

# Early Detection and Rapid Response (EDRR) to emerging Aquatic Invasive Species (AIS)



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Aquatic Invasive Species Coordinator  
Michigan DNR Wildlife Division



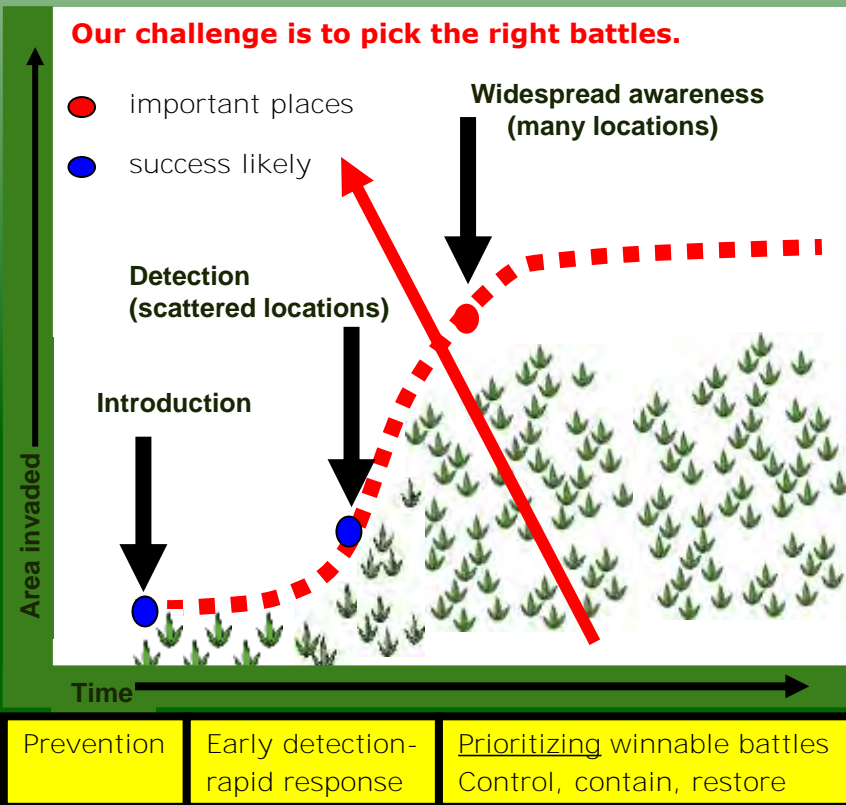
# Implementing the AIS State Management Plan



- GLRI grant awarded in 2010 to develop EDRR program aligned with AIS plan goals
  - **Goal III: Develop a statewide interagency EDRR Program to address new invasions of AIS.**
- Wildlife Division - lead for plants

# Why EDRR?

- AIS rarely eradicated once established
- EDRR efforts increase likelihood invasions can be contained and eradicated
- Critical period between introduction and establishment of a new AIS population



# The EDRR Approach

- Establishing an early detection network
- Responding to all new high threat invaders

## Most Wanted Aquatic Invasive Plants

Be on the lookout for these invasive species!

Michigan Natural Features Inventory and the Michigan Department of Natural Resources are collaborating on the development of an Early Detection Rapid Response program. The program seeks to locate and eradicate occurrences of the following priority aquatic invaders.



[www.kingcounty.gov](http://www.kingcounty.gov)

[www.aquweed.com](http://www.aquweed.com)

[www.invasive.org](http://www.invasive.org)

Page Pilson, MSU



[www.invasive.org](http://www.invasive.org)

[www.invasive.org](http://www.invasive.org)

[www.dnr.in.gov](http://www.dnr.in.gov)

[www.garybarber.com](http://www.garybarber.com)

**If you have seen any of these aquatic invasives, note their location and extent and contact:**

Michigan Department of Natural Resources  
Wildlife Division Invasive Species Program  
Phone: (517) 641-4903 ext. 260  
[www.mi.gov/invasivespecies](http://www.mi.gov/invasivespecies)

Questions about other aquatic invasive plants? Contact the DEQ Aquatic Nuisance Control Program at 517-284-5593, [www.mi.gov/anc](http://www.mi.gov/anc)



# EDRR Species

- Targeted efforts to detect new invasions of 8 high risk Aquatic Invasive Species



Brazilian elodea (*Egeria densa*)

