English name: Kincaid's Lupine

Other English name: Oregon Lupine

Scientific name: *Lupinus oreganus var. kincaidii* C.P. Sm.

Other scientific name: *Lupinus sulphureus* subsp. *kincaidii* (C.P. Sm.) L.Ll. Phillips, *Lupinus sulphureus var. kincaidii* (C.P. Sm.) C.L. Hitchc.

Family: *Fabaceae* (Pea Family)

Risk status

BC: unknown (SU); red-listed

Canada: Extirpated

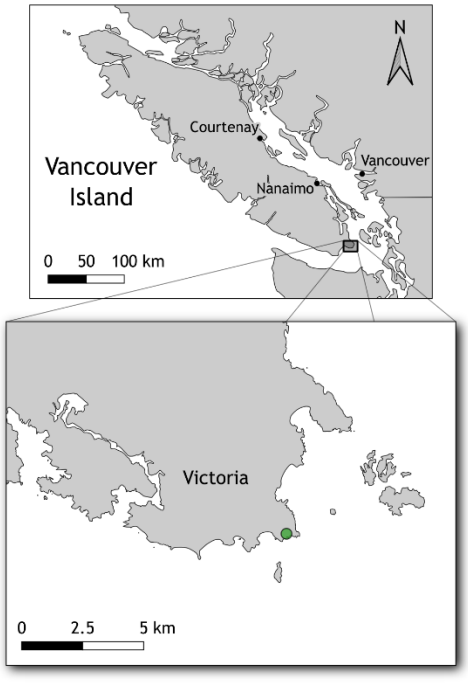
Global: imperilled (G4T2)

Elsewhere: Washington critically imperilled (S1), Oregon imperilled (S2)

Range/Known distribution: In Canada, Kincaid's Lupine is known based on five specimens labelled "Victoria", "Oak Bay", or "Oak Bay Flat", collected between 1924 and 1929.

In the United States, Kincaid's Lupine is known from South Puget Sound in Washington, and the Willamette Valley in Oregon.

Field description: Kincaid's Lupine is a long-lived perennial that has several unbranched stems, usually 30-50 cm tall, arising from a branched crown. The foliage has whitish to brownish, stiff to silky, white or brown hairs. The compound leaves have 7-12 narrow leaflets which are sparsely to copiously hairy below but lack hairs on their upper surface. The basal leaves have petioles 3-5 times the length of their blades while the stem leaves have progressively shorter petioles higher up on the stem. The slender racemes bear rather open whorls of blue or purplish flowers. The flowers are relatively small (9-12 mm long). The calyx lacks a prominent spur, and its upper lip is only shallowly bidentate (cleft much less than 1/3 of its length). The banner (upper petal) lacks hair on its back and does not flare widely from the lateral (wing petals). The 2-3 cm long pods contain 4-5 pinkish-brown seeds.



Distribution of *Lupinus oreganus var. kincaidii*
● Confirmed Sites

Identification tips: Several other Lupines occur in Garry Oak and associated ecosystems in British Columbia, including Tree Lupine* *(L. arboreus*), Bicolored Lupine (*L. bicolor*), Seashore Lupine (*L. littoralis*), Dense-flowered Lupine (L. *microcarpus var microcarpus*), Prairie Lupine (*L. lepidus*), Big-pod Lupine (*L. pachylobus*), Small-flowered Lupine (*L. polycarpus*), and Large-leaved Lupine (*L. polyphyllus*). Streambank Lupine (*L. rivularis*) has also been reported from the area, apparently in error. Bicolored Lupine, Dense-flowered Lupine, Big-pod Lupine, and Small-flowered Lupine are annuals and thus easy to distinguish from Kindcaid's Lupine. Tree Lupine* is a very robust, yellow-flowered perennial.

Prairie Lupine, Seashore Lupine, Large-leaved Lupine, and Streambank Lupine are all perennial species with blue flowers. Prairie Lupine is a low, somewhat matted perennial rarely more than 35 cm tall. Its leaves are copiously hairy above as well as below, the upper lip of its calyx is cleft at least 1/3 of its length, and its keels are usually ciliate (vs. glabrous). Seashore Lupine, Large-leaved Streambank Lupine have much more widely-flaring banner petals. Large-leaved Lupine has larger leaflets 5-10 cm long (versus 2.5-5 cm). Streambank Lupine usually has ciliate keels (vs. glabrous) and branched stems (vs. unbranched). Seashore Lupine has somewhat ciliate keels and its stems tend to be freely branched.

Lupinus oreganus

Life history: The seeds of Kincaid's Lupine appear to have strong dormancy mechanisms that presumably allow it to develop a long-lived seedbank. Nevertheless, seed germination is rarely observed. Seeds may germinate in both the autumn and the spring, but autumn seedlings may have a low survival rate over winter. Most plants fail to flower until about their third year. In Oregon, flowering begins in April and may extend into June. The flowers are pollinated by bees. Shoots die back as the summer drought deepens, with most shoots in Oregon withered by July or early August.

Kincaid's Lupine clones can be quite large, with extensive rhizomes. These rhizomes do not appear to produce adventitious roots but will produce shoots as much as 10 m from the main root. Studies suggest that Kincaid's Lupine is a long-lived plant, with individual clones perhaps being centuries old.

Habitat: The Canadian collections provide no information on the habitat where they were collected. In the United States, Kincaid's Lupine is found in upland meadows (prairies). Native plants in these habitat include Deltoid Balsamroot (*Balsamorhiza deltoidea*), Harvest Brodiaea (*Brodiaea coronaria*), California Brome (*Bromus carinatus*), California Oatgrass (*Danthonia californica*), Menzies Larkspur (*Delphinium menziesii*), Blue Wildrye (*Elymus glaucus*), Woolly Sunflower (*Eriophyllum lanatum*), Roemer's Fescue (*Festuca roemeri*), Wild Strawberry (*Fragaria virginiana*), Ocean-spray (*Holodiscus discolor*), Spring Gold (*Lomatium utriculatum*), Pacific Woodrush (*Luzula comosa*), Bracken (*Pteridium aquilinum*), and Pacific Sanicle (*Sanicula crassicaulis*). This species list suggests that Kincaid's Lupine would favor deep-soiled maritime meadows maintained open by fire, wind, and/or salt spray.

Why this species is at risk: Kincaid's Lupine was last seen in Canada in the 1920's. The south shore of Oak Bay, the most likely location for the Oak Bay occurrences of Kincaid's Lupine, was developed between in the late 19th and early 20th century. Since then, almost all of the suitable habitat in Oak Bay has been developed, with the noticeable exception of Uplands Park and the Trial and Chatham Islands. These remaining areas have been heavily altered through invasion by many of the same non-native plant species that are problematic in extant populations of Kincaid's Lupine in Washington and Oregon, including Scotch Broom* (*Cytisus scoparius*), Himalayan Blackberry* (*Rubus armeniacus*), Orchard Grass* (*Dactylis glomerata*), Tall Oatgrass* (*Arrhenatherum elatius*), and Tall Fescue* (*Schedonorus arundinaceus*).

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 important management action is to re-introduce Kincaid's Lupine to Canada.

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

*Refers to non-native species