Extension
UNIVERSITY OF WISCONSIN–MADISON

WISCONSIN FIRST DETECTOR NETWORK

Invasive Plants

Anne Pearce + Mark Renz

Invasive Plants

1) Non-native, naturalized
2) Growing or spreading rapidly
3) Cause or have potential to cause harm

Invasive Dame's rocket

1) Non-native, Naturalized

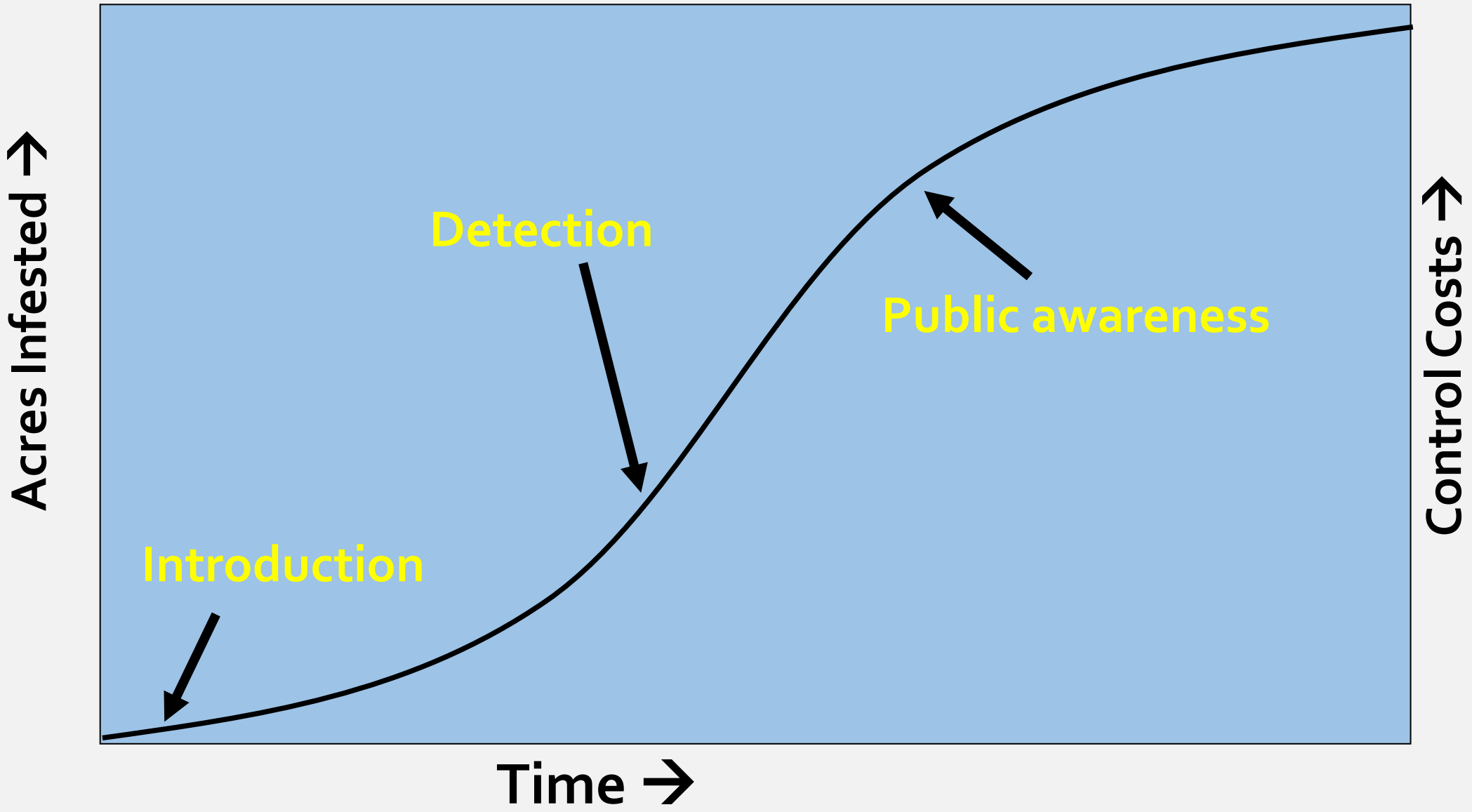
- Non-native → not present in WI prior to European settlement
- Naturalized → persists on its own

- Example: black locust native to southeast US, but introduced to WI + persists on its own

Native plants can be problematic too!

Majority of non-native species are not invasive

2) Spreading rapidly in new area



3) Ecological Impacts

- Loss of native plant species
- Poor wildlife habitat
- Bare soil → erosion

- Example: Buckthorn is allelopathic, has longer growing season, fruits spread widely by birds but are not nutritious

3) Economic Impacts

- Recreation industry
- Impacted timber regeneration
- Cost to manage infestations

