

What Is an Invasive, Exotic Weed?

A weed, by definition, is any plant that is unwanted and grows or spreads aggressively. When we hear "weed," we often think of dandelions. But many weeds are much more destructive than common lawn pests. Exotic weeds that overrun natural habitats, agricultural lands, and waters reduce biodiversity and burden our economy.



Spotted Knapweed overruns open pastures, barrens and rangelands.

Plants that occur outside of the area where they evolved are considered *introduced*, *exotic* or *non-native*. Occasionally when an exotic plant is introduced into an area where it did not previously exist it is able to flourish and quickly dominate its new surroundings. The terms *invasive* and *noxious* are used to describe such species.

Not all exotic introductions cause long-term problems. Many non-native species are valued for their agricultural and aesthetic qualities, but when a species becomes invasive and shows up in unwanted places, public land managers, recreationists, and property owners become concerned.

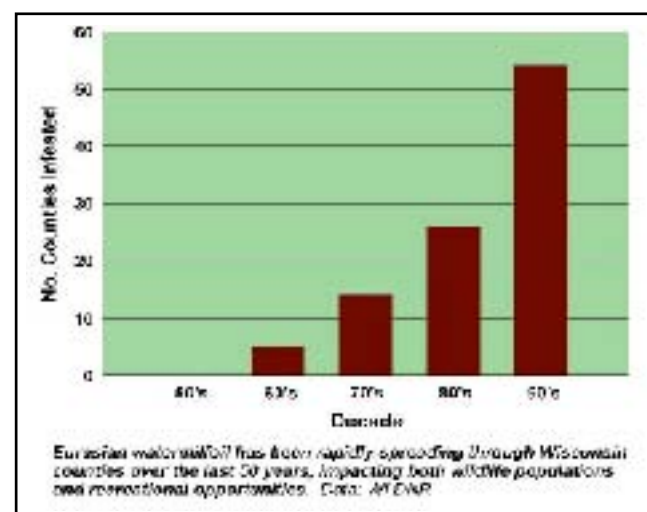
When a plant is introduced into a new area, it leaves its natural enemies behind. Non-native plants are prone to become invasive because their populations are no longer controlled by insects, fungi, disease, herbivores, and competition from other plants. In addition, most invasive plants are highly adaptable and prove successful in a wide range of habitats and conditions.

A Spreading Problem

Invasive, non-native plants are a global problem. In the United States alone, non-native weeds invade over 1.7 million acres each year, an area roughly equal to the state of Maryland! Historically, natural boundaries such as oceans and mountain ranges limited the range of plant populations. Human activities are primarily responsible for breaking down these barriers to dispersal. Many exotic plants found in North America were brought over from Europe and Asia by early settlers. Some seeds were accidentally transported in the soil used for ship ballast and the feed used for livestock, while other problem exotics were introduced intentionally for agricultural, medicinal, and ornamental uses. As global trade has expanded in recent decades, the rate of exotic introductions has increased as well.

Plants use a variety of methods to disperse over the landscape. Some seeds float on wind or water, while others have small barbs that cling to fur, feathers, and clothing. Some species even spread by small root and stem fragments that can grow into new plants. Roadsides provide a network of open, disturbed habitats favored by many exotics. Boats, cars, and all-terrain vehicles carry seeds and plant materials hundreds of miles to previously uninfested locations. As a result, exotic plants seldom remain confined to the area where they were initially introduced.

Exotic weeds seldom recognize the boundaries of our back yards and are capable of infesting natural habitats. What we consider a pretty flower in our yard may prove to be a menace in the wild! Therefore it is important to screen new plants for invasive properties before purchasing them for your lawn or garden.



Frequent disturbance along roadsides provides opportunities for weeds to colonize and spread.



Landscape plants don't always remain confined to our yards.



Many weed species hitch a ride on recreational equipment including boats, trailers, & ATVs.



Whose Problem is it?



Even high quality forests can be invaded by garlic mustard, shading out the native understory herbs.

Invasive, non-native plants out-compete native plants, degrade fish and wildlife habitat, reduce agricultural yields, decrease gathering opportunities and hinder recreational activities.

Exotic plants diminish fish and wildlife populations by displacing the native food and cover plants that these organisms depend on for survival. Purple loosestrife, a garden exotic, replaces native wetland plants, reducing important food and habitat resources for waterfowl. Bison, elk, deer and domestic livestock avoid sites that are infested with exotic plants such as leafy spurge or spotted knapweed. This avoidance concentrates grazing on smaller areas, increasing the impact to native plants while allowing the exotic plants to flourish and expand their range.

