

Why Should Purple Loosestrife Concern You?

- Plant diversity in wetlands declines dramatically and many rare and endangered plants found in our remaining wetlands are threatened.
- Most wetland animals that depend on native plants for food and shelter decline significantly. Some species, such as Baltimore butterflies, marsh wrens, and least bitterns may disappear entirely.
- Recreational uses of wetlands for hunting, trapping, fishing, bird watching and nature study decrease. Thick growth of purple loosestrife may impede boat travel.
- Wetlands may store and filter less water.
- Millions of dollars spent to preserve wetlands would be wasted.

Photo credits: Dennis Woodland, Asa Thorenson, Clifford Orstead, Mary Melgard, Kitty Kohout, Paul Berry, Merel Black, Dan Woodland, Robert Beirman and Emmet Judzewic.

Pickeral Weed:
Pontederia cordata
Flowers 2-lipped, spikes 3"-4"; leaves heart shaped, single; water, 1' to 3'



False Dragonhead:
Physostegia virginiana
Tubular flowers, dissimilar petals; toothed leaves; 1' to 5' (Other large mint family plants: Hedge Nettle, Giant Hyssop)



Fireweed:
Epilobium angustifolium
Fatter spikes of 4-petaled, stalked flowers; alternate, toothed leaves; northern plant of drier areas; 2' to 6'



Smartweed:
Polygonum sp.
(many native species) - Tiny flowers, skinny spikes 1" to 4"; alternate leaves clasp stem at base; stems jointed, 1' to 6'



Blue Vervain:
Verbena hastata
(+ other Verbena sp.)
Flowers tiny, pencil thin spikes; toothed, oval, stalked leaves; moist to dry places; 2' to 6'



Steeplebush:
Spiraea tomentosa
Tiny flowers, conical set of flower spikes; alternate, oval leaves; woody stem 1' to 4'



Look-a-likes



PURPLE LOOSESTRIFE

DO NOT CONFUSE THESE NATIVE SPECIES WITH PURPLE LOOSESTRIFE!

Gayfeather, Blazing Star:
Liatrus pycnostachya
(+ other Liatrus sp.) - Shorter flower spike of tufted flower heads, many skinny petals; grasslike leaves; 2' to 4'



Swamp Loosestrife:
Decodon verticillatus
Flowers bunched at well-separated leaf bases; leaves whorled in 3s or 4s; stems usually arching, 1' to 8'



Lupine:
Lupinus perennis
Pea-like flowers; alternate, palm-like leaves; dry, sandy places; 2' to 4'



Winged Loosestrife:
Lythrum alatum
Smaller, single flowers at well-separated leaf bases; upper leaves single; southern prairies, 2' to 3'



Joe-Pye Weed:
Eupatorium maculatum
Flowers heads in flat-topped clusters; whorls of 3 to 6 toothed leaves; 3' to 9' (Other flat-topped, native flowers: Ironweed, Marsh Milkweed)



Smooth Phlox:
Phlox glaberrima
(+ other Phlox sp.) - Flowers tubular, flat topped, petals alike, in loose round arrangement; often wooded settings; 1' to 4' (Other tubular, flat petalled flowers may not be native, e.g. Dame's Rocket)



IDENTIFICATION

Growth: Upright, semi-woody, hardy perennial with a dense bushy growth of 1 to 50 stems. The square to many sided, green to red stems grow 3' to 9' feet tall and die back each fall. Old stems may persist for several years. Often found in clumps of several plants.

Flowers: Purple to pink and on numerous long spikes. Individual flowers are 1/2" to 3/4" across, with 5 or 6 petals.

Seeds: Tiny, smaller than a pin head. 2 to 3 million produced annually on each healthy, mature plant.

