

Table 1. Management techniques for purple loosestrife.

Techniques	Notes
Biological Control	
leaf-eating beetle <i>Galerucella pusilla</i>	Has shown success, however, effective control takes many years.
leaf-eating beetle <i>Galerucella californiensis</i>	Has shown success, however, effective control takes many years.
root-mining beetle <i>Hylobius transversovittatus</i>	Not proven to be effective.
Physical Control	
hand pulling	Effective but feasible only for infestations of 100 plants or less. Care must be taken to avoid spreading seeds. Plants must be dried and burned.
digging	Effective but feasible only on small infestations. Must remove all roots and fragments to prevent regrowth.
flower removal	Feasible on larger infestations where hand pulling and digging are not. Care must be taken to remove flowers before seed has set to avoid spreading seeds.
burning ¹	¹ These methods have been largely ineffective in controlling infestations and are generally not recommended.
cutting ^{1,2}	
mowing ^{1,2}	^{1,2} In some instances infestations have been perpetuated and new populations established from plant fragments.

MORE INFORMATION

Invasive Species
www.invasivespecies.gov/profiles/purplstrf.shtml

Mississippi State University, GeoResources Institute
 Invasive Species
www.gri.msstate.edu/lwa/invspec.php

North Dakota State University
www.ext.nodak.edu/extpubs/plantsci/weeds/w1132w.htm

United States Department of Agriculture
plants.usda.gov/cgi_bin/plant_profile.cgi?symbol=LYSA2

United States Geological Survey
www.npwrc.usgs.gov/resource/1999/loosstrf/loosstrf.htm

Wisconsin Department of Natural Resources
www.dnr.state.wi.us/org/land/er/invasive/factsheets/loose.htm

Table 2. Herbicide recommendations for purple loosestrife control.

Chemical	Trade Name	Formulation	Rate
2, 4-D	DMA 4 IVM	liquid	2-4 pints/acre
Glyphosate	AquaPro Rodeo	liquid	4-6 pints/acre
Imazapyr	Habitat	liquid	1 pint/acre
Triclopyr	Renovate3	liquid	6-8 quarts/acre

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INVASIVE SPECIES FACT SHEET

Purple loosestrife (*Lythrum salicaria* L.)

Description, Distribution, and Management

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INTRODUCTION

Purple loosestrife (*Lythrum salicaria* L.) was introduced to North America from Europe and Asia in the early to mid 1800's. The seeds were carried in ship ballast and on livestock that were brought to this country for trade. Purple loosestrife was widely cultivated for its ornamental and pharmacological values. However, this species can invade wetland habitats and result in negative impacts on the ecosystem. Such ecosystem effects include altered detritus decomposition and nutrient cycling. Also, purple loosestrife may displace native plant species resulting in the formation of dense monotypic stands and the reduction of native plant species richness and diversity. In addition, purple loosestrife has little value for wildlife as few species utilize the plant for a food source or shelter.

DESCRIPTION

Purple loosestrife is a perennial species that over-winters as a stem base. Plants are composed of numerous angled stems that grow to over 6 feet (Figure 1). The leaves are lance shaped with fine hairs, and are attached directly to the stems without petioles. Leaves can be opposite, whorled, or spiraled around the stem. Purple flowers occur in axillary clusters that form a spike inflorescence (Figure 2). Each flower has 5 to 7 narrow, wrinkled petals (Figure 3). Flowering begins in late June and continues through September. It has been suggested that purple loosestrife can draw pollinators away from native plants, which may aid in this plants prolific seed production. A mature multi-stemmed plant, 1.5-6 feet in height, may produce between two and three million seeds that can remain viable in the soil for many years. It takes approximately eight weeks from germination for purple loosestrife to flower. Seed dispersal is largely by drift in moving water; however, long distance transport occurs when seeds become embedded in mud adhering to wildlife, livestock, humans, and vehicles. Purple loosestrife can spread vegetatively by detached shoot and rootstock fragments.

