

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.

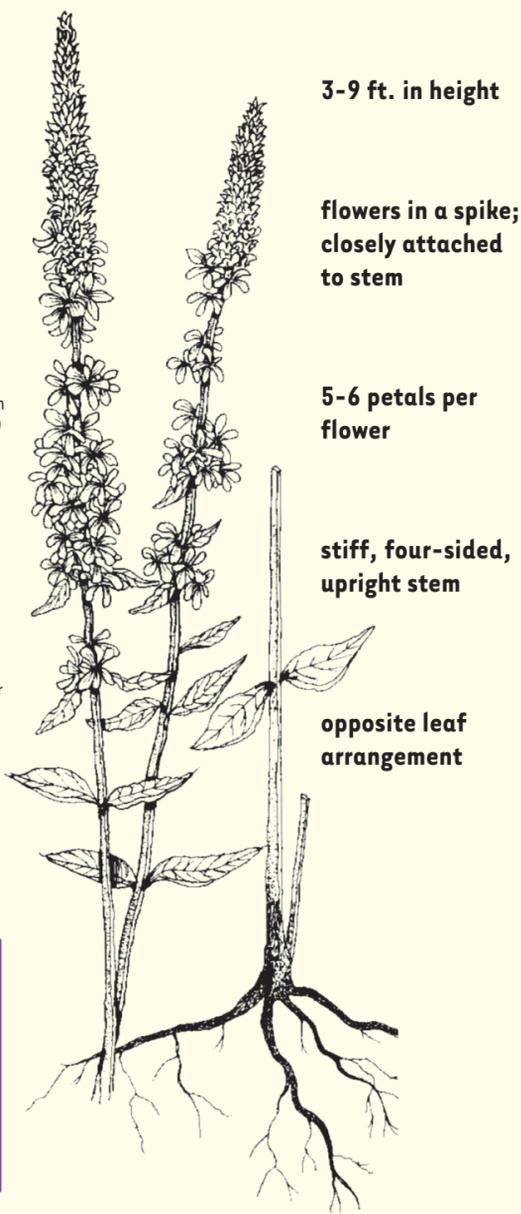
Leaves: Variable, usually opposite, but sometimes alternate or bunched in whorls. Linear shaped; smooth edged; sometimes hairy; attached directly (no stalks) to stems with each pair at 90 degrees to those above and below. No noticeable odor.

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 odorless and numerous square or multisided stems, and spikes of brilliant purple flowers that turn into 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



PURPLE Loosestrife



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, sometimes to the near-total exclusion of most other vegetation. Once established, it can shade everything else out. Loosestrife had spread rapidly in Wisconsin through the 1990s, but is now often reduced with biocontrol beetles.

FOR MORE INFORMATION:

To learn more about purple loosestrife and biocontrol, search "**purple loosestrife biocontrol**" on the WDNR website (dnr.wi.gov) and choose the top reference. (Search "invasives" for other invasive plant information.)

For purple loosestrife reporting, and site or specific program info, contact the Wis. Purple Loosestrife Biocontrol Program-WY/3 at 101 South Webster St, Madison WI 53707, (608) 266-2554; or email:

brock.woods@wisconsin.gov

Find this brochure online: search "invasives" on the WDNR website, click "Order"; click "Aquatic invasive species publications catalog," and scroll down to it.

A CONTINUING THREAT TO WISCONSIN'S WETLANDS AND WATERWAYS

DNR-PUB-WY-799-2017

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 decline. 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 if purple loosestrife remains uncontrolled.

Pickerel Weed:

Pontederia cordata
Flowers 2-lipped, spikes 3"-4"; leaves heart shaped, single; in 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:

Chamerion angustifolium
Fat (2"-4") spikes of 4-petaled, stalked flowers; alternate, toothed leaves; northern plant of drier areas; 2' to 6'



Smartweed:

Persicaria sp. (*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 in 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-alikes



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
Stems usually arching, 1' to 8' flowers; bunched at well-separated leaf bases; leaves whorled in 3s or 4s



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:

Eutrochium maculatum
Flower 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)



Though purple loosestrife will never be eliminated from Wisconsin, the release of sufficient numbers of these biocontrol insects, in combination with judicious use of traditional control methods, may restore a more natural balance between purple loosestrife and other wetland species.

