Aquatic Plant Identification and Management Workbook, *Series* 3

The Aquatic Plant Identification and Management Workbook Series is designed to acquaint pond owners in Maryland with naturally-growing aquatic plants and the general means for managing their growth. Aquatic plants play an important role in the natural ecology of ponds: they provide food and shelter for many fish, aquatic animals and other wildlife, and they provide oxygen, which can benefit fish production.

Sometimes, however, growth gets out of hand and the plants become so numerous they interfere with the intended use of the pond, for example, fishing, swimming, boating — they are then called aquatic weeds. When this occurs, control measures often become necessary.

The suggested chemical controls in this workbook series are intended as guidelines and must not replace directions on chemical labels. Separate fact sheets display each of the aquatic plants in this series and are available from the Maryland Sea Grant Extension Program or your local Cooperative Extension Office.

EMERGENT VEGETATION

Bulrush

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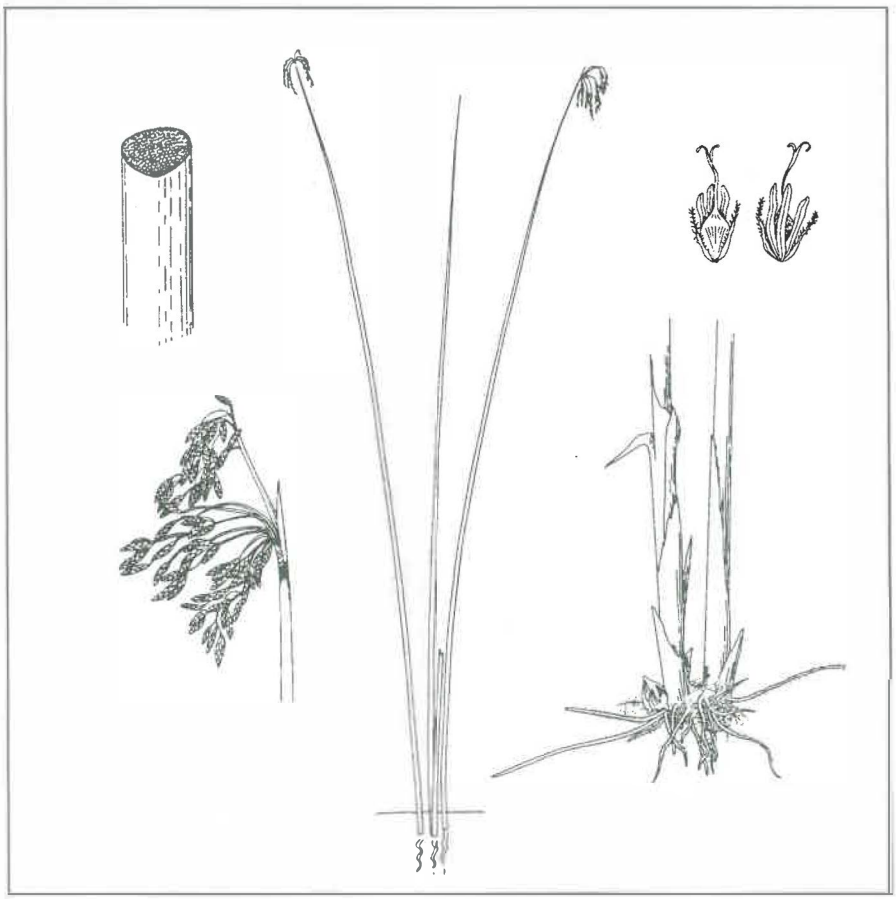
Vascular flowering aquatic plants are seedbearing and are characterized by a system of conductive and supportive tissue. They can be classified into several broad categories of vegetation: floating, submersed, emergent, and terrestrial. This fact sheet focuses on bulrush, an emergent plant.

As a group, emergent plants are usually found rooted in shallow waters and all or part of the plant extends above the water line or hydrated soil. They are usually rooted to the bottom of a pond, have a rigid cell structure, and are not dependent on the water column for support. Some emergent plants are not truly aquatic, and may be found in dry fields completely removed from a water source.

BULRUSH

(Scirpus spp.)

There are many varieties of bulrush found in Maryland and most are difficult to identify. The one bulrush that is most common and



Credit: IFAS, University of Florida, Gainesville

Emergent Vegetation: Bulrush

can cause the most problems is the great or soft-stem bulrush (*S. validus*). As a group, bulrushes are annual or perennial wetland or aquatic plants that can be found growing in clumps or over a large area of shallow water. The plants can vary in height from a few inches to over 6 feet.

