

***Festuca subuliflora* Scribn.**
Crinkle-awned Fescue

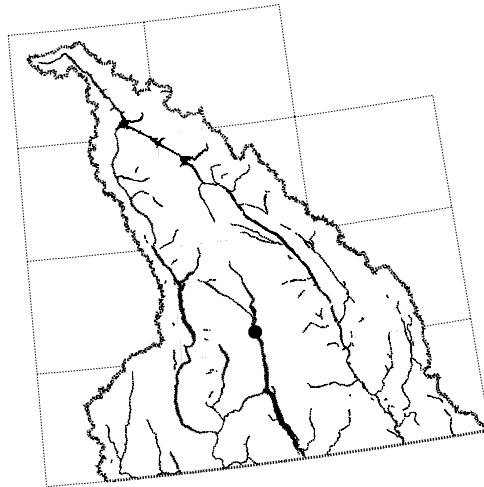
Plant: *Festuca subuliflora* is a native species that grows 50–100 cm tall. It is a tuft-forming perennial with leaves up to the base of the open, widely branched flowerhead.

Leaves and Stem: Stout stems arise from a scarcely leafy base. Sheaths are open and smooth to hairy. Leaf blades are flat, sometimes inrolled, drooping, and hairy on the upper surface. They are narrowed at the base but 3–8 mm wide otherwise. The small ligule is 0.5 mm high and has a fringe of relatively coarse hairs. There are no auricles.

Flowerhead and Flowers: The flowerhead is 20 cm long, loose, and open, and has only one or two drooping branches at a node. Spikelets contain three to five loosely fitted flowers. The two, unequal, very narrow glumes are much shorter than the spikelet. The lemma is 7 mm long and has a prominent, 0.5- to 2.0-cm-long, thin awn that extends from the minute, two-toothed tip. The awn is usually crinkly, twisted, or bent.

Habitat: Crinkle-awned Fescue generally grows in moist, partly shaded sites in forest and woodland, but may occur on moist slopes and in meadows. The plant is usually loosely rooted in humus. Crinkle-awned Fescue occurs near Lardeau in the Columbia Basin region.

Similar Species: The minute, two-toothed lemma tip may be confused with *Bromus* species. The awn in *Bromus* is attached well below the two teeth, whereas in *Festuca* it is attached at the tip.



***Festuca trachyphylla* (Hack.) Kraj.**
Hard Fescue

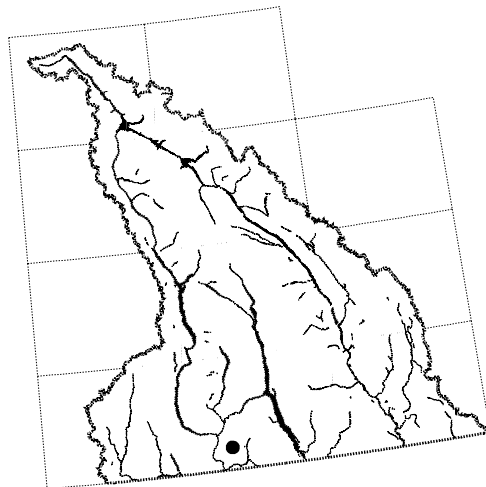
Plant: *Festuca trachyphylla* is an introduced species that grows 20–75 cm tall. It is a coarse, densely tufted, blue-green to pale green perennial without rhizomes. The narrow and moderately long flowerhead has densely clustered to lax branches.

Leaves and Stem: The stems have exposed nodes and the dead sheaths remain at the base and do not decay into fibres. The purplish, living sheaths are open to the base, and have a prominent midvein, but a rounded back. The auricle is a distinct swelling. The ligule has a ragged edge and is 0.2–0.5 mm high. The leaf blades are 0.4–0.6 mm wide, almost bristle-like, and rough textured.

Flowerhead and Flowers: The narrow flowerhead is 3–9 cm long. Branchlets are visible between the flowers on each spikelet. The unequal glumes are shorter than the spikelets. They are rounded on the back and rough at the tip. Lemmas are rounded across the back and are either hairless or hairy at the tip. The awn is 0.5–2.5 mm long.

