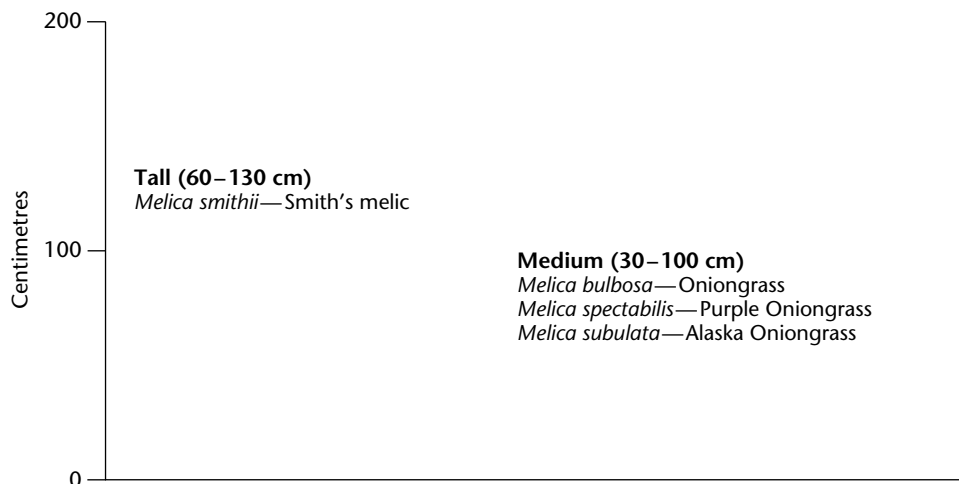


The name *Melica* comes directly from the Italian name for a kind of sorghum. The genus *Melica* resembles *Bromus* in the overall appearance of the flowerhead, which may vary from a form with open spreading branches to a tight, slightly closed spike. To confuse things even more, *Melica smithii* has two small teeth at the tip of the lemma where the awn meets the lemma, which is a standard character used to differentiate *Bromus* from other genera. The two genera differ in that *Melica* has spikelets with two to four sterile flowers above the fertile flowers and these are almost like scales. This gives the spikelet a more pointed or sometimes a more open appearance because the lemma is not full. The glumes are shorter than the first lemma and are thin, papery, and transparent. The sheath is closed to near the point where it meets the blade. The ligules are membrane-like and often closed in the front. In addition, there are no auricles and the callus is not bearded. This genus has a few species that are bulbous at the base of the stem. Important features to look for are the bulbous stem base and whether or not awns are present. Three of the four species of *Melica* found in the Columbia Basin region are Blue listed by the B.C. Conservation Database Centre in Douglas et al. (1998). In some cases this rarity is the result of the type of specialized habitat requirements of the species. In other cases, the species are at the limit of their range. In the case of *Melica smithii*, most of its range lies east of the Rockies. *M. spectabilis* is at the northern limit of its range, which extends east of the Cascades to the south and includes southwestern Alberta.

***Melica*—Adapted from Douglas et al. (1994)**

- 1a. Lemmas awned *Melica smithii*
- 1b. Lemmas unawned or awns inconspicuous. 2
 - 2a. Lemmas tapering with a long sharp tip; lemmas hairy along the veins. *Melica subulata*
 - 2b. Lemmas rounded; lemmas smooth or appearing rough. 3
 - 3a. Glumes less than 1/2 the length of the spikelets; basal bulbs not clustered, but remain attached to the rhizome . . . *Melica spectabilis*
 - 3b. Glumes more than 1/2 the length of the spikelets; basal bulbs clustered, not attached to the rhizome. *Melica bulbosa*

