



purple loosestrife (*Lythrum salicaria*)

Description

- Refer to the DCNR Invasive Plants page and purple loosestrife sheet: (http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_010234.pdf).
- 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 that it is a resilient plant growing in or near water. Control will require repeat applications, and ongoing maintenance will be required to prevent reinfestation.

The key to managing loosestrife is to intervene early so that you can be as selective as possible when treating. This means early in the life of the infestation, and early in the season.

Prevent Seed Production

To prevent an infestation from expanding, you must limit new introductions and 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 practical 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. The adult feeds on the foliage, and the larvae feed on leaf buds, then leaves as they get older. There have been releases within the State Park system with variable results. Releases are coordinated with the PA office of 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 broadcast applications patches 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 little soil activity and will leave grasses and other monocots (sedges, rushes) largely uninjured.

Both herbicides are available as aquatic-labeled products, which reduce risk to non-target organisms. Be sure to use an aquatic-labeled surfactant as well.

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 loosestrife and other invasive species such as phragmites, reed canarygrass, or narrowleaf cattail, you should use *glyphosate* plus *triclopyr*. This combination will control all species, and is useful for almost any invasive target you encounter during the operation. 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* alone will be the most selective option.

Purple loosestrife does not surrender readily - single applications of herbicide will not provide complete control. Follow-up treatments will be necessary.

Aquatic or Terrestrial Application?

If standing water is present, a spray application requires the presence of an applicator certified for aquatic application, and a permit from the PA Fish & Boat Commission. On sites that are only occasionally saturated or inundated, it is easier to wait for drier

conditions so that a permit is not required.

Follow-up Treatments

Due to the vast amounts of seed that loosestrife drops, and reintroduction from adjacent infestations, it will reappear on a site once it has become established. After you have eliminated the original infestation, you will need to periodically spot-treat new plants as they arise. Keep in mind – even though vigilance is eternal, the effort to monitor and treat new introductions is much less than the original control project. You really can accomplish this with the finite time you have - and 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 pulling or digging plants, destroy or dispose of seed.

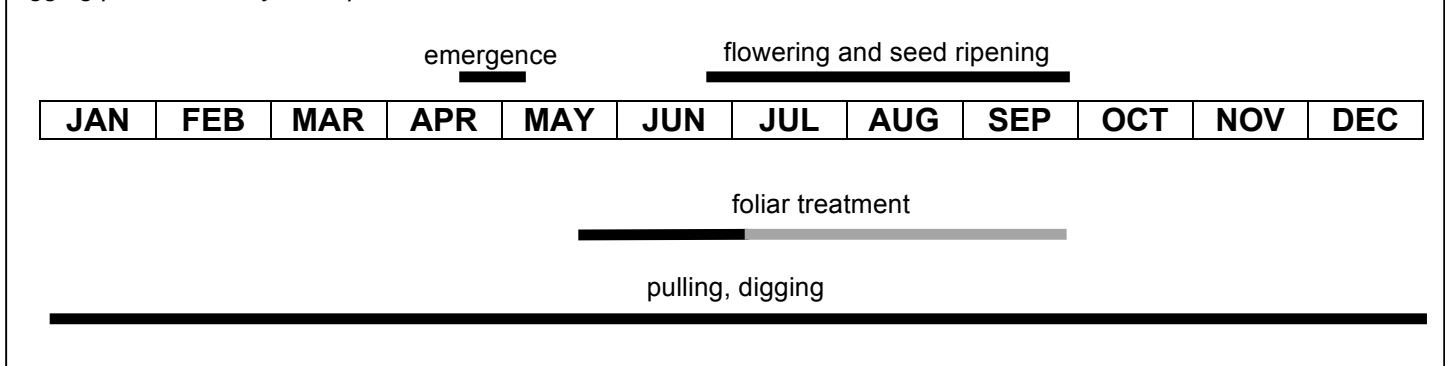


Table 1. Prescriptions for controlling purple loosestrife emphasize preventing seed set. Waiting until bloom stage will likely result in some seed production. Learn to identify loosestrife without flowers and implement controls prior to bloom.

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	Selective Foliar 'Triclopyr 3'	2 qts/ac	'Triclopyr 3' 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 'Alligare 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	Non-selective Foliar 'Rodeo' plus 'Triclopyr 3'	3 qts/ac + 2 qts/ac	This mixture is non-selective and will effectively treat any target you encounter, such as phragmites or reed canarygrass, which often co-occur with purple loosestrife, or terrestrial weed targets nearby. Both ingredients are aquatic-labeled, so you can treat vegetation in terrestrial and near-aquatic settings in the same operation. Use an aquatic-labeled surfactant (e.g. 'Alligare 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 – concentrate on eliminating the existing plants and limiting new introductions.

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