GRIZZLY BEAR Ursus arctos

Description

Sturdy with prominent shoulder hump (muscle mass covered with long guard hairs), massive head with upturned muzzle (dishface profile), pig-like nose, short round ears, and a slight ruff around the back portion. Very short tail. Shaggy coat. Colour ranges from pale yellowish-brown to dark brown, nearly black. Silvery white tips on hairs give a frosted or grizzled appearance. Very long claws (front paw: 3.5-10 cm; back paw: 1.5-4.5 cm).

Total length: 1.8-2.1 m *Weight:* males 250-350 kg; females 100-175 kg

Similar species: Black bears have a smooth, uniform coat, dog-like nose, straight facial profile, no face ruff, no shoulder hump and short claws.

Field signs

Tracks: Both black and grizzly bears have short, broad feet with five toes on both front and back feet. However, front-foot tracks seldom show the imprint of the front heel. The hind foot typically shows both toe and heel imprints. Grizzly tracks may be differentiated from black bear tracks on the basis of the criteria shown in the accompanying chart.



Grizzly bear



Black bear

Feature	Grizzly bear	Black bear
Size	Width of front pad can be greater than 15 cm.	Width of front pad rarely over 13 cm.
Claw imprint	Difficult to see, and well ahead of the toe marks.	Sharply incised and close to toe marks.
Arc of the toes	Toes are more in a straight line; toe imprints are joined.	Toes arc more; toe imprints are separate.

Trail patterns: Grizzly bears have a normal alternating gait when walking leisurely, or 2-2 and galloping patterns when moving faster. Tracks are turned in as though bears are walking pigeon-toed.

Scats: Bear scats may be round and firm (5-8 cm in diameter) or soft and pie-like (when bears feed on fresh greens).

Dens: Grizzly bear dens are found in snow accumulation areas, usually on 25-60° slopes.

Bedding area: The presence of 3-10 bear scats all within a 10-m radius, and flattened vegetation or a smooth hollow, may be indicative of a nearby bedding area.

Rub-marking trees: Careful examination may reveal the presence of hair, or bite and claw marks.

Trails: Tracks and droppings are usually found along well-used paths.

Digging areas: Large disturbed areas where bears dug for small mammals or roots.

Distribution

Grizzly bears are found throughout the coast forest region except the islands, and the southwest portion of the province.



Habitat

Landscapes with mosaics of young and mature forests interspersed with immature stands and non-forested sites. Wet areas such as streams and river bottoms, seep areas and lakeshore provide the bulk of the food for bears in some regions, because plant productivity in such areas is high and the vegetation is succulent or high in protein. Grizzly bears are attracted to large food supplies such as salmon streams and berry crops. Important habitat features include dens at high elevations on steep north-facing slopes, with dry, stable soil conditions that remain frozen during the winter. Landscapes with a diversity of habitat patches rich in food (roots and green vegetation, berries, small and large mammals, fish, insects).

Elevations: Valley bottoms to alpine meadows

Structural stages: 1-3 (food), 4-7 (food, thermal cover and security)



I. Hobbs

Grizzly bear



Mosses, Lichens and Vascular Plants

English Name	Scientific Name	Forest District	Biogeoclimatic Unit
Seaside centipede	Heterodermia sitchensis	South Island	CWHvh1
Rigid apple moss	Bartramia stricta	South Island	CDFmm
Poor pocket moss	Fissidens pauperculus	Chilliwack	CWHdm
Phantom orchid	Cephalanthera austiniae	Chilliwack South Island	CDFmm CWH: dm, xm1, xm2
Water-plantain buttercup	Ranunculus alismifolius var. alismifolius	South Island	CDFmm
Scouler's corydalis	Corydalis scouleri	South Island	CWH: vh1, vm1, xm2
Prairie lupine	Lupinus lepidus	South Island	CDFmm CWH: mm2, xm1
Seaside birds-foot trefoil	Lotus formosissimus	South Island	CDFmm
Yellow-montane violet	Viola praemorsa ssp. praemorsa	South Island	CWHxm2
Purple sanicle	Sanicula bipinnatifida	South Island	CDFmm
Bear's foot sanicle	Sanicula arctopoides	South Island	CDFmm
Golden paintbrush	Castilleja levisecta	South Island	CDFmm
Bearded owl-clover	Triphysaria versicolor ssp. versicolor	South Island	CDFmm
White-top aster	Aster curtus	South Island	CDFmm CWHxm1, xm2

