

Juncus kelloggii

English name Kellogg's Rush

Scientific name *Juncus kelloggii*

Family Juncaceae (Rush)

Other English names Kellogg's Dwarf Rush

Other scientific names *Juncus brachystylus*; *Juncus triformis* var. *brachystylus*

Risk status

BC: critically imperilled (S1); red-listed; Conservation Framework Highest Priority – 2 (Goal 3, Maintain BC diversity)

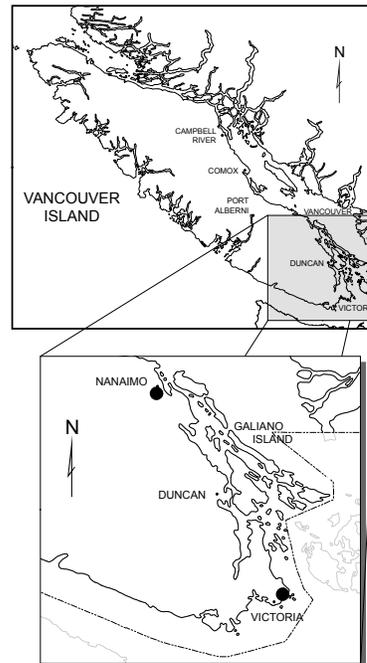
Canada: National General Status – at risk (2010); COSEWIC – Endangered (2003)

Global: vulnerable (G3?)

Elsewhere: Washington – critically imperilled (S1), listed as threatened; California, Idaho, Nevada, and Oregon – reported (SNR)

Range/Known distribution

Kellogg's Rush occurs in western North America from southwestern British Columbia south through Washington and Oregon to southern California (west of the Sierra Nevada). A few occurrences are also known east of the Sierra Nevada and Cascade ranges in Nevada and Idaho. In Washington, it is known only from the extreme southern part of the state at a single location along the Columbia River (Klickitat County). In Canada, this species is restricted to southeastern Vancouver Island where it is known from two locations, one site near Victoria and one site near Nanaimo. There are no known historical occurrences in British Columbia.



Distribution of *Juncus kelloggii*

● Recently confirmed sites

Species at Risk in Garry Oak and Associated Ecosystems in British Columbia



Juncus kelloggii

Field description

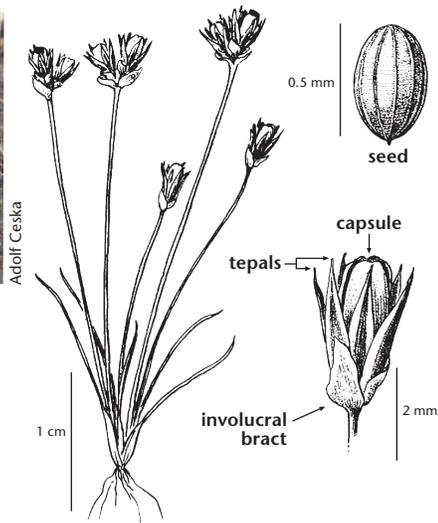
Kellogg's Rush is a tiny, inconspicuous annual herb that grows from a short, fibrous root. **Stems are erect, 0.4-4 cm tall. Leaves are basal, linear, bristle-like,** nearly circular in cross-section, and tapered. **Flowers occur singly** or in pairs at the top of a leafless stem. The **perianth (petals and sepals) segments are brown or reddish-brown, 2.5-3.5 mm long,** pointed, and unequal. There are 3 stamens. The 0.4 mm long anthers are shorter than the filaments. **Involucral bracts (bracts below the flowers) are scale-like and inconspicuous.** The fruit is a blunt capsule and is as long as the perianth segments. The barrel-like seeds have prominent longitudinal ribs and honeycombed cross-walls. The seeds are about 0.4 mm long and lack tail-like appendages (a feature common to some *Juncus* species). Each capsule contains approximately 50 seeds.

IDENTIFICATION TIPS

This plant is extremely small and can be easily overlooked. Kellogg's Rush potentially may be confused with Toad Rush (*Juncus bufonius*), another small, annual rush which can grow with it. The latter species has an involucral bract that appears as a continuation of the stem, whereas Kellogg's Rush has only scale-like involucral bracts. Slender (or Dwarf) Plantain (*Plantago elongata*) can also appear superficially similar to Kellogg's Rush, but flowers of Slender Plantain occur in a compact spike (1-10 cm long), and individual flowers have more conspicuous, egg-shaped, spurred involucral bracts. Kellogg's Rush is identifiable April through July.



