English name: Water-plantain Buttercup

Other English name: Plantain-leaved Buttercup, Alisma-leaved Buttercup

Scientific name: *Ranunculus alismifolius* Geyer ex Benth. var. *alismifolius*

Other scientific name: N/A

Family: *Ranunculaceae* (Buttercup Family)

Risk status

BC: critically imperilled (S1); red-listed

Canada: Endangered

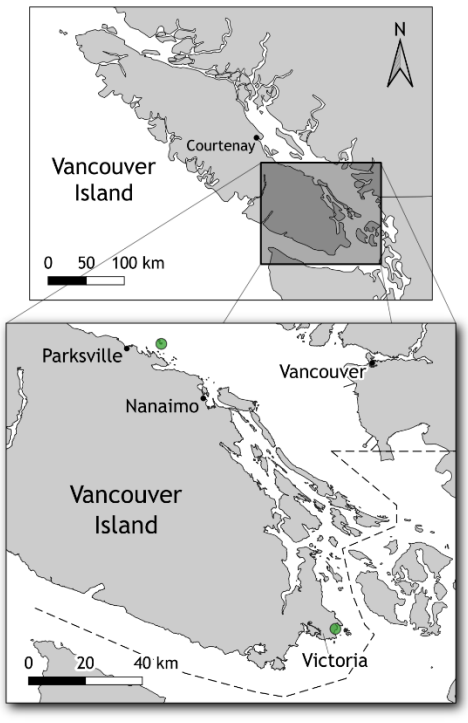
Global: secure (G5T5)

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

Taxonomic Notes: There are six recognized varieties of Water-plantain Buttercup. Inconsistencies in taxonomic treatments, and identification errors, may have led to some confusion regarding the distribution and abundance of var. alismifolius in the United States.

Range/Known distribution: In Canada, three populations of Water-plantain Buttercup have been reported. One is extirpated. It was reported from Cadboro Bay Road and may have actually been nothing more than an extension of the extant population in Uplands Park, in the Victoria area. The other extant population is on Ballenas Island, east of Parksville.

In the United States, var. *alismifolius* has not been reported from the San Juan Islands, nor from the Olympic Peninsula. The northernmost populations in the Puget Trough are about 200 km from the Uplands Park occurrence. From there, it ranges south through the Puget Trough and the Cascade Mountains to the north Cascades of California and much of the Sierra Nevada. It ranges east as far as western Montana and south through the mountains of southeastern Idaho. The north-central part of its range extends to the Pend Oreille River, about 60 km south of the Canadian border west of Osoyoos.

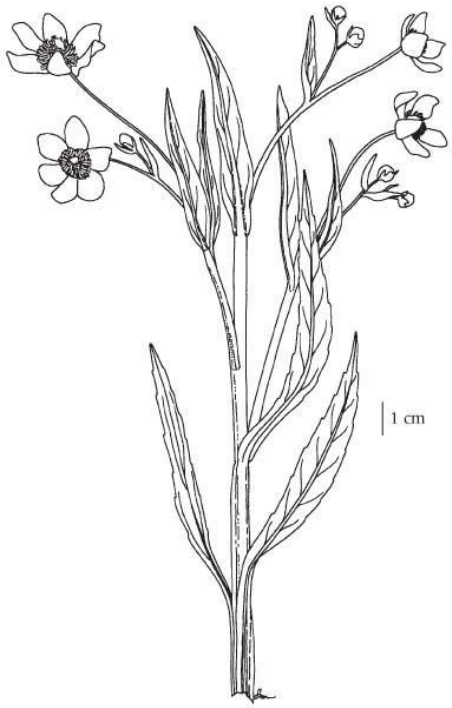


Distribution of *Ranunculus alismifolius*
● Confirmed Sites

Field description: Water-plantain Buttercup is a perennial herb growing from a thick root which produces one or more erect stems up to 70 cm tall. The leafy stems never root nodally, and are often branched, at least above. The basal leaves are at least twice as long as they are wide, long-stalked, and broadest at their base, narrowed at their tip and with smooth or finely-toothed margins. The stem leaves are progressively smaller and shorter-stalked above. The stems may be smooth or hairy, while the leaves lack hairs. The few-flowered inflorescence is open, with a leaflike bract below each flower. The flowers have five spreading or reflexed sepals. There are 5-6 (occasionally 8) bright yellow petals per flower and the petals are 5-10 mm long and bear hairless nectary scales. There are 20-90 stamens and 10-60 pistils. The fertilized pistils produce smooth hairless achenes (dry, 1-seeded fruits). The achenes are 1.5-2.8 mm long, slightly narrower, hairless, and tipped with a straight or slightly curved beak that is generally about 1 mm long.