Mosses, Lichens and Vascular Plants

English	Scientific	Forest	Biogeoclimatic
Name	Name	District	Unit
Deltoid balsamroot	Balsamorhiza	Campbell River	CDFmm
	deltoidea	South Island	CWHxm1
Tall bugbane	Cimicifuga elata	Chilliwack	CWH: dm, xm1 MH mm2
Tall woolly-heads	Psilocarphus elatior	South Island	CDFmm CWHvh1

CHARACTERISTICS OF VASCULAR PLANTS



SEASIDE CENTIPEDE Heterodermia sitchensis

Description

This arboreal cushion-forming lichen is semi-erect, with irregularly branched lobes averaging 2 cm across. Stiff lobes are short to slightly elongated, and are quite thin (0.5-2 mm wide). The top surface is usually a faint greenish-white colour but can also have a deep blue appearance. The smooth upper surface is strongly convex, with occasional warts and whitish spots. The lower surface is characterized by its white colouration and cottony appearance. Urn-shaped reproductive formations and minute hair-like structures are present on the upper edges of this lichen.

Similar species: The seaside centipede's unique characteristics – hair-like structures, urn-shaped outgrowths, pale greenish lobes and cottony lower surface – differentiate it from other lichens. It may be confused with elegant centipede, which has distinctly elongate lobes without the urn-shaped outgrowths of the seaside centipede.



Seaside centipede

Distribution

West coast of Vancouver Island.

Habitat

This lichen appears to have very specific and intricate habitat requirements. Moderate ventilation, fortified nutrients, moderate temperature, high humidity and protection from direct exposure are all seemingly essential habitat requirements for this very rare lichen. The seaside centipede is restricted to the lower branches of Sitka spruce trees found in undisturbed oldgrowth western hemlock-dominated forests along the west coast of Vancouver Island.

Elevations: 0-200 m Structural stages: 7

RIGID APPLE MOSS Bartramia stricta

Description

Ranging in height from 1-3 cm, this moss has male and female reproductive organs on the same leafy structure. Dense clumps of this moss are pale green to yellow, or a bright green colour. The base of the moss has no sheathing. The leaves are relatively long, tomentose below, and tapering to a point at the tip of the leaf, where it is toothed. Leaf margins are flat or slightly curled under. When dry, the leaves tend to stand upright and straight. Capsules are spherical/ symmetrical in shape.

Similar species: Can be confused with the common apple moss. The easiest way to tell the two apart is by looking at the capsules. The common apple moss has asymmetrical capsules that are not as round as the symmetrical capsules of rigid apple moss. As the name implies, when moist, the leaves of the rigid apple moss are more erect than the common apple moss.



Rigid apple moss

Distribution

Limited to southern Vancouver Island.

Habitat

Restricted to lower elevations with warm, somewhat humid climates. This moss is usually found on moist, humus-rich soils that are virtually free of vascular plants and lichens. It will also grow on soil veneers between rocks or directly on rock outcrops. The rigid apple moss is usually found on south-facing slopes.

Elevations: 0-150 m *Structural stages:* 1, 2



Rigid apple moss

POOR POCKET MOSS Fissidens pauperculus

Description

This is a relatively small moss with male and female reproductive structures on the same plant. It has 6-10 leaves arranged in 3-5 pairs. The leaves are small, ranging from 0.3-0.4 mm wide and 1.5-2.3 mm long. The stalk of the capsule (2-3 mm long) is often yellow in colour, although it may turn red with age.

Poor pocket moss

Distribution

This moss has only been found at one location in Canada, in a Douglasfir/western Hemlock stand in North Vancouver.

Habitat

Very little is known about the habitat of this moss due to its extreme rarity. It grows on bare, silty, moist patches of soil, likely adjacent to slow-moving or seasonal streams.

