

Lythrum salicaria  [简体中文](#) [正體中文](#)

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Myrtales	Lythraceae

Common name Blutweiderich (German), purple loosestrife (English), spiked loosestrife (English), rainbow weed (English), salicaire pourpre (French)

Synonym *Lythrum salicaria*, var. *gracillior* Turcz.
Lythrum salicaria, var. *tomentosum* (P. Mill.) DC.
Lythrum salicaria, var. *vulgare* DC.

Similar species *Lythrum alatum*, *Epilobium angustifolium*, *Verbena hastata*, *Liatris* spp., *Spiraea douglasii*

Summary *Lythrum salicaria* is an erect perennial herb with a woody stem and whirled leaves. It has the ability to reproduce prolifically by both seed dispersal and vegetative propagation. Any sunny or partly shaded wetland is vulnerable to *L. salicaria* invasion, but disturbed areas with exposed soil accelerate the process by providing ideal conditions for seed germination.



[view this species on IUCN Red List](#)

Species Description

Lythrum salicaria is an erect, perennial herb with a woody four-sided stem and whorled leaves. Plants are usually covered by a soft down. Leaves are generally opposite, lance-shaped but heart-shaped or rounded at the base. Mature plants can have 30 to 50 stems emerging from a single rootstock and are prolific seed producers. *L. salicaria* can grow from 1.2 to 3 m high, depending upon conditions. Showy, trimorphic, magenta-coloured flowers, with five to seven petals, are produced throughout most of the summer. Woody stems of plants remain standing during the winter, when the plant is readily identified by its brownish colour and spiral-shaped capsule clusters.

Lifecycle Stages

Seeds can remain viable in the soil for many years and those submerged in water can remain viable for about 20 months.

Uses

Lythrum salicaria is grown for medicinal uses and planted by beekeepers for its nectar-producing capabilities. It has been used as a herb for diarrhea, dysentery and dried leaves were used to heal wounds, ulcers and sores. *L. salicaria* is also widely sold as an ornamental in states where regulations do not prohibit its sale and distribution.

Habitat Description

Lythrum salicaria is capable of invading a variety of wetland habitats, including marshes, river and stream banks, pond edges, lakes, road site ditches, and reservoirs. The plant prefers moist soil with neutral to slightly acidic pH. Once established, however, *L. salicaria* can exist in a wide range of soil types. Disturbed areas are more prone to invasion because exposed soil is ideal for germination.

Reproduction

Lythrum salicaria reproduces by seed and vegetatively. Flowers require pollination by insects and seeds require open, wet soils and a high temperature to germinate. Flowers are tristylous and pollination restricted to crosses between the style of one length with stamens of the corresponding length. *L. salicaria* can also spread vegetatively by leftover pieces of trampled, clipped, mowed and pulled plants. A mature plant over 2m tall can have as many as thirty flowering stems and produce large numbers of seeds (up to 3 million seeds per plant has been reported (Thompson *et al.* 1987)). Seed production is dependent upon age, size and habitat conditions. Seeds are very small and are transported by wind, water, wildlife, vehicles, construction equipment, and humans. Seed survival can be as high as 70%, creating an extensive seed bank. Seedling establishment occurs in late spring and early summer or after soil disturbances including chemical applications. Shoots from vegetative reproduction grow at a rate of approximately 0.3mt per year.

General Impacts

Lythrum salicaria is often reported to outcompete and replace native grasses, sedges, and other flowering plants that provide a higher quality food source and habitat for wildlife. A literature review by Lavoie (2010) of the studies published on purple loosestrife impacts on plants found that 10 out of 11 manipulative studies detected a negative impact on plants. Interestingly all seven observational (field) studies detected no negative impacts. Of the two studies that use both manipulative and observational methods, Yakimowski *et al.* (2005 in Lavoie, 2010) showed a reduction of the abundance and richness of vascular plant seedlings in purple loosestrife invaded wetlands, while Denoth and Myers (2007 in Lavoie, 2010) concluded that the competitive effect of purple loosestrife on a rare species was not greater than the impact of native plants.

