Garden Loosestrife

Lysimachia vulgaris **Class B Noxious Weed**
Primulaceae **Control Required**

Legal Status in King County: Garden loosestrife is a Class B Noxious Weed (non-native species harmful to environmental and economic resources that landowners may be required to control based on distribution in the county and local priorities) according to Washington State Noxious Weed Law, RCW 17.10. In accordance with state law, the King County Noxious Weed Control Board requires property owners to control garden loosestrife on private and public lands throughout the county (control means to prevent all seed production and to prevent the dispersal of all propagative parts capable of forming new plants). In addition, state quarantine laws prohibit transporting, buying, selling, or distributing plants, plant parts or seeds of garden loosestrife.

BACKGROUND INFORMATION

Impacts and History

- Garden loosestrife displaces native vegetation along streambanks, wetlands and shorelines and reduces habitat needed by waterfowl and fish, including several important salmon species.
- Garden loosestrife can clog shallow waterways, increase sediment retention and interfere with water flow.
- Garden loosestrife is a native of Eurasia, where it occurs in fens, wet woods, lake shores, and river banks.
- In eastern North America, garden loosestrife is naturalized in parts of most states and provinces from Minnesota east to Newfoundland and Maryland and appears to be increasing in the Ohio River Valley (Cusick 1986). In the west, the species is present in Colorado, Montana, Oregon, Washington and British Columbia (NRCS Plants Database).
- Although the species is being monitored in most eastern states and provinces, it is currently considered a noxious weed only in Connecticut and Washington State. This may be due to colder winters providing a measure of control in some regions.
- First documented in Washington in 1978 in the NE corner of Lake Washington near Juanita Junction, garden loosestrife is probably an escaped garden plant.

- In Washington, infestations of garden loosestrife are currently known in King County, Whatcom County, Skagit County, Thurston County and Stevens County.

Description

- Perennial emergent plant that appears to remain in the vegetative stage for some time prior to blooming. The presence of a flowering specimen generally indicates it has been in an area for some years.
- Flowers are yellow, showy and primrose-like (5 petals), with the biggest cluster atop the stem and smaller clusters on stalks from the base of the upper leaves. Stamens are red-orange. Blooms from July to late August or September.
- Stems are round with soft hairs, occasionally broadly flattened.
- Leaves are 3-5 inches long, ovate, hairy beneath, and irregularly arranged (usually in whorls of 3-4, sometimes opposite) , with small orange or black glands on the underside visible with magnification.
- Seed pods are egg-shaped capsules with a few seeds each.
- Can be confused with the less aggressive *Lysimachia punctata* (spotted loosestrife, sometimes also called garden loosestrife), which bears single or small clusters of larger, more star-shaped flowers in leaf axils only, never in a terminal cluster like *Lysimachia vulgaris*.

Garden loosestrife (*Lysimachia vulgaris*) flowers are in clusters near the top of the stem; petals are somewhat rounded.

Spotted loosestrife (*Lysimachia punctata*) flowers are in leaf axils; petals are more pointed.

Habitat

- Occurs in freshwater wetlands, fens, wet woods, lakeshores, and river and stream banks.
- Grows on moist or saturated soils.
- Sometimes cultivated as a garden ornamental or used for landscaping purposes.

Reproduction and Spread

- Garden loosestrife spreads primarily vegetatively (by rhizomes) and also by seed.

- Produces extensive reddish-colored rhizomes that will reach out into the adjacent open water. Rhizomes have been recorded growing up to 15 feet long into the water.
- Seeds can disperse through water and are a secondary source of spread.

Local Distribution

- Found on lake shores and waterways in several areas of King County.
- Major infestations located on the shorelines of Lakes Washington and Sammamish, and along the Sammamish River.
- Smaller or pioneering infestations are present on Lake Burien, Rutherford Slough, the lower Snoqualmie River, the Raging River and a small number of other locations.

CONTROL INFORMATION

Integrated Pest Management

- The preferred approach for weed control is Integrated Pest Management (IPM). IPM involves selecting from a range of possible control methods to match the management requirements of each specific site. The goal is to maximize effective control and to minimize negative environmental, economic and social impacts.
- Use a multifaceted and adaptive approach. Select control methods which reflect the available time, funding, and labor of the participants, the land use goals, and the values of the community and landowners. Management will require dedication over a number of years, and should allow for flexibility in method as appropriate.

Planning Considerations

- Survey area for weeds, set priorities and select best control method(s) for the site conditions and regulatory compliance issues **(refer to the King County Noxious Weed Regulatory Guidelines or local jurisdictions)**.
- Areas vulnerable to erosion (steep slopes or shorelines within the zone of influence of wave action) should not be dug up without erosion-prevention measures in place. Large cleared areas need to be replanted with native or non-invasive vegetation and stabilized against erosion. Infestations in these situations may require more concentrated efforts to control.
- Control practices in critical areas should be selected to minimize soil disturbance or efforts should be taken to mitigate or reduce impacts of disturbance. Any disturbed areas need to be stabilized to control erosion and sediment deposition. Refer to the King County Surface Design Manual for further information about sediment and erosion control practices (call 206-296-6519 or go to http://kingcounty.gov/wlr/Dss/Manual.htm for more information).
- Generally work first in least infested areas, moving towards more heavily infested areas.
- Properly dispose of all parts of the plant (see Disposal Methods section below).
- Small areas of seedlings may be effectively dug up. Isolated plants should be removed, taking care to remove all of the rhizomes, in order to stop them from infesting a larger area.

