Cooperative Invasive Species Management Introduction

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Agenda:

1. Native species
2. Invasive species
3. The invasion curve
4. Statewide effort/CISMAs
5. As an educator, what can I do?

Native Species Basics

- **Native species-** an organism that arrived, established, and survived in a given area without direct or indirect human assistance
- Plants, animals, fungi, bacteria, etc.
- Examples of Barry County native plants:

Wild columbine	Swamp white oak/	Hazelnut
Cardinal flower	White oak	Red oak
Marsh marigold	Spicebush	Bur oak
Big bluestem	Ninebark	Elderberry
Switch grass	Red-osier dogwood	Serviceberry

...and many more!

Native Species Diversity- Ecological importance

Benefits of Native Species

- Naturally selected for this area
  - Less fertilization, irrigation, and cold protection
  - Can better withstand rare extreme weather events
- Co-evolved with the other species in the area
  - Resource partitioning
  - Ecological relationships, both oppositional and symbiotic
  - System checks and balances
- Allow for greater biodiversity:
    - **Types-** Genetic, species, functional, ecosystem
    - **Scales-** Within an ecosystem, between ecosystems, overall

Biodiversity and Ecosystem Services

- **Ecosystem services**- the benefits provided by ecosystems to humans
  - **Supporting**: Functions that maintain all other services
  - **Provisioning**: Goods or products produced by ecosystems (food, fiber, fuel, medicine, etc.)
  - **Regulating**: Natural processes regulated by ecosystems (water filtration, climate regulation, flood regulation, pollination, etc.)
  - **Cultural**: Intangible benefits obtained from ecosystems (beauty, recreation opportunities, etc.)

Invasive Species Definition

An organism that meets **BOTH** of the following criteria:

1. **Not native**
2. **Causes harm**

Invasive Species Basics

- Most often spread by humans
- Able to take off faster in areas already degraded or disturbed by humans
  - Development/construction
  - Infrastructure (roads)
  - Fallow fields

Invasive Species Common Characteristics

- Grows quickly
- Can tolerate a wide variety of conditions
- No natural predator
- No natural competitor
- Produces many seeds/seeds that are easily spread or reproduces effectively and frequently

ONTARIO'S INVADING SPECIES AWARENESS PROGRAM

Invasive Species in Southern Lower Michigan

Widespread

- Eurasian bush honeysuckles (various)
- Common and glossy buckthorns
- Privet
- Barberry
- Multiflora rose
- Oriental bittersweet
- Autumn olive
- Garlic mustard
- Spotted knapweed
- Phragmites
- Dame's rocket
- Baby's breath
- Black Locust
- Purple loosestrife
- Reed canary grass
- Spotted knapweed
- Swallow-wort

Emerging Threats

- Black and pale swallow-wort
- Japanese and giant knotweed
- Giant Hogweed
- Jetbead
- European frog-bit
- Water hyacinth
- Flowering rush
- Hydrilla
- Japanese stiltgrass

Negative Effects of Invasive Species

- Can limit future land use
- Can damage natural heritage
  - Forest health
  - Biodiversity
- Harmful effects on recreation opportunities
  - 7 million acres of national parks are infested by invasive plants (*Midwest Invasive Plant Network)*
- Health risks


...but some invasive species are so pretty!
Are they really such a big deal?
Photo: nicksnaturepics.wordpress.com

7. *Aiyana* Says:
May 31st, 2009 at 5:23 pm

It's such a beautiful flower–invasive or not. One of my favorite flowers–Heavenly Blue Morning Glories happens to belong to a banned species in Arizona. Makes me want it more!
Aiyana

8. *cindee* Says:
May 31st, 2009 at 6:59 pm

That is really pretty. I wouldn't mind it taking over my garden(-:

16. *Marsha Cochran* Says:
May 25th, 2010 at 8:36 am

I live in Ohio and would love to know of a source that would enable me to plant dames rocket in my wooded ravine – short of stopping by the side of the road and diging it up.

Thanks,

Marsha

10. *Ratty* Says:
May 31st, 2009 at 9:41 pm

No matter what the problems with it, they are nice looking little flowers.

15. *Pam* Says:
June 23rd, 2009 at 3:57 am

I live in Walden, Vermont and have large areas of field to work with. I love dames rocket and bought a pound of this seed last summer to add some color to our fields. This year I have ONE dames rocket flower. I am so disappointed. Does any one know why my dames rocket won't grow? It is certainly not invading our area. My goal is to fill a large area with the purple and white color. I saw a hill side that was covered, and I mean covered with this flower and I think that it is one of the most beautiful spots on earth. I am trying to accomplish the same here.

...are they really such a big deal?