Lythrum stands can deleteriously impact wildlife habitat used by birds and furbearers. *L. salicaria* forms dense homogeneous stands that restrict native wetland plant species, including some endangered plants. *L. salicaria* can overrun wetlands and almost entirely eliminate open water habitat if left untreated. The recreational and aesthetic value of wetlands and waterways is diminished as dense stands of *L. salicaria* choke waterways and decrease biodiversity. A review of literature by Lavoie (2010) found that out of fourteen animal species or groups studied only six were negatively affected, while others were either not affected or positively affected by purple loosestrife. The strongest negative effects were on tadpoles and the marsh wren (*Cistothorus palustris*). The American toad (*Bufo americanus*) is also negatively affected by compounds leached from *L. salicaria*. There have been no studies published on the impacts on fish, mammals or waterfowl (Lavoie, 2010).

In North American freshwater wetlands, *L. salicaria* alters decomposition rates and nutrient cycling, water chemistry, leads to reductions in wetland plant diversity, reduces pollination and seed output of the native *Lythrum alatum*, and reduces habitat suitability for specialized wetland bird species such as black terns, least bitterns, pied-billed grebes, and marsh wrens (Blossey *et al.*, 2001; Fickbohm & Zhu, 2006). *L. salicaria* effects on wetlands, incurring from lost forage and control costs have been estimated to cost US \$28 million per year (Barbier & Knowler, 2006). However, according to Lavoie (2010) "their analysis was apparently based on a previous estimation of the damages calculated by Thompson *et al.* (1987), damages that were only conjecture."

Management Info

Preventative measures: The best control measure, however, as with many invasive plants, is to preserve a healthy native ecosystem to prevent or slow invasion.

Physical: Small infestations (< 100 plants) of *L. salicaria* can be controlled but cutting and pulling. Cutting should be done just before the plants begin flowering to avoid spreading seed. Pulling should be done by carefully removing all root fragments and disposing of all uprooted plants. Plant materials should be dried and burnt where possible. These fragments and uprooted plants could grow into new plants, possibly making the problem worse. Mowing and burning is ineffective and sometimes makes the problem worse.

Chemical: Herbicides are most commonly used for quick, effective control of *L. salicaria*. Spot treating with a glyphosate type herbicide (e.g., Rodeo for wetlands, Roundup for uplands) is effective on older plants. These herbicides may be most effective when applied, as plants are preparing for dormancy, however, mid-summer and late season treatments may be needed to reduce the amount of seed produced. In Canada, only Roundup is registered for the control of *Lythrum* in terrestrial areas only. Multiple chemical treatments are usually required as new seedlings annually emerge from the seed bank. Chemical treatments may not be desired in sensitive wetland habitats.

Biological control: Conventional methods such as physical, mechanical or chemical, have continuously failed to curb the spread of *Lythrum salicaria* or to provide satisfactory control. State and federal agencies as well as private citizens and schools now participate in rearing, release and monitoring of *Galerucella* beetle species which have been released in 33 states and >1500 wetlands nationwide. Large populations of *G. californiensis* have developed in many of the monitored release sites and have caused up to 100% defoliation of *L. salicaria*. Stem height was reduced 73–85%, percent plant cover was reduced 61–95%, and richness of nontarget plant species increased significantly at four out of five sites. By 2001, *L. salicaria* stem height and percent cover were reduced 38–81% and 32–74%, respectively, and nontarget plant species richness increased significantly at all five sites. Of the 19 additional sites monitored for 3–5 years post release, 50% (4/8) of the 1997 releases have developed into large *G. californiensis* populations and produced severe damage to *L. salicaria* (Blossey *et al*, 2001; Landis *et al*, 2003).

A long-term assessment of biological control impacts after 10 years in central New York State concluded that *Galerucella* species had significant impacts on plants at the individual level, i.e. shorter plants and reduced flowering rates. However there was no change at the population level: there was no change in overall plant density or in size of stands. Surveys of beetle movement from release site showed only limited spread of beetles to new areas (Grevstad, 2006).

Integrated management: Results from a study conducted in Manitoba, Canada indicated that an integrated strategy using herbicides (glyphosate and triclopyr amine), combined with biological control *G. californiensis* outperformed herbicide alone treatments and *Galerucella californiensis* alone (Henne *et al*, 2005).

