



purple loosestrife (*Lythrum salicaria*)

Description

- Refer to the DCNR Invasive Exotic Plant Tutorial purple loosestrife page (http://www.dcnr.state.pa.us/forestry/invasivetutorial/Purple_loosestrife.htm).
- Herbaceous, non-creeping, perennial forb.
- Reproduces only by seed – can produce over 500,000 seed per plant.
- Infestations can become near-monocultures, decreasing plant diversity and habitat value.
- Native to Eurasia, imported intentionally as an ornamental, and accidentally in ship's ballast.
- Infests wetlands, ditches, and riparian areas. Wetland Indicator status is 'OBL' (obligate - ≥99% chance that plant will occur in wetland)
- Noxious Weed in Pennsylvania – sale and propagation are prohibited.

Management Keys

The difficult aspect of purple loosestrife control is where it grows, rather than *how* it grows. It's not that difficult to control an herbaceous perennial that reproduces only by seed. However, when it grows in a sensitive (wet) area amongst a diverse plant community, and produces so much seed that it will constantly be appearing, it becomes a challenge to manage.

The key to managing loosestrife is to intervene early so that you can be as selective as possible when treating.

Prevent Seed Production

To prevent an infestation from expanding, you must prevent further seed production. Flowering can begin as early as late June, and continue into September. You need to control loosestrife early in this window to limit seed production.

Mechanical Operations

Isolated loosestrife plants can be hand-pulled or dug. This technique is most effective when the soil is saturated. Purple loosestrife is well rooted, and any large root pieces you leave behind in the soil may resprout.

Cutting will reduce or prevent seed set. If seed has

formed, you can remove the flowers for disposal, then cut the rest of the plant to the ground.

Biological Control

Where infestations are extensive, biological control agents that feed solely on purple loosestrife can be released. The most common agent released is the *Galerucella* beetle, which feeds on the foliage. There have been releases within the State Park system with variable results. Releases are coordinated with the PA Department of Agriculture and USDA-APHIS.

Herbicide Applications

Herbicide applications against loosestrife will be postemergence applications. The two basic scenarios are spot treating scattered loosestrife growing among desirable plants, and near-monocultures where loosestrife is basically the only plant present.

Ideally, treatment needs to occur before seed set. Even though a site may be heavily infested with an established seedbank, adding more seed is never good. Also, removing loosestrife earlier in the season provides a window at the end of the growing season for the native seedbank to establish.

Recommended Herbicides

The two most useful herbicides to manage loosestrife are *glyphosate* and *triclopyr*. *Glyphosate* is non-selective, and has no soil activity. All contacted plants will be injured, but openings will be quickly colonized by the seedbank and uninjured propagules. *Triclopyr* is selective, with minimal soil activity and will leave grasses and other monocots (sedges, rushes) largely uninjured.

Both herbicides are available as aquatic-labeled products, and pose reduced risk to non-target organisms.

Your herbicide choice will be based on the density of the loosestrife and the desirable species that are present. In the worst-case scenario where you have a dense stand of loosestrife and other invasive species such as phragmites or narrowleaf cattail, you need to use *glyphosate* (or *glyphosate* plus *triclopyr* to cover all options if there are undesirable woody species present) and broadcast apply. If the loosestrife is sparse, you can choose herbicides based on the desirable species



that are present. If the desirable species are mostly monocots, *triclopyr* will be a more selective option.

Aquatic or Terrestrial Application?

The presence of widespread standing water or saturated soil render an application 'aquatic'. These conditions require the applicator to be certified for aquatic applications (Applicator Category 9) AND to get a permit from the PA Fish & Boat Commission to make the aquatic application. Time your applications for drier periods. Isolated standing water or saturated soil does not require a permit.

Follow-up Treatments

Due to the vast amounts of seed that loosestrife drops, it will always reappear on a site once it has become established. Purple loosestrife is not a species that you control, declare victory, and walk away. Once you have eliminated the original infestation, you will need to spot-treat new plants as they arise, on an ongoing basis. However, by keeping purple loosestrife in check and encouraging a native plant community, you will be providing the best habitat possible under the circumstances.

Figure 1. The management calendar for purple loosestrife emphasizes treatment before seed set. When seed is present it should be removed and destroyed prior to herbicide treatment, cutting, or pulling/digging.

