

PATHWAYS OF PREVENTION



**A USER-GROUP GUIDE
TO BLOCKING
INVASIVE SPECIES SPREAD
IN RECREATION AND INDUSTRY**





Funding was provided by a grant from the Great Lakes Restoration Initiative to Timberland Invasives Partnership. Cover and inside photos: PlayCleanGo®

SUMMARY

In the 1950s, with the increasing rise in industry and global movement, it became clear that large numbers of plants and animals were being moved far more quickly than would happen naturally.

Today, as travel and trade expand even further, new modes of introduction, or “pathways,” continually result in new invasive species entering the United States. In most cases, these species do not have predators or pests to keep their populations in check, resulting in rapid infestations. Therefore, to prevent economic and ecological upset, we must take action to prevent them from expanding further.

This guide is organized by user group, such as hiker or hunter or construction worker. So whether you are at work or play, it is easy to find the pathways you use most and learn what you can do to help.

Together, we can Stop The Spread!

Timberland Invasives Partnership

Wisconsin Headwaters Invasives Partnership

Wild Rivers Invasives Species Coalition



We here at Lumberjack RC&D Council are pleased to offer this handy guide designed to help you learn more about how to stop the spread of invasive species. You see, there are guides, and then there are GUIDES! What makes this one different? That's easy... this one focuses on YOU and the different ways you use the land. Organized by user-group, this guide can be used on your morning hike and your afternoon ATV ride. Use it on the trails, in the garden, or on the water. It can even be used by those of you who work outside. It's a friendly guide giving easy tips you can do each time you're outside to help stop the spread of invasive species.

So, next time you're ready to hit the fresh powder, flip to the snowmobile section for tips, or before you head out to catch Norman, check out the angler section.

*Whatever you're doing outdoors,
GO with the Guide!*

Best regards,

Tracy Beckman
Executive Director
Lumberjack RC&D Council



TABLE OF CONTENTS

Our Geographic Focus.....	5-6
Pathways.....	7-8
Pathways Defined.....	9-10
RECREATIONAL	
● Anglers.....	11-12
● ATV & ORV Users.....	13-14
● Boaters.....	15-16
● Campers.....	17-18
● Cyclists.....	19-20
● Gardeners.....	21-22
● Hikers/Backpackers.....	23-24
● Hunters & Trappers.....	25-26
● Paddlers.....	27-28
● Snowmobilers.....	29-30
INDUSTRIAL	
● Construction Crews.....	31-32
● Farmers/Agriculturists.....	33-34
● Forestry & Timber.....	35-36
● Growers.....	37-38
● Road Crews.....	39-40
Top Invasive Species in the Upper Midwest.....	41-48
Hot Tips.....	49-50
Tracking and Reporting.....	51-52
Cooperative Invasive Species Management Areas.....	53-54
Glossary.....	55
Web Resources.....	56
Notes/Just for Kids.....	57
Photo Credits.....	58



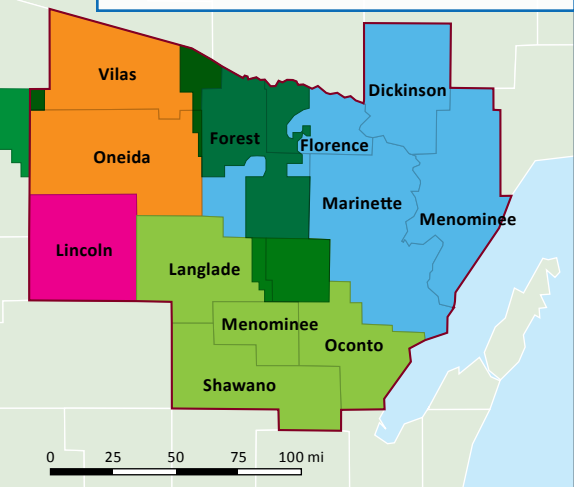


LEGEND

- Chequamegon-Nicolet National Forest
- Great Lakes Watershed - Subbasins
- Project Partner Boundary
- Lumberjack RC&D Boundary
- Lumberjack Coverage
- TIP Management Area
- WHIP Management Area
- WRISC Management Area

OUR GEOGRAPHIC FOCUS

The tourism industry brings thousands of people each year to the Upper Great Lakes Region where they enjoy a variety of recreational opportunities on and around the water. The region is also host to other industries such as timber and shipping. Invasive species can hitch a ride on vehicles, recreational gear, boat hulls, etc., creating pathways to new infestations throughout the Midwest and beyond. These industries, which drive our Great Lakes economies, can suffer the impacts invasive species have on natural resources. Identifying these pathways and preventing the spread is an important component of invasive species management throughout the Great Lakes region.



PATHWAYS

It's true that plants and animals move about the globe naturally, but *not anywhere near* the high rate at which we are witnessing in the 21st century. Understanding how invasive species are spread to new geographic areas is one of the most important ongoing areas of natural resources research.

Instead of studying each plant or animal individually, it is much more cost and time efficient to study their **pathways of spread**. This way, methods can be developed for containing these invasive species in groups, depending on how they typically travel.