Heights of *Melica* species



Melica bulbosa Geyer ex Porter & Coult.
Oniongrass

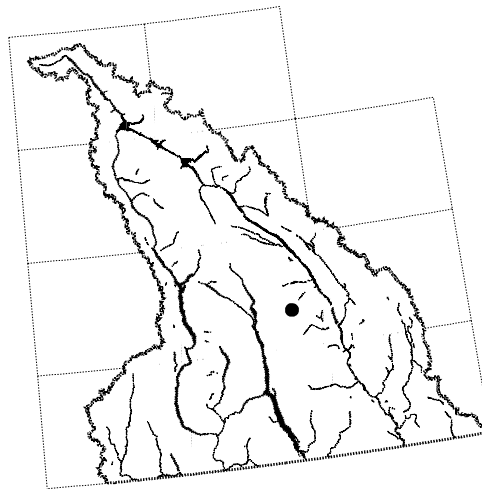
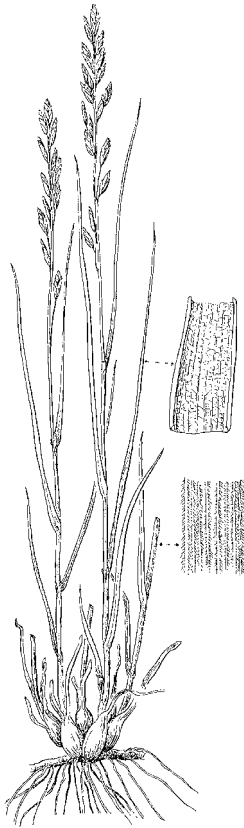
Plant: *Melica bulbosa* is a native species that grows 30–100 cm tall. It is a strongly tufted perennial with bulbous-based stems clustered on short rhizomes. The flowerhead is long and narrow with short, thick branches that are upward-pointing and pressed close to the stem axis.

Leaves and Stem: The sheaths are closed almost their full length and feel rough because they are covered in tiny, stiff projections. The ligules are 3–4 mm long, membrane-like, and open in the front, and have ragged edges. Rough, flat leaves are somewhat inrolled and 2–4 mm wide.

Flowerhead and Flowers: The flowerhead is narrow and 10–16 cm long, and has thick branches that are short and pressed close to the stem axis. The spikelets range from one to several per branch and they overlap. The glumes are narrow, blunt, and papery and are slightly shorter or equal in length to the first flower. The rough lemmas have stiff hairs or, in some cases, bumps. The sterile upper flowers consist only of empty lemmas. There are no awns.

Habitat: Oniongrass grows on moist to dry slopes in the steppe and alpine zones. It is a Blue-listed species (Douglas et al. 1998) and occurs in the Columbia Basin region in the Toby Creek area.

Similar Species: There are three species of *Melica* with bulbous stem bases in the Columbia Basin region: Purple Oniongrass (*M. spectabilis*), Alaska Oniongrass (*M. subulata*), and Oniongrass. Purple Oniongrass has bulbous bases that are spread out along the rhizome as single stems, and the bulb appears to be attached by a short stalk that may sometimes be hidden in the bulb scales. Alaska Oniongrass has tightly clustered bulbs. Oniongrass has bulbous bases that are attached in a clump directly to the rhizome.



Melica smithii (Porter) Vasey
Smith's Melic

Plant: *Melica smithii* is a native species that grows 60–130 cm tall. It is a tufted perennial without bulbous bases on the stem. The open flowerhead spreads or droops.

Leaves and Stem: The closed sheaths are smooth or slightly hairy. The ligules are 3–9 mm high and blunt and have a coarsely ragged edge. There are no auricles, and the collar is smooth to short hairy. The rough-feeling flat leaf blades are lax and 5–10 mm wide, and have widely spaced veins.

Flowerhead and Flowers: The open flowerhead has long, drooping branches and spikelets at the ends of the branches. The narrow, pointed glumes are papery and shorter than the first lemma. The finely hairy lemmas have two teeth at the tip, and a 3- to 10-mm-long awn.

Habitat: Smith's Melic grows in moist forests in the lowland and montane zones. It is a Blue listed species on the B.C. Conservation Data Centre's database. It is found in the Columbia Basin region at Yoho National Park and Mount Langemark in the Flathead area.

Similar Species: Smith's Melic resembles *Bromus* because it has long awns, a spreading flowerhead, and two teeth at the tip of the lemma. The occurrence of empty lemmas that enfold one another, absence of auricles, and sheaths that are closed for their full length help identify *Melica*. *Bromus* species have open sheaths (at least part of the way) and auricles. If there are sterile lemmas, they do not enfold one another.



