

LEAFY SPURGE

Euphorbia esula L.

Family: *Euphorbiaceae* (Spurge).

Other Scientific Names: *Euphorbia virgata*.

Other Common Names: None.

Legal Status: Provincial Noxious.



Identification

Growth form: Perennial forb.

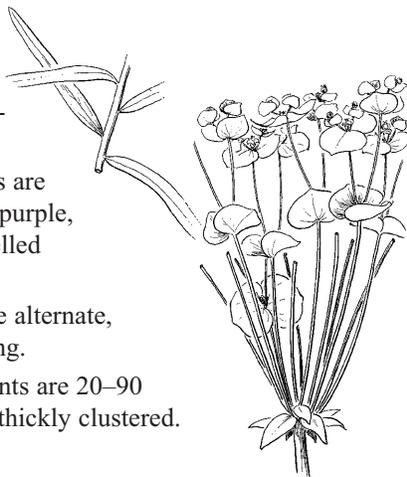
Flower: Flowers are yellowish green, small, arranged in numerous small clusters with

distinctive paired bracts underneath. Bracts are heart shaped and yellow-green.

Seeds/Fruit: Seeds are oblong, greyish to purple, contained in a 3-celled capsule.

Leaves: Leaves are alternate, narrow, 2–6 cm long.

Stems: Mature plants are 20–90 cm tall. Stems are thickly clustered.



Roots: Extensive lateral root system.

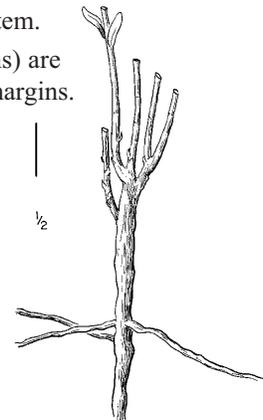
Seedling: Seed leaves (cotyledons) are linear to lanceolate, with entire margins.

Other: The entire plant contains white, milky latex. Foliage of the plant is smooth and hairless.

Similar Species

Exotics: Six species of spurge occur in BC, all introduced (Douglas et al. 1999).

Natives: None.



Impacts

Agricultural: Invades rangeland and reduces its productivity for livestock and wildlife (Lajeunesse et al. 1999).

Ecological: Leafy spurge is a long-lived perennial that reproduces by seeds and buds on persistent, creeping roots (Powell et al. 1994). All parts of the plant contain a milky latex that is poisonous to some livestock. The

plant produces an allelopathic compound that inhibits the growth of other plants (Butterfield et al. 1996).

Human: The milky latex can cause irritation, blotching, blisters, and swelling. Wear gloves while pulling or contacting this plant. Never rub the eyes or face until after the hands are thoroughly washed.

Habitat and Ecology

General requirements: In BC, grows at low- to mid-elevations on dry roadsides, fields, grasslands, open forests, and disturbed habitats. Leafy spurge has a wide range of ecological tolerances from very dry to very wet but appears best adapted to semi-arid areas (Butterfield et al. 1996). It grows on a range of soil types but is most abundant in coarse-textured soils and least abundant on clayey soils (Butterfield et al. 1996).

Distribution: Isolated pockets occur in the Thompson, Cariboo, Boundary, East Kootenay, Nechako, and North Okanagan areas (Powell et al. 1994). It is considered a major concern in the Kootenay, Okanagan, Thompson, Cariboo, and Omineca agricultural reporting regions. It is widespread throughout Canada and the western US.

Historical: Introduced from Eurasia.

Life cycle: Emerges in the spring and develops flowers within 1–2 weeks after stem elongation (Butterfield et al. 1996). Flower clusters have 8–16 branches. Flowering generally ends in late June to mid-July, depending on geographic location. Three seeds are produced per cluster (Powell et al. 1994). Seeds mature about 30 days following pollination.

Mode of reproduction: By seed but primarily from lateral roots. Roots can extend nearly 4.5 m laterally and about 9 m deep, with up to 300 buds forming on the roots (Butterfield et al. 1996).

Management

Biocontrol: Seven biocontrol agents have been released in the province: *Aphthona nigriscutis*, *A. cyparissiae*, *A. czwalinae*, *A. lacertosa*, *A. flava* (flea-beetles), *Hyles euphorbiae* (moth), and *Lobesia euphorbiana* (moth). Thus far, *Aphthona nigriscutis* has had the most significant impact, although other *Aphthona* species have been successful in selected habitats. Sheep-grazing has been successfully used to manage spurge on ranches in Montana: once the sheep were removed, the spurge would quickly return (Biesboer 1998). There are likely few opportunities for this kind of management in BC.

Mechanical: Tillage, mowing, and pulling are generally ineffective control treatments because of the plant's extensive root system.

Fire: Burning alone is unlikely to provide adequate control because of the extensive root system.

Herbicides: Picloram has been used successfully on small infestations (Lajeunesse et al. 1999). Spring applications of a combination of picloram and 2,4-D also were effective when the herbicide was applied before flowers emerged (Beck 1996). Similarly, annual applications of dicamba and 2,4-D in combination have also provided good management (Beck 1996). Beck (1996) found that applications of glyphosate were effective when applied at one-month intervals and

Seed production: A large plant may produce up to 130,000 seeds (Rutledge and McLendon. Undated).

Seed bank: Seeds can remain viable in the soil 5–8 years, although most seeds will germinate in the first 2 years (Butterfield et al. 1996).

Dispersal: Mature seeds can be dispersed up to 4.5 m from the parent plant. Seeds float on water and can be transported by animals and remain in flooded seed banks.

Hybridization: No information available.

followed by autumn grass seeding. 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: Cultural methods such as hand-pulling, mowing, and cutting are not likely to have much success in controlling leafy spurge. Protect disturbed areas by seeding to perennial grasses. Ensure that grazing maintains vigorous perennial plant communities.

Integrated Management Summary

Integrated management will require a combination of prevention, biocontrol, chemical control, and seeding disturbed areas to perennial grasses. Where infestations are large, the only likely long-term management strategy will be biocontrol, at least initially. Seeding and good land management practices must follow.

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