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

Pickerelweed

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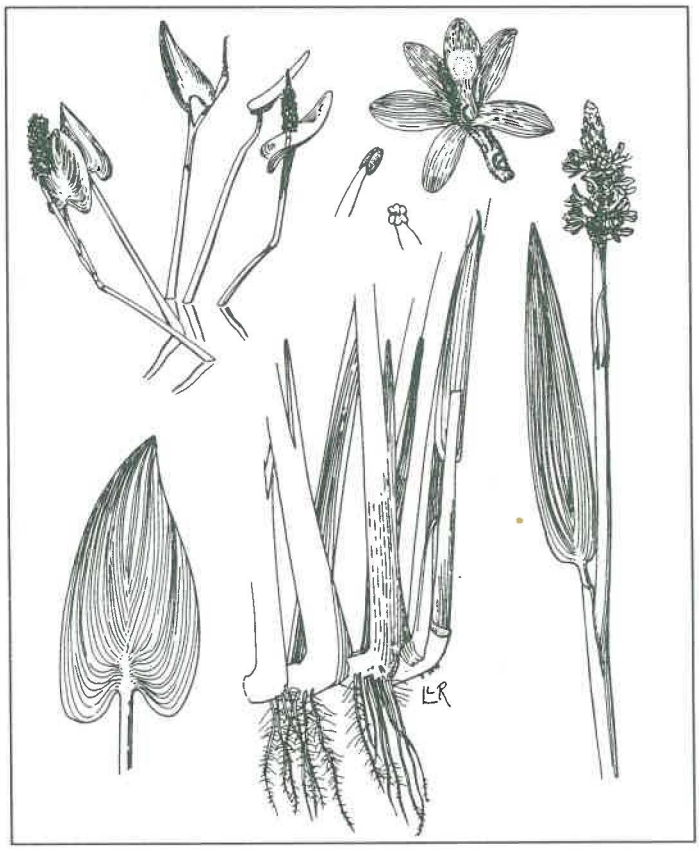
Vascular flowering aquatic plants are seedbearing and are characterized by a system of conductive and supportive tissue. They can be classified into several broad categories of vegetation: floating, submersed, emergent, and terrestrial. This fact sheet focuses on pickerelweed, an emergent plant.

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.

PICKERELWEED

(Pontederia cordata)

Pickerelweed is a perennial plant with thick, creeping rootstocks, and



Credit: IFAS, University of Florida, Gainesville

Emergent Vegetation: Pickerelweed

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erect leathery leaves that grow in clusters. The plants are found along the margins of lakes, ponds, and streams in soft muddy bottoms, and can grow in a variety of types of water up to 2-1/2 feet deep. They often grow over 3 feet tall, with leaves almost 5 inches wide at the widest point, and twice as long as wide. When in bloom, the plant has a beautiful flowering spike of purplish to violet flowers.

If sufficient colonies of the plant become established, they can completely block a drainage ditch, small pond, or small sluggish stream. Although pickerelweed is quite common, its wildlife value is fairly low with a few waterfowl and small aquatic mammals (muskrats) feeding on its seeds. It does, however, have a high value in ornamental aquatic gardens.

IDENTIFICATION

There are two varieties of the pickerelweed found in this region and they are difficult to tell apart because of the leaf variations found in the first variety. The first variety (*P. cordata* var. *cordata*) has triangular oval or triangular lance-shaped leaves which truncate to a heart-shaped, or cordate, base; the other form (*P. cordata* var. *lancifolia*) has narrow lance-shaped blades and a narrow base.

The inflorescence (flowers) arises from a stem with one leaf and a terminal spike, which has numerous, showy, two-lipped flowers. The spike can be from 2 to 6 inches in length, and the flowers, which bloom from April through October, are irregular in shape, and are united at the bottom of the corolla to form a funnel-shaped tube. The fruit is a single seed about 1/4 inch long and reddish. Reproduction occurs by seeds and vegetatively by budding forming daughter rosettes.

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 pickerelweed is first sighted. 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

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

Pickerelweed (*Pontederia* spp.)

Chemical Name	Chemical Type	Application	Restriction	Comments
Weed RHAP A-4D	Dimethylamine salt of 2,4-D	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.
912 Aquatic Weed Killer	Diquat dibromide	1 pint in 100 gal water	livestock watering, spraying, irrigation, swimming – 10 days drinking – 14 days	do not use in muddy water
Watrol	Diquat dibromide water/acre as a top spray; wet plants thoroughly	ratio of 3 gal in 10 gal spraying, irrigation, or swimming–14 days	livestock watering, muddy water	do not use in muddy water

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.

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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.

Riemer, Donald N. 1984. Introduction to freshwater vegetation. The AVI Publishing Company, Westport, Connecticut.

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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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University of Maryland
Wye Research and Education Center
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Maryland Sea Grant Extension
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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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