

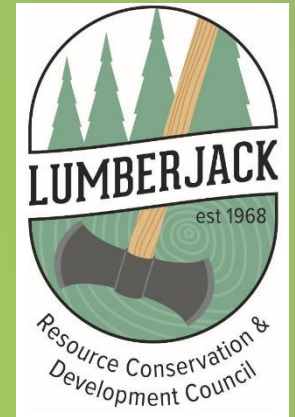


Terrestrial Invasive Plant Species Town of Newbold, WI

by Baerbel Ehrig
and Rosie Page, WHIP

Background

- In 2018 Town of Newbold Invasive Species Committee received a grant from Lumberjack RC&D to do a roadside survey



- Project partners:
Oneida County Land & Water Conservation (OCLW)



Wisconsin Headwaters Invasive Partnership (WHIP)



What are invasive plants?

- A newly introduced plant species will either coexist with native species **or** start their elimination by outcompeting them for nutrient access and/or environmental conditions needed for survival.
- An introduced species is labeled as “*invasive*” if they cause harm to the ecology, economy, or human health of the new environment

- An **invasive** species is not limited by the same checks and balances to control its population (predators, parasites), so it will spread.
- **Invasive** species establish and reproduce quickly, disperse easily, and typically adapt to a range of temperatures and conditions.
- **Invasive** species have the potential to harm natives or crowd them out of a particular site or habitat type.

- An **invasive** species is not limited by the same checks and balances to control its population (predators, parasites), so it will spread.
- **Invasive** species establish and reproduce quickly, disperse easily, and typically adapt to a range of temperatures and conditions
- **Invasive** species have the potential to harm natives or crowd them out of a particular site or habitat type
- **RESULT: Our ecosystem is threatened**

What is the problem?

- Threat to biodiversity
- Economic effects on region
 - *Impact on tourism*
 - *Hunting/Fishing*
 - *Agriculture*



Problems caused by Invasive Species in Wisconsin

Ecology

- Wetlands dry up, ditches choked
- Shrubs can shade out native wildflowers and saplings
- Without predators, invasives can overtake native species

Health:

- Wild Parsnip, Giant Hogweed, and others can cause skin problems

Economics:

- In the U.S., costs of control and damage = \$137 billion per year
- Property values on lakes with Eurasian water milfoil decrease by 20%
- Shrubs like honeysuckles prevent regeneration of young native trees
- Tourism industry is affected wherever invasives prevent hiking or enjoyment of lakes, or lower property values



Photo: www.stopthebeetle.info



Impacts on Wildlife

- Invasive plants such as honeysuckles and Buckthorn shade out young oak trees, leading to fewer acorns for turkeys, grouse, and deer
- Reed grass (*Phragmites*) dries up wetlands for waterbirds
- Japanese Barberry harbors very high populations of ticks because it creates moist cool understory
- Songbirds will eat Buckthorn berries as a last resort and they are very hard on the birds digestion, leaving them weak and dispersing seeds



- Every **invasive** species is a **native** species somewhere in the world !!!



There are no **BAD** species but an ecosystem out of balance

How do these new plants get here?

- Natural dispersion through
 - Birds
 - Insects
 - Mammals

Insignificant contribution



How do these new plants get here?

- Natural dispersion through
 - Birds
 - Insects
 - Mammals



Insignificant contribution

- Unintentional transport by humans through
 - Global transport on ships, trains, vehicles and planes
 - Horticulture

Very significant contribution



Role of roads?

20% of the United States' area is ecologically influenced by roads

(Forman and Alexander 1998)



Roads provide:

- Dispersion of seeds in tire tracks and land fill material
- New habitat through exposed open soil after construction
- Indication for ecosystem change

Role of roads?

20% of the United States' area is ecologically influenced by roads

(Forman and Alexander 1998)



Roads provide:

- Dispersion of seeds in tire tracks and land fill material
- New habitat through exposed open soil after construction
- Indication for ecosystem change

Roadside surveys are well suited for assessing the presence and potential impact of invasive plant species.