 Not yet Detected in MI

# EDRR Species

- Species list evaluated annually to incorporate emerging threats



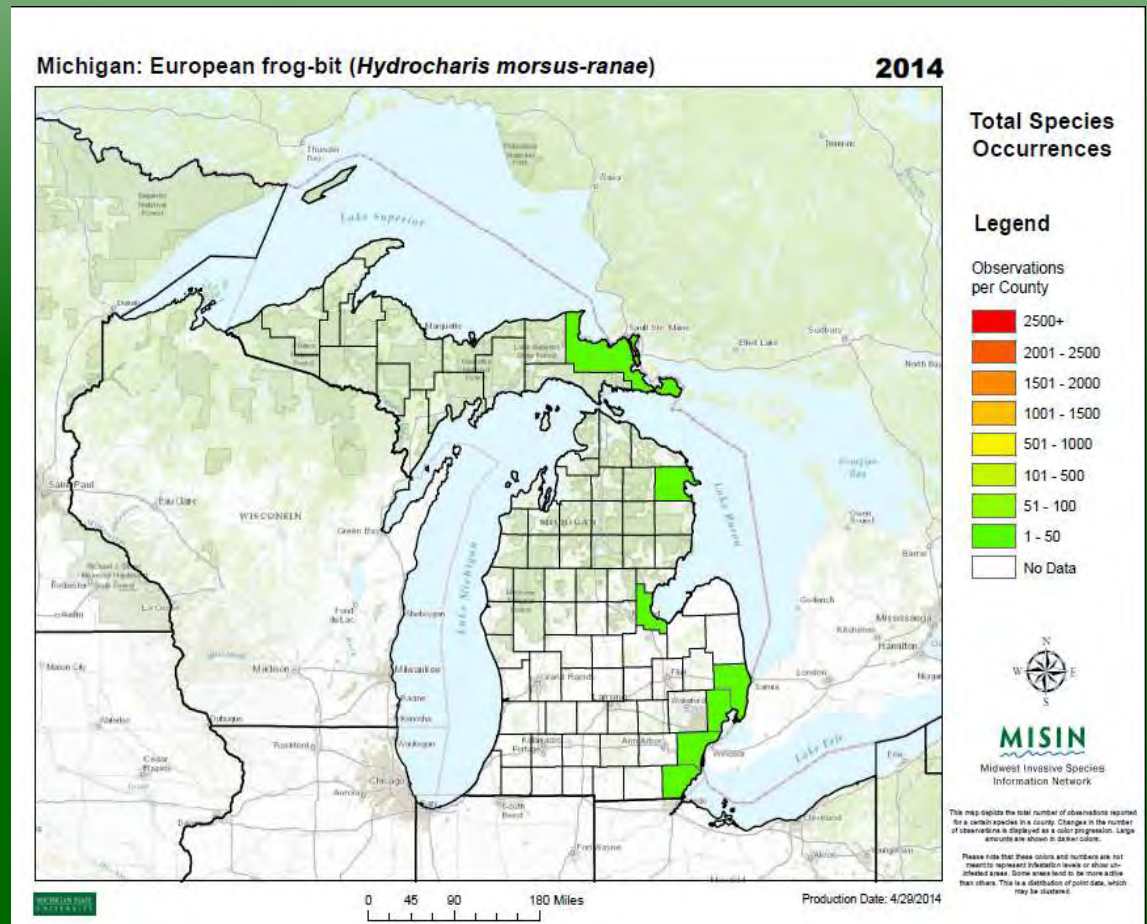
 Not yet Detected in MI





# European Frog-Bit

- Detected in 3 unique locations via EDRR in 2013



# Flowering Rush



UGA5270048

Michigan: Flowering rush (*Butomus umbellatus*)

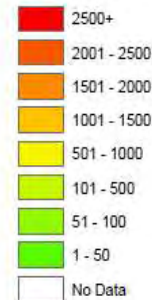
2014



Total Species Occurrences

### Legend

Observations per County



MISIN

Midwest Invasive Species Information Network

This map depicts the total number of observations reported for a certain species in a county. Changes in the number of observations is displayed as a color progression. Large amounts are shown in darker colors.

Please note that these colors and numbers are not meant to represent infestation levels or show localized areas. Some areas tend to be more active than others. This is a distribution of point data, which may be clustered.

