

## *Castilleja victoriae*

**English names** Victoria's owl-clover, Victoria's paintbrush

**Scientific name** *Castilleja victoriae*

**Family** Orobanchaceae (Broomrape)

**Other scientific name** *Castilleja ambigua* ssp. *ambigua*

### **Risk status**

BC: critically imperilled (S1); red-listed

Canada: COSEWIC: not yet assessed

Global: critically imperilled (G1)

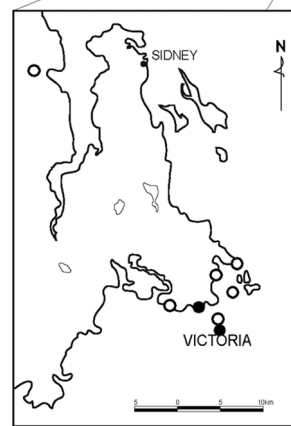
Elsewhere: Washington – reported

### **Range/known distribution**

Victoria's owl-clover has only recently been recognized as a distinct species.

Previous reports and studies of Victoria's owl-clover on southeast Vancouver Island referred to the species as paintbrush owl-clover (*Castilleja ambigua* ssp. *ambigua*).

There is only 1 occurrence in the United States, on a small island next to Lopez Island in San Juan County, Washington. In British Columbia, there are 2 known occurrences and 5 extirpated sites in Victoria on southeastern Vancouver Island and adjacent islands. A sixth location from the Shawnigan area north of Victoria may be based on an incorrect location on the herbarium label.



**Distribution of *Castilleja victoriae***

● recently confirmed sites

○ unconfirmed or extirpated sites

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### Field description

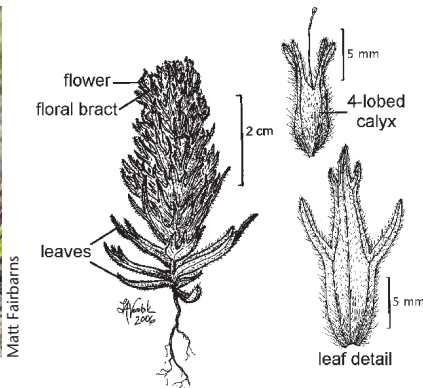
Victoria's owl clover is a **small (2-20 cm), compact annual** plant, usually with a single stem but occasionally with 2-4 upright to weakly erect stems. The stems and leaves are primarily **dull reddish-brown to reddish-purple** and are covered with hairs. The leaves are alternate, lance-shaped to narrowly oval and measure 10-20 mm long. The leaves are wider and the 3-5 lobes are more deeply cut further up the stem. The leaves merge into the floral bracts, which partially cover the flowers. The inflorescences are dense, compact spikes. The **petals are fused into a small (10-18 mm), two-lipped flower** with a yellow bottom lip and a creamy white top lip. The sepals are fused into a hairy, 4-lobed calyx. The dry capsules contain an average of 60 small seeds.

### IDENTIFICATION TIPS

Paintbrush owl-clover (*C. ambigua*), narrow-leaved owl-clover (*C. attenuata*), and hairy owl-clover (*C. tenuis*) are all small, closely related species that may be confused with Victoria's owl-clover. Victoria's owl-clover is distinctive because of its short, compact, predominantly single-stemmed form and reddish-brown colour. Both paintbrush owl-clover and narrow-leaved owl-clover have greenish bracts with white, yellow, or pink tips and reddish-purple spots on the lower petals, whereas Victoria's owl-clover has uniformly reddish-brown bracts and lacks spots on the petals. Paintbrush owl-clover rarely occurs in the Puget Sound and hairy owl-clover only occurs east of the Cascade Mountains.



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### **Life history**

Victoria's owl-clover requires a period of cold weather to germinate and most seedlings appear in late April to early May. There is a high mortality rate for young seedlings. Plants flower in May and June. Bumblebees (*Bombus* sp.) and possibly other insects pollinate Victoria's owl-clover. Plants die at the onset of summer drought and reproductive success is closely tied to how early drought occurs. Seed dispersal begins in July or August, and seed continues to be dispersed short distances from the capsules until the dead shoots are broken down by autumn storms. There are large fluctuations in population size from year to year with some of the small subpopulations disappearing entirely in unfavourable years. Banked seeds may be important to the persistence of populations. The extent to which seed remains viable in the soil or how greatly populations can decline in size before they become unviable is not known. Like other species of *Castilleja*, Victoria's owl-clover is hemiparasitic, obtaining water and nutrients from other plants through specialized root connections. Germination and growth to maturity can occur without a host plant.

### **Habitat**

Victoria's owl-clover occurs in areas with spring seepage and along the edges of shallow vernal pools. All known populations occur within 1-5 meters above sea level where the influence of the ocean moderates winter temperatures. Trees and shrubs are not able to establish in this habitat because of the salt-spray, wind, and thin soils that experience extreme drought in summer and are saturated with water in the winter. Associated species include silver hairgrass\* (*Aira caryophyllea*), thrift (*Armeria maritima*), gumweed (*Grindelia* sp.), red fescue (*Festuca rubra*), hairy cat's-ear\* (*Hypochaeris radicata*), Spanish-clover (*Lotus unifoliolatus*), blinks (*Montia fontana*), Scouler's popcornflower (*Plagiobothrys scouleri*), slender plantain (*Plantago elongata*), sea plantain (*Plantago maritima*), self-heal\* (*Prunella vulgaris*), small-flowered catchfly\* (*Silene gallica*), and poverty clover (*Trifolium depauperatum*).

### **Why the species is at risk**

Victoria's owl-clover has very specialized site requirements and much of the suitable habitat has been destroyed by urban development and degraded by invasive weeds, in particular invasive grasses. There is intense recreational pressure in one of the remaining sites that leads to trampling of mature plants before the fruit can develop. Trampling also causes compaction and erosion of sensitive soils. The current area occupied in Canada is just over 600 m<sup>2</sup> with over 98% of the plants occurring in a just one population. Short seed dispersal distances and poor survival of seedlings limits Victoria's owl-clover's ability to spread into adjacent

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habitats. Herbivory of flowers by Canada Geese (*Branta canadensis*) may also limit reproduction.

### **What you can do to help this species**

This plant is so rare that no action should be taken at the site without expert advice and inspection. Management practices should be tailored to the specific circumstances at the site. Potential management tools will depend on the specific circumstances and may require experimentation on artificially established populations prior to implementation. **Before taking any action, expert advice must 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. Existing populations should be monitored on an ongoing basis to determine their viability, as well as for any negative impacts stemming from trampling, herbivory and weed encroachment.

### **References**

- British Columbia Conservation Data Centre. Botany Program. 2008. Database containing records of rare plant collections and observations in the province of British Columbia.
- Fairbarns, M. 2009. Personal Communication. Botanist, Victoria, BC.
- Fairbarns, M. 2005. Demographic and Phenological Patterns of *Castilleja ambigua* (Paintbrush Owl-clover). Unpublished report prepared for the Interdepartmental Recovery Fund.
- Fairbarns, M. and J.M. Egger. 2007. *Castilleja victoriae* (Orobanchaceae): a new rare species from southeastern Vancouver Island, British Columbia, Canada, and the adjacent San Juan Islands, Washington, U.S.A. Madrono 54(4): 334-342.

For further information, contact the Garry Oak Ecosystems Recovery Team, or see the web site at: [www.goert.ca](http://www.goert.ca)

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\*Refers to non-native species.

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