

Plagiobothrys figuratus – Fragrant Popcornflower

English name: Fragrant Popcornflower

Other English name: none

Scientific name: *Plagiobothrys figuratus* (Piper) I.M. Johnst. ex M. Peck subsp. *figuratus*

Other scientific names: *Allocarya figurata* Piper, *Plagiobothrys hirtus* (Greene) Johnst. var. *figuratus* Johnst.

Family: *Boraginaceae* (Forget-me-not Family)

Risk status

BC: critically imperilled (S1); red-listed

Canada: Endangered

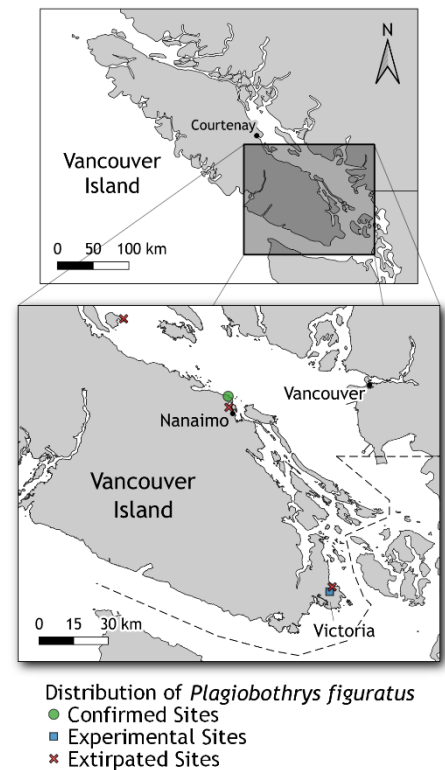
Global: critically imperilled (G4)

Elsewhere: Washington not ranked (SNR), Oregon secure (S4)

Taxonomic Notes: Some authors reject the existence of subspecies or varieties within *Plagiobothrys figuratus*. The species, as a whole, has a much wider distribution in the United States than simply in Washington, and Oregon.

Range/Known distribution: In Canada, Fragrant Popcornflower has been reported from at least five coastal locations from Nanaimo and Hornby Island south to the Victoria area. Many of the early collections provided little detail on the location and may have come from other sites. Fragrant Popcornflower is a relatively small plant, easily overlooked. Because it is restricted to Garry Oak and associated ecosystems, and 95% of these have been lost since European settlement began in the 19th century, many Canadian populations may have disappeared without notice.

In the United States, *Plagiobothrys figuratus* ssp. *figuratus* is known from the Puget Trough from south Puget Sound, through the Willamette Valley almost to California, and the Columbia River Gorge.



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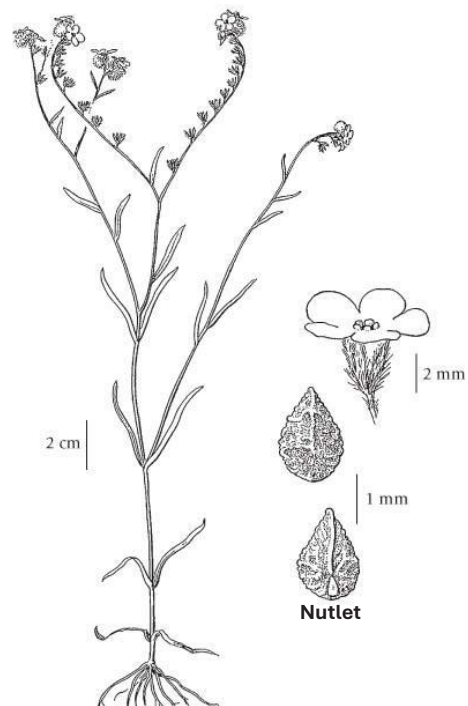
Field description: Fragrant Popcornflower is a small and easily overlooked erect, annual plant, commonly 10–45 cm tall, with appressed hairs on its foliage. The narrow leaves are arranged on the stem without a basal rosette. The lowest 2–4 pairs of stem leaves are opposite while the upper stem leaves are alternate. The inflorescence is composed of several narrow, coiled spikes that uncoil as they mature. The flowers are small but showy; the limb of their corolla is 5–10 mm wide, with a yellow eye contained within white petals that are fused at the base into a tube. The mature sepals (green, leaf-like parts enclosing the petals) are densely hairy, often with reddish-brown hairs, and are 3–4 mm long. Each flower can produce 4 egg-shaped, wrinkled nutlets that are 1.2–1.7 mm long, but some may fail to develop. The stem, which is branched in larger individuals, bears long (2–12 cm), narrow, oppositely arranged leaves near the base, which grade into somewhat wider, shorter, and alternately-arranged leaves higher up the stem.