Melica spectabilis Scribn.
Purple Oniongrass

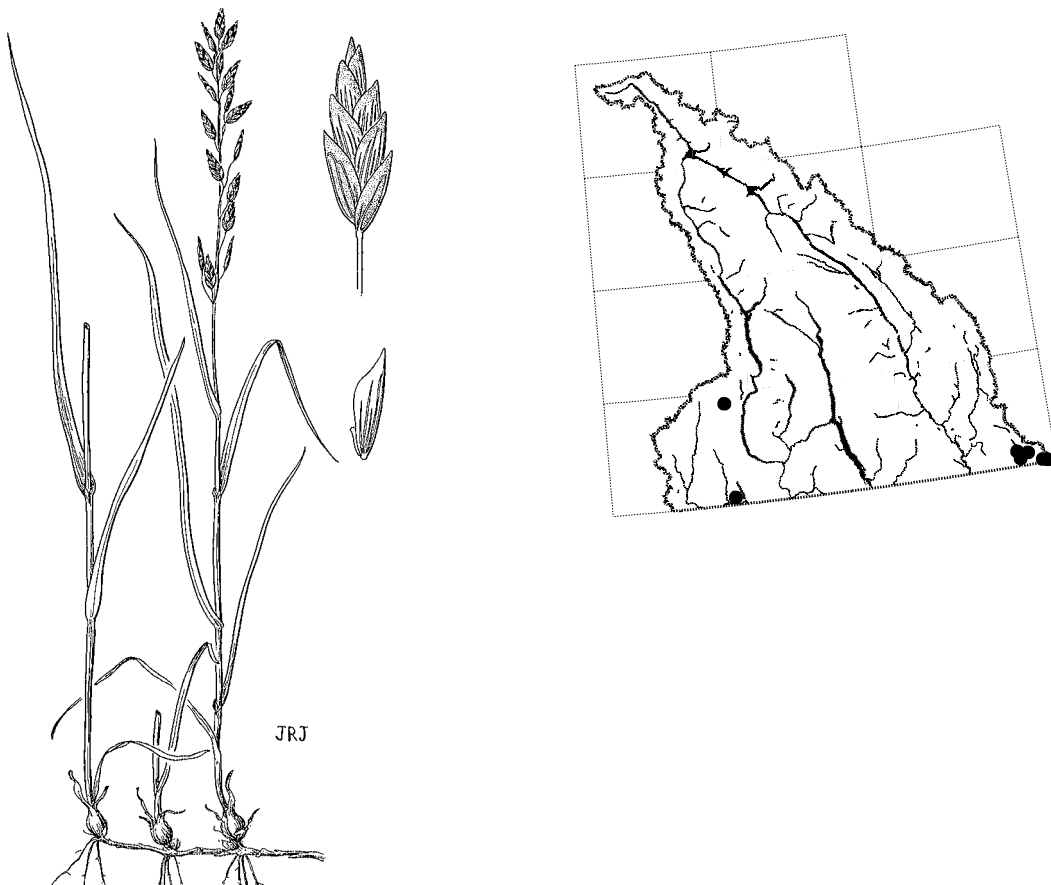
Plant: *Melica spectabilis* is a native species that grows 30–80 cm tall. It is a perennial with rhizomes and bulbous bases on the stems. The narrow flowerhead has upward-pointing branches.

Leaves and Stem: The rough sheath ranges from open for 3–10 mm to completely closed. Stem bases are bulbous; not clustered at one place but spaced along the rhizome. The ligules are 1–3 mm high, collar-like, open in the front, and ragged along the upper edge. The leaf blades are 2–4 mm wide and mostly flat, but sometimes slightly inrolled. There are no auricles.

Flowerhead and Flowers: The narrow flowerhead is 7–15 mm long, and has slender branches pressed close to the stem axis. The somewhat compressed spikelets are often purplish. The glumes are papery or rough, unequal, and rounded across the back. They are 1/2 the size of the first lemma. Blunt lemmas have a rounded back, marked nerves, and a rough texture.

