

Purple Loosestrife

Lythrum salicaria

About Purple Loosestrife

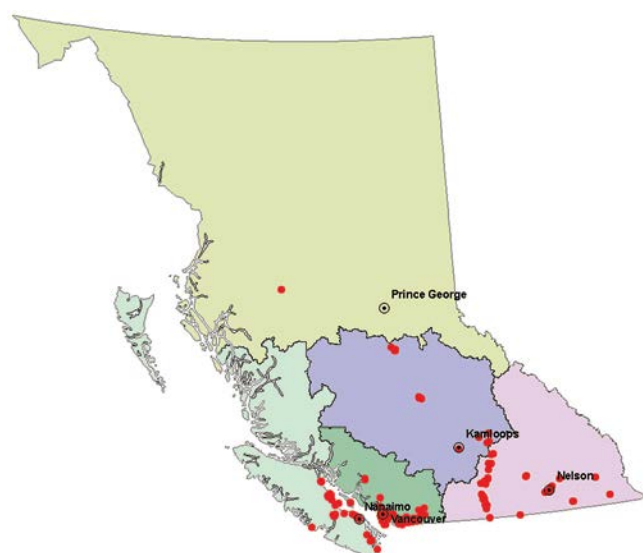
Purple loosestrife is noted as arriving in BC in 1915. This perennial plant prefers wetlands, stream and river banks and shallow ponds where it can displace valuable habitat for flora and fauna. Dense infestations have been known to clog canals and ditches impeding water flow. It has been documented as producing up to three (3) million seeds per plant.

Legal Status

Noxious weed (Provincial), *BC Weed Control Act Regulation*.

Distribution

Purple loosestrife is primarily in southern B.C., particularly on Vancouver Island, the Lower Mainland, Fraser Valley and Okanagan. Smaller infestations have been observed in Columbia-Shuswap, Kootenays and most recently, in the Cariboo and Thompson-Nicola regions. It is regarded as a major concern in the Kootenays, Okanagan and Vancouver Island agricultural regions.



Purple Loosestrife Distribution
(2011)

Identification

Flowers: Individual flowers have 5-7 pinkish-purple petals (approx. 10 mm long) arranged along vertical spikes at the top of stems.

Stems: This perennial has a rhizomatous root system which can produce 30-50 erect stems annually. Stems are woody at base and grow between 0.5-2.0 m tall. They are square in cross section and may have short hairs.

Leaves: Linear to lanceolate in shape and arranged in opposite to whorled formation along stem. Leaves are 3-10 cm in length, stalkless (sessile) and sometimes covered in fine hairs.

Fruits: The dark brown, ovoid shaped capsules are approximately 2-3 mm in length and contain many small seeds (400 x 200 microns).

Similar Native Species: Fireweed (*Epilobium angustifolium* L. or *Chamerion angustifolium*) has a 4-petalled flower and somewhat wavy leaf margins. Blue vervain (*Verbena hastata*) leaves have a rougher texture and the margins are double serrated. Dotted blazing star (*Liatris punctata*) has flowers with a long curving style emerging from the centre and stiffer more narrow leaves. Winged loosestrife (*Lythrum alatum*) has a 4-sided stem with slightly raised edges or "wings" that run parallel to the length of the stem.

Similar Non-Native Species: Sweet rocket or Dames violet (*Hesperis matronalis*) have alternate leaves with the lower leaves having short stalks (petiole). Flowers have 4 petals and develop long seed pods.



Purple Loosestrife, Liz West



2.5 million

SEEDS PER PLANT

Ecological Characteristics

Habitat: Purple loosestrife can tolerate a wide range of growing conditions including areas with partial shade, calcareous and acidic soils, and in standing water. Moisture is required for both growth and reproduction, therefore it is primarily found in wetlands, lake and river shores, ditchbanks, marshlands, freshwater tidal flats and riparian meadows. If the plant is already well established it can survive on drier soil types such as pastures and cropland.

Reproduction: This perennial reproduces both by seed and vegetatively through root fragments. Root and stem fragments that become detached can develop into new flower stems. Seeds disperse in the autumn and stay dormant over winter before germinating in the spring. Seeds can stay dormant in the soil and remain viable for up to 20 years. Purple loosestrife is capable of producing 300,000 seeds from one flowering stalk and up to 2.5 million per plant.

Dispersal: Seeds and young seedlings can be rather buoyant and primarily use moving water for dispersal. Submerged seeds retain a high viability rate over long periods of time (93% after 1 year, 80% after 2 years). The seeds can also be dispersed by wind, waterfowl, wildlife and humans.

Impact

Economic: In large infestations purple loosestrife can block water flow in canals and ditches that are used for agriculture causing reduced productivity in some agricultural crops. Purple loosestrife decreases the forage value of land to livestock as well as decreasing the palatability of hay as a component.