Habitat: Hard Fescue was introduced for forage from Eurasia because of its frost- and drought-tolerance. Through commercial seeding and naturalization, the distribution of Hard Fescue now extends throughout most of Europe and North America. It grows in disturbed areas near Salmo.

Similar Species: Green Fescue is like Hard Fescue, except that, according to Douglas et al. (1994), Green Fescue has longer anthers and is found in high mountain habitats. As part of the Sheep Fescue complex, Hard Fescue bears some resemblance to native sheep fescues, such as Western Fescue, Idaho Fescue, Rocky Mountain Fescue, and Green Fescue, but is an introduced species developed by hybridization.



Festuca viridula Vasey
Green Fescue

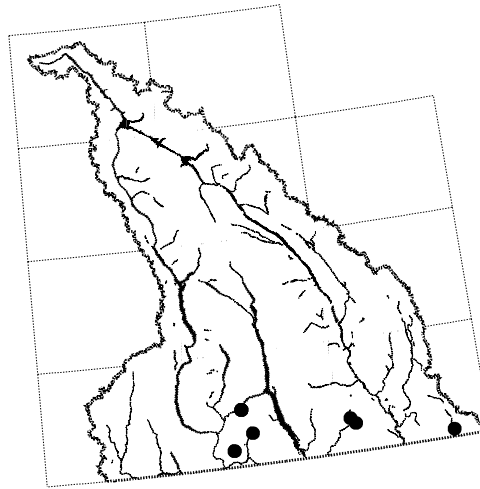
Plant: *Festuca viridula* is a native species that grows 35–80 cm tall. It is a perennial that forms small clumps from short rhizomes. The flowerhead is open to somewhat contracted.

Leaves and Stem: Exposed nodes and the internodes are smooth. The dead sheaths do not remain around the base of the plants but decay into long fibres. The living sheaths may or may not be purplish and are open or closed for 1/4 their length. The auricle is a distinct swelling. The ligule has a ragged margin and is 0.2–0.5 mm high. The leaf blades are lax, narrow, and 0.8–2.0 mm wide, but, when dry, have inrolled edges.

Flowerhead and Flowers: The flowerhead ranges from open to contracted, reaching 4–12 cm long. It is important to observe whether the flowerhead is mature or not. An immature flowerhead will appear contracted. The glumes are unequal and much shorter than the spikelet. They are distinctly keeled and rough at the tip. The lemmas are keeled at least close to the tip, often green at the base, and purplish towards the tip. The lemma may be awnless, or may have a 0.2- to 0.5-mm-long hair-like awn.

Habitat: Green Fescue grows on mesic and dry slopes in the alpine and sub-alpine zones in the Rocky Mountains. It occurs near Nelson in Kokanee Glacier Provincial Park and at Procter Lake in the Flathead.

Similar Species: Hard Fescue is like Green Fescue, except that, according to Douglas et al. (1994), Green Fescue has longer anthers and is found in high mountain habitat.



Glyceria species are tall, aquatic or marsh perennials that have creeping stems that root at the stem nodes, or have strong rhizomes. The sheaths are closed or partially closed and the leaf blades are flat to slightly inrolled. The flowerheads are open and have long, drooping, fine branches, or the branches are pressed tightly to the stem. Whether the lemmas of *Glyceria* have seven obvious ridges or not, and whether there are rounded or flattened spikelets in the flowerhead, are two major characters used in differentiating the various species in the genus.

