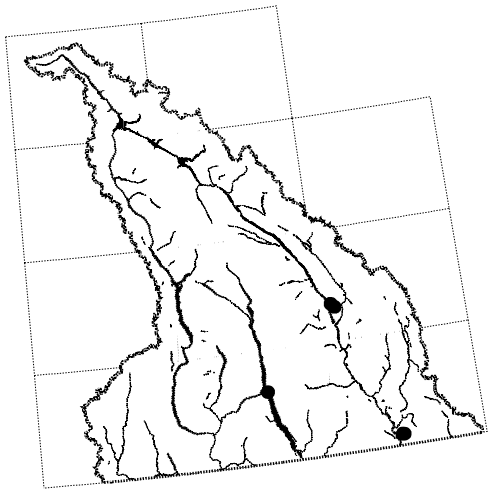
This small genus is native to North America, occurring generally in moist sites. Though palatable to livestock, it rarely occurs in abundance in northwest North America. Wedge-shaped glumes are responsible for the botanical name—*sphen* in Greek means wedge, and *pholis* in Greek means scale.

Sphenopholis obtusata (Mich.) Scribn.
Prairie Wedgegrass

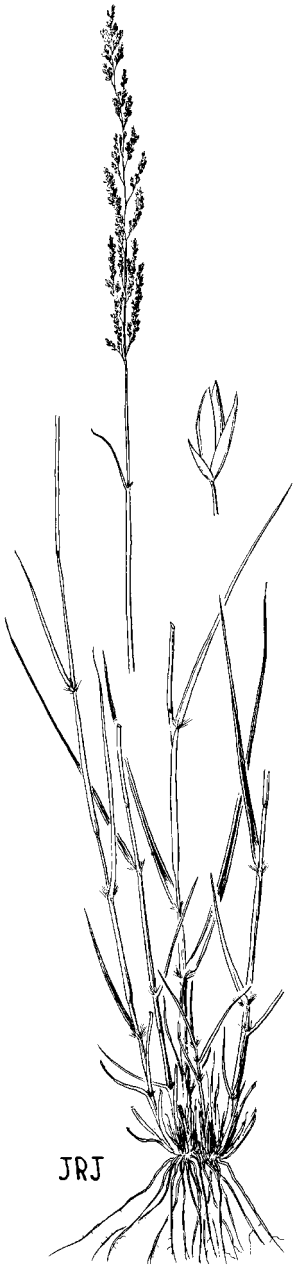
Plant: *Sphenopholis obtusata* is a native species with two varieties. Variety *obtusata* grows 20–80 cm tall. Variety *major* grows 30–110 cm tall. It is a tufted perennial. Variety *major* has a narrow, open flowerhead; and variety *obtusata* has a dense flowerhead.
Leaves and Stem: The smooth or rough or long-haired sheaths are open. There are no auricles. The ligules are 1.5–2 mm long and membrane-like, with rough or toothed margins. Flat leaf blades feel soft-hairy or rough to the touch and are 3–5 mm wide.
Flowerhead and Flowers: The open to spike-like flowerhead is 5–15 cm long, and has upright branches. In both varieties the flowerhead appears crowded with a large number of spikelets along the branches. Spikelets consist of one or two flowers. The glumes are rough-looking; the first is narrow and the second appears almost hood-like or wedge-shaped. Glumes are shorter than the the lemma. Lemmas are oblong and rarely awned.

Habitat: Prairie Wedgegrass grows in moist meadows, shallow ponds, and hot springs in the steppe and montane zones. In the Columbia Basin region, it occurs at Edward's and Loon Lakes in the Grasmere area, Fairmont Hot Springs, and Pilot Bay Provincial Park. Both varieties of this species are Red listed by the B.C. Conservation Data Centre (Douglas et al. 1998).
Similar Species: The dense, spike-like flowerhead, as well as the hood- or wedge-shaped glume, make this a distinctive grass.