Weed control costs continue to rise as exotic plants displace both forage and crop plants. Reduced yields and increased control costs force prices up, further limiting the profits available to farmers.

Recreational activities can be severely restricted by the uncontrolled growth of exotic plants. Eurasian watermilfoil chokes waterways and restricts boat access, while the toxic properties of wild parsnip deter hiking and other land-based activities. These impacts increase maintenance costs and reduce the attraction of recreational areas.

Whether it is reduced harvest for hunters and fishermen, restricted access to a favorite lake or trail, or the increased cost of agricultural products, invasive weeds impact all of us. Consequently, we all share the responsibility of preventing the spread of invasive, exotic weeds.

Take it to the Bank....

Weeds cost agencies and private citizens billions of dollars in North America every year. The costs of lost productivity, herbicides, labor, and research efforts mount as these plants degrade fish and wildlife habitat, clog waterways, turn pastures into wastelands, compete with agricultural crops, disrupt forest regeneration, and overrun our natural habitats. Take this into consideration:

- In the US, exotic weeds cause an overall reduction of 12% in crop yields, costing \$24 billion in crop losses and \$3 billion for control... totaling 27 billion dollars every year!
- Purple loosestrife alone costs \$45 million each year in control costs and losses
- Leafy spurge can reduce the cattle carrying capacity of pastures by 50-75%
- In 1995, leafy spurge cost an estimated \$144 million to the combined economies of North Dakota, South Dakota, Montana and Wyoming, according to a North Dakota State University study.

Billed To: The United States Economy
Amount Due: \$35 Billion

Aquatic Weeds	\$ 110,000,000
Crop Weeds	\$ 27,000,000,000
Weeds in Pastures	\$ 6,000,000,000
Weeds in Residential & Golf Courses	\$ 1,500,000,000
Purple Loosestrife	\$ 45,000,000
Mealeuca Tree	\$ 3,000,000

~\$35 billion dollars

Can you meet this bill? Every year the costs associated with non-native weeds approach and exceed \$35 billion in the United States alone.
Source: Pimental, D et. al., 1999.



Once a popular garden plant, purple loosestrife is now illegal in many states because it invades and threatens our wetlands.

Many non-native plants threaten natural habitats. The following species pose a serious threat to the Upper Great Lakes region:

Purple Loosestrife (*Lythrum salicaria*)
Eurasian Watermilfoil (*Myriophyllum spicatum*)
Leafy Spurge (*Euphorbia esula*)
Garlic Mustard (*Alliaria petiolata*)
Spotted Knapweed (*Centaurea maculosa*)
Wild Parsnip (*Pastinaca sativa*)
Canada Thistle (*Cirsium arvense*)
Reed Canary Grass (*Phalaris arundinacea*)
Common Buckthorn (*Rhamnus cathartica*)
Glossy Buckthorn (*Rhamnus frangula*)
Exotic Bush Honeysuckles (*Lonicera spp.*)
Multiflora Rose (*Rosa multiflora*)

Further reading on invasive plants:

Wisconsin manual of control recommendations for ecologically invasive plants. Hoffman, R. and K. Kearns. WI DNR Bureau of Endangered Resources: 1997. (see WI DNR internet resources below)

Pulling Together: a national strategy for the management of invasive plants, 2nd edition. Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW): 1998.

Invasive Plants: changing the landscape of America, factbook. Westbrooks, R.G. FICMNEW: 1998.

Executive Order 13112, Invasive Species. Clinton, William J. 1999. (see FICMNEW internet resources below)

Environmental and economic costs associated with non-indigenous species in the United States. Pimental, D., L. Lach, R. Zuniga, and D. Morrison. Cornell University: 1999. (http://www.news.cornell.edu/releases/Jan99/species_costs.html)

For more information on the internet:

Great Lakes Indian Fish & Wildlife Commission
www.glifwc.org
Wisconsin DNR Invasive Plants Page
www.dnr.state.wi.us/org/land/er/invasive_species.htm
TNC Wildland Weeds Management & Research
tncweeds.ucdavis.edu
Minnesota DNR Exotic Plants Page
www.dnr.state.mn.us
Canadian Wildlife Service
www.cws-scf.ec.gc.ca/habitat/inv/index_e.html
USDA NRCS National PLANTS Database
plants.usda.gov/plants/index.html
FICMNEW Home Page
refuges.fws.gov/FICMNEWFiles/FICMNEWHomePage.html