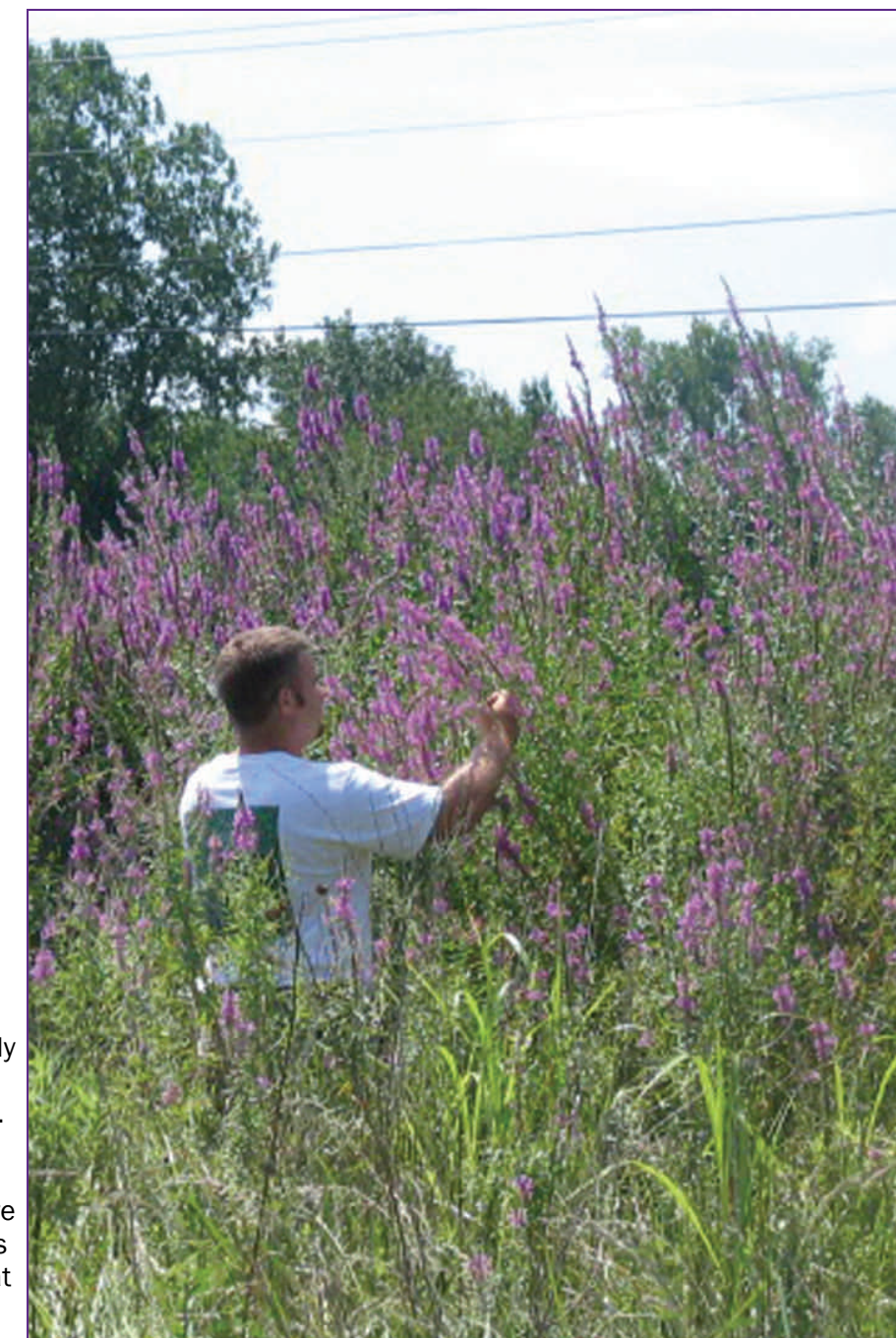


Fig. 1. Purple loosestrife growing greater than 6 feet in height. Photo by Victor Maddox.

HABITAT

Purple loosestrife grows in a variety of moist soil habitats including wet meadows, marshes, floodplains, river margins, and lake-shores (Figure 4). The plant can tolerate shallow water depths, but optimal growth is attained in moist soil habitats. Disturbed sites create excellent opportunities for seed germination and expansion of new purple loosestrife infestations.

DISTRIBUTION

Purple loosestrife distribution in North America extends east from New Brunswick to North Carolina and west from British Columbia to California in the west (Figure 5). Since 1940, it has spread at an average rate of 432 miles per year and now occupies more than 296,525 acres of North American wetlands. Currently, the only reported natural population of purple loosestrife in Mississippi has been observed near Corinth (Figure 6).

MANAGEMENT

Biological Control:

In recent years three species of insects *Galerucella pusilla* (a leaf-feeding beetle), *Galerucella californiensis* (a leaf-feeding beetle), *Hylobius transversovittatus* (a root-mining weevil) have been used to control infested sites (Table 1). Of the three insects, the two leaf-feeding species have the greatest success in controlling purple loosestrife populations. The beetles over-winter as adults and lay their eggs on the leaves of purple loosestrife plants in the spring, and subsequent larvae feed on the leaves and flowers. Biological control methods often require many growing seasons to observe control of infestations.