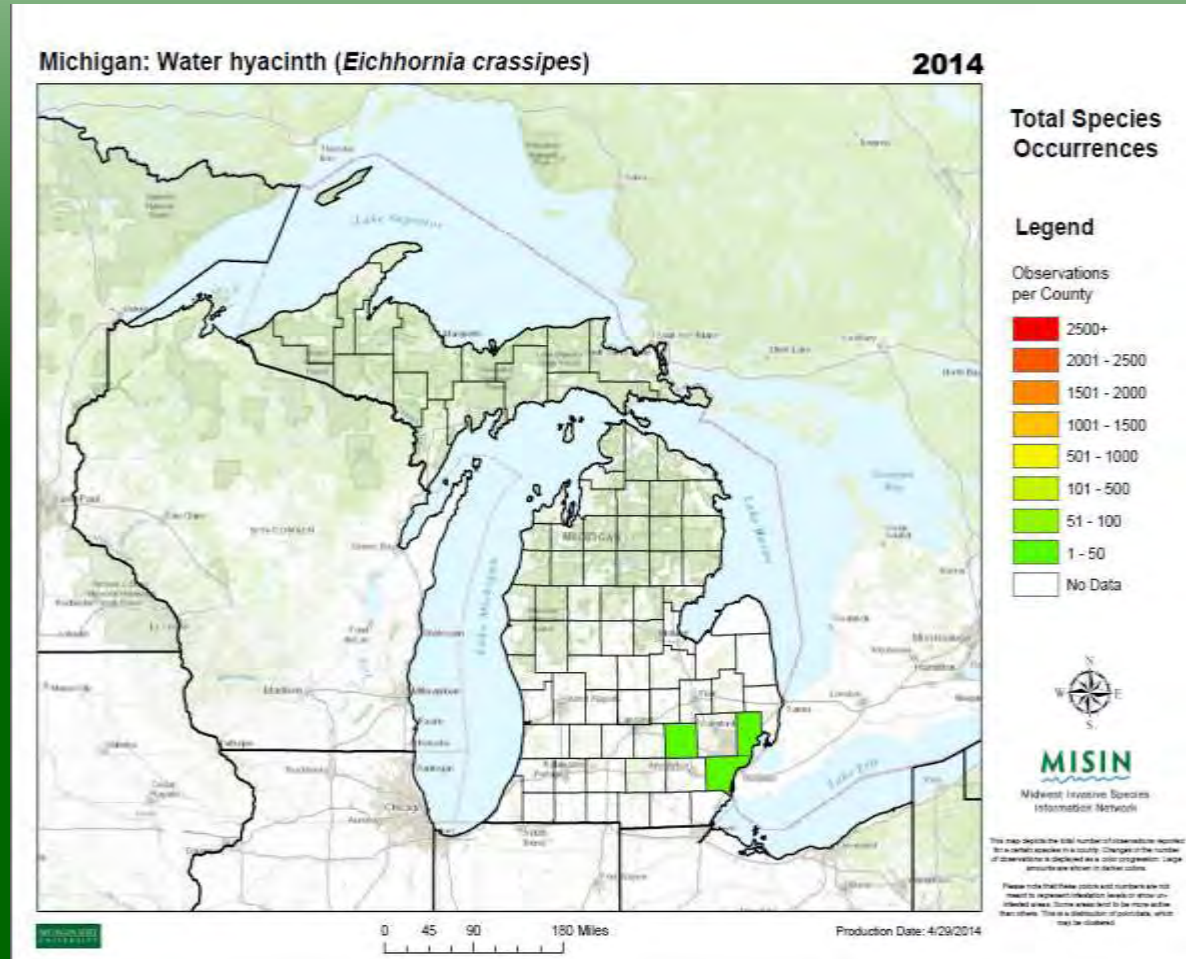
0 45 90 180 Miles

Production Date: 4/29/2014





# Water Hyacinth



# Water Lettuce



UGA5163012

Michigan: Water lettuce (*Pistia stratiotes*)

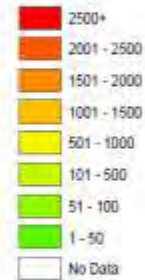
2014



## Total Species Occurrences

### Legend

Observations per County



**MISIN**

Michigan Invasive Species Information Network

This map displays the total number of observations reported for a species in a given county in a given year. The number of observations is reported as a count, regardless of the species or the number of reports.

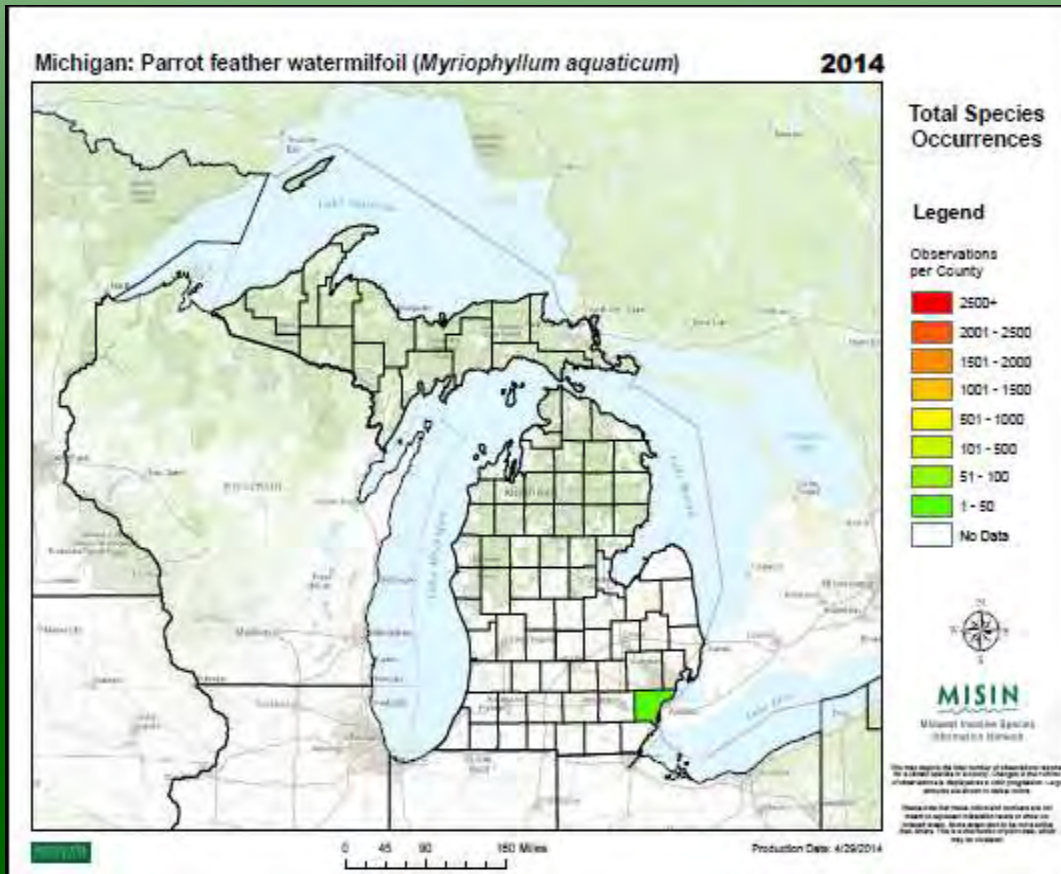
Please note that some species may not be present in all counties. Some species may be present in some counties but not in others. This is a distribution of reports, which may be different.





