English name: Prairie Lupine

Other English name: Elegant Lupine, Pacific Lupine

Scientific name: *Lupinus lepidus* Douglas *ex* Lindl. var. *lepidus*

Other scientific name: none

Family: *Fabaceae* (Pea Family)

**Risk status**

    BC: critically imperilled (S1); red-listed

    Canada: Endangered

    Global: secure (G5)

    Elsewhere: uncertain – see below

Range/Known distribution: Prairie Lupine has been reported from about 11 sites in Canada, but there are only 3-4 extant populations. Its distribution in the United States is somewhat unclear because many reports appear to be mis-identified specimens of Dwarf Mountain Lupine (*Lupinus lepidus* var. *lobbii* =*L. lyallii*), a closely-related species that occurs at higher elevations. Nevertheless, there are many collections of Prairie Lupine from the Puget Trough south of Tacoma and in the Willamette Valley south to Eugene, Oregon. There appears to be a gap of about 170 km between the BC populations and the next nearest, at Joint Base Lewis–McChord, south of Tacoma.

Distribution of *Lupinus lepidus*
● Confirmed Sites
✖ Extirpated Sites
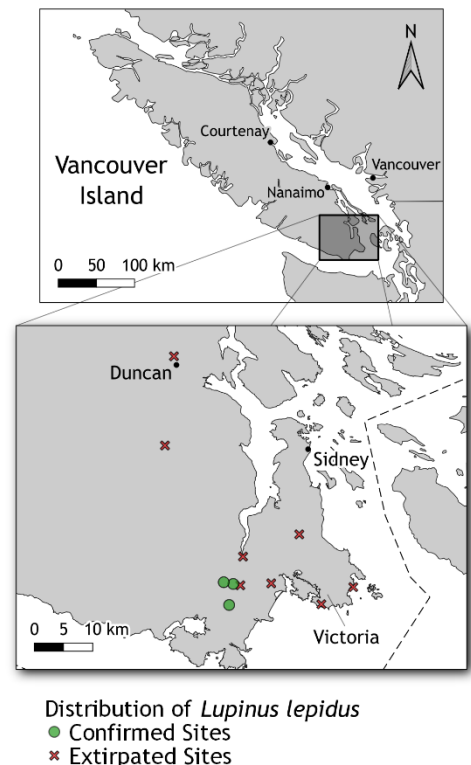
Field description: Prairie Lupine is a tufted perennial that grows 20-45 cm tall from a woody stem base. Most of the leaves form a rosette at the base of the plant with a few alternate leaves found up the flowering stems. The leaves are palmately compound (divided like fingers on a hand), with 5-9 leaflets, on petioles 2-5 times as long as the leaf blades. The leaves and stems are covered with white, silky hairs. The pea-like flowers are arranged in an elongated inflorescence (raceme) that is usually more than 5 cm long when in full flower, on peduncles (flowering stalks) that are less than 1.5 times as long as the raceme itself. The flowers range in colour from blue, white to purple. The largest upper petal is bent backward below the midpoint. The hairy seed pods have 2-4 hard, brown seeds.

Identification tips: Prairie Lupine's close relative, Dwarf Mountain Lupine, is a subalpine/alpine plant that has peduncles 1.5 to 3 times the length of its racemes and the short, fat racemes themselves are usually less than 5 cm long when in flower. Dwarf Mountain Lupine is known from as close as the Olympic Mountains and, in Canada, from the east slopes of the Coast and Cascade Ranges. It has not been reported from the Vancouver Island Mountains.

Dense-flowered Lupine (*L. microcarpus* var. *microcarpus* = *L. densiflorus* var. *densiflorus*), Two-coloured Lupine (*L. bicolor* ssp. bicolor), and Big-pod Lupine (*L. aphyllous*) also occur in Garry Oak and associated ecosystems, but they are annual plants.

