HEADING OFF HYDRILLA

Another invasive species is heading towards the Great Lakes: Hydrilla verticillata

Nonnative species are a great threat to the Great Lakes region. So far, much focus has been placed on sea lamprey, zebra mussels, alewife, spiny water fleas, ruffe, goby, purple loosestrife and Eurasian watermilfoil. Soon, another species - *Hydrilla verticillata* – may join this list.

Hydrilla is a robust aquatic plant that may survive and thrive in waters of this area. As of December 2005, biologists have found no evidence of hydrilla in Michigan's shallow Great Lakes bays, 11,000 inland lakes or thousands of miles of streams. However, the level of concern for ecological damage and economic harm to Michigan's water resources has increased due to the fact that hydrilla is now known to exist in two Great Lakes states, Pennsylvania and New York.

Dave Webb, TVA

Ecological Impacts

Hydrilla has many adaptive qualities that allow it to overpower and diminish or even eradicate native species. It can grow in areas of low light, as well as fresh and brackish water. Hydrilla can grow up to an inch per day and thrives in standing and flowing water. It also absorbs carbon from the water more efficiently than other plants. Hydrilla is particularly threatening because of its diverse reproductive abilities; it can reproduce by seed, vegetative cutting, turions and tubers. The tubers that grow on the roots are viable for many years.

Because it is so invasive and pervasive, hydrilla greatly disrupts the ecological balance of all the areas where it grows. Large, dense hydrilla mats inhibit sunlight from penetrating the water and shade out native plant species that live in the waters below them. Because hydrilla mats slow the movement of water, sediments build up where hydrilla thrives, decreasing the turbidity and creating good breeding grounds for mosquitoes.

Economic Impacts

Hydrilla has serious economic effects resulting from the ecological impacts. As mentioned before, hydrilla can slow the movement of water, disrupting the water supply, impeding drainage and irrigation. This adds costs to the agricultural economy and also negatively affects real estate values that are dependent upon attractive nearby waterways.

Hydrilla also affects recreational activities and the associated economy. It is likely to be a significant hinderance to recreation in Michigan waters. The dense mats inhibit boating, skiing, swimming, and other water-related activities. Extensive stands of hydrilla provide poor habitat for diverse fish and other wildlife populations. Anglers may find a decrease in the size and quantity of fish.

Within three to four years of invading Maine, Massachusetts and Connecticut, it was the dominant plant in infested waters, creating serious recreational problems. In an infested lake in Washington, hydrilla out-competed Eurasian watermilfoil, Michigan's current most invasive exotic aquatic plant, to become the dominant plant. However, aggressive management programs in each of these states have prevented the infestations from spreading to other bodies of water.

Hydrilla management is another major cost. States are spending millions of dollar to control the pest in their waterways. Hydrilla is difficult to control and can cost as much as $1,000 per acre to treat. Mechanical, cultural, herbicidal, and biological management practices each cost anywhere from thousands to millions of dollars to implement. Florida has spent more than $50 million trying to control the plant in public waters. In 1994-95 alone, they spent roughly $10 million managing the epidemic. The number increased to $17.5 million in 2003-04. It is estimated that hydrilla is now in 40 percent of Florida's public waters.

John Wedig, LRCA

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California has taken an aggressive approach to hydrilla enacting a law declaring the state's goal to eradicate hydrilla before it could become a widespread nuisance. This approach has limited the number of infested water bodies to just 30 over the last 28 years, and the plant has been eradicated from 2/3 of these. The state will *never* be able to declare victory, but it is limiting the spread and severity of the problem.

Preventative Steps

Hydrilla is difficult to prevent and control. Because broken fragments of hydrilla can reproduce and thrive, complete removal of the plant is imperative to keeping it under control. Viable hydrilla fragments make harvesting the plant with large mechanical harvesters difficult. States' prevention plans for the spread of hydrilla are currently based on several concepts.