Pathways are the processes that introduce a non-native species from one geographical location to



another. By pathway, invasive species can be considered:

- **Contaminants:** Not intentionally transported but arrive as a contaminant of other goods, such as insects that harm agricultural crops.
- **Stowaways:** Arrive independently on vehicles such as organisms transported in ballast water, cargo, and aircraft.

- **Corridor:** Transported using vectors that move along corridors of infrastructure, including cars, trucks, ships, boats, trains, and others.

These pathways affect us differently depending on the type of activities we enjoy. People who spend time outdoors can be organized by **user group**: boaters, hikers, road crew workers, farmers, campers, and many more. These user groups can take lots of precautions to prevent invasive species from spreading, thus “blocking” that pathway.

This guide is organized by user group. Pathways of spread are represented by icons, which are then shown on the user group page they affect. For example, on the ***Hiker/Backpacker page***, we include **firewood** and **transportation** as two important pathways for hikers to consider.

The following page defines the specific pathways of spread more clearly, along with their icons.



PATHWAYS DEFINED

The following terms describe the major ways in which invasive species are spread across our landscape:



FIREWOOD

This pathway refers to cut logs of any type, where many invasive insects can hide out under the bark without being detected.



TRANSPORTATION CORRIDORS

All types of highways, roads, and railways are considered corridors of transportation for invasive species.



SHIPPING CARGO + CONTAINERS

Invasive species sometimes hitch a ride with products being shipped. They have been found in large containers, cargo holds, wooden pallets, and other storage areas.



AGRICULTURE

Invasive plants can spread as contaminants in seed mixes or other farm products such as hay.



BAIT

Releasing leftover fishing bait is a common method of spread for invasive fish and other aquatic problem species.



MACHINERY

Cars, trucks, ATVs, farm equipment, and other machinery can transport invasive plant seeds and parts.



BOOTS AND OTHER GEAR

Invasives can be spread on personal footwear and gear including: packs, tools, tents, clothing, and much more.



PET SHOPS AND DEALERS

Some businesses sell exotic pets that, if released, can grow and spread invasively.

Throughout this guide, these icons will represent the key ways that invasive plants and animals hitch a ride to new locations.





Anglers are often the first to report new species, such as Asian Carp, that can damage waterways.



Zebra
Mussels



Asian Carp



Spiny
Water Flea



Key Invasives for Anglers



ANGLERS



As some of the most dedicated stewards of our waters, those who fish know the lakes extremely well, and are often the first to notice invasive species. Most aquatic invasive species (such as Asian Carp) have no natural predators, and can damage the food chains in lakes. Anglers can help educate others on cleaning gear and properly handling bait. To help prevent troublesome species from invading new waterways, remember the slogan **Clean, Drain, Dry, Dispose!**



ACTION STEPS

Prevent the spread!

- Learn to identify invasive species in the waters you will be fishing.
- Inspect your boat hull, motor, trailer, and fishing gear for debris that might contain invasive insects or plants.
- Dispose of unused live bait (worms and minnows) in trash or compost.
- Keep fish on ice instead of in a live well filled with water.
- Educate others how to limit the spread of invasive species.



Off-road enthusiasts have a special interest in keeping trails open and free of invasive plants!



Spotted
Knapweed



Common Buckthorn



Wild Parsnip



Key Invasives for *ATV* users



ATV & ORV USERS

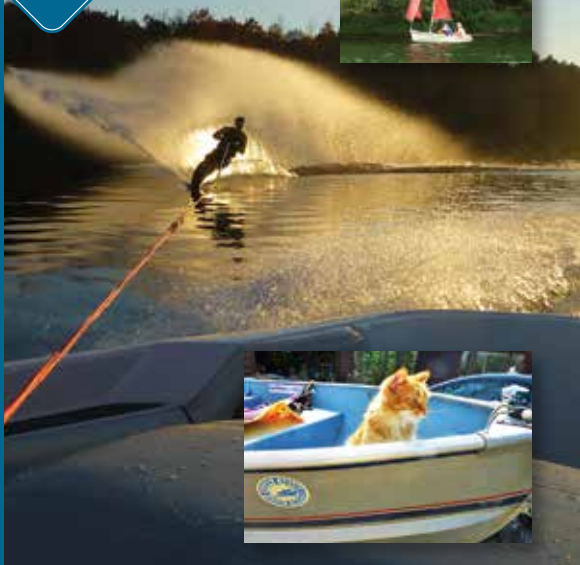


There is a growing number of trail users who ride All Terrain Vehicles and Off-Road Vehicles. These machines get you into the forest, fast! When some rec trails are widened to increase visibility for ATV safety, it can lead to invasive species spreading to new spots further into the woods or fields. With a few simple precautions, we can help ensure access to your favorite spots for years to come. Ride safe and ride clean!



ACTION STEPS *Prevent the spread!*

- Learn to identify invasives in the area you will be riding.
- Clean your ATV and equipment of mud, debris, and plant material before entering the trail.
- Stay on designated paths to keep other lands as natural as possible.
- Use a pressure washer or scrub-brush to clean mud from ATVs before leaving.