PHANTOM ORCHID Cephalanthera austiniae

Description

General: Perennial saprophytic and mycoparasitic orchid. Grows from a short rhizome. Smooth leafless white stalk clasped by white sheaths up to 10 cm long. The plant gets its name from its ghostly appearance; also, it feels clammy and wax-like.

Height: 20-65 cm

Flowers: Five to twenty aromatic flowers with a conspicuous yellow throat, on a terminal raceme. Flowers are bilaterally symmetric with three sepals, three petals and a onechambered fruit capsule.

Similar species: Indian pipe is a snow-white species with a single bellshaped flower hanging downward.

Distribution

Occurs on southeast Vancouver Island, the Gulf Islands, and the lower Fraser Valley.

Habitat

Colonies occur in moist to mesic coniferous forests, deciduous forests dominated by big-leaf maple, and mixed forests with mature paper birch trees. When growing conditions are less favourable, the plant can survive underground in a dormant



Structural stages: 6, 7



Close-up of flowers on terminal raceme





Indian pipe

state. Important habitat features include sparse ground cover, calcareous sites (limestone) on south- and west-facing slopes.



WATER-PLANTAIN BUTTERCUP Ranunculus alismifolius var. alismifolius

Description

General: Erect perennial herb with one to several spreading, soft-hairy and hollow stems growing 30-60 cm tall. The roots are fibrous and tuberous, and yellow flowers grow from the middle stalk within a cluster of large smooth basal leaves. The plant does not produce runners.

Leaves: Leaves grow both from the base and the stems of the plant. Basal leaves are large, deep green, narrow, and egg-shaped, 2-14 cm long and 0.7-3 cm wide. The leaf margins are smooth or slightly toothed; the tips are broadly tapered with blunt to pointed tips and situated on stout stalks as long or longer than the leaf blades. Stem leaves are much smaller than the basal leaves, with shorter stalks, alternate or opposite positioning and increasingly reduced farther up the hollow stem. The stems can be branched within the flower clusters.

Flowers: few to several inflorescences contain one to many shiny yellow flowers. Each flower has five somewhat hairy petals, 5-14 mm long and 2-8 mm wide. Flower stalks grow to 15 cm long in fruit.





Water plantain buttercup

Fruit and seeds: Globe-shaped flower head produces 30-50 one-seeded fruits that are 3-7 mm long and 4-8 mm wide. Each plump oneseeded fruit, 1.6-2.8 mm long and 1.2-2 mm wide, is smooth or covered with short stiff hairs.

Less than 50 plants occur in each known plant population.

Similar species: Easily distinguished from other species by its large, shiny yellow flowers.

Distribution

In B.C., this species is found only in Uplands Park on southern Vancouver Island and on Ballenas Island just north of Nanaimo.

Habitat

Wet to moist lowland meadows, grasslands, wet ponds and pond margins, shorelines, streambanks, muddy sites, rock outcrops and deep soils often associated with Garry oak stands. The plant can also withstand periodic flooding and summer drought, and periodic fires at one time would have created new habitat for this species. Often associated with open stands of Garry oak trees and other grassland plants native to the Garry oak ecosystems, including western buttercup, white hyacinth and common camas. Dominant associated grasses include sweet vernalgrass, orchardgrass, bromus species and various sedges. Dominant understory shrub species, which tend to shade out the herb species, include Scotch broom and snowberry.

Elevations: 150-700 m *Structural stages:* 1, 2, 3



SCOULER'S CORYDALIS Corydalis scouleri

Description

General: Herbaceous perennial arising from a rhizome, reaching heights of 40-120 cm. Hollow stems are branched or unbranched (simple). Often forms raised mats along forest floor.

Leaves: Usually 3-stem leaves with light blue hue, alternate arrangement, arising from above middle point of stem. Leaves are strongly dissected to create many rounded, lance-shaped to oblong segments. Leaves are 2-8 cm long and 5-12 mm wide.

Flowers: Stunning, branched inflorescence consists of 15-35 pink flowers in a long cluster atop the stem. Irregular flowers have 20-30 mm spurs: long, hollow and narrowing.

Fruit and seeds: Pear or egg-shaped capsule, 10-15 mm long and 3-4 mm wide, containing shiny black seeds. Capsules burst open when ripe, propelling the seeds a great distance.