Photo: nicksnaturepics.wordpress.com Comments: wiseacre-gardens.com

Case Study- Kudzu

- A vine introduced to the U.S. from Japan in the 1800s for decoration ("It's so **pretty**!")
- In the 1930s, the Soil Conservation Service paid farmers to plant it for soil erosion ("It's so **useful**!")

What could possibly go wrong??

Case Study- Kudzu

- Can grow a foot per day! Mats can be 5’ deep!
- Problems-
  - Outcompetes and chokes out everything
  - Damages trees
  - $100–500 million per year in forest productivity
  - $1.5 million/year to repair damage to power lines
  - $5,000 per hectare per year to control

Case Study- Japanese Knotweed

- Introduced as an ornamental (It's so **pretty**!)
- "It's been in my yard for so long and hasn't caused any major problems…"

Is it really a big deal?

What could possibly go wrong??

Couple are forced to demolish their £300k four-bed home after it was invaded by Japanese knotweed

By VALERIE ELLIOTT
UPDATED: 13:28 EST, 23 October 2011

It's the scourge of the suburbs, feared by homeowners and gardeners.

Now a couple have been told their newbuild home must be demolished to rid it of an invasion of Japanese knotweed.

Matthew Jones and fiancee Sue Banks have seen the value of their four-bedroom house in Broxbourne, Hertfordshire, almost wiped out – dropping from £305,000 to £50,000 – as a result of the damage.

Case Study- Japanese Knotweed

- Legally prohibited in Michigan
- Can contribute to stream bank erosion and flooding
- Can penetrate asphalt and cracks in concrete and destroy a foundation
- Very difficult to control once it enters a home
- Limits growth of other (native) species
- Costs £150 million a year to control just in Britain

Case Study- Giant Hogweed

- Introduced to the US from central Asia in the early 1900s as an ornamental (It's so **pretty**!)
- Was kept in gardens and arboretums (It's so **interesting**! It is contained…)

What could possibly go wrong??

Case Study- Giant Hogweed

…it escaped.


Day 8
Day 9
Month 5

Case Study- Giant Hogweed

- Human health impacts:
  - Blistering
  - Blindness
  - Scarring
- Displaces native plants
- Reduces wildlife habitat

The estimated damage from invasive species worldwide totals more than $1.4 trillion.

(The Nature Conservancy)

ONTARIO'S INVADING SPECIES AWARENESS PROGRAM


OK, OK, invasives really ARE
a big deal!
Now…what can we do?

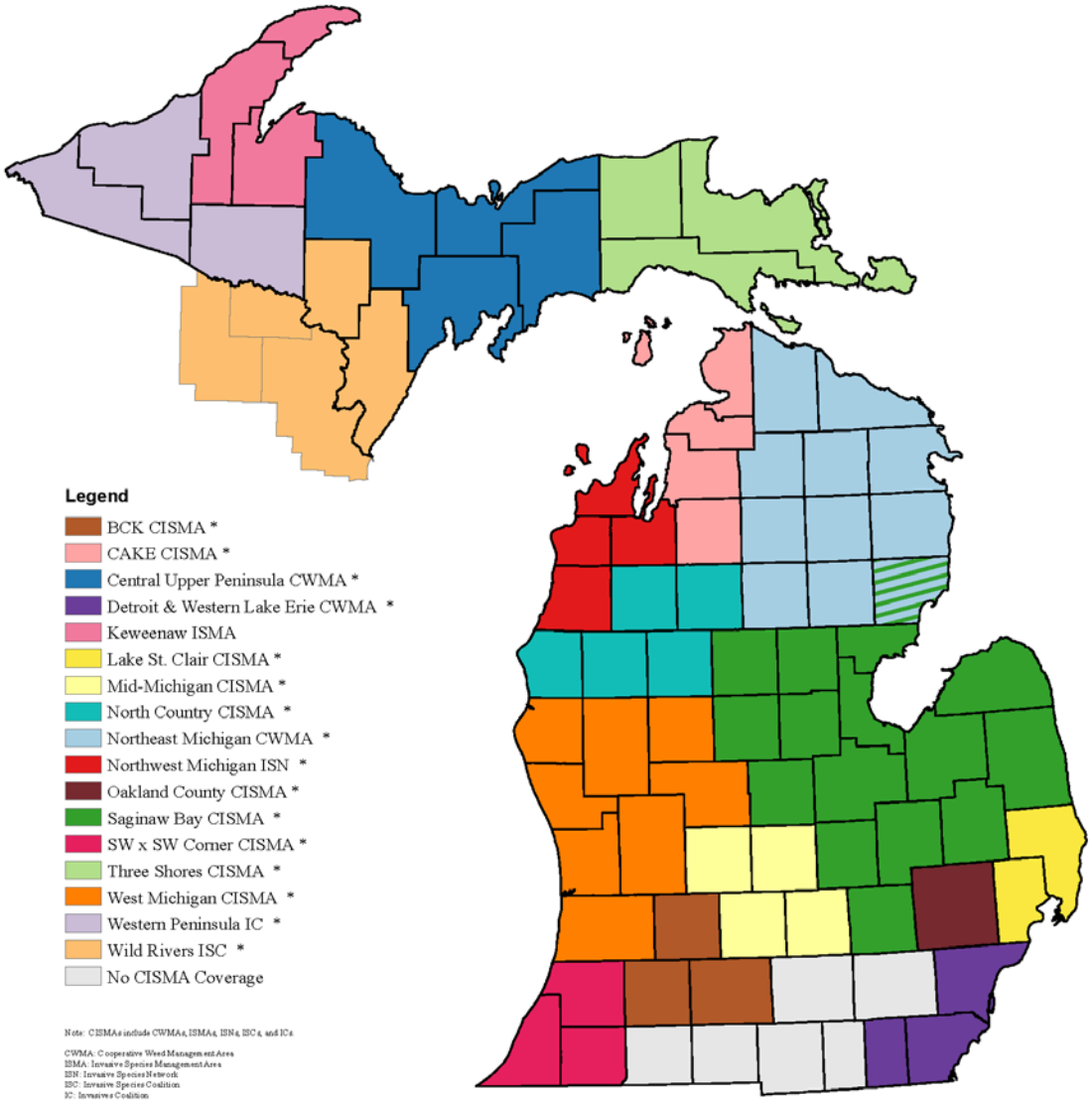
What is being done statewide?

