IDAHO GREEN THUMB HOW-TO'S

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Flowering Rush

at a glance

- Flowering rush is listed as a "noxious" weed by the Idaho State Department of Agriculture (ISDA).
- Flowering rush is an invasive, aquatic, perennial weed.
- Idaho has several known infestations identified in important water systems.
- It spreads rapidly, impedes irrigation water flow, and damages native plant and fish habitat.
- Flowering rush affects the environment, farmers and ranchers, natural resource managers, and outdoor enthusiasts.
- It is critical to identify, monitor, control, reduce, and/or eliminate flowering rush when and if possible.
- Herbicides have been relatively ineffective in controlling flowering rush.
- Mechanical digging is currently the most effective control method.

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Introduction

Flowering rush (*Butomus umbellatus*) is an invasive, aquatic, perennial weed (Figure 1). It originated from Eurasia and was first discovered in Idaho in 1949 in the Snake River near Idaho Falls. It has since become a serious problem. Currently, seven major infestations have been identified in northern and southeastern Idaho. It is listed as "noxious" by the ISDA. One criterion that defines a weed as noxious is its potential to cause injury to public health, crops, livestock, land, or other property as deemed appropriate by Idaho law. Homeowners, landowners, and natural resource managers are required to control, reduce, eliminate, and prevent flowering rush infestations on their property.

Figure 1. Flowering rush. *Photo courtesy of Enoch Houtz.*

Plant Identification

Flowering rush roots in waterbody bottoms. It has triangular stems but should not be confused with another group of plants with triangular stems, the sedges.

Flowering rush leaves are dark green, narrow, and upright with triangular edges (Figure 2). They are spongy and rebound when squeezed. Leaves emerged from water can grow up to 3 ft long and twist in a spiral at their tips. Flowering rush can also grow submersed in water. Submersed leaves grow up to 10 ft long. The leaves collapse after seasonal fall freezes and when water levels in canals and water bodies are drawn down.

Figure 2. Leaves are triangular in cross section.

Its roots are fleshy and rhizomatous and grow approximately 6 in deep. Rhizomes (Figure 3) break off easily when disturbed and are buoyant. This feature allows them to travel long distances in moving water to begin new plant colonies. Rhizome fragments establish best in shallow, sparsely vegetated silt in water currents less than 2 mi/hr.

Flowering occurs in early summer to midfall. Flowers (Figure 4) are 3-petaled and have 3 petal-like sepals. Petals are ¾–1 in wide and are light pink in color. Flowers develop in umbrella-shaped clusters with 20–50 flowers per cluster. Approximately 200 seeds can be produced per flower. Seeds are brown and 1 mm in length.

Figure 3. Flowering rush rhizomes. *Photo courtesy of Enoch Houtz.*

Figure 4. Flowering rush flower. *Photo courtesy of Enoch Houtz.*

There are two genetic types of flowering rush: diploid (contains 2 sets of chromosomes) and triploid (contains 3 sets of chromosomes). The diploid type flowers prolifically. It reproduces by seed, vegetative rhizome bulbils (small, bulblike structures that separate from the parent plant, can reproduce, and can be found on rhizomes and flowers), vegetative flower bulbils, and rhizome fragmentation. The triploid type only flowers occasionally and produces sterile seeds. It reproduces mainly by rhizome fragmentation.

Plant Habitat and Characteristics

Flowering rush grows on lakeshores, wetlands, and in slow-moving water bodies. It also grows prolifically in irrigation canals and thus can impede irrigation water distribution. Although typically found in shallow water of 2–3 ft, flowering rush adapts to various water depths. It has been identified on shorelines in as little as 6 in of water (Steve Howser, Aberdeen Springfield Canal Company, email message to author, July 2, 2019) and submersed up to 20-ft depths. Submersed leaves persist but become limp. Idaho flowering rush populations stay viable at temperatures below 0ºF to above 90ºF (Cole D. Morrison, Idaho State Department of Agriculture, email message to author, June 19, 2019). Warm substrate temperatures above 32ºF promote sprouting and accelerated rhizome growth. Flowering rush can initiate growth as early as late February. The earlier growth and seasonal irrigation patterns in Idaho enable this plant to become well established, allowing them to outcompete the later spring growth patterns of native plants.

Flowering rush can form impenetrable monocultures (growth of a single plant species that encompasses large areas), alter native habitats, use large amounts of water, increase water temperature, increase sedimentation, and transfer nutrients from soil to water. These characteristics negatively impact native plant and fish habitat, natural and man-made water systems, and surrounding ecosystems. This plant also provides ideal habitat for piscivorous fish that decrease native fish populations. Flowering rush also affects farmers and ranchers, natural resource managers, and outdoor enthusiasts. Left unmanaged, flowering rush infestations can destroy native ecosystems and make many irrigation systems necessary for food production ineffective.

Control Options

Imazapyr sold as Habitat, Imazamox sold as Clearcast, and Glyphosate sold as Roundup (among others) are labeled herbicides that have shown promise for season-long vegetative control by decreasing root biomass and foliage. Refer to the labels for information on application timing and rates. Furthermore, it is important to understand that many herbicides cannot be used due to irrigation and water-use restrictions. For example, irrigation water from herbicide-treated canals can affect sensitive crops.

Mechanical methods of removing flowering rush currently provide the best control. Small infestations can be removed by hand digging. Care must be used to remove all rhizome fragments. If done incorrectly, hand digging can break off and spread rhizome fragments, resulting in increased plant density. Bottom barriers (sheets of geotextile material anchored to water bottoms) in small

areas such as boat docks can also be used to prevent rhizome movement and subsequent establishment of new infestations. Barriers suppress growth but must extend beyond the edge of existing plant growth. For large infestations, mechanical aquatic vegetation rakes (maximizedwatermanagement.com/products-services) are very effective. Rakes should have teeth 8–10 in long to reach the proper digging depth of at least 6 in. Always dispose of excavated plant material away from the water line to prevent further plant establishment. This method can provide effective control for up to five years.

Healthy native plant growth, such as reeds, should be encouraged to provide barriers to flowering rush establishment. At the time of this publication, biological controls, like insects and microorganisms, are being researched. However, currently none have been approved for use.

Integrated Weed Management

An integrated weed management program is critical for controlling and preventing the spread of flowering rush. To protect Idaho's natural resources, educational programs about this weed should include identifying, monitoring, mapping, and managing flowering rush infestations. Recreational equipment, trailers, and tow vehicles should be cleaned of all plant parts and debris, which should be disposed of away from the shores, canals, and other water sources.

Monitoring for flowering rush infestations will help reduce the negative impact of this plant. Best practices include controlling small infestations immediately; encouraging and protecting native plant establishment and growth when possible to provide competition against flowering rush; and reporting plants that resemble flowering rush to your local Extension office and/or county weed superintendent.

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