

THE LOW-DOWN ON LOOSESTRIFE

by Luke Skinner, Minnesota Dept. of Natural Resources

TWG Editor: In the last issue, I printed a letter from *TWG* subscriber Sharyn Herian in which she complained that *Chicago Home & Garden* magazine featured a prominent photograph of Purple Loosestrife. The photo's inclusion seemed to promote the plant despite its detrimental effect on wetlands, where it becomes incredibly invasive but creates a beautiful haze of pink-purple. Since Sharyn is both right and wrong (the photograph was more likely of Wand Loosestrife), I thought I'd follow up and try to set the record straight. I'm pleased to welcome research edited by Luke Skinner, purple loosestrife program coordinator of the *Minnesota Dept. of Natural Resources*.

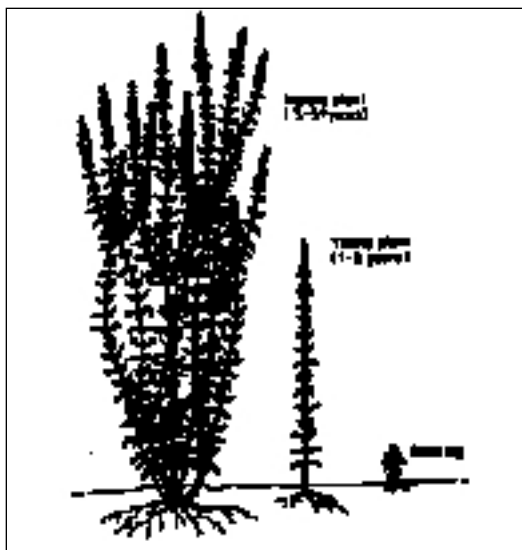
The popularity of purple loosestrife as a perennial garden plant in North America stems from its beautiful, persistent purple blooms, its full shape, and its tall stature. It is undeniably a striking backdrop for a garden. It is also hardy, tolerant of a wide variety of moisture and nutrient regimes, and virtually free of insect pests and disease. These attributes are, of course, the very ones that make this plant such a formidable invader.

The effect of this plant on native wetland vegetation is to replace it. A single plant with thirty stems can make 2.7 million seeds per plant! These seeds are transported by floating on water, the wind, or by sticking to animal's feet.

Consequently, the animals that rely on native vegetation (cattails, sedges, smartweed, etc.) for food, shelter, and breeding cannot use the infested areas. Waterfowl do not feed on loosestrife, and muskrats, for example, can no longer obtain cattails, a critical food.

Loosestrife closes up the most productive part of a wetland—the shallow edge. Its woody stems become rank and impenetrable after two to three years, so that the zooplankton that feed on grasses, sedges, and other native plants lose their food, in turn affecting fish such as spawning and newly-hatched Northern Pike.

In 1987, the Minnesota legislature passed a bill that prohibited the sale of Purple Loosestrife [*Lythrum salicaria*].



Purple Loosestrife & Wand Loosestrife look virtually identical, causing many states to ban both.

It was also designated as a noxious weed. That status prohibits its sale and transportation into, out of, or within the state. It also requires landowners to remove or control the plants growing on their land.

The MN Dept. of Agriculture, sympathetic to the attitude of the nursery industry, did not ban Wand Loosestrife [*Lythrum virgatum*] at the time because some evidence indicated the cultivars

and varieties of *L. virgatum* were self-sterile (did not produce seed). It was also thought that hybrids, varieties, and cultivars of both species (Purple and Wand) could be taxonomically identified with ease. Plant breeders have developed at least 15 cultivars of Purple Loosestrife and 10 of Wand Loosestrife.

Subsequent research disproved the professed sterility of horticultural varieties of Wand Loosestrife. Even those cultivars which don't set much seed will revert to the fertile state of the parent after several generations, and most *Lythrum* varieties have high germination rates—well over 80%. And while University of MN researchers say that it is true that a single cultivar grown in isolation will most likely be sterile and can only pollinate itself, plants of varying parentage grown together can cross with *L. salicaria* and could create a plant disposed to invading even dry sites.