Similar species: May be confused with pink corydalis, which has significantly smaller (2-4 mm long) pink spurs with distinct yellow tips. Pink corydalis arises from a taproot. Scouler's corydalis emerges from a rhizome.



Scouler's corydalis



Pink corydalis

Distribution

In B.C., this species is restricted to extreme southwestern Vancouver Island. It is found in the valley of the Nitinat River and the northeast shore of Nitinat Lake, four sites in the valley of the Klanawa River, and two sites in the Kissinger Lake area, immediately west of Cowichan Lake.

Habitat

Found in moist to wet shaded forests, adjacent to waterways of varying size, from small creeks to large rivers. Nutrient-rich, silty soils are ideal but the plant is also found on coarser fluvial deposits. Typically grows in young, mature and old-growth mixedwood or deciduous forests. Deciduous components of the forest usually include big-leaf maple or red alder. *Elevations:* 0-200 m

Structural stages: 5, 6, 7



PRAIRIE LUPINE Lupinus lepidus

Description

General: Perennial herb with multiple stems arising from a thick, woody stem-base, 20-45 cm tall. May be erect or laying somewhat flat along ground. Stems are slender and covered in fine white hairs, which give them a silkytextured appearance.

Leaves: Mostly basal leaves with 10-16 cm long stalks. Occasional stem leaves in alternate arrangement. Leaves divided into 6-10 leaflets, diverging from a single point. Leaflets silky on both sides, pointed at the tip and typically upward folded, measuring 1-5 cm long and 2-7 mm wide.

Flowers: Terminal inflorescence ranging from 10-16 cm long; flowers in whorled arrangement. Corollas blue, light purple or sometimes white, 10-13 mm long.

Fruit and seeds: Stiff, hairy pods, 1-3 cm in length, containing 2-4 seeds each.

Similar species: Unlikely to be confused with other lupine species, which grow in different habitat types, occur at higher elevations or in northern or south-central B.C., and may have different flowering times.



Prairie lupine

Distribution

The prairie lupine is associated with Garry oak ecosystems (Appendix III). Known only to occur on southeast Vancouver Island.

Habitat

Found in areas susceptible to extreme drought conditions, especially rock outcrops and grassy meadows with coarse, gravelly soils. *Elevations:* 0-200 m *Structural stages:* 1, 2



SEASIDE BIRDS-FOOT TREFOIL Lotus formosissimus

Description

General: Perennial herb growing from a rhizome, reaching 20-50 cm tall, usually sprawling but occasionally erect. Stems are multi-branched and without hairs.

Leaves: Stem leaves alternate in arrangement, divided into five (occasionally three or seven) oppositely arranged leaflets. Leaflets egg- or spoon-shaped, 6-20 mm long. Large, triangular stipules present.

Flowers: Inflorescence has a long stalk with a compact cluster of 3-9 pea-like flowers; a delicate bract divided three times is present just below the flowers. Corollas generally yellow with distinct pink to purple wings.

Fruits and seeds: pea-like pod, 2-4 cm long, with up to 15 dark brown or black seeds.



Seaside birds-foot trefoil

Similar species: May be confused with the more common meadow birds-foot trefoil. It can be distinguished from the seaside birds-foot trefoil by the fine hairy stems and leaves, the creamy-white and purplish corollas, and the presence of a taproot instead of a rhizome.

Habitat

Found along seaside fringes. *Structural stages:* all



YELLOW-MONTANE VIOLET Viola praemorsa ssp. praemorsa

Description

General: Perennial herb that develops from a rhizome. Stems between 6-30 cm tall, usually somewhat hairy. After spring the plant is difficult to locate as it dies back to a rhizome in summer.

Leaves: Stem leaves few or lacking. Basal leaves, dark green, slightly to densely hairy, egg- to lance- shaped; margins usually entire, occasionally subtly toothed to wavy. Stalks 3-15 cm long, leaves quite small, 2-10 cm long and 1-3.5 cm wide. Stipules joined to stem, also somewhat hairy; margins toothed to entire.

