

Sanicula arctopoides – Bear’s-foot Sanicle

English name: Bear’s-foot Sanicle

Other English name: Snake-root Sanicle, Footsteps of Spring, Yellow Mats

Scientific name: *Sanicula arctopoides* Hook. & Arn.

Other scientific name: *Sanicula X howellii* (J.M. Coult. & Rose) Shan & Constance, *Sanicula crassicaulis* var. *howellii* (J.M. Coult. & Rose) Mathias

Family: *Apiaceae* (Carrot Family)

Risk status

BC: imperilled (S2); red-listed

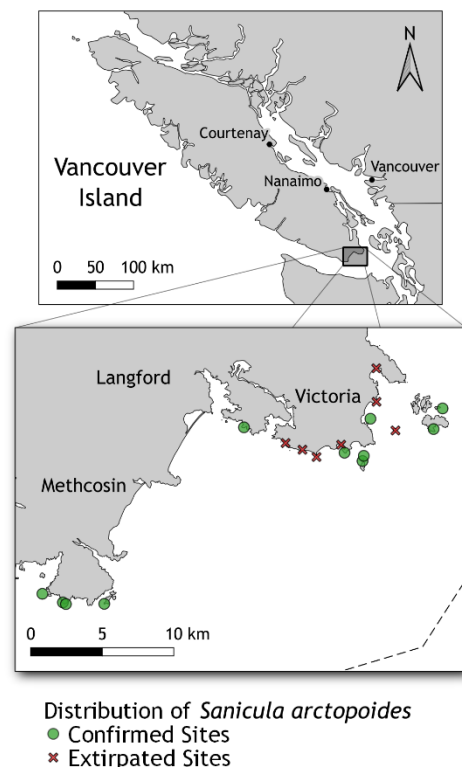
Canada: Threatened

Global: secure (G5)

Elsewhere: Washington critically imperilled, Oregon, California not ranked (SNR),

Range/Known distribution: In Canada, Bear’s-foot Sanicle has been reported from 21 sites, of which 14 are extant, ranging the Victoria area almost as far as Sooke. In the United States, it has been reported from six locations in the San Juan Islands, but the next nearest populations are over 100 km away, on the coast south of the Olympic Peninsula. From there, it has a strictly coastal distribution south to the Santa Barbara area of the central California coast.

Field description: Bear’s-foot Sanicle is a tap-rooted perennial that produces a single, branched, flowering stem that is very short during the flowering period but elongates to up to 30 cm when in fruit. The wide, lobe, and toothed basal leaves tend to be pale yellowish green and form a dense rosette. The plant produces a few stem leaves that are progressively smaller and less deeply lobed higher up the stem. Branches emerge from the axis of most cauline leaves although this is often obscure when the plants are in flower because the branches are short, and the inflorescence forms a compact button. The inflorescence is a compound umbel. The main umbel branches are subtended by an involucre composed of deeply lobed, toothed bracts. The terminal umbellets are subtended by an involucl which is composed of prominent bracts. The



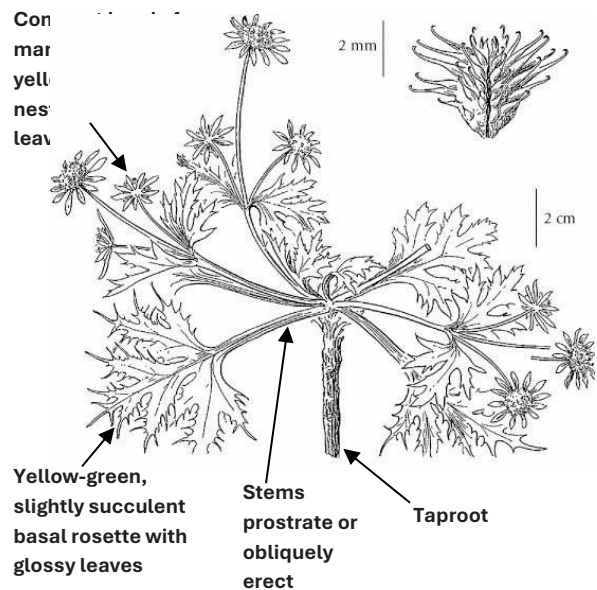
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umbellets bear 20-25 bright yellow flowers on very short pedicels. When the fruits (schizocarps) ripen they remain in a compact ball. Each schizocarp is covered by hooked bristles.

Identification tips: Bear’s-foot Sanicle is easily distinguished from the other three sanicle species occurring within its Canadian range. Pacific Sanicle (*Sanicula crassicaulis*) is a more erect, coarser plant with a more open inflorescence and its umbellets lack conspicuous involucels. Sierra Sanicle (*S. graveolens*), which also lacks conspicuous involucels, is a smaller plant with fewer (10-15) flowers in each umbellet. Purple Sanicle (*S. bipinnatifida*) has bright purple flowers and its leaves, which are shiny, are often twice pinnatifid.