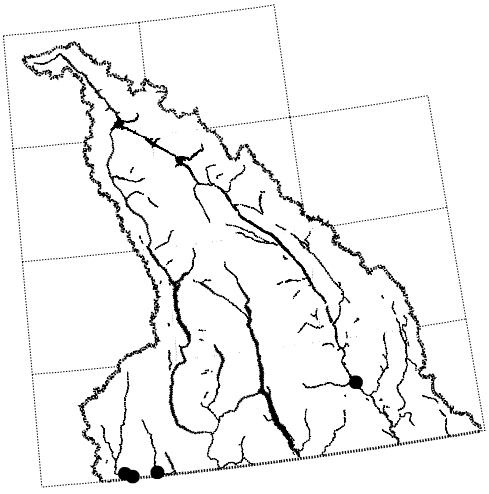


There are about 100 species in the *Sporobolus* genus. It occurs in warm dry habitats (deserts) in the New and Old World. The botanical name derives from the Greek *spora*, for seed, and *ballein*, meaning "to throw," because the seeds often drop or are thrown from their casing.

Sporobolus cryptandrus (Torr.) A. Gray
Sand Dropseed



Plant: *Sporobolus cryptandrus* is a native species that grows 30–70 cm tall. It is a strongly tufted perennial with a somewhat open flowerhead and spikelets to near the branch base.
Leaves and Stem: The stems are solid and strongly grooved. Open sheaths are smooth except along the edges and at the collar (where the sheath meets the blade). Here, a conspicuous ring of white hairs 2–3 mm long are attached. The ligules exist as a fringe of hairs 0.5–0.7 mm long. The smooth, inrolled or flat leaf blades are 2–5 mm wide.
Flowerhead and Flowers: The stiff, upward-pointing branches of the flowerhead have spikelets to near the base and the sheath can often partially enclose the flowerhead. The glumes are sharply pointed and unequal—the first is 1 mm long and the second is nearly twice as long. The lemma is as long as the second glume or slightly longer.
Habitat: Sand Dropseed grows on moderately moist to dry sandy or gravelly sites in the steppe and montane zones. It often occurs with Indian Ricegrass (*Stipa hymenoides*). In the Columbia Basin region, Sand Dropseed occurs at Midway, Grand Forks, and Fort Steele.
Similar Species: There are four species of *Sporobolus* in British Columbia, and two of these—Hairgrass Dropseed (*Sporobolus airoides*) and Rough Dropseed (*Sporobolus asper*)—are Red-listed by the B.C. Conservation Data Centre (Douglas et al. 1998). Neither of these occurs in the Columbia Basin region. Hairgrass Dropseed is more common southward, and Rough Dropseed is found to the south and east, and in British Columbia is known only from Osoyoos and Keremeos.



Although we have kept the *Stipa* species in their traditional grouping, the genus *Stipa* has recently had some rearrangement. The species found in British Columbia have been moved to two genera. The long-awned *Stipa* are now called *Hesperostipa* and are differentiated by the sharp callus that is 1/5 or more the length of the flower and the awns that are 4–30 cm long. The non-long-awned native species have been moved to *Achnatherum*. The new key for the *Stipaea* adapted from Barkworth (1999) has *Achnatherum* separated from *Piptatherum (Oryzopsis)* by callus shape and length, and flower shape. *Achnatherum* is separated from *Hesperostipa* by callus shape and length, as well as by awn length. Those species remaining in *Stipa* are introduced, cultivated species of which there are none in British Columbia. These changes have been part of Hickman (1993) and will be part of the *Manual of Grasses* (Barkworth).

Douglas 1994	**Barkworth 1999**
Stipa comata	*Hesperostipa comata* (Trin. & Rupr.) Barkw.
Stipa curtiseta	*Hesperostipa curtiseta* (A.S. Hitchc.) Barkw.
Stipa spartea	*Hesperostipa spartea* (Trin.) Barkw.
Stipa hymenoides	*Achnatherum hymenoides* (Roemer & Schultes) Barkw.
Stipa nelsonii var. *dorei*	*Achnatherum nelsonii* (Scribn.) Barkw. ssp. *dorei* (Barkw. & Maze) Barkw.
Stipa occidentalis	*Achnatherum occidentale* (Thurber) Barkw. ssp. *pubescens* (Vasey) Barkw.
Stipa richardsonii	*Achnatherum richardsonii* (Link) Barkw.

Stipa species are important range grasses, but the sharp awns of some of the species may hurt grazing stock such as sheep.