Photo: MN DNR



Photo: WI DNR



Photo: MN DNR



Photo: FORT McCOY

"Weeds at their worst (From left to right: purple loosestrife, Eurasian water milfoil, common buckthorn, and leafy spurge)"

Plants Out Of Place

Today, nearly every corner of the globe is impacted both economically and environmentally by invasive, exotic plants. Plants that occur outside of the area where they evolved are considered non-native or exotic. Occasionally, when plants are introduced into a new area, they become invasive and are able to flourish and replace the existing vegetation. This uncontrolled growth threatens native plant communities, degrades fish and wildlife habitat, restricts recreational activity, and reduces agricultural yields. Exotic weeds are becoming a considerable economic burden to everyone, and we all share the responsibility of preventing the spread of invasive, exotic plants.

What You Can Do:

- ✔ Learn to identify these and other invasive, exotic weeds
- ✔ Remove known invasive plants from your property and continue to check if plantings are invasive before you purchase them
- ✔ Educate friends, neighbors, and local nurseries about the problems caused by invasive, exotic plants
- ✔ If you find a weed infested area, inform the landowner or land manager so they can take steps to control the problem
- ✔ Avoid spreading exotic plants you may come in contact with while enjoying outdoor activities by removing seeds & plant fragments from clothing & equipment before leaving the area
- ✔ Never take plants from a wild area for transplanting or ornamental purposes if you aren't sure what they are!



Leafy Spurge invades a variety of open habitats, including prairies, pine barrens, oak savannahs, roadsides and pastures. Deer and cattle avoid grazing in spurge infested sites because of its toxic properties.



Photo: WI DNR

Eurasian Watermilfoil

infests our lakes, ponds and rivers. Dense mats shade out native aquatic plants, degrade wildlife habitat, and restrict boat access. Watermilfoil is commonly spread by plant fragments caught on boats and trailers.



Spotted Knapweed

invades a variety of open habitats, including native grasslands, pine barrens, dunes, sandy ridges, roadsides and pastures. Knapweed's shallow root structure can greatly increase soil erosion.



Exotic Buckthorns

invade forests, pastures, riverways and open areas. This small tree utilizes an extended growing season to shade out young native trees and plants. These common ornamental shrubs are widely dispersed by birds.



Photo: Save the Dunes Council

Garlic Mustard

invades undisturbed forests and roadsides. An early bloomer, garlic mustard shades out spring wildflowers and other native understory herbs before they can get a chance to develop.



Purple Loosestrife

infests wetlands, shorelines, wet meadows, and roadsides. Dense stands of purple loosestrife replace native food and cover plants that wildlife species depend on for survival.



Photo: WI DNR

Wild Parsnip

invades prairies, pine barrens, oak savannahs, roadsides, and pastures. Brushing against this plant can make your skin photo-sensitive and cause extreme reactions to sunlight, including blisters and burns.

For control information, consult the "Wisconsin Manual of Control Recommendations for Ecologically Invasive Plants," released by the WI DNR Bureau of Endangered Resources. www.dnr.state.wi.us/org/land/er/invasive/invasive_species.htm
For a copy write to:
Bureau of Endangered Resources, WIDNR
PO Box 7921, Madison, WI 53707-7921
(608) 266-7012 A \$5 donation is requested to cover costs.

Developed by the Great Lakes Indian Fish & Wildlife Commission with a grant from the Natural Resources Conservation Service.

Printed in cooperation with the following contributors:

ACE High School-A National Service-Learning Leader School □ Applied Ecological Services □ Chequamegon-Nicolet National Forest
Hiawatha National Forest □ Huron-Manistee National Forest □ Michigan Association of Conservation Districts

Michigan Department of Environmental Quality □ Michigan Department of Natural Resources-Nongame Wildlife Fund

Minnesota Department of Natural Resources □ Natural Resources Foundation of Wisconsin □ Ottawa National Forest

PRI-RU-TA Resource Conservation & Development Council □ The Nature Conservancy-Wisconsin Chapter □ Vilas County UW-Extension and Land Conservation

Wisconsin Department of Natural Resources □ Wisconsin Department of Transportation □ Wisconsin Electric Power Company

