

## Invasive Plant Information Sheet

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Purple Loosestrife *Lythrum salicaria* Loosestrife Family (Lythraceae)

**Ecological Impact:** Purple loosestrife is a rapidly spreading herb that forms dense stands in wetlands, especially those that have been disturbed by draining, drawdown, bulldozing, siltation, shoreline manipulation, cattle trampling, or dredging. Exposed soil provides ideal conditions for seed germination. A few pioneering plants produce a large seed bank in the soil. Mature individuals can produce up to two to three million seeds per year. Seeds are mainly wind-dispersed, but can be transported on the feet of waterfowl or by other wetland animals. When growing conditions are optimal, seeds germinate in high densities and suppress the growth of native seedlings. The plants also reproduce vegetatively from underground stems. Purple loosestrife displaces native vegetation and can overrun wetlands thousands of acres in size. The buildup of debris around the roots nearly eliminates shallow water habitat, and enables the plants to colonize deeper waters where it forms dense stands that shade out other emergents. Explosive growth of purple loosestrife leads to a loss of plant diversity, which, in turn, leads to a loss of wildlife diversity. The plants produce abundant nectar for insect pollinators, but are otherwise of little value for wildlife.

**Control Methods:** The most effective control method for Purple loosestrife is to prevent establishment by annually monitoring for and removing isolated plants. To control established stands, managers should first consider the size of the population. Small populations up to three acres in size can be eradicated by hand pulling and/or herbicide treatment. Large populations covering more than three acres are difficult or impossible to eradicate. The most effective control method for large infestations is biological. However, large stands can be contained by hand pulling new plants along the periphery or treating stray plants with herbicide.

**Mechanical Control:** Small populations and isolated plants can be hand pulled or removed with a shovel before seed set (before August). After flowering, this method should be avoided so as not to scatter seeds. Be sure to remove the entire plant including all roots, since new plants can sprout from root fragments. Caution need be taken when removing plants, since soil disturbance encourages seedling establishment. Pulled plants should be bagged at the site so that fragments are not dropped when leaving the area. Removed plants should be burned. Follow-up treatments are recommended for at least three years to remove new plants that sprout from seeds persisting in the soil. After working in infested areas, rinse all equipment and footwear and change clothing before moving to uninfested sites.

**Chemical Control:** Herbicides can be applied as a foliar spray or as cut stump treatments.

**1) Foliar Spray:** This method is effective throughout the growing season, but is best done after

peak bloom, usually in late August. At this time plants are easily seen and less likely to be overlooked. Spray a 1-2% solution of glyphosate (Rodeo™) and water to no more than 25-50% of the plant's foliage. This will help prevent overspraying and protect adjacent native vegetation. Glyphosate is a non-selective herbicide that will kill all vegetation. Follow-up treatments may be needed for at least three years.

**2) Cut Stump Treatment:** This method is most effective on larger plants in small populations. It is best done in late summer or early fall, when plants are translocating nutrients to the roots. Cut stems about 6 inches from the ground and treat cut surfaces with a 20% solution of glyphosate (Rodeo™) and water. Roundup™ should not be used as it is not approved for use in wetlands. Keep in mind that a DEP permit is required for herbicide use near water. Apply the herbicide with a sponge or paint brush or drip onto the cut surface. To ensure uptake before the plant seals off the cut, apply herbicide immediately after cutting, within 5-15 minutes. Cut stems should be bagged and removed from the site. Follow-up treatments may be needed for at least three years.

**Biological Control:** This method provides the most effective long-term control of large populations. Biocontrol will not eradicate Purple loosestrife, but can significantly reduce population size and keep it in check. Four insect species from Europe have been approved by the U.S. Department of Agriculture as biological control agents. These include a root-mining weevil (*Hylobius transversovittatus*), two leaf-eating beetles (*Galerucella calmariensis* and *Galerucella pusilla*), and one flower-feeding weevil (*Nanophyes marmoratus*). Most of the insects depend exclusively on Purple loosestrife and will not threaten native plants. However, some beetle cross-over to native loosestrife has been observed.

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