Stipa—Adapted from Barkworth (1999) and Douglas et al. (1994)

1a. Callus sharp, 2.5–5 mm long; flowers 4–25 cm long; awns 4–30 mm long (*Hesperostipa*) 2
- **2a.** Lemmas evenly hairy at maturity; tip of awns usually flexible and at right angles to flower axis; ligules of basal leaves thin . . . . *Stipa comata*
- **2b.** Lemmas with lines of hair or evenly hairy at maturity; tip of awn usually straight and parallel to flower axis despite bend lower down on the awn; ligules of basal leaves thick 3
  - **3a.** Lemmas 12–16 mm long; awns 10–17 mm long; lower stem nodes hairy . . . . . *Stipa spartea*
  - **3b.** Lemmas 7–11 mm long; awns 5–9 mm long; lower stem nodes smooth . . . . . *Stipa curtiseta*

1b. Callus blunt to sharp, less than 2 mm long; awns up to 8 cm long (*Achnatherum*) 4

4a. Flowerhead branches open and spreading 5

5a. Awns less than 1 mm long and falling off at maturity. . . . . *Stipa hymenoides*

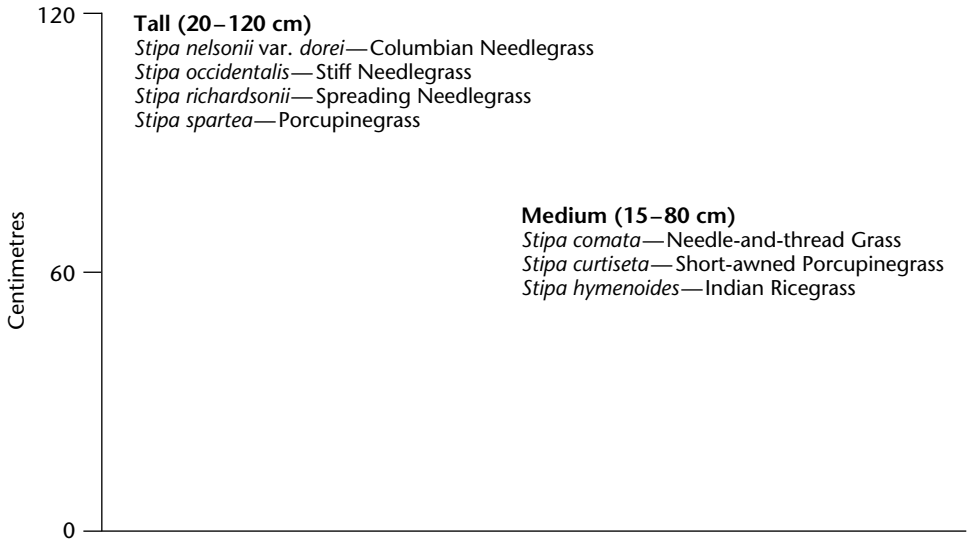
5b. Awns greater than 1 mm long and remaining attached at maturity . . . . . *Stipa richardsonii*

4b. Flowerhead branches pressed close to axis and pointed upwards 6

6a. First segment of awns hairy, with hairs about 1 mm long. . . . . *Stipa occidentalis*

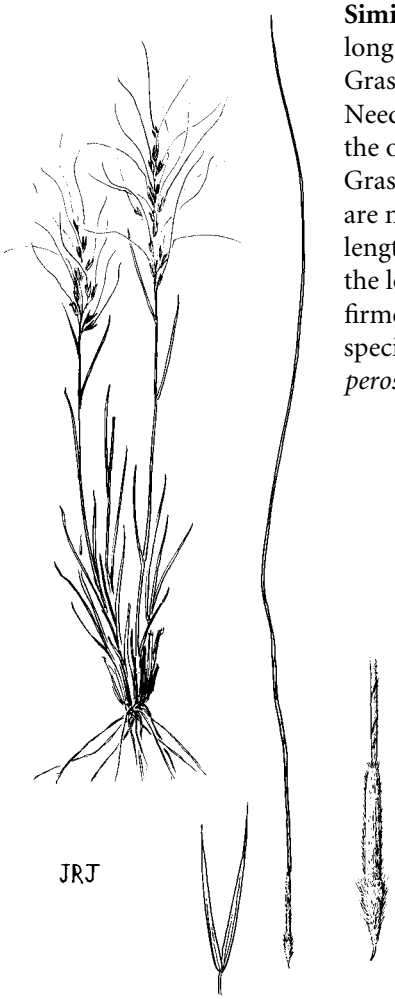
6b. First segment of awns rough, with hairs less than 0.5 mm long. . . . . *Stipa nelsoni*

