Aliens invading North Woods lakes

Eradication, education, prevention being used to fight exotic species

Invasive aquatic species are a growing threat to water quality and economic vitality in North Woods lakes and streams, evidenced by an onslaught of newly infected waters in the last three years.
“Invasive aquatic species are plants and animals released, accidentally or intentionally, into areas where they are not native," said Patrick Goggin, Vilas County conservationist.
Goggin said such introductions often occur through human activities, like the emptying of bait buckets or aquarium plants into local water bodies.

"Invasive aquatic species are free from natural predators, parasites, pathogens, and competitors that limit their numbers in their native environment," said Goggin. "When introduced, they out-compete beneficial native plants, spread rapidly, and interfere with navigation."

The list of Vilas and Oneida county lakes infested with Eurasian water milfoil (EWM) has nearly doubled since 1999. Milfoil is now present in 18 lakes in Vilas, including much of the Eagle River Chain. Goggin said the plants of particular concern are EWM, curly-leaf pondweed and purple loosestrife. He said they are target of several natural reasouces agencies and various lake groups. He said the problematic plants have become the target of education outreach, to heighten public understanding of the harmful effects of nonnative species.

"This summer in cooperation with DNR, UW-Madison Trout Lake, various lake groups, and others, we've trained nearly 100 additional invasive species monitors in Vilas County", stated Carolyn Scholl, Vilas County lake conservation specialist.
Scholl said it’s essential that people report the presence or absence of these problem species to aquatic plant management staff at the Department of Natural Resources (DNR) or county Land and Water Conservation Department (LWCD).
"People helping to detect and report new infestations are vital for preventing the spread of invasive aquatic species," said Scholl.

Water milfoil
Eurasian watermilfoil (*Myriophyllum spicatum*) is an exotic aquatic plant that was introduced to North America between the late 1800s and the early 1940s.
While it occurs in almost every U.S. state, Goggin said it is especially weedy and difficult in the northern tier of states and in Canada, where it fills recreation and fishing lakes, interferes with wildlife and degrades water quality.

"This underwater plant usually grows in lake water 1 to 4 meters deep," said Goggin. "It can grow in a variety of sediments, but is most productive in fine-textured, inorganic sediment."
He said it also grows in low light conditions and high water temperatures, forming a dense canopy of vegetation.

"The plant has long, spaghetti-like stems, sometimes 2 or more meters in length, that emerge from roots and rhizomes," said Goggin.
He said its leaves are divided like a feather, with a short stalk and about 14 to 20 pairs of threadlike leaflets - distinguishing it from seven native water milfoils in the state.

"The problem with EWM is that it begins growth in early spring before most natives, quickly growing to the surface, forming large, heavy, floating mats of vegetation," said Goggin. "These mats obstruct water traffic and prevent light penetration necessary for the growth of native aquatic plants, displacing and reducing natural diversity."
According to Goggin, Eurasian water milfoil also has less food value for waterfowl than native plants.

“While fish may find the cover a temporary advantage, it eventually becomes a disadvantage as the dense mats result in degradation of the abundance and diversity of invertebrates necessary to support the food chain,” he said. “The dense growth may also cause reduced dissolved oxygen levels from decaying mats of vegetation.”

Vilas County has 18 lakes currently infected with EWM and Oneida County has several as well,," according to Laura Herman, aquatic plant management specialist with the DNR in Rhinelander.
A variety of techniques have emerged for controlling Eurasian water milfoil populations on Wisconsin's lakes. These techniques include mechanical cutting and harvesting in open areas, limited use of herbicide treatments and more recently, the introduction of weevils (*Euhrychiopsis lecontei*) as a biological control agent.
However, eradicating established infestations of EWM is nearly impossible. Goggin believes that public detection and reporting of new infestations is critical for preventing their spread.

Curly-leaf pondweed
Curly-leaf pondweed (*Potamogeton crispus*) is an exotic plant that forms surface mats that interfere with aquatic recreation.
The plant usually drops to the lake bottom by early July.
"Curly-leaf pondweed was the most severe nuisance aquatic plant in the Midwest until Eurasian water milfoil appeared," he said. “It was accidentally introduced when common carp were stocked in North America.”
He said there are currently three lakes in Vilas County infested with curly-leaf - Johnson, Kentuck, and Little St. Germain.

"Curly-leaf is usually found in soft sediments in water ranging from less than a meter to several meters deep," said Herman. “It can tolerate low light and will grow in turbid water.”
Goggin said the cool-water adaptations of curlyleaf set it apart from other invasive aquatic plants.
"It can grow under the ice while most plants are dormant, but dies back in early July when other aquatic plants begin to peak," he said. This midsummer die-off creates sudden loss of habitat and releases nutrients into the water column that can trigger algal blooms and create turbid water conditions on a lake.”

