

Psilocarphus elatior – Tall Woollyheads

English name: Tall Woollyheads

Other English name: Meadow Woollyheads, Tall Woolly-marbles

Scientific name: *Psilocarphus elatior* (Gray) Gray

Other scientific name: *Psilocarphus oregonus* var. *elatior* A. Gray

Family: *Asteraceae* (Aster Family)

Risk status

BC: imperilled (S2); red-listed

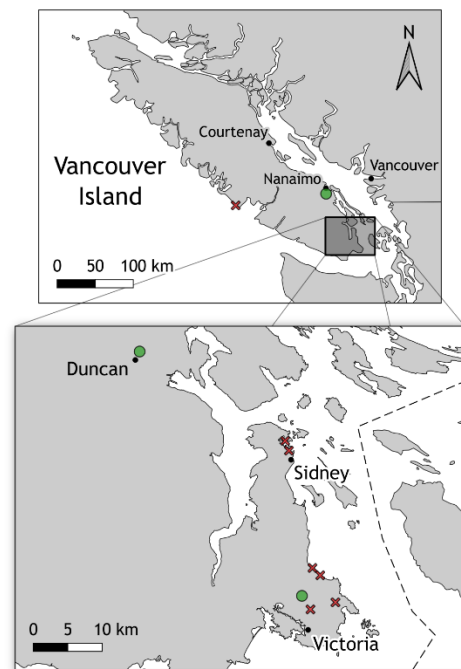
Canada: Endangered

Global: vulnerable (G3?)

Elsewhere: Washington, Oregon not ranked (SNR), California imperilled (S2S3), Idaho not ranked (SNR), Montana uncertain (SU)

Range/Known distribution: In British Columbia, Tall Woollyheads is known from ten sites (4 extant) ranging along the coast from Ucluelet, through the Victoria area, north to the Nanaimo area.

In the United States, it ranges south, chiefly west of the Cascades but also in the Columbia River Gorge, south to the northeast corner of California. In the Olympic Peninsula it occurs at up to about 600 m above sea level. It is also known from an outlier area along the foothills and adjacent plains of the west slopes of the Rocky Mountains, in eastern Washington to southeastern Oregon, east to adjacent Idaho. There is a disjunct population in Montana, and an introduced population in a disturbed area on an island in southern Alaska.



Distribution of *Psilocarphus elatior*

● Confirmed Sites
✕ Extirpated Sites

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Field description: Tall Woolly-heads is a small, tap-rooted, upright to sprawling, unbranched to densely branched, annual herb rarely growing more than 10 cm tall. It is green to silvery green when young and silvery grey when mature. It is usually covered with a dense mat of silky-woolly hairs. Its leaves are 10-20 mm long and 2-6 mm wide and the upper leaves cup the flower heads. The small globular flower heads (6-8 mm in diameter) are arranged on a dome-like structure called the receptacle. Individual flowers lack obvious petals and are tightly clustered so that the entire head appears to be a single flower. Each female flower is enclosed within a bract (palea) arising from the receptacle. Unlike most other members of the Sunflower Family, in members of the Woolly-heads genus each palea forms a sac-like hood around the flower. Each female flower may form a cylindrical, dry fruit (cypsela) containing a single seed.

Identification tips: The range of Tall Woolly-heads overlaps with that of Slender Woolly-heads (*Psilocarphus tenellus*), which it closely resembles. The two species can be distinguished as follows:

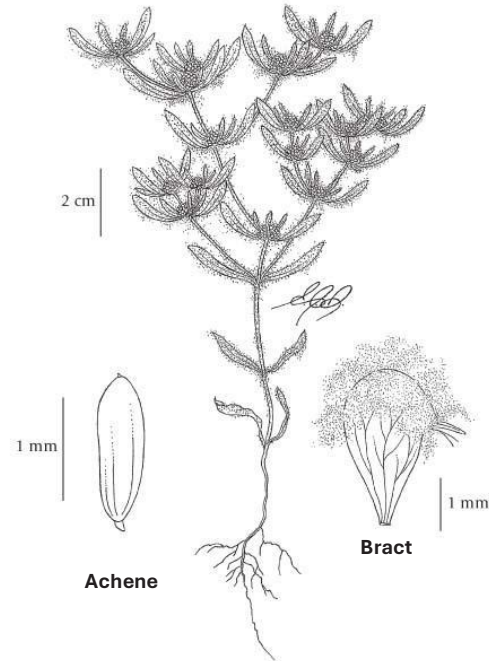
- The largest flower heads of Tall Woolly-heads range from 6-14 mm across when mature, while those of Slender Woolly-heads are 3-6 mm across when mature.
- The paleas of Tall Woolly-heads are hidden by long, silky-woolly hairs and the largest are 2.8-4.0 mm long while the individual paleas of Slender Woolly-heads are usually visible through the hairs and are 2.7 mm or shorter.
- Tall Woolly-head plants tend to be upright whereas Slender Woolly-heads plants tend to be matted; and
- The leaves of Tall Woolly-heads are never spoon-shaped while this is often the case with Slender Woolly-heads.

Casual observers may confuse Tall Woolly-heads with compact individuals of Marsh Cudweed* (*Gnaphalium uliginosum*) and Lowland Cudweed (*Gnaphalium palustre*) which grows in similar habitats, but cudweeds have evident flowers while those of woolly-heads are hidden within their hooded palea.

