;** the black is only visible when in flight. The wingspan can be over 3 meters. Their bill is grey to somewhat orangish, and their legs are bright orange during the breeding season. Feet are webbed, and they have a large throat pouch for scooping up fish. They can only be confused with Trumpeter Swans, which have black beaks and no black on the wings.



American White Pelican © Fred Lang

### BALD EAGLE, OSPREY, AND GREAT BLUE HERON NESTS

There is no definitive way to identify large stick nests, without seeing the birds. Bald Eagle and Osprey nests are quite similar, but eagle nests are usually placed on a large side branch below the tree crown while Osprey nests are usually placed on the broken top of a tree or on artificial platforms on the top of powerpoles. Great Blue Heron nests are more sloppily constructed, and there is usually more than one on a tree or in a group of trees.



Bald Eagle nest (inactive) © C. Guppy

### **BARN SWALLOW**

Barn Swallow is a medium-sized swallow, with a relatively long forked tail. Adults have metallic-blue upperparts, a dark rusty orange throat and forehead, and a paler orange chest and underside. Adult plumages are similar throughout the year. Juveniles are similar to adults but have paler underparts and less forked tails. Barn Swallow is distinguished from all other swallows by its deeply forked tail, and the extensive orangish underparts. The similar Cliff Swallow has a pale orangish rump and square tail. All swallows nesting in cliffs and vertical banks should be managed as Barn Swallows, if identification is uncertain.



Barn Swallow © Corey Melchior

### **BOBOLINK**

Bobolink is a visually striking, medium-sized, sparrow-like bird with sharply pointed rectrices (a type of tail feather). The male in breeding plumage is unique in being entirely black below and lighter above. The front of the head, the underparts, tail, and wings are black while the shoulders, lower back, rump, and uppertail-coverts are white to pale grey. The neck is a buff yellow. The female is less conspicuous with buffy dark streaking on the back, rump, and sides and a striped crown. They occur in tall grassy areas in the BG, ICH, IDF, and SBS.

### **DOUBLE-CRESTED CORMORANT**

Double-crested Cormorant is a medium-sized cormorant with a black or dark-brown body that has a dull greenish or bronze gloss. There is a white feather tuft over each eye in early summer. And the skin on the face and throat pouch is orange/yellow. It is the only cormorant in the CCBA, and may be seen along the shore of fish-bearing lakes in the CCBA. Potential nest sites are the most interesting observation.



Double-crested Cormorant © Fred Lang

### **LEWIS'S WOODPECKER**

Lewis's Woodpecker is a medium-size woodpecker with a greenish black head, back, wings, and tail. It has a prominent silvery grey collar and upper breast, a dark red face, and pinkish or salmon red lower breast and belly. The face is a dark red and the breast is grey, shading into rose on the abdomen, flanks, and sides. Young are distinct from adults by having an overall dark and more brownish back, and generally lack extensive grey, red, and pink coloration of adults. In flight, the overall dark appearance, large size, and slow, steady wing beats give it a crow-like appearance. Flight is not undulating like that of most other woodpeckers. The distinctive plumage of Lewis's Woodpecker easily distinguishes this species from other woodpeckers.



Lewis's Woodpecker © Mark Nyhof

### **LONG-BILLED CURLEW**

Long-billed Curlew is a large, long-legged shorebird with mottled, light brown plumage, a buff-coloured breast, and upperparts are streaked and barred with dark brown. There are cinnamon underwing linings. The bill is long and curves downwards, reaching a length of up to 20 cm in females and 14 cm in males. The somewhat similar Whimbrel is smaller with a much shorter bill, lacks buffy-cinnamon colour, and does not breed in the CCBA. It is found primarily in grassland habitats during the breeding season.



Photo © Fred Lang

### **NORTHERN GOSHAWK**

Northern Goshawk is a large, robust hawk with short, rounded wings and elongated tails. The upper parts are dark bluish-slate becoming blackish on the top of the head and behind the eye. There is a broad white stripe over the eye. The tail is grey with 3-5 dark, broad bands with a thin, whitish terminal band at the tip; undertail coverts are white. The underparts are pale gray and finely barred. It is most characteristically seen flying rapidly through forest beneath the canopy, but may also be seen in the open. The primary observation of interest are nest sites, which are stick nests located inside a forest stand, part way up a tree below the canopy. There are usually several nests in one general area, which are used in different years.

### SANDHILL CRANE

Sandhill Crane is a very large bird with overall grey coloration (often stained with rusty coloration), with dull red skin from the crown forward to the base of the bill, whitish chin, cheek and upper throat, and black primaries. Young are more brownish and without a bare forehead patch. They have clumps of feathers that droop over the rump; they fly with neck and legs fully extended. The only slightly similar bird is the Great Blue Heron.

They normally nest in sedge-dominated wetlands surrounded by coniferous forest. A nesting occurrence is likely to have been found when Sandhill Cranes remain in the area when disturbed. They may or may not fly up; if they fly up, they circle back and land again. They generally scream at the intruder, behave in an agitated manner; and may run on the ground to take cover in adjacent forest. In contrast, Sandhill Cranes disturbed away from nesting sites simply fly away, with or without calling. Only potential nest sites should be reported.



Sandhill Crane © Fred Lang



Great Blue Heron (coastal ssp) © Fred Lang

### SHARP-TAILED GROUSE

Sharp-tailed Grouse is a medium-sized grouse characterized by a **crescent-shaped, yellowish orange comb (eyebrow) over the eye**. It is overall cryptically coloured, the breast is white with several V-shaped brown markings, and the head, neck, and back are heavily barred dark brown, black, and buff. The tail is wedge-shaped, with the two middle tail feathers extending past other tail features. During display, the male exposes and inflates a pinkish to pale violet air sac on each side of neck. The primary observation of interest is a lek site in the spring.