Its wavy leaves with fine-toothed edges make it appear "crispy". Curly-leaf also produces vegetative buds called turions that look like mini pine cones on shortened branches along the stem.

Goggin said selective control of curlyleaf is often needed where the protection and restoration of native aquatic plant species can lead to a balanced community and improved water quality. Long term management of curlyleaf pondweed requires the reduction or elimination of turions. Small stands can be hand pulled before turions form.

Purple loosestrife
Purple loosestrife (*Lythrum salicaria*) is a beautiful but aggressive invader, a perennial plant that is spreading rapidly in North American wetlands, shorelines, and roadside ditches.
Thick stands of it crowd out native plants and reduce food, shelter and nesting sites for wildlife, birds, turtles, and frogs.
"After multiple introductions in the 1800s from bee keepers, as an ornamental plant, and in discarded soil used as ballast on ships, this European species has invaded nearly every U.S. state and at least six Canadian provinces," said Goggin.

It has a dense bushy growth of up to 50 stems. It has angled stems, four- to six-sided sided, and long, spiked, pink to magenta flowers.
According to Cathy Cleland, coordinator of the DNR purple loosestrife program in Rhinelander, each flower can produce some 90 seeds and the multiple spikes on a bushy plant can result in thousands or even over a million seeds.

She said the plant has a large, woody taproot that forms a dense mat. It can be confused with its smaller native cousin, the wing-angled loosestrife found in many moist prairies or wet meadows.

By Wisconsin law, purple loosestrife is considered a nuisance species and it is illegal to sell or cultivate the plants or seeds. This plant can adjust to a wide range of environmental conditions and reproduces rapidly by seed and root or stem fragments.
“Over time, purple loosestrife can overrun large wetland areas, entirely eliminate shallow water habitat, and choke recreational waterways,”said Goggin. "Currently we have 20 or so lakes infested with purple loosestrife in Vilas County.”

Cleland said prevention is the easiest control method and the best method to stop the spread of purple loosestrife.

"By monitoring your local wetland areas and shorelines annually and removing any new young plants before they set seed, you can limit the spread of this nasty invader," said Cleland.

In addition, leaf-eating beetles of the Galerucella species are being used successfully to control purple loosestrife in Wisconsin. The introduction of these biocontrol insects is not intended to eradicate the exotics completely, but will significantly reduce their impacts to wetland and lake systems.
For more information on biocontrol using these beetles check out the Wisconsin Wetlands Association (WWA) home page at < http://www.wiscwetlands.org/ >.

For anyone interested in more information on purple loosestrife prevention and control efforts, on July 29th at the Lincoln Town Hall Community Room, a cooperative workshop between WWA, Vilas LWCD, and DNR will be offered at 7 pm. Call Patrick at (715)-479-3747 for more information on the workshop.

Prevention
Transporting invasive aquatic plant fragments or seeds on boats, trailers, and in livewells is the main introduction route to new lakes and rivers.
Mandy Beall, aquatic invasives education specialist with the DNR and UW-extension said, people *can* make a big difference in maintaining the quality of Wisconsin lakes and rivers by learning to identify invasive aquatic plants. She encourages folks to learn what invasive species look like and teach others. The DNR distributes colorful, informative watch cards/wildcards of these invasive aquatic species to help people learn how to recognize them.

"Vilas County LWCD is developing educational library packets on invasive aquatic species that contain videos, CD-ROMs, brochures, fact sheets, etc., to help lake groups and educators tackle these problematic species," said Goggin. "Packets will be delivered to our Vilas County area libraries sometime in August.
The department also has various signs on invasive aquatic species developed by the DNR that are available to area lake groups.

Additional ways people can make a difference include rinsing their boat and equipment with high-pressure hot water and if possible let it dry out thoroughly for at least 5 days.
Other tips include:

- Remove aquatic plants, seeds, and mud from equipment, clothing, and footwear.
- Dispose of unwanted bait in the trash, and drain lake or river water from your livewell and bilge.
- Avoid planting seed mixtures containing purple loosestrife.
- Distribute warning flyers and educational materials to purchasers of fishing licenses via your local bait dealers and fishing guides.
- Report new sightings--note exact locations; wrap a plant fragment in a wet paper towel, place in a sealed plastic bag; and bring the specimen to your area DNR aquatic management staff or local Land and Water Conservation Department for clear identification.

Another opportunity, the "*Clean Boats, Clean Waters*" training program, is designed to establish volunteer monitoring programs for invasive aquatic species. It trains, guides, and supports volunteers along the way.

These training sessions are being scheduled at convenient locations statewide; stay tuned to the Vilas County Land and Water Conservation Department for future dates and times of training sessions. People can contact UW-Extension Lakes at (715)-346-3366 for more information.