Flowers: Inflorescence consists of single flowers appearing to arise from basal leaf nodes. Flower has five yellow petals, with the bottom petal the longest (12-20 mm) with a spur. The lower three petals have brown vein-like striations. Five sepals are arranged around the petals. *Fruits and seeds:* Smooth to hairy

capsule (6-11 mm long) containing dark brown seeds.

Similar species: Yellow-montane violet could be confused with two other yellow-flowered violets found in its range: stream violet and trailing yellow violet. The yellow montane violet may be distingued by the leaves. Both the stream violet and the trailing yellow violet have hairless, kidney-shaped to heart-shaped leaves, whereas yellow montane violet has hairy leaves that are egg-shaped.



Yellow-montane violet



Trailing yellow violet



Habitat of the yellow-montane violet

Distribution

Southern Vancouver Island.

Habitat

Open, moist Garry oak stands or grassy meadows. Also known to grow on rocky, Garry oak-dominated slopes. This is a very shade-intolerant species, unable to compete in shrubby stands, as it requires extensive light levels.

Elevations: 0-200 m *Structural stages:* 1, 2, 6, 7



PURPLE SANICLE Sanicula bipinnatifida

Description

General: Perennial herb with branched stems, reaching erect heights of 10-60 cm, growing from a taproot.

Leaves: Basal and stem leaves are pinnately divided (somewhat resembling a feather), toothed, measuring 4-13 cm long and 3-12 cm across. Leaf axis is distinctly sharply toothed or winged.

Flowers: Inflorescence is made up of several to many purple flower heads. These flowers arise from a single point (umbel). Bracts are small and difficult to see.

Fruits: Fruits are dry and egg-shaped, 3-6 mm in length, splitting open when mature. They are coated in robust, hooked prickles.

Similar species: Purple sanicle is most likely to be confused with the sierra sanicle. The sierra sanicle has yellowish flowers (instead of purple) and the leaf axis is smooth, not distinctly toothed.

Distribution

The purple sanicle is associated with Garry oak ecosystems (Appendix III). Found on southern Vancouver Island.

ct g from are d, 3-12 cm



Purple sanicle

Habitat

This species grows in low-elevation grassy meadows, on shrubby or grassy hummocks and somewhat open woodlands. Purple sanicle is also found on cliffs near the ocean. It prefers dry, sunny sites that are rich in nutrients. Climate preferred by this species is Mediterranean, with warm, dry summers and mild, wet winters.

Elevations: 0-100 m *Structural stages:* 1, 2, 3



Sierra sanicle

3. Monroe



BEAR'S FOOT SANICLE Sanicula arctopoides

Description

Also referred to as snake-root sanicle. *General:* Herbaceous wildflower emerging from a taproot that flowers in its second year and has a lifespan of two years. This branched sanicle usually grows level to the ground or erect up to 30 cm tall.

Leaves: Basal leaves are arranged in a rosette, are yellowish to yellowishgreen and are somewhat fleshy. Stem leaves are three-lobed and have irregularly toothed margins. Leaf size is from 2.5-6 cm long and 2.5-9 cm wide.

Flowers: Inflorescence is made up of several to many tiny bright yellow flower heads. These flowers arise from a single point (umbel). Bracts protrude out past the flower head, forming a star-like ring around the umbel.

Fruits: Dry and egg-shaped, 2-5 mm in length, splitting open when mature. They are coated in robust, hooked prickles.

Similar species: Can be mistaken for Pacific sanicle. However, the Pacific sanicle does not have basal leaves in a rosette and it lacks the long distinctive bracts of the bear's foot sanicle.



Bear's foot sanicle

Distribution

Associated with Garry oak ecosystems (Appendix III). Found on southern Vancouver Island.

Habitat

The bear's foot sanicle is found on grassy coastal bluffs associated with dry, rocky outcrops and shallow soils. It is often associated with spring seeps exposed to ocean spray, wind and direct sunlight. Climate preferred by this species is Mediterranean, with warm, dry summers and mild, wet winters.

Elevations: 0-100 m *Structural stages:* 1, 2, 3



GOLDEN PAINTBRUSH Castilleja levisecta

Description

General: Clumped perennial herb branching from a woody stem base into 5-15 semi-erect, clustered or sometimes creeping stems, 10-50 cm tall. The stems and leaves are covered with dense soft hairs.