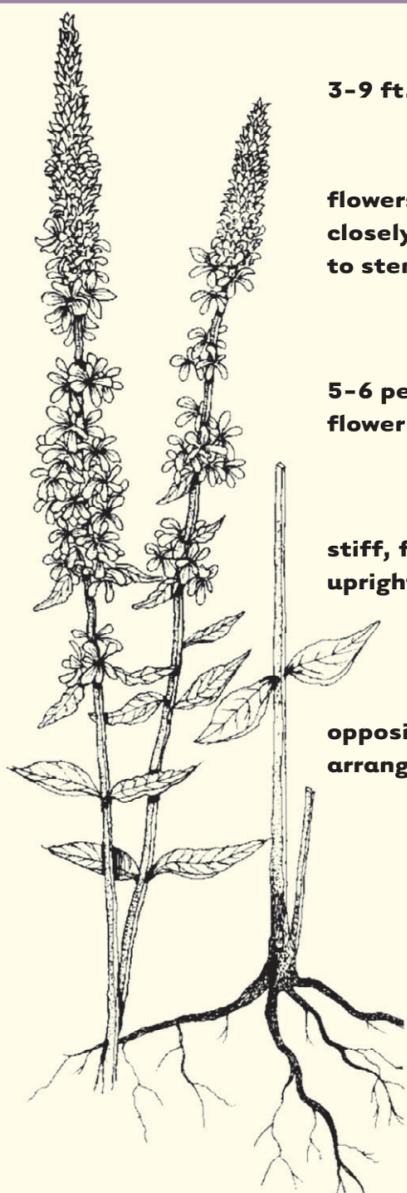
Leaves: Variable, usually opposite, but sometimes alternate or bunched in whorls. Linear shaped; smooth edged; sometimes hairy; attached directly (no stalks) to stems with each pair at 90 degrees to those above and below. No noticeable odor.

Root: Woody with many fibrous side roots forming a dense mat. Root masses may be several feet across in old clumps.

Blooming period: Late June through early September. Spike blooms from bottom up. Lower pods may drop seeds while upper blooms are still present.

Habitat: Moist-soil to shallow-water sites, such as wet meadows and pastures, marshes, stream and river banks, lake shores and ditches. Established plants tolerate dry conditions, such as gravel roadsides and abandoned fields. Still planted (illegally) in some gardens.

Distinguishing it from similar species: Few other wetland plants grow as tall with numerous square or multisided stems and brilliant purple spikes that turn into candelabras covered with many small, oval pods.



3-9 ft. in height

flowers in a spike; closely attached to stem

5-6 petals per flower

stiff, four-sided, upright stem

opposite leaf arrangement

THE ECOLOGICAL PROBLEM

Purple loosestrife is an attractive wetland perennial plant from Europe and Asia that was introduced to North America without the specialized insects and diseases that keep it in check in its native lands. Freed from its natural controls, purple loosestrife grows taller and faster than our native wetland plants. These advantages and prolific seed production have allowed it to invade many Wisconsin wetlands to the near total exclusion of most other vegetation. Once established, it literally shades everything else out. Loosestrife has spread rapidly in Wisconsin over the last 20 to 30 years.

FOR MORE INFORMATION :

On invasive species, including purple loosestrife, access the Department of Natural Resources web site (search for purple loosestrife) at:

www.dnr.wi.gov/org/caer/ce/invasives

Contact your region's WDNR Aquatic Plant Management Coordinator for herbicide permits. For purple loosestrife biocontrol information contact the Wisconsin Purple Loosestrife Biocontrol Program at: 1350 Femrite Dr., Monona WI 53716, (608) 221-6349, or email: brock.woods@dnr.state.wi.us

PURPLE Loosestrife

(*Lythrum salicaria* & *Lythrum virgatum*)



A MAJOR THREAT TO WISCONSIN'S WETLANDS AND WATERWAYS



gate that WDNR and UWEX have created a program in which hundreds of citizens have raised and released millions of beetles. Though purple loosestrife will never be eliminated from Wisconsin, the release of sufficient numbers of these biocontrol insects, in combination with continued use of traditional control methods, may restore a more natural balance between purple loosestrife and other wetland species.

You Can Help!

HOW DOES PURPLE LOOSESTRIFE SPREAD?