- Example: Honeysuckle slows timber regeneration 15-30%

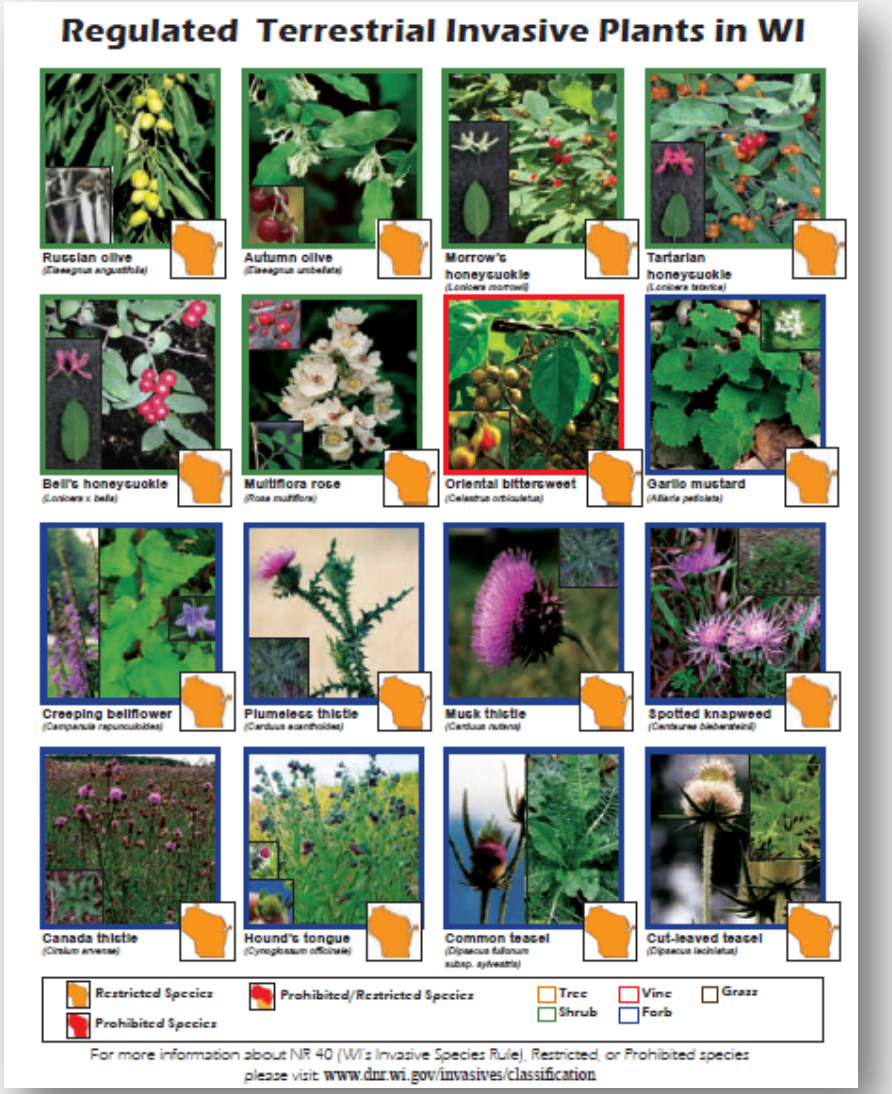
3) Human Health Impacts

- Difficult to walk through
- Impacts to skin (wild parsnip burn)
- Provide habitat for disease-carrying ticks

- Example: Japanese barberry is a spiny plant, associated with increased density of deer ticks

Wisconsin's Invasive Species Rule- NR40

- Education about invasive species
- Goal to prevent introduction and spread
- Over 200 species regulated and classified as ether "Prohibited" or "Restricted"



NR40 Classification

PROHIBITED

- Not yet established or only in pioneer stands
- No person may transport (import/ move), **possess**, transfer (buy/ sell) or introduce a prohibited species without a permit

RESTRICTED

- Already established in state
- No person may transport (import/ move), transfer (buy/ sell) or introduce a restricted species without a permit

PROHIBITED

RESTRICTED

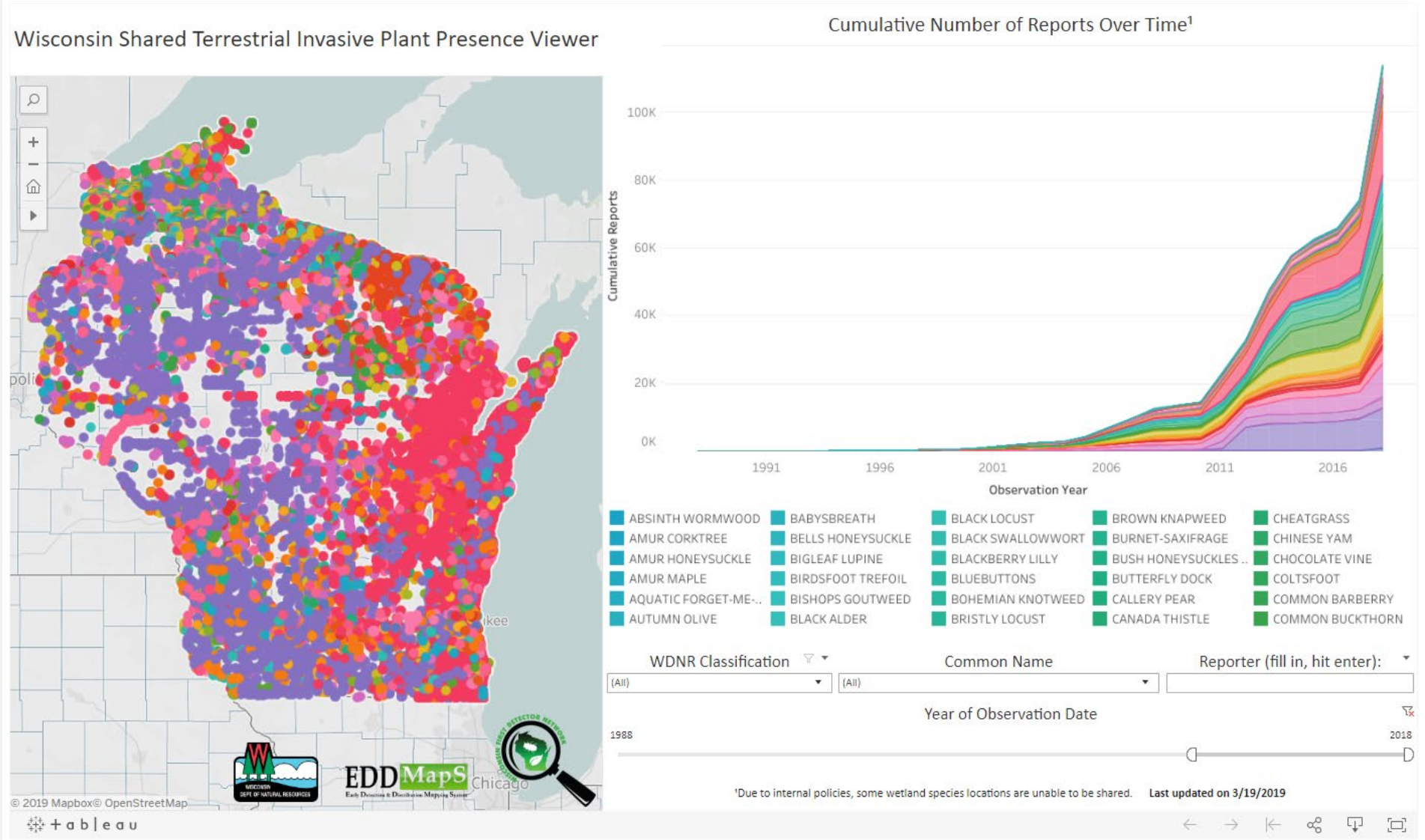
Find the list of regulated species
at dnr.wi.gov, search “NR40”

What if I find a Prohibited species?

