Water Column

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Invasive Plants Close Ramps on Two Indiana Lakes

The Indiana DNR took decisive action over the summer to prevent the spread of two invasive, non-native aquatic plants from two infected lakes.

Brazilian elodea (*Egeria densa*) was first found in Griffy Lake near Bloomington in 2004. Brazilian elodea looks very much like a larger, more robust version of its commonly found native relative, *Elodea canadensis* (waterweed). A different, but similar-appearing invasive, hydrilla (*Hydrilla verticillata*), was discovered in Lake Manitou near Rochester this past summer. Figure 1 shows comparison sketches of these plant species. Get to know them so you can prevent their spread in Indiana.

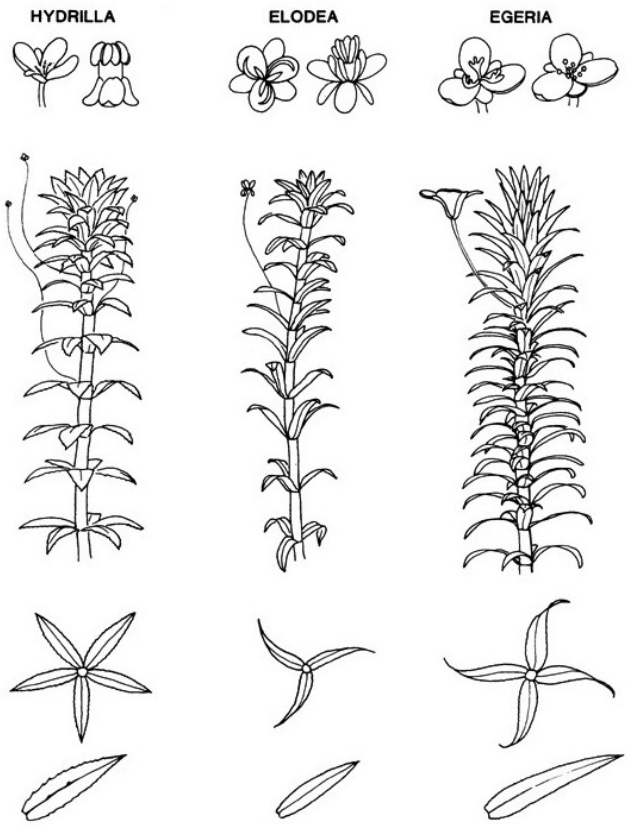

Figure 1. Comparison sketches of hydrilla, elodea (native), and Egeria (Brazilian elodea). (Source: Univ. Florida Center for Aquatic and Invasive Plants)

Brazilian Elodea

Brazilian elodea is a submersed, freshwater perennial herb, generally rooted on the bottom in depths of up to 20 feet or drifting. It is found in both still and flowing waters, in lakes, ponds, pools, ditches, and quiet

streams. It tends to form dense monospecific stands that can cover hundreds of acres and can persist until senescence in the fall.

Brazilian elodea is a popular aquarium plant and can be found for sale in most pet shops, usually under the name Anacharis.

The plant fragments readily and each fragment containing a double node has the potential to develop into a new plant. Plant root crowns also develop from double nodes along an old shoot. When a shoot sinks to the bottom during fall and winter senescence, a new root crown may develop at one or several double nodes along the new shoot. Brazilian elodea lacks specialized storage organs such as rhizomes or tubers and stores carbohydrates in stem tissues.

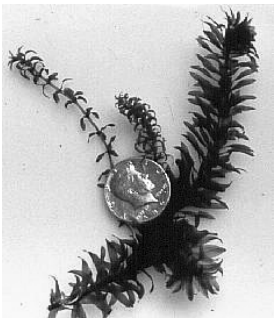

Figure 2. The native elodea (left) is smaller than the non-native Brazilian elodea (right). (Source: Washington State Department of Ecology)

Griffy Lake Treatment. In an effort to prevent the spread of Brazilian elodea from Griffy Lake to other waterbodies, the Bloomington Parks and Recreation Department, the city agency that manages the reservoir, closed the public ramp to private boats on June 7, 2005. The City initially desired to use winter drawdown to control this tropical invader but they couldn't get DNR approval.

Griffy Lake was treated with the systemic aquatic herbicide, fluridone, in April 2006. Additional herbicide was added several times during the summer to maintain an effective killing dose and the lake was treated again as late as September 19 after viable fragments of Brazilian elodea were found.

Griffy Lake will be treated again in 2007, reportedly for a longer time, in an attempt to rid the lake of Brazilian elodea for good.

