

Epilobium torreyi – Brook Spike-primrose

English name Brook Spike-primrose

Other English name Dense-flower Spike-primrose, Denseflower Willowherb

Scientific name *Epilobium torreyi* (S. Wats.) Hoch & Raven

Other scientific name *Boisduvalia stricta* (Gray) Greene, *Oenothera densiflora* Lindl. var. *tenella* Gray, *Oenothera torreyi* Wats.

Family *Onagraceae* (Evening Primrose Family)

Risk status

BC: historical (SH); red-listed

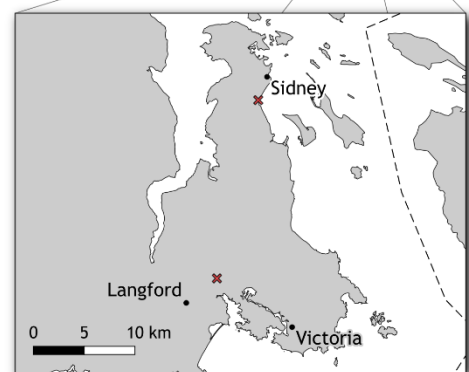
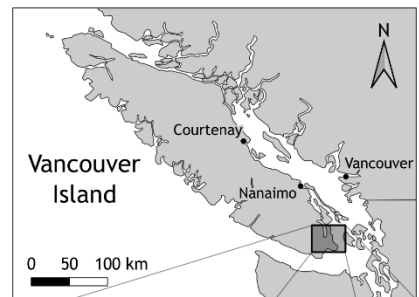
Canada: Endangered

Global: secure (G5)

Elsewhere: Washington, Oregon, California, Idaho not ranked (SNR); Nevada vulnerable (S3)

Range/Known distribution In Canada, Brook Spike-primrose was known from two low elevation sites near Victoria. It has not been seen at the McTavish Road site since it was collected there in 1966 and it has not been seen at the other site (Craigflower Meadow) since 1993. It is found in the Puget Trough and the Coast Ranges, but it is generally rare west of the Cascades in Washington State. It is much more frequent in the Willamette Valley, and southwards through the trough between the Coast and Cascade Mountains to California. East of the Cascades it ranges from the Selkirk Mountains, about 60 km south of the border with Canada south to northern Nevada. In California it is widespread in the Coastal Ranges, the Central Valley, and the Sierra Nevadas south to the San Bernardino Mountains east of Los Angeles.

Field description Brook Spike-primrose is an erect, taprooted annual herb with simple or branched stems up to 60 cm tall. The lowest leaves, which are oppositely arranged, wither early. The middle and upper leaves are alternate. The long, narrow leaves have little or no petiole and may be entire or remotely fine-toothed. The stem and leaves are usually densely covered with short hairs. The open, erect spikes have small erect flowers, which are solitary in the leaf axils. The 1-3 mm long, shallowly-notched petals are fused into a short tube below, but free above. The petals are pink or



Distribution of *Epilobium torreyi*
× Extirpated Sites

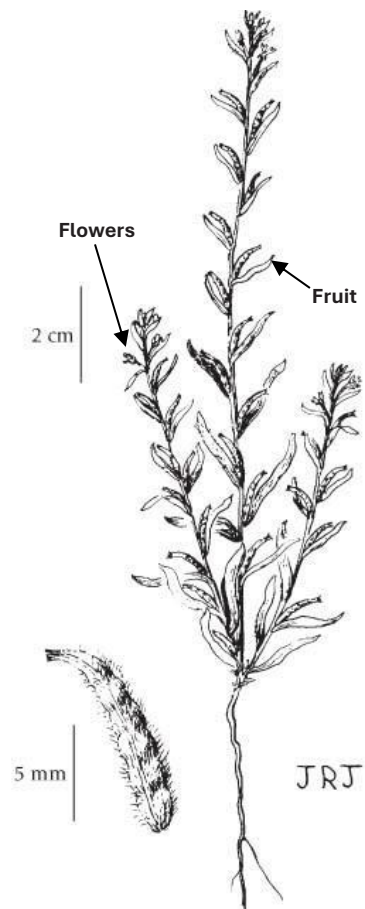
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occasionally white. The fruits are hairy, spindle-shaped capsules 8-14 mm long with 2-3 mm long beaks. The miniscule seeds lack a terminal tuft of hairs.