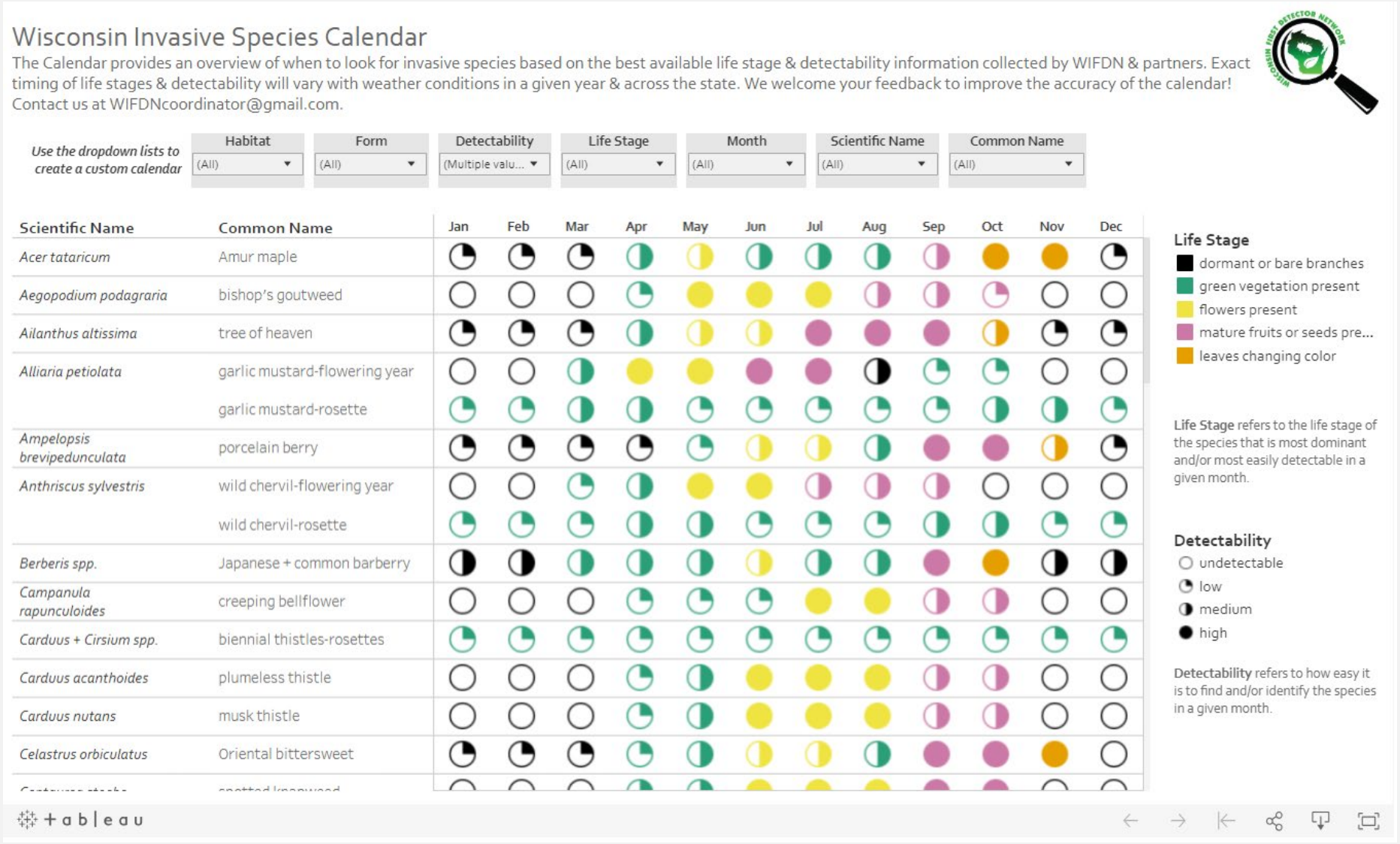
- Report it!
  - Date, pictures, location (GPS coordinates), physical sample
  - Report to DNR (invasive.species@wi.gov) and/or WIFDN (wifdncoordinator@gmail.com)
- Begin control ASAP

Invasive Plants in Urban Forests

What is Nearby → WISTIPP Viewer

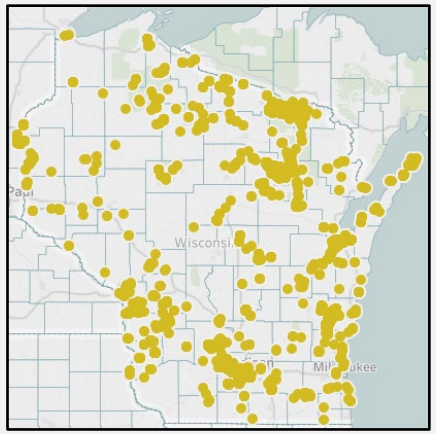


When to Look → Invasive Species Calendar



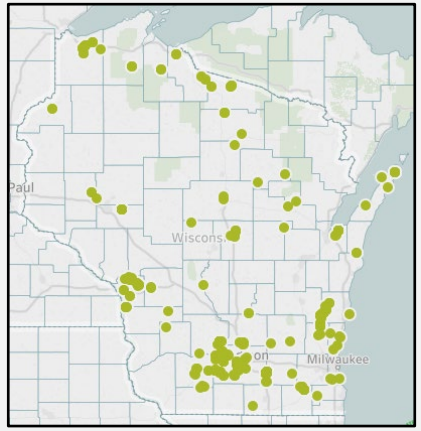
Garlic Mustard (*Alliaria petiolata*)

