COOPERATIVE EXTENSION SERVICE
University of Maryland System • Maryland Sea Grant Extension Program

Aquatic Plant Identification and Management Workbook, *Series 1*

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 are intended as guidelines and must not replace directions on chemical labels. A separate fact sheet, in color, displays each of the aquatic plants in this series and is available from the Maryland Sea Grant Extension Program or your local Cooperative Extension Office.

SUBMERGENT VEGETATION

Coontail or Hornwort

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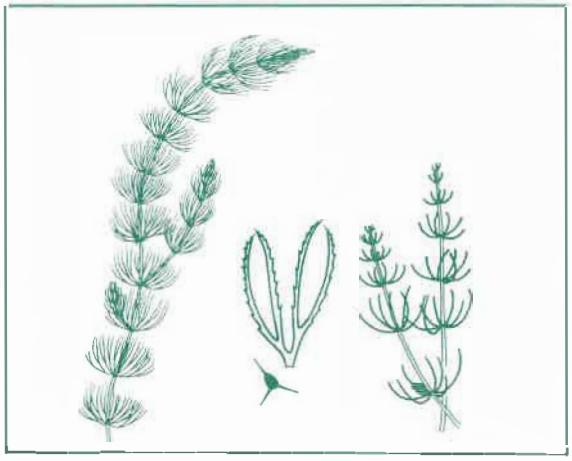
Vascular flowering aquatic plants are seed-bearing and are characterized by a system of conductive and supportive tissue. They can be classified into several broad categories of vegetation: floating, submergent, emergent and terrestrial. This workbook focuses on coontail or hornwort, a submergent plant.

Submergent plants are underwater vegetation usually found in deeper waters. Completely submerged, they are usually rooted to the bottom, lack rigid cell structures (making them appear limp), and often grow up to the water surface. Flowers, when present, often extend above the water surface in spikes.

COONTAIL OR HORNWORT (*Ceratophyllum* species)

Coontail is a submergent vegetation that does not follow the category rules for the group of plants it belongs in. Coontail is found in quiet ponds, lakes, or slow moving streams; generally it does not have roots and never grows above water, even in flowering. Plant stems may be partially found in bottom sediments, but rarely are roots present. The plant is confined primarily to fresh water. It has some value as a wildlife food for muskrats and birds, including waterfowl, and provides habitat for fish and aquatic invertebrates. It also is somewhat of an aerator in providing oxygen to the pond through photosynthesis.



Karen Teramura

Submergent Vegetation: Coontail or Hornwort.

IDENTIFICATION

Coontail, both by its lack of roots and the fact that it does not grow out of the water, can be identified by its thick bushy stem tips which can resemble the tail of a raccoon. The elongated stems are branched with usually whorled, forked, dark green leaves which are divided only once. The leaf margin is serrated (has teeth). The plant can grow up to three and a half feet. Both flowers, present from July to October, and fruit are very small and are found in the leaf axils, showing as small red cylinders. The fruit is a single seed (less than a quarter inch) and has two basal spines. Both the flowers and seeds are difficult to find. Reproduction is by seeds or by stem fragments. The leaves are often coated with lime, which gives them a "gritty" feeling.

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 the coontail are first sighted instead of waiting until they take over a pond completely. Determine the water uses and any

CHEMICAL CONTROL. The following is a table of chemicals labeled to treat coontail or hornwort. 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.**

Coontail or Hornwort				
Chemical Name	**Chemical Type**	**Application**	**Restriction Periods**	**Comments**
Norosac 10G	Dichlobenil	100-150 lb/acre	do not use water for irrigation, livestock watering, or drinking, use fish—90 days	do not use in commercial fish or shellfish waters
Aquathol K	Dipotassium salt of endothall	1.0-2.0 ppm concentration level 4 ft 2.6 gal 1.0 ppm 5.1 gal 2.0 ppm	livestock watering, spraying, irrigation, drinking—14 days, use fish—3 days, swim—24 hours	
Weedtrine II	Ethylhexyl ester 2,4-D	100-150 lb/acre	do not use for irrigation or drinking	vapors can damage nearby crops
Aquazine	Simazine	3.4-6.8 lb/acre ft	irrigation, spraying, drinking—12 months	do not apply more than 10 lb/acre where striped bass fry or fingerlings will be cultured immediately
Weedtrine-D	Diquat dibromide	5-10 gal/acre	livestock watering, spraying, irrigation, drinking—14 days	do not use in muddy water
Aquaquat	Diquat dibromide	0.25-0.50 ppm cation	livestock watering, spraying, irrigation, drinking—14 days	do not use in muddy water
912 Aquatic Weed killer	Diquat dibromide	10-20 gal/acre	llivestock watering, spraying, irrigation, drinking—14 days	do not use in muddy water
Sentry	Diquat dibromide	Depth 1 ft 7-14 gal/acre 3 ft 21-42 gal/acre 5 ft 35-70 gal/acre	livestock watering, spraying, irrigation, drinking—14 days	do not use in muddy water
Watrol	Diquat dibromide	48 gal/acre	livestock watering, spraying, irrigation, drinking—14 days	do not use in muddy water
Ultimate	Diquat dibromide	10-20 gal/acre	livestock watering, spraying, irrigation, drinking—14 days	do not use in muddy water
Norkem 500	Diquat dibromide	20-40 gal/acre	livestock watering, spraying, irrigation, drinking—14 days	do not use in muddy water
Diquat Herbicide-H/A	Diquat dibromide	1-2 gal/acre	livestock watering, spraying, irrigation, drinking—14 days	do not use in muddy water
Sonar 5P	Fluridone	depth <3 ft 10-15 lb/acre 3-5 ft 15-20 lb/acre >5 ft 20-30 lb/acre	irrigate established tree crops —7 days, new crops and turf—30 days	do not use in tidewater or brackish water or where crayfish are farmed
Sonar SRP	Fluridone	depth <3 ft 10-15 lb/acre 3-5 ft 15-20 lb/acre >5 ft 20-30 lb/acre	irrigate established tree crops —7 days, new crops and turf—30 days	do not use in tidewater or brackish water or where crayfish are farmed
Sonar A.S.	Fluridone	depth <3 ft 0.5-0.75 qt/acre 3-5 ft 0.75-1.0 qt/acre >5 ft 1.0-1.5 qt/acre	irrigate established tree crops —7 days, new crops and turf—30 days	do not use in tidewater or brackish water or where crayfish are farmed
Hydrothol 191	Mono salt of endothall	27-136 lb/acre ft (0.5-2.5 ppm concentration)	do not use water for irrigation use fish—3 days	toxic to fish (0.3 ppm)

Chemical Name	Chemical Type	Application	Restriction Periods	Comments
Aquathol	Dipotassium salt of endothal	use 2.0-3.0 ppm concentration 2.0 ppm=215 lb/acre 3.0 ppm=323 lb/acre	irrigation,spraying drinking—7 days, use fish—3 days, swim—24 hours	
Weed Boomer	Diquat dibromide	8 gal/acre	livestock watering, spraying, irrigation—10 days, drinking—14 days	do not use in muddy water
Casoron 10G	Dichlobenil	100-150 lb/acre	do not use irrigation, livestock watering, or drinking, use fish—90 days	do not use in commercial fish or shellfish waters

use restrictions associated with the chemical control. Obtain all of the necessary permits. Make sure that 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

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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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