Survey



- July 7th to September 12th 2018
- Walking and biking between 0.5 and 1.5 miles per hour

112 miles of Newbold roads (224 miles of roadsides), Outdoor Recreation Area, Town Shop and Town Hall



**Plants of priority concern
according to NR 40**

NR 40 : Wisconsin Invasive Species
Identification, Classification and Control Rule

Plants of priority concern

Species	Regulation	Located
Bush honeysuckles (non-native) (<i>Lonicera spp</i>)	Restricted	Yes
Common buckthorn (<i>Rhamnus cathartica</i>)	Restricted	Yes
Common reed grass (<i>Phragmites australis</i>)	Restricted	No
Cypress spurge (<i>Euphorbia cyparissias</i>)	Restricted	Yes
Forget-me-not (<i>Myosotis sylvatica</i>)	Restricted	Yes
Garden valerian (<i>Valeriana officinalis</i>)	Restricted	No
Garlic mustard (<i>Alliaria petiolata</i>)	Restricted	No
Giant hogweed (<i>Heracleum mantegazzianum</i>)	Prohibited	No
Japanese barberry (<i>Berberis thunbergii</i>)	Restricted	Yes
Japanese knotweed (<i>Polygonum cuspidatum</i>)	Restricted	No
Leafy spurge (<i>Euphorbia esula</i>)	Restricted	Yes
Oriental bittersweet (<i>Celastrus orbiculatus</i>)	Restricted	No
Purple loosestrife (<i>Lythrum salicaria</i>)	Restricted	Yes
Spotted knapweed (<i>Centaurea stoebe</i>)	Restricted	Yes
Thistles (non-native)	Restricted	Yes
Wild parsnip (<i>Pastinaca sativa</i>)	Restricted	No

Data Collection with Juno Trimble 3D GPS unit

- Species name
- Selection of site type according to shape of plant patch
- Approximate plant count
<10, 10 – 50, or >50
- Approximate populated area measured in square feet
<50, 50 – 500, or >500