- Biennial
- Grows 2-4 ft tall
- 4-petaled white flowers
- Smells like garlic when crushed

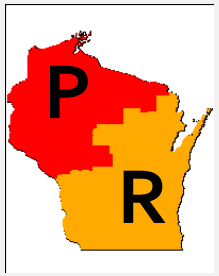


Dame's Rocket (*Heperis matronalis*)

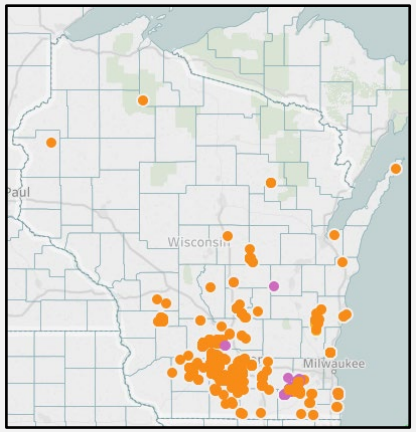
- Short-lived perennial
- Hairy, toothed leaves
- **4-petaled** flowers from white to purple
- Blooms late spring through summer
- Long, slender seed pods



Japanese Hedgeparsley (*Torilis japonica*)



- Biennial
- Grows 2-6 ft tall
- Alternate, fern-like leaves
- Flat-topped umbels of tiny, white flowers bloom July – Aug
- Hooked hairs on fruits



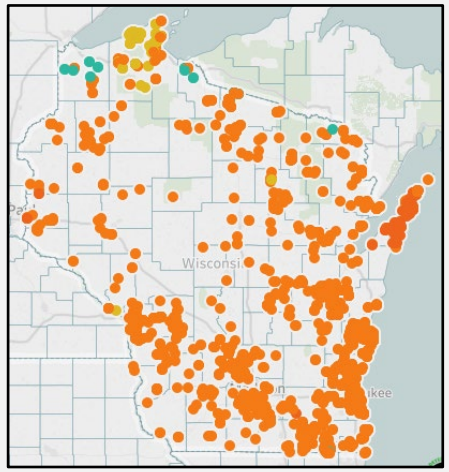

S. Kelly Kearns, WI DNR


S. Kelly Kearns, WI DNR


Dan Tenaglia, Missouriplants.com, Bugwood.org

Japanese Knotweed (*Fallopia japonica*)

- Perennial, bamboo-like
- Arching stems, grow to 10+ ft tall
- Alternate, spade-shaped leaves, 3-4 in wide, 4-6 in long
- Plume-like clusters of tiny green to white flowers, August - September



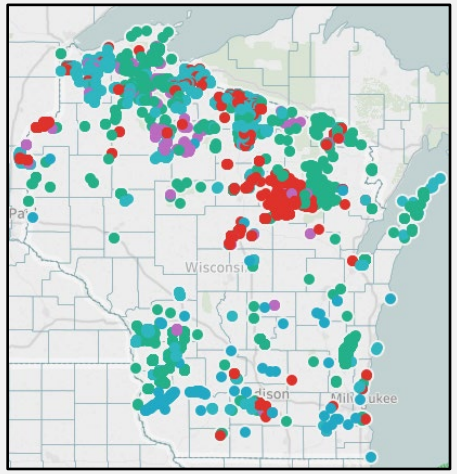
Nisa Karimi, WI DNR

Peter M. Dziuk, minnesotawildflowers.info

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Bush Honeysuckles (*Lonicera* species)

- Dense, multi-stemmed shrubs
- Grow 6-12’ tall
- Opposite, toothless leaves
- Fragrant pairs of flowers at leaf axils
- Shaggy, peeling bark
- Hollow pith



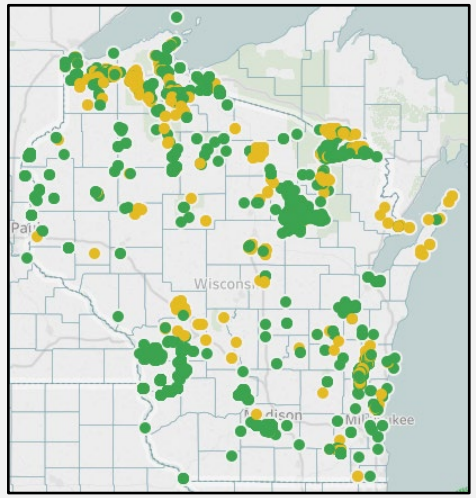
Buckthorns

Common Buckthorn
(*Rhamnus cathartica*)

- Opposite leaves (mostly)
- 4-petaled flowers (May – June)
- Most aggressive in well-drained soils

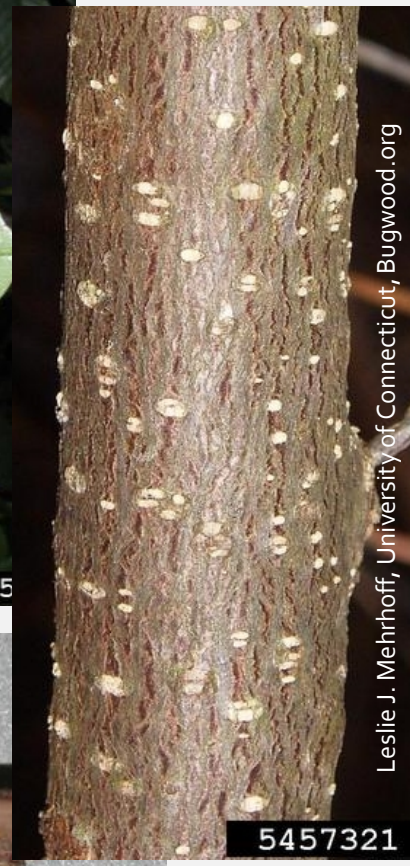
Glossy Buckthorn
(*Frangula alnus*)