Identification tips: Within its range in Canada, the unlobed leaves of Water-plantain Buttercup easily distinguish it from other species in the genus. The one exception is Lesser Spearwort (*Ranunculus flammula*), which also has entire leaves but produces evident stolons (above-ground, prostate stems) that root nodally. Lesser Spearwort is a much smaller plant, generally with smaller flowers. Lesser Celandine (*Ficaria verna*) is an occasional invasive found mostly in gardens and waste areas, which has flowers like a buttercup and entire leaves, but its leaves are broadly heart-shaped.

Ranunculus alismifolius



Life history: Water-plantain Buttercup is a perennial species that relies entirely on seeds for reproduction. Its seeds probably germinate in April or early May when the soil in its microsites begins to dry out and warm up. It does not flower in its first year. The overwintering plants produce fresh shoots in March, and flowers in May. Its bright yellow flowers and presence of a pocket-like nectary gland indicate that it is insect-pollinated, probably by bees, flies, butterflies, and perhaps beetles. Green fruits develop in May and early June and ripe, undehisced fruits are usually present by mid June. By late June or early July, the soil dries out, the shoots die back, and the seeds are shed.

The seeds ripen in June and the plants senesce as its site becomes very dry, usually in late June or July. Most seeds probably fall and remain close to the parent plant but the long beak on an achene may occasionally tangle in the fur or feathers of mammals or birds, and thus be dispersed to new habitats. Its seeds may also be caught up in mud attached to bird feet and feathers and be dispersed.

Habitat: In Canada, Water-plantain Buttercup occurs in low elevation coastal vernal pools and wet meadows associated with Garry Oak ecosystems. Coastal fogs and the proximity to shoreline tend to moderate winter frosts (particularly at night), retard the accumulation of heat, and may slow down plant development, particularly in the late spring. Coastal vernal pools and wet meadows are free of woody vegetation because they are saturated for several months between November and April and experience strong summer moisture deficits.

At Uplands Park Water-plantain Buttercup grows in and around wet depressions. The herb layer at the two locations contains many native species including Tall Woolly-heads (*Psilocarphus elatior*), Common Camas (*Camassia quamash*), Nootka Rose (*Rosa nutkana*), White Triteleia (*Triteleia hyacinthina*), Western Buttercup (*Ranunculus occidentalis*), Straight-beaked Buttercup (*Ranunculus orthohynchus*), and Graceful Cinquefoil (*Potentilla gracilis* var. *gracilis*). On Ballenas Island, Water-plantain Buttercup grows in shallow mud within two small, vernally wet depressions at the base of a seepage area, next to a Trembling Aspen (*Populus tremuloides*) grove and surrounded by outcropping rock. Associated native species include Hairy Honeysuckle (*Lonicera hispidula*), White Triteleia, Trailing Blackberry (*Rubus ursinus*), Common Yampah (*Perideridia montana*) and Falkland Island Sedge (*Carex macloviana*).

Why this species is at risk: Water-plantain Buttercup occurs in habitat types which have, for the most part, been lost due to agricultural and urban development. Many populations may have disappeared as that happened. Existing populations may be damaged by trampling, or nearby disturbances which upset hydrological patterns. The meadows where it occurs were historically burned by Indigenous people and may now be invaded by native and exotic shrubs, upsetting hydrological patterns and casting shade.

At present, the greatest threat appears to be associated with invasive species competing for space, water, and nutrients. Water-plantain Buttercup populations grow on sites with a high proportion of weeds. At Uplands Park, it grows with Creeping Buttercup* (*Ranunculus repens*), Ribwort Plantain*

(*Plantago lanceolata*), One-seed Hawthorn* (*Crataegus monogyna*), Soft Brome* (*Bromus hordeaceus*), Hedgehog Dogtail* (*Cynosurus echinatus*), Common Velvet-grass* (*Holcus lanatus*), and Orchard Grass* (*Dactylis glomerata*). On Ballenas Island, Water-plantain Buttercup habitat has been invaded by invasive grasses and herbs such as Common Velvet-grass* and Common Vetch* (*Vicia sativa*). Recreational activities that lead to trampling, changes in hydrology, and erosion also threaten Water-plantain Buttercup at Uplands Park.

The greatest threat facing Water-plantain Buttercup is climate change. The vernal pools and moist meadows where it occurs will dry out more quickly as summer droughts arrive earlier and last longer. While other areas - currently too wet for Water-plantain Buttercup - may become more suitable, its weak powers of dispersal may prevent it from reaching them in time.

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. Public and private landowners should be made aware of new populations of this species if they are discovered, and appropriate management practices suggested.

The Uplands Park populations should be protected from excessive trampling. It may be prohibitively expensive to control herbaceous weeds in all areas but weed competition should be monitored where smaller populations are at greatest risk of extirpation. And experiments should be conducted to determine how replacement populations can be established to compensate for those lost, particularly to climate change.

References

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For further information, contact the Garry Oak Ecosystems Recovery Team, or see the web site at: www.goert.ca

*Refers to non-native species