Physical Control:

Small infestations, less than 100 plants, can be controlled by hand pulling plants, digging up the stem bases, or flower removal (Table 1). These methods should not be used when seed production is occurring as this will aid in seed dispersal and new infestations of purple loosestrife. Care must be taken to remove all seeds and plant material from clothes and equipment as small plant fragments can result in new infestations. All plant material should be dried and burned to ensure that purple loosestrife plants and fragments are not viable.

Techniques such as cutting, mowing, and controlled burns have been used in an attempt to control purple loosestrife populations (Table 1). The deployment of these techniques have largely been ineffective and can promote new plant growth.

Chemical Control:

Herbicides offer more efficient control of purple loosestrife populations greater than one acre (Table 2). Many formulations of glyphosate and triclopyr have been used extensively to control infestations. Glyphosate and imazapyr are non-selective herbicides; therefore, treatment may affect other plant species such as cat-tails and rushes. Triclopyr and 2,4-D formulations are selective broadleaf herbicides and may not affect other desirable monocot species nearby. However, only formulations labeled for aquatic use can be applied to plants in or near water.



Fig. 2. Spike inflorescences of purple loosestrife. Photo by Ryan M. Wersal.



Fig. 3. Purple loosestrife flower with 6 petals. Flowers occur in axillary clusters around the stem. Photo by Ryan M. Wersal.



Fig. 4. Purple loosestrife growing in a typical wetland habitat. Photo by Ryan M. Wersal.

FURTHER READING

Mitich, W.L. 1999. Purple Loosestrife, *Lythrum salicaria* L. Weed Technology 13:843-846.

Mullin, B.G. 1998. The biology and management of Purple Loosestrife (*Lythrum salicaria*). Weed Technology 12:397-401.

Thompson, D.Q., Stuckey, R.L., and Thompson, E.B. 1987. Spread, impact, and control of purple loosestrife (*Lythrum salicaria*) in North America wetlands. U.S. Fish and Wildlife Service.

Fig. 6. Location (red dot) of the natural population of purple loosestrife in Mississippi.

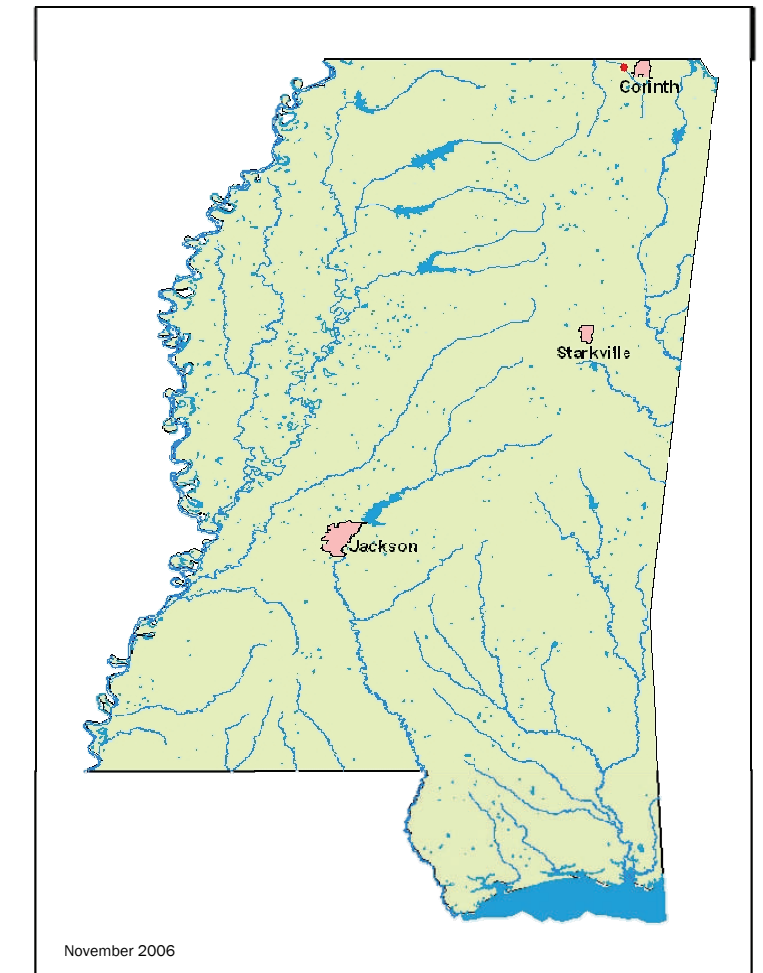


Figure 5. The presence of purple loosestrife in the lower 48 states.

