

Fighting Eurasian Watermilfoil in Wisconsin

by
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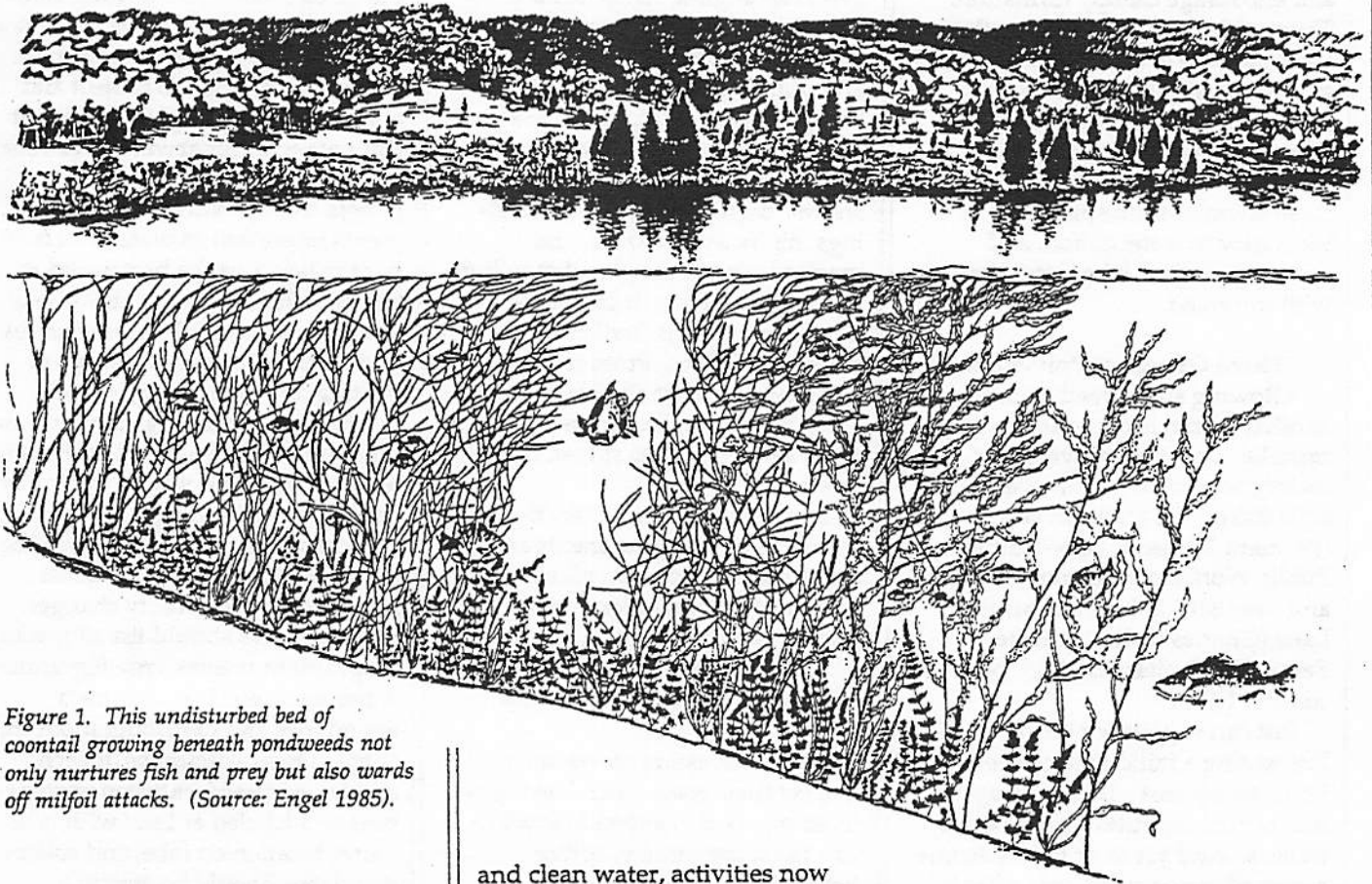


Figure 1. This undisturbed bed of coontail growing beneath pondweeds not only nurtures fish and prey but also wards off milfoil attacks. (Source: Engel 1985).