Pathway

Principal source:

Compiler: IUCN/SSC Invasive Species Specialist Group (ISSG)

Review: Claude Lavoie, École supérieure d'aménagement du territoire et de développement régional (ESAD)

Publication date: 2010-04-15

ALIEN RANGE

[2] AUSTRALIA

[1] ETHIOPIA

[2] NEW ZEALAND

[1] SOUTH AFRICA

[12] CANADA

[1] GEORGIA

[1] SAINT PIERRE AND MIQUELON

[48] UNITED STATES

BIBLIOGRAPHY

Global Invasive Species Database (GISD) 2025. Species profile *Lythrum salicaria*. Available from: <https://www.iucngisd.org/gisd/species.php?sc=93> [Accessed 24 August 2025]

76 references found for *Lythrum salicaria*

Management information

Albright, Matthew F.; Harman, Willard N.; Fickbohm, Scott S.; Meehan, Holly; Groff, Sarah; Austin, Tavis, 2004. Recovery of native Flora and behavioral responses by *Galerucella* spp. following biocontrol of purple loosestrife. *American Midland Naturalist*. 152(2). October 2004. 248-254.

Anderson, Robert P.; Peterson, A. Townsend; Egbert, Stephen L., 2006. Vegetation-index models predict areas vulnerable to purple loosestrife (*Lythrum salicaria*) invasion in Kansas. *Southwestern Naturalist*. 51(4). DEC 2006. 471-480.

Barbier, Edward; Knowler, Duncan, 2006. Commercialization decisions and the economics of introduction. *Euphytica*. 148(1-2). MAR 2006. 151-164.

Bartelt, Robert J.; Cosse, Allard A.; Zilkowski, Bruce W.; Wiedenmann, Robert N.; Raghu, S., 2008. Early-summer pheromone biology of *Galerucella californiensis* and relationship to dispersal and colonization. *Biological Control*. 46(3). SEP 2008. 409-416.

Blossey, Bernd; Skinner, Luke C.; Taylor, Janith, 2001. Impact and management of purple loosestrife (*Lythrum salicaria*) in North America. *Biodiversity & Conservation*. 10(10). October, 2001. 1787-1807.

[Champion, P.D.; Clayton, J.S. 2000. Border control for potential aquatic weeds. Stage 1. Weed risk model. Science for Conservation 141.](#)

Summary: This report is the first stage in a three-stage development of a Border Control Programme for aquatic plants that have the potential to become ecological weeds in New Zealand.

Available from: <http://www.doc.govt.nz/upload/documents/science-and-technical/sfc141.pdf> [Accessed 13 June 2007]

[Champion, P.D.; Clayton, J.S. 2001. Border control for potential aquatic weeds. Stage 2. Weed risk assessment. Science for Conservation 185. 30 p.](#)

Summary: This report is the second stage in the development of a Border Control Programme for aquatic plants that have the potential to become ecological weeds in New Zealand. Importers and traders in aquatic plants were surveyed to identify the plant species known or likely to be present in New Zealand. The Aquatic Plant Weed Risk Assessment Model was used to help assess the level of risk posed by these species. The report presents evidence of the various entry pathways and considers the impact that new invasive aquatic weed species may have on vulnerable native aquatic species and communities.

Available from: <http://www.doc.govt.nz/upload/documents/science-and-technical/SFC185.pdf> [Accessed 13 June 2007]

[Collins, J.N., May M., Grosso C. 2003. Purple loosestrife *Lythrum salicaria*. Practical Guidebook to the Control of Invasive Aquatic and Wetland Plants of the San Francisco Bay - Delta Region.](#)

Summary: Information on description, economic importance, distribution, habitat, history, growth, and impacts and management of species.

Available from: <http://legacy.sfei.org/nis/loosestrife.html> [Accessed 22 May 2010].

[The Guidebook](#) is available from: <http://legacy.sfei.org/nis/index.html>

Dech, Jeffery P.; Nosko, Peter., 2002. Population establishment, dispersal, and impact of *Galerucella pusilla* and *G. californiensis*, introduced to control purple loosestrife in central Ontario. *Biological Control*. 23(3). March, 2002. 228-236.