- Alternate leaves
- 5-petaled flowers (May – frost)
- Most aggressive in wet soils



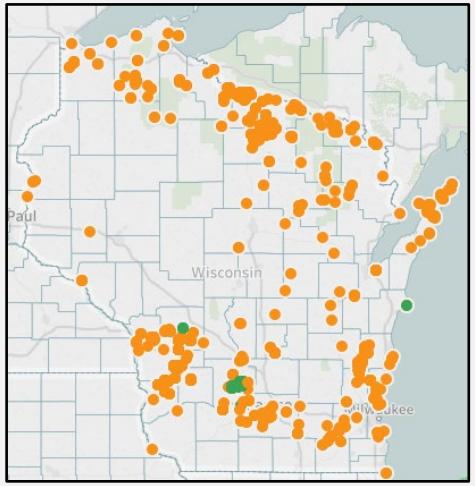
Common Buckthorn

Glossy Buckthorn



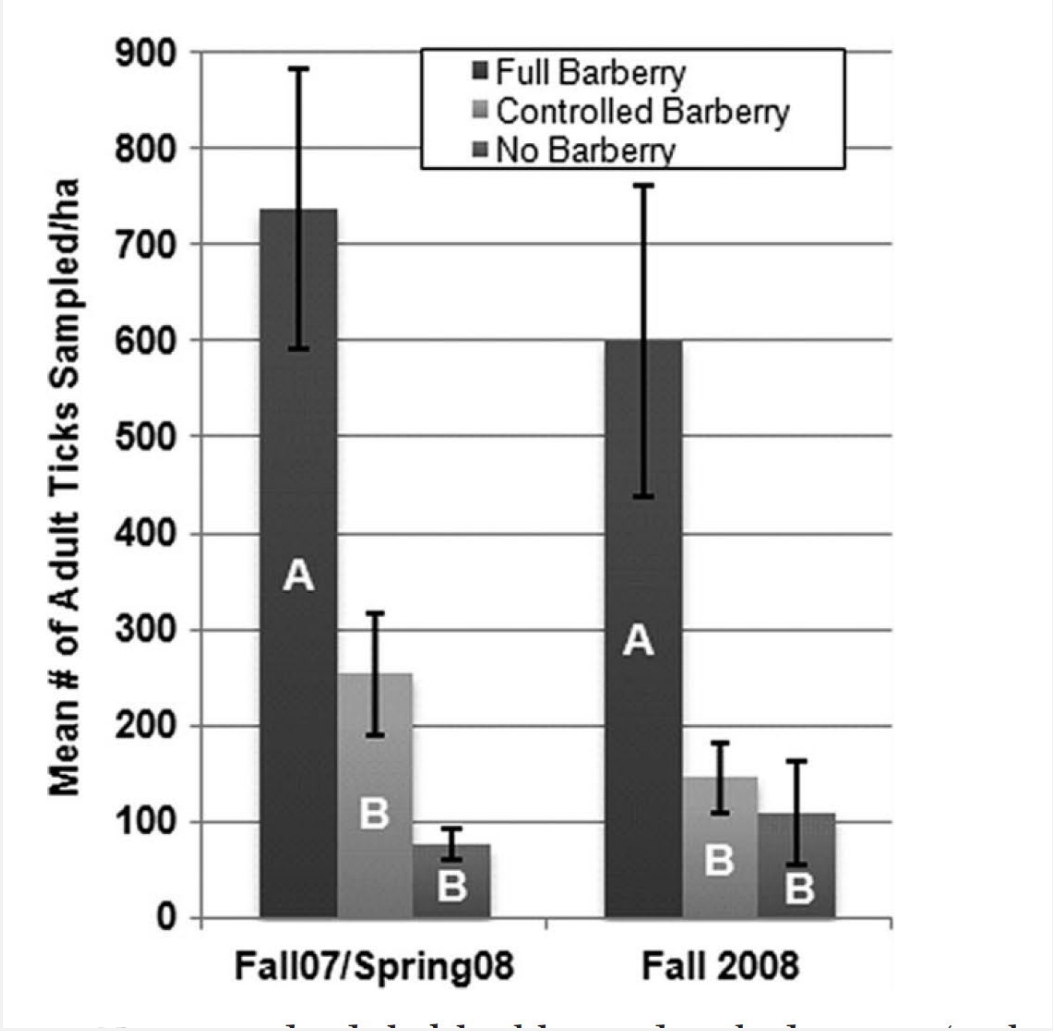
Japanese barberry (*Berberis thunbergii*)

- Dense, spiny shrub
- Typically 2-3’ tall, can grow to 6’
- Reddish brown branches, deeply grooved, zig-zag form
- Inner bark fluorescent yellow



Tick numbers and their relationship to Japanese barberry presence/control

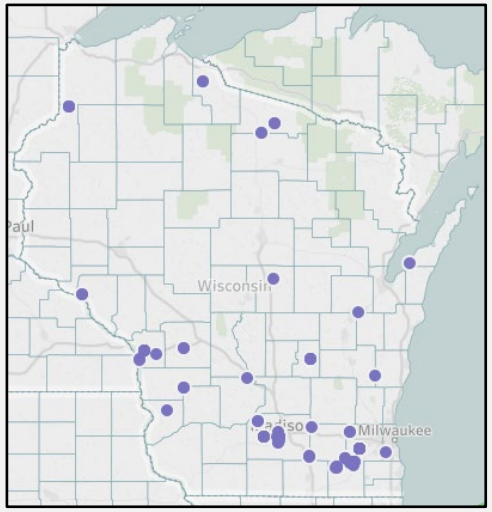
- Treatments evaluated:
  - Full J. barberry populations (>60% cover)
  - Controlled J. barberry (3% cover)
  - No J. barberry (3% cover)
- Sampled over two years