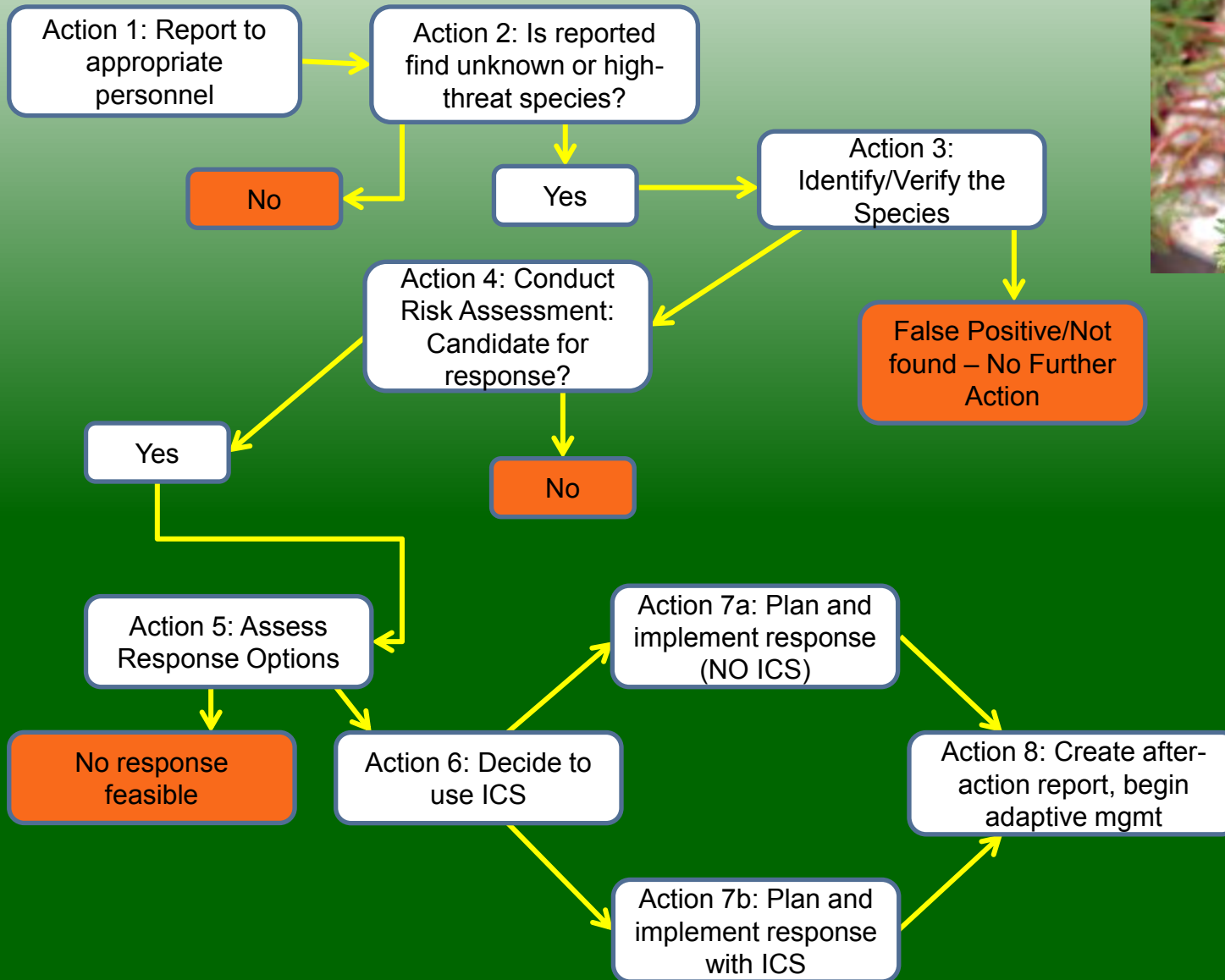
# Parrot Feather Water-milfoil

- Newly detected through EDRR program





# Developing A Response



# Case Study: Parrot Feather

Unverified Report to DEQ Fall 2013

- Possible parrot feather
- Located in detention pond
- Brownstown Twp, Wayne County



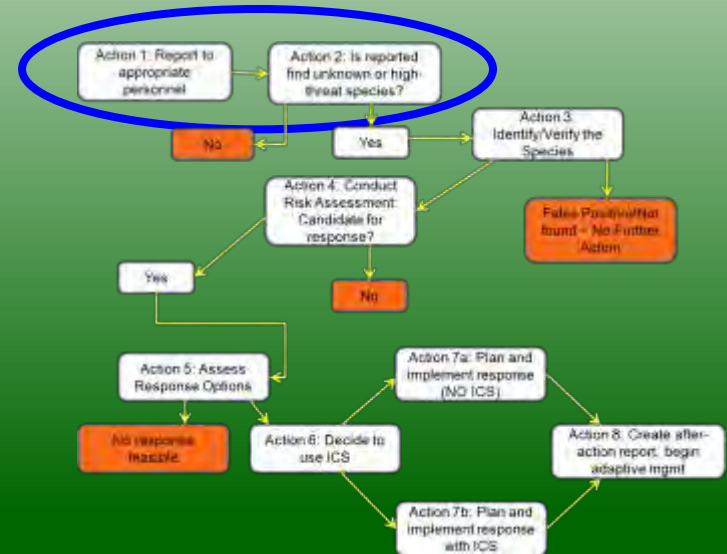
# Case Study: Parrot Feather

Action 1: Report to appropriate authorities

DEQ contacted DNR personnel

Action 2: Determine if high-threat species

Parrot Feather a prohibited species





# Case Study: Parrot Feather

## Action 3: Verify

- Site visit to verify species as Parrot Feather
  - Gather data, collect sample
    - Submitted to herbarium