Denoth, Madlen; Myers, Judith H., 2005. Variable success of biological control of *Lythrum salicaria* in British Columbia. *Biological Control*. 32(2). February 2005. 269-279.

[Environment Waikato Regional Council, 2009. Regional Pest Management Strategy 2008-2013 5.4 16 Purple Loosestrife *Lythrum salicaria*](#)

Summary: Available from:

<http://www.ew.govt.nz/Policy-and-plans/Regional-Pest-Management-Strategy/Regional-Pest-Management-Strategy-2008-2013/Part-2/5-Pest-plants/54-Potential-pest-plants/5416-Purple-loosestrife-Lythrum-salicaria/> [Accessed July 1 2009]

Grevstad, F.S. 2006. Ten-year impacts of the biological control agents *Galerucella pusilla* and *G. californiensis* (Coleoptera: Chrysomelidae) on purple loosestrife (*Lythrum salicaria*) in Central New York State. *Biological Control* 39: 1-8.

Henne, D.C.; C.J. Lindgren; T.S. Gabor; H.R. Murkin, and R.E. Roughley, 2005. An integrated management strategy for the control of purple loosestrife *Lythrum salicaria* L. (Lythraceae) in the Netley-Libau Marsh, southern Manitoba

Herrick, Bradley M.; Wolf, Amy T., 2005. Invasive plant species in diked vs. undiked Great Lakes wetlands. *Journal of Great Lakes Research*. 31(3). 2005. 277-287.

Knezevic, Stevan Z., Doug Smith, Ralph Kulm, Don Doty, Dick Kinkaid, Mick Goodrich, Rod Stolcpart., 2004. Purple Loosestrife (*Lythrum salicaria*) Control with Herbicides: Single-Year Application. *Weed Technology*, Vol. 18, Invasive Weed Symposium (2004), pp. 1255-1260

Landis, Douglas A.; Sebolt, Donald C.; Haas, Michael J.; Klepinger, Michael., 2003. Establishment and impact of *Galerucella californiensis* L. (Coleoptera: Chrysomelidae) on *Lythrum salicaria* L. and associated plant communities in Michigan. *Biological Control*. 28(1). September 2003. 78-91.

Lavoie, Claude, 2010. Should we care about purple loosestrife? The history of an invasive plant in North America. *Biological Invasions* 2010. DOI 10.1007/s10530-009-9600-7

Lindgren, C.J., Corrigan, J., DeClerck-Floate, R., 2002. *Lythrum salicaria* L., Purple Loosestrife (Lythraceae). In: Mason, P.G., Huber, J.T. (Eds.), *Biological Control Programmes in Canada, 1981-2000*. CABI Publishing, Wallingford, UK, pp. 382-390.

Summary: Detailed review of biological control program against purple loosestrife in Canada.

Lindgren, Cory J., 2000. Performance of a biological control agent, *Galerucella californiensis* L. (Coleoptera: Chrysomelidae) on Purple Loosestrife *Lythrum salicaria* L. in Southern Manitoba (1993-1998). *Proceedings of the X International Symposium on Biological Control of Weeds*. pp. 367-382 (2000). Cory J. Lindgren

Summary: Detailed report on the impact of the biological control agent *G. californiensis* in Manitoba release sites. Management implications.

Lindgren, Cory J., 2003. A brief history of Purple Loosestrife, *Lythrum salicaria*, in Manitoba and its status in 2001. *Canadian Field-Naturalist*. 117(1). January-March 2003. 100-109.

Lindgren, Cory J., 2006. Angler awareness of aquatic invasive species in Manitoba. *Journal of Aquatic Plant Management*. 44 JUL 2006. 103-108.

Lodge, David M., Susan Williams, Hugh J. MacIsaac, Keith R. Hayes, Brian Leung, Sarah Reichard, Richard N. Mack, Peter B. Moyle, Maggie Smith, David A. Andow, James T. Carlton, Anthony McMichael, 2006. *Biological Invasions: Recommendations for U.S Policy and Management*. Ecological Applications: Vol. 16, No. 6, pp. 2035-2054.