Identification of the different species and cultivars of loosestrife continues to be a problem. Plants that are actually Purple Loosestrife [*L. salicaria*] are often sold as cultivars of Wand Loosestrife [*L. virgatum*], probably because of erroneous identification. David Bates, botany professor at Cornell University and *Lythrum* expert, has stated, 'Unfortunately, *Lythrum salicaria* and *L. virgatum* tend to integrate with each other morphologically. Most nurserymen and field inspectors simply will not be able to identify what is being sold without sending samples to a herbarium for identification. I'm not sure profession-

al botanists will be able to either...'. Indeed, some theorize that the two species are actually the same.

Between 1987 and 1988, the MN Dept. of Agriculture inspected *Lythrum* species at nurseries and greenhouses to stop the illegal sale of *L. salicaria*. Soon it was evident that many problems were associated with control. Improper labeling and the inability to identify the different species of *Lythrum*, particularly specimens without flowers, made enforcement of the law nearly impossible. It was called a "regulatory nightmare".

How could the law be enforced without a way to accurately identify the pest? Three options existed: 1) repeal the law; 2) designate all *Lythrum* species as noxious weeds; or 3) maintain the current law that all growers provide specimens to a recognized authority for identification and approval for sale. In November, 1988, Minnesota designated *L. salicaria* and *L.*



virgatum and all their cultivars as noxious weeds.

Minnesota's inventories have documented that 38,000 acres are infested by purple loosestrife. 68 of Minnesota's 87 counties have loosestrife infestations. Over half of the sites are located on lakeshores or in wetlands; most others are on riverbanks, ditches, and farmers' fields. One fourth of the sites have over 1,000 plants per site.

All other states except Florida have now been invaded, and 14 (plus several Canadian provinces) have made Purple Loosestrife and/or Wand Loosestrife a noxious weed. North Dakota, for example, in 1997 outlawed the weed but allowed nurserymen to sell off existing stocks until the end of the year. [TWG Editor: So what lucky states are receiving the surplus?]

Purple loosestrife is here to stay. Like most exotic species, loosestrife is impossible to eliminate once it becomes established. Although various strategies using herbicides, burning, the use of other plants to dominate, and hand-pulling have pluses and minuses, none are ultimately effective against large infestations. Often eradication opened up areas for larger infestations from the enormous seed bank buried in the soil and mud—a square meter of soil 5 centimeters deep may contain as many as 410,000 seeds!

In order to best manage the problem, 26 states have released three insects imported from Europe which feed on both loosestrifes. We seem to be having success: many plants are stunted and are not setting seed. More conventionally, Minnesota only removes plants from small, newly infested areas

or tries to prevent loosestrife from becoming established in uninfested watersheds. Control work starts at the top of the watershed to prevent seed flow downstream. Some 6-700 acres are treated with spot herbicides each year.



TWG Editor: Ironically, the day after receiving Sharyn's note last summer, I walked by a spot where I had yanked out *Lythrum virgatum* 'Morden Pink' years ago. I remember that it almost killed me to pull it out, because its pink flowers were so pretty. But there it was again! Did that new plant grow from a seed or a leftover root? Either way, a curse!

Here's the law in Illinois: *Lythrum salicaria* (Purple Loosestrife) and its cultivars Happy, Robert, Firecandle, Brightness, The Beacon, Lady Sackville, Atropurpureum, *roseum superbum*, and *tomentosum* are illegal. *Lythrum virgatum* (Wand Loosestrife) and its cultivars Morden Pink, Rose Queen, The Rocket, Dropmore Purple, Columbia Pink, Morden Rose, and Morden Gleam are legal.

All of which proves that no gardener should ever confuse "legal" with "acceptable to Mother Nature".



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There are many web sites pertaining to loosestrife, including one by the IL Natural History Survey (inhs.uiuc.edu). Search also for Ducks Unlimited sites, especially from Canada.