Purple loosestrife spreads primarily by seed, but it can also establish from bits of root or broken stem fragments that readily root in moist soil. A mature loosestrife plant annually produces over 2 million tiny seeds that may remain viable in the soil for many years. Water, animals (especially birds), boats, construction equipment and people can transport the seeds long distances. Also, some uninformed gardeners still plant purple loosestrife.

All sunny wetlands, including temporarily moist fields and roadside ditches, are susceptible to purple loosestrife invasion. A new infestation usually starts with a few transported seeds that grow into pioneering plants. These quickly build up a large seed bank in the soil. Disturbances such as water drawdowns accelerate the invasion by providing open substrate and sun for seed germination, and can quickly help fill the wetland with loosestrife.

BIOLOGICAL CONTROL: A LONG-TERM SOLUTION

Traditional control methods can provide up to 95% control of loosestrife on a site, but these methods are often labor intensive, expensive and disruptive. Biological control (biocontrol) is necessary for statewide control.

Biocontrol uses one organism to control another. A search of Europe in the late 1980s found insects that feed exclusively on and control the purple loosestrife there. After careful research to identify the best and safest species to use, four insect species were imported to help control the plant here. Purple loosestrife biocontrol in Wisconsin began in 1994 with the release of two beetle species that eat its leaves. Root and flower feeding weevils came a year later. Monitoring for almost 10 years has ensured that these insects pose no threat to either our crop plants or native flora. Field research has also shown that the insects reduce both the height and seed output of our purple loosestrife, often enabling other plants to regain control of a wetland in a few years. As a wetland's loosestrife diminishes, the control insects fly to find new loosestrife sites elsewhere.

The two foliage beetles give the best control effect and are so easy to propa-

① **LEARN TO IDENTIFY PURPLE LOOSESTRIFE.** Distinguish it from native look-a-likes by using the photos, or get a good plant book. (Note that several valuable native yellow-flowered plants in the genus *Lysimachia* are also known as "loosestrifes")

② **REPORT PURPLE LOOSESTRIFE INFESTATIONS.** Check the web site map to see if your sites were previously reported. If not, or if they have changed substantially, send the new site information to the WDNR using their Watch Form found online or send information to brock.woods@dnr.state.wi.us, the Wisconsin Purple Loosestrife Biocontrol Program.

③ **HELP PREVENT THE SPREAD OF PURPLE LOOSESTRIFE:**

- ✓ Clean off equipment, boats and trailers, clothing and footwear used in infested areas before moving into uninfested areas.
- ✓ Encourage your local highway department to stop mowing the plant. Cut-up stem pieces will root when spread to new moist ground, and mowing can spread its seeds along the roadway.
- ✓ Help curb local use of the plant. State law bans the sale, distribution or cultivation of purple loosestrife in Wisconsin: \$100 fine per violation [sec.23.235, p.3]. The law includes all cultivars, hybrids and varieties of *Lythrum salicaria* and *L. virgatum*. Report sales of the plant to the Wis. Dept. of Agriculture, Trade and Consumer Protection at (608) 224-4571. Work with local government to curb local cultivation or distribution. Help educate local gardeners about invasive plants and encourage them to use native plants (see photos).
- ✓ Watch for pioneering loosestrife plants and remove them immediately, especially from areas otherwise free of loosestrife.

④ **HELP ELIMINATE ESTABLISHED LOOSESTRIFE IN YOUR AREA**
Citizen action is critical, as many infestations are on private property. Choose traditional or biological control methods or use them in combination.

⑤ **TEACH ABOUT INVASIVE SPECIES AND CITIZEN ACTION**

Use See Cella Chow: *A Purple Loosestrife Biocontrol Manual for Educators*, found at www.dnr.wi.gov/org/es/science/publications/ss981_2003.htm



As shown in the photos biological control can be highly effective in controlling purple loosestrife.