Leaves: Grow alternately; soft hairs to rough bristles cover the leaf and stem surfaces, which are also sticky, especially on the topsides. Upper stem leaves are broad and have one to three pairs of short lateral lobes near the top. These leaves are egg-shaped and narrow at the base. The lower stem leaves are long, pointy and tapered at each end.

Flowers: Inflorescences are green and completely enclosed or hidden by whorls of bright golden-yellow bracts and together form elongated terminal spikes. Each bract has 3-5 narrow lobes covered with short, sticky, soft hairs rounded margins; bracts are the same width as the upper stem leaves. The plant appears to have bright yellow flower spikes at the stem tips.

Fruits and seeds: Capsules contain more than 100 seeds and will persist on the plant long after the growing season has ended and the plant has withered. The seed-set depends on cross-pollination and is the only known means of reproduction. Golden paintbrush may be a hemiparasite and require a host plant for seedling development. Although golden paintbrush has not been



Golden paintbrush

specifically researched, studies indicate that plants without a hemiparasitic connection wilt faster than those with such a connection.

Similar species: May be confused with harsh paintbrush, which can be red, orange or yellow. Golden paintbrush is distinguished by bright yellow floral bracts.



Harsh paintbrush

Distribution

Golden paintbrush is associated with Garry oak ecosystems and similar habitats (Appendix III). In B.C. it occurs only on Trial Island and Alpha Islet, with documented populations of between 3 to 2500 plants.

Habitat

The species occupies grass-dominated meadows and openings with dry to mesic conditions. This species thrives in open sunny environments and will tolerate partial shade. Periodic low intensity fires at one time would have created new habitat for this species. Associated species include Idaho fescue, red fescue, early hairgrass, orchardgrass, hedgehog dogtail, sweet vernalgras and other weedy-type species that grow in association with golden paintbrush.

Elevations: under 100 m *Structural stages:* 1, 2, 3



BEARDED OWL-CLOVER Triphysaria versicolor ssp. versicolor

Description

General: Erect annual herb, 10-60 cm tall, with smooth surfaces or fine hairs covering the greenish brown stems and foliage.

Leaves: Grow alternately along the main stem, each tapered leaf branching into 5-9 pinnate lobes, 2-8 cm long, and at evenly spaced intervals along the individual leaf stem. Leaves decrease to small bracts toward the upper parts of stems.

Flowers: Dense inflorescence of small whitish yellow fading to rose-coloured flowers forms a terminal spike 5-20 cm long. Flowers are clubshaped and tubular, 12-22 mm long, two-lipped and surrounded by leaf-shaped bracts 8-18 mm long. The bottom lip of the flower is slightly longer than the upper lip, distinctly hairy and with purple dots along the margins.

Fruits and seeds: Capsules 6-9 mm long produce 30–50 dark brown seeds per capsule. Pollination is likely by out-crossing but B.C. pollinators are unknown.

Similar species: Dwarf owl-clover is a small plant with distinctly separated dark reddish leaves and smaller flowers. It only grows 5-20 cm and when not in bloom can be confused with bearded owl-clover. Thin-leaved owl-clover has a distinctly narrow corolla compared to the club-shaped corollas of bearded owl-clover.



H. Roemei

Bearded owl-clover



I. Roemer

Dwarf owl-clover

Distribution

In B.C. known from Garry oak ecosystems (Appendix III) on southeastern Vancouver Island. Populations range between 20 and 1000 plants.

Habitat

Recorded in open meadows, grasslands and headlands near the ocean, usually at elevations <10 m. Usually occurs within shallow damp to wet soils and vernal seepages on slightly sloping exposed rocky outcrops along the shoreline that dry up toward the end of summer. Plants favour southern, eastern or northeastern aspects, and are tolerant of continuous sun, wind and salt spray. Plant is shade intolerant. Associated species include harvest brodiaea, sea blush, poverty clover, broad-leaved shooting star; camas in upper slopes in draws with deep soil, and scouler's popcornflower in wet seeps. In drier areas with well-drained soil associated grasses include western fescue, early hairgrass, annual bluegrass and brome. The bearded owl-clover is a root hemiparasite possibly with habitat-associated grasses, although host species or degree of parasitism are unknown. *Structural stages:* 1, 2, 3



WHITE-TOP ASTER Aster curtus

Description

General: Erect perennial herb, 10-30 cm tall. Unbranched, hairless stems emerge from a mass of rhizomes.