Identification tips: In its Canadian range, Fragrant Popcornflower may be confused with other species of popcornflower, although all have smaller flowers. These include Slender Popcornflower (*P. tenellus*), Scouler’s Popcornflower (*Plagiobothrys scouleri*), Cognate Popcornflower (*P. cognatus*), and Harsh Popcornflower (*P. hispidulus*). Slender Popcornflower is easily distinguished even without flowers: it has a basal rosette of leaves and the few stem leaves are all alternate, the hairs on its foliage are spreading rather than appressed, and it occurs on mesic to dry meadows and coastal bluffs rather than the vernal moist pools and seeps favoured by Fragrant Popcornflower.

Scouler’s Popcornflower, Cognate Popcornflower, and Harsh Popcornflower belong to a group of five poorly defined species. They are easy to distinguish from Fragrant Popcornflower because the limb of their corolla is evidently narrower (1–4 mm wide), but they can be difficult to distinguish before they flower.



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Life history: In Canada, Fragrant Popcornflower germinates in mid- to late winter. It grows slowly until the warm spring weather arrives. It generally flowers in May or early June. The showy corolla suggests it is pollinated by insects. Growth is indeterminate; each plant may produce several flowering stems if conditions remain suitable. Each flower is capable of producing four one-seeded nutlets, but some may fail to develop. By mid-early to mid- June, as the summer drought deepens, the seeds have ripened, and the plants die. In favourable conditions, Fragrant Popcornflower can form dense single-species patches. Population sizes may fluctuate dramatically between years, presumably in response to changes in seasonal precipitation. The seeds lack special structures to aid in dispersal, but occasional long-distance dispersal may occur when seeds stick to the feet and/or feathers of birds visiting the vernal pools.

Habitat: Fragrant Popcornflower grows in vernal pools, and wet meadows dominated by low vegetation. There is little information on the species composition of these sites.

Why this species is at risk: Fragrant Popcornflower occurs in habitat types which have, for the most part, been lost due to agricultural and urban development and many populations of this obscure species may have disappeared as that happened. Existing populations may be damaged by trampling, or nearby disturbances which upset hydrological patterns. The meadows where it occurred were historically burned by Indigenous people and may now be invaded by native and exotic shrubs, upsetting hydrological patterns and casting shade. A number of invasive species thrive in the vernal moist depressions which Fragrant Popcornflower prefers, competing for space, moisture, and nutrients. Scotch Broom* (*Cytisus scoparius*) also presents a major threat because even though it struggles to survive on the shallow soils where Fragrant Popcornflower grows, it easily roots in adjacent rock fissures and patches of deep soil and thus may compete for moisture and reduce light availability.

The sole extant Canadian population is very close to a popular trail, but a fence has been built to protect it from trampling.

Over the medium to long-term, the greatest threat comes from climate change. The vernal pools and wet meadows that Fragrant Popcornflower depends on are particularly susceptible to the predicted increase in the length and severity of spring and summer droughts, and with very weak powers of dispersal the species is unlikely to migrate to newly available microsites which may have previously been too wet.

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.

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Management needs include further surveys to search for undetected populations and attempts to establish novel populations to replace those which have been lost, and to hedge against the growing impacts of climate change.

References

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- Parks Canada Agency. 2013. Recovery Strategy for the Fragrant Popcornflower (*Plagiobothrys figuratus*) in Canada. Species at Risk Act Recovery Strategy Series. Parks Canada Agency, Ottawa. vi + 19 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