

Alien Invasive Aquatic and Wetland Plants



FLOWERING RUSH

An Invasive Plant Found in Manitoba: *Butomus umbellatus*

Flowering rush (*Butomus umbellatus*) is an aquatic alien invasive plant that is in the flowering rush or Butomaceae family. Found in many aquatic areas in southern Manitoba, flowering rush is a perennial with grass-like leaves similar to bulrushes. Regarded as one of five invasive alien plants having a major ecological impact on natural ecosystems in Canada and considered a high priority species for eradication in parts of Ontario. Flowering rush was most likely introduced into North America via ballast of trans-Atlantic ships and intentional plantings by gardeners (Perleberg 1994).

BIOLOGY

Flowering rush invades aquatic and wetland areas including streams, rivers, lakes, storm water retention ponds, marshes, gravel pits as well as road side ditches.

Flowering rush grows as an emergent on wet soil or in shallow water however can also grow as a terrestrial plant and or as a submersed plant (Perleberg 1994). The emergent aquatic form will be the focus of this fact sheet. Emergent stems range from 0.5 to 1.5 meters in height and are round in cross section. Stems are green and resemble bulrushes. Best identified by its three-angled leaves and umbel shaped cluster of pink flowers.

Flowers are pinkish white grouped in an umbellate-shaped inflorescence at the top of the stalk. Flowering between May and September, it is very hard to identify until flowering. Flowers are in umbrella like clusters at the top of the stem having many whitish pink petals. Flowers are perfect, irregular and 2-3 cm across. Having 3 sepals which are petaloid. There are 3 petals, 9 stamens, with elongate anthers. Flowering rush has 6 pistils that are simple, whorled, and united at the base. The fruit is an indehiscent, many-seeded capsule.

Flowering rush is a perennial with over wintering underground rhizomes (Perleberg 1994). The rhizome produces leaves and flowers until killed by frost (Perleberg 1994). Many populations are entirely made up of one sex producing little if any seed.

Flowering rush reproduces primarily vegetatively through stolons and turions. Plants may be capable of producing as many as 300 turions annually.

Flowering rush is self-sterile and flowers from the same plant cannot cross-pollinate to produce seed. Hence entire populations may be genetically alike and unable to produce seed (Perleberg 1994).

Perleberg (1994) summarized the dispersal modes of flowering rush. Spread is primarily through vegetative rhizomes both by spontaneous fragmentation and rhizome buds called bulblets. A single plant is capable of producing 12 to 43 bulblets a year each which can produce a new plant. Water currents carry bulblets to new locations. A decrease in water levels seems to promote vegetative growth.

ECOLOGICAL DAMAGE

Flowering rush can displace native riparian vegetation such as wild rice and cattails reducing the overall biological diversity of an ecosystem. In some areas it has impeded irrigation canal systems.

Dense mats of flowering rush restrict light, dissolved gases, and nutrients available to other submerged plants. Capable of dominating wetlands displacing native flora and fauna. Often occurs in wetlands with purple loosestrife with flowering rush dominating shallow areas and purple loosestrife dominating open water areas.

ECONOMIC DAMAGE

There are no assessments of the economic impacts of flowering rush in North America available in the literature. Stands of flowering rush may interfere with water recreational activities and hence impact local economies (Perleberg 1994).

DISPERSAL MECHANISMS

Thought to be spread over large distances by intentional plantings in water gardens (Perleberg 1994). Further spread is by rhizomes and root pieces. Animals, boaters, water, and ice transport plant materials into novel areas. Wild animals (including muskrats) and waterfowl represent dispersal modes for flowering rush (Perleberg 1994).

GEOGRAPHICAL DISTRIBUTION

Flowering rush is native to Asia, Europe and Africa. Its very wide range of hardiness (zones 3-10). First found in the United States in 1928 it has spread across much of North America. Perleberg (1994) notes flowering rush was first found in Michigan in 1930, in

Ohio in 1932, and in Wisconsin in 1958. Current distribution spans southern Canada from Nova Scotia to British Columbia. Found in several Minnesota counties (Perleberg 1994). Stuckey (1968) suggested that there most likely has been several separate flowering rush introductions into North America. This will likely continue as the plant is widely sold as a water gardening ornamental.



