

Purple loosestrife (*Lythrum salicaria* L.)

European wand loosestrife (*Lythrum virgatum* L.)

Family: Lythraceae

Lythrum salicaria Synonyms: *Lythrum salicaria* var. *gracilior* Turcz., *L. salicaria* var. *tomentosum* (P. Mill.) DC., and *L. salicaria* var. *vulgare* DC.

Other common names: spike loosestrife, salicaire, rainbow weed, purple lythrum

Lythrum virgatum Synonyms: None

Other common names: None

Description

Purple loosestrife is a perennial plant with erect square stems, 6 to 8 feet tall. Stems are four-sided and covered with soft hairs. Each year the plant enlarges at the base, becoming a bush-like clump of 30-50 stems from a single root stock. Leaves are simple, entire, opposite or whorled, stalkless, lance-shaped, and slightly hairy. Rose-purple flowers are arranged in long vertical racemes. Each flower has five to seven petals surrounding a small yellow center. European wand loosestrife is a noxious weed that closely resembles purple loosestrife (Whitson et. al. 2000, DiTomaso and Healy 2003).



Purple loosestrife in garden

Purple loosestrife may be distinguished from the similar looking fireweed (*Chamerion angustifolium*)

by narrower, slender spikes, four-edged stem, and opposite or whorled leaves.



Purple loosestrife inflorescence

Ecological Impact

Impact on community composition, structure, and interactions: Purple loosestrife displaces native vegetation through rapid growth and closing open water space. Important wildlife food plants such as cattails and pondweed are displaced or shaded out by loosestrife. Generally, it becomes a virtually, monospecific stand, degrading native animals nesting and foraging sites (Bossard et al. 2000). It lacks natural enemies in the United States (Blossey 2002). It has been reported as an alternate host for the cucumber mosaic virus (Bender 1987, Royer and Dickinson 1999).

Impact on ecosystem process: Purple loosestrife clogs streams and canals slowing water flow. It also alters biogeochemical and hydrological processes in wetlands (Bossard et al. 2000). Leaves of the plant decompose quickly in the fall resulting in a nutrient flush, whereas wetland communities are adapted to decomposition of plant tissues in spring.

Biology and Invasive Potential

Reproductive potential: It begins to bloom in July and continues until September or October. The flowers are pollinated by several different types of bees and by butterflies. Seed production is prolific. A plant is capable of producing more than two million viable seeds in a season (Shamsi and Whitehead 1974, DiTomaso and Healy 2003). High seed viability and prolific seed production can build up a seed bank of large quantities. Viability decreased from 99% to 80% after two years of storage in a natural body of water (Bender 1987). It can spread vegetatively by resprouting from cut stems and regenerating from root fragments and pieces of the stem (Bender 1987, Royer and Dickinson 1999, DiTomaso and Healy 2003).

Role of disturbance in establishment: Purple loosestrife flourishes in wetland habitats that have been disturbed or degraded by draining, natural drawdown in dry years, bulldozing, siltation, shore manipulation, cattle trampling, or dredging. This species is also able to invade intact wetlands (Bossard et al. 2000.).

Potential for long-distance dispersal: The seeds are small, weighing 0.06 mg each (Shamsi and Whitehead 1974). Thus, dispersal is mainly by wind, but seeds can also be transported on the feet of waterfowl or other wetland animals. The seeds and seedlings are buoyant and can be dispersed by water (DiTomaso and Healy 2003).

Potential to be spread by human activity: Humans carry seeds inadvertently on clothing and shoes and bee-keepers have purposely sown seeds to provide a source of nectar. It was and continues to be widely planted in gardens (Royer and Dickinson 1999).

Germination requirements: Establishment from seed occurs in late spring or early summer; autumn seed germination is rare. Minimal levels of light are required for germination (Shamsi and Whitehead 1974). Temperature at the soil surface is a critical factor for germination and optimal temperature range is from 59° to 68° F (DiTomaso and Healy 2003). Seeds can germinate in acidic or alkaline soils as well as in soils that are nutrient rich or nutrient poor.

Growth requirements: Purple loosestrife grows best in highly organic soils, but tolerates a wide range of soils including clay, sand, muck, and silt. Generally, the plant is found in full sun, but it can survive in 50% shade (Bossard et al. 2000).

Listing: *Lythrum salicaria* is a noxious weed in 25 American states and two Canadian provinces.

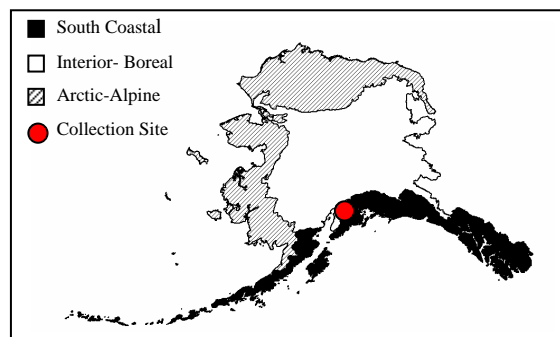
Lythrum virgatum is declared noxious in 13 American states (Rice 2006).

Distribution and Abundance

Currently, this species is more or less cosmopolitan, being found all over the world except in extremely cold and arctic regions. In North America, it was first reported from the northeastern coast in 1814. Further introductions have occurred through ship ballast, wool, and most likely as ornamental plantings.

Although purple loosestrife occurs in nearly all states of the United States (USDA, NRCS 2006), the heaviest concentrations are in the formerly glaciated wetlands of the northeast and midwest. It is found in wetlands such as cattail marshes, sedge meadows, and open bogs. It is also occurs along stream and river banks and lake shores. Typical associates include *Typha latifolia*, *Scirpus* spp., and *Carex* spp. In addition, the plant is found in ditches and other disturbed wet soil areas (DiTomaso and Healy 2003).

Native and current distribution: Purple loosestrife is native to Eurasia. Its distribution extends from Great Britain across western Europe into central and southern Europe along the Mediterranean Basin. In Asia, Japan is the core of the species native range, with outlying populations extending from the Amur River south across the lowlands of Manchuria and other parts of China to Southeast Asia and India (Blossey 2002). It is present in North Africa and North America. It is abundant in southeast temperate Australia.



Distribution of purple loosestrife in Alaska

Management

Current methods for eradication of large, dense populations of loosestrife are not totally effective. Mechanical control methods are ineffective, and most herbicides are non-selective. Follow-up treatments are recommended for three years after plants are removed. Biological control measures are being developed in the western United States (Bossard et al 2000).

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