

INVASIVE SPECIES ALERT!

FLOWERING RUSH

(*Butomus umbellatus*)

HAVE YOU SEEN THIS PLANT?

DESCRIPTION

- Native to temperate Eurasia.
- Perennial, aquatic macrophyte.
- Two plant forms: emerged and fully submerged. Submerged leaves limp and floating. Emerged form erect with solitary stem.
- May or may not produce flowers. Flowers grow in pink umbrella-like clusters of 20 to 50 flowers. Bloom from June to August.
- Twisting, erect leaf spike. Rectangular plant base.
- Leaf cross-section distinctly triangular.
- Typically grow in shallow waters but can survive in water as deep as 6 metres. Plant grows up to 1.5 metres tall.



Province of BC

REPORT INVASIVE SPECIES

Download the App!



www.gov.bc.ca/invasive-species

PRIMARY THREAT: Impedes use of shallow waters for recreation, irrigation & industrial activities, and alters natural ecosystems.

SPREAD

- Reproduces mainly by rhizome and bulblets (grow at root crown and base of flower umbel ≥ 5 mm diameter), and also by seed.

Reproductive bulblets on root crown and flower base



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- Local dispersal mainly by water, human recreation and improper garden waste disposal.
- Nursery sales are the main pathway for long distance spread.

Leaf x-section triangular

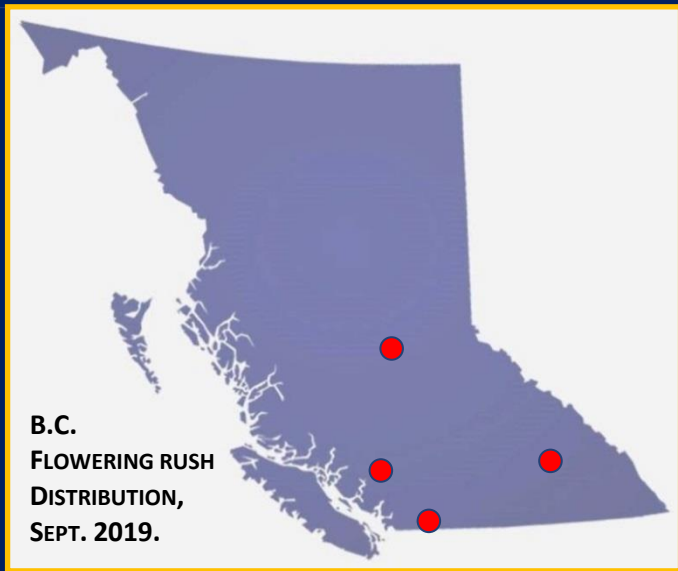


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For more information: <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/invasive-species/plants>



FLOWERING RUSH (*Butomus umbellatus*)



DISTRIBUTION & STATUS

Confirmed in only four water bodies in B.C.:

| Region | Status |
|-------------------|---|
| Fraser Valley | Containment & control in progress. |
| Cariboo | Contained; control in progress - population in decline. |
| Squamish-Lillooet | Contained; control in progress - population in decline. |
| Central Kootenay | Eradicated. |



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LOOK-ALIKES:

- Bur-reed (*Sparganium* spp.)
- Native sedges
- Bulrushes
- True rushes (when not in flower).



DID YOU KNOW?

- Flowering rush is the only species in the Butomaceae family.
- Two key identification features are the distinct triangular cross-section of the leaves and rhizomes that are thick with bulbous nodes.

WHAT CAN YOU DO?

- **REPORT** sightings
- **CHOOSE** only non-invasive plants for your water garden

Submerged and Emergent growth forms



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MANUAL TREATMENT GUIDELINES FOR CONTROL OF FLOWERING RUSH, HATZIC LAKE 2019

NOTE: Any changes in and about a stream requires an authorization under the Water Sustainability Act (WSA) or Water Sustainability Regulation (WSR). A stream is defined as any natural watercourse, including a natural glacier course, or natural body of water, whether or not the stream channel of the stream has been modified, or a natural source of water supply including, without limitation, a lake, pond, river, creek, spring, ravine, gulch, wetland or glacier, whether or not usually containing water, including ice, but does not include an aquifer. Changes in and about a stream includes any modification to the nature of a stream including any modification to the land, vegetation and natural environment of a stream or the flow of water in a stream; or any activity or construction within a stream channel that has or may have an impact on a stream or a stream channel, and includes side channels of the stream.

Any manual control of Flowering rush(solely around the dock area) by a land owner, a municipality, a regional district or an improvement district or other body, will require a Notice of Authorized Change (Notification) to be submitted at least 45 days prior to removal. For more information, refer to the FrontCounter BC website at: <https://portal.nrs.gov.bc.ca/web/client/-/change-approval-for-work-in-and-about-a-stream>.

MANUAL TREATMENT METHODS FOR FLOWERING RUSH

SCOPE

Flowering rush spreads readily in water, for this reason most management in the Province is completed by the provincial government, to ensure each treatment site is contained and removal efforts do not increase spread.

There are currently only four confirmed sites of Flowering rush in the Province. Hatzic Lake is the largest infestation and poses the highest risk of spread, due to proximity to the Fraser River. The Province is working to contain and manage Flowering rush within the Hatzic water system and requests that the public avoid disturbing or removing Flowering rush. **These guidelines are intended to inform the removal of Flowering rush in the limited instances where plant density is restricting the use of private docks on Hatzic Lake.**

SITE TYPE

Site types suitable for manual Flowering rush removal are locations where plant density is restricting the use of private docks, limited to the area in the immediate vicinity of the dock structure. Flowering rush removals must occur under dry conditions or in still (no movement) water less than or equal to 30 cm deep.