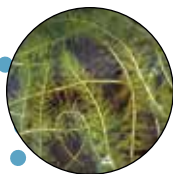
Boaters have a major impact on the numbers of invasive species in the waterways they use.



Zebra
Mussels



Asian Carp



Eurasian
Water-
Milfoil



Key Invasives for Boaters



BOATERS



Our Great Lakes are beloved for boating but oftentimes aquatic invasive species like zebra mussels, spread to new waters by hitching a ride on our boats, trailers, motors, hulls, and other gear. Let's make it our job to protect the lakes and rivers from invasive plants. Inspect your gear and remove any clinging plant material before leaving the launch.



ACTION STEPS

Prevent the spread!

- Learn to identify the most common invasives in the waterways you use.
- Be familiar with the laws and recommendations in your state.
- Don't boat directly through vegetation that may fragment.
- Follow the AIS prevention steps:
CLEAN your equipment,
DRAIN water from boats and live wells,
DRY equipment, and
DISPOSE of live bait away from the water.



*Help keep your favorite sites clear of weeds
by brushing off gear before and after your trip!
Protect trails by keeping footwear clean and
sticking to the well-worn paths.*



Emerald
Ash Borer



Garlic Mustard



Wild Parsnip



Key Invasives for Campers



CAMPERS



Returning to a favorite campsite year after year means campers can be excellent spotters of new invasive species infestations. If you see a new plant spreading, it's helpful to report it to the campground or park staff. Some cause skin rashes while others can damage native vegetation and require clearing. To help protect your favorite spots, shake out tents and gear vigorously before setting up and again before leaving!



ACTION STEPS

Prevent the spread!

- Learn to identify invasives in the area so you can avoid them.
- Before setup, inspect tents and other gear for dirt or seeds that could spread invasives.
- Brush off footwear before and after hiking nature trails.
- NEVER MOVE FIREWOOD: purchase it locally, burn it, and leave leftovers on site. Invasive insects can hide out in wood.



*Whether you ride a mountain or road bike,
inspect the tires for invasive seeds or burrs!*



Invasive
Thistles



Garlic Mustard



Wild Parsnip



Key Invasives for Cyclists



CYCLISTS



Bicycles offer a fun and healthy way to get outside. But, if an invasive species takes over, it could threaten your access. Sometimes trail managers must close a trail for maintenance to treat weeds that have spread too far into the woods. Other times, it's to remove plants that have thorns or cause skin rashes, such as Wild Parsnip. To avoid invasive plants hitching a ride along bike paths, remember to clean your footwear, gear, and bike tires!



ACTION STEPS *Prevent the spread!*

- Learn to identify invasive species in the area you will be riding.
- Inspect your bike for mud, debris, and plant material before entering the trails.
- Stay on designated trails to avoid spreading seeds into the forest.
- Check for mud and dirt in your tire treads which may harbor invasives, and clean them before you leave.



Gardeners are a valuable resource when it comes to knowing what to plant and what to avoid!



Purple
Loosestrife



Jumping Worm



Goutweed

Key Invasives for Gardeners



GARDENERS



Gardeners play a critical role in slowing the spread of invasive plants. Some of the worst plant invaders were originally introduced as ornamentals thought to be harmless. Non-native flowers often spread and reproduce more quickly than natives. Invasive species can hide in soil and be shared accidentally through plant swaps and sales. But with a few precautions we can keep them at bay, which makes for less weeding time and lower costs for everyone!



ACTION STEPS

Prevent the spread!

- Stay familiar with updated lists of invasive plants in your area, and do not purchase or share these plants.
- Use garden materials that are certified free of invasive species, including wood chips or compost.
- Properly dispose of invasive species or weeds in plastic bags; do not compost or bury them.
- Remove any soil or seeds from shoes and tools after gardening activities.



Hikers can protect trails by keeping footwear clean and sticking to well-worn paths.



Common
Buckthorn



Garlic Mustard



Wild Parsnip

Key Invasives for Hikers



HIKERS/BACKPACKERS



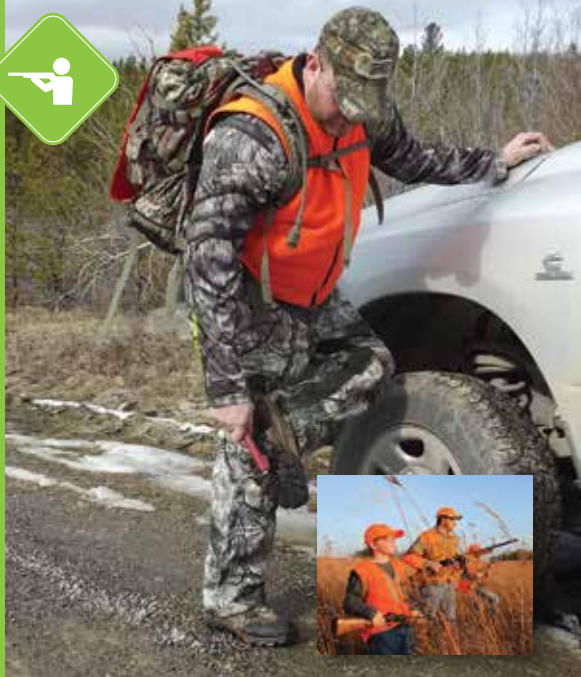
As a hiker or backpacker, you have a special interest in preventing invasive species from establishing. Rampant invasive species like Garlic Mustard could close down a favorite trail, crowd out the wildflowers you love to see, or pose a health risk. Wild Parsnip can cause a skin rash, and invasive Japanese Barberry provides a shady, damp place for pests like ticks. But, with a few simple actions, you can help ensure access to your favorite spots for years to come.