The dose needed to affect Brazilian elodea was high enough that it was expected to kill all aquatic plants in the lake. Subsequent plant surveys in Griffy during the summer only found fragments of the native species coontail (*Ceratophyllum demersum*) and the emergent, waterprimrose (*Jussiaea repens*).

Hydrilla

Hydrilla has a similar growth form as the native waterweed and Brazilian elodea but hydrilla has groupings of five leaves and each leaf has a serrated edge. Hydrilla can grow at far lower light conditions than other submersed aquatic plants. This low light tolerance allows hydrilla to colonize deeper water that has traditionally been weed-free.

Hydrilla can reproduce by four different methods: seeds, fragmentation, turions, and tubers. Seeds are a very minor form of the plant's reproduction. Fragmentation is a method of long distance dispersal. Just a half-inch sprig of hydrilla transferred to another body of water can form a new population. Turions are dormant buds that form on the stems of the plant and then drop to the sediment. Tubers form on the roots. Both tubers and turions can remain dormant in the sediment for a few years before germinating.

If left unchecked, hydrilla can displace native aquatic plants, change the ecosystem, reduce recreational opportunities, and cause property values to drop. For all of these reasons, hydrilla has been declared a federal noxious aquatic plant.

Lake Manitou treatment. In response to the discovery of hydrilla in Lake Manitou, the boat ramp was closed to all outside boats this past summer to help prevent the spread of this very invasive plant. DNR has inspected all lakes with public access within approximately one-half hour of Rochester and has not detected hydrilla.

In mid-September, 20 acres of Lake Manitou were treated with Komeen (chelated copper) and had very good success in the areas treated. At the time of the application, the two areas treated were the most heavily infested areas DNR had discovered. One of the most important areas treated was near the outlet, since by killing the hydrilla in that area, DNR hoped to reduce the amount of hydrilla flowing over the dam. Since that treatment, DNR has found a few more areas with dense hydrilla and many areas of scattered plants in the northern basin of the lake. The Komeen treatment was very effective in the two areas treated, but the problem will return in these areas due to hydrilla tubers being present in the sediment (Doug Keller, personal communication).

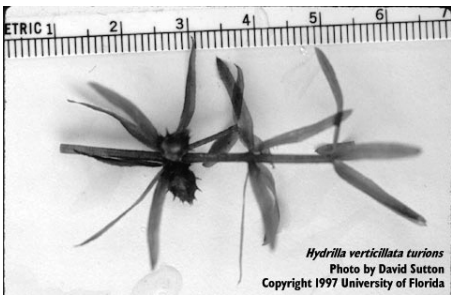

Figure 3. Hydrilla fragment showing turions in leaf axils. (Source: Univ. Florida Center for Aquatic and Invasive Plants)

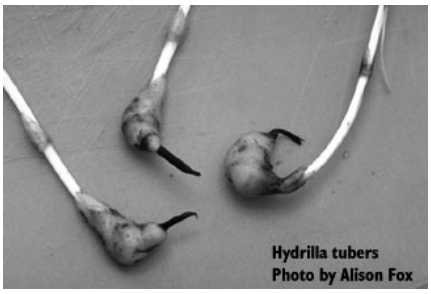

Figure 4. Hydrilla tubers. (Source: Univ. Florida Center for Aquatic and Invasive Plants)

With sufficient funding, DNR plans a more extensive program in 2007. There could be more Komeen used, but fluridone will be the "work horse" herbicide used. Hydrilla is very easy to kill with a low fluridone dose so much of the native vegetation should remain healthy. Unfortunately, fluridone does not have an effect on the dormant tubers lying in the sediment. Therefore, to achieve complete eradiation, multiple years of fluridone treatment is necessary to kill the plant material as the tubers sprout. The DNR plans include intensive sampling throughout the project to monitor for hydrilla tubers.

In the meantime, DNR is working with other states, federal agencies, and aquatic herbicide companies to formulate a plan to eliminate hydrilla from Lake Manitou. The boat ramp remains closed.

Prevention of Aquatic Nuisance Species

The hydrilla found in Lake Manitou is the second confirmed case in the Midwest (the first being Iowa). The Brazilian elodea found in Griffy Lake is the northernmost site where this species has been found. How did they get there? All evidence likely points to human actions.

We don't know for certain how hydrilla first was introduced into Lake Manitou, but it is believed that Griffy Lake became infected with Brazilian elodea from a person or persons emptying an aquarium into the lake. Bright-colored aquarium gravel is seen all too frequently next to the boat ramp.