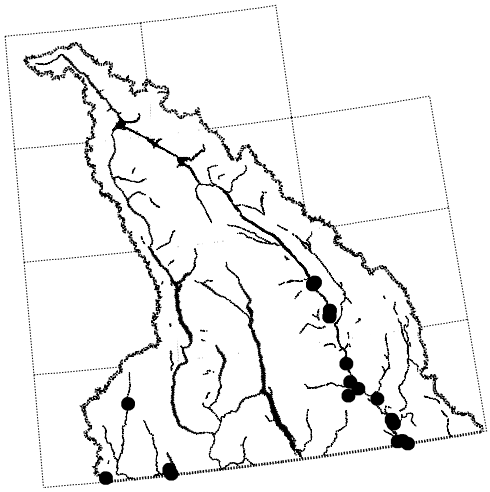
Heights of *Stipa* species



Stipa comata Trin. & Rupr.
Hesperostipa comata (Trin. & Rupr.) Barkw.
Needle-and-thread Grass

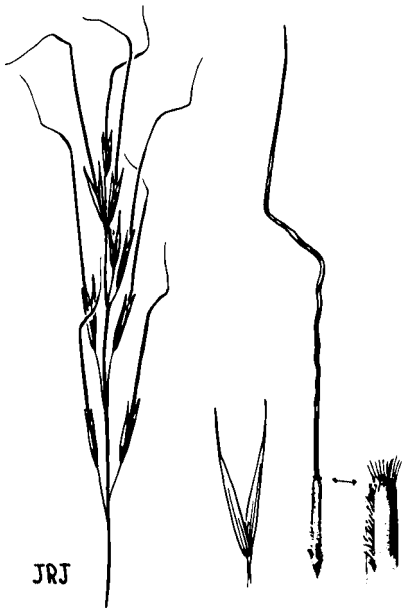
Plant: *Stipa comata* is a native species that grows to 70 cm tall. It is a tufted perennial bearing a somewhat narrowed flowerhead with long awns.
Leaves and Stem: Erect, somewhat leafy stems arise from a tuft of basal leaves. Sheaths are open and there are no auricles. The leaf blades are 1–2 mm wide and usually inrolled. The membrane-like (or at least translucent) ligule is 3–5 mm long and has a rounded and split-to-torn margin.
Flowerhead and Flowers: The flowerhead is somewhat narrow, reaching 7–20 cm long. The one-flowered spikelets are attached close to the central axis of the flowerhead. There are two, almost equal, narrow, persistent glumes, ranging from 15 to 25 (mostly 20) mm long. The lemmas are 8–12 mm long, hardened, and attached at the base to a sharp-pointed callus. The callus and the lemma are covered in stiff hairs, but the covering on the lemma surface is sparse. The long, slender awns twist many times from the tip of the lemma and bend once or more along their length. The awn tip is usually flexible. Awns may reach 15 cm long.
Habitat: *Stipa comata* grows widely in dry, open valley bottoms and adjacent slopes in much of the Columbia Basin region and specimens have been collected at Invermere, Kikomun Provincial Park, Cranbrook, and Columbia Lake. It is a characteristic grassland species.
Similar species: Needle-and-thread Grass can be confused with two other long-awned species in the Columbia Basin region: Short-awned Porcupine Grass (*S. curtiseta*) and Porcupinegrass (*S. spartea*). The tips of the awns of Needle-and-thread Grass are usually flexible and curved, whereas those of the other two species tend to be straight. The lemmas of Needle-and-thread Grass have hairs over the entire surface, whereas those of the other species are more or less hairless or have hairs arranged in zones (lines) along the length of the lemma, leaving narrow strips or grooves hairless. The ligules of the lower and basal leaves are thin in Needle-and-thread Grass and thick and firmer in the other two species. Porcupinegrass is an uncommon Blue-listed species with 10- to 18-cm-long awns. Needle-and-thread Grass is called *Hesperostipa comata* in Hickman (1993).