The bulrushes are primarily freshwater plants but some grow in brackish waters as well. They are generally found growing in soft mud or in several feet of water along streams, ponds, or marshes. Often more than one species of bulrush can be found growing together or in association with other sedges or rushes, especially if the pond or marsh has been dry for several months. The growth in shallow water ponds or confined areas, such as drainage ditches, can become so dense that they prevent access to the pond or impede waterflow in the ditch. In fact, one of the potential uses of bulrushes is as a biological filter for effluent waters associated with sewage plants. The effluent is passed through growing stands of bulrush and the plant takes up the excess nutrients and other compounds. In these situations, however, the plant must be continually harvested to allow for new growth to maintain the uptake efficiency.

Although bulrushes may be considered a nuisance plant when they take over a shallow pond area, their value to wildlife is very important. Bulrushes in general provide a high quality and much sought after seed by migratory waterfowl, songbirds, and many marsh dwelling birds. Over 52 species of birds have been recorded as feeding on the seeds of bulrushes. In addition, muskrats and geese regularly feed on the rootstocks, while mice feed on the seeds. Dense stands also provide protection to small mammals, such as muskrats, raccoons, and other animals.

IDENTIFICATION

There are many species of bulrush found in Maryland and the United States, and precise identification can be difficult; mature nutlets (the fruit) are usually required. The stems are unbranched, and can be circular or triangular in shape. The soft-stem bulrush stem is cylindrical in shape, light-green in color, and has a spongy texture.

The leaves of bulrushes have blades and sheaths which are found on the lower portion of the stem, and the leaf blades are flat and smooth. Specialized leaves (called involucre) arise from the base of the inflorescence (flowers) and appear to be a continuation of the stem. Bulrushes generally bloom from mid-summer through mid-fall, and the inflorescence is found at the end of the stem and consists of oval or lance-shaped spikelets (a specialized flower found in grasses) which have spiral overlapping scales. Re-

CHEMICAL CONTROL. The following is a table of chemicals labeled to treat bulrushes. The table was compiled from information gathered from the aquatic chemical industry. *Inclusion in the table does not imply endorsement by the University of Maryland nor by the authors.* Omission of chemicals is a result of oversight on the authors' part or of new label registration. The table is for comparison purposes only and is not intended to replace the chemical label. Labels are subject to change; therefore, always check the label for treatment sites, rates, and precautions before purchasing or applying any chemical. **Do not use the table for treating aquatic plant problems.**

Bulrush (*Scirpus* spp.)

Chemical Name	Chemical Type	Application	Restriction	Comments
Sonar 5P	Fluridone	Pond Depth 3 ft 10-15 lb/acre 3-5 ft 15-20 lb/acre > 5 ft 20-30 lb/acre	no irrigation of established tree crops – 7 days new crops and turf – 30 days	do not use in tidal or brackish water or on farmed crayfish
Weed RHAP A-4D	Dimethylamine salt	2.5-4.5 pt in 50-100 gal water/acre	do not use water for irrigation or domestic purposes	vapors may harm nearby crops at temperatures above 95° F.
Rodeo	Glyphosate	spray as a 1.5% solution with ionic surfactant in water	do not apply within 1/4 mile of potable water intakes	treat actively growing plants or beyond seedhead stage

production is by seeds and rhizomes.

CONTROL

When chemicals are used to control aquatic vegetation, certain precautions must be followed. Always read the label and follow the directions. It is best to treat bulrushes in early spring before growth really starts to take off. Determine the water uses and any use restrictions associated with the chemical control. Obtain all necessary permits. Make sure you have properly identified the aquatic plant and have chosen the correct chemical control, then mix and apply the chemical according to the label directions. Keep the necessary records as they are required by law. Finally, monitor the water for dissolved oxygen and pH shifts after treatment to determine the effectiveness of the treatment and whether any fish kill occurs. Heavy plant die-off can cause oxygen depletion, while heavy growth can cause pH shifts on a daily cycle.

REFERENCES AND FURTHER READING

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FOR FURTHER INFORMATION

For general information about the Maryland Sea Grant Extension Program, visit the web:

http://www.mdsg.umd.edu/MDSG/Extension/index.html

For technical questions, contact an extension agent or specialist at one of these locations:

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FOR ADDITIONAL COPIES

Copies of Maryland Sea Grant Extension workbooks on aquatic plants, including color photographs for use in identifying species, are available on the web at:

http://www.mdsg.umd.edu/MDSG/Extension/Workbooks

Additional copies of printed workbooks are available from the Maryland Sea Grant College Program, 0112 Skinner Hall, University of Maryland, College Park, MD 20742-7640.

Illustration on page 1 provided by the Information Office of the University of Florida, IFAS, Center for Aquatic Plants (Gainesville) 1990.

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NOTE: Because of the ecological role and sensitivity of aquatic vegetation, as well as Baywide efforts to restore this important resource, the state does not permit the use of chemical control in tidal waters, and greatly restricts their use in nontidal, flowing waters. Acquaint yourself with all regulations governing plant control activities, and obtain all necessary permits. Non-chemical means should be utilized where practicable.

COOPERATIVE EXTENSION SERVICE

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