Global Invasive Species Database (GISD) 2025. Species profile *Lythrum salicaria*. Available from:

<https://www.iucngisd.org/gisd/species.php?sc=93> [Accessed 24 August 2025]

McAvoy, T. J.; Kok, L. T., 2007. Fecundity and feeding of *Galerucella californiensis* and *G. pusilla* on *Lythrum salicaria*. *BioControl* (Dordrecht). 52(3). JUN 2007. 351-363.

Mgidi, Theresa N.; Le Maitre, David C.; Schonegevel, Lucille; Nel, Jeanne L.; Rouget, Mathieu; Richardson, David M., 2007. Alien plant invasions - incorporating emerging invaders in regional prioritization: A pragmatic approach for Southern Africa. *Journal of Environmental Management*. 84(2). JUL 2007. 173-187.

Mullin, Barbra H., 1998. The biology and management of purple loosestrife (*Lythrum salicaria*). *Weed Technology*. 12(2). April-June, 1998. 397-401.

Nagel, Jennifer M.; Griffin, Kevin L., 2001. Construction cost and invasive potential: Comparing *Lythrum salicaria* (Lythraceae) with co-occurring native species along pond banks. *American Journal of Botany*. 88(12). December, 2001. 2252-2258

[National Pest Plant Accord, 2001. Biosecurity New Zealand.](http://www.biosecurity.govt.nz/pests-diseases/plants/accord.htm)

Summary: The National Pest Plant Accord is a cooperative agreement between regional councils and government departments with biosecurity responsibilities. Under the accord, regional councils will undertake surveillance to prevent the commercial sale and/or distribution of an agreed list of pest plants.

Available from: <http://www.biosecurity.govt.nz/pests-diseases/plants/accord.htm> [Accessed 11 August 2005]

New Zealand Plant Conservation Network, 2005. Unwanted Organisms. Factsheet *Lythrum salicaria*

Ottenbreit K. A, 1991. The distribution, reproductive biology, and morphology of *Lythrum* species, hybrids, and cultivars in Manitoba. MS thesis, University of Manitoba, Winnipeg, Manitoba

Summary: Detailed report on *Lythrum* cultivars and hybrids.

Piper, G. L., 1996. Biological control of the wetlands weed purple loosestrife (*Lythrum salicaria*) in the Pacific northwestern United States. *Hydrobiologia* Volume 340, Numbers 1-3 / December, 1996 291-294

[Royal New Zealand Institute of Horticulture \(RNZIH\), 2005. Purple loosestrife *Lythrum salicaria*](http://www.rnzih.org.nz/pages/nppa_072.pdf)

Summary: Available from: http://www.rnzih.org.nz/pages/nppa_072.pdf [Accessed 1 October 2005]

Strayer, David L.; Blair, Elizabeth A.; Caraco, Nina F.; Cole, Jonathan J.; Findlay, Stuart; Nieder, W. Charles; Pace, Michael L., 2005. Interactions between alien species and restoration of large-river ecosystems. *Archiv fuer Hydrobiologie Supplement*. 155(1-4). 2005. 133-145.

[Thompson, D. Q., Stuckey, R. L. and Thompson, E. B. 1987. Spread, Impact, and Control of Purple Loosestrife \(*Lythrum salicaria*\) in North American Wetlands. USGS, Northern Prairie Wildlife Research Center.](http://www.usgs.gov/pubs/wetlands/USGS_Northern_Prairie_Wildlife_Research_Center)

Summary: A comprehensive treatise on the accumulated body of knowledge on purple loosestrife. This report documents the spread and impacts of purple loosestrife in North America.

Welk, Erik., 2004. Constraints in range predictions of invasive plant species due to non-equilibrium distribution patterns: Purple loosestrife (*Lythrum salicaria*) in North America. *Ecological Modelling*. 179(4). December 1, 2004. 551-567.

Wiebe, Amy P.; Cortilet, Anthony B.; Obrycki, John J.; Owen, Micheal D. K., 2001. Releases of natural enemies of purple loosestrife (*Lythrum salicaria* L.), in Iowa Wetlands. *Journal of the Kansas Entomological Society*. 74(2). April, 2001. 106-109.

