

Centaurium muhlenbergii

English name Muhlenberg's centaury

Scientific name *Centaurium muhlenbergii*

Family Gentianaceae

Other scientific names *Centaurium curvistamineum*

Risk status

BC: critically imperilled (S1); red-listed

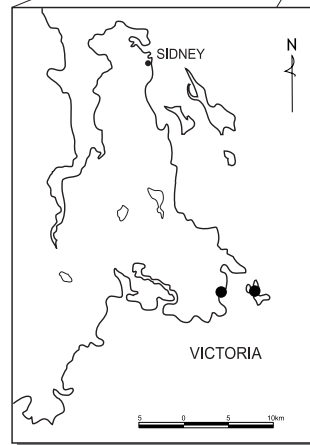
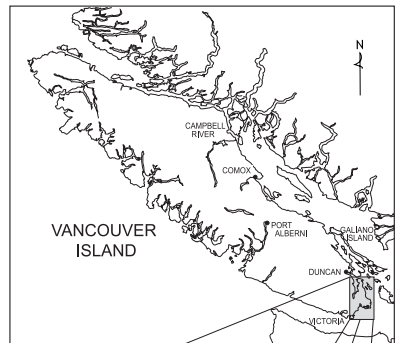
Canada: not yet assessed

Global: secure? (G5?)

Elsewhere: California – unranked (S?); Idaho, Nevada, Oregon – reported (SR); Washington – possibly extirpated (SH)

Range/Known distribution

Muhlenberg's centaury occurs from southwestern British Columbia south to California and possibly to Nevada, although the specimens from Nevada may have been misidentified *C. exaltatum*. In Canada, Muhlenberg's centaury is at the northern limit of its range and has been recorded only from moist sites on and near southern Vancouver Island and in Stanley Park in Vancouver. This species may have been more widely spread before the advent of urban and agricultural development in the southwestern part of the province. Currently, there are only two known occurrences of Muhlenberg's centaury in British Columbia, from Uplands Park and Chatham Island in the Victoria area. The third occurrence, in Vancouver, has not been observed since 1911.



Distribution of *Centaurium muhlenbergii*

● recently confirmed sites

Centaurium muhlenbergii

Field description

A small annual herb from a short taproot, 3-30 cm in height. The solitary stem may be simple or branched near the tip. The oval basal leaves (5-25 mm long) are few, but form an obvious rosette, while the leaves on the stem itself are **narrower and come to an abrupt point**. The inflorescence is comprised of only a few short-stalked, white to dark pink flowers. The calyx lacks hairs and is deeply lobed. The corolla consists of **white to pink** petals that are united below to form a tube, but are separate above, where they form a **spreading, saucer-shaped tip**. The anthers (1.5-2 mm) coil somewhat after opening. Fruits are slim capsules, 12-16 mm long, with very small (<0.5 mm) brown seeds.

IDENTIFICATION TIPS

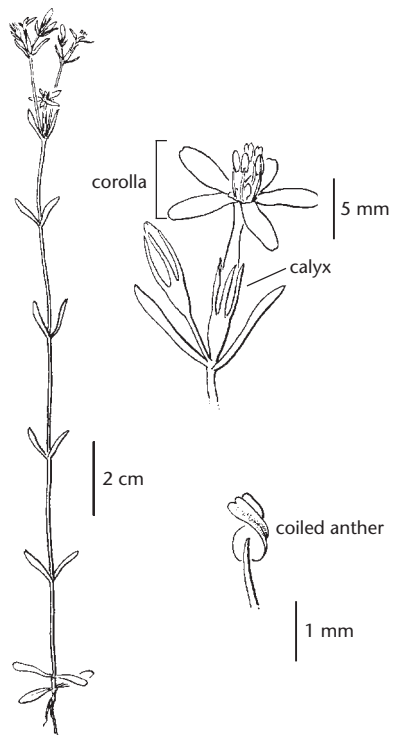
The range of Muhlenberg's centaurium in British Columbia overlaps with that of one other species in the genus, common centaury* (*C. erythraea*).