Results





Bush honeysuckle



Leafy spurge



Thistle



Purple loosestrife



Spotted knapweed



Buckthorn



Japanese barberry

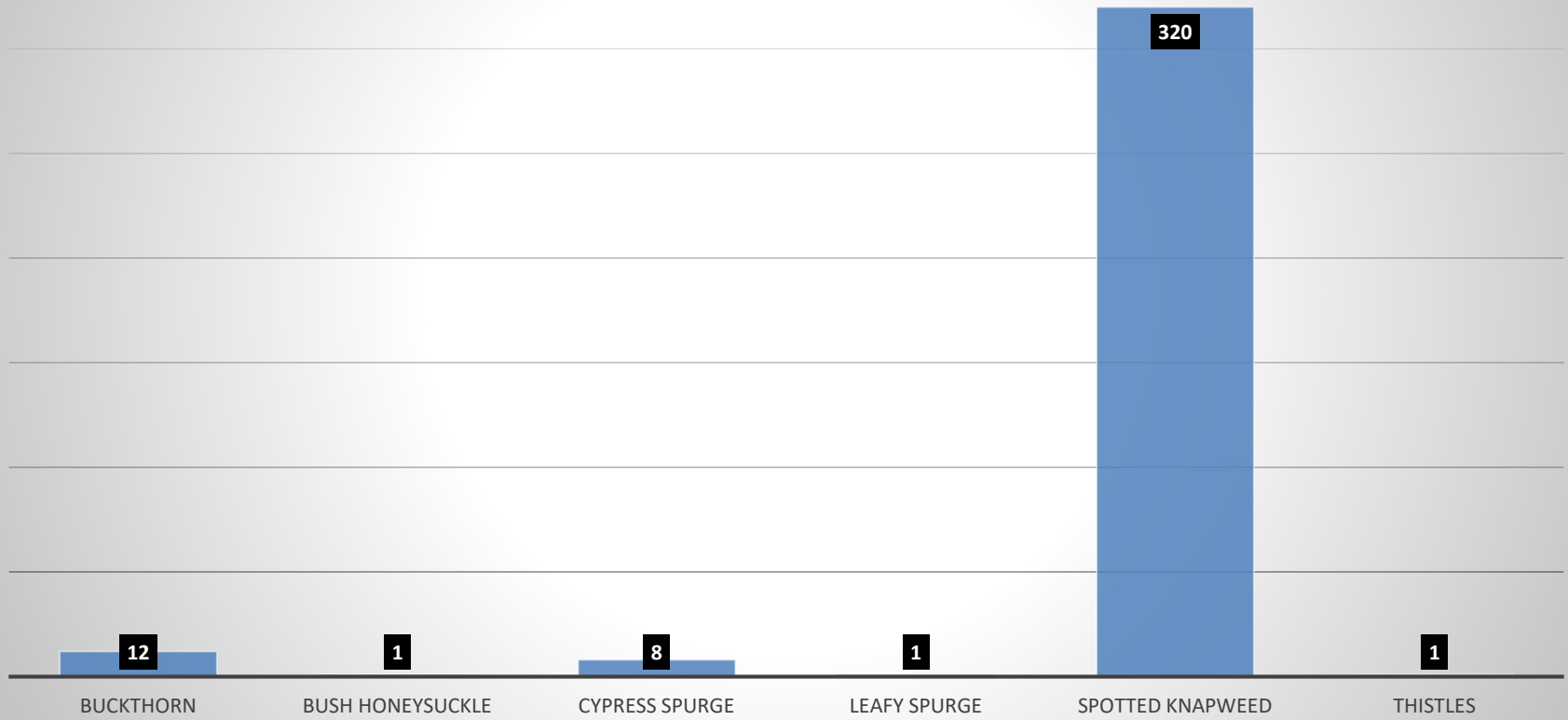


Forget-me-not

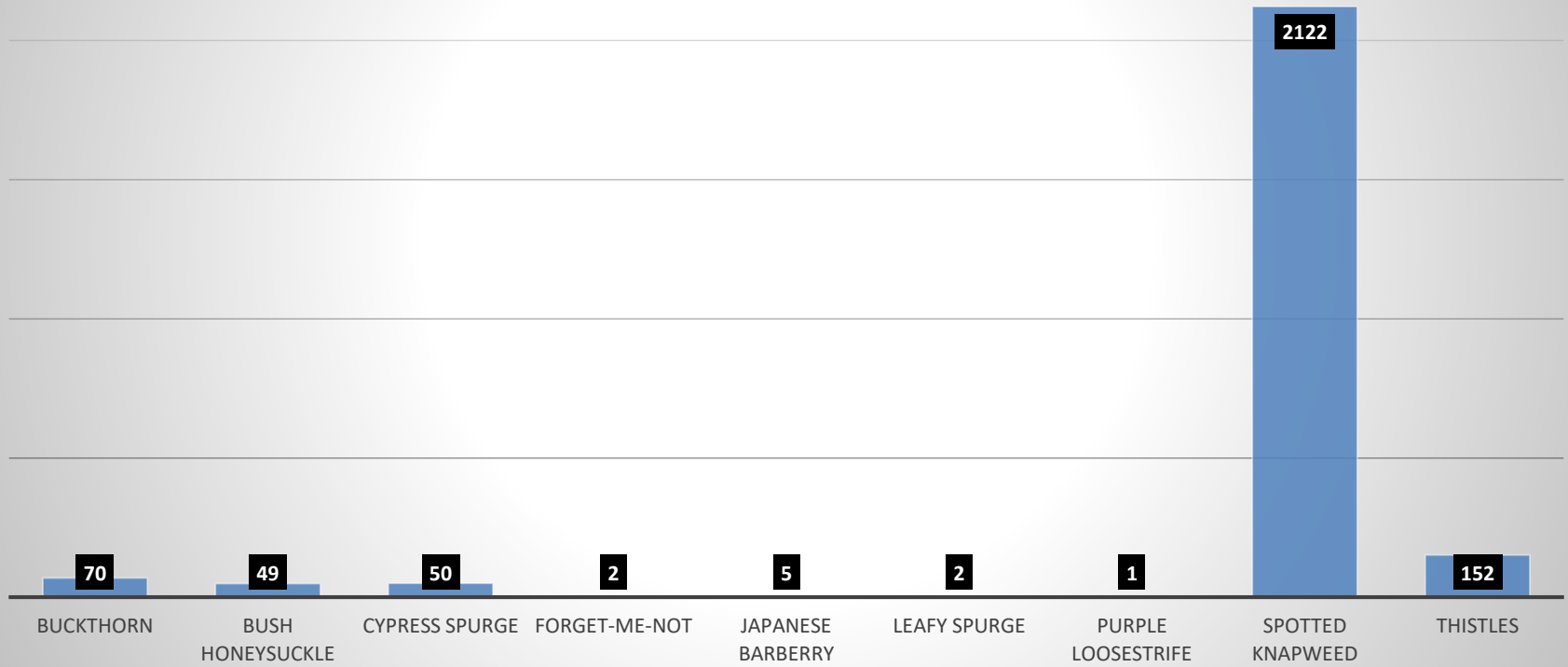


Cypress spurge

343 TIS lines Newbold 2018

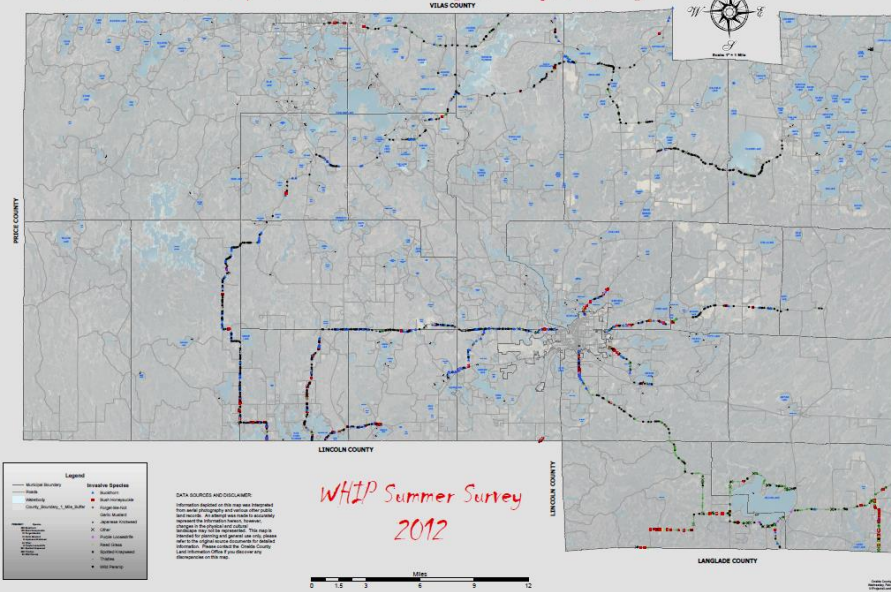


2453 TIS points Newbold 2018

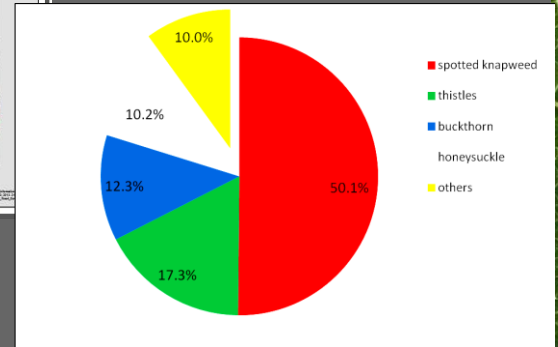


How Common are Invasive Species? e.g., Oneida County Highways in 2012

Terrestrial Invasive Plant Species of Oneida County Road Right-of-Ways



(C) 2002, Gary Fewless



Data points represent invasive plants along county roads.

Observations



Bush honeysuckle and Buckthorn

- Joint occurrence and highest density in urban Newbold close to Rhineland



Bush honeysuckle



Buckthorn

- Native in Asia

Native in Europe,
NW Africa, W Asia

Spotted knapweed

- Healthy mature forest and meadows don't provide habitat for infestation
- Widely spread throughout area, mostly on disturbed sites, prairie land and road sides
- Native to Eastern Europe



Japanese barberry

- Found frequently planted as an ornamental in the area's private yards
- Native in Japan and East Asia



Forget-me-not

- Found on boat landings
- Native to Eurasia

Leafy spurge and Cypress spurge

- occur mostly in yard beds and adjacent areas as well as under transmission lines.
- Native in Europe and Asia