Williams et al. 2009

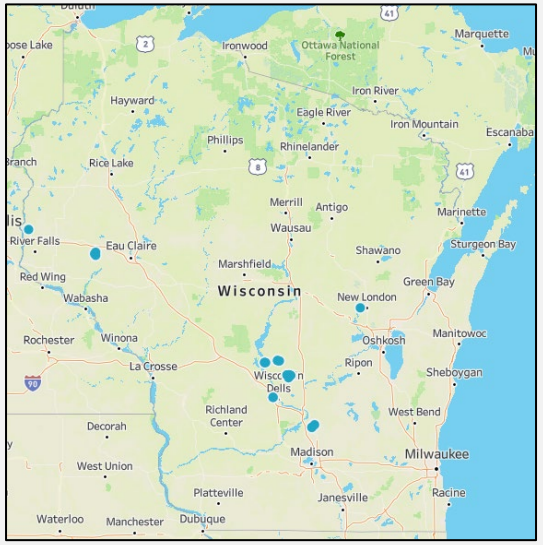
Burning Bush (*Euonymus alatus*)

- Shrub, grows up to 20’ tall
- Opposite leaves, bright red in autumn
- Distinct corky ridges along stem

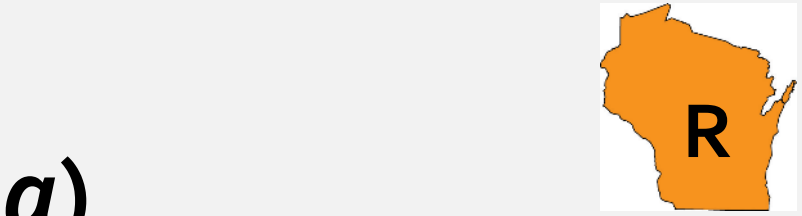


Amur Cork Tree (*Phellodendron amurense*)

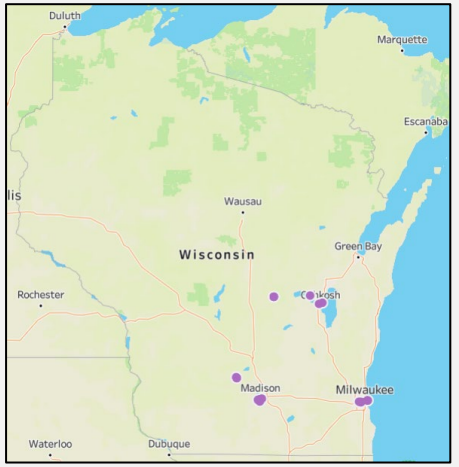
- Corky bark, bright yellow inner bark
- Opposite leaves, pinnately compound, smell citrusy when crushed
- Panicles of fruits on female trees



Tree of Heaven (*Ailanthus altissima*)

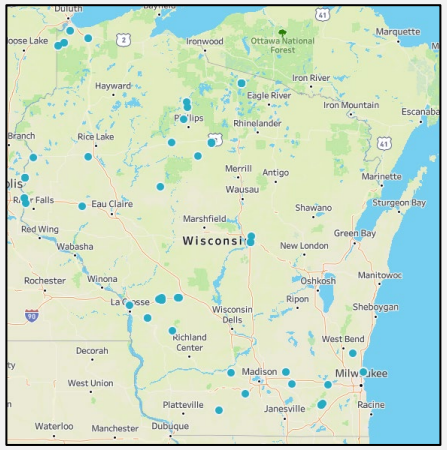


- Alternate, compound leaves with 11-25 opposite leaflets
- Dense clusters of yellow-green flowers in late spring; develop into two-winged samaras
- Leaves, male flowers with strong odor
- Preferred host for spotted lanternfly (not yet found in WI)



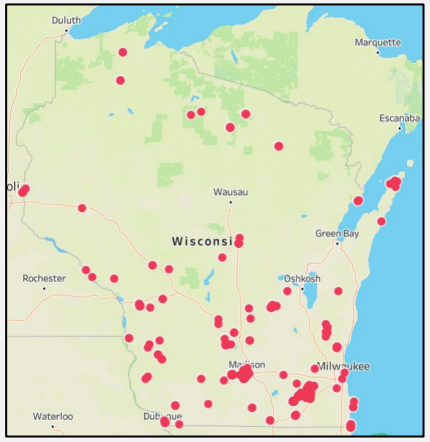
Amur Maple (*Acer ginnala*)

- Deciduous shrub/tree
- Grows 15-20 ft tall
- Opposite leaves with 3 lobes
- Bright red fall foliage



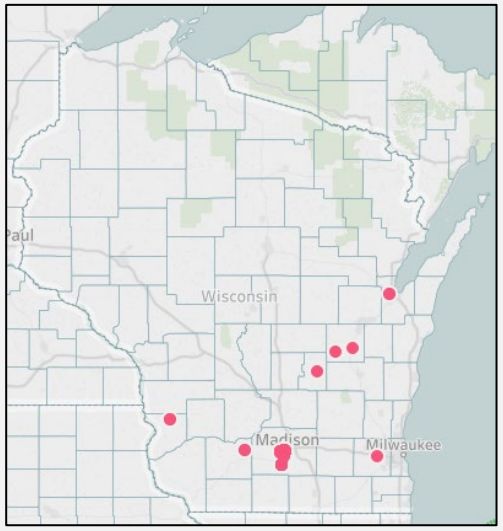
Oriental Bittersweet (*Celastrus orbiculatus*)

- Perennial woody vine
- Alternate, glossy leaves with pointed tip
- Clusters of flowers/fruits in leaf axils
  - native American bittersweet has clusters at ends of branches
- Orange fruits with yellow-orange capsules



Porcelain Berry (*Ampelopsis brevipedunculata*)

- Perennial, woody vine
- Grows up to 15 feet in one season
- Young stems hairy
- Similar to native wild grapes




Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Porcelain berry

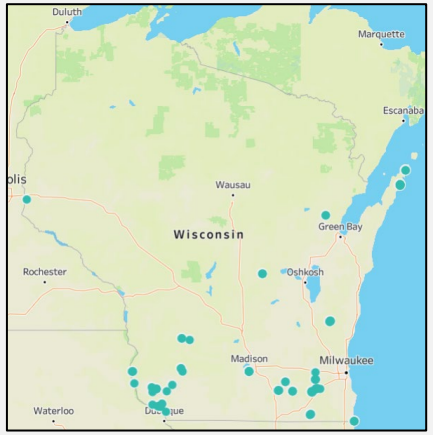
- Branched tendrils
- **White pith**
- Ridged/furrowed bark
- **Fruits pink to purple to blue; white or gray spots; white flesh**