Wisconsin has declared war on Eurasian watermilfoil (*Myriophyllum spicatum*). After spreading across North America for two decades (Couch and Nelson 1985), this underwater superweed hit southern Wisconsin in the 1960s. Within 20 years it claimed 54 lakes in 26 southern counties. Since 1987 it has spread north into 13 more counties and now grows in at least 75 lakes statewide.

This recent spread across northern Wisconsin has folks here worried and lake managers preparing battle plans. The state's tourist industry depends on good fishing

and clean water, activities now threatened by watermilfoil. And yet with thousands of Wisconsin lakes, the fight against superweed has only begun.

Keys to Success

Our's is a war against shoots and stolons. Watermilfoil shoots break off and drift downstream to new waters. Others attach to objects—boats, trailers, motor propellers—and so travel roads to new lakes. When such fragments take root, a pioneer colony forms and becomes the focus of spread within a lake. One key to fighting superweed, therefore, must be to keep these

fragments away from new waters or to remove them before they form roots.

Pioneer colonies spread by stolons—runners that creep along the lake bed claiming territory inch by inch. Along these stolons new shoots sprout that in turn produce fragments. Disrupting native plant beds—by speed boating, plant harvesting, or using herbicides—can open even more sites for creeping stolons. Some believe a dense mat of stolons can keep native plants from reclaiming these sites. And so a second key to fighting superweed,

must be to remove pioneer colonies before they spread by stolons or shoots.

Fighting back means reclaiming lakes as well, lakes long dominated by superweed. By wintering as green shoots, by sprouting soon after ice-out (when ice melts in Spring for you southern folks), and by leafing out on the water surface (Engel 1990a), superweed can beat the competition and form dense beds that shade native plants and stop speeding boats. Water turbidity even seems to lengthen shoots and encourage canopy formation. Thus a third key to managing these lakes must be to control canopy growth and plan better lake use.

So we must fight back on three fronts: prevent initial colonies in lakes still without watermilfoil, keep these colonies from spreading in lakes new to watermilfoil, and reduce growth in lakes long choked with the weed.

Three Ounces of Prevention

Allowing superweed to claim yet another victim lake can be a costly mistake. Last year harvesting mainly watermilfoil cost over \$250,000 on the Madison lakes (Kenneth J. Koscik, Dane County Public Works, pers. comm., 1992) and over \$100,000 on Pewaukee Lake (Charles R. Shong, Lake Pewaukee Sanitary District, pers. comm., 1992).

But can superweed be kept out? Preventing a milfoil attack seems hopeless against a flood of fragments hitching rides on boats and trailers. And yet most folks become aware of watermilfoil only after it has already colonized their lake. They have little chance to prevent a milfoil attack . . . unless they stay alert.

Preventing a milfoil attack will take a triple defense: a public vigil against weed fragments at boat landings, a commitment to protect native plant beds from speed boaters and indiscriminate plant control, and a watershed management program to keep nutrients from reaching lakes and stimulating milfoil colonies.

Sounding the Alarm

Preventing a milfoil attack in Wisconsin will take an informed and determined citizenry, organized for an all out milfoil alert. Such an alert must consist of a media campaign to tell others about superweed, a weed watch to patrol shorelines, someone to properly identify pioneer colonies, and a plan of attack.

Media campaigns against watermilfoil have worked in British Columbia, Minnesota, New York, and Washington. They include pamphlets, signs, press releases, articles, radio and television spots, and public talks (Engel 1989). Pamphlets can be handed out at bait shops, boat landings, diving shops, lake fairs, state parks, and water shows. Signs posted at boat landings, highway rest areas, and marinas can tell people what milfoil looks like and how it can be removed from boats, trailers, and motor propellers. Press releases and newsletter articles can help lake associations, angling clubs, and other service groups spread the word.

Some states even outlaw the transport of weed fragments and require people to clean plants off boats and trailers before using public waters.