Non-native Thistles

- as single plants or in small-to-large patches. Moist lowlands in particular seem to promote the growth of larger patches.
- Native in Europe and Asia




Purple loosestrife

- Found at Newbold Springs Creek
- Native in Europe, NW Africa, Asia, SE Australia



Recommendations





Priority Species and Locations *(“where do we start?”)*

1. **Species of High Priority to Control as Soon As Possible**
 - Japanese Barberry
 - Five locations close to Rhineland
 - Manual removal works (digging root ball up)
 - Classified as Restricted in Wisconsin

Japanese Barberry

(*Berberis thunbergii*)



- Used as a shade tolerant ornamental
- A low-growing, dense, spiny shrub with small, alternate, oval leaves turning reddish brown in fall
- Sharp spines at each node, bright red berries
- Sites with Barberry have more dense moist shade which breeds many ticks!
- Plants can be pulled out or dug up, easiest in early spring. Remove all roots and watch for resprouts





Priority Species and Locations

2. Species Requiring Long-Term Control Projects

- Non-native honeysuckles
- Buckthorn shrubs and trees
- Spotted Knapweed

3. Species Easier to Control (a season or two)

- Thistles
- Forget-Me-Not
- Purple Loosestrife



Common and Glossy Buckthorn

(Rhamnus cathartica and R. frangula)

- Aggressive tall shrub or tree, black berries
- Grows in wide variety of habitats- is all over Rhineland and other more settled areas
- Both buckthorns were ornamentals, but are strong competitors against native trees: they leaf out earlier, resprout vigorously, and produce many berries that are spread by birds
- Buckthorn can suppress tree seedling survival and can stunt height by shading and crowding through root systems



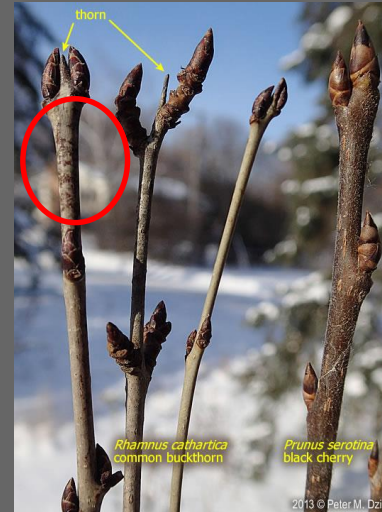
Buckthorns



Black berries that stay on shrub well into fall/winter



Leaf veins extend to tip (Common) and stay green into fall



The tips of twigs form a short, straight thorn with two elongated, brown scaly buds on opposite sides that curve in towards the tip and look similar to a deer hoof (buck)



Terminal thorns



Non-native Honeysuckles

(Lonicera: Amur (maackii), Bell's (bella), Japanese (japonica), Tartarian (tatarica) spp)

- Upright shrubs 6-18'
- Likes open sunny areas and forms thickets
- Flowers abundant, usually pink, red, white
- Bright red berries paired together
- Native honeysuckle is more vine-like or short, sparse shrubs
- Invasive honeysuckle stems usually HOLLOW
- Can block access to forest habitat for wildlife, and foster high numbers of ticks (moisture, shade)



©2004, Gary Fewless

Non-native Honeysuckles



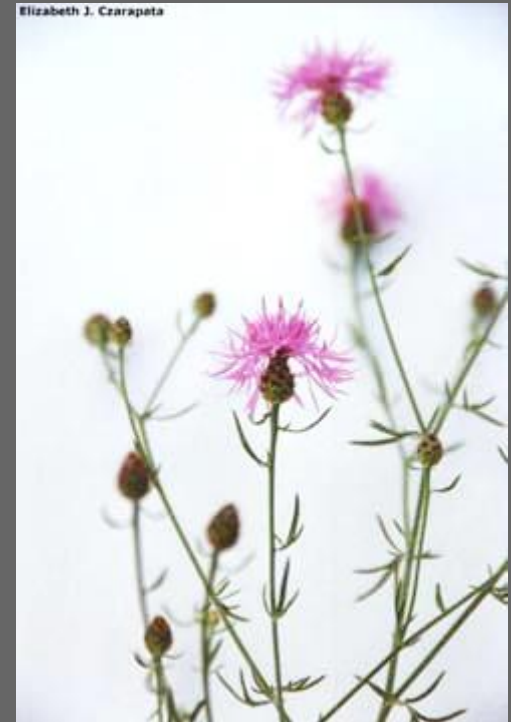
year
plants



Spotted Knapweed

(Centaurea maculosa)