Lupinus lepidus Douglas ex Lindl

Upper Petal

2 cm
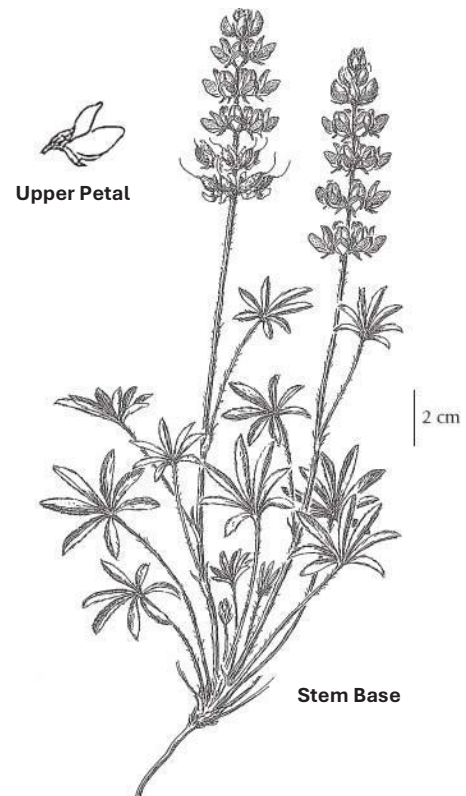
Stem Base

Life history: Seeds may germinate soon after the autumn rains begin, as early as September. It is not clear if they germinate throughout the winter, as with many other Lupines. The roots of Prairie Lupine form symbiotic relationships with Rhizobium bacteria, forming root nodules in which the *Rhizobium* fixes nitrogen. Plants form rosettes in their first year but do not appear to flower until their second year. Flowering occurs from mid May to late June (one flowering Beacon Hill specimen was collected on August 27, 1924, but that was an anomaly). Fruits are produced from early June until the plants wither from summer drought, generally in early to mid July. As the pods dry, they twist, building up tension. When they finally split along their line of dehiscence, the seeds are flung several cm. The small, dense seeds lack any structures to aid in medium to long-distance dispersal, so almost all of them remain close to the parent plants. The seeds appear to be able to remain viable in the soil for several years, forming a persistent seed bank. Prairie Lupine appears to be a short-lived species, perhaps with a typical life span of 2-5 years.

Habitat: In Canada, Prairie Lupine has been found in two rather different habitat types. The extant populations occur at elevations of 370-415 m, primarily on southeast to south facing slopes. They generally occur on slight depressions or gently sloping benches within dry, rocky terrain. They favour shallow, stoney soils. The native vegetation is dominated by Roemer's Fescue (*Festuca roemeri*), Dune Bentgrass (*Agrostis pallens*), California Oatgrass (*Danthonia californica*), Long-stoloned Sedge (*Carex inops*), and Wallace's Selaginella (*Selaginella wallacei*) . The vegetation often includes a dense carpet of mosses and lichens (species include Grey Rock-moss (*Niphotrichum canescens*), Broom-moss (*Dicranum scoparium*), Juniper Haircap Moss (*Polytrichum juniperinum*), and lichens of the genus Cladonia.

The extirpated populations at Beacon Hill Park, Colwood Lake, Goldstream, Somenos Lake, and Uplands Park/Cattle Point occurred at much lower elevations. They grew in relatively dry open meadows, but there are no detailed descriptions of their associated species.

The population at Observatory Hill grew in an intermediate site. It was described as growing in loose rocks on a southern aspect. Most such habitats on Observatory Hill occur at elevations of 100-200 m.

Why this species is at risk: The loss of populations at Beacon Hill Park, Langford Plains, Goldstream and Somenos Lake appears to have been the result of road building and urban development. The extant populations appear to be at greatest threat from invasive species, primarily Scotch Broom* (*Cytisus scoparius*) and invasive grasses including Sweet Vernal Grass* (*Anthoxanthum odoratum*).

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 most immediate need is for up-to-date information on the size and condition of existing populations. They should be monitored so that site-specific management actions can be taken before more populations are lost. Research is needed to determine whether plants from the high elevation sites at Mount McDonald, Mount Braden, and Mount Helmcken can thrive at lower elevations. If they can, then new populations should be established at low elevations to offset recent losses. Otherwise, seed should be collected from low elevation sites in south Puget Sound in order to conduct experimental introductions.

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