Wiebe, Amy P.; Obrycki, John J., 2001. Purple loosestrife: History, management, and biological control in Iowa. *Journal of the Iowa Academy of Science*. 108(4). December, 2001. 166-170.

Wilcox, A Douglas, 1989. Migration and Control of Purple Loosestrife (*Lythrum salicaria* L.) along Highway Corridors. *Environmental Management* Vol. 13, No. 3, pp. 365-370 1989

Wilson, Colin, Wildlife Management Officer, Department of Infrastructure, Planning and Environment, Parks & Wildlife Service, Northern Territory, Australia.

Summary: Compiler of original GISD profile of *Chromolaena odorata*.

Yakimowski, Sarah B.; Hager, Heather A.; Eckert, Christopher G., 2005. Limits and effects of invasion by the nonindigenous wetland plant *Lythrum salicaria* (purple loosestrife): a seed bank analysis. *Biological Invasions*. 7(4). JUL 2005. 687-698.

General information

Brown, Beverly J.; Mitchell, Randall J.; Graham, Shirley A., 2002. Competition for pollination between an invasive species (purple loosestrife) and a native congener. *Ecology* (Washington D C). 83(8). August, 2002. 2328-2336.

Brown, Carrie J.; Blossey, Bernd; Maerz, John C.; Joule, Steve J., 2006. Invasive plant and experimental venue affect tadpole performance. *Biological Invasions*. 8(2). MAR 2006. 327-338.

Chun, Young Jin; Collyer, Michael L.; Moloney, Kirk A.; Nason, John D., 2007. Phenotypic plasticity of native vs. invasive purple loosestrife: A two-state multivariate approach. *Ecology* (Washington D C). 88(6). JUN 2007. 1499-1512.

CONABIO. 2008. Sistema de información sobre especies invasoras en México. Especies invasoras - Plantas. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad. Fecha de acceso.

Summary: English:

The species list sheet for the Mexican information system on invasive species currently provides information related to Scientific names, family, group and common names, as well as habitat, status of invasion in Mexico, pathways of introduction and links to other specialised websites. Some of the higher risk species already have a direct link to the alert page. It is important to notice that these lists are constantly being updated, please refer to the main page (<http://www.conabio.gob.mx/invasoras/index.php/Portada>), under the section Novedades for information on updates.

Invasive species - Plants is available from: http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas [Accessed 30 July 2008]

Spanish:

La lista de especies del Sistema de información sobre especies invasoras de México cuenta actualmente con información acerca de nombre científico, familia, grupo y nombre común, así como hábitat, estado de la invasión en México, rutas de introducción y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la página de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualización, por favor consulte la portada (<http://www.conabio.gob.mx/invasoras/index.php/Portada>), en la sección novedades, para conocer los cambios.

Especies invasoras - Plantas is available from: http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas [Accessed 30 July 2008]

Dech, J. P.; Nosko, P., 2004. Rapid growth and early flowering in an invasive plant, purple loosestrife (*Lythrum salicaria* L.) during an El Niño spring. International Journal of Biometeorology. 49(1). September 2004. 26-31.

Denoth, Madlen; Myers, Judith H., 2007. Competition between *Lythrum salicaria* and a rare species: combining evidence from experiments and long-term monitoring. Plant Ecology. 191(2). AUG 2007. 153-161.

Duncan, Celestine A.; Jachetta, John J.; Brown, Melissa L.; Carrithers, Vanelle F.; Clark, Janet K.; DiTomaso, Joseph M.; Lym, Rodney G.; McDaniel, Kirk C.; Renz, Mark J.; Rice, Peter M., 2004. Assessing the economic, environmental, and societal losses from invasive plants on rangeland and wildlands. Weed Technology. 18(Suppl. S). 2004. 1411-1416.

Etcheberry, pers. comm., 2007

Summary: Etcheberry, Roger. Naturalist and regional expert of the flora and fauna of Saint Pierre and Miquelon

Farnsworth, Elizabeth J., 2004. Patterns of plant invasions at sites with rare plant species throughout New England. Rhodora. 106(926). Spring 2004. 97-117.

