

**Purple Loosestrife**  
*Lythrum salicaria* L.  
**Loosestrife Family (Lythraceae)**



**DESCRIPTION**

Purple loosestrife is a stout, erect, perennial herb with a strongly developed taproot. From a distance, purple loosestrife may be confused with several other tall, native herbs with long red or purple spike-like inflorescences. Up close, however, it is easily distinguished from native plants. Purple loosestrife grows in swamps, marshes, along riverbanks, and other wet, open areas. It is conspicuous from late June through September when the tall spikes of magenta-purple flowers are present. It is also sold as an ornamental for use in landscaping.

**Height** - the plant ranges in height from 2 to 6 feet.

**Stem** - Purple loosestrife stems are herbaceous but they arise from a semi-woody base; the four-angled stem can be glabrous to pubescent.

**Leaves** - leaves are opposite or in whorls; they are narrow to narrowly oblong, with a heart-shaped base that connects directly to the stem.

**Roots** - The roots of purple loosestrife form a dense mass around the semi-woody base.

**Flowers** - Purple loosestrife flowers are magenta, or occasionally white or light pink, with 5–7 petals. The inflorescence is spike-like, 4–20 inches tall. Flowering begins in July and continues through September or October.

**Fruit** - The fruit is a capsule generally containing, 100 or more, tiny, dark colored seeds. Seed capsules remain on the plants through the winter, disseminating seed on a continual basis.

**Mode of spread** - Purple loosestrife spreads by seeds that may be distributed by water, by wind over ice in the winter, or by clinging to the feet of waterfowl. Individual plants form dense persistent clumps with a semi-woody base.

**DISTRIBUTION AND HABITAT**

Purple loosestrife is native to Eurasia and was first reported on the coast of northeastern North America in 1814. By 1830 purple loosestrife was well established along the New England seaboard. Although purple loosestrife occurs in nearly all sections of the United States, the heaviest concentrations are in the glaciated wetlands of the northeast. Purple loosestrife is found in wetlands such as cat-tail marshes, sedge meadows, and open bogs. It also occurs along

streams, riverbanks, and lakeshores. It is opportunistic in areas that have experienced recent soil disturbance; it is not uncommon to find it growing in manmade storm water retention ponds and in ditches adjacent to parking lots and roads.

Purple loosestrife grows best in highly organic soils, but tolerates a wide range of conditions including clay, sand, muck, and silt. Generally, the plant is found in full sun, but it can survive in partial shade. Infestations of purple loosestrife appear to follow a pattern of establishment, maintenance at low numbers, and then dramatic population increases when conditions are optimal. It flourishes in wetland habitats that have been disturbed or degraded by draining, natural draw down in dry years, bulldozing, siltation, shore manipulation, cattle trampling, or dredging. Mudflats exposed at low water levels will quickly be colonized if a loosestrife seed source is present.

### **EFFECTS OF INVASION**

An invasion of purple loosestrife leads to a loss of plant and wildlife diversity. Seeds are usually present in large numbers and germinate in such high densities that growth of native seedlings is prevented. High seed viability and prolific seed production can build up a seed bank of massive proportions. The build up of other debris around the roots enables loosestrife to invade deeper water and to form dense stands that shade out and push out floating vegetation by closing open water spaces. The impact of purple loosestrife is seen in loss of native flora and fauna in affected wetlands, degradation of wetland pastures and wild hay meadows, clogging of irrigation systems, and the loss of natural habitat for recreational enjoyment.



### **REPRODUCTION AND METHODS OF DISPERSAL**

Its prolific seed production, up to 2.7 million per plant per year, enables the purple loosestrife to establish dense stands within a few years. It can also spread vegetatively by formation of adventitious shoots and roots from clipped, trampled, or buried stems.

### **CONTROL**

Several control methods have been attempted with varying degrees of success, but current methods for eradicating large, dense populations of loosestrife are not totally effective. Natural area managers must determine their objectives first. Large populations extending over three acres or more will be difficult, if not impossible, to completely eradicate using presently known methods. These large populations should be contained at their present position. Preventing the expansion can be accomplished through hand-pulling new plants along the periphery or spraying herbicide on plants extending beyond the main body of the population.

Smaller populations can be controlled through eradication. Populations up to three acres can be cleared with herbicides or hand-pulled, depending upon the size of the work crew and time available.

**Mechanical** - Hand-removal is recommended for small populations and isolated stems. Ideally, the plants should be pulled out before they have set seed. The entire rootstock must be removed since regeneration from root fragments is possible. Be sure to minimize disturbances to the soil and native plant cover. Uprooted plants and broken stems must be removed from the area since the broken stems can resprout.

**Chemical** - Glyphosate is most commonly used for purple loosestrife control. However, its non-selective action can cause native vegetation to die back leading to even greater explosions of loosestrife invading from the seed bank. Where possible, spot applications targeting loosestrife plants should ensure that no large holes appear in adjacent vegetation. The safest method of applying glyphosate herbicide is to cut off all stems at about 6 inches and then paint or drip a 20–30% solution onto the cut surfaces. Spraying should be done after the period of peak bloom, usually late August. It is critical that any control effort be followed up the same growing season and for several years afterwards since some plants will be missed, new seedlings may sprout from the extensive seed bank, and some plants might survive the treatment. For larger infestations where spot application of glyphosate is not practical, broadleaf herbicides can be used. They have the advantage of not harming grasses and other grass-like species, which are the dominant plants in many wetland types.

**Biological** - Three host-specific insect species approved by USDA-APHIS have been released in the United States. These species are *Hylobius transversovittatus*, a root-mining weevil, and *Galerucella californiensis*, and *Galerucella pusilla*, two leaf-eating beetles. The *Galerucella* species have been particularly effective, when these insects are present in high densities they cause defoliation of mature plants, death of seedlings, and the destruction of flowering spikes or prevention of their formation. Although it may take several years, introductions of *Galerucella* species can reduce purple loosestrife populations to more manageable and less harmful densities. Recent studies of hormones released by *Galerucella* species has shed additional light on effective use of these insects in a control program.



*Galerucella pusilla*, USDA

### **NATIVE ALTERNATIVES FOR LANDSCAPE USE**

Purple loosestrife has long been used as a garden ornamental because of its attractive, long-lasting spikes of purple flowers. The claim is frequently made that horticultural cultivars do not produce viable seed and thus are not a threat to natural areas. However, it has been shown experimentally that garden forms of purple loosestrife do cross-pollinate with naturalized stands resulting in seed production.

Native alternatives to purple loosestrife for garden use include: Joe-pye-weed (*Eupatorium fistulosum*, *E. maculatum*), New England aster (*Aster novae-angliae*), purple-stemmed aster (*Aster puniceus*), New York ironweed (*Vernonia noveboracensis*), obedience-plant (*Physostegia virginiana*), bee-balm (*Monarda didyma*), hardhack (*Spiraea tomentosa*), swamp milkweed (*Asclepias incarnata*), blazing-star (*Liatrix spicata*), great blue lobelia (*Lobelia siphilitica*).

## **REFERENCES**

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**Internet resources** – <http://www.paflora.org>, <http://www.invasivespecies.gov>,

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