Identification tips *Epilobium* is a large genus composed of both native and non-native species, but the seeds of almost all species have a tuft of long hairs that allows them to catch and float on the wind. Dense Spike-primrose (*Epilobium densiflorum*) is the only other species of *Epilobium* that lacks the hair tuft and occurs within the Canadian range of Brook Spike-primrose. When not in flower the two species may look similar, although Brook Spike-primrose rarely has well-developed teeth along its leaf margins. The flowers of Brook Spike-primrose, however, are longer (3-10 mm) and are somewhat hidden by their bracts. The fruits of Dense Spike-primrose lack evident beaks, and the central axis of the fruit and the internal walls remain intact when it opens to release the seeds. The two species may occur as mixed populations.



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Life history Brooke Spike-primrose is an annual forb that probably germinates in the winter and early spring; produces flowers and fruits in early- to mid-summer; and then dies. It self-pollinates (most flowers pollinate internally without even opening up). The seeds are shed in mid- to late-summer. Lacking evident structures to aid dispersal, most seeds probably remain close to the parent plant.

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Habitat In Canada, Brooke Spike-primrose grew in open areas that are wet in the winter and very dry by mid-summer. This appears to have included vernal pools and ditches.

Why this species is at risk The McTavish Road population likely disappeared due to road management and/or competition from invasive species. The Craigflower Meadow population co-occurred in an abandoned weedy, winter-wet field with Dense Spike-primrose, and it is not clear why it appears to have been dwindling or extirpated while Dense Spike-primrose persists.

Many populations were probably threatened by invasive species, which tend to thrive in the moist, disturbed habitats Brook Spike-primrose favours and compete with it for space and nutrients. Common invasive competitors are grasses such as Creeping Bentgrass* (*Agrostis stolonifera*), Sweet Vernal Grass* (*Anthoxanthum odoratum*), Common Velvet Grass* (*Holcus lanatus*), and Soft Brome* (*Bromus hordeaceus*) flourish in areas that may have once supported Brook Spike-primrose. Invasive forbs such as Hairy Cat's-ear* (*Hypochaeris radicata*), Oxeye Daisy* (*Leucanthemum vulgare*), Ribwort Plantain* (*Plantago lanceolata*), Creeping Buttercup* (*Ranunculus repens*), Sheep Sorrel* (*Rumex acetosella*), and Common Vetch* (*Vicia sativa*) also frequently dominate in such areas.

Brook Spike-primrose may also have suffered because fire suppression favours the development of trees and shrubs that shaded it out.

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. Public and private landowners should be made aware of new populations of this species if they are discovered, and appropriate management practices suggested. If Brook Spike-primrose is rediscovered in Canada, care should be taken to document the threats it faces so that it can be properly managed.

Brook Spike-primrose may be better managed by protecting its habitat from development and, if it is discovered in an area that gets mowed, deferring mowing until the seeds have been released. The the clippings should be removed to prevent the accumulation of thatch which could smother the seeds. If invasive shrubs threaten a population of Brook Spike-primrose they can be removed. Unfortunately, most of the competing invasive herbaceous species are difficult to control.

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References

- COSEWIC 2006. COSEWIC assessment and status report on the brook spike-primrose *Epilobium torreyi* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 17 pp. (www.sararegistry.gc.ca/status/status_e.cfm).
- Parks Canada Agency. 2013. Recovery Strategy for the Brook Spike-primrose (*Epilobium torreyi*) in Canada. Species at Risk Act Recovery Strategy Series. Parks Canada Agency, Ottawa. vi + 21 pp.

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

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