LEAFY SPURGE *(Euphorbia esula L.)*

INTRODUCTION

Leafy spurge, also known as wolf's milk or leafy Euphorbia, is native to regions in Asia and Europe. It has rapidly spread throughout North America since its introduction into the United States in the late 1820s. Plants now occur throughout North America, with infestations expanding alarmingly fast in Canada. Leafy spurge displaces native vegetation and degrades grazing lands. Research in the United States suggests that spurge reduces cattle carrying capacity by 50-75 % by decreasing forage production and available range, as cattle tend to avoid spurge-infested areas.

In BC, leafy spurge occurs in isolated pockets in the Thompson, Cariboo, Boundary, east Kootenay, Nechacko, Similkameen and North Okanagan regions. It has a wide variety of ecological tolerances and is associated primarily with grasslands and open forests.

Leafy spurge is a toxic weed. The entire plant contains a milky-coloured latex juice that is used to heal damaged plant tissue. The latex can cause a skin rash in humans and severe irritation to the mouth and digestive tract in cattle. It can result in death when ingested in large amounts by cattle. Sheep and goats, however, can graze infested areas without injury and may be useful in controlling spurge population.

IDENTIFICATION

- Perennial; grows to 1 m
- Vertical and horizontal creeping roots
- Leaves are alternate except for those located immediately under the flower which are spirally arranged on stem
- Inconspicuous, greenish – yellow flowers
- All parts of leafy spurge contain a milky latex sap
- Cypress spurge, a similar looking non-native spurge, can be distinguished from leafy spurge due to its numerous small, slender leaves and typical height of less than 0.5 m

BIOLOGY

Leafy spurge reproduces by seed and vegetatively through root buds. A single stem may produce up to 250 seeds; each capsule contains approximately 10-50 of those seeds. When temperatures are hot enough, the capsules explode, launching individual seeds up to 15 metres. Wildlife, livestock, humans and machinery also disperse seeds. Eradicating leafy spurge is a long-term process as seeds may remain viable in the soil for up to 8 years.

Spurge populations also expand due to persistent vertical and horizontal underground root systems. The aggressive roots have numerous pink buds, each capable of producing new plants, and a large nutrient reserve increasing plant persistence. Young seedlings develop root systems in a very short time, especially in areas with minimal competition. Within four months, roots may penetrate the soil up to 1 metre in depth and 90 cm in lateral length. Seedlings also have the ability to re-grow from vegetative buds seven days after germination.

INTEGRATED MANAGEMENT

The most effective method of control for leafy spurge is to prevent establishment through proper land management. The healthier the natural plant community, the less susceptible it will be to spurge invasion. Integrated management will require a combination of prevention, biocontrol, herbicides and seeding disturbed areas to perennial grasses. Where infestations are large, the only effective long-term management strategy is biocontrol. Areas free of leafy spurge should be monitored annually and all plants found should be destroyed immediately.

PREVENTION

- Maintain grasslands in a healthy, vigorous condition to ensure a productive plant community; competitive perennial grasses and forbs utilize water and nutrients that would otherwise be readily available to spurge.
- Follow a well-designed grazing plan; excessive livestock grazing reduces competition from grass and favours weeds.
- Regularly patrol your property for leafy spurge plants and immediately treat new infestations.
- Cooperate with adjacent landowners and encourage them to control leafy spurge and other weeds.
- Immediately re-vegetate seed disturbed, bare soils with a suitable seed mix that provides dense, early colonization to prevent weed invasion.
- Clean your vehicles and machinery of plant material and soil after leaving a spurge infestation.

PHYSICAL CONTROL

Mowing and burning have a very limited effect on leafy spurge as the root system may re-sprout. Although burning does make spurge more vulnerable to follow-up herbicide treatment, there is still little benefit. Hand-pulling, digging and tilling are generally ineffective, as small parts of the root system can re-sprout. These actions may also increase soil disturbance, which in-turn reduces spurge competition and allows the weed population to increase.

For further information on weeds in BC check out the provincial websites at: http://www.weedsbc.ca or http://www.agf.gov.bc.ca/cropprot/weeds.htm
For more information about the Regional District of Okanagan-Similkameen Noxious Weed Education Program please contact the Regional District at 250-492-0237 or toll free at 1-877-610-3737. Information is also available on our website at: http://www.rdos.bc.ca

BIOLOGICAL CONTROL

Domestic sheep grazing can provide effective control of leafy spurge, as sheep prefer young spurge to grass. Goats have also been used successful at control leafy spurge. Unfortunately once animals are removed, spurge is likely to return.

Presently there are expanding investigations toward biological control of leafy spurge. Several *Aphthona* species have been released on leafy spurge. The choice of species depends on the microhabitat of the spurge infestation. For example, one species, *Aphthona nigriscutis* has successfully resulted in spurge reductions on hot, dry open sites as opposed to shady, moister sites.

Additionally, scientists are currently researching the effectiveness of a fungus that may be pathogenic to leafy spurge.

Produced by the Regional District Okanagan-Similkameen

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December 2005; updated July 2007

Financial support provided by: Ministry of Agriculture and Lands