

## *Balsamorhiza deltoidea*

**English name** deltooid balsamroot

**Scientific name** *Balsamorhiza deltoidea*

**Family** Asteraceae (Aster)

**Other scientific names** none

### **Risk status**

BC: critically imperilled (S1); red-listed

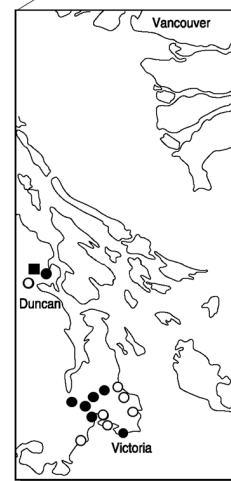
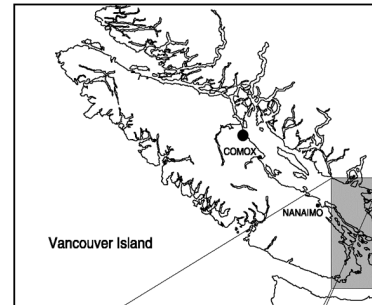
Canada: imperilled (N2); COSEWIC: endangered (2009)

Global: secure (G5)

Elsewhere: California and Oregon – reported (SNR); Washington – imperilled? (S2?)

### **Range/Known distribution**

Deltoid balsamroot occurs along the west coast of North America from southwestern British Columbia, south through Washington, Oregon to California. In Canada, it is restricted to the dry southeastern side of Vancouver Island from Campbell River to Victoria. These populations represent the northern limits of the geographic range for this species in North America. Currently, there are 8 known occurrences. At least 8 (and possibly as many as 12) populations have been extirpated and plants have been experimentally re-introduced to one of the extirpated sites.



#### **Distribution of *Balsamorhiza deltoidea***

- recently confirmed sites
- unconfirmed or extirpated sites
- re-introduced site

Species at Risk in Garry Oak and Associated Ecosystems in British Columbia



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### Field description

Deltoid balsamroot is a large perennial that produces one or more crowns from a deep taproot. Each crown produces stems reaching 0.2–1.0 m tall. **The triangular, basal leaves (10–50 cm long and 10–20 cm wide)** are long-stalked, with small rounded teeth along the edge of the leaf, inconspicuous stiff hairs and prominent veins. Juvenile plants have relatively few small, narrowly elliptic leaves compared to mature plants. The leaves on the flowering stems are much smaller and are lance- to linear-shaped. **Flower heads have yellow strap-like ray flowers, 13 or 21 in number, each 2–3 cm long. These ray flowers surround yellow tube-like disk flowers, each 5–7 mm long. The disk flowers comprise a central area of 2.5 cm or more wide.** Fruit are small, sunflower-like seeds.

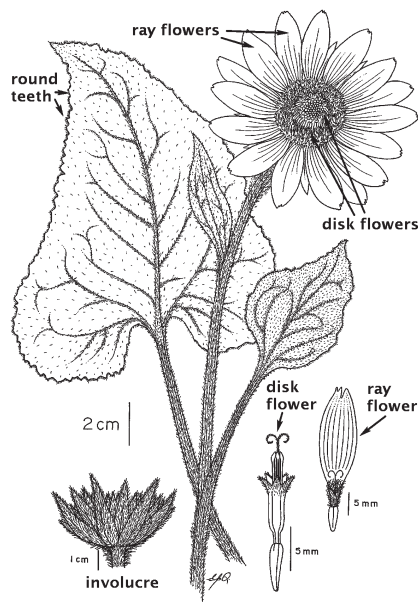
### IDENTIFICATION TIPS

The large, sunflower-like flower heads combined with the large leaves are not likely to be confused with any other species on the coast. Arrowleaf balsamroot (*B. sagittata*) is the only other species of *Balsamorhiza* that occurs in Canada, but it is restricted to the east side of the Coast Cascade Mountains in the southern interior.



Carrina Maslovat

***Balsamorhiza deltoidea***



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### **Life history**

Shoots emerge in April and flowering peaks in May. Fruits mature and are dispersed in late June. By the end of August the foliage has died back.

Sometimes, only a few mature seeds are produced in comparison to the large number of flowers contained in a head: many seeds are aborted and/or consumed by herbivores. Seed germination likely occurs in early spring however, the lack of juvenile plants in some populations suggests that either few seeds germinate or seedling survival is low. Deltoid balsamroot seedlings may suffer from drought more intensely than mature established plants. Seedlings take several years to reach maturity.

### **Habitat**

Deltoid balsamroot inhabits dry, well-drained Garry oak (*Quercus garryana*) and/or Douglas-fir (*Pseudotsuga menziesii*) meadow sites. Two kinds of habitats offer these well-drained conditions: shallow soils over deeply fissured, sloping bedrock, and flat bodies of coarse gravel. Elevation ranges up to 250 m with slopes varying from level ground to up to 50%. On steeper ground, the plants are found on west or south facing slopes.

Sites may have a sparse shrub cover of tall Oregon grape (*Mahonia aquifolium*), common snowberry (*Symphoricarpos albus*), spurge laurel\* (*Daphne laureola*), and Scotch broom\* (*Cytisus scoparius*). Associated native herbs include common yarrow (*Achillea millefolium*), camas (*Camassia* spp.), field chickweed (*Cerastium arvense*), Menzies' larkspur (*Delphinium menziesii*), cleavers (*Galium aparine*), western buttercup (*Ranunculus occidentalis*), Pacific sanicle (*Sanicula crassicaulis*), spring gold (*Lomatium utriculatum*), meadow death-camas (*Zigadenus venenosus*) and blue wildrye (*Elymus glaucus*). Introduced grasses including sweet vernalgrass\* (*Anthoxanthum odoratum*), soft brome\* (*Bromus hordeaceus*), hedgehog dogtail\* (*Cynosurus echinatus*), Kentucky bluegrass\* (*Poa pratensis*) and barren brome\* (*Vulpia bromoides*) are often found in the same habitat.

Many sites where deltoid balsamroot occurs were likely maintained in the past by periodic fires set by indigenous peoples. Fires would have controlled competing woody vegetation and allowed the successful establishment of seedlings.

### **Why this species is at risk**

The most direct and immediate threat to historic deltoid balsamroot populations is habitat destruction. A large portion of the largest population has been recently converted to parking lots and industrial development.

Several populations are located right next to trails where they may be damaged by recreational users through soil compaction and picking of

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flowers, both of which may prevent reproduction. Trail maintenance activities may also damage plants.

Suppression of fire has led to increased growth of trees and shrubs increasing the competition for light, moisture and nutrients. Fire suppression may have also changed soil fertility levels, increased the number of competing herbaceous species and decreased the availability of safe sites for germination.

Invasive shrubs such as the native common snowberry (*Symphoricarpos albus*) and the exotic Scotch broom\* (*Cytisus scoparius*) have invaded sites where deltoid balsamroot grows.

Herbivory by black-tailed deer (*Odocoileus hemionus*), eastern cottontail rabbits (*Sylvilagus floridanus*) and invertebrates may also have contributed to the decline of deltoid balsamroot.

### **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. Management needs include removal of invasive species and limiting access to sensitive habitat. Existing populations should be monitored on an ongoing basis to determine their viability, as well as for any negative impacts stemming from land development, recreational pressure and invasion by competitive shrubby species.

### **References**

- COSEWIC. 2009. COSEWIC assessment and update status report on the Deltoid Balsamroot *Balsamorhiza deltoidea* 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 Garry Oak Woodlands 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](http://www.goert.ca)

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\*Refers to non-native species.