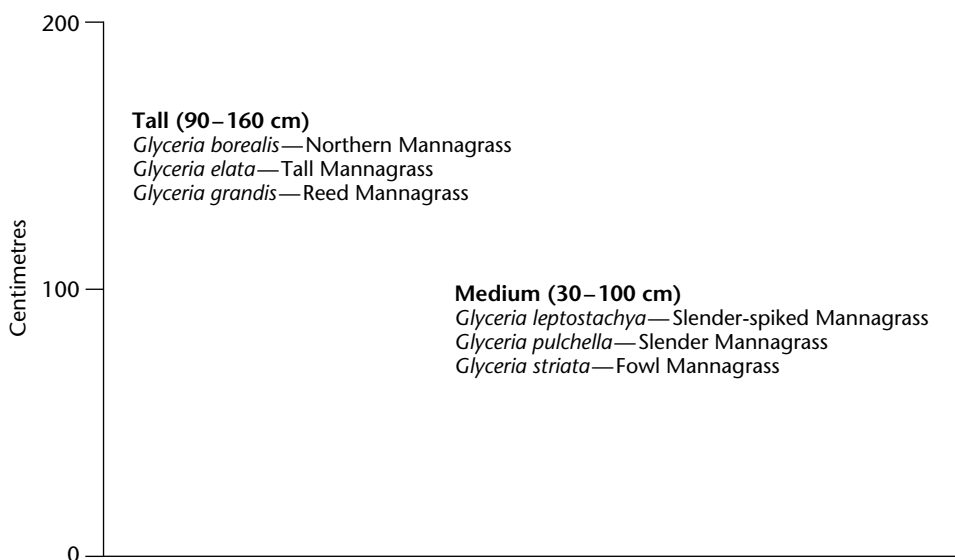
The name *Glyceria* comes from the Greek word *glukeros*, meaning sweet, referring to the sweet seed that is favoured by many waterfowl. The species are very palatable but are restricted to wet sites and moist woodlands. In many areas these species, especially *Glyceria striata*, are grown on wet marshes for grazing or to attract waterfowl.

There are eight species of *Glyceria* found in British Columbia (Douglas et al. 1994). Three of these species are Blue listed in the Rare Native Vascular Plants of British Columbia by Douglas et al. (1998). Two of these Blue-listed species—*Glyceria leptostachya* and *G. pulchella*—occur in the Columbia Basin region. *Glyceria pulchella* is a boreal species and southern British Columbia is the southern extent of the range.

***Glyceria*—Adapted from Hickman (1993) and Cody (1996)**

- 1a. Spikelets linear or cylindrical in outline; branches pressed close to the axis 2
- 2a. Lemma smooth between slightly rough veins *Glyceria borealis*
- 2b. Lemma rough throughout and distinctly rough on veins. . .
..... *Glyceria leptostachya*
- 1b. Spikelets oval in outline; branches spreading outward 3
- 3a. Glumes 1.5–2.3 mm long 4
- 4a. Lemma purplish and widest at or below the middle. . .
..... *Glyceria grandis*
- 4b. Lemma purplish, whitish, or brown; widest above the middle with broad rough edges. *Glyceria pulchella*
- 3b. Glumes less than 1.5 mm long 5
- 5a. Lower glume less than 1 mm long; lemmas small, prominently nerved. *Glyceria striata*
- 5b. Lower glume 1.0–1.5 mm long *Glyceria elata*

Heights of *Glyceria* species



Glyceria borealis (Nash) Batch.
Northern Mannagrass

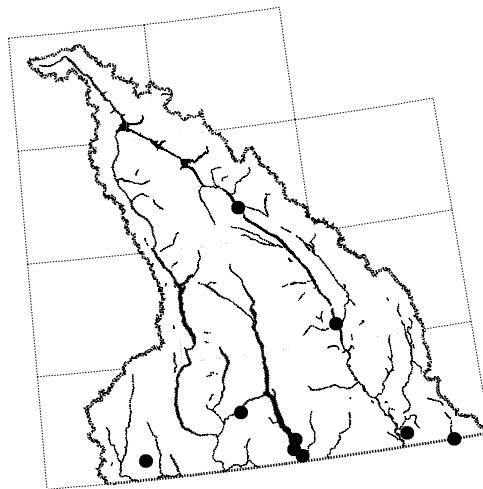
Plant: *Glyceria borealis* is a native species that grows to 1 m tall. It is a perennial with rhizomes or stems that creep along the ground for a short distance and root at the nodes. The narrow flowerhead has branches that are pointing upwards and are pressed toward the stem axis.