Michigan Invasive Species Grant Program (MISGP) & Cooperative Invasive Species Management Areas (CISMAs)

- **Prevent** new introductions of invasive species through outreach and education.
- **Monitor** for new invasive species as well as expansions of current invasive species.
- **Respond** and conduct **eradication** efforts to new findings and range expansions.
- **Manage** and **control** key colonized species in a **strategic** manner.

The keys to success are **collaboration** and **strategic planning**!

Michigan
Cooperative Invasive Species Management Areas (CISMAs)



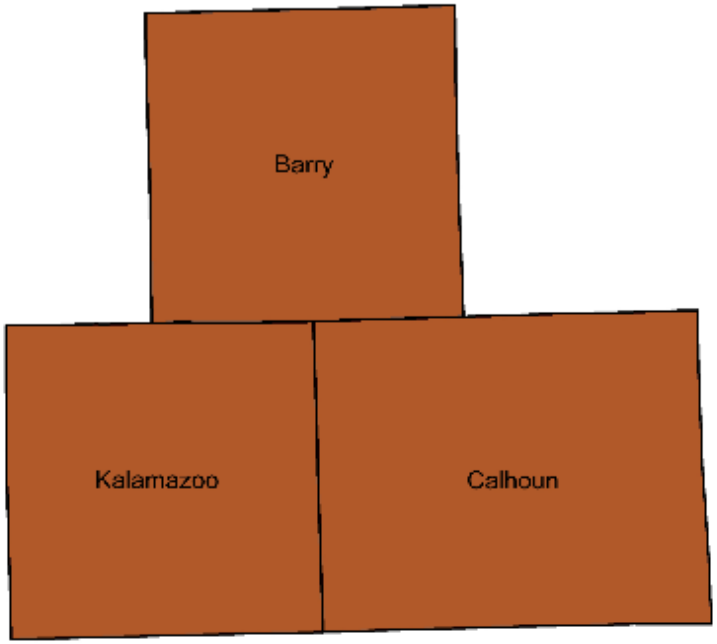
Note: CISMAs include CWMAs, ISMAs, ISNs, ISCs, and ICs

CWMA: Cooperative Weed Management Area
ISMA: Invasive Species Management Area
ISN: Invasive Species Network
ISC: Invasive Species Coalition
IC: Invasive Coalition