Farnsworth, Elizabeth J. and Donna R. Ellis., 2001. Is Purple loosestrife (*Lythrum salicaria*) an Invasive Threat to Freshwater Wetlands? Conflicting Evidence from Several Ecological Metrics. Wetlands 21(2):199-209. 2001

Fickbohm, Scott S.; Zhu, Wei-Xing., 2006. Exotic purple loosestrife invasion of native cattail freshwater wetlands: Effects on organic matter distribution and soil nitrogen cycling. Applied Soil Ecology. 32(1). MAY 2006. 123-131.

Grabas, Gregory P.; Laverty, Terence M., 1999. The effect of purple loosestrife (*Lythrum salicaria* L.; Lythraceae) on the pollination and reproductive success of sympatric co-flowering wetland plants. Ecoscience. 6(2). 1999. 230-242.

Gratton, Claudio., 2006. Interactions between a native Silkmoth *Hemileuca* sp. and an invasive wetland plant, *Lythrum salicaria*. Annals of the Entomological Society of America. 99(6). NOV 2006. 1182-1190.

Hager, Heather A., 2004. Differential effects of *Typha* litter and plants on invasive *Lythrum salicaria* seedling survival and growth. Biological Invasions. 6(4). 2004. 433-444.

Hager, Heather A. and Karen McCoy D., 1998. The implications of accepting untested hypotheses: a review of the effects of purple loosestrife (*Lythrum salicaria*) in North America. Biodiversity and Conservation 7, 1069-1079 (1998)

Houghton-Thompson, Jaimie; Prince, Harold H.; Smith, James J.; Hancock, James F., 2005. Evidence of hybridization between *Lythrum salicaria* (Purple Loosestrife) and *L. alatum* (winged loosestrife) in North America. Annals of Botany (London). 96(5). OCT 2005. 877-885.

[Invasive Plants of Canada Project, Factsheets.](#)

Summary: Detailed reports on identification, distribution, biology, life history, growth requirements, habitat, arrival and establishment in North America, biology, uses, possible invasion pathways, ecological impacts, agricultural impacts, control measures, and containment. Available from: <http://www.plantsincanada.com/> [Accessed January 2003]

[ITIS \(Integrated Taxonomic Information System\), 2005. Online Database *Lythrum salicaria*](#)

Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.

Available from:

http://www.cbif.gc.ca/pls/itiscat/taxastep?king=every&p_action=containing&taxa=Lythrum+salicaria&p_format=&p_ifx=plgt&p_lang= [Accessed March 2005]

Katovich, Elizabeth J. Stamm; Becker, Roger L.; Byron, Jane L., 2003. Winter survival of late emerging purple loosestrife (*Lythrum salicaria*) seedlings. Weed Science. 51(4). July-August 2003. 565-568.

Ketterer, Eileen; Abrahamson, Warren G., 2006. Purple loosestrife on the Susquehanna River's west branch: Distribution and environmental correlates. Northeastern Naturalist. 13(2). 2006. 213-234.

Kirsch, Eileen M.; Gray, Brian R.; Fox, Timothy J.; Thogmartin, Wayne E., 2007. Breeding bird territory placement in riparian wet meadows in relation to invasive reed canary grass, *Phalaris arundinacea*. Wetlands. 27(3). SEP 2007. 644-655.

Kubatova, Barbora; Travnicek, Pavel; Bastlova, Dasa; Curn, Vladislav; Jarolimova, Vlasta; Suda, Jan., 2008. DNA ploidy-level variation in native and invasive populations of *Lythrum salicaria* at a large geographical scale. Journal of Biogeography. 35(1). JAN 2008. 167-176.

Maddox, J. Dylan; Wiedenmann, Robert N., 2005. Nesting of birds in wetlands containing purple loosestrife (*Lythrum salicaria*) and cattail (*Typha* spp.). Natural Areas Journal. 25(4). OCT 2005. 369-373.

Maerz, J. C.; Brown, C. J.; Chapin, C. T.; Blossey, B., 2005. Can secondary compounds of an invasive plant affect larval amphibians? Functional Ecology. 19(6). DEC 2005. 970-975.