Wild Grape

- Unbranched tendrils
- **Brown pith**
- Shredded bark
- **Fruits green, purple, black; watery flesh**

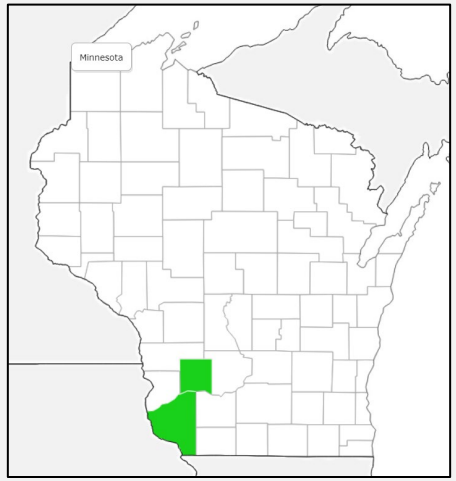
Black Swallow-wort (*Vincetoxicum nigrum*)

- Perennial, herbaceous vine
- Grow 3-6’ long; hairy stems
- Opposite dark green shiny leaves, 2-5” long
- Clusters of 6-10 dark purple flowers with 5 points
- Seed pods similar to milkweed



Goldencreeper (*Thladiantha dubia*)

- Fast-growing perennial, herbaceous vine
- Grows from tubers, climbs with tendrils
- Hairy leaves
- Blooms July – Sept
- Member of cucumber family



Invasive Plant Management

Which invasive plants impact your goals?

<u>Difficult to answer as impacts of invasive species are</u>:

- Species specific
- Location specific
- Density specific

Which invasive plants impact your goals?

Species to prioritize:

1. Species that increase potential to harm humans
2. Species that have documented ecosystem impacts
   - Reduce forest regeneration, biodiversity, nutrient cycling
3. Species that are just establishing
   - Can easily be eradicated

→Work with experts to help with prioritization

Mark's List of invasive plants to keep out of WI forests

Forest ecosystem changers

- bush honeysuckles*
- autumn olive
- Japanese barberry*
- black locust
- common/glossy buckthorn
- garlic mustard
- multiflora rose

Early detection species

- black swallow-wort
- Japanese hedge parsley
- tree-of-heaven
- burning bush
- Asian bittersweet
- Porcelain berry
- Lesser celandine
- Amur corktree

*Known to directly or indirectly cause impacts to human health

Consider resources available and what you want the result to be BEFORE management……

Approach to managing invasive plants

Step 1: Plant identification

Step 2: Distribution of population

Step 3: Select appropriate control tactic(s)

Step 4: Apply control method(s)

Step 5: Monitor and adapt management

Many control tactics

- Manipulation of the environment
- Physical/mechanical management
- Prescribed fire
- Biological control
- Herbicide

What techniques should I be familiar with to control woody species?

- Something to cut down woody species
  - Chainsaw
- Something to pull them out of the ground
  - Weed wrench/pulling implement
- Something to spray herbicide
  - Foliar, Basal bark, Cut stump/surface

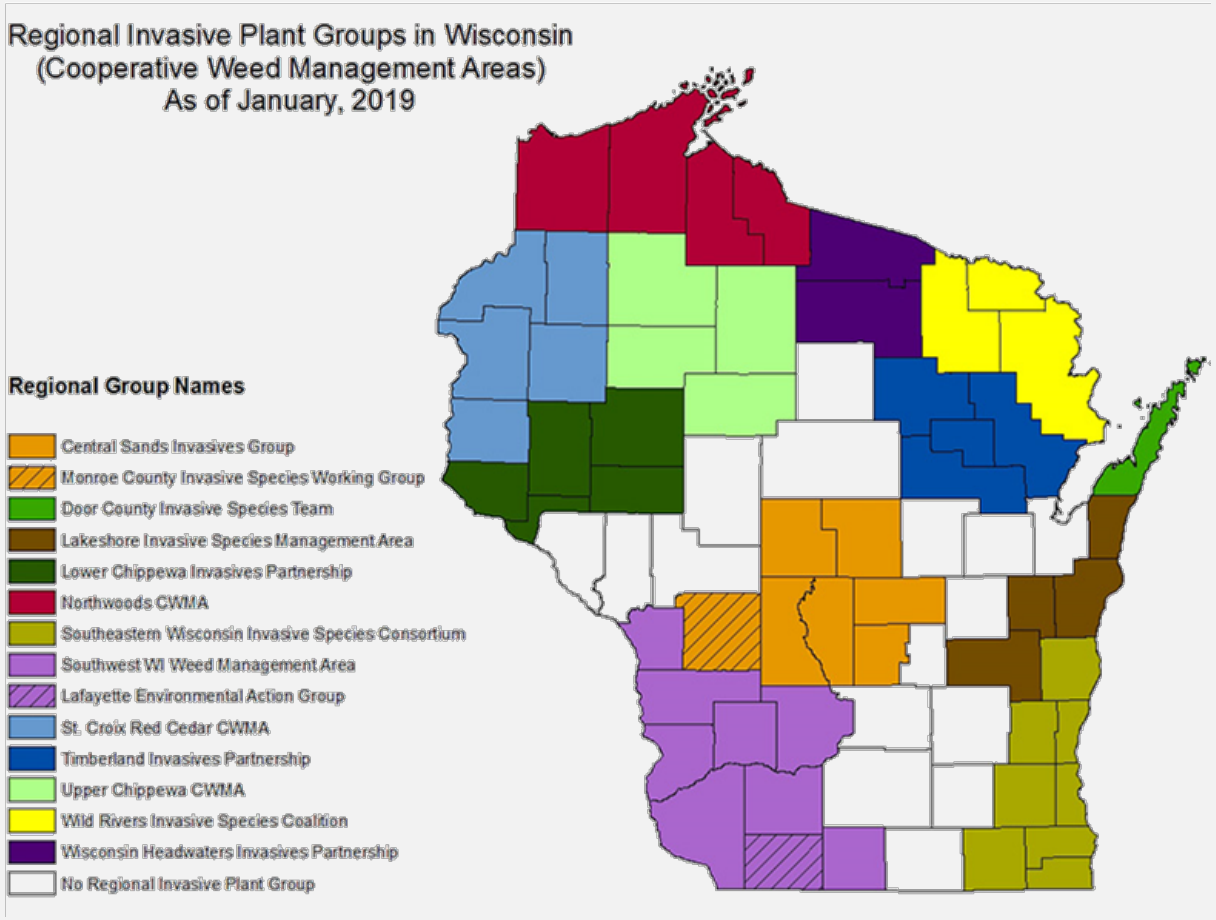
Mark's Tips for invasive plant management planning