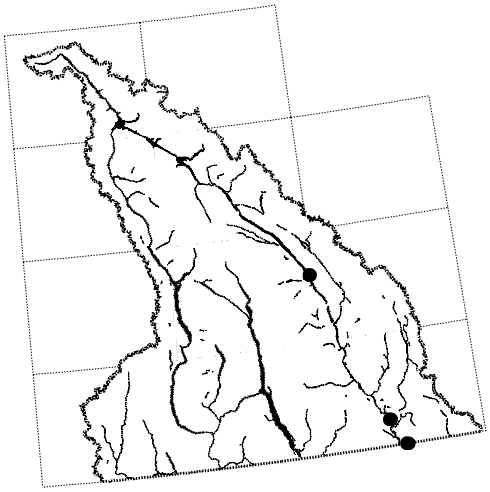




Stipa curtiseta (A.S. Hitchc.) Barkw.
Hesperostipa curtiseta (A.S. Hitchc.) Barkw.
Short-awned Porcupine Grass

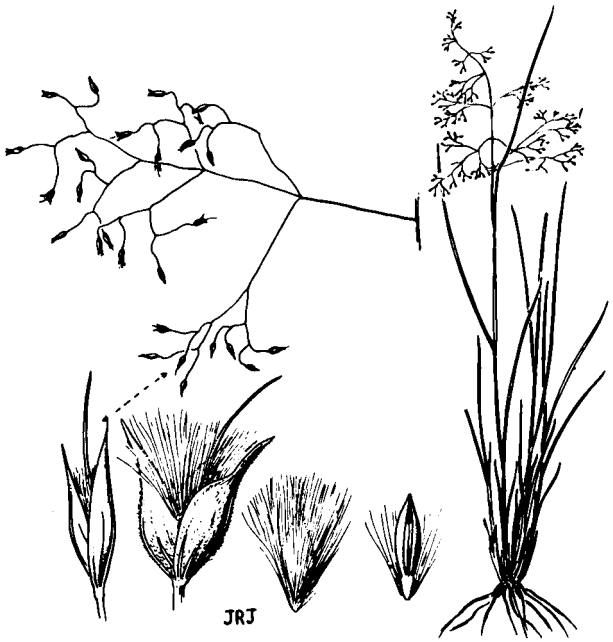
Plant: *Stipa curtiseta* is a native species that grows 30–80 cm tall. It is a tufted perennial bearing a somewhat narrowed flowerhead with long awns.
Leaves and Stem: Erect, somewhat leafy stems arise from a tuft of basal leaves. Sheaths are open and there are no auricles. Flat to inrolled leaf blades are 2–5 mm wide. The stiff, relatively thickened, relatively short ligule is 0.5–3 mm long and has a rounded and somewhat hairy margin. Ligules of the lower and basal leaves tend to be short and thickened.
Flowerhead and Flowers: The flowerhead is narrowed, reaching 10–20 cm long. The one-flowered spikelets are attached to branches held close to the central axis. There are two, narrow, almost equal glumes that are 2–3 cm long, and longer than the lemma (not including the awn). The lemmas are 7.5–11 mm long, hardened, and attached at the base to a sharp-pointed callus. The callus is covered in stiff hairs. The lemma surface may be smooth or covered in hairs arranged in lengthwise strips or lines. Between the strips there are smooth areas or grooves. The slender awns twist many times from the tip of the lemma, and bend once or more along their length. The awn tip is usually straight. Awns range from 5 to 9 cm long.
Habitat: Short-awned Porcupine Grass occurs on dry, open slopes of lower elevations throughout the Columbia Basin region. It has been collected at Kikomun Creek Provincial Park, Roosville, and Radium Hot Springs.
Similar Species: See the description for Needle-and-thread Grass. Short-awned Porcupine Grass is separated from the very similar Porcupinegrass most easily on the basis of awn length. The awns of Short-awned Porcupine Grass are less than 10 cm long and the lemmas are also relatively short (7.5–10 mm). Both lemmas and awns of Porcupinegrass are longer. Porcupinegrass is an uncommon Blue-listed species found mainly around Castlegar, whereas Short-awned Porcupine Grass is more widespread, based on the Royal BC Museum's Herbarium records. Hitchcock et al. (1969, p. 717) consider this to be a somewhat dwarfish phase of Porcupinegrass.

