



Reasonable Expectations

Practical advice and positive directions to recognize and minimize the consequences of invasive species.

Julia Solomon

If another article about the perils of plant and animal invaders makes you sigh, shake your head, and skip to the next story, you're not alone.

Invasive species have received a lot of press in the past few years, most of it bad and some downright alarming. From the emerald ash borer to the Asian carp to the giant hogweed, it seems there is always a new monster lurking at the borders just waiting for the chance to wreak havoc on our beloved woods and waters.

It can be tempting to tune out all this bad news and assume the problem will go away, that someone else will fix it, or worse, that it's hopeless. Each one of these assumptions is understandable, but none is accurate, and none brings us any closer to a solution.

It's time for an honest look at the reality of invasive species in Wisconsin, and examining these assumptions is a good place to start.

Won't invasives just go away?

The short answer: no. A variety of factors, from global commerce to climate change, are making it ever easier for organisms to move around and find new homes. The rate of species introductions has accelerated in recent decades and increasing numbers of non-native species are becoming established in Wisconsin.

Scientists call this "biotic homogenization"—the global mixing of plants and animals from around the world. Over the millennia, each region of the world evolved its own unique flora and fauna. But now that people and goods move around more quickly and freely than ever before, remote places are no longer so isolated. It is not unusual for species to jump from one

continent to another, much less across state lines. Some are carried intentionally, as new landscape plants or sport fish. Others come in as hitchhikers in wood products, forage, soil or boating equipment.

This number of jet-setting species is likely to increase, which means those doomsday headlines about the next big invader are probably going to keep coming. Even if we figure out ways to control today's invasive species, there will likely be more arriving tomorrow, dumped from the ballast water of ocean-going ships, swimming up a manmade channel, or creeping up from southern states as the climate becomes warmer.

Once they are here, invasive species are difficult - often impossible - to eradicate completely. Unfortunately, the problem of invasives is here to stay.

This fact, though sobering, should not be cause for despair. Yes, we are in for a long haul. No, there are not likely to be miraculous quick-fix solutions. And, yes, these unwelcome guests will affect Wisconsin's environment - indeed, they already have. But those impacts do not need to be catastrophic. Not every lake, forest or bog is destined to be overrun. With diligent monitoring and containment, many of our ecological gems can be protected.

Strategic investment in prevention, early detection,

Invasives won't go away, but with effort and vigilance they can be controlled.

Photo by Frank Koshere





and control of invasive species will help the natural and human communities of Wisconsin adapt to the reality of life in the biotic fast lane. We can learn to live with some inevitable changes while preserving what we love.

Isn't it somebody else's job?

Investment is a loaded word. It means not only money, but time: hours spent pulling garlic mustard from a neighborhood forest, inspecting trees for new pests, cleaning zebra mussels off drinking water intakes. It also means devoting dollars to everything from scientific research to signs at boat launches and state parks.

Confronting the reality of invasive species is a daunting task—surely there is someone who is responsible for dealing with the problem? There is, and it is all of us.

It's easy to place blame for invasive species and there's often a lot of finger-pointing when these organisms are discovered: We have invasive plants in our lakes because visiting boaters bring them in. Emerald ash borers arrive on firewood visitors brought from other states. New species arrive in the Great Lakes because federal ballast water regulations aren't strict enough. Scientific researchers should come up with more effective methods of control. The cost of invasives should be borne by the town, the state, the federal government, not by outdoor users.

Whether or not these claims are true, they miss the point. Invasive species are a long-term, large-scale problem that will not be solved by pointing fingers. True solutions will require many partners, substantial funding, and, yes, a lot of volunteer hours. It's an investment we will all have to make. Government officials, resource managers, researchers and local citizens all have a role to play.

What's the use?

In some ways, this is the easiest question to



True solutions to the problems caused by aquatic invasive species will require many partners, substantial funding, and a lot of volunteer hours. It's an investment we will all have to make.
Photo by Frank Koshere

answer. Throwing up our hands in surrender will not slow the spread. Keeping invasive species at bay can be costly and tiring, but when your back aches from pulling buckthorn, stop for a moment and imagine the alternative.

Wisconsinites share a deep love for our natural places and the native species that make this land feel like home. We will not stand aside to watch our flora and fauna be choked out by invasive species. We cannot afford to. Three of the state's top industries—agriculture, tourism and forestry—all depend on natural resources and are threatened by invaders.