- For larger infestations, the strategy will depend on the site. Generally work first in least infested areas, moving towards more heavily infested areas. On rivers and streams, begin at the infestation furthest upriver and work your way downstream.
- Minimize disturbance to avoid creating more opportunities for seed germination.

Early Detection and Prevention

- Look for new plants. Get a positive plant identification by contacting your local noxious weed control program or extension service.
- Look for plants along river and lake shorelines, wetlands, ditches and wet pastures.
- The best time to survey is in July and August when the plants are in flower, however seedlings may not flower in the first year.
- Look for seedlings starting in June.
- Dig up small isolated patches.
- Prevent plants spreading from existing infestations by cleaning off equipment, boots, clothing and animals that have been in infested areas.
- Don't buy or plant garden loosestrife. According to state quarantine laws it is illegal to buy, sell or offer garden loosestrife or any of its cultivars for sale.

Manual

- Hand pulling and the use of hand mechanical tools is allowable in unincorporated King County critical areas. Check with the local jurisdiction for regulations in other areas.
- Manual control is feasible for individual plants or small pioneering stands. Carefully dig out as much root and rhizome as possible; this plant doesn't pull well (breaks off from long rhizomes leaving root fragments behind).
- Hand digging is recommended for very young plants not yet established.
- Larger plants from isolated small populations can be dug out from moist upland areas. This may be impractical to impossible when trying to remove hardy, woody roots or extensive rhizome networks in compacted soils. Care should be taken to minimize erosion when digging in saturated soils on shorelines.
- If the plants are in seed, **cut off and bag all seed heads** before removing plants**.** Brush off boots, clothes and animals before leaving the infested area.
- All manual control sites should be monitored for several years for signs of plants growing from rhizomes and from the seed bank.
- **DISPOSAL:** Garden loosestrife seed heads, plant parts and roots must be bagged, removed from the site, and discarded in the trash or taken to a transfer station. **Do not compost or place in yard waste.**

Mechanical

- Removal of garden loosestrife with hand held mechanical tools is allowable in critical areas and their buffers within unincorporated King County. Check with the local jurisdiction for regulations in other areas.
- In unincorporated King County, riding mowers and light mechanical cultivating equipment may be used in critical areas if conducted in accordance with an approved

forest management plan, farm management plan, or rural management plan, or if prescribed by the King County Noxious Weed Control Program.

- Repeated mowing may keep garden loosestrife contained and slow dispersal by seed, but won't kill the plants or prevent spread by rhizomes. Plant fragments will root if left behind, so if care is not taken to remove all plant fragments, mowing may also facilitate spread rather than control.
- Cutting alone is not a control option for garden loosestrife. New plants will grow from the rhizomes.
- Sheet mulching or covering using black plastic, landscape fabric, or cardboard and six inches of mulch is an interim option for dense seedling infestations. It does not kill the roots of mature plants, but it does slow down growth and seed dispersal. The covering must extend several feet beyond the edges of the infestation and be weighted so the plants cannot push it up. The edges of the covered area must be monitored for plants coming up from rhizomes extending beyond the sheet. Covering materials should also be monitored for damage or gaps and repaired or re-installed as needed.

Chemical

- **Precautions:**
  - Herbicides should only be applied at the rates and for the site conditions and/or land usage specified on the label of the product being used. **Follow all label directions**.
  - For herbicide use in critical areas and their buffers, certain restrictions apply depending on the site and jurisdiction. In unincorporated King County, refer to the **King County Noxious Weed Regulatory Guidelines** for a summary of current restrictions and regulatory compliance issues. Elsewhere, check with the local jurisdiction.
  - For your personal safety, at a minimum wear gloves, long sleeves, long pants, closed toe shoes, and appropriate eye protection. Follow label directions for any additional personal protection equipment needed.
  - Aquatic formulations of herbicides are not available for sale over the counter to anyone without an aquatic pesticide license. **NEVER apply non-aquatic herbicide formulations to water since many include ingredients toxic to aquatic organisms**.
- For control of large infestations, herbicide use may be necessary. Infested areas should not be mowed until after the herbicide has had a chance to work, which may take several weeks.
- For several years following treatment, monitor areas for new plants germinating from the seed bank. In some cases several years of treatment may be necessary.
- When treating an area intermixed with native monocots (cattails, grasses, sedges, etc), we recommend using a selective herbicide. The monocots will not be harmed by the herbicide and will be able to help suppress new plants emerging from the seed bank.

