

Epilobium densiflorum – Dense Spike-primrose

English name: Dense Spike-primrose

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

Scientific name: *Epilobium densiflorum* (Lindl.) Hoch & Raven

Other scientific name: *Boisduvalia densiflora* (Lindl.) Wats., *Oenothera densiflora* Lindl.

Family *Onagraceae* (Evening Primrose Family)

Risk status

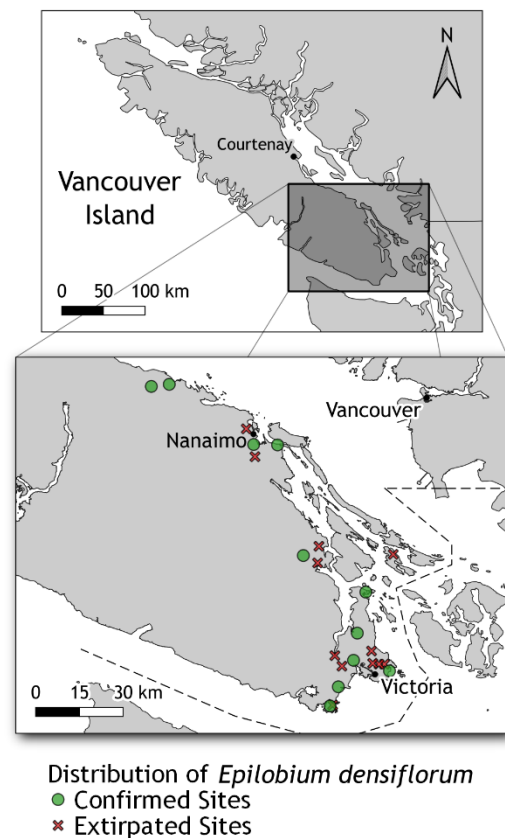
BC: imperilled (S2); red-listed

Canada: Endangered

Global: secure (G5)

Elsewhere: Washington, Oregon, California, Arizona not ranked (SNR); Utah critically imperilled (S1); Montana historic (SH); Nevada vulnerable (S3)

Range/Known distribution: In Canada, Dense Spike-primrose is found at low elevation coastal locations from Parksville to Sooke and in the southern Gulf Islands. It continues into the San Juan Islands and the Puget Trough as far as the Seattle-Tacoma area. At that point there appears to be a gap, with the next nearest populations to the south in the area of Portland, and from there south through the Willamette Valley to much of California. It also occurs to the east in the dry basin between the Cascade and the Rocky Mountains (where it occurs as far north as Spokane, as far west as Idaho) and from there southwards.



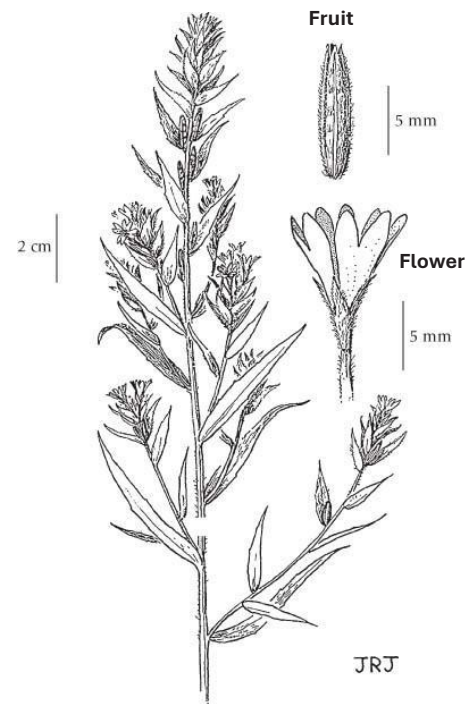
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Field description: Dense Spike-primrose is an erect, taprooted annual herb with simple or branched stems up to 60 cm tall. The lowest leaves, which are oppositely arranged, wither early. The middle and upper leaves are alternate. The long, narrow leaves have little or no petiole and may be entire or sharply toothed. The stem and leaves are usually densely covered with short hairs. The congested, erect spikes have small erect flowers, often somewhat obscured by larger bracts. The 3-10 mm long, deeply-notched petals are fused into a short tube below, but free above. The petals are rose, magenta, pink or occasionally white. The fruits are hairy, spindle-shaped capsules 4-10 mm long with beaks less than 0.5 mm long. The capsules split open into four valves with the interior central axis of the fruit and the attached internal walls of the fruit persisting. 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 float on the wind. Brook Spike-primrose (*Epilobium torreyi*) is the only other species of *Epilobium* that lacks the hair tuft and occurs within the Canadian range of Dense 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 rarely more than 3 mm long (they are self-fertilized in the bud so there is no reward in building showier flowers to attract pollinators). The fruits of Brook Spike-primrose have an evident, 2-5 mm long beak, and the central axis of the fruit and the internal walls disintegrate when it opens to release the seeds. The two species may occur as mixed populations.



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Life history: Dense Spike-primrose is an annual forb that germinates in the winter and early spring; flowers and fruits in early- to mid-summer; and then dies. It may self-pollinate (even within the same flower), or it may be cross-pollinated by bees and hoverflies. The seeds are shed in mid- to late-summer. Lacking evident structures to aid dispersal, most seeds probably remain close to the parent plant.

Habitat: In Canada, Dense Spike-primrose grows in open areas that are wet in the winter and very dry by mid-summer. This includes vernal pools, ditches, and vehicle ruts.

Why this species is at risk: Many populations have been lost as their habitat has been converted for agricultural, residential, transportation, or commercial use. In most other areas, the populations are threatened by invasive species, which tend to thrive in the moist, disturbed habitats Dense Spike-primrose favours and compete with it for space and nutrients. The most 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*). 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 compete with Dense Spike-primrose.

Dense Spike-primrose may also suffer because fire suppression favours the development of trees and shrubs that shade 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.

Dense Spike-primrose may be better managed by protecting its habitat from development and, if it occurs in an area that gets mowed, deferring mowing until its seeds have been released and removing the mown material to prevent the accumulation of thatch which could smother the seeds. In areas where invasive shrubs threaten Dense Spike-primrose they can be removed. Unfortunately, most of the competing invasive herbaceous species are difficult to control.

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References

COSEWIC 2005. COSEWIC assessment and status report on the dense spike-primrose *Epilobium densiflorum* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 26 pp.
(www.sararegistry.gc.ca/status/status_e.cfm)

Parks Canada Agency. 2013. Recovery Strategy for the Dense Spike-primrose (*Epilobium densiflorum*) in Canada. Species at Risk Act Recovery Strategy Series. Parks Canada Agency, Ottawa. vi + 22 pp.
For further information, contact the Garry Oak Ecosystems Recovery Team, or see the web site at:
www.goert.ca

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*Refers to non-native species