You Can HELP SAVE Wetlands!

HOW DOES PURPLE LOOSESTRIFE SPREAD?

Purple loosestrife spreads primarily by seed, but it can also establish from bits of root or stem fragments that readily root in moist soil. A mature, uncontrolled 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 might 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.



G. Calmariensis

BIOLOGICAL CONTROL:

A LONG-TERM SOLUTION



G. Pusilla

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.

Classic biocontrol uses one organism to control another. A search in Europe in the late 1980s found insects that feed exclusively on purple loosestrife there. After 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 *Galerucella* ("Cella") beetle species that eat its leaves. Root and flower feeding weevils came a year later. Monitoring (for over 20 years) ensures that these insects pose no threat to either our crop plants or native flora. The beetles control purple loosestrife by reducing both its height and seed output, often enabling native plants to gradually regain control of a wetland without chemicals.

If a wetland's loosestrife disappears, control insects fly to find new sites elsewhere or die.

The beetles are also so easy to propagate that WDNR and Extension maintain a program in which hundreds of citizens have raised and released millions of control beetles.

1 LEARN TO IDENTIFY PURPLE LOOSESTRIFE

Distinguish it from native look-alikes by using photos, a plant book or the internet.

(Note that several valuable native yellow-flowered plants in the genus *Lysimachia* are also known as "loosestrifes")

2 REPORT PURPLE LOOSESTRIFE INFESTATIONS

Call or mail WDNR's Purple Loosestrife Biocontrol Program (see back panel for addresses), or search "invasives" at dnr.wi.gov (click "Report" & "Wetlands") for an email report form and send to invasive.species@wisconsin.gov.

For smartphone reporting, download the EDDMAPS app. For PC use, go to www.eddmaps.org and follow instructions. (EDDMAPS monitored by WDNR).

3 HELP PREVENT THE SPREAD OF PURPLE LOOSESTRIFE:

✓ Clean off equipment, boats and trailers, clothing and footwear used in infested areas before moving into un-infested 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.)

Cut and burn stems instead.

✓ Help curb local use of the plant. Purple loosestrife is "restricted" statewide under Chapter NR 40 regulations: It may NOT be transported, transferred, sold, or introduced (certain exceptions). The rule includes all hybrids of all non-native *Lythrum*s. Report sales to the Wisconsin Department of Agriculture, Trade, and Consumer Protection at 608-224-4573. Work with local government to get the plant on its noxious weed list. Help educate gardeners about invasive plants and encourage them to use suitable native species (see look-alike photos).

✓ Watch for pioneering loosestrife plants and remove them before flowering, especially from areas otherwise free of loosestrife.

4 HELP REDUCE ESTABLISHED LOOSESTRIFE IN YOUR AREA

Citizen action is critical since many infestations are on private property. Choose traditional or biological control methods or use them in combination.

5 TEACH ABOUT INVASIVE SPECIES & CITIZEN ACTION

(Use state publications, like this brochure.) See *Cella Chow: A Purple Loosestrife Biocontrol Manual for Educators* is available (see back panel for website information).