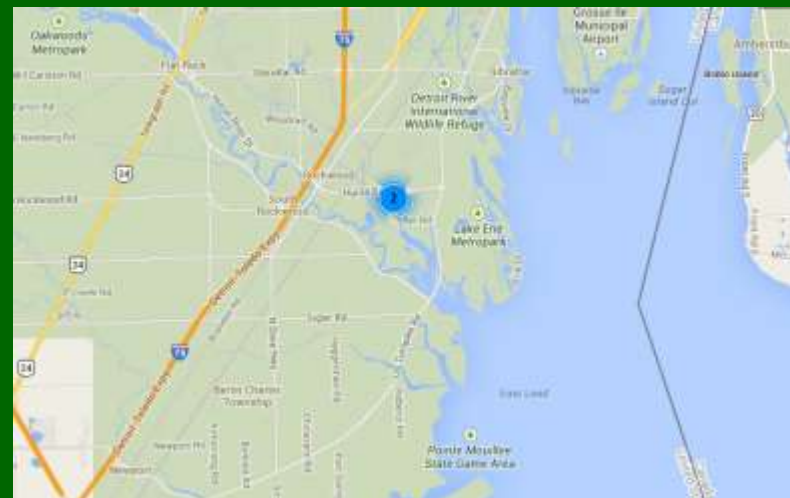


# Case Study: Parrot Feather

## Action 4:

### Risk Assessment

- Collected data
- Surveyed adjacent waters
- Assessed level of risk
- Communicated results



# Case Study: Parrot Feather



## Action 5: Assess response options

- Successful treatment options available?
- Feasibility, Accessibility, Necessity
- Mechanical vs. Chemical?
- Cost, impacts, regulations & permitting

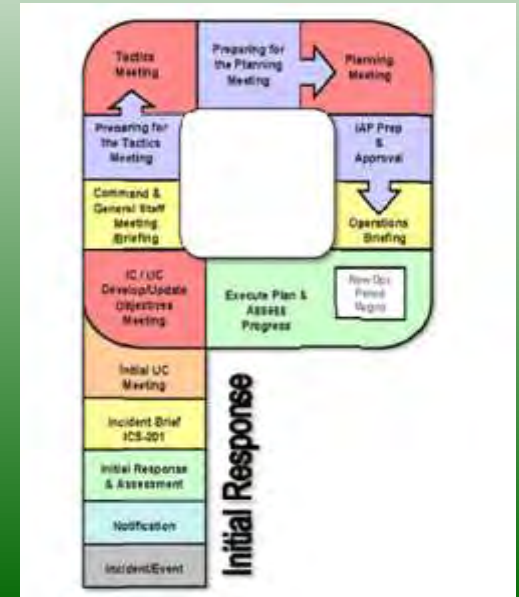




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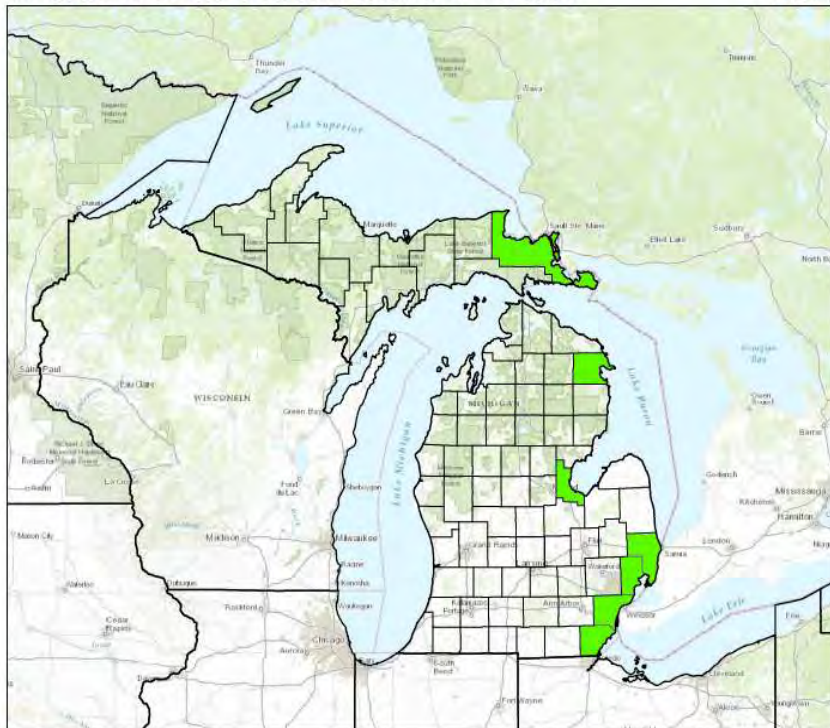
## Action 6: Determine use of ICS (Incident Command System)

- Appeared to be isolated



Michigan: European frog-bit (*Hydrocharis morsus-ranae*)