Here are some preventive measures everyone needs to take:

1. Remove any visible mud, plants, fish, snails, or other animals before transporting equipment, especially, but not limited to, boats and trailers. Common places to find plant fragments include boat trailer bunks, rollers, axles, and fenders. Plant pieces are also found on the boat floor or propeller.
2. Eliminate water from equipment before transporting.
3. Clean and dry anything that came into contact with water (boats, trailers, fishing gear, clothing, dogs, etc.)
4. Never release plants, fish, or animals into a body of water unless they came from *that* body of water in the first place.
5. Replace invasive and other non-native plants in your yard with native species.
6. Make certain that products bought and delivered through the mail are from reputable companies that have their shipments inspected.

For more information:

http://www.in.gov/dnr/fishwild/fish/ais/brazil.htm

http://www.in.gov/dnr/invasivespecies/

http://www.protectyourwaters.net/

http://www.ecy.wa.gov/programs/wq/plants/weeds/aqua002.html

ILMS Small Grants Program

The Indiana Lakes Management Society Small Grants Program continues to fund watershed projects around the state. Our program, which started three years ago and runs through 2008, has funded 15 projects to date. We offer small grants to qualified organizations, thanks to a Section 319 Grant from the Indiana Department of Environmental Management. Our goals with this program are to support active lake associations and to help establish new lake or similar associations.

Uses for grant funds could include:

- Education and outreach to local lake communities
- Promotion of lake associations
- Reduction of boating impacts
- Identification and management of watershed issues
- Volunteer water quality monitoring and associated equipment purchases
- Other similar efforts

NOTE: Funds cannot be used as match for other grant programs

We have already completed several funding cycles, and are excited about the projects that have been approved. Chapman Lakes Association used ILMS funds to help expand the educational efforts of the annual Lake Learning Expo. The LaGrange County Lakes Council used ILMS funds to organize an outreach program. We have also helped fund on-the-ground work such as streambank stabilization projects on Putney Ditch (Barbee Lakes) and Carpenter Drain (Crooked Lake). Two projects used ILMS funds to establish or expand water quality monitoring efforts in LaGrange County and in the Valparaiso Chain of Lakes Watershed. Wetlands have been restored at Loon Lake and Lake Maxinkuckee. Projects currently underway include a bioretention filter at Eagle Creek Reservoir, water quality monitoring at Prairie Creek Reservoir, an educational outreach effort in the Valparaiso Chain of Lakes Watershed, construction of a fish barrier to bar carp from entering Lake Gage and Lime Lake,

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and construction of a pervious concrete parking lot adjacent to Lake James.

The Indiana Lakes Management Society invites your organization to apply for our 2007 funding cycles. The deadlines for the spring, summer, and fall 2007 funding cycles are February 1, May 1, and July 1. Please note that payment will be made in arrears and that we require a 25 percent cash or in-kind match. The maximum grant award is $5,000.

We encourage you to get creative! We are open to new ideas and will consider all kinds of projects. If your organization has been thinking of starting a project on your lake, now is the time! This is also a great opportunity to organize a lake association to help protect and enhance the lake you love.

For more information on how to apply, please contact Andi Pierce at 317-852-4188 or **ilmsgrants@indianalakes.org** or log on to **www.indianalakes.org**.

Got a question about your lake? Or lakes in general? Or about something you've read? Write to us at the WaterColumn and we will do our best to answer it.

Lamb Lake Association Implements Septic System Evaluation

The Lamb Lake (Johnson County) Lot Owners Association has implemented procedures for regular inspection of all single household septic systems in use that would drain into the lake should they fail.

The procedures require all septic systems to be evaluated at least once each five years based on a rotation schedule. The costs of evaluations are at the lot owner's expense and must be completed by a licensed professional or company approved by the Board of Directors. Should the evaluation reveal any deficiency, the lot owner is required to take immediate corrective action. A report of completed repairs shall be filed with the Association within 90 days.

The septic system inspection includes evaluating the physical structure of the tank, baffles and lid; measuring the water level and the sludge level; inspection of the absorption field for wet spots and odors; and doing a dye study where dye is introduced into the tank and an observer looks for any trace of the dye on land and along the lake edge.

On a related note, the U.S. EPA's National Small Flows Clearinghouse has a very informative web site that contains a wealth of information about septic systems. The URL of this site is: **http://www.nesc.wvu.edu/nsfc/nsfc_septicnews.htm#recordkeeping**.

Have you checked out the Indiana Clean Lakes Program Web page lately?
Take a look at http://www.spea.indiana.edu/clp/
and see what's new and happening with the program and with Indiana lakes!

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