ACTION STEPS

Prevent the spread!

- Learn to identify invasives in the area you will be hiking.
- Stay on designated trails! Going off trail can spread invasive plant seeds.
- Inspect your footwear for mud and soil, where seeds can hide out.
- Use a scrub-brush to clean the soles of your boots before leaving.
- Check clothes, gear, and pets for any plant material, seeds, or burrs.



Hunters and Trappers often need to leave trails, so it is important they clean their gear well.



Phragmites



New Zealand Mudsnaill



Autumn Olive

Key Invasives for Hunters



HUNTERS & TRAPPERS



Hunters and trappers are deeply connected to forests and waterways. Invasive species can change wildlife habitat, which can affect the success of hunters and trappers. Too many threatened areas could change hunting and trapping regulations, so it's in everyone's best interest to prevent invasive species from spreading. With some simple precautions you can make sure you aren't spreading invasive plant seeds or insects. This helps protect wild places for all species, and helps game animals thrive.



ACTION STEPS

Prevent the spread!

- Learn to identify invasive species in the areas you hunt or trap.
- Inspect your boots, waders, packs, and decoys for mud and plant debris like burrs that might be non-native.
- Clean gear or use a boot brush.
- Check your vehicle for plants and insects that could spread on the road.
- Try to stay on trail and avoid visible invasive plant infestations.



Even light watercraft can transport invasive species, so inspect and remove!



Eurasian
Water-
Milfoil



Purple Loosestrife



Rusty
Crayfish



Key Invasives for Paddlers



PADDLERS



Since paddlers enjoy our waterways at eye level, they can take a unique role in preventing invasive species spread. Take note of any new species you see, like showy Purple Loosestrife. Plan canoe and kayak trips that steer clear of areas infested with invasive plants like Eurasian Water-Milfoil, which fragment easily. Once invasives are in a lake or river, they can spread quickly with water currents and waves. You can help keep an eye out in advance!



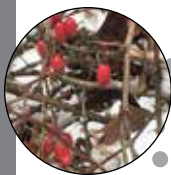
ACTION STEPS

Prevent the spread!

- Inspect boats, canoe packs, paddles, and gear for plants or mud that might carry invasive species. Remove this debris before launching, and again before leaving.
- Avoid paddling through and breaking up invasive vegetation clumps/mats.
- Drain kayaks, canoes, and live wells of all water before traveling to a different place.
- Never move live fish or bait away from a waterbody.



*Snowmobilers are trail stewards
in an entirely different season.*



Japanese
Barberry



Non-native honeysuckles



Phragmites

Key Invasives for Snowmobilers



SNOWMOBILERS



Enjoying the wintertime beauty of trails, snowmobilers are the area's pioneers in recreational trail-blazing. These folks work year-round ensuring trails stay usable and know that infestations of invasive plants can make trails impassable. Snowmobilers understand that invasive seeds, even while dormant, can be dropped along trails in the wintertime, then grow and spread in the spring and summer.



ACTION STEPS *Prevent the spread!*

- Learn to identify winter appearance of invasives where you will be riding.
- Stay on designated trails! Going off trail can spread invasive plant seeds.
- Inspect your sled and footwear for mud, debris, and plant material before entering the trail. Remove any such materials that may harbor the seeds of invasives.



Construction sites are some of the most frequent spots for invasive species to appear, and be caught!



Spotted
Knapweed



Leafy Spurge



Forget-Me-
Not



**Key Invasives for
Construction Crews**



CONSTRUCTION CREWS



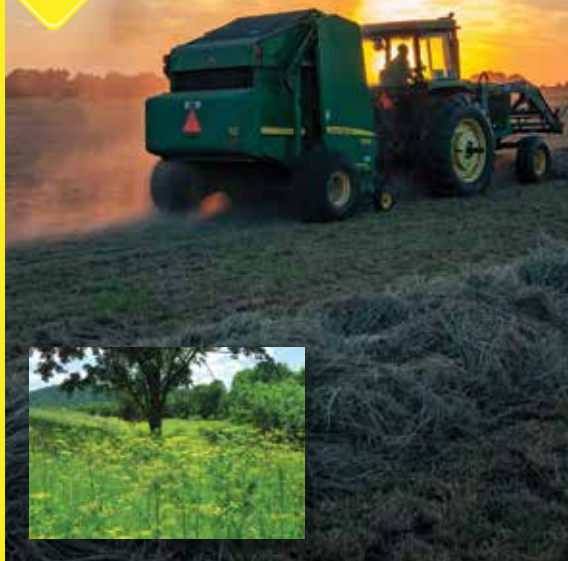
Construction workers are on the front line of invasive species establishment. When the ground is disturbed or changed to make way for a new project, invasive plants can take hold and spread quickly to nearby properties. These workers can make a major difference by learning about local invasives that may appear, how they spread, and what they can do about it. A few small precautions can help prevent small patches of new weeds from becoming massive problems in schoolyards, parks, and gardens.