- Found on sunny, disturbed roads and fields
- Branching rough stems grow to 2 feet, with pink-lavender flowers
- Reproduces by seed
- Can cause skin reactions with repeated exposure
- Releases toxins in the soil to prevent other plants from growing!



Spotted Knapweed

(Centaurea maculosa)



First year
plants =
rosette of
leaves




Linear
silver/gray
leaves



Flowers
on
second
year
plants



A field
completely
taken over!



Thistles (including Bull, Musk, Plumeless, European Marsh, and more)

- Biennials that live for 2 years!
- All invade prairies, fields, pastures, roadsides, and ditches
- Seeds lightweight and feathery
- Flower heads are brush-like, pink to purple, single or clustered at end of stem.
- Can form dense stands, shade out natives and interfere with regular foraging habits of wildlife.





Musk thistle



Plumeless thistle



Bull thistle



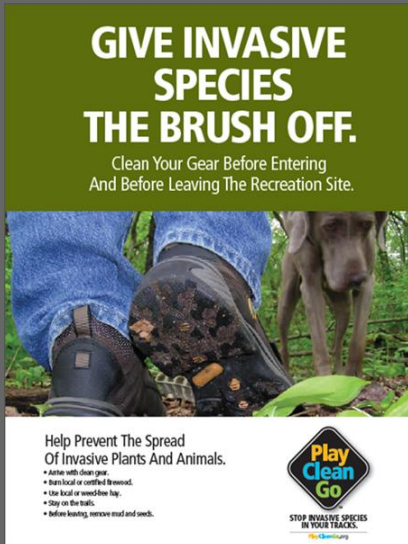
Typical thistle rosette



Priority Species and Locations

4. Where to Begin Outreach?

- Loop off Forest Drive leading to Larsen Drive
- Residential neighborhood
- Invasive plants present in high numbers and diversity
- Landowners may not realize what they have
- Distribute material to educate, use partner resources
- Use social or peer pressure!! 😊
- **“Battle Buckthorn” “No More Knapweed”**



GIVE INVASIVE SPECIES THE BRUSH OFF.
Clean Your Gear Before Entering
And Before Leaving The Recreation Site.

Help Prevent The Spread
Of Invasive Plants And Animals.

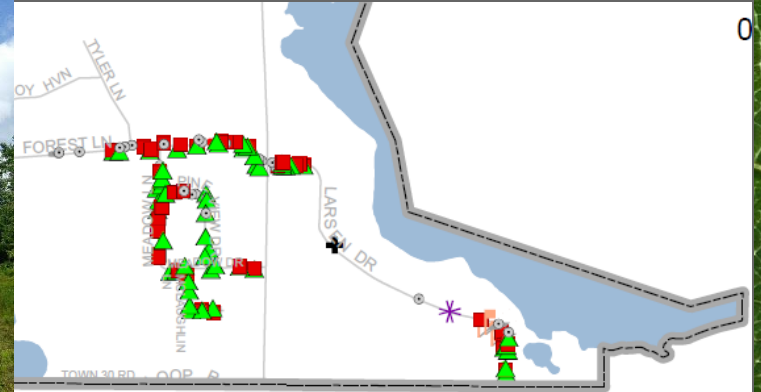
- Arrive with clean gear.
- Burn local or certified firewood.
- Use local or woodfree hay.
- Stay on the trails.
- Before leaving, remove mud and seeds.

Play Clean Go
STOP INVASIVE SPECIES
IN YOUR TRACKS.
Wildland.org

Priority Species and Locations

5. Where to Begin Control?

- Power Line on Larsen Drive (multiple species) Cost sharing?