1. Monitor for new species entering your lands every year
   - If you find one, evaluate the benefit/risk of doing nothing
   - If you can't identify a new plant, ask an expert
   - Find source populations and minimize spread
2. Manage invasive plants based on your personal goals for the land
   - Keep invasive plants known to impact woods out of your forest
   - For larger problems think about a multi-year approach
3. Utilize experts and science-based publications to assist your needs
   - People will help, just ask!
4. Incorporate invasive plant management into your forest management plan
   - Easy structure to include information

Invasive Plant Organizations

Local Groups- CISMAs/CWMAs

- Organizations that bring together government, non-profit, private industry, landowners
- Coordinate action/share resources to manage invasive species
- More info at ipaw.org



Statewide Groups- WIFDN and IPAW

WI First Detector Network: supports invasive species education + citizen science volunteer opportunities

fyi.extension.wisc.edu/wifdn

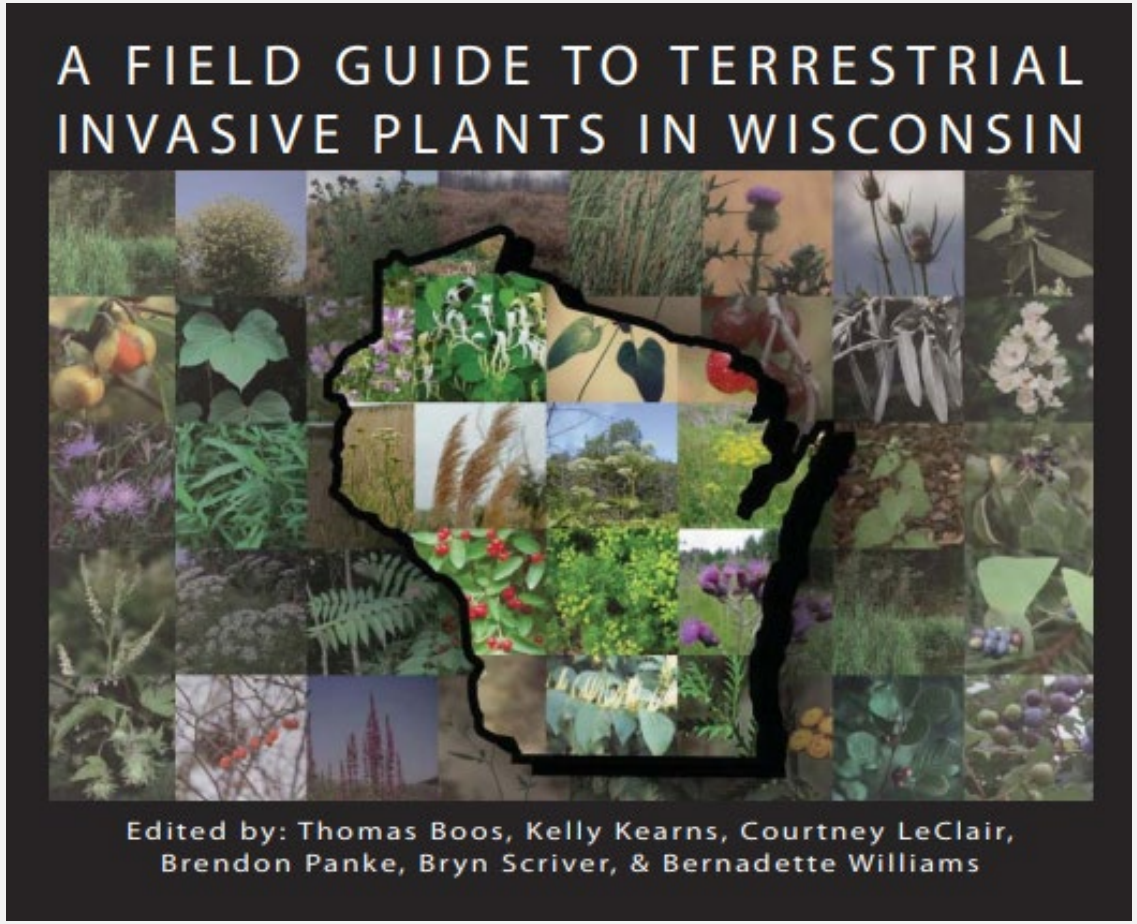
Invasive Plants Assoc. of WI: supports invasive species education + acts as umbrella org. for CISMAs

ipaw.org

Additional Resources

Plant I.D. Resources

- WI DNR Terrestrial Invasive Plants Field Guide
- UW Extension fact sheets and I.D. videos
- Wisconsin Weed I.D. (weedid.wisc.edu)
- Minnesota Wildflowers advanced search (MinnesotaWildflowers.info)



Mapping Invasive Plants with EDDMapS Website + GLEDN App

- Free database + app for mapping, downloading + sharing data
- WIFDN provides training + support!

EDDMapS
Early Detection & Distribution Mapping System

Invasive Plant Research

RenzWeedScience.cals.wisc.edu

Thank you!

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