ACTION STEPS

Prevent the spread!

- Use only weed-free soil, gravel, hay, mulch or other material on sites.
- Use a brush or hand tool to clean mud from footwear and equipment; a pressure washer is even better.
- Use certified native seed for revegetation since invasive plants spread quickly on disturbed soil with increased sunlight.
- Watch for invasive species as part of everyday operations.



People involved in agriculture and farming regularly take steps to minimize damage from invasive species.



Leafy
Spurge



Spotted Knapweed



Wild Parsnip



Key Invasives for Farmers



FARMERS/AGRICULTURISTS



As stewards of the land, farmers are closely connected to the natural world and are in a great position to observe changes. Invasive species, particularly noxious weeds, pose a significant threat to agriculture investments. Many agriculturalists take precautions to minimize the number of invasive species in and near their fields, which helps contain their spread. In many cases, these lands are educational goldmines for local schools and community groups to learn how to manage invasive species and still make a successful living off the land.



ACTION STEPS *Prevent the spread!*

- Learn about area invasives and report sightings.
- Use a wide variety of control methods before choosing pesticides.
- Plant native borders and buffer strips as habitat for native predators.
- Learn from others in your field and then share your knowledge. Make your farm a place to learn.



Foresters are important partners in recognizing and controlling invasive species during their field work.



Garlic
Mustard



Emerald Ash Borer



Canada
Thistle



Key Invasives for Foresters



FORESTRY & TIMBER



Foresters and those who work in the timber industry are becoming more familiar with the damage invasive species can cause. Many are trained to recognize invasive species and share that information with the public. Because they are on the landscape, Forestry and timber industry workers can play a vital role in the fight against invasive forest pests and plants by reporting what they see. They provide valuable insight on how the health and productivity of our forest lands might be changing as invasive species establish and spread.



ACTION STEPS

Prevent the spread!

- Stay informed about new invasives in your area, learn how they spread and how to identify them.
- Use a brush or hand tool to clean mud from footwear and equipment; a pressure washer is even better.
- Contact local invasive species groups to assist with education, identification, and restoration.
- Make looking for invasives part of your regular inventory and site visits.



Plant growers and sellers are important partners in keeping our garden plants healthy and non-invasive.



Purple
Loosestrife



Japanese Barberry



Hydrilla



Key Invasives for Growers



GROWERS



Plant growers and sellers work in the tricky business of selecting appropriate garden and landscape plants. Since many invasive species were originally ornamentals planted on purpose, it's a challenge to stay updated on how different species are growing. When garden plants escape into the wild and "naturalize," that's when they can be a problem. Responsible growers stay informed on new research to track species that need to be regulated, and they play an important role in teaching us what to choose for our gardens!



ACTION STEPS

Prevent the spread!

- Do not sell or purchase plants known to be invasive species. Ensure all employees are educated about invasive plants.
- Encourage native plants and plants less susceptible to invasive pests.
- Do not sell invasive aquarium plants.
- Engage researchers to share knowledge of invasive species and new updates on regulation.
- Help educate clients as much as possible to prevent the spread.



Road workers are on the front lines of invasive plant infestations, and often the first to notice!



Wild
Parsnip



Leafy Spurge



Thistles

Key Invasives for Road Crews



ROAD CREWS






Transportation workers and road crew members oftentimes run into invasive species since they tend to establish and spread along ditches and roadways. A highway and its right-of-way can receive seed and plant material that flies off cars. A busy weekend can result in a lot of seed spread. Since road crews know their land, they have become invaluable in reporting differences in the landscape caused by invasive plants.



ACTION STEPS *Prevent the spread!*

- Invite local conservation groups to teach crews about identifying and reporting invasive plants.
- Use a brush or hand tool to clean mud from footwear and equipment; a pressure washer is even better.
- Plan work activities to progress from the least to most infested sites.
- Make looking for invasives part of your regular day-to-day operations.
- Plan mowing around seed drops.

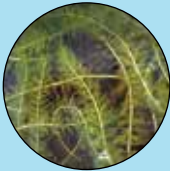




TOP INVASIVE SPECIES IN THE

Common Name	Photo	Habitat
Wild Parsnip		Broad tolerance; dry or wet habitats, does poorly in shade.
Buckthorn		Broad tolerance, invades forests, prairies, and roadsides.
Honeysuckle		Disturbed woodlands, fields, roadsides, and lakeshores.
Garlic Mustard		Forests, savannas, yards, and roadsides, especially disturbed areas.
Thistles		Fields, prairies, roadsides, croplands, pastures, and forest edges. Canada thistle will grow in dunes.

