THURSTON COUNTY NOXIOUS WEED FACT SHEET

Purple Loosestrife *(Lythrum salicaria L)*

Description: Purple loosestrife (*Lythrum salicaria L.)* is an emergent aquatic plant that usually grows on moist or saturated soils. A mature, well established plant often grows up to 10 feet tall and 5 feet wide. Each plant can contain 30-50 herbaceous stems that arise from a common rootstock. The purple-magenta colored, five to six petalled flowers grow on long spikes. Purple loosestrife seed production depends on plant age, size and vigor. A 4-5 year old plant with 30 stems can reportedly produce an estimated 2,700,000 seeds. Seed maintains viability of over 80 percent for at least 3 years.

Impacts: Purple loosestrife is native to Eurasia and was first discovered in the Puget Sound region in 1929. Impacts on native vegetation have been dramatic. It is a vigorous competitor and can crowd other vegetation including native species. In a short period of time it will completely dominate a site. When purple loosestrife invades irrigation systems, economic losses to agriculture can exceed $2.6 million annually.

Control Options: Thurston County's Integrated Pest Management emphasizes cultural, biological, and manual control methods to keep pests and vegetation problems low enough to prevent damage. The strategy of Thurston County's IPM policy is to minimize the use of pesticides.

► Cultural / Habitat

Purple loosestrife is now a quarantined species (a plant that is forbidden to be sold or transported) in Washington State. However, it was once sold and intentionally planted as a landscape and garden ornamental. It is still introduced occasionally as a component in wildflower seed mixtures. Review the ingredients of wildflower mixes to prevent accidental introduction, and avoid using those with unidentified seed components entirely. To prevent plants from spreading from known infestations, carefully clean vehicles and boats, boots, clothing, and pets after visiting infested areas.

► Manual / Mechanical

Cutting, mowing or digging purple loosestrife is only partly effective. These methods can prevent seed production, but plants will likely re-sprout. Using these techniques may be difficult due the problems accessing sites located in aquatic and wetland areas. If plants can be accessed, small populations of seedlings or young plants (6 to 10 or more if easily mangaged) can be dug out. Stems will break off easily if pulled on; use a shovel or pick to dislodge and remove as much root as possible. Flowers should be carefully clipped and double bagged to prevent spreading seeds to new areas.

► Biological

Biological control agents such as *Galerucella calmariensis* and *G. pusilla* have been effective in reducing populations of purple loosestrife. They are both leaf-feeding chrysomelids (beetles) that defoliate and attack the terminal bud area, reducing seed production. The mortality rate to purple loosestrife seedlings is high. Evidence of *Galerucella* ssp. damage are round holes in the leaves. Four to six eggs are laid on the stems or leaves. The larvae feed constantly on the leaf underside, leaving only the thin cuticle layer on the top of the leaf. *Galerucella* was collected and planted at Capitol Lake in Thurston County in 1999.

► Chemical

Aquatic / Riparian Applications: Purple loosestrife usually grows in wet areas along lakes, streams, and ditches. If there is a chance for your herbicide to get into a water body, the use of an herbicide formulated for aquatic settings is required. ***Aquatic herbicides are restricted for use in Washington State to licensed applicators only.*** Herbicides that have been shown to be effective in controlling purple loosestrife at aquatic infestation sites include ***imazapyr*** (Habitat®) and ***triclopyr TEA***. Because of the restrictions and difficulty in controlling these sites, you will probably need to contact a licensed applicator to develop a control plan.

Terrestrial Applications: The same active ingredients are also available in products labeled for use by homeowners in terrestrial (dry) environments: (for example, ***imazapyr*** (Polaris®) and ***triclopyr TEA*** (Lilly Miller's liquid concentrate "Blackberry and Brush Killer" and Ortho's "Brush-B-Gon Poison Ivy Killer Concentrate").

Thurston County has observed that most ready-to-use, pre-mixed products do not contain sufficient active ingredients to be as effective as concentrated products that are then mixed with water to create a specific finished concentration. The following instructions are for products containing concentrates which will be mixed down to a specified dilution rate. Be sure to read your label carefully, and make adjustments to rates accordingly.

Foliar applications of *imazapyr* (Polaris®):

- Using a spot application, spray each plant thoroughly on the stems and leaves, enough to be wet but not to the point of dripping. Spot application means the herbicide is applied only to the purple loosestrife plants, and not on the surrounding plants or soil.
- Follow label directions for mixing product to application strength. Products containing the active ingredient imazapyr are considered "moderate in hazard" by Thurston County's pesticide review process for the potential for chemical mobility and persistence.

Foliar applications of triclopyr TEA:

- Triclopyr is very useful for purple loosestrife control since native grasses and sedges are unaffected. Triclopyr products are rated as "moderate in hazard" by Thurston County's pesticide review process because broadcast applications of triclopyr at greater than 2 lbs of active ingredient per acre can result in contaminating the food supply for birds and small animals. Since this prescription recommends only spraying individual purple loosestrife plants, the risk to birds and small animals is greatly reduced.

Timing:

Apply to actively growing plants at full to late flowering stage. Seedlings may be effectively treated early in the season after a fall application to mature plants. Flowers should be clipped and bagged carefully to prevent seed spread.

Pollinator Protection: To minimize negative impacts to bees and other pollinators, treatment prior to blooming is recommended. Removal of flowers before treatment can be an option in some situations. If treatment must occur during the blooming period, try to spray early or late in the day or on cloudy, cool days when pollinators are least active.

READ AND FOLLOW ALL LABEL DIRECTIONS AND RESTRICTIONS. Obey all label precautions including site specific and safety measures. Always use personal protective equipment that includes coveralls, chemical resistant gloves, shoes plus socks, and protective eyewear. Use of brand names does not connote endorsement and is for reference only; other formulations of the same herbicides may be available under other names. Information provided is current as of the date of the fact sheet. Pesticide product registration is renewed annually. Product names and formulations may vary from year to year.

Product/Method	Rates	Mix
Triclopyr TEA Lilly Miller® "Blackberry & Brush Killer" or Ortho® "Brush-B-Gon Poison Ivy Killer Concentrate"	4-8 oz. per gallon water for up to 500 ft^2	To determine the amount of mix needed, first measure the area to be treated, then measure the amount of plain water needed to spray the area using a backpack or tank sprayer. Allow sufficient time for the area to dry completely before treatment. Then add 4 to 8 oz. of product to enough water for each 500 sq. ft of area that needs to be treated. Higher rate should be used for large, mature plants, lower rate for subsequent growth of new, young plants. Spray plants until they are wet but not dripping.
Imazapyr Polaris®	1-2%	Add 1.3 to 2.6 oz concentrated product per gallon of water. Higher rate should be used for large, mature plants, lower rate for subsequent growth of new, young plants. Spray plants until they are wet but not dripping.

REFERENCES:

Minnesota Department of Natural Resources: http://www.dnr.state.mn.us/invasives/aquaticplants/purpleloosestrife/garden.html

Manitoba Purple Loosestrife Project http://www.purpleloosestrife.org/index.html

Written Findings of the Washington State Noxious Weed Control Board

Washington State Department of Ecology: http://www.ecy.wa.gov/programs/wq/plants/weeds/aqua009.html

2010 Pacific Northwest Weed Management Handbook, ISBN 978-1- 931979-22-1

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