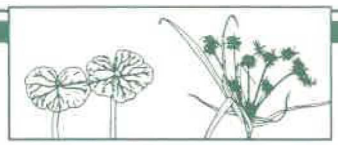


Aquatic Plant Identification and Management Workbook, *Series 4*

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

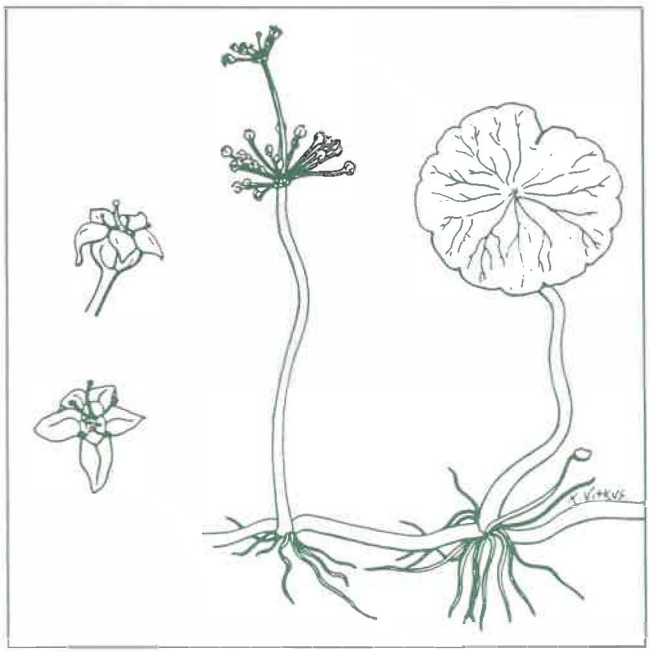
Marsh Pennywort

Reginal M. Harrell and Richard E. Bohn

University of Maryland Cooperative Extension Service, Sea Grant Extension Program

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 marsh pennywort, 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.



Credit: IFAS, University of Florida, Gainesville

Emergent Vegetation: Marsh Pennywort

MARSH PENNYWORT

(Hydrocotyle umbellata)

Pennyworts, especially marsh and water pennywort, are commonly found in Maryland aquatic environments. Marsh pennywort is the more common species. These plants are succulent perennials that are members of the parsley family and native to America. Commonly found rooted in the mud along pond and ditch banks, they can form dense mats that float on the surface. These mats can actually break away from their roots and continue living and growing while free floating. The mats can also support other plants such as smartweeds, beggar-ticks, or alligatorweed. The mats may grow to such a density that they may impede waterflow in drainage canals and ditches, which can affect irrigation. Often, a variety of submersed aquatic plants may be found entangled among the roots. Many species of *Hydrocotyle* can grow well in ei-

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ther an aquatic or terrestrial habitat. Marsh pennywort can be found in either in the coastal plain or more inland areas of the state. Large populations of marsh pennywort are common during the summer.

The pennyworts have a moderate value to wildlife as protective habitat for small fish and animals such as snakes. The seeds and foliage of these plants are often consumed by waterfowl as a food source.

IDENTIFICATION

Pennyworts are perennial plants with stems that run or lie on the ground and root at the nodes, even when floating. The stems can be up to 1/4 inch in diameter. The leaf blades of marsh pennywort are usually light green in color, arise from the center of the stem (peltate), and are orbital in shape with scalloped (crenate) edges. The petiole is usually no longer than six inches.

Marsh pennywort flowers from late spring to early fall (April to September), and the blooms consist of many small, white flowers arising from a centralized stalk on individual stems. The flower groupings are known as umbels. Reproduction is by seeds or fragmentation of the stems where new leaves develop from the root nodes. The fruit is distinctly notched and about 3 mm wide.

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 pennywort 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

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

Marsh or Water Pennywort (*Hydrocotyle* spp.)

Chemical Name	Chemical Type	Application	Restriction	Comments
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
Casoron 10G	Dichlobenil	70-150 lb/acre	do not use water for irrigation, livestock, or drinking no fishing – 90 days	do not use in commercial fish or shellfish waters
Diquat Herbicide H/A	Diquat dibromide	1/2-3/4 gal/acre plus 16 oz non-ionic surfactant in 150-200 gal water	livestock watering, spraying, irrigation, domestic uses – 14 days swimming – 1 day	do not use in muddy water
Weedtrine D	Diquat dibromide	5-10 gal/acre	livestock watering, spraying, irrigation, domestic uses – 14 days	do not use in muddy water
912 Aquatic Weed Killer	Diquat dibromide	5-7.5 pints in 150-200 gal water	livestock watering, spraying, irrigation, swimming – 10 days drinking – 14 days	do not use in muddy water

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

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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.

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.

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

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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.

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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