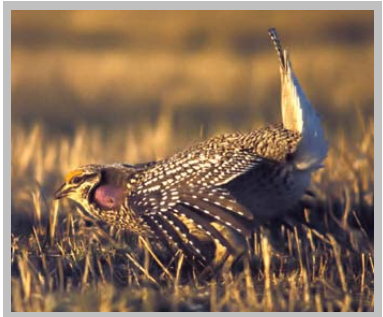


Photo © David Shackleton

The plant species included in this section are species at risk that are relevant to identify because identification will assist in management. In most cases these are red-list species, but a few blue-list species living in **forest** habitats are included. Species that are common and hence not worth recording, or not relevant to identify, are omitted.

Images are included for all plant species. However, copyright issues need to be resolved where noted.

### CAROLINA DRABA

Carolina draba (*Draba reptans*) is a very small (under 12 cm high) wild mustard, 5 – 20 cm high with simple or branched stems, hairy near the base with simple, branched or starlike hairs; growing from a taproot. The flowers are white (most *Draba* species are yellow), small, with notched petals, and arranged in elongated clusters of up to 30. Stems are without leaves except for a basal rosette and a pair of opposite leaves just above the basal rosette. There are branched or starlike hairs on the lower leaf surface. It flowers very early in the spring, and occurs in dry open rocky areas. The fruits a smooth to finely stiff-hairy flat silicles, 5 – 20 mm long and 1 – 2 mm wide. Difficult to identify – somewhat like golden draba (Plants of Southern Interior BC), but with white flowers.. The species occurs in dry and often calcareous cliffs, rocky slopes and forest openings in the steppe zone (BGxw). Within the CCBA (and BC) this



species has only been recorded from Doc Carolina draba © Jamie Fenneman English Bluff Ecological Reserve near the (copyright permission not obtained) Fraser River. Image at <http://eflora.bc.ca>.

### GASTONY'S CLIFF-BRAKE

Gastony's cliff-brake is a distinctive small fern that has a small cluster of fronds growing from a short, stout rhizome. The fronds occur in 2 slightly different forms, with the sterile leaves shorter than fertile leaves. The fronds are oblong or triangular, 5 – 25 cm long, 2 – 7 cm wide, and 2-pinnate towards the base, 1-pinnate in the upper part. The frond segments are leathery, sparsely woolly along the midrib, with margins curved backwards. Occurs on dry, calcareous cliffs and crevices in the montane and subalpine zones (BG, ESSF, IDF, MS); there is one central interior record, the remaining BC sites are all in the southeast. In the CCBA this species is known from Doc English Bluff Ecological Reserve near Riske Creek. Image at <http://eflora.bc.ca>.



Gastony's cliff-brake © Larry Halverson  
(copyright permission not obtained)

### KRUCKEBERG'S HOLLY FERN

Kruckeberg's holly fern (*Polystichum kruckebergii*) is somewhat similar to sword fern, but is much smaller with the leaf blades less flat and stiffer. The fronds grow from a short, stout rhizome. The fronds are lanceolate, 10 – 40 cm long and 3 – 7 cm wide; 1-pinnate with oblong, deeply cut pinnae that are twisted out of the plane of the blade; pinnae teeth are prominent with spinulose points and tending to be spreading or widely incurved. Sori are round, borne on veins; in 1 or more definite rows on each side of the midvein; the indusium is peltate. Occurs on dry to mesic, ultramafic rock outcrops and talus slopes in montane and subalpine zones (ESSF, MS, SBS). In the CCBA this species is only known east of Quesnel on Sovereign Mountain, Mt. Anderson and near Barkerville.



Photo © Ian Cumming

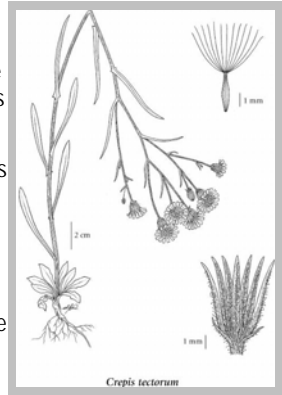
## HAWKSBEARD SPECIES

There are 5 hawksbeard species in the CCBA, of which 3 are species at risk. The leaves and flowers are roughly like those of dandelions; the flowers are yellow. All flowers are ray flowers, unlike dandelions which also have disk flowers.

The most common, and easily distinguished species is annual hawksbeard, which has small and simple leaves compared to the other species. Annual hawksbeard is not a species at risk.

Grey hawksbeard is also not a species at risk. It is similar to western hawksbeard, and they likely share common ancestry.

See the illustrations and drawings that follow.



Annual Hawksbeard, *C. tectorum*

**LOW HAWKSBEARD** (*Crepis modocensis* ssp. *modocensis*) is small (10 – 30 cm high) with **silvery white, broad leaves**. It has 1 – 4 erect, few-branched **stems with whitish, crisped, densely stiff hairs near the base**; growing from a woody-based taproot. The **basal leaves are 7 – 25 cm long; deeply and pinnately cut with lanceolate, toothed and sharp-pointed or long pointed lobes** and abruptly callus-tipped teeth; leaf blades are smooth or woolly-hairy, the midribs and stalks are short-hairy. The stem leaves are similar to basal leaves, and become smaller upwards. The flowers have grey-woolly, stout involucre bracts containing glandless bristles; the bracts are whitish to blackish, the outer ones lanceolate and half as long as

the inner ones. It has deeply incised, long-stemmed, "pinnate" (feather-like), basal leaves. A second subspecies, *rostrata*, has all hairs whitish, elongate, and conspicuously curled or crisped, while the hairs are yellowish (stem, stalks) or blackish (involucre) and nearly straight in ssp. *modocensis*. Occurs in dry grasslands and shrublands in the steppe zone. There is a historical record from the Junction Sheep Range.



