

Lomatium papilioniferum – Butterfly-bearing Desert-parsley

English name: Butterfly-bearing Desert-parsley

Other English names: Pungent Desert-parsley

Scientific name: *Lomatium papilioniferum* J.A. Alexander & W. Whaley

Other scientific names: *Lomatium grayi* Coult. & Rose

Family: *Apiaceae*, the Carrot family

Risk status

BC: imperilled (S2); red-listed

Canada: Threatened

Global: not ranked (GNR)

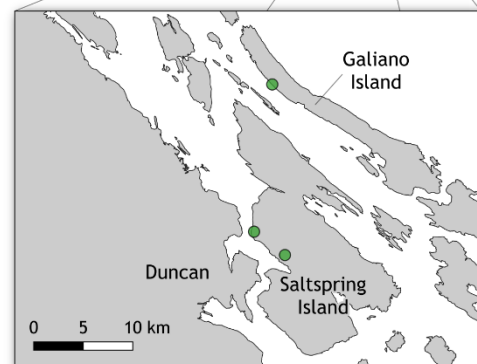
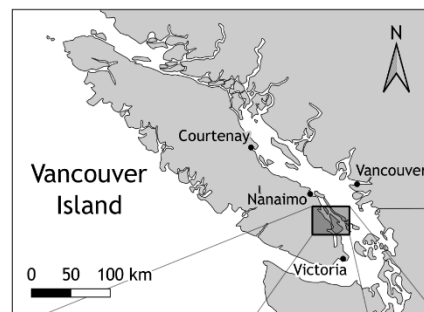
Elsewhere: Washington, Oregon, California, Idaho, Nevada – not ranked (SNR)

Taxonomic Note: Butterfly-bearing Desert-parsley was not distinguished from Gray's *Lomatium* until fairly recently.

Range/Known distribution: Butterfly-bearing Desert-parsley occurs in western North America, from southwestern British Columbia south to California and east to Idaho and Nevada.

In Canada, its range is highly restricted, with populations on Galiano and Salt Spring Islands. A report from Kelowna is based on a mis-identification. These Canadian populations represent the northern limit of the species' range. There is no indication that the current Canadian distribution of Butterfly-bearing Desert-parsley differs from its historic one. Currently, there are three reported occurrences of this species in British Columbia.

Field description: A yellow-flowered, herbaceous perennial from a long, thick taproot. Several stems branch from the base, which is often covered by the previous year's dead growth. Stems are glabrous (smooth and hairless) and reach 15-50 cm in height. The bluish-green leaves are mostly basal, very finely cut, short rough-hairy, and with ultimate segments that form a bushy mass. Mature plants produce 1-20 inflorescences, which can each contain several hundred flowers. Inflorescences are compound umbels (multiple umbellets arising from a central point) on spokes of varied lengths, 3.5-10 cm



Distribution of *Lomatium papilioniferum*
● Confirmed Sites

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long, with well-developed involucels. Fruits are roughly egg-shaped, 8-15 mm long, and possess lateral wings that are about one-third to two-thirds the width of the fruit's body.

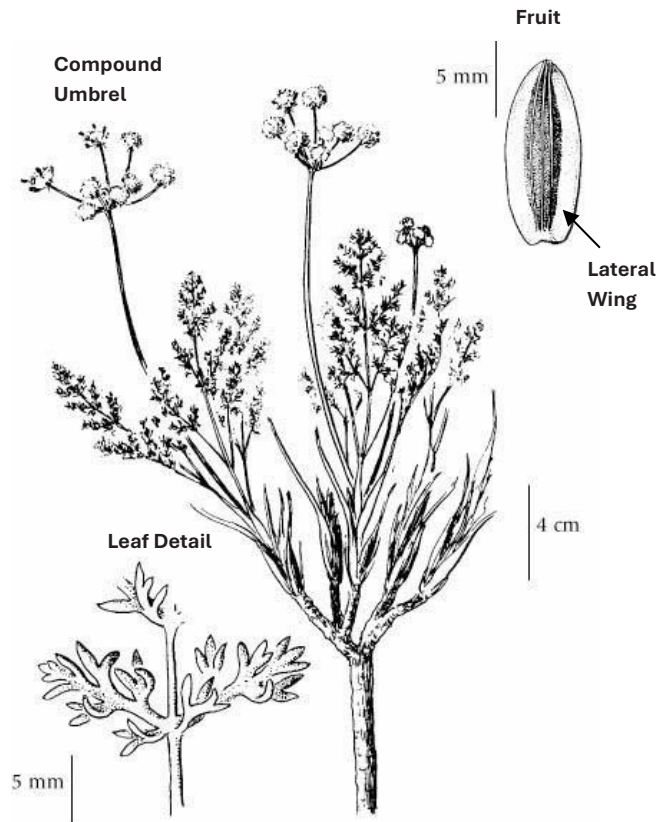
Identification tips: Butterfly-bearing Desert-parsley is a yellow-flowered, mild-smelling plant (despite its alternate English name) with an odour similar to that of pine. In contrast, Gray's *Lomatium* smells like celery. It is fairly distinct in the field, though Butterfly-bearing Desert-parsley may be confused with Fern-leaved Desert-parsley (*L. dissectum*), which overlaps with its range. Fern-leaved Desert-parsley, however, has less finely-divided foliage, narrow-winged fruits, and very narrow bracts below its umbels.