Distribution of flowering-rush in North America. The solid red circles represent historic and present occurrences as documented by collections in national institutions, especially in Canada, literature reports and limited sight records. Prepared by: Erich Haber, National Botanical Services, Ottawa, ON, Canada—Invasive Exotic Plants of Canada

First discovered in Canada along the St Lawrence near Montreal in 1897 (Staniforth and Frego 1980). Flowering rush is currently found across southern Manitoba with populations in Kings Park in Winnipeg, Netley-Libau Marsh, on the Winnipeg River near Lac du Bonnet. Staniforth and Frego (1980) reported isolated populations of flowering rush in Manitoba at a marsh at Patricia Beach, and in a small pond near Lockport. In August of 2006, flowering rush was also discovered almost continuously along the Assiniboine River in Winnipeg.

DISPERAL MECHANISMS

Most likely introduced into North America as a water garden plant and via ballast of trans-Atlantic ships. It is reported that it was sold as a garden plant in the United States as early as 1915. In Minnesota it is illegal to buy or sell flowering rush.

Boaters, gardeners, rhizomes, root pieces, water and ice contribute to the further spread of flowering rush. Flowering rush is sold over the internet as a plant for water gardens. The best measure of preventing the spread of flowering rush into new watersheds is to not buy it and plant it.

Muskrats and waterfowl and believed to be modes of dispersal. Long distance dispersal most likely the result of human transport.

MANAGEMENT

Mechanical harvesting as well as hand-cutting emergent flowering stems has been used in

Minnesota however either method reduced stem densities. Cutting the stems below the water surface may decrease abundance. Hand pulling may only further spread plant materials. There is no herbicide that is selective for flowering rush.

Herbicides, including broad spectrum herbicides, have been used in the United States to reduce flowering rush populations (Perleberg 1994). Management in Minnesota has included the use of herbicides (Glyphosate, 2,4-D (granular and liquid) diquat, and imazapyr) as well as hand cutting (Minnesota Invasive Species Program 2006).

Flowering rush grows in water hence there are no herbicides registered for use over water in Canada. Classified as a prohibited invasive species in Minnesota meaning it is illegal to process, sell, transport, or release into the wild (Minnesota Invasive Species Program 2006).

SPECIES INFORMATION LINKS

Minnesota Invasive Species Program. 2006. Invasive Species of Aquatic Plants and Wild Animals in Minnesota: Annual Report for 2005. Minnesota Department of Natural Resources, St. Paul, MN. Pp. 125.

Perleberg, D. 1994. Management Plan for the Exotic Species: Flowering Rush (*Butomus umbellatus*). Minnesota Department of Natural Resources Exotic Species Program. Unpublished Report. November 2004. Pp. 29.

Scotter, G.W. 1991. Flowering rush, *Butomus umbellatus*, a new record for Alberta. *The Canadian Field-Naturalist* 105: 387-389.

Staniforth, R.J. and K.A. Frego. 1980. Flowering rush (*Butomus umbellatus*) in the Canadian Prairies. *The Canadian Field-Naturalist* 94: 333-336.

Stuckey, R. L. 1968. Distributional history of *Butomus umbellatus* in the western Lake Erie and Lake St. Claire region. *Michigan Bot.* 7:134-142.

Minnesota Seagrant Outreach

<http://www.seagrants.umn.edu/exotics/rush.html>

Global Invasive Species Database

<http://issg.appfa.auckland.ac.nz/database/species/ecology.asp?si=610&fr=1&sts=>

Ontario Federation of Angler and Hunters

<http://www.invadingspecies.com/Invaders.cfm?SID=3&A=Page&PID=9>

Environment Canada –Invasive Plants of Natural Habitats in Canada

http://www.cws-scf.ec.gc.ca/publications/inv/p2_e.cfm

PICTURE GALLERIES

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|  | <p>Organization: Wisconsin Department of Natural Resources</p> <p>Link: http://www.dnr.state.wi.us/invasives/photos/index.asp?mode=detail&Code=Butumb</p> |
|  | <p>Organization: Aquatic, Wetland and Invasive Plant Particulars and Photographs</p> <p>Link: http://aquat1.ifas.ufl.edu/butumb.html</p> |

**Prepared by the Manitoba Purple Loosestrife Project
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