UPPER MIDWEST

How to Identify	Fun Fact
Toothed, oblong leaflets with small, yellow clusters of flowers on the top of the stem.	When parsnip sap makes contact with the skin while exposed to sunlight, blistering and rash can occur called “phytophotodermatitis.”
Oval leaves with fine teeth and deep veins; fruit is pea-sized black clusters.	Buckthorn is “allelopathic,” which means it releases a chemical that prevents other vegetation from growing near it.
Simple, oval leaves and tubular paired flowers. Older stems have shaggy bark.	There are a lot of native honeysuckles – a good way to know who’s who is to check inside a stem – hollow and dark means invasive!
Dark, kidney-shaped leaves on young plants, triangular leaves with tiny white flowers on second year plants.	A part of the mustard family, this plant actually smells like garlic when crushed.
Most varieties have thin, lance-shaped leaves and are spiny; flowers are usually purple to red.	Grazing animals will actually avoid eating milk thistle, helping this invasive outcompete its native counterparts.



TOP INVASIVE SPECIES IN THE

Common Name	Photo	Habitat
Eurasian Water-Milfoil		Thrives in disturbed rivers and lakes with watery types from fresh to brackish.
Purple Loosestrife		Planted as an ornamental flower originally, it prefers damp soil or shallow water.
Rusty Crayfish		Most water bodies, extending as far north as Ontario.
Spotted Knapweed		Dunes, sandy areas, and anywhere dry.
Zebra Mussels		The Great Lakes and any water bodies, will attach to native mussels.

UPPER MIDWEST

How to Identify	Fun Fact
Greyish-green leaflets that are finely divided, appears “feathery” and has small yellow or reddish flowers.	Eurasian water-milfoil prevents the growth of blue-green algae.
Lance-shaped, whorled leaves around stem with pink flowers all the way down the stem.	To keep from overrunning ecosystems, scientists have employed biocontrol beetles to eat this plant.
Rust colored patch at either side of the carapace, and black bands on claws. Measure roughly 2 inches in length not including claws.	This species has invaded from within the United States – it is originally from the Ohio River basin but has been transported by bait buckets.
Rough, thin silvery grey-green leaves up the stem, and purple fluffy flowers.	Spotted knapweed can irritate the skin when handled.
Usually under an inch long, D-shaped clam like shells with dark stripes.	Zebra mussels are nearly impossible to remove from a water body once established, so prevention of spread is critical!



TOP INVASIVE SPECIES IN THE

Common Name	Photo	Habitat
Asian Carp		Tributaries of the Mississippi, Ohio, Missouri, and Illinois rivers.
Spiny Water Flea		Great Lakes
Dame's Rocket		Forest edges, roadsides, and open areas.
Leafy Spurge		Very tolerant, inhabits prairies, roadsides, and savannas.
Forget-Me-Not		Any undisturbed habitat.

UPPER MIDWEST

How to Identify	Fun Fact
Some silvery varieties, other are dark brown-yellow in color, carp have low-set eyes.	Asian carp can grow to be more than 100 pounds!
Less than 1/2" long and transparent with a long tail.	Spiny water fleas can reproduce asexually, without any help from males.
Finely toothed lance-shaped leaves, with fragrant white to purple flowers.	Often confused for a native flower, it is planted ornamentally very often.
Blue-green pointed leaves with yellow paired flowers.	The thick white sap of this plant is hard to remove from skin once in contact.
Simple ovate leaves with light blue five-petaled flowers with yellow centers.	This plant's name refers to the fact that it has an unpleasant taste, not to be forgotten.

TOP INVASIVE SPECIES IN THE

Common Name	Photo	Habitat
Japanese Barberry		Open or wooded habitat, wetlands, fields, and disturbed areas.
Bishop's Goutweed		Pastures, forests, fields; is naturalized state-wide



UPPER MIDWEST

How to Identify	Fun Fact
Leaves are small, ovular and clustered in bunches, with cup-shaped flowers. Leaves will turn reddish brown in autumn with oblong red berries.	Due to the spines on each node, animals will not graze on this plant, allowing it competitive advantage with native plants.
Three leaflets per leaf, each leaflet is pale green and oval with deeply serrated light edges.	This species is considered invasive across much of the United States.



HOT TIPS!

Handy ways we can all help keep invasive species at bay...

- Pick up a scrub-brush from the dollar store for an easy, effective way to brush off shoes and pets. Keep it in the car or with your camping gear.



- Keep bike tires clean of mud since seeds can hide out or get stuck in dirty grooves.

- Pull its head off! Even if you don't have time to spend hours digging up invasive plants, simply removing the flowers will help prevent seeds from sprouting into new plants.