Habitat: Purple Oniongrass grows in open moist forests and in wet meadows in montane to subalpine zones. In the Columbia Basin region it occurs at Mount Langemark, Wall Lake, Mount Morrissey, and Procter Lake and in the Monashee Mountains.

Similar Species: Purple Oniongrass is similar to Oniongrass, except that Purple Oniongrass has glumes less than 1/2 the length of the spikelets, and a bulbous base of the stems that are not clustered (they may have short stem-like attachments). The stem bases of Oniongrass are clustered and attached directly to the rhizome.



Melica subulata (Griseb.) Scribn.
Alaska Oniongrass

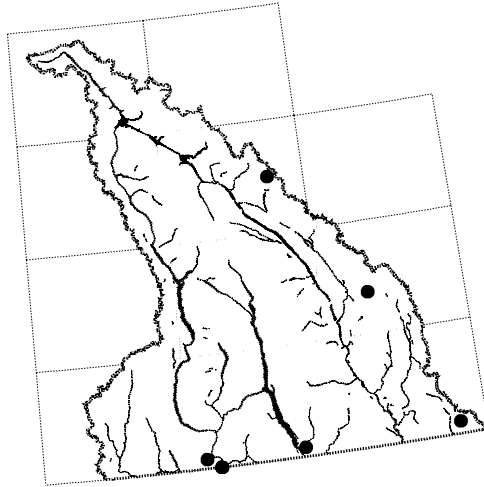
Plant: *Melica subulata* is a native species that grows 30–100 cm tall. It is a tuft-forming perennial with short, thick rhizomes. Clustered stems bases are bulbous and look like bunching onions. The flowerhead is open and loose.

Leaves and Stem: Sheaths are closed nearly to the top. The long, flat, thin leaf blades are 3–7 mm wide and are distributed along the stem. The upper surface is hairy. There is no auricle. The ligule is 1–5 mm long, hairless, and jagged or split along the edge.

Flowerhead and Flowers: The open but narrow, sometimes droopy flowerhead bears mostly single, narrow spikelets that are 12–20 mm long on the ends of thin branches. Two, unequal, relatively large glumes enclose two to five flowers. There are no awns on the glumes or the lemmas. The flowers extend well beyond the ends of the glumes. The lemmas are long and sharply pointed, but have no awns. The lower lemma margins and nerves are hairy.

Habitat: Alaska Oniongrass grows widely in dry to moist meadows and slopes, woods, streambanks, and floodplains. This is a species of moist woodland margins or slightly shady sites in our region, rather than of open, dry sites. In the Columbia Basin region, Alaska Oniongrass grows along the Pend d'Oreille River, in Yoho National Park, and at Rossland.

Similar Species: The long, pointed lemmas with hair over the raised veins distinguish this species from the other bulbous-based melics.