Priority Species and Locations

5. Where to Begin Control?... continued

- **Town Hall:** invasive species control around this building could be very effective, and could educate as well
- **Bridge Rd:** a high traffic spot that leads to many other roads and neighborhoods, very high chance of spreading invasive species on vehicle tires
- **Newbold Springs Creek** at Hwy 47: Purple Loosestrife spreading downstream... a new report for the County AIS department
- **Ole Lake Road, Muskellunge Lake Road, Stone Lake Road:** Areas that would benefit from Knapweed pulling since there are very few plants present, but they could spread quickly in upcoming seasons

Priority Species and Locations

You can help! Residents of Newbold can make a significant contribution

- Who are the potential groups?
- Volunteers
- School groups
- Community groups
- Church organizations
- Outdoor clubs
- Other?



STOP INVASIVE SPECIES IN YOUR TRACKS.



Help Prevent The Spread Of Invasive Plants And Animals.

- Arrive with clean gear.
- Don't feed or certified firewood.
- Use local or weed-free hay.
- Stay on the trails.
- Before leaving, remove meat and seeds.



THE STATE OF MINNESOTA

What can we do as a community?

- Raise awareness about invasive ornamental garden plants
- Eradicate invasives from our yards and garden beds
- Use seed free top soil only
- Minimize disturbance of ground cover



What can we do as a community?

- Report and monitor invasive plants
- Become engaged with eradication projects organized by the general public
- Inspire town board to become even more active in attacking invasive plant species
- Use clean land fill and sand/gravel in construction

**We'll be
PULLING TOGETHER**





W.H.I.P. =

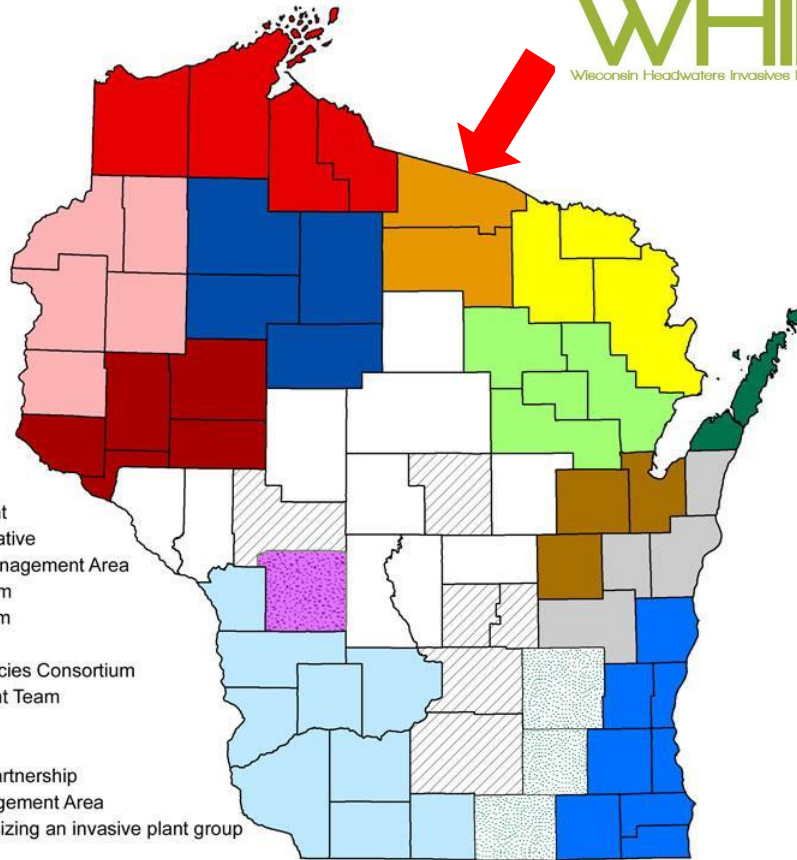
Wisconsin Headwaters Invasives Partnership

- A cooperative of 15 partners: government, nonprofits, and schools
- We educate and teach, and aim to manage invasive species
- Fiscal sponsor is the Lumberjack RC&D Council
- We serve Vilas and Oneida counties



MISSION: WHIP is dedicated to the conservation of the native species, habitats and landscapes of Oneida and Vilas Counties in north-central Wisconsin. WHIP recognizes the threat of invasive species and will work cooperatively to provide education, monitoring and invasive species control.





