

Hosackia pinnata – Bog Bird's-foot Lotus

English name: Bog Bird's-foot Lotus

Other English name: Bog Bird's-foot Trefoil, Meadow Bird's-foot Trefoil

Scientific name: *Hosackia pinnata* (Hook.) Abrams

Other scientific name: *Lotus pinnatus* Hook.

Family: *Fabaceae* (Pea Family)

Risk status

BC: imperilled (S2?); red-listed

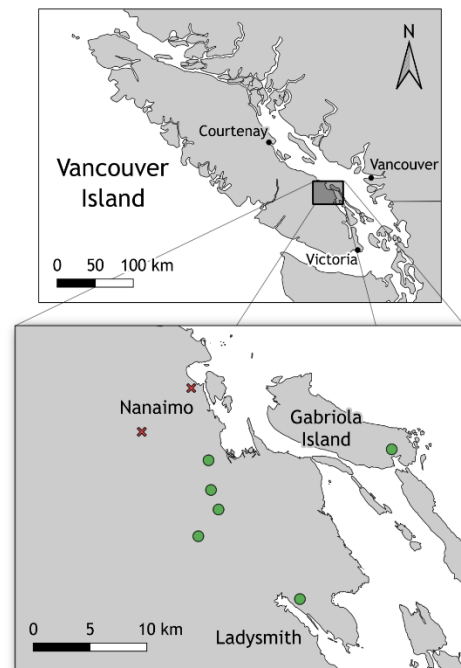
Canada: Endangered

Global: secure (G4G5)

Elsewhere: Washington, Oregon, California, Idaho status not reported (SNR)

Range/Known distribution: In Canada, Bog Bird's-foot Lotus is known from six extant and three apparently extirpated populations in the Nanaimo and Ladysmith areas and Gabriola Island. In the United States, Bog Bird's-foot Lotus is known from the Puget Trough, the Coast and Cascade Mountains south to the San Francisco Basin, and the Sierra Nevada. There are outlier populations in the Spokane-Moscow area of eastern Washington and Idaho, near Alturas in northeast California, and in the Santa Barbara and Los Angeles areas.

Field description: Bog Bird's-foot Lotus is a perennial herb that grows from a thick taproot and short rhizome (underground stem). The sprawling to upright, sometimes solitary stem is hollow, smooth or sparsely stiff-hairy, and it grows 15-60 cm long. The alternate leaves are composed of 5-9 elliptic to egg-shaped leaflets. The leaves are 4-8 cm long and the leaflets are 1-2.5 cm long. The 3-10 mm long stipules (leaf-like structures at the base of the leaf stalks) are well developed, thin and narrowly egg-shaped. Stalked clusters of flowers grow from the angles between the stems and leaves. Each cluster has 3 to 12 pea-like flowers that grow from a central point. A single, thin bract (leaf-like structure) may or may not occur on the stalk below the flower cluster. The flowers are 10-15 mm long. The 4-8 mm long calyx (green outer part of the flower) forms a 2-lipped tube with an upper pair of lance-triangular teeth, and three lower awl-shaped teeth, all much shorter than the tube. The pea-shaped corolla



Distribution of *Hosackia pinnata*

● Confirmed Sites
× Extirpated Sites

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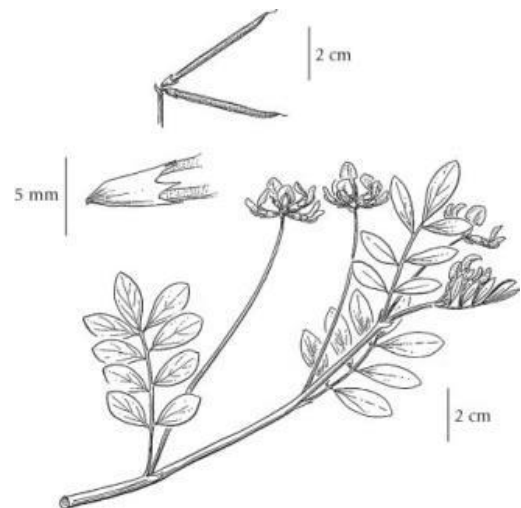
consists of a broad yellow upper petal (banner), creamy-white petals (wings) on either side of the banner, and two yellow fused petals below (the keel). The pods are splayed like the toes of a bird’s foot and are thin, 3-6 cm long, non-hairy, and have 5-20 seeds.