Low Hawksbeard © Jim Riley

**SLENDER HAWKSBEARD** (*Crepis atribarba* ssp. *atribarba*) has a woody base growing from a taproot; there are **1 – 2 erect stems that are grey-woolly** (sometimes eventually becoming glabrous). The basal leaves are linear to lanceolate, with long stalks, pinnately or bipinnately divided into linear or lanceolate segments or rarely entire, greyish-woolly or more often nearly smooth, 10 – 35 cm long. The stem leaves are similar to the basal ones, becoming linear and entire upwards. There are 3 – 40 flowers in a flowerhead. Involucre is 8 – 15 mm tall, cylindrical; involucre bracts greyish-woolly to nearly glabrous or rarely glabrous, with or without black, the 5 – 10 outer ones are

deltoid, abruptly sharp-pointed, the longest less than 1/2 as long as the 8 – 10 inner ones, these lanceolate, abruptly sharp-pointed or obtuse; ray flowers 10 – 18 mm long. Fruits are achenes that are usually greenish or rarely brownish, 3 – 10 mm long, slender, weakly to strongly ribbed, mostly tapering to a slender tip at the apex; pappus white, of hairlike bristles. **The plants are relatively small, 15 – 35 cm tall with 2 – 18 flowerheads and the involucre bracts have some glandless bristles;** in contrast to the more common ssp. *originalis* which is 30 – 70 cm tall with 10 – 40 flowerheads and has involucre bracts that are nearly or completely devoid of bristles. Occurs in sandy or gravelly grasslands, shrublands and open forests in the steppe and lower montane zones. Known from Churn Creek, in a mesic disturbed area with less than 1% vegetation cover.



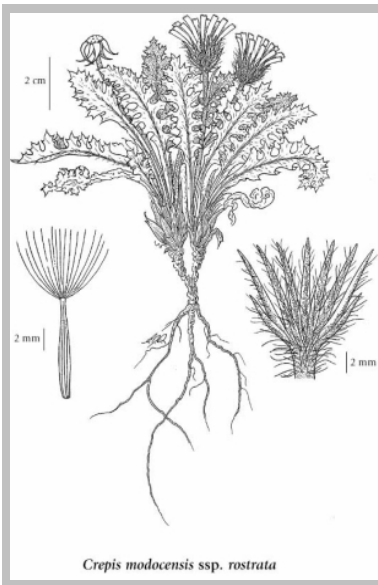
(copyright permission not obtained) Slender Hawksbeard © DNDASUChilliwick

**WESTERN HAWKSBEARD** (*Crepis occidentalis* ssp. *conjuncta*) (= ssp. *pumila* in some books) is a perennial herb growing from a taproot and stem-base. There are 1 – 3 erect stems, **densely and closely grey-short woolly-hairy**, or nearly glabrous in age, often glandular-stiff-hairy above, sometimes with black glandular bristles above, 5 – 40 cm tall. The basal and stem leaves are “dandelion-like”: long-stalked, toothed, with the teeth pointing backwards, or deeply pinnately cut with lanceolate or linear toothed lobes, these entire, abruptly sharp-pointed or with long-pointed tips, mostly 10 – 35 cm long, the **leaf blades are grey-short woolly-hairy**, or nearly glabrous in age. The stems have 2 – 25 flowerheads in candelabra-like clusters; flower heads are yellow, dandelion-like. The involucre are 11-19 mm tall, cylindrical or bell-shaped; **involucre bracts grey, short woolly-hairy and (ssp. *conjuncta*) without gland-tipped hairs**, the longest outer ones usually less than 1/2 as long as the inner, triangular or egg-shaped, abruptly

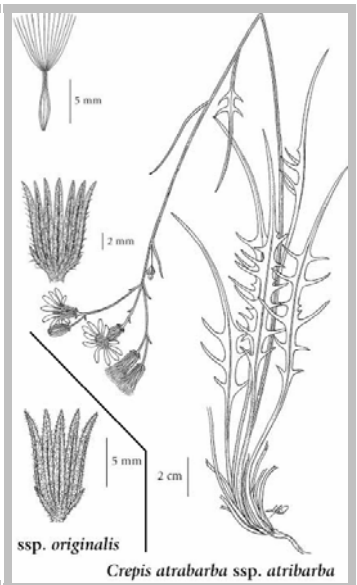
sharp-pointed, rarely linear, the inner ones lanceolate, abruptly sharp-pointed or with long-pointed tips with membranous margins; **ray flowers yellow**, 16-19 mm long. Achenes are light to dark brown, 6 – 10 mm long, spindle-shaped, 10- to 18-ribbed, only slightly tapering to a slender tip; **pappus white to yellowish-white, of copious, soft, hairlike bristles.** Occurs in dry grasslands and shrublands in the steppe and montane zones. Known from R.C.A.F. Peak, west of Taseko Lake.



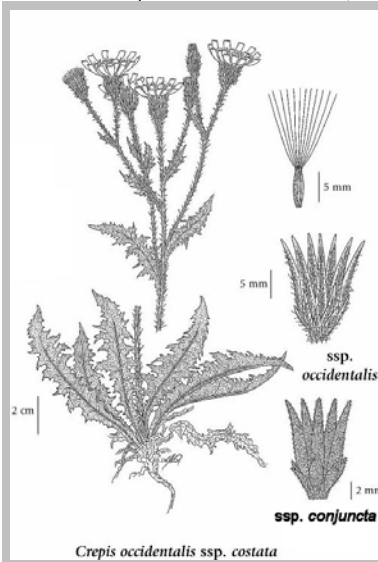
Western Hawksbeard ssp. *occidentalis* © Chris Sears (copyright permission not obtained)