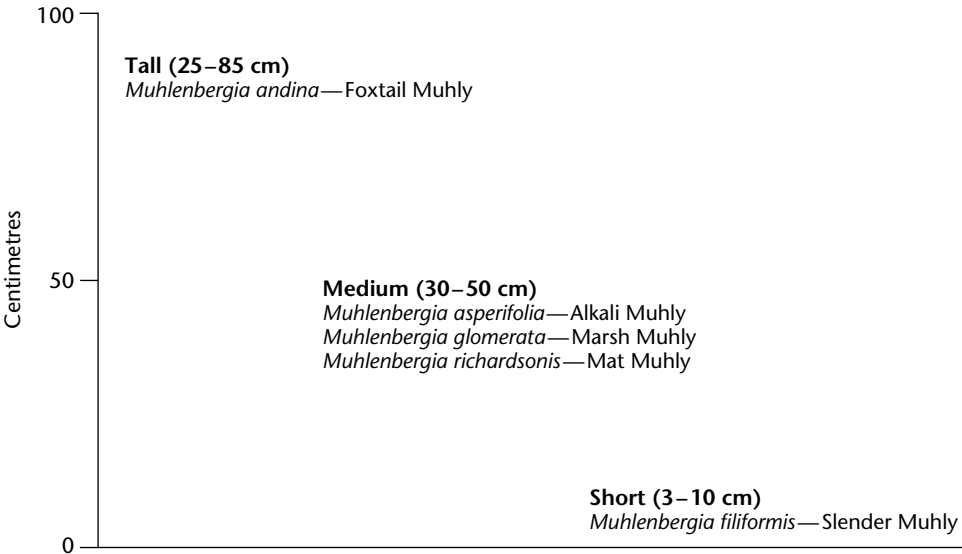


This genus was named after G.H. Muhlenberg (1753–1815), who was a dedicated grass student. Although palatable, *Muhlenbergia* species are seldom considered to be an important forage grass. The habit of this genus ranges from perennial and strongly rhizomatous to annual. The genus contains members that have very open to tightly closed flowerheads. The leaf sheaths are open to the base, there are no auricles, and the ligules are membranous. There are seven species of *Muhlenbergia* in British Columbia; five are known from the Columbia Basin region.

***Muhlenbergia*—Adapted from Douglas et al. (1994)**

- 1a.** Flowerhead spread open and branching; branchlets long and very slender *Muhlenbergia asperifolia*
- 1b.** Flowerhead narrow (less than 2.5 cm wide); branchlets short, pressed close to the flowerhead axis 2
 - 2a.** Lemmas not hairy at the base; leaves narrow 3
 - 3a.** Perennial with rhizomes; stems with nodules. . .
..... *Muhlenbergia richardsonis*
 - 3b.** Annual; stems often rooting at lower nodes. . .
..... *Muhlenbergia filiformis*
 - 2b.** Lemmas hairy or bearded at the base; leaves 2–6 mm wide 4
 - 4a.** Lemma hairs long (2–3 mm); lemmas awned. . .
..... *Muhlenbergia andina*
 - 4b.** Lemma hairs short (less than 1.5 mm); lemmas awn-tipped. . .
..... *Muhlenbergia glomerata*

Heights of *Muhlenbergia* species



Muhlenbergia andina (Nutt.) A.S. Hitchc.
Foxtail Muhly

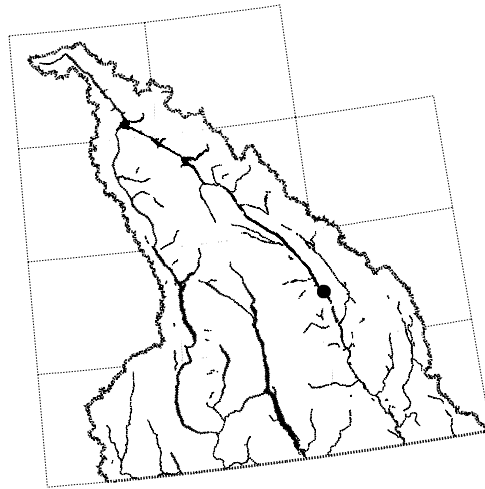
Plant: *Muhlenbergia andina* is a native plant that grows 25–85 cm tall. It is a perennial with a creeping rhizome and a narrow, loosely flowered flower-head.

Leaves and Stem: Sheaths are open to the base and there are no auricles. The ligule is 0.5–1.5 mm high and blunt, with fine hairs along its edge. The flat leaf blades are 2–4 mm wide.

Flowerhead and Flowers: The flowerhead is narrow and 2–25 cm long. It consists of a few widely spaced spikelets (this accounts for the wide range of lengths) and branches that are pressed close to the flowerhead axis. The sharp-pointed glumes have an awn-like tip. The lemmas have noticeable hairs at the base, and an awn that is 4–10 mm long.

Habitat: Foxtail Muhly grows in moist canyons, along streambanks, and near hot springs in the steppe and montane zones. In the Columbia Basin region it has been collected only at Fairmont Hot Springs. Foxtail Muhly is Red listed in Douglas et al. (1998). There are no specimens of this species in the Royal BC Museum's collection. We have included a description of it because the historical record for *Muhlenbergia andina* is from the Columbia Basin region.