C. erythraea has more leaves in its basal rosette and its stem leaves are oval or elongated oblong in shape. The anthers of *C. erythraea* are markedly twisted and its petals are yellowish to pinkish-red.



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Life history

Seeds likely germinate in early spring and plants flower from June to early fall. Individual plants may persist as biennials if they are damaged in their first year. *C. erythraea*,* another species of *Centaurium* found in British Columbia, depends upon a mycorrhizal relationship to survive in poorly nourished sites. It is not known whether *C. muhlenbergii* has similar requirements. Most *Centaurium* species are weak competitors and require lightly vegetated sites or disturbed soils. The tiny seeds of *C. muhlenbergii* might be spread by local water flows during the wet season.

Habitat

In southwestern British Columbia, *Centaurium muhlenbergii* is confirmed from two habitat types: open, seasonally wet Garry oak (*Quercus garryana*) meadows, and salt marsh. The two known sites are bare or lightly vegetated and have fairly shallow sandy or organic soils. At Uplands Park the species is present in wheel ruts and is also scattered through more elevated grassy areas. Common camas (*Camassia quamash*) and introduced grasses, i.e., bentgrass* (*Agrostis capillaris*), crested dogtail* (*Cynosurus cristatus*) and common velvet-grass* (*Holcus lanatus*), dominate the site. Several native herbaceous species also occur there in association with *C. muhlenbergii*, including harvest brodiaea (*Brodiaea coronaria*), small-flowered lotus (*Lotus micranthus*), Scouler's popcornflower (*Plagiobothrys scouleri*), and white triteleia (*Triteleia hyacinthina*). At Chatham Island, *C. muhlenbergii* occurs on the edge of a seashore saltgrass (*Distichlis spicata*) marsh with along with brass buttons* (*Cotula coronopifolia*), purple-leaved willowherb (*Epilobium ciliatum*), hairy cat's-ear* (*Hypochaeris radicata*), and Baltic rush (*Juncus balticus*). The key habitat features for *Centaurium* species are adequate sunlight and pronounced seasonal fluctuations in moisture. Elevations in British Columbia: 1-10 m.

Red-listed winged water-starwort (*Callitriche marginata*) occurs in the same habitat at Uplands Park.

Fire suppression and subsequent growth of native and non-native shrubs such as common snowberry (*Symphoricarpos albus*) and Scotch broom* (*Cytisus scoparius*) have altered seasonally wet habitats on southeastern Vancouver Island. These changes have increased competitive pressure on *C. muhlenbergii* and have also altered hydrological regimes. Saltwater marsh habitats have not generally been affected by fire.

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Why the species is at risk

Muhlenberg's centaury occupies a broader range of habitats in the United States, and its restricted distribution in British Columbia may be a result of recent establishment in the region. Alternatively, its habitat requirements may be more specialised at the edge of its range. The amount of suitable habitat in British Columbia has decreased due to loss of open, vernal moist sites, and because of habitat alteration by competitive exotic grasses and other non-native plants.

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.**

This and other rare native plants requiring vernal wet habitat might benefit from the removal of native and non-native shrubs at suitable sites. New techniques must be developed to control the invasive species (including exotic grasses) that alter moist meadow habitat. Techniques can also be developed for propagating Muhlenberg's centaury and introducing it to suitable areas.

Although Uplands Park is protected from urban development, it is heavily used for dog walking and other forms of outdoor recreation. These activities serve to maintain the open, non-vegetated habitat preferred by the species, but it may be necessary to restrict access during flowering and seed set. Potential sites should be surveyed for undiscovered populations.

References

Miles, W. 2002. Stewardship Account: *Centaurium muhlenbergii* (Muhlenberg's Centaury). Garry Oak Ecosystems Recovery Team. Victoria, British Columbia.

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.