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Life history: The usual life span for Butterfly-bearing Desert-parsley is five to seven years. Leaves emerge in early spring and growth is usually restricted to that period when sufficient moisture is available. Flowering occurs in March and April, and in British Columbia the above-ground part of the plant generally dies back by mid-summer. Seeds may continue to mature on the senescent shoots as the summer progresses. Seed germination occurs in the very early spring, with seedlings producing only two to three leaves in the first year. Plants tend to remain vegetative while increasing the number of leaves and taproot size for one to several years, and individual plants often do not flower over consecutive years.

Elsewhere in its range, Butterfly-bearing Desert-parsley is a host of the larvae of the Indra Swallowtail (*Papilio indra*), a species of butterfly which is very rare in BC, but which is not found on the BC coast. It was this character which led taxonomists to suspect it was not the same species as Gray's *Lomatium* (which is never used by the Indra Swallowtail), something which was confirmed by a careful analysis of morphological differences between the two plants.



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Habitat: Butterfly-bearing Desert-parsley occurs on dry, rocky cliffs and bluffs or open slopes within the Coastal Douglas-fir zone. Microhabitats are shallow soils on inaccessible rocky ledges or vertical fissures in rock faces, but plants occasionally occupy cliff areas with slight seepages. Sites are sparsely treed and are generally found within a matrix of Garry oak and associated ecosystems. Garry Oak (*Quercus garryana*) is the dominant tree species, though Bigleaf Maple (*Acer macrophyllum*), Arbutus (*Arbutus menziesii*), and Douglas-fir (*Pseudotsuga menziesii*) are occasionally present. The shallow soils of these habitats support a number of other native forbs and grasses, but Butterfly-bearing Desert-parsley and associated species do not form a consistent ecological community. Native herbaceous plants commonly associated with Butterfly-bearing Desert-parsley in British Columbia include Yarrow (*Achillea millefolium*), Alaska Brome (*Bromus sitchensis*), Field Chickweed (*Cerastium arvense*), Broad-leaved Stonecrop (*Sedum spathulifolium*), Woolly Sunflower (*Eriophyllum lanatum*), and Gumweed (*Grindelia*). Other species that are frequently present include Purple Peavine (*Lathyrus nevadensis*), Miner's-lettuce (*Claytonia perfoliata*), and American Vetch (*Vicia americana*). Native shrubby species likely to co-occur include honeysuckle (*Lonicera ciliosa* and *L. hispidula*), Oceanspray (*Holodiscus discolor*), Tall Oregon-grape (*Berberis aquifolium*), and Common Snowberry (*Symphoricarpos albus*). In Canada, Butterfly-bearing Desert-parsley occurs at elevations of up to 75 m.

Why the species is at risk: Grazing presents the most serious threat to Butterfly-bearing Desert-parsley. It occurs on slopes which are or have been grazed by feral livestock and native Black-tailed Deer. Within these areas, it is most frequently found on steep, inaccessible microsites that cannot be reached by large grazing mammals. Where it is accessible to large herbivores, the plants are usually quite small either because they are frequently damaged by grazing animals or because they rarely live long enough to grow to full size. In garden settings, Butterfly-bearing Desert-parsley plants have been damaged by mice, rats, and cottontail rabbits. This may also happen in natural settings. Anise Swallowtail Butterfly larvae have been observed growing on its foliage, however, this is a natural process, and it presumably survived such damage in the past.

Rock climbing and hiking may threaten the Mount Maxwell population, where plants may be trampled or dislodged, and soil may be compacted or eroded.

Invasive alien plants also present a threat to Butterfly-bearing Desert-parsley. The spreading canopy of Scotch Broom* (*Cytisus scoparius*), may shade it, even if they don't root in the same spot. Invasive herbaceous plants, including Barren Brome* (*Bromus sterilis*), Hedgehog Dogtail* (*Cynosurus echinatus*), Cheatgrass* (*Bromus tectorum*), Orchard Grass* (*Dactylis glomerata*), and Ribwort* (*Plantago lanceolata*), may flourish in the small microsites where Butterfly-bearing Desert-parsley grows, pre-empting space which new generations of plants need to germinate and grow.

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.

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There does not currently appear to be a recent decline of Butterfly-bearing Desert-parsley in British Columbia, and most of its known occurrences in the province are on inaccessible cliffs and/or in protected areas. However, regular inventories of known populations should be conducted to monitor their status. Salt Spring Island populations occurring outside existing parks could be protected by adjusting reserve boundaries to include all sites.

References

- Alexander, J. A., Whaley, W., & Blain, N. (2018). The *Lomatium grayi* complex (Apiaceae) of the western United States: a taxonomic revision based on morphometric, essential oil composition, and larva-host coevolution studies. *Journal of the Botanical Research Institute of Texas*, 12(2), 387–444. <https://doi.org/10.17348/jbrit.v12.i2.945>
- COSEWIC. 2008. COSEWIC assessment and status report on the Gray's Desert-parsley, *Lomatium grayi* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 27 pp.
- Parks Canada Agency. 2014. Recovery Strategy for the Gray's Desert-parsley (*Lomatium grayi*) in Canada. Species at Risk Act Recovery Strategy Series. Parks Canada Agency, Ottawa. vi + 25 pp.
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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.