* Funded by the 2014 & 2015 MISGP

Updated February 2016
Michigan Invasive Species Coalition

Barry, Calhoun and Kalamazoo Invasive Species Management Area



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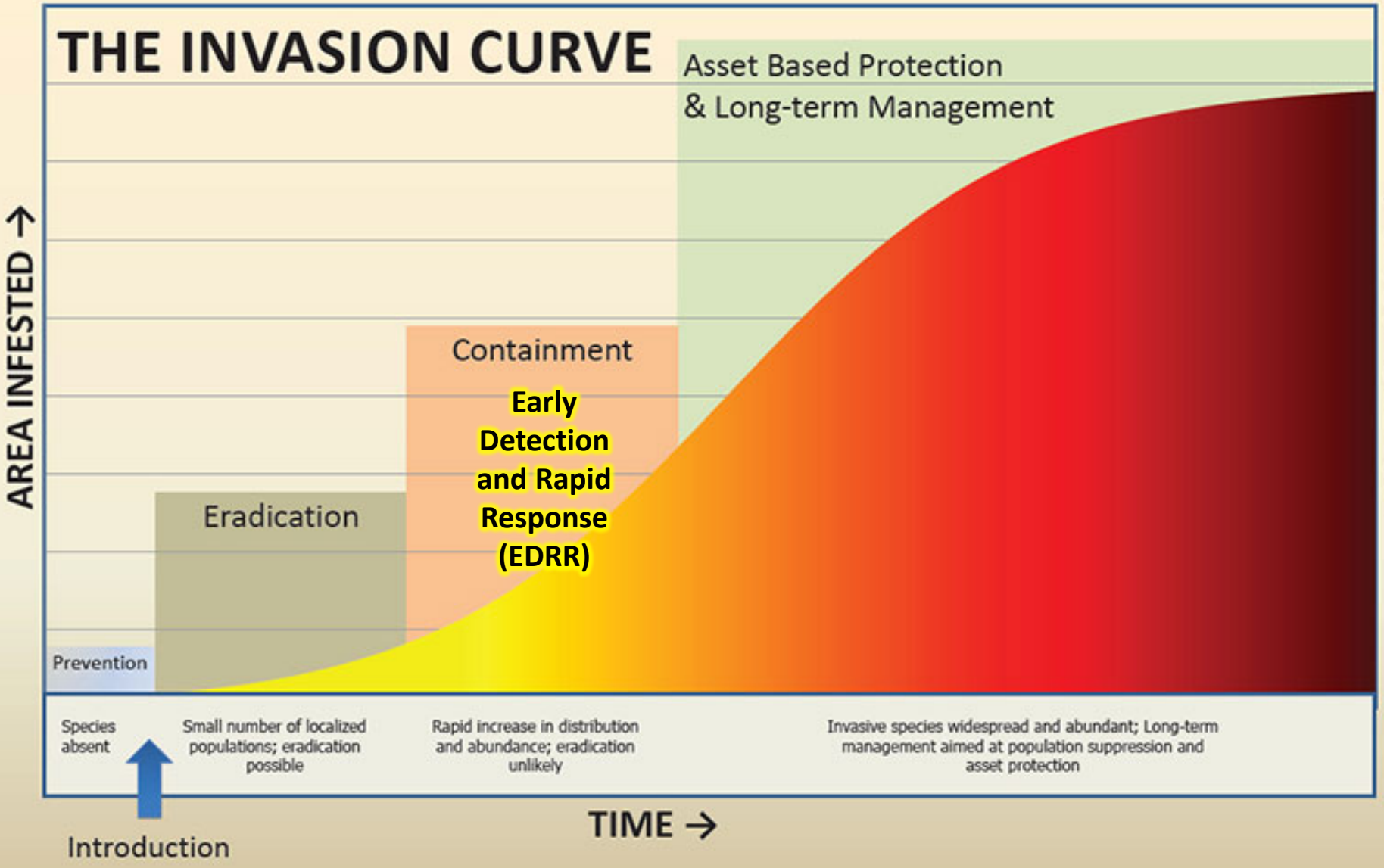
What can the CISMA do for me?

- Education and outreach
- Surveying and verification
- Treatment recommendations

Additionally, your group can help us to prioritize and locate infestations by reporting sightings or getting involved in the steering committee!


THE INVASION CURVE
Asset Based Protection
& Long-term Management
Containment
Early
Detection
and Rapid
Response
(EDRR)
Eradication
Prevention
AREA INFESTED →
CONTROL COSTS →
Species absent
Small number of localized populations; eradication possible
Rapid increase in distribution and abundance; eradication unlikely
Invasive species widespread and abundant; Long-term management aimed at population suppression and asset protection
Introduction
TIME →

1. Prevention
2. Early Detection and Rapid Response (EDRR)
3. Control, Management, and Restoration
4. Monitoring and Updates

1. Prevention

- Do not move firewood
- Plant native species
- **Hiking/Biking/Hunting/Camping:** Clean your boots, dogs, and gear, wash your car
- **After taking a boat out of the water:**
    - Clean, Drain, Dry, Dispose
- Do not release any non-native species
- Help spread the word!

2. EDRR

- Components:
  - **Detection/reporting**
  - Verification of detected species
  - Assessment of invasion/site
  - Implementation of treatment response

Questions?

Thank-you!