- NEVER release pets into the wild! Pets like goldfish can disrupt natural food chains in ponds by eating prey and growing to massive sizes. In many waterways, there are no natural predators, which allows species like Asian Carp to reproduce at an alarming rate and change ecosystems. Because of this, Asian Carp now pose a huge threat to the Great Lakes.



- Remember that even vehicles like ATVs can spread invasive seeds, so give those muddy tires a quick brush off after your ride!



- If you have a cabin or second home in a different location, try to avoid bringing plants back and forth. This will help prevent accidentally spreading an invasive species. Celebrate the different native plant diversity at each place!

- If you use waders in rocky rivers, choose bootsoles that are rubber or studded to be slip-resistant. Avoid using felt soles which can trap mud and organisms, risking transport between waterways!



INVASIVE SPECIES TRACKING

Tracking the spread of invasive species on the landscape is a key component of determining the best management steps. Reporting has never been easier. The two database systems below share collected data to stay up-to-date.



EDDMAPS MIDWEST is a group effort focused on rapidly responding to new invasive species sightings in the Great Lakes and Midwestern states (Minnesota, Wisconsin, Illinois, Indiana, Iowa, Michigan, Missouri, and Ohio). Their website serves as a central place for data sharing and species reporting. You can even make a map to get a better look at where a particular species is being found.

<https://www.eddmaps.org/midwest>



THE MIDWEST INVASIVE SPECIES INFORMATION NETWORK (MISIN) is a regional effort based at Michigan State University, to provide early detection and response help for invasive species. Their goal is to assist both experts and members of the public in identifying and reporting invasive species in support of successful management.

<https://www.misin.msu.edu>

REPORTING

Land managers, biologists, and government officials make better decisions if we better understand where these species are moving and being reported. Real time tracking of new reports is easy and you can help!



- Both EDDMaps and MISIN have free apps that anyone can download to their smartphone or tablet, available for both Apple and Android devices.
- The apps are fully loaded with photos and information to help you identify invasive species, and then report them to the network with just a few taps!
- Reports can even be saved in the field outside of wifi, and uploaded later.



WHAT IS A “COOPERATIVE INVASIVE SPECIES MANAGEMENT AREA”?

Although a variety of methods exist to control and manage invasive species, their success depends on organized efforts for implementing these measures. That is the role of CISMAs, (**Cooperative Invasive Species Management Areas**). These non-profit organizations operate on a local scale across the entire country, and by using multi-level partnerships, they can have landscape-level effects.

CISMAs aim to manage invasive species through education, monitoring, control, and restoration. As an excellent local resource, these groups help area residents with a range of invasive species activities – from teaching steps to prevention, to helping with identification of unknown plants, to long-term control projects.

In Northeastern Wisconsin and the Upper Peninsula of Michigan, three CISMAs work collaboratively to succeed at invasive species management:

Timberland Invasive Partnership (TIP)

*Serves Langlade,
Menominee, Oconto,
and Shawano counties in Wisconsin*

www.timberlandinvasives.org



Wisconsin Headwaters Invasives Partnership (WHIP)

*Serves Vilas and Oneida
counties in Wisconsin*

www.whipinvasives.org



Wild Rivers Invasive Species Coalition (WRISC)

*Serves Forest, Florence,
and Marinette in Wisconsin,
as well as Dickinson and
Menominee counties in*

Michigan's Upper Peninsula

www.wrisc.org



Lumberjack RC&D Council

www.lumberjackrcd.org



Across the upper Midwest, public and private landowners are working to prevent the spread of invasive plants and animals, with multiple partners willing and able to assist. The three CISMAs contributing to this guide share a common partner, the *Lumberjack Resource Conservation & Development Council* (Lumberjack RC&D.) This group works towards enhancing area natural resources, and has been instrumental in presenting this guide for your use.

Please contact any of our groups, TIP, WHIP, or WRISC, for more information. Working together, we can slow the spread!

GLOSSARY

native species – Plants and animals that grow naturally in a given location without being directly introduced there by humans.

invasive species – Plants and animals (including insects) that have been relocated to a new area, and thrive because they have no natural predators or pests there.

non-native species – A species that has been introduced to a new location, but not necessarily causing harm to other species.

habitat – The physical space and resources that plants or animals need to survive.

ecology – The study of how organisms interact with each other and their environment.

pathways of spread – The ways in which invasive plants and animals spread around the landscape, both recreational and industrial.

user group – A category of people who do similar activities outdoors.

CISMA – A Cooperative Invasive Species Management Area, which is a cooperative group of partners who share resources for invasive species education and control.

WEB RESOURCES

www.dnr.wi.gov/topic/invasives

www.michigan.gov/invasives

www.dnr.state.mn.us/invasives/index.html

www.fs.fed.us/invasivespecies

www.invasivespeciesinfo.gov/aquatics/education.shtml

www.lumberjackrccd.org

www.invasiveplantatlas.org

www.eddmaps.org

www.epa.gov/greatlakes/invasive-species-great-lakes

www.glc.org/work/invasive-species

www.naisma.org

www.mipn.org



Japanese Knotweed blooms in late summer in the upper Midwest.