- Keeping hydrilla out through information, education, monitoring and control of infected water bodies.
- Controlling hydrilla populations while they are still small by harvesting with divers.
- Controlling large infestations of hydrilla with herbicides or biological control agents. Some herbicides are reasonably selective for hydrilla but must still be used with extreme care to minimize the impact upon native plants and the ecosystem.

Michigan is trying to prevent hydrilla from invading our water resources and harming our economy and ecosystems.

You can help by:

1. Joining the hydrilla hunt (to find out how to participate go to www.miseagrant.umich.edu/ans).
2. Making sure that you follow good invasive species prevention practices when moving your watercraft or other water recreation gear from one body of water to another. More information can be found at www.protectyourwaters.net.
3. Requesting that your guests, especially those from infested states, do the same.

History and Origin of Hydrilla

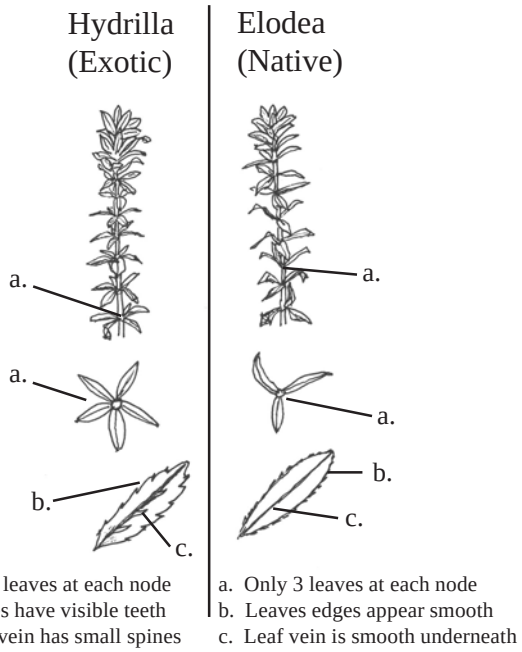
There are two forms of hydrilla: monoecious (plants have both male and female flowers) and dioecious (plants have *either* male or female flowers). Both forms are found in the United States. DNA testing suggests the monoecious strain arrived here from Korea. This is the form that poses the greatest threat to the Great Lakes area. The monoecious form has made its home in several states in the New England region, including Maine, and in California and Washington. Monoecious and dioecious forms of hydrilla now inhabit the waterways of at least 19 states and its presence is increasing to neighboring states.

Characteristics

Hydrilla is a rooted, submerged, aquatic plant capable of growing in water depths up to 20 feet deep where water clarity is good. Its appearance can vary depending on the conditions under which it is growing. Generally, it is rooted to the bottom of waterways, but it can also survive if fragments break loose and free-float. It has long, slim stems that branch out and can form a mat on the water surface covering areas as large as 100 acres or more.

Each stem contains whorls of 3 – 10 leaves that are approximately 1/8 inch wide and ¼ to 3/8 inch long. The edges of the leaves are serrated, giving them a toothed appearance. The leaf may feel rough because of little spines along the under side of the leaf.

Hydrilla is often confused with other aquatic plants, it looks similar to Michigan's native species of *Elodea canadensis* (waterweed) and the nonnative plant, Brazilian elodea.



a. 4 or 5 leaves at each node
b. Leaves have visible teeth
c. Leaf vein has small spines

a. Only 3 leaves at each node
b. Leaves edges appear smooth
c. Leaf vein is smooth underneath

For more information on hydrilla or other invasive species check out the following websites:

www.miseagrant.umich.edu/ans
http://plants.ifas.ufl.edu
http://nas.er.usgs.gov/plants/docs/hy_verti.html

Printed by a GREAT PRINTER

Michigan Department of Environmental Quality
Jennifer M. Granholm, Governor
Steven E. Chester, Director

Funding for this publication was made possible through a grant from the U.S. Fish and Wildlife Service.
Hydrilla and Elodea drawings by Howard Wandell, Michigan State University Extension

Printed by authority of P.A. 451 of 1994
Total number of copies printed: 1000 Total Cost:$ 110.42 Cost per copy: $ .110
Michigan Department of Environmental Quality