

Engelmann's Spike-rush (*Eleocharis engelmannii*)

Cyperaceae (Sedge Family)

RANGE

- In North America east to Ontario and south across most of the continental United States
- In British Columbia, known from two sites near Kamloops and two sites further south, one at Ellison Lake and the other east of Osoyoos near the US border

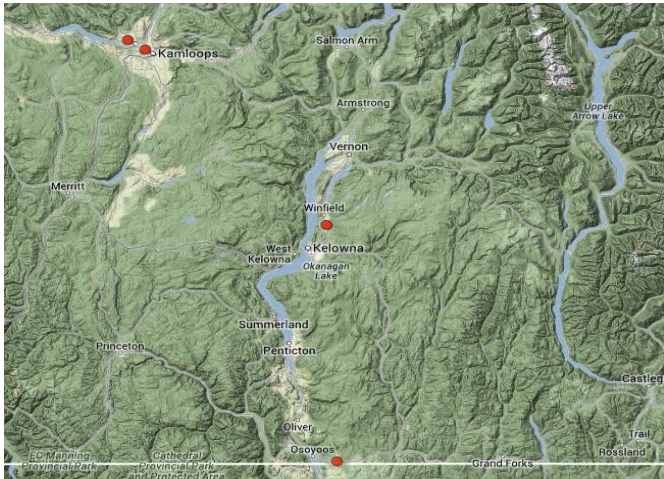


Figure 1 B.C. distribution of *Eleocharis engelmannii* (adapted from BC CDC 2014)

HABITAT

- Moist, seasonally flooded meadows, muddy or sandy receding shorelines and drainage channels of the Ponderosa Pine and Bunchgrass Biogeoclimatic Zones
- Associates include hairy water-clover (*Marsilea vestita*), toothcup meadow-foam (*Rotala ramosior*), other species of spike-rushes (*Eleocharis* spp.) and nut-sedges (*Cyperus* spp.)



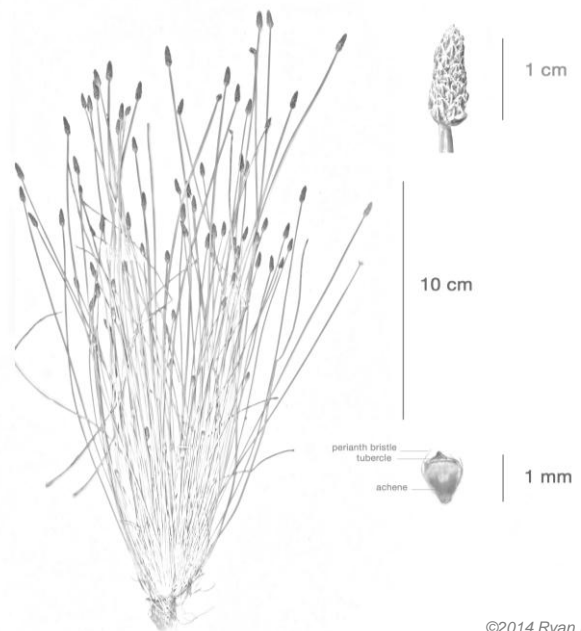
Figure 2 Late season senescing plants in drainage channel



Figure 3 Early and late season spikelets of *Eleocharis engelmannii*

LIFE HISTORY

- Annual, wind-pollinated species that grows each year from seed, flowering in the summer
- Germination and development seem to depend on the recession of spring high water levels, exposing the mudflats and sandy shorelines on which the species depends
- Mature achenes are produced in the late summer and fall, then float to new sites during the winter inundation period or are distributed by waterfowl
- May not appear in some years due to persistent high water levels



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Figure 4 *Eleocharis engelmannii* herbarium specimen photos converted to line drawing

Eleocharis engelmannii (continued)

DESCRIPTION

General

- Tufted annual with fibrous roots, producing erect stems 5 to 40 cm tall

Leaves

- Leaves shorter than the stems, with a small tooth 0.3 mm long at top of sheath (basal part of leaf that surrounds stem)

Flowers

- Spikelets usually lance-shaped to elongate-elliptic, 5 to 10 (15) mm long
- 25 to 100+ scales (which cover achene and stamens), orange-brown to straw coloured with a green central mid-vein, transparent margin and usually rounded apex, covering stamens (rarely 2) 3 with brown to yellow anthers
- Perianth bristles brown, not or slightly surpassing tubercle (hat-like portion on the top of the achene)

Fruits

- Mature achenes reddish-brown, about 1 mm long by 0.7 to 1.1 mm wide
- Tubercles broadly triangular, 0.1 to 0.3 mm high by 0.7 to 1.1 mm wide, usually as broad as top of achene



Figure 5 Comparison of mature *Eleocharis* achenes showing perianth bristles (arrow)

IDENTIFICATION TIPS

- May often occur with other *Eleocharis* species: when population numbers permit, collections with mature achenes are required to make reliable identification
- Most often confused with obtuse spike-rush (*E. obtusa*), can be distinguished from this species by its ±flat-topped achene with a shorter tubercle and usually shorter perianth bristles
- Also similar to red-listed ovate spike-rush (*E. ovata*) but with a wider tubercle much broader than high



Figure 6 *Eleocharis engelmannii* achenes showing colour variation

GENERAL THREATS AND GUIDANCE

- **Avoid development in areas with known occurrences of *Eleocharis engelmannii* through project relocation or redesign**
- Protect marshes and wet meadows near ponds/lakes from disturbance and development, including exclusion of livestock and ATVs through fencing, and consider restoration including invasive plant removal following professional advice
- Ensure roadside maintenance activities do not disturb this species and its habitat
- Follow provincial methods for when and how to conduct plant species at risk surveys
- Follow provincial policy and guidance on how to avoid, minimize, restore and offset impacts to plant species at risk and their habitats
- Report any sightings to the B.C. Conservation Data Centre (cdcddata@gov.bc.ca) and FLNR Ecosystems Section (josie.symonds@gov.bc.ca)

REFERENCES

- B.C. Conservation Data Centre. 2014. <http://a100.gov.bc.ca/pub/eswp/>
- Smith, G. E. et al. 1997. *Eleocharis*. In: Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 16+ vols. New York and Oxford. Vol. 23, 103 pp
- Larson, B.M. and P.M. Catling. 1996. The separation of *Eleocharis obtusa* and *Eleocharis ovata* (Cyperaceae) in Eastern Canada. Can. J. Bot. 74: 238-242

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