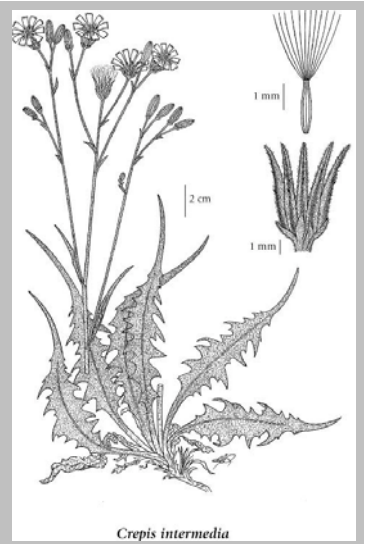
Low Hawksbeard ssp. *rostrata* (No illustration of ssp. *modocensis* available)



Slender Hawksbeard



Western Hawksbeard



Grey Hawksbeard, *C. intermedia*

### MARSH MUHLY

Marsh muhly (*Muhlenbergia glomerata*) is a moderately tall grass (30 – 120 cm high) with **hollow, unbranched or sparingly branched, erect stems** that are slightly compressed and are **finely short-hairy**. Stems grow from scaly rhizomes. Leaf blades are 2 – 15 cm long and 2 – 6 mm wide, flat and minutely rough or occasionally smooth; the **ligules** are jagged to more or less fringed with fine hairs, membranous and **squared off at the tips**. The inflorescence is a densely-flowered, somewhat lobed panicle, 1.5 – 12 cm long; with tightly appressed branches and densely clustered spikelets. The **spikelets are unstalked to nearly short-stalked and are 1-flowered**; the glumes are 1-nerved and smooth to minutely rough near the tips; the **lemmas** are 3-nerved, oblanceolate, short soft-hairy along the midnerves, margins and at the base and **unawned or short awn-tipped**. Occurs in wet to moist mineral-rich or calcareous sites in steppe and montane zones. In the CCBA it is known from near Puntzi Lake, Tatla Lake, One Eye Lake, Kleena Kleene, and Kimball Lake. Image at <http://eflora.bc.ca>.



Marsh Muhly © Adolf Ceska  
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### MOONWORT SPECIES

Moonworts are a fascinating group of fern-like plants that are difficult to identify to species, and many are species at risk. The group is characterized by having branched, fleshy stems growing from a short rhizome, and there are two types of leaf blades – a **sterile leaved blade (once pinnate in the CCBA species at risk)**, and a **leafless, branched fertile blade with round grape-like sori (spore-producing structures)**. In contrast, “normal” ferns have flattened sori on the back of the leaflets of their fronds, although the reproductive fronds may be somewhat different than the non-reproductive fronds. When moonworts are found in an area, many plants should be carefully examined to see if there is variation that might indicate there is more than one species present, and the full range of variation should be identified to species by a qualified botanist. The most distinctive common species is rattlesnake fern, *Botrychium virginianum*; the inconspicuous common moonwort, *Botrychium lunaria*, is also common. Images of the common species are included here as representative of the range of variation in moonworts. Images at <http://eflora.bc.ca>.



Least Moonwort © Jim Riley

Least Moonwort – copyright obtained by Manning). Rattlesnake fern - copyright permission obtained for BCTS Skeena, but not BCTS CCBA). Common Moonwort – copyright permission not obtained.



Rattlesnake Fern © Adolf Ceska



Common Moonwort © Olivia Lee

Moonworts, all species: Sterile frond once pinnate, with up to 5 pairs of pinnae. The fertile blade is taller than the sterile blade, lengthening as spores ripen. The fertile blade has clustered greenish grape-like sori.

**LEAST MOONWORT**

*Blue-list*

*Height:* 0.5 – 7 cm.

*Colour:* Green

*Pinnae:* **Rounded, less lobed than other moonworts.** Pinnae not fertile.

*Habitat:* Damp meadows, vernal pools, moist woodlands and roadsides with rather poor or slightly acidic soil, in the lowland and montane zones.

Known from the Dean River, south-east of Towdystan.

**STALKED MOONWORT**

*Red-list*

*Height:* 5 – 25 cm.

*Colour:* **Lower stalk reddish brown; upper part dull green.**

*Pinnae:* Entire margins; irregular lobes; pinnatifid to bifid to narrowly fan-shaped. Lower pinnae often bear sporangia.

*Habitat:* Floodplain forests on valley bottoms, in moist to wet meadows and riparian areas and in margins of willow or alder patches.

Known from just east of Cottonwood along Hwy 26, in a moist depression at edge of coniferous woods.

**UPSWEPT MOONWORT**

*Red-list*

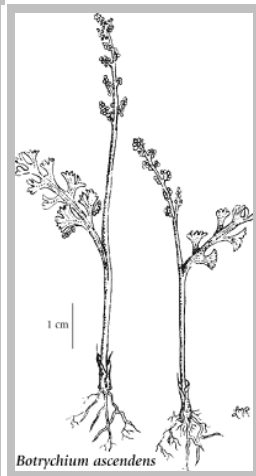
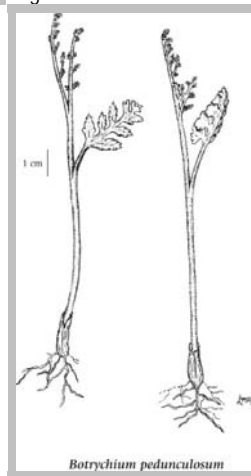
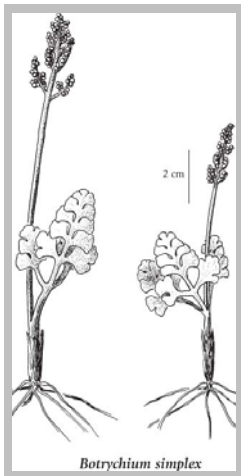
*Height:* 5 – 13 cm.

*Colour:* Yellow-green.