Similar Species: Foxtail Muhly has not been seen at Fairmont Hot Springs for many years, and may be extinct in the Columbia Basin region, therefore nearly eliminating the chances of confusing it with any other species.



Muhlenbergia asperifolia (Nees & Meyen) Parodi
Alkali Muhly

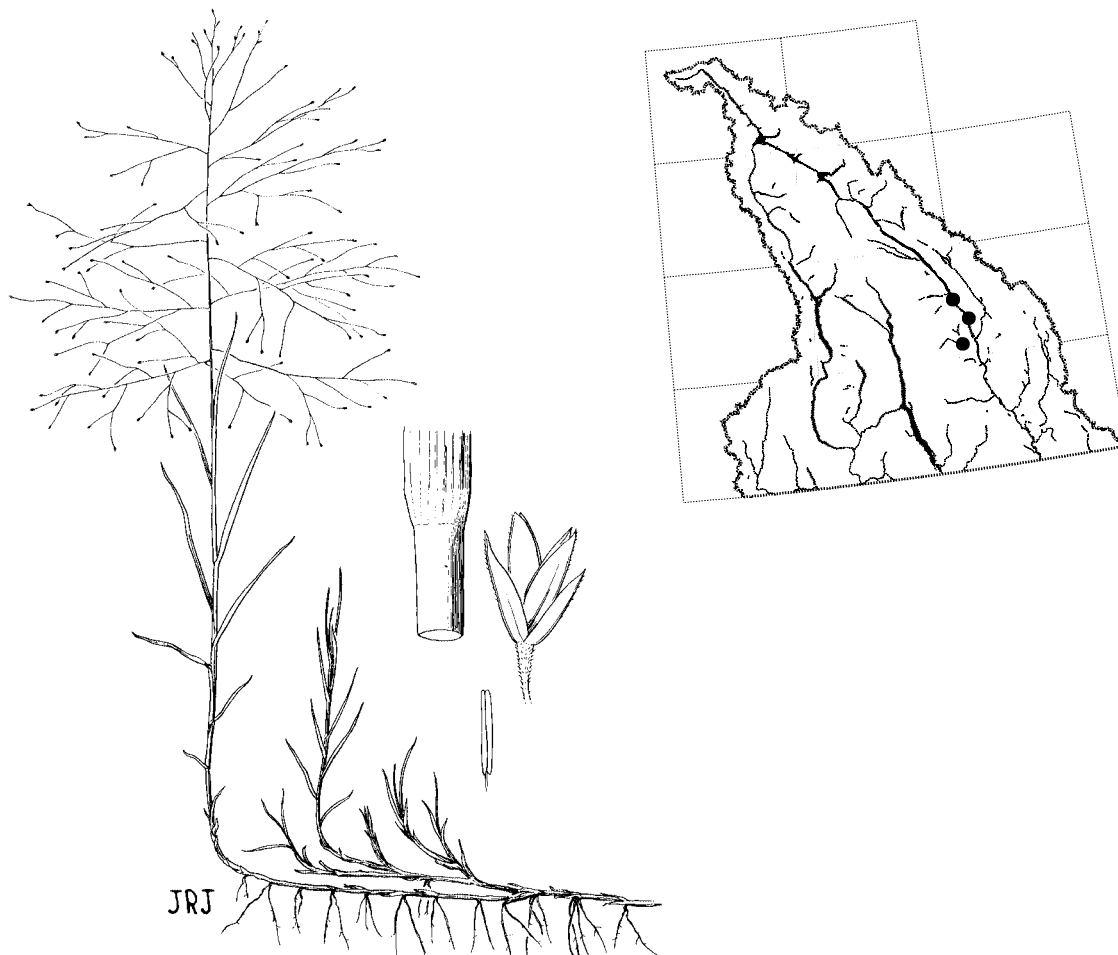
Plant: *Muhlenbergia asperifolia* is a native species that grows 10–40 cm tall. It is a perennial with rhizomes, an open, finely branched flowerhead, and tiny spikelets at the ends of the branches.