Leaves and Stem: The smooth sheaths are flattened and open for 1–4 cm. Sharply pointed ligules are 5–10 mm long and minutely hairy along the edge. Flat leaves are 3–5 mm wide and covered with small projections that do not feel rough. There are no auricles.

Flowerhead and Flowers: The flowerhead is 45 cm long and has branches that are pressed close to the stem axis and point upward. Narrow spikelets have parallel sides and are rounded (flattened cylindrical) rather than compressed. The awnless, papery glumes are transparent and shorter than the lowest lemma. The awnless lemma has seven noticeably rough, raised nerves. These ridges do not converge at the tip but end at the transparent edge. Sometimes short soft hairs occur between the nerves.

Habitat: Northern Mannagrass is native to northern North America where it grows in wet meadows, fens, and swamps and along lakeshores in the lowland to montane zones. It occurs in the Columbia Basin region near Nelson, Creston, Canal Flats, and Golden.

Similar Species: Northern Mannagrass has a similar flowerhead to the Blue-listed Slender-spiked Mannagrass (*Glyceria leptostachya*), but there are differences. The leaves of Northern Mannagrass are bumpy but not rough on the upper surfaces, whereas the upper leaves of Slender-spiked Mannagrass are rough. This difference can be determined by rubbing the top of the leaves. Rough feels like sandpaper, whereas bumpy feels more like irregular bumps. The lemma of Northern Mannagrass has small bumps along the ridges, but is smooth between the nerves. Slender-spiked Mannagrass has rough-feeling hairs throughout the entire surface of the lemma. To distinguish these features you will definitely need a hand lens.



Glyceria elata (Nash) M.E Jones
Tall Mannagrass

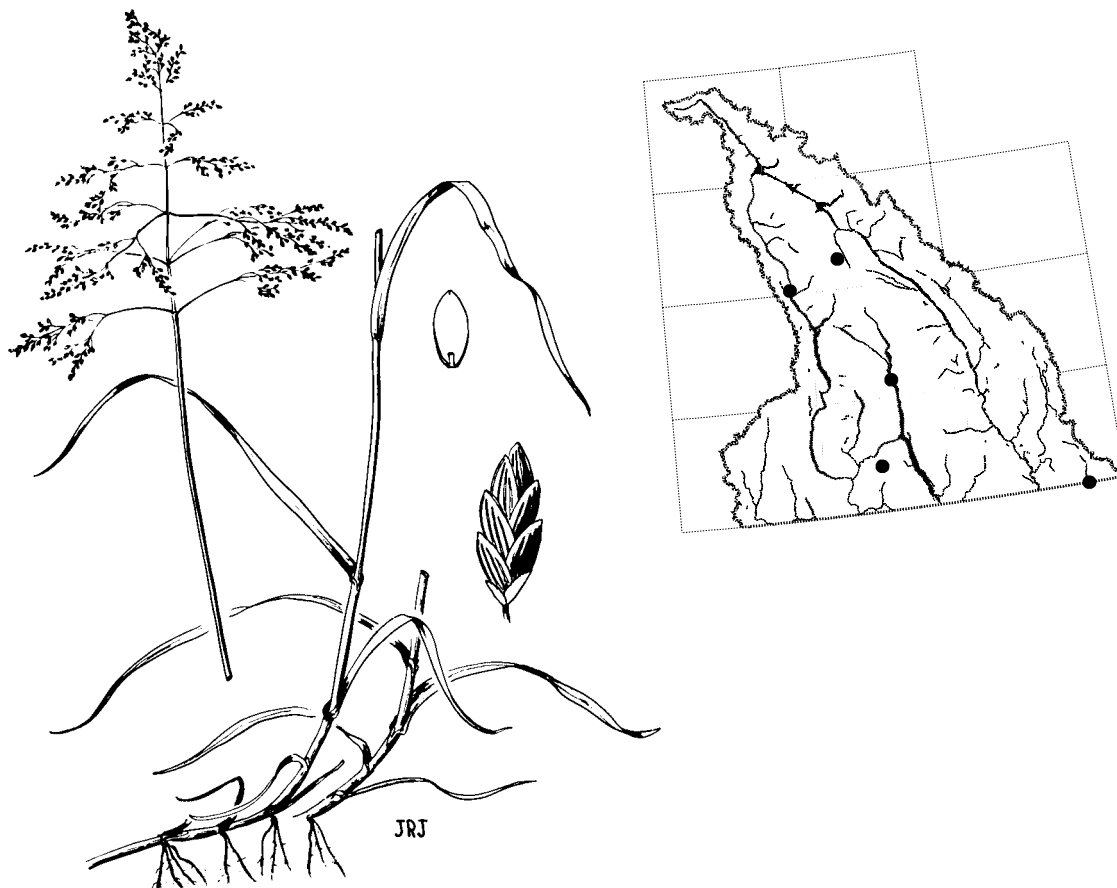
Plant: *Glyceria elata* is a native species that grows 1–1.5 m tall. It is a perennial with creeping rhizomes and a loose, open, pyramid-like flowerhead consisting of spreading branches.