*Pinnae:* Fan-shaped; **narrowly triangular pinnae with deeply lacerate margins.** Often a few sporangia on the margins of the pinnae or on small branches.

*Habitat:* Mesic to moist meadows and grassy fields, and in coniferous forests near streams, within the lowland and montane zones.

Known from the alpine in Itcha-Ilgachuz Provincial Park; may occur at lower elevations in the CCBA.



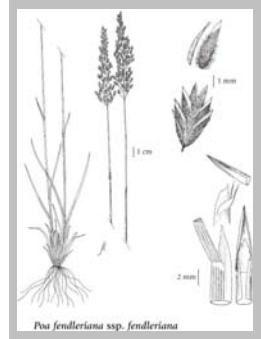
Least Moonwort

Stalked Moonwort

Upswept Moonwort

## MUTTON GRASS

Mutton grass (*Poa fendleriana* ssp. *fendleriana*) is a **bunchgrass** with erect stems 15 – 70 cm tall. The **leaf blades are folded or inrolled**, rarely flat, and are **thick with a smooth outer surface**; the inner surface of blades of sterile shoots are usually distinctly rough or minutely soft-hairy; the ligules have smooth or rough backs; the sheath margins are open about 2/3 their length. The upper leaf blades are often absent or very reduced. Flowers occur in a lanceolate to egg-shaped, erect and congested panicle **inflorescence**, 2 – 12 cm long, **frequently with > than 100 spikelets**; there are 1 to 2 branches per node, smooth to rough and appressed at maturity. The **spikelets are 4 – 8 mm long, with 2 – 7 flowers and laterally compressed**; lower glumes 1- to 3-nerved; lemmas 3 – 6 mm long, lanceolate with sharp-pointed tips and smooth to slightly rough surfaces; palea keels rough, somewhat minutely soft or short silky-hairy. Occurs in dry grasslands and ridges in steppe and lower montane zones (BG; possibly IDFXm). The grass has only female flowers and **reproduces asexually**. The rare ssp. *fendleriana* has ligules less than 1.5 mm long and not extending down from the base. The common ssp. *longiligula* has ligules over 1.5 mm long and extending down from the base on the margins of the sheaths. Known from Kelly Lake.



Mutton Grass  
Illustrated Flora of BC

## PORCUPINEGRASS

Porcupinegrass (*Hesperostipa spartea*) is a **tall** (45 – 140 cm high) tufted perennial grass growing from fibrous roots, and **with long “needle and thread” seeds**. The seeds are much longer (25+ cm) than most other related species. **The lower stem nodes are usually crossed by lines of hairs**. The **leaf blades are 1.5 – 4.5 mm long, flat to inrolled**; the lower ligules are blunt to rounded, not toothed or ragged along the margins; the upper ligules are pointed, thin and often ragged along margins; the upper ligules are longer than lower ones. The inflorescence is a 10 – 25 cm long panicle with ascending to erect branches; glumes are 22 – 45 mm, slender, unequal and pointed; the **lemmas are awned**, with awns bent, 9 – 18 cm long and rough and straight tip segments; lemmas are mostly smooth with brown hairs on the base and margins. Occurs on dry to mesic slopes and in open forests in the steppe and lower montane zones (BG and IDF). Known from the Riske Creek area and about 3 miles north of Marguerite.



Porcupinegrass © Sue Crispin  
[http://fieldguide.mt.gov/detail\\_PMPOA5X0Y0.aspx](http://fieldguide.mt.gov/detail_PMPOA5X0Y0.aspx)  
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### RIVERBANK ANEMONE

Riverbank anemone *Anemone virginiana* var. *cylindroidea* is a moderately tall (30 – 100 cm) herbaceous plant with a 2 – 3 **green or yellow-green flowers** on each plant. It flowers in the spring at low elevations. It has a woody stem base, with 1 – 5 whorled leaves growing on long 5 – 35 cm stalks from the base; sparsely hairy. Leaves are **all basal**, ascending and **palmately 3-parted**, 8 – 20 cm wide with **coarsely toothed margins**. Flowers are positioned at the end of long hairy stalks; flowers are over 13 mm wide, and have 5 petal-like sepals that are oblong to elliptic or egg-shaped. There is an oval to egg-shaped fruit head (2 – 4 cm long) on 13 – 25 cm stalks; the achenes are wide, not winged and densely woolly-hairy; beaks curved. The habitat is moist to mesic gravel bars, stream banks, and forests in the montane zone (SBS). In the CCBA the only known record is from "Quesnel, spruce-balsam stand". Image at <http://eflora.bc.ca>.



Riverbank Anemone © Jamie Fenneman  
(copyright permission not obtained)

### RIVERGRASS

Rivergrass (*Scolochloa festucacea*) is a tall (1 - 1.5 m) semi-aquatic grass that grows up to 1.5 m tall. It is a stout perennial with a thick rhizome. Leaf blades are flat, firm, elongate and narrowing gradually to slender tips; the ligules are jagged and with **sheaths open, strongly keeled and usually smooth**. The flowerhead is long (15 – 25 cm) and open, and the long branches are mostly smooth below the mid-point. The **3- to 4-flowered spikelets** are located at the end of branches, with upper glumes longer than lower glumes and **awnless; lemmas 7-nerved**; calluses bearded. Rivergrass grows in standing water of ponds, marshes, lakeshores, and stream sides in the steppe and montane zones (BG, IDF, SBPS, SBS). In the CCBA this species is known from near Williams Lake (marsh along San Jose River, outlet to Williams Lake, and Williams Lake River), Tatla Lake (marsh at Ranger Station and 17 miles east of Tatla Lake on Hwy 20), Hargreaves Creek (Farwell Canyon Road), and Spain Lake. Image at: <http://linnaeus.nrm.se/flora/mono/poa/scolo/scolfes.html>.