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Life history: Tall Woolly-heads is an annual. Its seeds germinate in the spring, as the soil where it grows begins to warm up. The plants grow quickly, and flowering begins in late May or early June. It probably self-pollinates and it is possible that some plants create seeds through asexual reproduction. Growth is indeterminate and new branches and flowers will develop as long as the soil remains moist. By mid to late July the soil has dried up and the plants die. The fruits probably disperse short distances by floating in water, but long distance dispersal is probably rare, occurring when fruits or seeds in muddy soil attach to the feet and feathers of birds. Some seeds are probably able to remain viable in the soil for several years, forming a persistent seed bank that allows it to grow even in marginal habitats in wet years.

Habitat: In Canada, Tall Woolly-heads occurs in vernally-moist pools and wet meadows, which are saturated with water for much of the autumn, winter, and early spring, while experiencing pronounced water deficits in mid- to late summer. These constraints make vernal pools inhospitable to woody plants and many native herbaceous species are intolerant either of long periods of saturation during the dormant season or of deep summer drought. Some of the vernal pools where Tall Woolly-heads grow may have masses of filamentous algae in the winter and early spring, which coalesce to form thin, flakey crusts as they dry out. Tall Woolly-heads tends to be sparse or absent from areas where these crusts develop.

The vernal pools and wet meadows where Tall Woolly-heads grows has a diverse mix of other native annuals, most notably Scouler's Popcornflower (*Plagiobothrys scouleri*), Slender Phlox (*Microsteris gracilis*), Few-flowered Clover (*Trifolium oliganthum*), Small-flowered Birds-foot Trefoil (*Acmispon parviflorus*), Blinks (*Montia fontana*), and Slender Plantain (*Plantago elongata*). Several rare native annuals have been found growing in vernal pools occupied by Tall Woolly-heads in Canada, including Muhlenberg's Centaury (*Zeltnera muehlenbergii*), Rare-flowered Heterocodon

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(*Heterocodon rariflorum*), Winged Water-starwort (*Callitriche marginata*), Kellogg's Rush (*Juncus kelloggii*), Spanish-clover (*Acmispon americanus* var. *americanus*), Poverty Clover (*Trifolium depauperatum*), Victoria's Owl-clover (*Castilleja victoriae*), Carolina Meadow-foxtail (*Alopecurus carolinianus*) and Macoun's Meadow-foam (*Limnanthes macounii*).

Why this species is at risk: Tall Woollyheads occurs in habitat types which have, for the most part, been lost due to agricultural and urban development. Many populations of this obscure species 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. Most Tall Woollyheads populations grow on sites with a high proportion of invasive annuals plants such as Silvery Hairgrass* (*Aira caryophyllea*), Early Hairgrass* (*A. praecox*), Parsley-piert* (*Aphanes arvensis*), Smooth Brome* (*Bromus hordeaceus*), bittercresses* (particularly *Cardamine hirsuta*), Sticky Chickweed* (*Cerastium glomeratum*), Hedgehog Dogtail* (*Cynosurus echinatus*), Common Stork's-bill* (*Erodium cicutarium* ssp. *cutarium*), Dovefoot Geranium* (*Geranium molle*), Lowland Cudweed* (*Gnaphalium palustre*), Marsh Cudweed* (*Gnaphalium uliginosum*), Charming Barley* (*Hordeum murinum*), Toad Rush* (*Juncus bufonius*), Annual Bluegrass* (*Poa annua*), Common Groundsel* (*Senecio vulgaris*), Small-flowered Catchfly* (*Silene gallica*), Common Sow-thistle* (*Sonchus oleraceus*), and Red Sand-spurry* (*Spergularia rubra*). More recently, Bur-chervil* (*Anthriscus caucalis*) and Carpet Burweed* (*Soliva sessilis*) have threatened to become major competitors in some populations.

Perennial herbs have also become a major threat, sometimes creating thick mats which smother seedlings of Tall Woollyheads, as well as competing for space, moisture, and nutrients. These include Creeping Bentgrass* (*Agrostis stolonifera*), Water Meadow-foxtail* (*Alopecurus geniculatus*), Sweet Vernal Grass* (*Anthoxanthum odoratum*), Queen Anne's Lace* (*Daucus carota*), Hairy Cat's-ear* (*Hypochaeris radicata*), Hairy Hawkbit* (*Leontodon saxatilis*), Perennial Ryegrass* (*Lolium perenne*), Pennyroyal* (*Mentha pulegium*), Common Plantain* (*Plantago major*), Kentucky Bluegrass* (*Poa pratensis*), Creeping Buttercup* (*Ranunculus repens*), Common Chickweed* (*Stellaria media*), and Subterranean Clover* (*Trifolium subterraneum*).

Recreational activities that lead to trampling, changes in hydrology, and erosion also threaten Tall Woollyheads.

Adjacent habitats are often dominated by shrubs, including Scotch Broom* (*Cytisus scoparius*), Nootka Rose (*Rosa nutkana*), Hardhack (*Spiraea douglasii*), and Common Snowberry (*Symphoricarpos albus*). The arrival of non-native shrub species, and the expansion of native shrub species concomitant with suppression of Indigenous burning, means that the edges of some populations of Tall Woollyheads face increased suppression by shading, and competition for moisture and nutrients.

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The greatest threat facing Tall Woollyheads 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 Tall Woollyheads - may become more suitable, its weak powers of dispersal may prevent it from reaching them before the existing populations disappear.

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.

Protective agreements are needed wherever it occurs, particularly on private lands. Populations should be protected from trampling where they occur in parks and other publicly accessible areas. 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.

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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