Juncus kelloggii



Species at Risk in Garry Oak and Associated Ecosystems in British Columbia

Juncus kelloggii

Life history

Flower production is triggered by long days and flowers remain open for only a few hours. The species is known to be both self- and cross-pollinated, but no insects have been observed visiting the flowers. Seeds of other species in the *Juncus* complex require a cold period for germination and usually germinate approximately two days after treatment. Germination conditions for Kellogg's Rush have not been specifically determined, although some germination trials have found that not all seeds germinate in the same year, implying the existence of a persistent seed bank. Population sizes are known to fluctuate dramatically between years, presumably in response to changes in seasonal precipitation. Seed dispersal is possibly by birds that may pick up the seeds in their feet and/or feathers from muddy soils.

Habitat

Generally, Kellogg's Rush is found in seasonally wet depressions and vernal pools throughout its range. It is often found in low spots in fields and meadows. Plants growing with this species in British Columbia include the red-listed Tall Woolly-heads (*Psilocarphus elatior*) and Muhlenberg's Centaury (*Centaureum muehlenbergii*), Winged Water-Starwort (*Callitriche marginata*), Toad Rush (*Juncus bufonius*), Chaffweed (*Anagallis minima*), and Heterocodon (*Heterocodon rariflorum*). Introduced grasses, such as Soft Brome* (*Bromus hordeaceus*), Hedgehog Dogtail* (*Cynosurus echinatus*), Common Velvet-grass* (*Holcus lanatus*), and Orchard-grass* (*Dactylis glomerata*) are also present. Kellogg's Rush requires sites that are moist to wet in the winter and spring, but that dry up during the summer. In other parts of the range, this species occurs on sandy, silty, or clay-rich soils. The wet period is necessary for germination and growth, and annual flooding followed by desiccation potentially reduces competition by other plants. Other annual *Juncus* species are not strong competitors and are therefore usually found growing on bare ground. Elevations: 10-200 m.

Why this species is at risk

One of the occurrences of this species in British Columbia is in a public park (Uplands Park in Oak Bay, west of Victoria) in areas that are subject to frequent foot traffic. Annual population counts have varied from three to over 1,000 plants. The size and status of the population near Nanaimo is not well-known. The extreme rarity of this species in Canada means it is extremely vulnerable to extirpation from Canada, although it is possible that additional sites may be found. Vernal pool habitats are fragile habitats that are vulnerable to alteration. The main threats to the species include human disturbance from trampling or off-road vehicles, and activities that would alter the hydrology of occupied sites, such as soil compaction, trail construction, or road building. Tree and shrub species, such as Common

Species at Risk in Garry Oak and Associated Ecosystems in British Columbia





Juncus kelloggii

Snowberry (*Symphoricarpos albus*) and Scotch Broom* (*Cytisus scoparius*), as well as invasive grasses, may also encroach on the outer edges of occupied sites and provide competition and shading, although they are unlikely to overtake the low-lying seasonally wet sites.

As an annual species, Kellogg's Rush is more likely to be affected by climate change than many other species. Climatic fluctuations which affect annual temperature and rainfall patterns may affect factors such as moisture availability, germination timing, and seedling survival, potentially leading to population declines.

What you can do to help this species

Management practices should be tailored to the needs of the site. Potential management tools will depend on the specific circumstances and may require experimentation prior to implementation. **Before taking any action, expert advice should be obtained, and no action taken without it. Please refer to the introductory section of this manual.**

Public and private landowners should be made aware of new populations of this species if they are discovered, and appropriate management practices suggested. Management needs include protecting the natural hydrology of occupied sites, limiting access to sensitive habitat, and removing invasive species. Regular inventories of known populations should be conducted to monitor their status and identify any negative impacts. Efforts should also be undertaken to search for new populations.

References

- COSEWIC. 2003. COSEWIC assessment and status report on the Kellogg's rush *Juncus kelloggii* in Canada. Committee on the Status of Endangered Wildlife in Canada, Ottawa, Ontario. vi + 13 pp.
- Costanzo, B. 2002. Stewardship Account for Kellogg's Rush *Juncus kelloggii* Engelm. Prepared for the Garry Oak Ecosystems Recovery Team, Victoria, British Columbia.
- Ertter, B. 1986. The *Juncus triformis* Complex. Memoirs of the New York Botanical Garden. 39: 1-90.

For further information, contact the Garry Oak Ecosystems Recovery Team, or see the web site at: www.goert.ca.

Line art reprinted with permission of University of Washington Press. Photograph reprinted with permission of Adolf Ceska.

© 2011

*Refers to non-native species.

Species at Risk in Garry Oak and Associated Ecosystems in British Columbia