Leaves and Stem: The rough sheath is closed almost to the top. The ragged, blunt ligules are 3–6 mm high and are open in the front. There are no auricles. The flat leaf blades are 6–10 mm wide.

Flowerhead and Flowers: The flowerhead is loose, open, and 15–25 cm long and has spreading branches. The glumes are shorter than the lemmas and are torn along the edge. The lemmas have seven raised ridges with a tip that is ragged and are widest above the middle. The tip of the palea has narrow slits. The palea often appears almost transparent, so inserting a piece of black paper under the palea helps to see the slits clearly.

Habitat: Tall Mannagrass grows in wet areas such as along streams, along lakeshores, and in wet meadows in lowland to montane zones. In the Columbia Basin region Tall Mannagrass occurs at Mount Revelstoke and Glacier National Parks, near Nelson, and at Lardeau.

Similar Species: Tall Mannagrass resembles Fowl Mannagrass (*Glyceria striata*). Tall Mannagrass has ligules that are open in the front and 3–6 mm high, whereas Fowl Mannagrass has closed ligules that are only 1–3 mm high. Check the edges of the ligules carefully to see if they are torn.



Glyceria grandis S. Wats. ex A. Gray
Reed Mannagrass

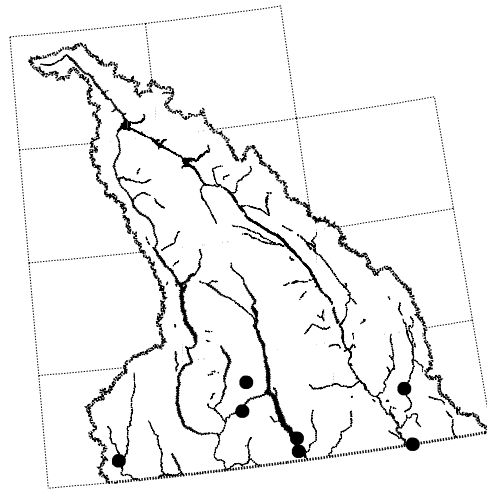
Plant: *Glyceria grandis* is a native species that grows 90–200 cm tall. It is a tufted, stout perennial with rhizomes. The flowerhead is open and loose and has numerous spreading branches.

Leaves and Stem: Smooth to slightly rough sheaths are closed to the top or open up to 1 cm at the most. The ligules are 4–9 mm long and blunt and have edges with almost no teeth. There are no auricles. The flat, firm leaf blades are 6–15 mm wide, and they have a rough upper surface and a smooth under-side.

Flowerhead and Flowers: The open, loose flowerhead is 20–35 cm long and has numerous spreading branches. Spikelets are slightly flattened and four- to seven-flowered. The glumes are pointed and the second glume is 1/2 the size of the first. The lemmas are widest at the middle, obviously seven-nerved, and have a slightly ragged blunt tip. The palea has a V-shaped notch at the tip, or appears jagged. This feature may be difficult to observe. Open the flower over black paper to make the palea more visible.