Such campaigns must be aimed at lake managers as well as lake users.

Plant harvesting crews must inspect their boats when leaving or entering lakes. Herbicide applicators must use more selective herbicides and use them judiciously. Nurseries that sell aquatic plants must raise native plants and not rob them from lake shores. Even fish management crews must inspect their boats and nets for shoot fragments.

A weed watch should be organized to patrol shorelines by foot and boat every few weeks during the growing season (De Steno and Larson 1990; De Steno 1992). Assigning at least two people to watch each shoreline can avoid absentee and morale problems. A watch supervisor able to identify Eurasian watermilfoil will be

needed to advertise for volunteers, schedule watch teams, and respond to milfoil sightings. Look for milfoil fragments after summer weekends, especially on downwind shores and around boat piers.

Citizen volunteers should target marinas and public landings—ports of entry for milfoil fragments. Here boat cleaning stations can be staffed to help boaters remove weed fragments before entering or leaving lakes. Here, too, citizens can broaden their support through public education about watermilfoil.

But speakers and spotters are not enough. A lake management plan must be developed to protect and even restore native plant beds that compete with superweed. Wisconsin law (s. 29.54) already prohibits people from picking native aquatic plants important as waterfowl food, but the law must be broadened to protect other native plants. A lake plan should set aside habitat zones and keep them away from speed boating, herbicide spraying, and mechanical harvesting. Such zones might need to be planted with native seeds, tubers, and shoots to improve habitat diversity (Engel 1988).

Aquatic plant surveys should be conducted in summer, to assess future plant community changes. These surveys should list all macroscopic plant species growing underwater and describe each one's abundance and distribution out from shore. Dried specimens of each species—pressed between newspapers and labeled at least with lake name, location on lake, and collection date—should be sent to a recognized herbarium for future reference. Such surveys might even reveal superweed.

A watershed management plan must be developed as well, to retard soil erosion and runoff that add unwanted nutrients to a lake. Such nutrients can collect in lake sediment and someday fuel explosive growths of superweed.

Slowing the Spread

Should Eurasian watermilfoil penetrate a milfoil defense, pioneer colonies are likely to spread. Before they get out of hand, though, its time

to get tough with SWAT—Shoreline Weed Attack Teams (Engel 1992).

Folks on some Wisconsin lakes already use SWAT to remove trash and debris from beaches, to cleanup after storms, and to fix piers. Now SWAT can swoop down on identified pioneer colonies, removing shoots with roots. Hand pulling means wading, snorkeling, or SCUBA diving after milfoil colonies. Such teams should form early in summer and stay on call so little time is lost when weed watchers find new colonies. A Minnesota lake management company even advertises:

“A team ready to travel anywhere on a moment’s notice for the purpose of eradicating pioneer infestations of Eurasian watermilfoil with SCUBA-assisted hand removal.”

Use hand pulling for colonies under 0.75 acres (Steve McComas, pers. comm.) or less than 100 plants (Madsen et al. 1989). Weed watchers should mark each identified colony with buoys to warn boaters away. Take care to remove roots and keep shoots from breaking apart during removal. Sites away from boat traffic can then be covered, under state permit, with burlap to prevent further sprouting at the site.

Larger colonies can be covered with fiberglass screen, vacuumed with a suction dredge, or treated as a last resort with a herbicide. These techniques require a state permit as well.

Bottom screens, anchored firmly against the lake bed, kill grown shoots and prevent new sproutings,

but must be removed each fall for cleaning off sediment that encourages rooting (Mayer 1978, Perkins et al. 1978, Engel 1984).

Pellets of 2,4-D can be inserted beneath these screens or through the water. This herbicide can drift onto native plant beds, but is more selective for watermilfoil than other broader-spectrum herbicides.

A diver-operated suction dredge can vacuum up weeds. It consists of a centrifugal jetting pump to lift dredge spoils into a wet well, where plants and debris are separated from lake water. But the technique can destroy native plants nearby and temporarily raise water turbidity.

