

# GORSE

## *Ulex europaeus* L.

**Family:** *Fabaceae* (Pea).

**Other Scientific Names:** None.

**Other Common Names:** Furze, whin, prickly broom.

**Legal Status:** Provincial Noxious.



## Identification

**Growth form:** Perennial shrub.

**Flower:** Yellow, pea-like flowers, 15–20 cm long, borne on velvety, short stalks. Flowers usually appear singly but may be in small clusters.

**Seeds/Fruit:** Flattened pods are  $\frac{1}{2}$  dark (black, grey, or brown) and hairy, about 10–20 mm long, with several seeds in each pod.

**Leaves:** The leaves are alternate and deciduous. Leaflets are arranged in threes on young plants but are reduced to stiff scales or spines in mature plants. The spines are stiff, grooved, and branched, 1.5–2.5 cm long.



**Stems:** Mature shrubs grow 1–3 m tall, usually with a single, densely branched, erect stem. Branches are 5-angled, greenish with sparse black hairs, and tipped with spines (Douglas et al. 1999).

**Roots:** Deep taproot and lateral fibrous roots just below the soil surface. Adventitious roots may form on branches in contact with the ground.

**Seedling:** No information available.

### Similar Species

**Exotics:** Resembles Scotch broom (*Cystius scoparius*), another densely branched, medium to tall shrub with 5-angled stems and yellow, pea-like flowers that grows in similar habitats, but Scotch broom has no spines.

**Natives:** *Ulex* are not native to North America.

## Impacts

**Agricultural:** Present in some pastures on Vancouver Island.

**Ecological:** This pioneer species invades disturbed habitats, where it competes with native vegetation, reduces access for recreation, increases fire hazard, and

has the potential to impair forest regeneration in logged areas. It has been problematic in some cut-blocks on Vancouver Island.

**Human:** Originally used for stock fodder, for stock-proof hedgerows, and as an ornamental.

## Habitat and Ecology

**General requirements:** In BC, grows on dry, open, sandy or rocky clearings, old fields, cut banks, coastal bluffs, logged areas, flood plains, roadsides, and rights-of-way. Gorse occurs at low elevations with mild winters and relatively dry, cool summers. It tolerates a wide range of soils from sands to clays and is adapted to low fertility. It grows best on acidic soils.

**Distribution:** Most common on southern Vancouver Island near Victoria, but populations occur on Pender Island, West Vancouver on the Mainland, and

Skidegate on the Queen Charlotte Islands.

**Historical:** Introduced from Europe. Gorse had escaped cultivation as early as 1883 in the Victoria area (Macoun 1883).

**Life cycle:** Plants flower in spring and autumn, and most seedlings emerge in late spring, summer, or autumn. Germination is highest in open, unshaded areas. Plants grow rapidly for the first 15 years, and some plants can live up to 45 years.

**Mode of reproduction:** By seed.

**Seed production:** Seed production is variable, depending on crowding, plant size, habitat, and weather conditions. Annual production can average 500–600 seeds/m<sup>2</sup>.

**Seed bank:** More than 100 million seeds might accumulate in the seed bank under a continuous, mature stand of gorse (Meeklah 1979). Gorse seeds

have hard coats and can persist in the soil 25–40 years.

**Dispersal:** The maturing seed pods explode and disperse seeds at least a meter from the parent. Ants, animals, birds, machinery, and water can all disperse the seeds. Water is an especially important dispersal mechanism in the province, since many populations grow near the sea.

**Hybridization:** No information available.

## Management

**Biocontrol:** A number of agents are used for managing gorse in different areas of the world, including the gorse seed weevil (*Exapion ulicis*), gorse spider mite (*Tetranychus lintearius*), shoot-tip moth (*Agonopterix uliciteella*), and gorse thrips (*Sericothrips staphylinus*). The gorse spider mite appears promising since it is able to reduce gorse vigour and increase mortality by sucking plant juices. It is unlikely to eradicate the shrub but probably could reduce the population to tolerable levels. No biocontrol agents are currently approved for release in Canada.

**Mechanical:** Manual cutting and mechanical control have been effective in controlling small gorse infestations or on larger areas that are accessible with equipment. Since manual cutting can target individual plants, this technique can be valuable in sensitive habitats such as riparian areas or where gorse is interspersed with rare species. It may be the only cutting method possible on steep and undulating terrain. Specialized machinery has been used to cut and crush gorse on large, accessible sites on Vancouver Island. Gorse sometimes coppices after cutting, and mechanical control can stimulate germination.

**Fire:** Fire can reduce above-ground portions of mature gorse shrubs, kill seedlings, destroy viable seeds on the plant, and reduce seeds in the soil seed bank. Unless fires are very intense, however, plants can re-sprout from the base and more deeply buried seeds remain viable. Usually fire is combined with other management practices such as grazing, herbicide application, or seeding native forages to achieve long-term control. Fire has not been widely used to control gorse in the province, although it may be a useful tool on a site-specific basis.

**Herbicides:** Few herbicides have been tested and approved for gorse in BC. Limited trials using 2,4-D have had variable results. Consult the most recent edition of BC Ministry of Agriculture, Food and Fisheries Crop Production Guides for specific recommendations. Before applying herbicides, read the label for full use and precautionary instructions.

**Cultural/Preventive:** Goats and sheep control gorse through browsing and trampling. Best results are achieved with intensive management and browsing young, un-hardened plants. Seeding to competitive perennial grasses and forbs may reduce seedling survival, especially if fertilizers are applied.

### Integrated Management Summary

Long-term management will likely result from an integrated management program. Gorse has been effectively controlled on forestland in New Zealand by using a combination of burning followed by herbicide applications, although these treatments may have limited application in BC, considering the current distribution of the plant. Other treatment combinations have integrated machinery, herbicides, sowing, domestic forages, and grazing before planting sites to crop trees. Introduction of biocontrol agents, such as the gorse spider mite, will also contribute to gorse control.

## References

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