Identification tips: In BC, Bog Bird’s-foot Lotus may be confused with its close relative Seaside Bird’s-foot Lotus (*Hosackia gracilis*) which has a similar form. The wing petals on Bog Bird’s-foot Lotus are white but that distinction is imperfect because those of Seaside Bird’s-foot Lotus often become white as they dry out. The keel of the Seaside Bird’s-foot Lotus flower is purple tipped. The BC ranges of the two species do not overlap.

The stipules of both Seaside Bird’s-foot Lotus and Bog Bird’s-foot Lotus are green and well-developed while the stipules of invasive European species of Lotus known from our area are very small, often reduced to small gland-like bumps at the base of the leaves. The flowers of the European species are also entirely yellow (or occasionally entirely orange or red) unlike in our species of *Hosackia*, where there are striking colour differences between the wing and the banner petals.



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Life history: The seeds of Bog Bird's-foot Lotus have an outer shell that prevents water from getting in. This enforced dormancy allows many seeds to remain viable in the soil seed bank for years.

In Canada, germination begins in late winter or early spring. It is uncertain when mature plants break dormancy, but it may not be until late winter or early spring. Plants reach full size in May. Flowering peaks in late May or June. Bees and other insects pollinate the flowers. Green fruit reach full size by late June or July and soon ripen and split, dispersing their seeds by late July. The foliage begins to die back as the fruits mature and the leaves have usually withered by mid July.

As with many members of the Fabaceae, the roots of Bog Bird's-foot Lotus support nodules containing nitrogen-fixing *Rhizobium* bacteria. The nodules develop in the spring and are probably shed as the plants die back during the summer.

Habitat: Bog Bird's-foot Lotus grows on shallow soils in moist meadows, seeps, wet ditches and streamsides, where the summer drought does not depend as early as in more rapidly drained meadow habitats. It occurs at elevations of up to 150 m asl. It is commonly associated with Yellow Monkeyflower (*Erythranthe guttata*), Sea Blush (*Plectritis congesta*), White Triteteleia (*Triteleia hyacinthina*), Scouler's Popcornflower (*Plagiobothrys scouleri*), American Speedwell (*Veronica beccabunga* ssp. *americana*) and Small-leaved Montia (*Montia parvifolia*).

Why this species is at risk: The greatest threat to Bog Bird's-foot Lotus comes from continuing habitat loss to housing and transportation development. The next greatest threat comes from intensive recreational use of habitat, primarily by off-road vehicles, in the largest remaining population. Despite efforts by the property managers to exclude recreational off-road vehicles (i.e. by installing cement barriers along the access road), vehicles continue to access Harewood Plains on a regular basis and the potential for further impacts is high. It is also at risk from forest and shrub ingrowth due to fire suppression, and from competition with invasive species.

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 few remaining Canadian populations of Bog Bird's-foot Lotus urgently need protection from development and off-road recreation. If new populations can be established that may help offset past losses but most efforts to establish replacement populations of species at risk have little or no success, as has been observed at Fort Rodd Hill where an attempt to establish a new population of the closely-related Seaside Bird's-foot Lotus has shown little promise.

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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 10, 2024).
- COSEWIC 2004. COSEWIC assessment and status report on the bog bird's-foot trefoil *Lotus pinnatus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 33 pp. (www.sararegistry.gc.ca/status/status_e.cfm).
- Parks Canada Agency. 2006. Recovery Strategy for Multi-species at Risk in Vernal Pools and Other Ephemeral Wet Areas in Garry Oak and Associated Ecosystems in Canada. In Species at Risk Act Recovery Strategy Series. Ottawa: Parks Canada Agency. 73 pp.

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

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