Rivergrass (copyright permission  
not obtained)

### SHORT-BEAKED SEDGE

Short-beaked fen sedge (*Carex simulata*) is a **medium-size sedge** (20 – 90 cm high), with single or a few stems together; **stems longer than leaves** and growing from a stout, creeping rhizome. There are 2 – 5 leaf blades per stem, 1 – 2.5 mm wide, flat and crowded towards the base; sheaths are green, the lower ones bladeless. The **inflorescence** is composed of 5 – 15 spikes, 0.5 – 1 cm long, **developing in an dense egg-shaped or nearly cylindrical, 1 – 3 cm head**; unstalked with both female and male flowers, or almost all female or all male flowers; male flowers towards the tips; spike bracts inconspicuous. The fruits are 1.7 – 2.5 mm long and broadly egg-shaped to elliptical; strongly flattened, smooth and few-nerved; **beaks finely toothed**. It is blue-listed, but should be included in a rare plant inventory of any calcareous wetlands and meadows that are impacted by operations. Known from 24 km east of Tatla Lake, Tatla Lake Creek at the Chilanko River, LeBlanc Lake, Minton Creek near Fletcher Lake, south of Patterson Lake, west of Little White Lake, near Kleena Kleene, south of Puntzi Lake, near Riske Creek, and west of Caribou Flats. Image at:

[http://calphotos.berkeley.edu/cgi/img\\_query?query\\_src=photos\\_flora\\_sci&enlarge=0000+0000+0906+0041](http://calphotos.berkeley.edu/cgi/img_query?query_src=photos_flora_sci&enlarge=0000+0000+0906+0041)

(copyright permission not obtained)



Short-beaked Sedge © Steve Matson

### SHORT-FLOWERED EVENING-PRIMROSE

Short-flowered evening-primrose (*Camissonia breviflora*) is an attractive perennial up to 1 m tall, with yellow flowers. **Leaves grow directly from a long taproot, and are arranged in a basal rosette**. Leaves are 5 – 15 cm long, and 5 – 15 mm wide, deeply pinnatifid, slightly

hairy with narrowed to slender stalks that are 1/2 to 2/3 as long as blade. The **yellow flowers are solitary on leafless stems**, emerging from the basal rosette; the petals are 6 – 8 mm long, and the sepals are bent downwards. Fruits are capsules 10 – 25 mm long, narrowly egg-shaped, tapered and hairy. Occurs along streambanks, dry meadows and grassy areas in montane zones (IDF, MS, SBS). There is one 1925 record from the Nemiah area; the exact location is unknown.

Image at <http://eflora.bc.ca>.



Short-flowered evening-primrose  
© Jamie Fenneman  
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### SICKLE-POD ROCKCRESS

Sickle-pod rockcress (*Arabis sparsiflora*) is a small wild mustard with white flowers. It is a biennial or short-lived perennial that grows from a simple or branched stem-base; there are 1 to several stems that are simple or branched, 0.3 – 1.0 m tall, smooth above, more or less hairy toward base. The basal leaves are numerous in a rosette; they are narrow, 2 – 3 cm long and 1.5 – 2.5 mm wide, gradually narrowed to a slender, fringed stalk. Stem leaves are unstalked, ear-like at the bases, lanceolate, with margins smooth or slightly toothed, 1.5 – 2.0 cm long, 2 – 3 mm wide, smooth to sparsely hairy. There are many flowers arranged in a raceme; they are symmetric, petals are 6 – 10 mm long, white to purple; sepals slightly bulge on one side at the base. Fruits are siliques that are directed at right angles from the axis of the inflorescence or slightly upward; the siliques curve downward and are 5 – 7 cm long, 2 mm wide. Occurs in mesic to dry grasslands, gravelly river banks and disturbed areas in the steppe and lower montane zones. Known from Big Creek Ecological Reserve, with the plants growing on rocky scree on east-facing slope. Image at <http://eflora.bc.ca>.



Sickle-pod rockcress © Werner Eigelsreiter  
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### SILVERY ORACHE

Silvery orache (*Atriplex argentea* ssp. *argentea*) is an annual herb growing from a taproot. The plant has an overall rounded shape, and grows up to about 15 – 80 cm tall. Stems are light-yellow and are much branched. The triangular-shaped leaves are opposite, except the upper leaves are alternate; stalked or stalkless; lanceolate to egg-shaped or diamond-shaped, 2 – 6 cm long, squared-off to wedge-shaped at the base, margins smooth to slightly toothed, **covered with a white mealy substance and generally greyish-green overall**, sometimes nearly smooth on upper surfaces. The inflorescence is composed of spikes growing from leaf axils; the flowers are yellowish-green, numerous and inconspicuous (resembling spiny seeds); there are fused pistillate bracteoles, broadest above the middle, 4 – 10 mm long, firmly enclosing the fruit, the margins green and deeply toothed. Fruits are bladder-like structures called utricle that contain single tiny brown seeds. Occurs in **saline** disturbed areas in the steppe and montane zones. Known from a meadow 3.5 km south of the junction of Chilcotin and Fraser Rivers.



Silvery Orache (ssp. unknown)  
utricle that contain single tiny brown seeds. © George W. Hartwell  
(copyright permission not obtained)

[http://calphotos.berkeley.edu/cgi/img\\_query?query\\_src=photos flora\\_sci&enlarge=0000+0000+1103+0320](http://calphotos.berkeley.edu/cgi/img_query?query_src=photos flora_sci&enlarge=0000+0000+1103+0320).