These control sites can become customized management zones, sites dedicated not just to routing milfoil colonies but to building diverse and beneficial plant communities. Colony removal, for example, can be followed by planting native plants to stabilize shorelines against wave action, build nurseries for fish fry, and attract waterfowl. Imagine a milfoil shoot trying to land in a forest of native pondweeds and coontail (Fig. 1).

Reclaiming Milfoil Lakes

SWAT and Weed Watch come too late for lakes already choked with superweed. With milfoil growth at times exceeding an inch per day, heavy artillery will be needed. And that means mechanical cutters and harvesters. But these machines create shoot fragments that aid watermilfoil spread and open areas for invading plants (Engel 1990a, 1990b). That’s why they should be used only after milfoil colonies have

become widespread.

Mechanical cutters and harvesters can open areas for boating and swimming, form fish cruising lanes across dense stands, and even encourage spread of native plants by removing milfoil canopies that cast shade (Fig. 2). Cutters work best inshore, where they assist hand pulling and bottom screening. Harvesters work best offshore, where they have room to turn. Both machines can assist SCUBA divers to improve angler access through dense foliage. Offshore and inshore areas, therefore, need not be managed alike.

Learning to live with Eurasian watermilfoil is sometimes the best strategy. Continual disturbance by boating, harvesting, and herbiciding could maintain superweed. It has even declined on its own in some lakes after a decade of nuisance growth

Stay on Alert

Citizens are the cornerstones of any struggle against Eurasian watermilfoil. But preventing or controlling superweed is a lifetime commitment. That means staying alert to new ways of fighting Eurasian watermilfoil, such as *Lake Call*, for citizens to telephone new sightings, and *Lake Inform*, for experts to explain more about lakes and their proper management (Engel 1992).

Citizens must also stay alert to outmoded ways of fighting watermilfoil, ways that destroy all plant life. Wisconsin discourages whole lake treatments with herbicides because of potential impacts to nontarget plant communities, and outlaws grass carp, because they disrupt whole ecosystems by wiping out both exotic and native plants. Why destroy your lake ecosystem just to score against milfoil?

Wisconsin’s Aquatic Plant Management program (Wisconsin

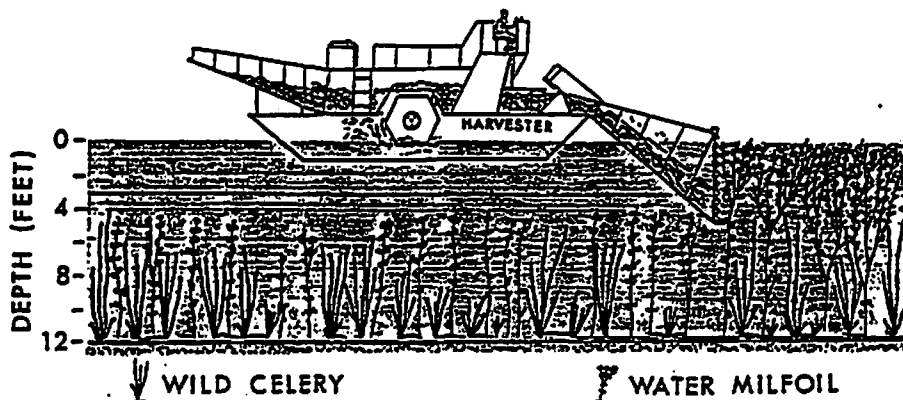


Figure 2. Mechanical plant harvesters can remove bushy canopies of Eurasian watermilfoil that shade underlying native plants, such as these grasslike wild celery. (Source: Engel 1987).

Administrative Code NR 107), which regulates aquatic herbicide use in the state, stresses a judicious approach to weed control. This program leaves room for native plant communities and recognizes their benefit to fish and wildlife.

Both citizens and lake managers can stay alert by working together on a lake management plan, one that not only prevents and controls Eurasian watermilfoil but also improves lake use for people and aquatic life. Such a plan can integrate diverse plant control options and guide their judicious use. Working together, citizens and managers can lick the milfoil menace.

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