Castilleja levisecta

English name golden paintbrush, golden Indian paintbrush

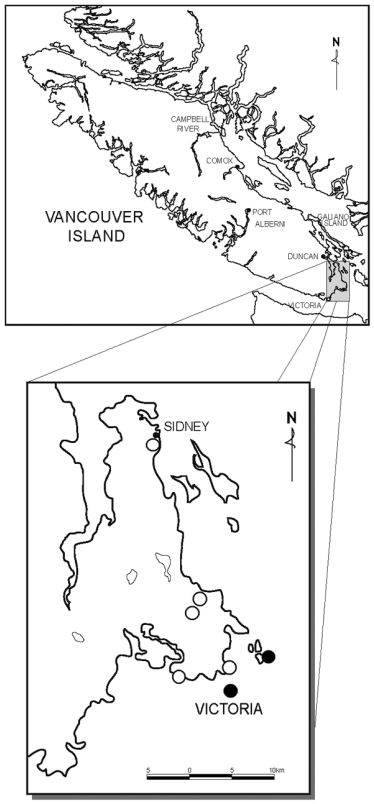
Scientific name *Castilleja levisecta*

Family Orobanchaceae (Broomrape)

Other scientific names none

Risk status
BC: critically imperilled (S1); red-listed
Canada: critically imperilled (N1); COSEWIC: endangered (2007)
Global: critically imperilled (G1)
Elsewhere: Oregon – possibly extirpated (SH); Washington – critically imperilled (S1)

Range/Known distribution
Historically, golden paintbrush ranged from southeastern British Columbia south through Washington to the Willamette Valley in Oregon. It has been extirpated from Oregon and the only remaining US populations occur in the Puget Trough and the San Juan Islands in Washington State. Historically, the Canadian range was limited to southeastern Vancouver Island and adjacent small islands. It is now restricted to two populations on small islands adjacent to Victoria. At least 5 populations (and possibly 6) have been extirpated in British Columbia. It has been experimentally introduced to one new site. Golden paintbrush is at the northern extent of its geographic range in North America.



Distribution of *Castilleja levisecta*
● recently confirmed sites
○ unconfirmed or extirpated sites

Castilleja levisecta

Field description

Golden paintbrush is a perennial herb with several unbranched stems (10-50 cm tall) arising from a slightly woody base. The leaves are alternate and have **long, soft, sticky glandular hairs,** particularly at the top of the stem. The leaves range from lance-shaped at the bottom of the stem to egg-shaped at the top, and have 1 to 3 pairs of short lobes. **The inconspicuous greenish flowers are concealed within soft-hairy, golden-yellow, leaf-like bracts.** The bracts are about as wide as the upper leaves, with 1 to 3 pairs of short lobes. The fused petals (corolla) are minutely hairy, 20-23 mm long with two lips, the upper lip resembling a beak. The fused sepals (calyx) are 15-18 mm long, long-hairy and deeply 2-lobed. Fruits are dry capsules that contain 70-150 seeds.

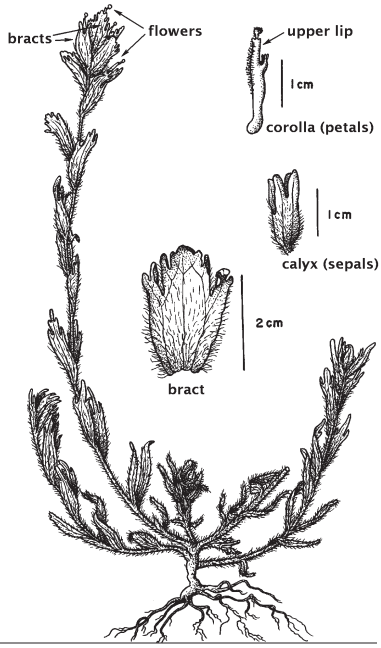
Identification tips

Golden paintbrush is distinguished from other *Castilleja* species by the sticky-hairy foliage and bright yellow bracts. It is the only yellow-flowered paintbrush on the south coast. However, harsh paintbrush (*Castilleja hispida* var. *hispida*), which usually has red to scarlet bracts, may occasionally have yellow bracts. Although harsh paintbrush is also hairy, it lacks the glandular hairs.

There are a number of species of owl-clover (*Orthocarpus*) that may superficially resemble golden paintbrush. However, characteristics of the leaves and bracts usually differ significantly from those of golden paintbrush.

Leah Ramsay

Castilleja levisecta



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Life history

Shoots begin to develop as early as mid-September and by January most shoots have broken dormancy. The shoots elongate in March. Flowering peaks in April and May, and may continue until July in years with favourable weather conditions. Most seed matures and is dispersed from late August through September but seed dispersal can continue until December.

Golden paintbrush does not reproduce asexually. Seed viability varies between populations and seedlings are rarely observed in the wild.

Golden paintbrush is a hemiparasite: although it derives some of its nutrients from photosynthesis, it can also form parasitic root connections with other plants.

Habitat

Golden paintbrush is restricted to open maritime meadows associated with Garry oak (*Quercus garryana*) ecosystems. Both extant sites are at low elevations (< 25 m), close to the ocean, and on level to gently sloping ground. The sites are well-drained with relatively deep soils (>15- 50 cm deep). Drought conditions prevail during the summer and may help to limit competition from other species.

Golden paintbrush is intolerant of shade. Tree and shrub cover is low and may include stunted Garry oak, tall Oregon-grape (*Mahonia aquifolium*), Nootka rose (*Rosa nutkana*), common snowberry (*Symphoricarpos albus*), trailing blackberry (*Rubus ursinus*) and Scotch broom* (*Cytisus scoparius*). There is a well developed layer of forbs and grasses. Most frequently associated native species include wild strawberry (*Fragaria virginiana*), Pacific sanicle (*Sanicula crassicaulis*), tufted hairgrass (*Deschampsia cespitosa*) and red fescue (*Festuca rubra*). Invasive species include hairy cat's-ear* (*Hypochaeris radicata*), hedgehog dogtail* (*Cynosurus echinatus*) and common velvet-grass* (*Holcus lanatus*).

Why this species is at risk

Historic decline is due mainly to habitat destruction by agriculture and residential development. Suppression of both natural and human-induced fires has allowed denser growth of trees and shrubs, degrading the habitat to the point where it is not suitable for golden paintbrush. However, reintroducing fire to maritime meadows may facilitate the invasion of non-native grasses and forbs rather than restoring native species.

Invasive shrubs including Scotch broom* (*Cytisus scoparius*), gorse* (*Ulex europaeus*), English ivy* (*Hedera helix*), spurge-laurel* (*Daphne laureola*) and Himalayan blackberry* (*Rubus armeniacus*) occur within populations of golden paintbrush and have severely degraded habitat quality.

Maintenance activities including summer mowing and trampling may also threaten this species.

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.**

Management needs include removal of invasive species. Existing populations should be monitored on an ongoing basis to determine their viability, as well as for any negative impacts stemming from fire suppression and weed encroachment.

References

COSEWIC. 2007. COSEWIC assessment and update status report on the Golden Paintbrush *Castilleja levisecta* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa, ON.

Parks Canada Agency. 2006. Recovery Strategy for Multi-Species at Risk in Maritime Meadows Associated with Garry Oak Ecosystems in Canada. In Species at Risk Act Recovery Strategy Series. Ottawa, ON.

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

*Refers to non-native species.