- Timberland Invasives Partnership
- SW Weed Management Area
- St. Croix Red Cedar CWMA
- Previously active, currently dormant
- BOWON Invasive Species Cooperative
- West Central WI Invasive Plant Management Area
- Door County Invasive Species Team
- Monroe County Invasive Plant Team
- North Woods CWMA
- Southeast Wisconsin Invasive Species Consortium
- Greater Sauk County Invasive Plant Team
- Upper Chippewa CWMA
- Wild Rivers CWMA
- Wisconsin Headwaters Invasive Partnership
- Lakeshore Invasive Species Management Area
- Some residents interested in organizing an invasive plant group
- No regional invasive plant group

CISMA =
Cooperative
Invasive Species
Management
Area

- control invasive species across boundaries
- grant-supported
- Steering Committees, and Partners with signed MOU

WHIP MOU Partners



- Lumberjack Resource Conservation & Development
- United States Forest Service, Chequamegon-Nicolet National Forest
- Partners in Forestry
- Trees for Tomorrow- Natural Resource Specialty School
- Wisconsin Department of Natural Resources
- The Nature Conservancy
- Conserve School
- Northwoods Land Trust
- Board of Commissioners of Public Lands
- Oneida County Land & Water Conservation Department
- Vilas County Land & Water Conservation Department
- Great Lakes Indian Fish & Wildlife Commission
- Wisconsin Department of Transportation
- Lac du Flambeau Band of Lake Superior Chippewa Indians Council
- USDA Natural Resources Conservation Service

WHIP can help with:

- Site visits in Oneida and Vilas Counties
- Species identification
- Providing material, photos, resources
- Outreach workshops, presentations
- Annual Meeting: speakers and Q&A
- Working towards better capacity for control projects
- Questions? rpage19@gmail.com and www.whipinvasives.org



THANK YOU

Literature used:

- Forman, Richard T.T., and Lauren E. Alexander. "Roads and their major ecological effects." *Annu. Rev. Ecol. Syst.*, 1998: 207-231.
- Hayden Reichard, Sarah, and Peter White. "Horticulture as a Pathway of Invasive Plant Introductions in the United States." *BioScience*, 2001: 103-113.
- Hulme, Philip E. "Trade, transport and trouble: managing invasive species." *Journal of Applied Ecology*, 2009: 10-18.
- Jenkins, Peter T. "Trade and exotic species introduction." In *Invasive Species and Biodiversity Management*, by Odd T. Sandlund, Peter J. Schei and Aslaug Viken, 229-236. Dordrecht, Netherlands: Kluwer Academic Publishers, 1999.
- Sandlund, Odd T., Peter J Schei, and Aslaug Viken. "Introduction: the many aspects of the invasive alien species problem." In *Invasive Species and Biodiversity Management*, by Odd T. Sandlund, Peter J Schei and Aslaug Viken, 1-7. Dordrecht, Netherlands: Kluwer Academic Publishers, 1999.

Literature used continued:

- Setter, Cassandra M., and Rodney G. Lym. "Change in Leafy spurge (*Euphorbia esula*) Density and Soil Seedbank Composition 10 Years following Release of *Aphthona* spp. Biological Control Agents." *Invasive Plant Science and Management*, 2013: 147-160.
- von der Lippe, Moritz, and Ingo Kowarik. "Long-Distance Dispersal of Plants by Vehicles." *Conservation Biology*, 2007: 986-996.
- WDNR, Wisconsin Department of Natural Resources. *A Field Guide to Invasive Plants in Wisconsin*. Wisconsin Department of Natural Resources, 2012.

- Invasive plants have the ability to change environmental factors:
 - Soil acidity
 - Soil water retention ability
 - Sunlight exposure
 - Nutrient cycling
- They also kill other species through
 - Release of toxins
 - Introduction of new parasites

RESULT: Native ecosystems are threatened

What are invasive plants?

- A newly introduced plant species will either coexist with native species **or** start elimination by outcompeting them for nutrient access and/or environmental conditions needed for survival.
- An introduced species is labeled as “*invasive*” if a native species gets pushed out of its niche, resulting in a highly reduced chance for subsistence.