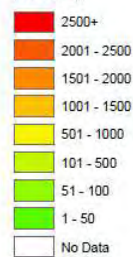
2014



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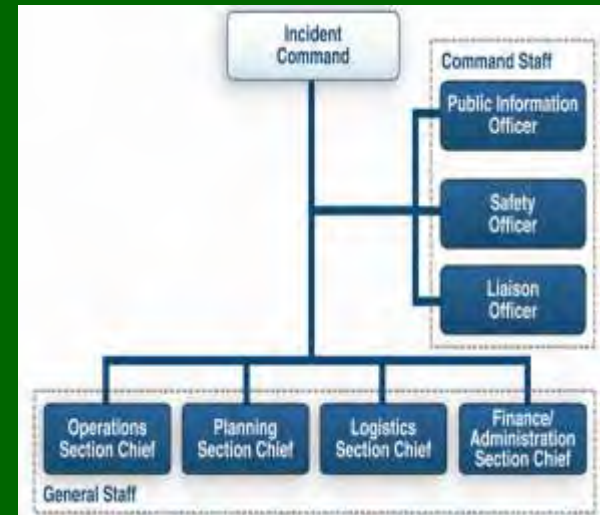
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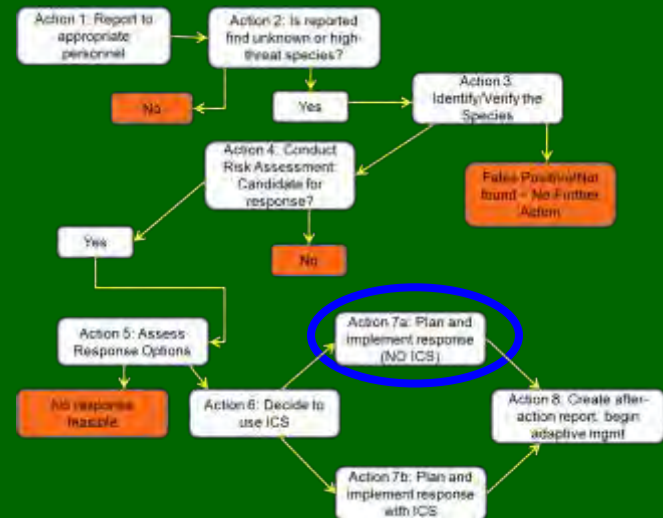
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# Case Study: Parrot Feather

## Action 7: Implement Response

- Cooperative effort with local stakeholders
- Obtained permit
- Herbicide treatment in early November 2013
- Total timeline: 3 weeks



# Case Study: Parrot Feather

## Action 8: Follow-up

- Monitoring planned Summer 2014





# EDRR Program Update

- Verified 60 unique detections
- Response efforts at 21 sites
- Additional surveys, monitoring, response begins June 2014



More Info:

[www.michigan.gov/invasivespecies](http://www.michigan.gov/invasivespecies)

# How You Can Help



Learn, Identify, Report

More info:  
[www.misin.msu.edu](http://www.misin.msu.edu)



## Report Invasive Species

**MISIN Smartphone App**

The MISIN smartphone app provides a mobile solution for the capture of invasive species observations. You can play an important role in the early detection and rapid response to new invasive threats in your area by contributing invasive species observations to the MISIN project.

**Features**

- ✓ Identify and report 250+ different species
- ✓ Capture and submit species field observations
- ✓ View real-time species observation maps
- ✓ Include field images with your observations
- ✓ Browse information about top Midwest invaders

Available on the **App Store** and **Google play**

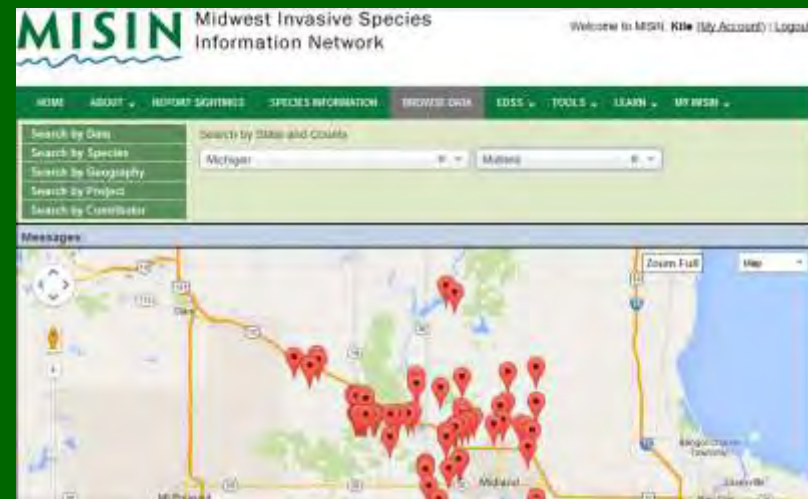
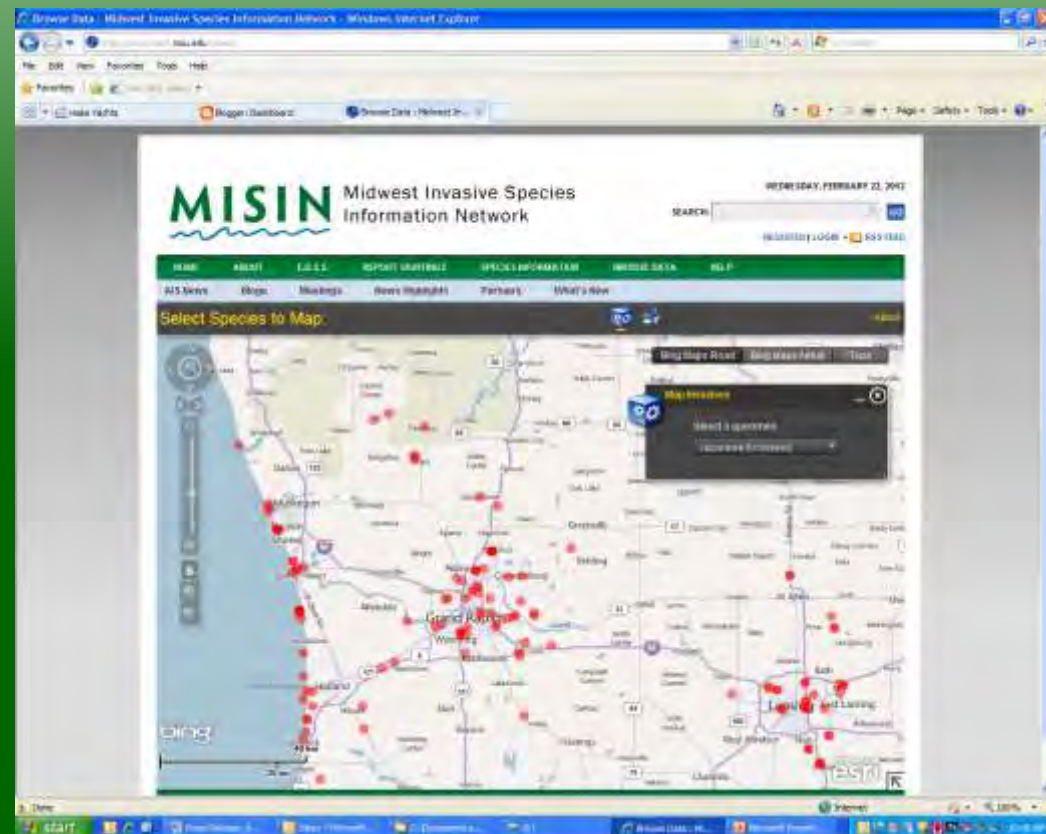
**Midwest Invasive Species Information Network**  
[www.misin.msu.edu](http://www.misin.msu.edu) • [info@misin.msu.edu](mailto:info@misin.msu.edu)