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Life history: Bear’s-foot Sanicle seed germination may begin as early as December or January, peaks in February or March and ends in April. The most vigorous first-year seedlings have already developed stout roots over 2 cm long by early to mid March and vigorous root development appears to have protected the plants from early desiccation. Established plants break dormancy when the autumn rains return. Bear’s-foot Sanicle is a monocarpic perennial – it grows for several years before flowering and only flowers once before dying. Plants in naturally-occurring Canadian populations may take more than a decade before they flower. In cultivation, plants may flower in 3-5 years. Flowering may begin as early as February and continue into April. Green fruits are abundant by mid May and the fruits ripen in June. The mature fruits begin to disperse in July and are

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gradually shed through July and August. Most fruits have been shed by late September. The internodes of the stem and inflorescence expand after the flowers have been fertilized, greatly increasing the plant’s radius and therefore the likelihood that its seeds will catch on the fur or feathers of passing animals. Nevertheless, Bear’s-foot Sanicle does not readily expand into apparently suitable habitat more than a few metres from existing plants.

Habitat: In Canada, Bear’s-foot Sanicle is restricted to meadows and woodlands. Shrubs are rarely present although a sparse cover of stunted Nootka Rose (*Rosa nutkana*) may be present. The native herbaceous layer is dominated by perennial forbs such as Pacific Sanicle (*Sanicula crassicaulis*), Barestem Desert-parsley (*Lomatium nudicaule*), Common Strawberry (*Fragaria virginiana*), Great and Common Camas (*Camassia leichtlinii* and *C. quamash*), Yarrow (*Achillea millefolium*), Harvest Brodiaea (*Brodiaea coronaria*), Thrift (*Armeria maritima*), Gumweed (*Grindelia* sp.), White Tritelleia (*Triteleia hyacinthina*), and Field Chickweed (*Cerastium arvense*). Native bunchgrasses such as California Oatgrass (*Danthonia californica*) and Beach Red Fescue (*Festuca rubra* ssp. *pruinosa*) are often present and occasionally abundant.

Why this species is at risk: The greatest threats come from habitat loss and invasive species, while altered fire and hydrological regimes and grazing are significant secondary threats. Many populations were apparently lost as habitat was converted to residential, transportation and recreational uses. Several other populations may have been similarly destroyed without ever being reported. Most of the fourteen remaining populations are protected from habitat loss at present.

A number of invasive species have become abundant in meadows supporting Seaside Bear’s-foot Sanicle and compete with it for space, water, and nutrients. These include shrubs such as Scotch Broom* (*Cytisus scoparius*); English Ivy* (*Hedera helix* - which forms creeping mats); a diverse assemblage of forbs including Hairy Cat’s-ear* (*Hypochaeris radicata*), Ribwort Plantain* (*Plantago lanceolata*), and Common Vetch* (*Vicia sativa*); and several grasses including Orchard Grass* (*Dactylis glomerata*), Common Velvet Grass* (*Holcus lanatus*), Kentucky Bluegrass* (*Poa pratensis*), Tall Oatgrass* (*Arrhenatherum elatius*), Barren Fescue* (*Vulpia bromoides*), Soft Brome* (*Bromus hordeaceus*), and hairgrasses* (*Aira praecox* and *A. caryophyllea*).

Altered fire regimes allow forest ingrowth, shading out Bear’s-foot Sanicle. Deer and Canada Geese feed preferentially on the species when it is in flower.

What you can do to help this species: Populations should be fenced where there is a threat of heavy trampling, however light trampling appears to favour Bear’s-foot Sanicle by suppressing some of its taller competitors. Invasive shrubs should be removed. Controlling herbaceous weeds is an expensive ongoing endeavour but should be considered where populations of Bear’s-foot Sanicle are at risk of extirpation.

References

B.C. Conservation Data Centre. 2024. BC Species and Ecosystems Explorer. B.C. Minist. of Environ. Victoria, B.C. Available: <https://a100.gov.bc.ca/pub/eswp/> (accessed Mar 15, 2024).

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- Consortium of Pacific Northwest Herbaria Specimen Database (CPNWH). [2007-2024]. Website <https://www.pnwherbaria.org>. Accessed March 19, 2024.
- Constance, L and M. Wetherwax 2012, *Sanicula arctopoides*, in Jepson Flora Project (eds.) Jepson eFlora, https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=43161, accessed on March 20, 2024.
- COSEWIC. 2015. COSEWIC assessment and status report on the Bear's-foot Sanicle *Sanicula arctopoides* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 35 pp. (http://www.registrelep-sararegistry.gc.ca/default_e.cfm).
- Fairbarns, M. 2005. Demographic and phenological patterns in *Sanicula arctopoides* (Bear's-foot Sanicle). Summary Report for the Canadian Forest Service. 28 pp.
- Fairbarns, M. 2009. Population Restoration Studies of Plant Species at Risk. Unpublished report for the Interdepartmental Recovery Fund (IRF Project 1117). 29 pp.
- Isaac-Renton, M., J. R. Bennett, R. J. Best, and P. Arcese. 2010. Effects of Introduced Canada Geese (*Branta canadensis*) on Native Plant Communities of the Southern Gulf Islands, British Columbia. *Ecoscience* 17: 394-399
- Lowenberg, G. J. 1994. Effects of floral herbivory on maternal reproduction in *Sanicula arctopoides* (Apiaceae). *Ecology* 75:359–369.
- Lowenberg, G. J. 1997. Effects of floral herbivory, limited pollination, and intrinsic plant characteristics on phenotypic gender in *Sanicula arctopoides*. *Oecologia* 109:279-285.
- Parks Canada Agency. 2006. Recovery Strategy for Multi-species at Risk in Maritime Meadows Associated with Garry Oak Ecosystems in Canada. In Species at Risk Act Recovery Strategy Series. Ottawa: Parks Canada Agency. 93 pps.

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