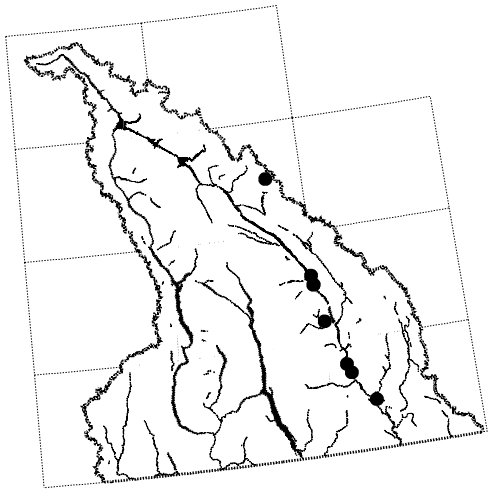




Stipa hymenoides Roem. Schult.
Achnatherum hymenoides (Roem. & Schult.) Barkw.
Oryzopsis hymenoides [Roem. & Schult.] Ricker in Piper
Indian Ricegrass

Plant: *Stipa hymenoides* is a native species that grows 30–60 cm tall. It is a densely tufted perennial with several stiff stems and an open, branched flowerhead.
Leaves and Stem: Several stems arise from a tuft of 1-mm-wide, long leaves. Sheaths are open and there are no auricles. The leaves are generally smooth and strongly inrolled. The smooth-edged to torn ligules are 6 mm long and easy to see.
Flowerhead and Flowers: The wide, open flowerhead is 8–16 cm tall and has spikelets distributed at the tips of widely spread branches. Each spikelet has a single flower with rounded and pointed glumes that are 5–9 mm long and wrap around the flower. One glume is slightly longer than the other and exceeds the lemma—which is 4–6 mm long—but not its awn. An obvious mass of dense, long, white hairs covers the dark (reddish) oval lemma. A stout, 4- to 6-mm-long awn extends from the tip of the lemma.
Habitat: Indian Ricegrass grows at low elevations in dry, open grasslands and slopes, especially on rocky or sandy soils. It is scattered throughout the Columbia Basin region at locations such as Windermere Lake, Wasa, Canal Flats, and Yoho National Park.
Similar Species: The rounded glumes in combination with long lemma hairs are unlike those of other *Stipa* species. The persistent awns and broad flowerhead differentiate Indian Ricegrass from *Oryzopsis* species.

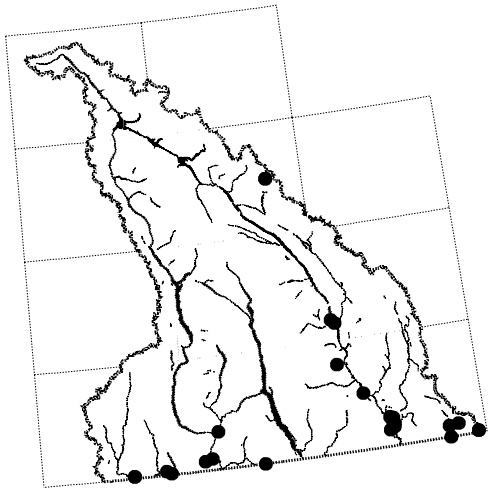




Stipa nelsonii Scribn. var. ***dorei*** Barkw. & Maze
Stipa columbiana auct. non Macoun
Columbian Needlegrass

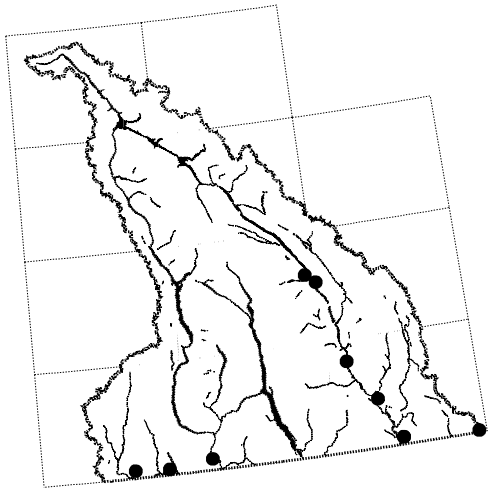
Plant: *Stipa nelsonii* is a native species that grows 10–120+ cm tall. It is a tufted perennial with a narrow, spike-like, bristly flowerhead.
Leaves and Stem: Open sheaths vary from smooth to densely hairy. There are no auricles. Inrolled to flattened leaf blades are 1–4 mm wide and 10–30 cm long. The ligules are 0.2–1.2 mm long and have a rounded to chopped-off form.
Flowerhead and Flowers: The narrowed flowerhead ranges from 9 to 30 cm long. Branches (as many as six at the lowest node) are straight and more or less pressed against the axis (appressed and ascending). The narrowed glumes are longer than the single flower. Of the two glumes, one is slightly longer than the other (6.4–10.5 mm long). The lemma is 4–6 mm long and covered in white hairs. Awns are 2–3 cm long and twice bent. The lowest segment of the awn is rough, but not covered in hairs.
Habitat: Columbian Needlegrass is a native species that grows in open, mesic to dry slopes and forest openings from valley bottoms to subalpine elevations. In the Columbia Basin region it grows at Fairmont Hot Springs, Natal, Midway, Trail, Kikomun Creek Provincial Park, and Grand Forks. In the Columbia Basin region, Columbian Needlegrass increases after prescribed burns in the spring (G. Berg, pers. comm. 1999).