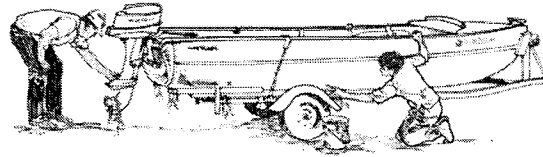
But the reasons for working against invasives go far beyond economics. Rituals such as watching for the first trillium bloom and pulling panfish from a familiar lake are part of Wisconsin culture, and we care about them passionately. Invasive species put these rituals at risk. Ultimately, it is our love of home that motivates citizens and policymakers to confront the problem of invasives with realism, persistence and optimism.

That optimism is not unfounded. As in the rest of life, bad news about invasive species tends to grab the headlines while successes often slip by unnoticed. In these pages you will find stories of the hard work going



on around the state and learn about the progress being made. You'll also find out about the many ways you can help protect Wisconsin's native species.

Take heart, and read on!



Unwelcome Guests, Unwelcome Costs

If you've ever spent the day pulling garlic mustard from your woods or cleaning zebra mussels off the local beach, you know invasive species are a major pain. But did you know they are also a major expense? Invasive species cost the United States an estimated \$120 billion dollars every year (Pimentel 2005). If you're wondering how that's possible, take a minute to think about some of the ways invasive species harm the economy as well as the environment.

- **Prevention** — Governments, private organizations and individual citizens all spend money to prevent the spread of invasive species. Costs associated with prevention programs range from printing educational materials to maintaining high-tech devices like the two-way electrical barrier that keeps Asian carp from moving up the Illinois River into Lake Michigan and Great Lakes invaders from heading downstream toward the Mississippi. Although prevention can be expensive, it is the most cost-effective way to combat invasive species.
- **Control** — Invasive species can be controlled through mechanical methods (removal by hand or machine), chemical methods (herbicides and pesticides), and biological methods (introduction of pests, competitors or other organisms that limit the spread of an invader). Although these techniques can be helpful in keeping invaders in check, they can be costly and labor-intensive. Invasive control is a long-term commitment and often requires repeated effort over many years. Complete eradication of invaders is seldom possible.
- **Equipment damage** — Some invaders, such as zebra and quagga mussels, cause major damage to equipment and facilities. Power plants and water treatment facilities spend millions every year to clean mussels off their water intake equipment. Invasive mussels can also damage recreational watercraft.
- **Lost revenue** — Invasive weeds decrease crop and forage yields. Forest pests harm valuable timber stands. Invasive plants such as honeysuckle, buckthorn and garlic mustard can prevent tree regeneration and reduce growth rates on older trees. In communities that rely on tourism and recreation as an economic mainstay, the presence of troublesome invaders such as Eurasian water-milfoil can devastate recreational resources and decrease tourism, reducing property values or causing local businesses to close.



- **Ecological harm** — It's impossible to put a dollar value on the ecological effects of invasive species, but they are profound. Invasive species compete with — and sometimes consume — native species. They can make it harder for native species to survive, and can cause significant population declines for rare and endangered species. In many cases they reduce the species diversity of the systems they invade. In Wisconsin, hundreds of lakes and millions of acres of land have been altered permanently by invading plants and animals.

- **Health hazards** — Invasive species also pose health risks to humans and livestock. Each year thousands of people are burned when they mow or brush up against wild parsnip. The toxins in this plant interact with skin and sunlight to cause burns that can take months to heal. Zebra and quagga mussels wash up on beaches by the thousands, where their razor-sharp shells are hazardous to beachgoers. Spotted knapweed, leafy spurge, hoary alyssum and other plants can be toxic to grazing cattle and horses.

Making a Positive ID of Bad Actors

Voucher specimens are plant samples that provide physical evidence to confirm that an invasive species is present in a specific location. Botanists examine these leaves, stems, flowers, roots and fruits to verify species identification.

When collecting a fresh specimen make sure you wear gloves as some plant stems and juices contain irritants. Also take detailed and close-up photos showing how widespread the stand of plants may be and close-ups that clearly show plant features like flowers, general shape, seed heads, leaf shape and arrangement. Sometimes close, clear photographs are sufficient to identify plants that have distinctive leaves, flowers and fruits. In photos, place a coin, pencil or ruler for scale. If you can send a specimen and take a photo, all the better.