Leaves and Stem: The stem is solid—not hollow—and slightly flattened. The open sheaths are slightly keeled and appear to overlap one another. There are no auricles, and the membranous ligules are blunt, 0.5–1 mm high, and finely hairy along the edge. The flat leaf blades have rough edges and are about 1.5–2 mm wide.

Flowerhead and Flowers: The open and long flowerhead extends almost 1/2 the length of the whole plant (5–20 cm long). Spikelets are commonly one- and two-flowered. The unequal glumes are slightly rough along the keel. The lemma is longer than the glumes and has an awn at the tip that is less than 0.5 mm long.

Habitat: Alkali Muhly, as the name implies, grows in wet alkaline muds or seeps in open meadows and around hot springs. In the Columbia Basin region it occurs at Fairmont Hot Springs, Windermere, and Whitetail Lake.

Similar Species: Alkali Muhly may appear at first glance to resemble a *Panicum* grass, especially because of the open flowerhead and fine branches with small spikelets, but *Panicum* has only one flower to each spikelet, whereas Alkali Muhly can have one or more.



Muhlenbergia filiformis (Thurb.) Rydb.
Slender Muhly

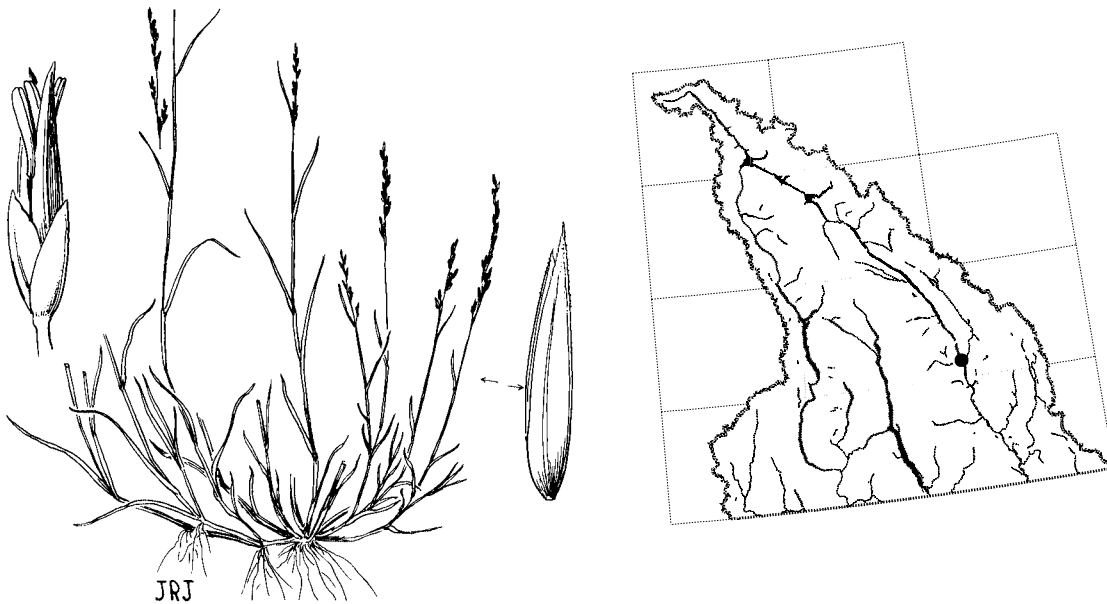
Plant: *Muhlenbergia filiformis* is a native species that grows 3–10 cm long. It is an annual that forms perennial-looking mats because the stems run along the ground and root at the nodes. The flowerhead is narrow and has irregular spikelet placement.

Leaves and Stem: The stems are solid and the smooth sheaths are open. Membranous ligules range from blunt to pointed, and are 1–3 mm long. The flat leaf blades are 1–2.5 mm wide and often hairy on the underside. There are no auricles.

Flowerhead and Flowers: The narrow flowerhead has irregularly placed spikelet branches, and sometimes there are gaps along the stem. The nearly equal, tiny, blunt glumes are shorter than the lemma, which is more or less hairy and has a sharp point with an awn-like tip.