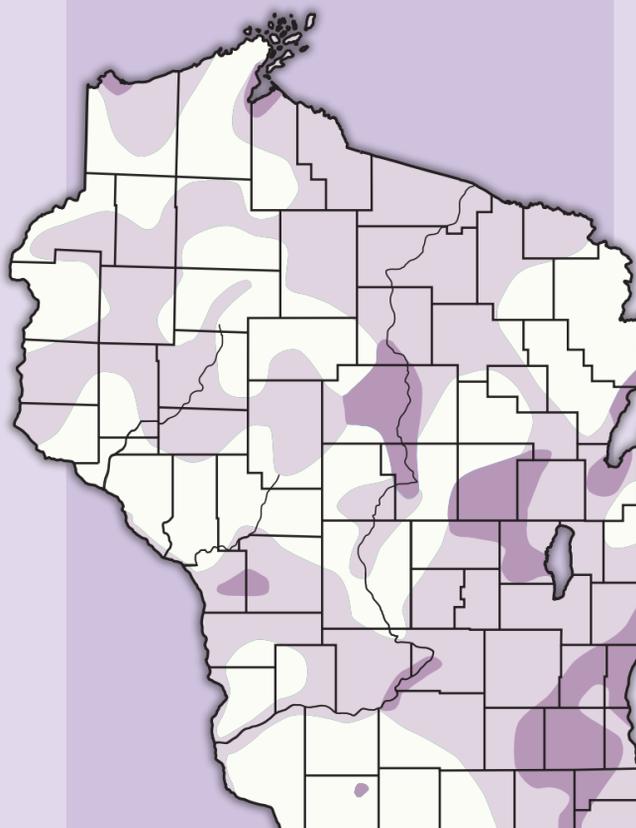
As shown in the photos, biological control can be highly effective in controlling purple loosestrife.

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 list of reported purple loosestrife sites is available from WDNR (see back panel for website information).



1987 data

- Mild infestation
- Moderate infestation
- Heavy infestation

CONTROL METHODS:

BIOLOGICAL CONTROL is useful on all purple loosestrife, especially where plants are taller than waist height (too few/no control beetles present), on very large sites or where loosestrife seeds can infest new areas. Combining with other control methods may give best long-term control.

Disperse enough biocontrol beetles to establish a viable population. Control comes with population increase. Propagate beetles at home, school or work. Contact the WDNR Biocontrol Program (see back panel) to see how easy and inexpensive this is. If you can't propagate beetles, collect from an established beetle site near you, or buy them. A free WDNR permit from the Biocontrol Program is required to cultivate loosestrife to raise control beetles.

CHEMICAL & MECHANICAL METHODS

Avoid soil disturbances that expose the loosestrife seed bank. Dry and burn or landfill removed plant parts; do not compost. Herbicides offer quick control, but rarely elimination, and may be impractical on large sites. Always follow up for missed plants and new seedlings. Always get a free WDNR permit for herbicide work over/near water. Obey all herbicide label instructions, and treat at onset of flowering (mid-late summer). Add a wetting agent. Herbicide choice depends on location (dry, or wet—requires wet formulations), applicator, and adjacent plants (most chemicals kill all plants). Imazapyr gives best control, but requires applicator certification (contractors). Glyphosate gives good control for landowners. Triclopyr is selective and will not kill grasses, sedges or cattails (Renovate® is a wet formulation). Seek local WDNR advice for best options!

① Critical for preventing establishment: gently pull or dig young, small plants, if possible (before seeds set); especially easy in loose, sandy or gravelly soil. Be sure roots come out intact.

② On small sites, landowners can apply glyphosate in 1-1.5% active ingredient (a.i.) solution to ½+ plant surfaces, or cut stems and apply 20-40% a.i. to the stumps. Use Roundup®/equivalent on drier sites, Rodeo®/equivalent over/near water. (Check labels for triclopyr rates, e.g., apply 1-1.5% Renovate 3® to all plant surfaces.) Clumps may be multiple plants, so treat all stems.

③ On large sites consider using a contractor. Plants will be sprayed with a selected herbicide, e.g., 8-16 fl. oz./acre imazapyr (e.g. Habitat®), 2-3 lb. a.e./acre glyphosate (e.g. Rodeo®), or 6-8 qt./acre triclopyr (e.g. Renovate 3®). Contractor acquires needed permit(s), but always be knowledgeable about your chosen herbicide.



Extension
UNIVERSITY OF WISCONSIN-MADISON

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