Fill out a short invasive plant report that pinpoints where the plant was collected, estimates how widespread an area the plant covers and provides a description of the habitat type (forest, field, prairie, wetland, open water, lawn, garden, etc.). The DNR's invasive plants website details information needed in these accounts and provides a reporting form. Visit the website: <http://dnr.wi.gov/invasives/futureplants/reporting.htm>.

To send a dried sample, press the plant specimen carefully between several layers of newspapers sandwiched between sheets of cardboard and weighted down. Change the newspapers frequently until the plant is dry. Ship by enclosing the dried specimen between pieces of cardboard in a large envelope. Fresh plant samples should be enclosed in a plastic bag with a moist paper towel and mailed right away.

Instructions for packaging and shipping fresh plants or dried samples are available from Invasive Plant Reporting, DNR Endangered Resources Program, P.O. Box 7921, 101 S. Webster St., Madison, WI 53707-7921 Email information and photos to: kelly.kearns@wisconsin.gov. You can also get questions answered about voucher samples or look for more details at this link on the DNR's invasive plant website: <http://dnr.wi.gov/invasives/futureplants/voucher.htm>.



Only YOU Can Stop the Invasion

Help prevent the spread of invasive species.

Julia Solomon

Everyone who enjoys the natural treasures of Wisconsin can take steps to prevent the spread of invasive species. Whether your passion is fish or flowers, your actions are a vital part of the statewide campaign to control invasive species.

WHO = Boaters and Anglers

ACTION = Each time you get ready to leave a water body, make sure to:

- ◆ Inspect your boat, trailer and equipment and remove visible aquatic plants, animals and mud.
- ◆ Drain water from your boat, motor, bilge, live wells and bait containers.
- ◆ Dispose of leftover bait in the trash, not in the water or on the land.
- ◆ Rinse your boat and recreational equipment with hot water OR dry for at least five days.

WHO = Aquarium and Pond Owners

ACTION = Do not release any aquatic plants or animals into the environment.

- ◆ If you have unwanted specimens, consider trading with another hobbyist, returning to the retailer, or donating to a school. Make sure that your pond is constructed to withstand heavy rains - overflow can carry organisms from your pond into nearby streams and lakes.

WHO = Campers

ACTION = Leave firewood at home and purchase firewood at or near your campsite location. Look for dry, aged wood that is less likely to contain pests.

- ◆ Burn all wood during your trip - do not leave firewood behind and do not transport it to other locations. Also inspect clothing and equipment for mud and stowaways (seeds, insects, etc.) before leaving your camping area.

WHO = Hunters, Hikers, Bikers, and Horseback Riders

ACTION = Seeds, eggs and other materials can be spread by the tread on your shoes and bike tires, on your clothes, and in your pets' fur, hooves and manure.

- ◆ Try to avoid walking through known populations of invaders and check for mud and seeds



before moving to a new area.

- ◆ Dispose of any hitchhikers in a plastic bag in the trash. Horseback riders can feed their animals weed-free hay and feed for several days before venturing into wild areas.

WHO = Gardeners

ACTION = Use native plant species whenever possible.

- ◆ Contact your local UW-Extension office to learn more about landscaping with natives. Get to know which plants might be invasive and avoid planting them anywhere where they might spread.

WHO = Parents and Educators

ACTION = Teach kids about the environmental damage invasive species can cause.

- ◆ Get kids outside to appreciate Wisconsin's natural environment and involve them in education projects such as raising purple loosestrife biocontrol beetles. Contact DNR outdoor educators to learn more about environmental education opportunities, including Project WET, Project WILD, Project Learning Tree, and the Invaders of the Forest activity guide.

WHO = Waterfront Property Owners

ACTION = Practice good lake stewardship - limit runoff, protect native plants, etc. - to keep your lake healthy and resilient.

- ◆ Work with neighbors to educate lake residents and visitors about ways to limit the spread of existing invaders and avoid introducing new aquatic invaders. Consider participating in Clean Boats, Clean Waters - Wisconsin's volunteer watercraft inspection program. Monitor your lake for invasives, and if any problem species are found, inform DNR lakes staff and work with the agency on control options.

WHO = All Nature-Lovers

ACTION = Learn to recognize your local native plants and animals. Then, be on the lookout for invasive species on your property and in the places you visit.

- ◆ Begin work immediately to contain any new invaders - don't wait until they get out of hand. Early detection is often the key to controlling an invasion.
- ◆ If you think you have spotted a new invader in your area, contact the DNR regional ecologist. When reporting an invasive species, collect a specimen or take a photo and record details such as exactly where and when you found it.