Habitat: Slender Muhly grows in lime-rich, moist seeps in open meadows. It occurs at Canal Flats in the Columbia Basin region.

Similar Species: Slender Muhly may at first sight resemble Mat Muhly (*M. richardsonis*), but Slender Muhly is an annual, and it is smaller than Mat Muhly.



***Muhlenbergia glomerata* (Willd.) Trin.**
Marsh Muhly

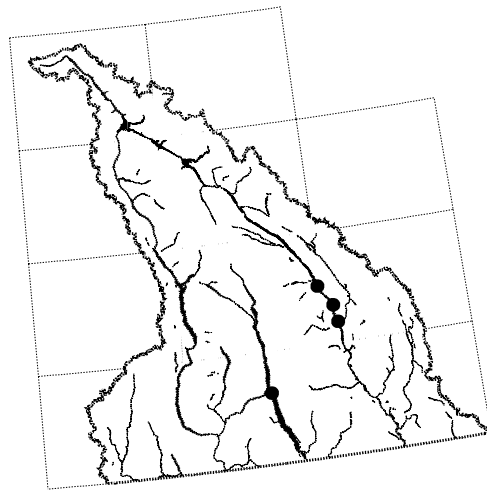
Plant: *Muhlenbergia glomerata* is a native species that grows 30–50 cm tall. It is a perennial with elongate, slender rhizomes and a narrow, spike-like flowerhead.

Leaves and Stem: The open sheaths have no auricles. Stem internodes have rough hairs that point backwards. The flat leaves are 2–6 mm wide and rough to the touch.

Flowerhead and Flowers: The narrow, spike-like flowerhead is 2.0–6.5 cm long. The glumes are awl-shaped and longer than the lemmas. The first glume is about 3/4 the length of the second. Glume awns are as long as the glume body. The lemma has scattered hairs on the lower part, and is awn-tipped.

Habitat: Marsh Muhly is a species of boreal North America ranging from Newfoundland to British Columbia and into the northern U.S. It is a Blue-listed species in Douglas et al. (1998), but occurs more commonly than Slender Muhly. In British Columbia it grows on lime-rich seeps, moist meadows, and floodplains in the steppe and montane zones. In the Columbia Basin region it has been collected at Fairmont Hot Springs, Canal Flats, and Pilot Bay Provincial Park.

Similar Species: Marsh Muhly is difficult to separate from Wirestem Muhly (*M. mexicana*) and Satin Grass (*M. racemosa*), but neither of these species has been collected from the Columbia Basin region.



Muhlenbergia richardsonis (Trin.) Rydb.
Mat Muhly

Plant: *Muhlenbergia richardsonis* is a native species that grows 20–40 cm tall. It is a tufted or matted perennial with narrow leaves, a scaly rhizome, and a narrow, spike-like flowerhead.

Leaves and Stem: The leaf sheaths are open. The roughened stem is solid and slightly flattened. Sharply pointed ligules are 1–3 mm long and rough to hairy at the edges. Inrolled leaf blades are 1–1.5 mm wide. The leaves are blue-green rather than yellow-green.

Flowerhead and Flowers: The flowerhead is narrow, 5–7 cm long, and spike-like. The spikelet branches appear scattered along the spike axis. The glumes are tiny but broad, about 1 mm long (much shorter than the lemma), and do not have a sharp point. They have a clearly noticeable midvein that is lightly covered in short, stiff hairs or bumps. The first glume is slightly shorter than the second. The lemma is 2.5 mm long, has no hairs at the base, and is not bearded or hairy. The lemma also has a rough, minutely awned tip.

Habitat: Mat Muhly grows on lime-rich sites such as moist meadows, terraces, and gravel bars in the steppe and montane zones. In the Columbia Basin region it occurs at Armstrong Bay and the terrace above Findlay Creek.

Similar Species: Mat Muhly resembles Slender Muhly, but is much larger, has a perennial habit, and grows from a rhizome.