Leaves: Stem leaves alternate, reduced upward, averaging 3.0 cm long and 0.7 cm wide. Toothless leaves taper at both ends with widest part above the middle and usually appear unstalked at base. Flowers: Clusters of 5-20 flower heads are located on unbranched stems. Individual flower heads contain one to three very small (average 2 mm long) white ray flowers. Nine to 21 disk flowers are light yellow and have somewhat purple anthers. A series of bracts located below the flower head are white below with light green tips. Flowering occurs from July to August. Fruits: Smooth, grey achenes, densely hairy, with a cluster of white hairs at tip.

Similar species: Not likely to be confused with other species. The common California aster has significantly larger blue or purple ray flowers and multi-branched flower heads. The two other B.C. species with white flowers, *A. englemannii* and *A. paucicapitatus*, are bigger and have longer ray flowers.



White-top aster

Distribution

The white-top aster is associated with Garry oak ecosystems and similar habitats (Appendix III) of southern Vancouver Island.

Habitat

Found on dry, grassy meadows as well as wooded stands of Garry oak. Known to occur on rocky slopes and shallow soils, possibly shaded by nearby woodlands.

Elevations: 0-200 m *Structural stages:* all



DELTOID BALSAMROOT Balsamorhiza deltoidea

Description

General: Slow-growing perennial herb with characteristic large and prominent yellow flower heads that grow from glandular, prominent veined and rough-haired stems. Deep woody taproot. Height: 20-100 cm. Leaves: Large triangular and green leaves grow from both the base and the stem of the plant. Basal leaves are large, 20 cm wide and 30 cm long, heart-shaped or triangular. Distinct nerves branch from a main vein through the middle of the leaf and the margins are round-toothed. The tear-dropped stem leaves are greatly reduced but with the same glandular, rough-haired texture and venation. Flowers: One to four bright yellow flower heads grow from thick stems, the central flower larger than the lateral flowers. The flower head is 2.5 cm wide and composed of a central disk of 13 or 21 tiny ray flowers that together give the appearance of a 'sunflower'-type head. Leaf-like and slightly woolly bracts surround the flower head, the outer bracts sometimes growing past the flower disk.

Fruits and seeds: Small, 7-8 mm long, and dry one-seeded fruits are smooth and lack bristles or hairs. Seed production is generally low.



Deltoid balsamroot



Similar species: This species is not likely to be confused with other species on the coast. Its prominent yellow flower head makes it a relatively easy species to identify.

Distribution

The deltoid balsamroot is at the northernmost limit of its range. It is associated with Garry oak ecosystems and similar habitats (Appendix III). It is known from only 10 occurrences within B.C., all of them on Vancouver Island between Victoria and Comox.

Habitat

Open woodlands, grassy areas and meadows in association with Garry oak ecosystems. Dry, exposed and rocky areas in deep, well-drained sand or gravel soils. Associated species: Common overstory tree species include Garry oak and arbutus. Shrubs commonly found include snowberry, hairy honeysuckle, oceanspray and Oregon grape. Naturally occurring herbs include Idaho fescue, sea blush, fernleaved desert-parsley, broad-leaved stonecrop, meadow death camas, Menzies' larkspur, blue wildrye, woolly sunflower and great camas. *Elevations:* 25-260 m *Structural stages:* all



TALL BUGBANE Cimicifuga elata

Description

General: Tall perennial wildflower, 120-200 cm tall.

Leaves: Alternate arrangement of large, compound leaves up to 80 cm long; long stalk up to 40 cm long. Twice divided into three leaflets, each leaflet with three lobes, subdivided into irregularly toothed lobes. Smooth on top of leaflets, fine-hairy below. *Flowers:* Narrow, raceme inflorescence contains between 50 and 900 tiny white flowers. Mature racemes resemble bottle brushes.