NOTES

[illegible]

PHOTO CREDITS

Cover, ©2015 PlayCleanGo / MN DNR; page 1, ©2015 PlayCleanGo / MN DNR; page 3, Jens Lelie on Unsplash; page 7, Rosie Page; page 8, Jason Long on Unsplash; page 10, Joel Knutson, Joshua Rawson Harris on Unsplash; page 11, ©2015 PlayCleanGo / MN DNR, S. van Mechelen, Wisconsin DNR, Bill O'Neill; page 13, ©2015 PlayCleanGo / MN DNR, Angela Anderson; L. Mehrhoff, University of Connecticut, Bugwood.org; page 15, Rosie Page, S. van Mechelen, Wisconsin DNR; page 17, ©2015 PlayCleanGo / MN DNR, Wisconsin DATCP, Chris Evans, University of Illinois, Bugwood.org, L. Mehrhoff, University of Connecticut, Bugwood.org; page 19, ©2015 PlayCleanGo / MN DNR, L. Mehrhoff, University of Connecticut, Bugwood.org, Norman E. Rees, USDA Bugwood.org; page 21, Rosie Page, ©2015 PlayCleanGo / MN DNR, Elizabeth J. Czarapata, WI DNR, L. Mehrhoff, University of Connecticut, Bugwood.org; page 23, ©2015 PlayCleanGo / MN DNR, L. Mehrhoff, University of Connecticut, Bugwood.org; page 25, Montana Noxious Weed Education Campaign, ©2015 PlayCleanGo / MN DNR, Wild Rivers Invasive Species Coalition, Oneida County AIS, Elizabeth J. Czarapata; page 27, ©2015 PlayCleanGo / MN DNR, Rosie Page, Elizabeth J. Czarapata, Bugwood.org, U.S. Geological Survey Bugwood.org, Alison Fox, University of Florida, Bugwood.org; page 29, Joel Knutson, Eden Wake on Unsplash, Wild Rivers Invasive Species Coalition, Stephanie Boismenu, Bernadette Williams; page 31, Rosie Page, Wild Rivers Invasive Species Coalition, Angela Anderson; L. Mehrhoff, University of Connecticut, Bugwood.org, S. Kelly Bauer; page 33, L. Van Riper, Jed Owen on Unsplash, Elizabeth J. Czarapata, Angela Anderson, L. Mehrhoff, University of Connecticut, Bugwood.org; page 35, ©2015 PlayCleanGo / MN DNR, Wild Rivers Invasive Species Coalition, Wisconsin DATCP, Norman E. Rees, USDA, Bugwood.org; page 37, Rosie Page, Katie Treadway on Unsplash, Elizabeth J. Czarapata, Bernadette Williams, USGS Colette Jacono; page 39, ©2015 PlayCleanGo / MN DNR, Richard Bauer, Elizabeth J. Czarapata, Norman E. Rees, L. Mehrhoff, University of Connecticut, Bugwood.org; page 41, L. Mehrhoff, University of Connecticut, Bugwood.org, Wild Rivers Invasive Species Coalition, Norman E. Rees; page 43, Alison Fox, University of Florida, Bugwood.org, Elizabeth J. Czarapata, USGS Bugwood.org, Angela Anderson, S. Van Mechelen; page 45, S. Van Mechelen, Bill O'Neill, Nissa Karimi, Elizabeth J. Czarapata, S. Kelly Bauer; page 47, L. Mehrhoff, University of Connecticut, Bugwood.org, Wild Rivers Invasive Species Coalition; page 48, Wild Rivers Invasive Species Coalition; page 49, Norman E. Rees, USGS Bugwood.org, WI DNR; page 50, Rosie Page; page 56, Rosie Page.

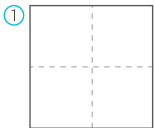


Created with funding from
the Great Lakes Restoration
Initiative through the
United States Forest Service.

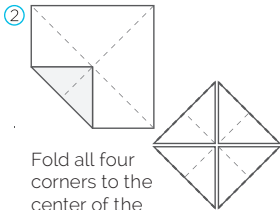


.25
.5
.75
1
1.25
1.5
1.75
2
2.25
2.5
2.75
3
3.25
3.5
3.75
4
4.25
4.5
4.75
5
5.25
5.5
5.75
6
6.25

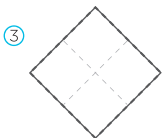
JUST FOR KIDS



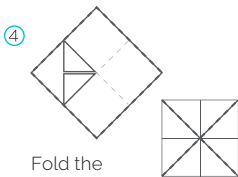
Trim off white edges. Fold the paper in half, unfold, then fold in half the other way.



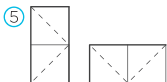
Fold all four corners to the center of the square so the points just touch.



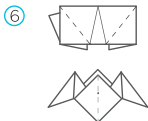
Flip your paper over so the folds you just made are turned down.



Fold the corners to the center again.



Fold it sideways like Figure 1 then unfold it. Now fold it up like Figure 2.



Put your fingers under the four open corners to finish.