Specific Herbicide Information

Glyphosate (e.g. Rodeo® or AquaMaster®): Apply to actively growing plants at full to late flowering stage. Application to pre-flowering plants or seedlings may also be effective, but unless the extent of the infestation is well known, plants can be difficult to locate when not

in flower. Apply to foliage but avoid runoff. Caution: Glyphosate is non-selective and it will injure or kill other vegetation contacted by the spray including grasses, cattails and other monocots.

Imazapyr (Habitat®): Apply to actively growing foliage. Caution: Imazapyr is non-selective: it will injure or kill other vegetation contacted by the spray including grasses, cattails and other monocots.

Triclopyr (Garlon 3A® and Renovate 3®). Apply when plants are in the mid to full-bloom stage. Application to pre-flowering plants or seedlings may also be effective, but unless the extent of the infestation is well known, plants can be difficult to locate when not in flower. Triclopyr is a selective herbicide and will kill only dicots. It will not harm monocots such as grasses, sedges, cattails and many native aquatic plants.

All the above listed herbicides require the addition of an approved surfactant. Follow label directions for selecting the correct type of surfactant. Be sure that the selected surfactant is approved for aquatic use in Washington State.
The mention of a specific product brand name in this document is not, and should not be construed as an endorsement or as a recommendation for the use of that product. Chemical control options may differ for private, commercial and government agency users. **For questions about herbicide use, contact the King County Noxious Weed Control Program at 206-296-0290.**

Biological

- No biological control agents are presently known. No research is currently being conducted.

SUMMARY OF BEST MANAGEMENT PRACTICES

Small Infestations in Native and/or Desirable Vegetation

- Hand digging is recommended for very young plants not yet established, when vegetative spread is less likely to occur.
- Larger plants from isolated small populations can be dug out from moist upland areas. This may be impractical to impossible when trying to remove hardy, woody roots in compacted soils. Care should be taken to minimize erosion when digging in saturated soils on shorelines.
- If the plants are in seed, **cut off and bag all seed heads.** It is very difficult to remove the plants without dispersing the seeds.
- Replace any divots created when removing the plants to lessen the amount of disturbed soil.
- If manual control is not possible due to site conditions or available labor, apply appropriate herbicide with wick wiper or spot spray to minimize off target injury.

- If using an herbicide in an area that has desirable monocots, use a selective herbicide to avoid injury to those plants.

Large Infestations in Areas with Monocots

- Cutting alone is not a control option for garden loosestrife. New plants will develop from rhizomes.
- Sheet mulching using black plastic, landscape fabric, or cardboard and six inches of mulch is an interim option for dense seedling infestations. It does not kill the roots of mature plants, but it does slow down growth and seed dispersal. This method is also non-selective.
- If an area has desirable monocots present, use a selective herbicide and encourage the growth of the monocots.

Control on Shorelines

- Additional permits may be required for control of infestations in riparian areas. See Noxious Weed Regulatory Guidelines for more information.
- When large areas of weeds are removed, the cleared area needs to be replanted with native or non-invasive vegetation and stabilized against erosion. Refer to the King County Surface Design Manual for further information about sediment and erosion control practices (call 206-296-6519 or go to http://kingcounty.gov/wlr/Dss/Manual.htm for more information).
- Survey area and document extent of infestation.
- Focus on manual removal for small infestations if possible.
- When removing vegetation on shorelines (by lakes, streams and wetlands) use barriers to prevent sediment and vegetative debris from entering the water system.
- Cutting or mowing will not control garden loosestrife but it can serve in the interim until more effective control measures can be utilized.
- For larger areas where herbicide use is warranted, spray using low pressure and large droplet size to reduce drift. If herbicide could potentially drift into the water or a wetland area, use only approved aquatic herbicides and surfactants after obtaining the necessary permits.
- When large areas of weeds are removed, the cleared area needs to be replanted with native or non-invasive vegetation to prevent re-invasion by weeds and stabilized against erosion.
- Infested areas will need to be monitored for several years to control plants growing from root fragments and germinating from the extensive seed bank.

Control along Road Rights-of-Way

- Hand dig small infestations if possible.
- Spot spray larger infestations. Use a selective broadleaf herbicide in areas with desirable monocots such as grasses, sedges or cattails; if controlled with a non-selective herbicide, re-seed after control is completed.

- If plants are about to flower, they can be cut until a more effective control strategy can be used.
- If plants are sprayed, wait until the herbicide has had a chance to work before mowing.

Disposal Methods

- All garden loosestrife flowers, seed heads, plant parts, and roots must be bagged and discarded in the trash or taken to a transfer station.
- **Do not compost or place in yard waste. Never dump plant material as weeds may spread from yard waste piles.**

References

Cusick, A.W. 1986. Distributional and taxonomic notes on the vascular flora of West Virginia. Castanea. 51: 56-65.

Washington State Noxious Weed Control Board. 1997. Written Findings. http://www.nwcb.wa.gov/weed_info/Lysimachia_vulgaris.html (Accessed 1/10/2008).

USDA NRCS Plants Profile database: http://plants.usda.gov/java/profile?symbol=LYVU. (Accessed 1/10/2008).