REPRODUCTION & SPREAD

Flowering rush is extremely difficult to control and spreads readily via propagules or reproductive plant parts; including rhizomes, bulblets occurring at the root crown and base of flower, and seed. Viable propagules can measure as small as 5 mm in diameter and float in the upper water column. Flowering rush spreads mainly by water, human water recreation and improper garden waste disposal. However, nursery sales are the main pathway for long distance dispersal.

TARGET INVASIVE PLANT

- Flowering rush (*Butomus umbellatus*)
- Plant propagules or the reproductive plant parts; including rhizomes, bulblets (≥ 5 mm diameter) occurring at the root crown and base of flower, and seeds (flower heads should also be removed to prevent seeding).
- Remove target invasive plant propagules rooted to the water body substrate and suspended in the water column
- Flowering rush reproduces mainly from vegetative growth with shallow roots and bulblets releasing and fragmenting readily from the substrate. Roots, bulblets and seeds will float in the upper water column currents until deposited in the substrate in still water (deposition points) where they will establish new plants.
- Plants typically rooted to the substrate, but may be uprooted and free-floating
- Removal of rooted plants requires removal of substrate immediately adjacent (20 cm around each plant base).

TREATMENT METHODS

- *Management Goal*: The management goal is to prevent spread, then suppress growth of the target invasive plant.
- *Manual Removal* (≤ 30 cm water depth): Removal of entire plant by digging 20 cm around the perimeter of the plant base and carefully raising the root mass with surrounding substrate intact.
 - If flowers are present, cut flowers directly into a garbage bag prior to digging.
 - Where plants are growing densely, it may be difficult to remove an individual plant in its entirety without disturbing adjacent plants. Care should be taken to remove the entire

- plant population and surrounding substrate systematically to ensure that no propagules fragment and remain in the substrate or water.
- Manual removal is best suited to areas with loose, organic substrate rather than compact gravel. Site suitability can be assessed quickly.
- Manual removal should not be done in areas where fragmentation will occur (e.g. compact gravel substrate, water >30cm deep).
- If digging up the entire plant is not an option, the flower heads can be cut directly into a garbage bag and no other treatment should occur.
- Again, it is extremely important to REMOVE ALL PLANT FRAGMENTS FROM THE LAKE.
- Organic substrates are conducive to effective manual removal in shallow waters, however, they also lead to poor visibility in the water column once disturbed. Minimizing substrate disturbance, such as foot traffic, in these areas will aid good visibility.
- Non-Target Impacts:
 - Ensure steps are taken to minimize the introduction of sediment to any water course;
 - Ensure no entrapment of fish;
 - No deleterious substances to enter any water course; and,
 - Minimize removal of native vegetation.

CONTAINMENT

- *Work Site:* All removed plant material should be collected in industrial strength garbage bags (2mm ideal), stockpiled on floating rafts or docks and disposed of at a private dry land site. Special care will be taken to ensure that once plant material is removed from the water body that it does not make contact with water during transport or disposal.
- *Transport:* Handling of plant material should be kept to a minimum and contained at all times. Care will be taken to ensure that no plant material re-enters the water system.

DISPOSAL

- *Disposal Sites:* Plant material should be deposited on dry land, well above the high water mark (highest level of water reached) for long term disposal. Suitable disposal sites will be located on private land, well above the high water mark, and in an area that will not be disturbed;
- *Transport:* Handling of plant material should be kept to a minimum and contained at all times. Care should be taken to ensure that no plant material re-enters the water system; and,
- *Stockpiling:* In the event that plant material is temporarily stockpiled at a location and then moved to a long term disposal site, bagged plant material should be contained in a large tarp during transport and care should be taken to ensure that no plant material escapes during transport.

SANITATION

- Ensure that watercraft and machinery arrive and depart the work sites in a clean condition and are maintained free of fluid leaks and aquatic plants and animals, especially invasive species.
- Apply the principles of Clean, Drain, Dry: <http://bcinvasives.ca/resources/programs/clean-drain-dry> to minimize disturbance and prevent propagule spread of aquatic invasive species. Propagules refer to reproductive plant parts, including but not limited to seeds, rhizomes, stolons, and bulbs:
 - *Clean*: Absent visible Aquatic Invasive Species or attached vegetation, dirt, debris or surface deposits including mussel shells or residue on the watercraft, trailer, outdrive or equipment that could mask the presence of attached mussels, or other aquatic invasive species;
 - *Drain*: To the extent practical, all water drained from any live-well, bait-well, storage compartment, bilge area, engine compartment, deck, ballast tank, water storage and delivery systems, cooler or other water storage area on the watercraft, trailer, engine or equipment; and,
 - *Dry*: No visible sign of standing water, or in the case of equipment, wetness on or in the watercraft, trailer, engine or equipment.
- Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.

MATERIALS & EQUIPMENT

- Narrow shovels
- Hand trowels
- Hand pruning shears (for dead-heading)
- Hand garden claw (for compact gravel substrate)
- Industrial strength polypropylene garbage bags (2mm thick)
- Tarp
- Personal protective equipment