

## *Trifolium dichotomum*

**English names** branched Indian clover, Macrae's clover

**Scientific name** *Trifolium dichotomum*

**Family** Fabaceae (Pea)

**Other scientific names** *Trifolium macraei* var. *dichotomum*, *Trifolium albobuppureum* var. *dichotomum*, *Trifolium dichotomum* var. *turbinatum*

### **Risk status**

BC: imperilled/vulnerable (S2S3); blue-listed

Canada: imperilled/vulnerable (N2/N3); COSEWIC: not yet assessed

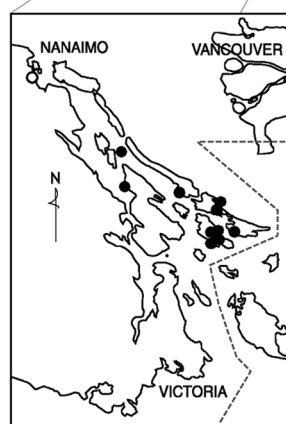
Global: apparently secure? (G4?)

Elsewhere: Washington, Oregon, California – reported (SNR)

### **Range/known distribution**

Due to the complex taxonomy, the global range of the species is difficult to determine. Branched Indian clover occurs from Washington and Oregon to central California, west of the Cascade Mountains. Reports from Massachusetts, Iowa and Chile are likely based on misidentification.

In British Columbia, branched Indian clover occurs on southeastern Vancouver Island and adjacent islands. There are 10 known localities occurring on 5 of the main Gulf Islands (North Pender, Mayne, Saltspring, Galiano and Saturna Islands), and on 2 of the smaller islands (Georgeson and Secretary Islands). There is 1 extirpated population near Nanaimo on south-eastern Vancouver Island.



Distribution of *Trifolium dichotomum*

- confirmed sites
- extirpated site

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### Field description

Branched Indian clover is a **small (10-30 cm) annual** with one to several unbranched, hairy stems. The stems are either erect or lie on the ground and curve up at the ends. The leaves are alternate with **three heart-shaped to rounded leaflets**. The ends of the leaflets are either notched or rounded and there are coarse teeth along the edges. The stipules (structure at the base of the leaf stems) are egg-shaped with pointed tips and measure 5-10 mm long. The flower head is egg-shaped or round with 10-60 **purple pea-like flowers**. Occasionally the flowers are white or pink. The flowers **do not have involucre** (a circle of bracts) below the heads. The sepals form a densely hairy tube with teeth that are longer than the tube. The fruit is a single seeded pod.

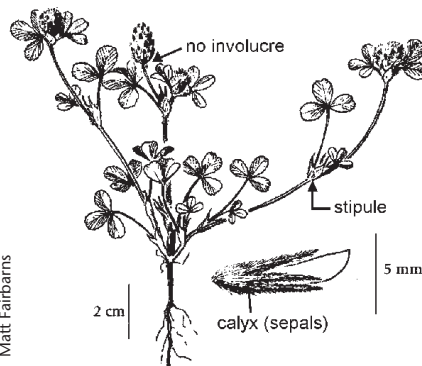
### IDENTIFICATION TIPS

Branched Indian clover may be confused with a number of other annual native and non-native clovers in British Columbia. The lack of an involucre below the flower heads, the purple flowers, and the heart-shaped to rounded leaves that taper at the base distinguish it from other species.



Matt Fairbairns

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### **Life history**

In California, branched Indian clover blooms from April to May. Herbarium specimens record similar flowering times in British Columbia. Genetic diversity studies indicate the flowers are both cross- and self-pollinated. Bumblebees are the primary pollinators for other closely related clover species. Like other annual species, branched Indian clover may have large fluctuations in numbers from year to year depending on weather conditions. Other clover species are known to have hard-coated seeds that can remain viable for decades. The low growth habit of branched Indian clover may be an adaptation to extreme coastal weather conditions including strong winds. The roots of other clover species fix nitrogen.

### **Habitat**

Branched Indian clover occurs on open, grassy bluffs or banks above the sea. The sites are mesic to dry, steep, south facing slopes. Soils are shallow, sandy or gravelly, on talus or shale. Elevation ranges from 1-200 m. Commonly associated plants include barren brome\* (*Bromus sterilis*), rip-gut brome\* (*Bromus rigidus*), annual fescue\* (*Vulpia sp.*), California oatgrass (*Danthonia californica*), Wallace's selaginella (*Selaginella wallacei*), Lemmon's needlegrass (*Achnatherum lemmonii*), small-flowered blue-eyed Mary (*Collinsia parviflora*), silver hairgrass\* (*Aira caryophyllea*) and tomcat clover (*Trifolium willdenowii*).

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

Development has destroyed much of the suitable habitat for branched Indian clover, especially since oceanfront is highly desirable for residential sites. Most of the remaining populations occur on private land and may be threatened by road building and construction. Invasive species, such as orchard grass\* (*Dactylis glomerata*) and Scotch broom\* (*Cytisus scoparius*), cause habitat degradation and compete with branched Indian clover for water, light and nutrients. Recreational impacts in steep bluff areas cause trampling, soil disturbance and erosion. Fire suppression has altered habitat and increased fuel loading, increasing the potential harm caused by future fires. The impact of grazing is unclear: branched Indian clover on Saturna Island may benefit from reduced competition since feral goats graze invasive species.



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

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 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 land development, trampling, fire suppression 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.

Costanzo, B. 2002. Stewardship Account for Branched Indian Clover *Trifolium dichotomum*. Prepared for the BC Conservation Data Centre and the Garry Oak Ecosystems Recovery Team. Sponsored by the Habitat Stewardship Program, Government of Canada and National Conservancy of Canada. Victoria BC.

Knapp, E.E. and P.G. Connors. 1999. Genetic consequences of a single-founder population bottleneck in *Trifolium amoenum* (Fabaceae). *American Journal of Botany* 86(1): 124-130.

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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