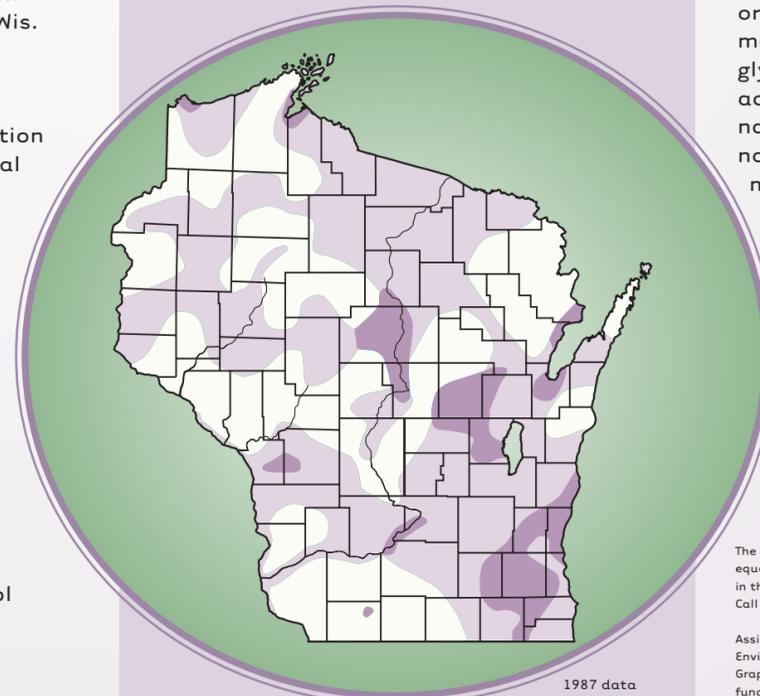
DISTRIBUTION OF PURPLE LOOSESTRIFE IN WISCONSIN

Purple loosestrife is most common in the Eastern U.S. where it first appeared in North America in the early 1800s. It is now found in all 50 states and most Canadian provinces.

It moved into Wisconsin after 1900, and is now in all 72 counties (see map). However, most infestations here are still small and it probably still occupies less than 10 percent of our total wetland acreage. Thus, there is still time to control purple loosestrife here.

A web site map with up-to-date information on purple loosestrife in Wisconsin is found at:

www.glifwc-maps.org



1987 data

- Mild infestation
- Moderate infestation
- Heavy infestation

CONTROL METHODS:

BIOLOGICAL CONTROL is useful on any site, especially large ones, except where ill-suited to insect success (e.g., with summer flooding) or where loosestrife seeds can easily infest new areas. Combining it with traditional methods may give the best long-term control.

Acquire and distribute enough bio control beetles to control your local purple loosestrife infestation. Propagate beetles at home or school. It's easy and inexpensive. If you can't propagate, collect them from an established beetle site near you, or buy them. A free WDNR permit is required to cultivate loosestrife to raise control beetles.

TRADITIONAL METHODS offer quick control, but require follow-up to catch missed plants and new seedlings, and may be impractical or too expensive on large sites. Avoid site disturbances that expose the loosestrife seed bank. Follow all label instructions when using herbicides. Destroy any removed loosestrife by drying and burning it or placing it in a landfill. Do not compost it. Acquire a free WDNR permit for any herbicide work over water.

- ① On small sites, gently pull or dig small, young plants, especially in loose, sandy or gravelly soil.
- ② On small sites, cut loosestrife stems during active growth and immediately apply a glyphosate herbicide (20-40% active ingredient) to the stumps. Use Roundup® or equivalent product on drier sites. Use Rodeo® or equivalent product on plants over water. Cut and treat all stems in a clump if it might have more than one plant.
- ③ On large sites, carefully spray loosestrife foliage with glyphosate or triclopyr herbicides. For sites with mainly broad-leaved plants use glyphosate in a foliar solution (1% active ingredient). Avoid spraying native plants, since glyphosate is non-selective. On sites with many monocots, such as cattails, sedges or grasses, spray with triclopyr, such as Renovate®, in a foliar solution. Triclopyr kills only broad-leaved plants.

The Wisconsin Department of Natural Resources (WDNR) provides equal opportunities in employment and programs. The information in this publication can be made available in alternative formats. Call 608/267-7694.

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