Habitat: Reed Mannagrass grows in wet areas along lakeshores and in wet meadows at all elevations below the subalpine. In the Columbia Basin region, Reed Mannagrass occurs at Nelson, Roosville, and Creston.

Similar Species: Reed Mannagrass is similar to Tall Mannagrass, but is distinguished by its longer glumes: 1.3–3.5 mm in Reed Mannagrass compared to 0.6–1.5 mm in Tall Mannagrass.



***Glyceria leptostachya* Buckl.**
Slender-spiked Mannagrass

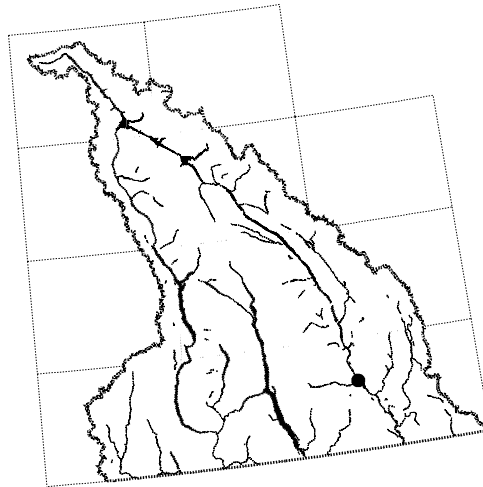
Plant: *Glyceria leptostachya* is a native species that grows 60–100 cm tall. It is a perennial with rhizomes and erect stems, or stems that recline on the ground for a short distance. The open flowerhead has a few branches.

Leaves and Stem: The flattened sheaths are sometimes rough and closed for most of their length, but can be open for 1 cm. Sharp-pointed ligules are 6–11 mm long and rough-edged. The leaf blades are 3–7 mm wide, slightly in-rolled, and rough on both surfaces. There are no auricles.

Flowerhead and Flowers: The flowerhead is 40 cm long and loose and has a few branches pressed close to the stem axis. Spikelets are long, cylindric, and rounded across the back. The short membrane-like glumes are 1/2 the size of the lemma. The lemma is greater than 3 mm long, strongly seven-nerved with rough, short, stiff hairs on and between the ridges. The ragged and transparent upper edge of the lemma can be purplish.

Habitat: Slender-spiked Mannagrass occurs in wet meadows and along lakeshores. This species grows along the Saint Mary's River near Kimberley. It is Blue listed in Douglas et al. (1998).

Similar Species: Slender-spiked Mannagrass resembles Northern Mannagrass, but differs in leaf blade texture (Douglas et al. 1994). Slender-spiked Mannagrass has a rough texture to the upper leaf blades, whereas Northern Mannagrass has a smooth leaf blade.



Glyceria pulchella (Nash) K. Schum.
Slender Mannagrass

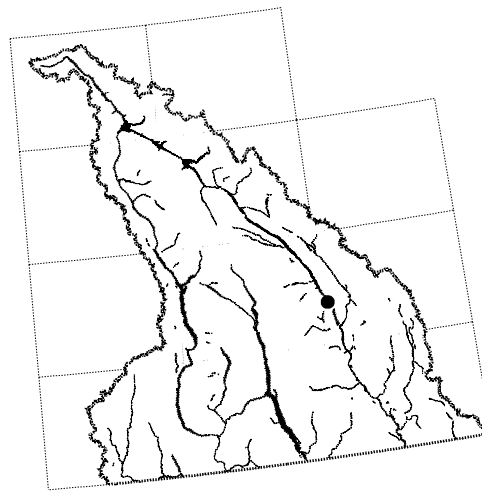
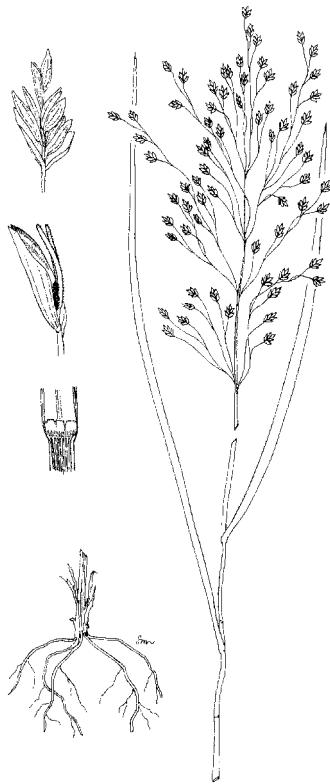
Plant: *Glyceria pulchella* is a native species that reaches 50–100 cm tall. It is a perennial that grows from a rhizome and has a loose, sometimes drooping, flowerhead and flexible branches.