### SPRENGEL'S SEDGE

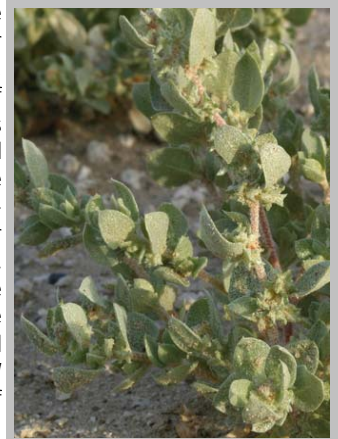
Sprengel's sedge (*Carex sprengelii*) is a medium size sedge (30 – 90 cm high) with erect or decumbent with stems as long or longer than leaves; grows from stout, matted, shredded rhizomes. There are 5 – 8 leaf blades per stem, 2 – 5.4 mm wide and scattered; the lower leaves are reduced; the sheaths are long and concave to blunt. The inflorescence is composed of 3 – 7 **spikes, not crowded**; there are 1 – 3 terminal spikes that are linear and 1 – 2 cm long with male flowers. There are 2 – 4 cylindrical lower spikes that are 1 – 3.5 cm long with female flowers. The spikes are long stalked and spreading to nodding; bracts subtending female spikes are short-sheathing and leaf-like, 1.5 – 2.5 cm long. **Fruits** are 5 – 6 mm long, **globe-shaped** and greenish to straw-coloured; smooth and **2-ribbed with a few obscured nerves** and short-stalked; beaks deeply bidentate. Occurs in moist to wet, gravelly or sandy slopes, open sites and alluvial woodlands in the montane zone. Known from Quesnel (moist grassy bank at edge of wood, also along roadbed) and the Sugar Cane Indian Reserve. Image at [http://www.nativeplant.com/plants/plant\\_page\\_template?Acronym=CXSPRE](http://www.nativeplant.com/plants/plant_page_template?Acronym=CXSPRE).



Sprengel's Sedge  
(copyright permission not obtained)

### WEDGESCALE ORACHE

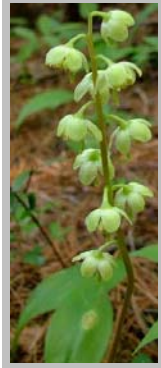
Wedgescale orache (*Atriplex truncata*) is an annual with erect or curved, simple to branched, stems 25 – 120 cm high. Stems grow from a taproot. Leaves are 2 – 7 cm long, lance-shaped to lance-linear or oblong; short-stalked or stalkless; leaves are squared off or arrowhead-shaped at the base with smooth to wavy toothless margins. Lower leaves are opposite and upper leaves alternate. Small, green flowers are borne in clusters in leaf axils. Male flowers lack petals; **female flowers** lack both petals and sepals and are **subtended by 2 wedge-shaped bracts**. Fruits are membranous bladders enclosed within 2, lance-shaped, smooth or wavy margined bracts. Similar to silvery orache (*Atriplex argentea* ssp. *argentea*) but lacking white, mealy substance covering leaves. Occurs in dry roadsides, waste places and alkaline flats in the steppe and montane zones (BG; IDF). Known from 2 mi SW of Puntzi Lake, near Farwall Canyon, and W of Williams Lake. Image at [http://calphotos.berkeley.edu/cgi/img\\_query?where-taxon=Atriplex+truncata](http://calphotos.berkeley.edu/cgi/img_query?where-taxon=Atriplex+truncata).



Wedgescale Orache © Steve Matson  
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### WHITE WINTERGREEN

White wintergreen (*Pyrola elliptica*) is a perennial herb, 15 – 25 cm in height with short, erect stems and many basal leaves; growing from a slender rhizome. Leaves are evergreen and all basal, somewhat leathery, with broadly elliptic to oblong or egg-shaped blades; thin, fine-toothed and dull with stalks rarely as long as blades. There are 2 – 20 flowers on the end of a stem; the flowers are weakly bilaterally symmetric; petals are egg-shaped, spreading and white or creamy, rarely pink tinged; sepal tips are usually sharp pointed, egg-shaped and somewhat bent back. Fruit are globe-shaped, depressed capsules. Similar to Green Wintergreen (*Pyrola chlorantha*). Dry to moist forests in montane zone (ESSF, ICH, IDF, MS, SBS). In the CCBA this species is known from near the Fraser River between Quesnel and Macalister. Images at <http://eflora.bc.ca> and <http://www.ct-botanical-society.org/galleries/pyrolaelli.html>.



Green Wintergreen  
© Jamie Fenneman

White Wintergreen  
© Eleanor Saulys

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### WHITEBARK PINE

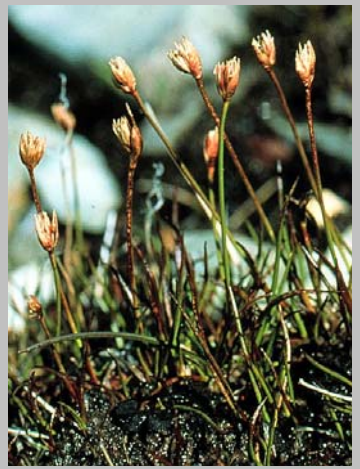
Whitebark pine (*Pinus albicaulis*) sometimes grows up to 20 m tall with a straight trunk; however it is more often contorted and dwarfed, or shrubby and sprawling. The bark is thin with light-whitish scales; young twigs are hairy; needles are in bunches of five, unlike lodgepole pine, which has bunches of three needles. Occurs on mesic to dry slopes in the subalpine to alpine zones on moderately dry to fresh, nitrogen-medium soils. They can be common in parkland forests on water-shedding sites that are free of snow early in the year. Where it is reasonably common, whitebark pine is a 'keystone' species of high-elevation ecosystems. In the CCBA this species is fairly common along the east slope of the Coast Range, with scattered locations in the Quesnel Highlands and Cariboo Mountains. Image at <http://eflora.bc.ca>.