 **MICHIGAN STATE UNIVERSITY**  
Developed by the Applied Spatial Ecology and Technical Services Laboratory, Department of Entomology - <http://www.aesls.msu.edu>

**MISIN** Midwest Invasive Species Information Network  
For further information please contact:  
Anna Ziegler / [info@misin.msu.edu](mailto:info@misin.msu.edu)

# Mapping Invasive Species

- Critical for planning treatment
- Important for tracking spread
- Visit [www.misin.msu.edu](http://www.misin.msu.edu) to map invasive plants





# What you can do - MISIN – Browse data by geography or species

HOME ABOUT ▾ REPORT SIGHTINGS SPECIES INFORMATION BROWSE DATA EDSS ▾ TOOLS ▾ LEARN ▾ MY MISIN ▾

Search by Date Search by State and County

Search by Species

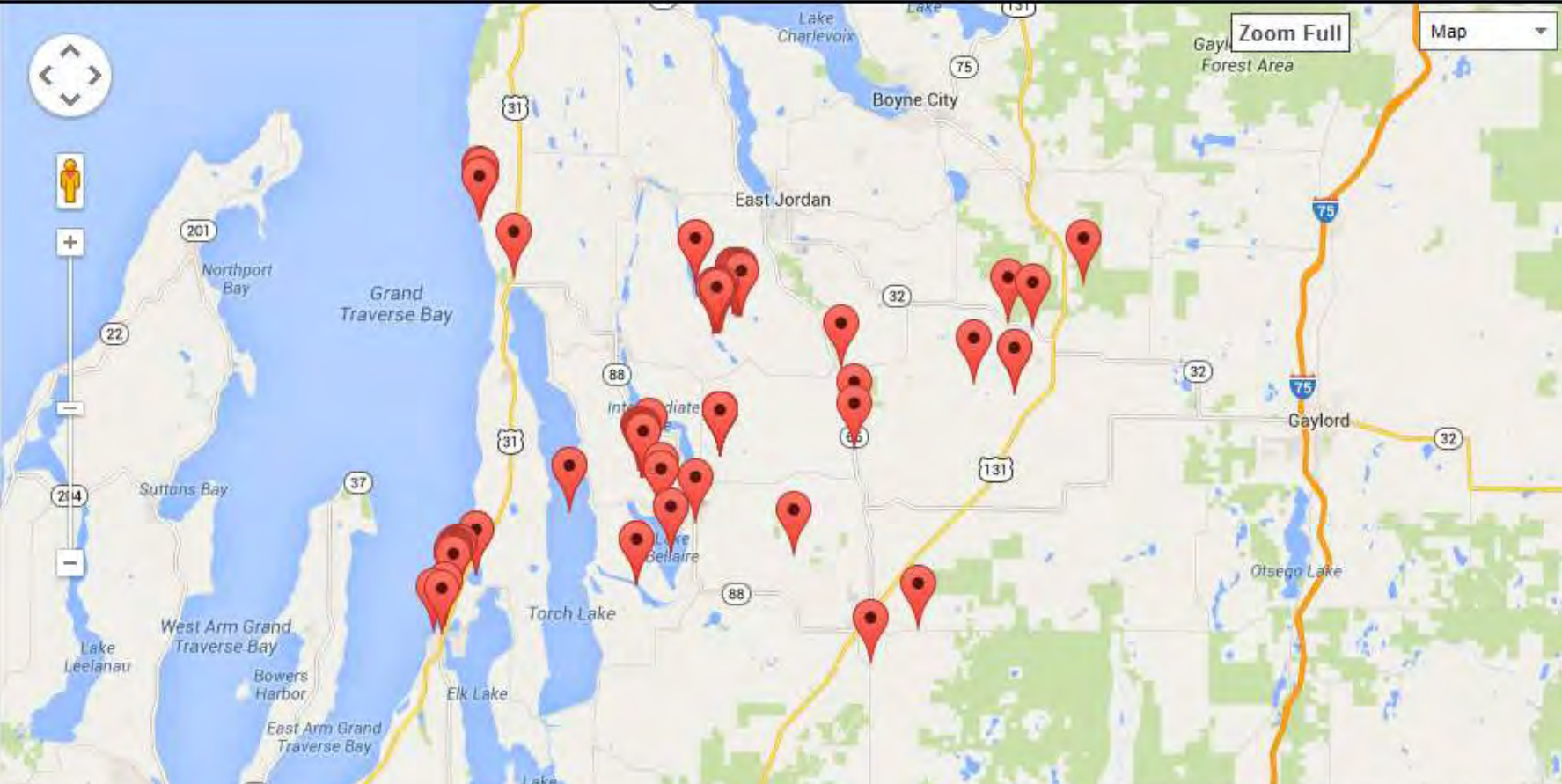
Search by Geography

Search by Project

Search by Contributor

Michigan x ▾ Antrim x ▾

Messages:



# MISIN – Early Alerts



## Alerts

The Midwest Invasive Species Information Network is a regional effort to develop and provide an early detection and rapid response (EDRR) resource for invasive species.