Ecological: Stands of purple loosestrife hold little food value, cover and nesting material for animals and cause a reduction in habitat diversity. It is a highly competitive plant that can dominate in aquatic plant communities, often reported as monospecific stands.

Integrated Pest Management

IPM is a decision-making process that includes identification and inventory of invasive plant populations, assessment of the risks that they pose, development of well-informed control options that may include a number of methods, site treatment, and monitoring.

A. Prevention

- » Monitor for purple loosestrife in both undisturbed wetlands and disturbed sites such as ditchbanks.
- » Remove plant parts and seeds from personal gear and clothing before leaving an infested area.
- » Bag or tarp plant parts that have been removed before they are transported to a disposal site.

B. Mechanical Control

- » Small infestations if caught early can be removed by hand pulling or digging. Purple loosestrife reproduces through fragmentation so special attention must be paid to ensure all plant parts are removed. This method should be applied before seed set to prevent scattering. Mechanical control for large infestations has been unsuccessful.

C. Biological Control

The root boring beetle (*Hylobius transversovittatus*) and two species of leaf eating beetles, *Galerucella californiensis* and *Galerucaella pusilla* have been proven effective against purple loosestrife. These beetles damage the root system, stunt growth and reduce seed production of the plant.





D. Chemical Control

Herbicide recommendations and use must first consider site characteristics and be prescribed based on site goals and objectives. Herbicide labels and other sources of information must be reviewed before selecting and applying herbicides.

- » Herbicide use is limited due to purple loosestrife being found in wet soils. If used, herbicide runs the risk of entering the water column, harming desirable native species such as cattail.
- » Aquatic formulations of glyphosate provide effective control but are not registered in Canada.
- » In BC glyphosate has restricted uses adjacent to water courses or riparian areas. Check the Integrated Pest Management Regulations for specific uses in these areas.
- » For best results, herbicides should be used as purple loosestrife begins to flower in order to minimize seed production.

Application of herbicides on Crown land must be carried out following a confirmed Pest Management Plan (*Integrated Pest Management Act*) and under the supervision of a certified applicator. www.env.gov.bc.ca/epd/epdpa/ipmp/index.html

Disposal

Note: *Disposal of invasive plants varies by region. Contact your local government for specific information on how to dispose of your invasive plants*

- » Tarp and bag removed plants, plant parts and seeds before transporting to a designated disposal site (e.g. landfill or transfer station). If flowers/seeds are present, cut them off carefully into a separate bag first and double-bag before disposing.
- » It is recommended that transfer stations provide disposal bins intended solely for invasive plants. This will ensure the plant matter within the container is transported in a sealed unit and properly disposed of at the landfill.
- » If bagging and disposal are not possible plants can be pulled and piled away from the water. Allow the plants to dry out, then burn if possible.

References/Links

CABI. <http://www.cabi.org/isc/datasheet/31890>

District of Saanich. <http://www.saanich.ca/assets/Community/Documents/purple-alert-web.pdf>

Central Kootenay Invasive Species Society. <http://ckiss.ca/species/purple-loosestrife/>

Edible Wild Food; Blue Vervain (*Verbena hastata*). <http://www.ediblewildfood.com/blue-vervain.aspx>

Guide to Weeds in British Columbia. https://www.for.gov.bc.ca/hra/plants/weedsbc/purple_loosestrife.pdf

Invasive Alien Plant Program Application. <https://www.for.gov.bc.ca/hra/plants/application.htm>

Ontario's' Invading Species Awareness Program. <http://www.invadingspecies.com/invaders/plants-terrestrial/purple-loosestrife/>

University of Missouri; Division of Plant Sciences; Weed ID Guide. http://weedid.missouri.edu/weedinfo.cfm?weed_id=168

Purple Loosestrife (*Lythrum salicaria*); Central Kootenay Invasive Plant Committee. https://bcwfbogblog.files.wordpress.com/2012/10/purple-loosestrife-content_fnl_2june2012.pdf

Invasive Plants of Southwestern BC. http://www.shim.bc.ca/invasivespecies/_private/loosestrife.htm

Minnesota Wildflowers; *Liatris punctata* (Dotted Blazing Star). <https://www.minnesotawildflowers.info/flower/dotted-blazing-star>

Oregon State University. http://oregonstate.edu/dept/nursery-weeds/weedspeciespage/fw/fireweed2_page.html

Saskatchewan Invasive Species Council; Dame's Rocket (*Hesperis matronalis*). <http://www.saskinvasives.ca/ckfinder/userfiles/files/Dames%20rocket.pdf>

USDA (United States Department of Agriculture) Forest Service; Plant of the Week: Fireweed (*Chamerion angustifolium*). https://www.fs.fed.us/wildflowers/plant-of-the-week/chamerion_angustifolium.shtml

US Forest Survey. <https://www.fs.fed.us/database/feis/plants/forb/lytsal/all.html>

Weed Control Act; Weed Control Regulation. http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/10_66_85