Whitebark Pine © Carmen Wong  
(copyright permission not obtained)

### WHITISH RUSH

Whitish rush (*Juncus albescens*) is a small, tufted, grass-like perennial with stems that are 7 – 20 cm in height with erect stems; developing from fibrous roots. Leaves are all basal, tapered, circular in cross section and lacking cross-walls. The inflorescence is a 2- to 6-flowered, single, terminal head with flowers lacking bractlets; perianth segments long pointed and pale brown to whitish; stamens 6, anthers shorter than the filaments; involucre bracts awned with awns longer than flowers. Mature fruit is necessary for positive species determination. Occurs in wet, calcareous fens in montane to alpine zones. Known from a calcareous fen at Redstone Flat I.R. near Tatta Lake and in a subalpine seepage area with shrub-carr at "Coleman Creek" and southwest of Bluff Lake.



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Whitish Rush © Peter Lesica

## Plant Communities at Risk

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The plant communities included in this section are limited to those that cannot be identified through the standard MFR site series identification guide or the *Wetlands of BC* book. These are all non-standard "/00" site series in the BGC units.

### HYBRID WHITE SPRUCE / FOAM LICHENS

The hybrid white spruce / foam lichens (*Picea engelmannii* x *glauca* / *Stereocaulon* spp.) ecological community is very rare and **occurs on old lava flows**. The Nazko site has a southern aspect and is on a gentle lower slope with steep sections closer to the source of the lava. The surface is very uneven 'slag-like' lava, with boulder-size pieces of lava derived from 'lava boils'. Little or no mineral soil is present due to slow weathering. Soils are wet and nutrient poor. The **vegetation is very sparse, and distinguished by abundant lichens, predominantly foam lichens. The tree layer consists of scattered, stunted black spruce and hybrid white spruce.** The shrub layer consists of black gooseberry. There are very few herbs, though scattered violet species are present. Bushy-tailed packrat middens are common. Its occurrence is the result of the lava flow, and only very secondarily due to the Biogeoclimatic variant. This ecological community is only known from a single record of occurrence on the lava flows of the Nazko Cone near Fishpot Lake. The community is visible on GoogleEarth at about 52° 55' 26.7" N 123° 44' 42" W. The hybrid white spruce / foam lichens ecological community is outside the normal MoF ecological community classification system. It is incorrectly listed by the CDC as being SBSdw2/00 – it is actually SBPSdc/00. It is not likely to occur elsewhere in the CCBA because it occupies more recent lava materials than the relatively old volcanic materials of the Itch/Ilgachus, and none were seen while sampling and mapping those areas (Ray Coupé, pers. comm.).

### TREMBLING ASPEN / SPREADING NEEDLEGRASS – OLD MAN'S WHISKERS

The trembling aspen / spreading needlegrass – old man's whiskers (*Populus tremuloides* / *Achnatherum richardsonii* – *Geum triflorum*) ecological community tends to occur in the transition zone between grassland and forests, as subhygric aspen groves. The community is characterized by a trembling aspen tree layer, and spreading needlegrass and old man's whiskers in the herbaceous layer. This small patch community is rare within a narrow range and is threatened by development and land use practices which affect the hydrological regime that maintains this community. Occurs in the BGxw2 and IDFxM.

### PURPLE REEDGRASS HERBACEOUS VEGETATION

The purple reedgrass Herbaceous Vegetation (*Calamagrostis purpurascens* Herbaceous Vegetation) ecological community is floristically rich. In addition to purple reedgrass are single-spike sedge, alpine fescue, sandwort, mountain locoweed, and diverse-leaved cinquefoil. Other herbs include Lyall's goldenweed, spiked wood-rush, spike trisetum, and umber pussytoes. Dwarf alpine woody plants are less common and include dwarf snow willow. Juniper haircap moss is the most commonly encountered moss; lichens are also present. The subalpine grasslands that form the early successional stage may last a century or more are less complex communities

dominated by purple reedgrass. The grass grows on sandy to coarse textured soils. It mostly occurs on basic soils and will tolerate mildly saline sites and drought conditions. It may occur in the CMA in the Coast Range mountains of southwest Chilcotin FD, with some variation in the details of the ecological community.

### **NORTHERN WORMWOOD / SHORT-AWNED PORCUPINEGRASS**

The northern wormwood / short-awned porcupinegrass (*Artemisia campestris* - *Hesperostipa curtisetata*) ecological community occurs on middle and upper valley slopes on gentle to steep south- and west-facing slopes. Soil is fine to coarse textured. **It is a non-forested, open grassland that is dominated by northern wormwood and short-awned porcupine grass.** It is the "upper grassland" zonal community in the Cariboo Region. Shrubs include Rocky Mountain juniper, common juniper and saskatoon. Herbs include northern wormwood, short-awned porcupine grass, spreading needlegrass, and bluebunch wheatgrass. Lichens and mosses are cladonia lichens, pelt lichens and sidewalk moss. Forest encroachment is a major concern for this community, due to wildfire suppression. Occurs in the IDFxM.

### **SAND DROPSEED – NEEDLE-AND-THREAD GRASS**

The sand dropseed – needle-and-thread grass (*Sporobolus cryptandrus* – *Hesperostipa comata*) ecological community occurs on gentle to moderate, warm, usually middle slopes on coarse textured soils of eolian lenses or glaciofluvial deposits (such as sand dunes). BGxh3/00 occurs along hill crests and steep slopes; BGxw2/00 occurs on steep slopes and moderate south- and west-facing slopes; IDFxM/00 is found on steep valley slopes and gentle slopes with sandy soils. Shrubs are limited to big sagebrush, and may entirely absent. The moderate **herb layer is dominated by sand dropseed, needle-and-thread grass** and bluebunch wheatgrass. Other common species include Indian ricegrass, brittle prickly-pear cactus and needle-and-thread grass. Mosses and lichens are usually absent. Occurs in the BGxh3, BGxw2, and IDFxM.