Leaves and Stem: The open sheath is smooth. Pointed membrane-like ligules stand 1.5 mm high. The drooping, flat leaf blades are 2–6 mm wide and are somewhat inrolled. There are no auricles.

Flowerhead and Flowers: The flowerhead is usually less than 20 cm long, loose, and somewhat drooping. Thin branches are 8–10 cm long. The papery glumes are broad toward the top, greater than 1.0–1.5 mm long, and pale purplish brown or whitish and transparent. Glumes are almost as long as the first lemma and have ragged tips. The awnless lemmas are rough and have broad, ragged margins.

Habitat: Slender Mannagrass occurs commonly in Boreal North America. The Columbia Basin region includes the southern limit of its range. Douglas et al. (1994) excluded it from the Vascular Plants of British Columbia, but included it in Rare Native Vascular Plants of British Columbia, Douglas et al. (1998), based on one historic record in the Columbia Basin region near Columbia Lake. There are no specimens of Slender Mannagrass at the Royal British Columbia Museum from the Columbia Basin region.

Similar Species: Slender Mannagrass is one of the three *Glyceria* species that is Blue listed in British Columbia (Douglas et al. 1998). It resembles Reed Mannagrass, but the plant is smaller, less stout, and fewer flowered. It may be also confused with Fowl Mannagrass (*Glyceria striata*), which has less than 1-mm-long glumes and small lemmas.



Glyceria striata (Lam) A.S. Hitchc.
Fowl Mannagrass

Plant: *Glyceria striata* is a native species that grows 30–80 cm tall. It is a densely tufted perennial with a rhizome. The mature flowerhead is open with slender upward-pointing branches.

Leaves and Stem: The rough sheath is closed for most of its length and may have a purplish base. The membraneous ligules are usually closed in front, but may split. Looking along the edge of the sheath, you may notice a lighter line, which will split if pressure is applied to it. The blunt ligules are 1–3 mm long, and have a rough or bumpy surface and ragged edges. The leaf blades are flat to folded and 2–5 mm wide.

Flowerhead and Flowers: The flowerhead is 7–25 cm long and loose and has slender upward-pointing branches. If the flowerhead is immature, the branches may appear to be pressed towards the stem axis. If part of the flowerhead is still enclosed in a sheath, then the flowerhead is immature and it will assume a more spreading form with maturity. The spikelet appears oval in outline. The less than 1-mm-long glumes are minutely hairy with rough, jagged margins. The first glume is twice as long as the second, and this will help distinguish this species from Tall Mannagrass and Slender Mannagrass. The broad lemmas are barely 2 mm long, and have seven nerves—they are clearly visible without a hand lens.

Habitat: Fowl Mannagrass grows in wet places such as bogs, lakeshores, and wet meadows. Throughout the Columbia Basin region, Fowl Mannagrass is widespread and occurs at locations such as Fairmont Hotsprings, Moyie, Canal Flats, and Armstrong Bay.

Similar Species: Fowl Mannagrass resembles Tall Mannagrass, but it has 1- to 3-mm-long ligules, whereas Tall Mannagrass has 3- to 6-mm-long ligules. Fowl Mannagrass is also often mistaken for Reed Mannagrass, which has coarser leaves. Reed Mannagrass has distinct cross-ridges in the leaves, especially close to the leaf collar on the sheath and leaf blade. The leaf blades of Fowl Mannagrass are 2–5 mm wide, and considerably narrower than the leaf blades of Reed Mannagrass; take care if using the leaf blade as a determining factor, as you may have an immature specimen of Reed Mannagrass.

