



Aquatic Plant Identification and Management Workbook, Series 4

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

Soft Rush

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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 soft rush, 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. Some plants are not truly aquatic, and may be found in dry fields completely removed from a water source. The plants are usually rooted to the bottom of a pond, have a rigid cell structure, and are not dependent on the water column for support.

SOFT RUSH

(*Juncus effusus*)

The rushes are grass-like, usually perennial, clumping plants that, despite their appearance, are more

closely related to the lilies than grasses. Because they closely resemble the grasses and sedges, soft rushes are often confused with them. They are separated from the grasses by the technical aspects of the flowers and the absence of a ligule (a membrane-like projection) where the leaf blade joins the sheath. Not all species of rushes have leaf blades, but instead have a leaf sheath. The flowers are terminal, but in some species the flowers appear to be on the side of the plant because an upper erect leaf looks like a continuation of the stem.



Emergent Vegetation: Soft Rush

Credit: IFAS, University of Florida, Gainesville

Suspected of being an exotic species imported from Europe, soft rush is a perennial commonly found in large clumping stands along freshwater ponds and lakes, and in low pasture lands in the eastern half of the United States and in Europe. It grows equally well in wet or dry soils. It can occasionally be found in small floating clumps in small ponds. The plant can grow from about 18 inches to almost 6 feet.

Soft rush rarely creates a problem with water flow nor does it interfere with recreational opportunities such as fishing, swimming, or boating. The seeds are eaten by waterfowl, and the plant is sometimes eaten by deer, especially in late fall and winter. Muskrats and nutria often build nests within the dense clumps.

IDENTIFICATION

Soft rush has soft, pale-green, hollow, round stems that do not support leaf blades. However, the plant does have chestnut colored leaf sheaths between 2 and 6 inches long with a slender bristle at the end. The inflorescence (flower arrangement) consists of an irregular branched cluster of flowers (30-100), 2-3 mm long, supported on single to many uneven stalks. Below the flowers, which consist of three lance-shaped sepals and petals, are

three small characteristic bracts (modified leaves that are part of flowers). Flowers can be found from June to September.

The fruit is a capsule that contains many minute seeds about 0.1 mm long. Reproduction can be either by vegetative clumping rhizomes (horizontal stems resembling roots with nodes from which new plants develop) or by seeds.

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 spot treat areas where soft rush is first sighted or wait until spring or summer when the plant is in bloom. 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. Mix and apply the chemical according to the label directions. Keep the necessary records – 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

Aulbach-Smith, Cynthia A., Steven J. de Kozlowski, and Lawrence A. Dyck. 1990. Aquatic and wetland plants of South Carolina. South Carolina Aquatic Plant Management Council and South Carolina Water Resources Commission, Columbia.

Lorenzi, Harri J. and Larry S. Jeffery. 1987. Weeds of the United States and their control. An AVI Book, Van Nostrand, Reinhold Co., New York.

Radford, Albert E., Harry E. Ahles, and C. Ritchie Bell. 1968. Manual of the vascular flora of the Carolinas. The University of North Carolina Press, Chapel Hill.

Traver, David P., John A. Rodgers, Michael J. Mahler, and Robert L. Lazor. 1978. Aquatic and wetland plants of Florida. Special Publication, Florida Department of Natural Resources, Bureau of Aquatic Plant Research and Control. Tallahassee, Florida.

CHEMICAL CONTROL. The following is a table of chemicals labeled to treat soft rush. 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.**

Rushes (<i>Juncus</i> 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

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:

Maryland Sea Grant Extension
University of Maryland
Wye Research and Education Center
P.O. Box 169
Queenstown, MD 21658
Telephone: (410) 827-8056

Maryland Sea Grant Extension
University of Maryland
Chesapeake Biological Laboratory
P.O. Box 38
Solomons, MD 20688
Telephone: (410) 326-7356

Maryland Sea Grant Extension
University of Maryland
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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.



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