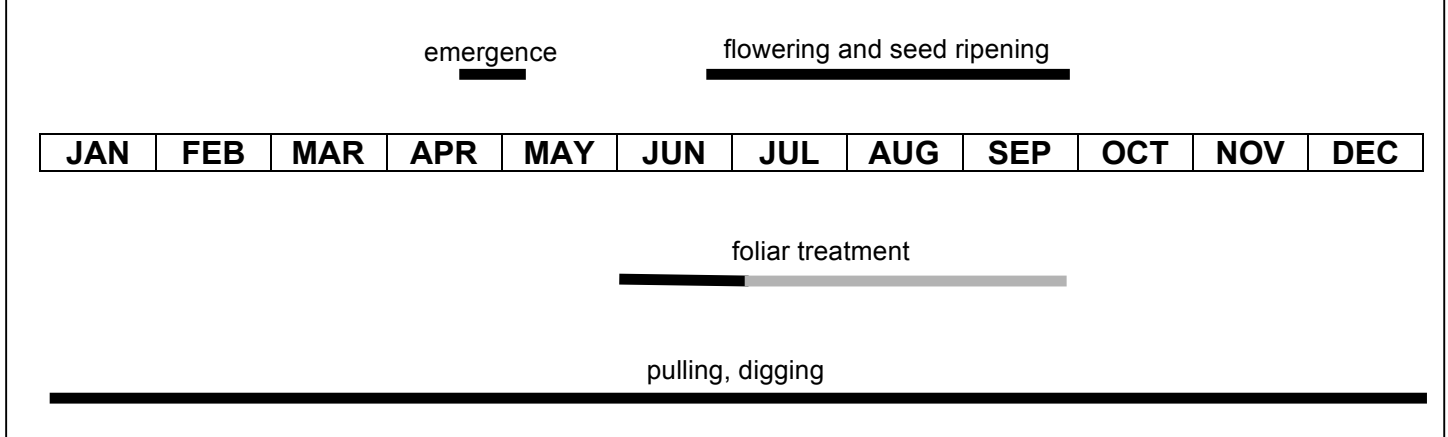


Table 1. Prescriptions for controlling purple loosestrife emphasize preventing seed set. Waiting until bloom stage will likely result in some production. Learn to identify loosestrife without flowers and implement controls prior to bloom.

timing	treatment	product rate	comments
any time	pulling or digging	n/a	When plant numbers are small, purple loosestrife can be pulled or dug. Loosestrife does not have a creeping root system, but leaving large pieces of root may result in regrowth – similar to dandelion or other taprooted perennials. Purple loosestrife is well rooted, so this should be done in saturated conditions.
June - September	foliar treatment with 'Garlon 3A'	2 qts/ac	'Garlon 3A' is a water-soluble formulation of <i>triclopyr</i> that is active against dicot weeds, and safe to most monocots (grasses, sedges, rushes, etc). It has aquatic labeling, and little soil activity. Use an aquatic-labeled surfactant such as 'Timerland 90'. If plant numbers are small, remove inflorescences and destroy them after flowering begins to reduce addition to the seedbank. In larger, established infestations this is not practical.
June-September	foliar treatment with <i>glyphosate</i> 'Aquaneat' or 'Glyphomate 41'	3 qts/ac or 4 qts/ac	These <i>glyphosate</i> products are aquatic-labeled. 'Aquaneat' requires additional surfactant ('Timberland 90'), while 'Glyphomate 41' has surfactant pre-mixed. <i>Glyphosate</i> will injure all contacted plants. Sparse loosestrife should be spot-treated, while dense stands can be broadcast-treated. If plant numbers are small, remove inflorescences and destroy them after flowering begins to reduce addition to the seedbank. In larger, established infestations this is not practical.

This publication is available in alternative media on request.

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. It is the policy of the University to maintain an academic and work environment free of discrimination, including harassment. The Pennsylvania State University prohibits discrimination and harassment against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identity, or veteran status. Discrimination or harassment against faculty, staff, or students will not be tolerated at The Pennsylvania State University. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Director, The Pennsylvania State University, 328 Boucke Building, University Park, PA 16802-5901; Tel 814-865-4700/V, 814-863-1150/TTY.