Similar Species: Columbian Needlegrass has a narrowed, somewhat spike-like flowerhead compared to Spreading Needlegrass (*Stipa richardsonii*). The first two segments of the awns of Columbian Needlegrass have short hairs or are only rough, whereas those of Stiff Needlegrass (*S. occidentalis*) have 1-mm-long hairs. For more details on this species and its relationship to related species, consult Barkworth et al. (1979).



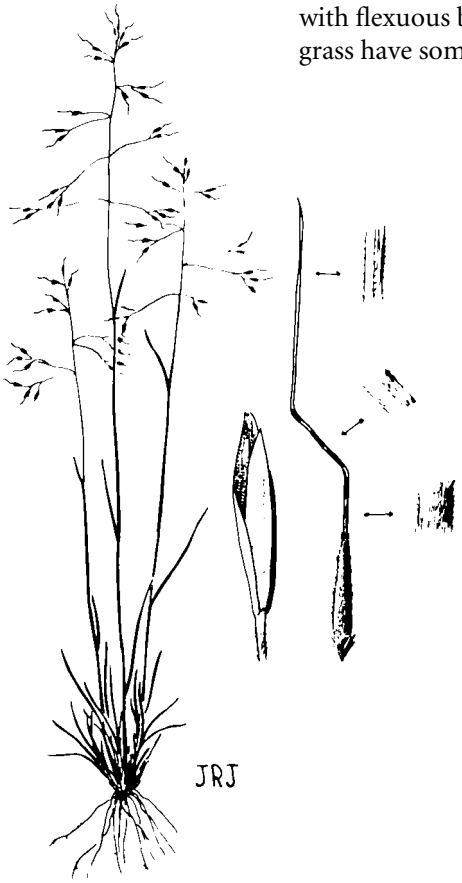
Stipa occidentalis Thurb. ex S. Wats. var. ***pubescens*** Maze, Taylor & MacBryde
Achnatherum occidentale (Thurber) Barkw.
ssp. ***pubescens*** (Vasey) Barkw.
Stiff Needlegrass

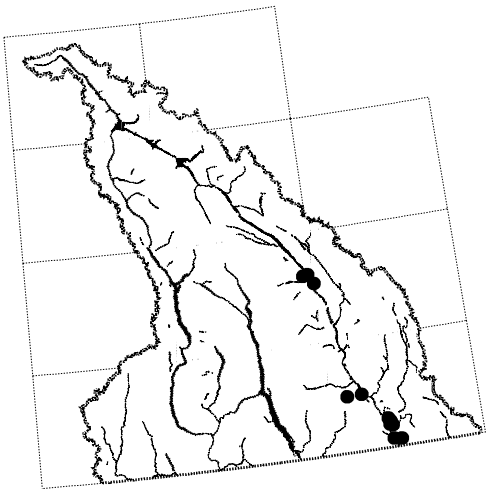
Plant: *Stipa occidentalis* is a native species that grows 40–120 cm tall. It is a strongly tufted perennial with a medium to long, spiky and bristly flowerhead.
Leaves and Stem: Sheaths are open and smooth or hairy. There are no auricles. The leaves are 1–5 mm wide, stiff, and usually inrolled. The ligule is about 0.5 mm long.
Flowerhead and Flowers: The flowerhead is 8–20 cm long, narrow, and spike-like, with protruding, bristly awns. The two nearly equal glumes are longer than the single flower. A 3- to 4-cm-long bent, twisted awn extends from the tip of the hairy lemma. The lowest two segments of the twice-bent awn are covered in hairs, making them look feathery.
Habitat: Stiff Needlegrass occurs on open, dry, grassy slopes and in forest openings from valley bottom to mid-slope. It has been collected from Tobacco Plains, Invermere, Midway, and Mount Morrissey in the Columbia Basin region.
Similar species: Stiff Needlegrass has a narrowed to somewhat spike-like flowerhead compared to Spreading Needlegrass. The first two segments of the awns of Stiff Needlegrass have 1-mm-long hairs, whereas those of the similar Columbian Needlegrass have short hairs, or are only rough.