Mahaney, Wendy M.; Smemo, Kurt A.; Yavitt, Joseph B., 2006. Impacts of *Lythrum salicaria* invasion on plant community and soil properties in two wetlands in central New York, USA. *Canadian Journal of Botany*. 84(3). MAR 2006. 477-484.

Mal, T.K., J. Lovett-Doust, L. Lovett-Doust, and G.A. Mulligan, 1992. The biology of Canadian weeds. *Lythrum salicaria*. *Canadian Journal Plant Science*. 72: 1305-1330. T.K. Mal (1992)

Summary: Detailed review of *Lythrum salicaria*

Moloney, Kirk A.; Knaus, Florian; Dietz, Hansjoerg, 2009. Evidence for a shift in life-history strategy during the secondary phase of a plant invasion *Biological Invasions*. 11(3). MAR 2009. 625-634.

Montague, J. L.; Barrett, S. C. H.; Eckert, C. G., 2008. Re-establishment of clinal variation in flowering time among introduced populations of purple loosestrife (*Lythrum salicaria*, Lythraceae) *Journal of Evolutionary Biology*. 21(1). JAN 2008. 234-245.

[Northern Prairie Wildlife Research Center; 1987. Spread, Impact, and Control of Purple Loosestrife \(*Lythrum salicaria*\) in North American Wetlands. USGS Daniel O. Thompson, Ronald L. Stuckey, and Edith B. Thompson United States Department of the Interior Fish and Wildlife Service Washington, DC](#)

Summary: Detailed reports on identification, distribution, biology, life history, growth requirements, habitat, arrival and establishment in North America, biology, uses, possible invasion pathways, ecological impacts, agricultural impacts, control measures, and containment. Available from: <http://www.npwrc.usgs.gov/resource/1999/loosstrf/loosstrf.htm#contents>

Schooler, Shon S.; McEvoy, Peter B.; Coombs, Eric M., 2006. Negative per capita effects of purple loosestrife and reed canary grass on plant diversity of wetland communities. *Diversity & Distributions*. 12(4). JUL 2006. 351-363.

[Swearingen, Jil M., 2008. PCA Alien Plant Working Group Purple Loosestrife U.S. National Park Service, Washington, DC.](#)

Summary: Report on distribution in the United States, native distribution, description, ecological threat, habitat, uses, biology, and current management approaches.

Available from: <http://www.nps.gov/plants/alien/fact/lysa1.htm> [Accessed January 2003]

Tanner, Curtis D.; Cordell, Jeffery R.; Rubey, Jane; Tear, Lucinda M., 2002. Restoration of freshwater intertidal habitat functions at Spencer Island, Everett, Washington. *Restoration Ecology*. 10(3). September, 2002. 564-576.

Trebitz, Anett S.; Taylor, Debra L., 2007. Exotic and invasive aquatic plants in great lakes coastal wetlands: Distribution and relation to watershed land use and plant richness and cover. *Journal of Great Lakes Research*. 33(4). DEC 2007. 705-721.

[USDA-ARS, 2009. Taxon: *Lythrum salicaria* L. National Genetic Resources Program. Germplasm Resources Information Network - \(GRIN\) \[Online Database\]. National Germplasm Resources Laboratory, Beltsville, Maryland](#)

Summary: Available from: <http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?23022> [Accessed July 1 2009]

[USDA, NRCS. 2009. *Lythrum salicaria* L. purple loosestrife The PLANTS Database \(<http://plants.usda.gov>, 2 July 2009\). National Plant Data Center, Baton Rouge, LA 70874-4490 USA](#)

Summary: Available from: <http://plants.usda.gov/java/profile?symbol=LYSA2> [Accessed July 1 2009]

[Wisconsin Department of Natural Resources. Purple Loosestrife](#)

Summary: Report on description, similar species, distribution, habitat, ecological threats, and detailed control measures.

Available from: <http://www.dnr.state.wi.us/org/land/er/invasive/factsheets/loose.htm> [Accessed January 2003]

Young, James A.; Clements, Charlie D., 2001. Purple loosestrife (*Lythrum salicaria*) seed germination. *Weed Technology*. 15(2). April-June, 2001. 337-342.