Fruits and seeds: 9-12 mm long follicle fruits dry to a flattened capsule, holding about 10 small reddish seeds.

Similar species: Most likely to be mistaken for baneberry, which has smooth leaves above rather than hairy; its inflorescence is rounded, and its fruits are red berries instead of flattened capsules.

Baneberry





Tall bugbane

Tall bugbane flowers

Distribution

Known from near Chilliwack, southwestern B.C.

Habitat

Damp, shaded, low elevation oldgrowth forests. Also found in mature mixedwood or deciduous forests; especially associated with big-leaf maple, red alder or with numerous canopy gaps. As it is also found along roads and in clearcuts, it is not considered old-growth dependent.

Elevations: 0-1000 m

Structural stages: 1, 2, 3 (along roads and in clearcuts), 6, 7



Knopt

TALL WOOLLY-HEADS Psilocarphus elatior

Description

General: Erect, annual herb, emerging from a taproot, from 5-15 cm tall. Moderately branched stems have a woolly or silky appearance from its fine hairs.

Leaves: Stem leaves only, in opposite arrangement, with overall silky to woolly appearance. Leaves slender and long, averaging 20 mm long and 4 mm wide, with toothless margins.

Flowers: Usually a single flower head, sometimes several, borne at the tips of branches or from stem nodes. Flower heads are spherical in shape with extended receptacular bracts, from 2.5-3.8 mm long.

Fruits: Achene, 10-17 mm long, without hairs.

Similar species: Can be confused with slender woolly-heads. Slender woollyheads are more extensively branched and become prostrate at maturity. Receptacular bracts are smaller in the slender woolly-heads and leaves are often spoon-shaped instead of straight, long and slender.



Tall woolly-heads

Distribution

Tall woolly-heads are associated with Garry oak ecosystems and similar habitats (Appendix III). They are found on southern Vancouver Island.

Habitat

Occur primarily in exposed, moist to wet sites that are seasonally flooded, especially dried spring pools. They can also be found in disturbed sites, moist meadows and muddy ditches. *Structural stages:* 1, 2, 3

Ann	ual Scl	nedule	9								
					Plants e	merge.					
						Flowe	ering.				
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Plant Communities

English Name	Scientific Name	Forest District	Biogeoclimatic Unit
Douglas-fir/Alaska oniongrass	Pseudotsuga menziesii/Melica subulata	South Island Sunshine Coast	CDFmm/03
Douglas-fir/dull Oregon-grape	Pseudotsuga menziesii/Mahonia nervosa	Chilliwack Squamish Sunshine Coast North Island	CWHds1,ds2
Western hemlock – Douglas-fir/ electrified cat's-tail moss	Tsuga heterophylla – Pseudotsuga menziesii/ Rhytidiadelphus triquetrus	Chilliwack Squamish Sunshine Coast	CWHds1/01
Western redcedar – Douglas-fir/vine maple	Thuja plicata – Pseudotsuga menziesii/Acer circinatum	Chilliwack Squamish Sunshine Coast North Island	CDFmm1

DOUGLAS-FIR/ALASKA ONIONGRASS

Pseudotsuga menziesii/Melica subulata

Description

The Douglas-fir/Alaska oniongrass community is a dry, open forested ecosystem found on dry, warm sites, often on southerly aspects. Occurrences are patchy across the landscape. Shallow (<1 m), sombric brunisol soils are typical, derived from colluvial or morainal surficial materials.

This community occurs in the Moist Maritime subzone of the Coastal Douglas-fir zone (CDFmm), in site series 03. Sites have a very xeric to xeric relative soil moisture regime and a rich to very rich relative nutrient regime. It is a sensitive ecosystem, highly susceptible to degradation from invasion of exotic plant species as well as soil erosion and compaction.

Elevations: 0-150 m



Mature forest



Herb layer

Common Vegetation			
Trees	Douglas-fir, Garry oak		
Shrubs	Hairy honeysuckle		
Herbs	Alaska oniongrass, big-leaved sandwort, broad-leaved shootingstar, fairy-slipper, long-stoloned sedge, Pacific sanicle, tall trisetum		
Mosses	Electrified cat's tail moss		

H. Roeme