Butomus umbellatus 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Liliopsida	Alismatales	Butomaceae

Common name jonc fleuri (French), flowering rush (English), water gladiolus (English), butome à ombelle (French), flûteau (French), grassy rush (English)

Synonym

Similar species *Sparganium spp.*

Summary *Butomus umbellatus* commonly known as flowering rush, is a moderately tall, rush like perennial found on shores of lakes, ponds and riverbanks. It can tolerate water as deep or deeper than 2 metres, extending to the deepest range of emergent marsh species. Flowering rush can displace native riparian vegetation, and can be an obstacle to boat traffic. Once established, populations' increase and can persist indefinitely. Control of this species is very difficult, especially with herbicides because they easily wash away from the narrow leaves of this plant. Extensive physical methods of control must be employed to manage this invasive exotic. It can be spread over long distances by garden planting, and once established in a watershed it spreads locally by rhizomes and root pieces that break off. Muskrats use parts of the plant and contribute to its local spread. Boaters can also transport flowering rush on their equipment.

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Species Description
Flowering rush is described as a moderately tall, rush-like perennial. Its leaves are basal originating from a stout rhizome that is stiff and erect when immersed or lax and floating when in deep water. The inflorescence is a many-flowered umbel borne on a scape 1 to 1.5m tall. The flowers are perfect, regular, 2-3cm across, and pink. There are 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 (USGS-NPWRC, 1999).

Lifecycle Stages
Flowering rush is in flower from July to September, and the seeds ripen from August to September (in North America). The scented flowers are hermaphrodite and are pollinated by bees, flies and Lepidoptera (Plants for a Future, UNDATED).

Uses
Flowering rush tuber can be cooked. It should be peeled and the rootlets removed. The root can also be dried and ground into a powder; it can then be used as a thickener in soups etc, or be added to cereal flours when making bread. It contains more than 50% starch (Plants for a Future, UNDATED).

Habitat Description
Flowering rush grows in marshes and can tolerate water as deep or deeper than that in which cattail is normally found (up to 2 metres), extending to the deepest range of emergent marsh species (Fewless, UNDATED). IPANE (2001) reports that, \"*B. umbellatus* is mostly found on shores of lakes, ponds and riverbanks, and it is intolerant of salt or brackish water.

Reproduction
Proulx (2000), states that, \"*B. umbellatus* is probably spread over long distances by people who plant it in gardens. Once in a watershed it spreads locally by rhizomes and root pieces that break off and form new plants. Muskrats may use parts of the plant to build houses and probably contribute to its local spread. Boaters can transport *B. umbellatus* on their equipment. Water and ice movements can easily carry *B. umbellatus* to new areas of a water body.\" Proulx (2000) adds that, \"Once in a watershed it spreads locally by rhizomes and root pieces that break off and form new plants.\" Delisle *et al.* (2003) states that, \"*B. umbellatus* required less than 17 years (1905-22) to establish scattered colonies between Montréal and Québec City. Seeds may disperse over longer distances than vegetative fragments; this characteristics may further increase the rate at which this species spreads.\" The authors add that, \"The warmer temperatures of newly exposed soils promote sprouting of *B. umbellatus*, which leads to multiplication of shoots and establishment of new individuals from rhizome fragments.\"

Nutrition
Flowering rush grows well in light (sandy), medium (loamy) and heavy (clay) soils. The plant prefers acid, neutral and basic (alkaline) soils. It cannot grow in the shade. It requires wet soil and can grow in water (Plants for a Future, UNDATED).

General Impacts
IPANE (2001) reports that, \"*B. umbellatus* can displace native riparian vegetation, and can be an obstacle to boat traffic. Its very wide range of hardiness (zones 3-10) makes it capable of being widely invasive in the United States.\" Fewless (UNDATED) states that, \"Once established in a marsh, *B. umbellatus* populations increase and persist indefinitely.\"

Management Info
Mechanical: Proulx (2000), states that, \"Cutting flowering rush below the water surface is an effective method of control. Cutting will not kill the plant but it will decrease the abundance. Multiple cuts may be required throughout the summer as flowering rush grows back from the root. All cut plant parts must be removed from the water. Hand digging can be used to remove isolated plants that are located downstream of larger infestations. Extreme care must be taken to remove all root fragments. Any disturbance to the root system will cause small reproductive structures on the roots to break off and spread to other areas of the waterbody. Therefore, methods such as raking or pulling which disturb the root system, but do not remove it, are not recommended control strategies.
Chemical: It is very difficult to kill flowering rush with herbicides. Herbicides easily wash away from the narrow leaves of this plant. Herbicides are more effective on dry banks or in very shallow water. There is no herbicide that is selective for flowering rush and care must be taken to avoid damage to valuable wetland plants such as cattails.\"

Pathway

Principal source: *Exotic Flowering Rush* (Proulx, 2000)
Butomus umbellatus Flowering rush, (IPANE, 2001)

Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

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[2] CANADA

[14] UNITED STATES

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Managment information

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.
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