Stipa richardsonii Link
Achnatherum richardsonii (Link) Barkw.
Spreading Needlegrass

Plant: *Stipa richardsonii* is a native species that grows 40–100 cm tall. It is a tufted, often purplish perennial with a sparse, open, drooping flowerhead.
Leaves and Stem: Several stems rise from a tuft of basal leaves. Leaf sheaths are open and smooth to slightly hairy. There are no auricles. The leaf blades are 1.5–3.0 mm wide and usually folded to slightly inrolled, and may feel a little rough. The ligules are 0.5 mm long and higher at the sides than at the middle.
Flowerhead and Flowers: The sparse, open flowerhead ranges from 7 to 20 cm high. Its spreading branches often droop and have only a few single-flowered spikelets near the tips. The two narrow glumes (8–10 mm long) are slightly longer than the first flower (not including the awn). One glume is noticeably shorter than the other. The lemma is 5–6 mm long and bears an 18- to 25-mm-long awn at the tip. The awn is twice bent, of which the first segment is hairy, the second segment less hairy, and the last portion is only rough to the touch.
Habitat: Spreading Needlegrass grows in low-elevation grasslands and montane openings in forests, most often with pines or Douglas-fir. Spreading Needlegrass may form solid stands at the edge of the forest. It occurs throughout the Columbia Basin region and has been collected at Radium Hot Springs, Invermere, Kikomun Creek Provincial Park, and Waldo (now submerged under Lake Koocanusa).
Similar Species: Spreading Needlegrass has an open, spreading flowerhead with flexuous branches, whereas Stiff Needlegrass and Columbian Needlegrass have somewhat spike-like flowerheads.





Stipa spartea Trin.
Hesperostipa spartea (Trin.) Barkw.
Porcupinegrass

Plant: *Stipa spartea* is a native species that grows 70–120 cm tall. It is a tufted perennial that bears a somewhat narrowed flowerhead with extremely long awns.
Leaves and Stem: Erect, somewhat leafy stems arise from a tuft of basal leaves. Sheaths are open and there are no auricles. Flat to inrolled leaf blades are 1–5 mm wide. The thickened ligule is 0.5–3 mm long and has a rounded and somewhat hairy margin. Ligules of lower and basal leaves tend to be short and thickened.
Flowerhead and Flowers: The flowerhead is somewhat narrowed, reaching 10–20 cm long. The one-flowered spikelets are attached close to the central axis. There are two glumes that are almost equal, 3–4 cm long, narrow, and much longer than the lemma (not including the awn). The lemmas are 12–16 mm long, hardened, and attached at the base to a sharp-pointed callus. The callus is covered in stiff hairs. The lemma surface may be smooth or covered in hairs arranged in zones or strips. Between the strips there are smooth zones or grooves. The slender awns twist many times from the tip of the lemma, and bend once or more along their length. The awn tip is usually straight. Awns range from 10 to 17 cm long.
Habitat: Porcupinegrass grows in open, grassy habitats of lower valley slopes. It is known from Castlegar in the Columbia Basin region, but may occur at other scattered localities. Porcupinegrass has not been recently collected in the Columbia Basin region, and is Blue listed by the the B.C. Conservation Data Centre. There is no specimen of it from the Columbia Basin region in the Royal BC Museum's collection.
Similar Species: Porcupinegrass is most easily recognized by its extremely long, twisted awns. See Needle-and-thread Grass and Short-awned Porcupine Grass. Porcupinegrass is included by some authors in *Hesperostipa*.