The goal of this regional resource is to assist both experts and citizen scientists in the detection and identification of invasive species in support of the successful management of invasive species.

This effort is being led by researchers with Michigan State University's [Applied Spatial Ecology and Technical Services Laboratory](#) in conjunction with a growing consortium of [Supporting Partners](#).

## Report Sightings



Report invasive species in your area. Your sightings are an important part of any successful control effort.

## MISIN Alerts



Create custom email alerts for new observations in your area of interest.

## Species Distribution



Browse the distribution of reported invasive species. Search by common name and geography.



# MISIN – Early Alerts

New Edit Delete

Search:

RECORD ID	COMMON NAME	STATE	COUNTY
4517			
4518			
4519			
4520			
4809			
4810			
4811			
4812			
4813	Starry stonewort	MI	ALL
4814	Water chestnut	MI	ALL

Create new entry

Species:

State:

County:

Create

RECORD ID COMMON NAME STATE COUNTY

Showing 1 to 10 of 30 entries

◀ Previous Next ▶



# MISIN – Maps on Demand



learn how MISIN supports regional Early Detection and Rapid Response

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- maps OnDemand
- SmartPhone Apps
- State Resources
- Training Modules

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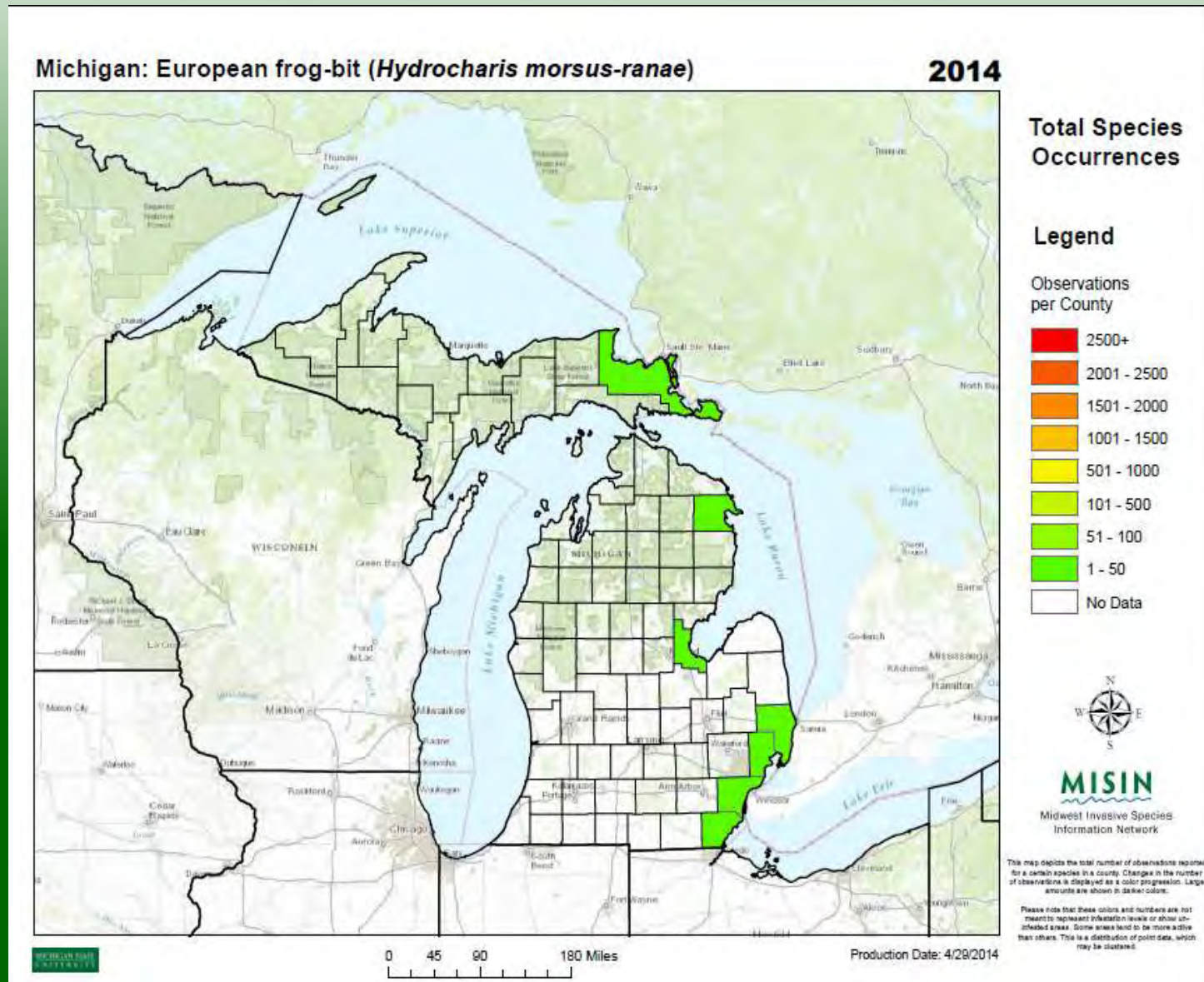
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Species Training Modules

News Channel

Recent Observations

# MISIN – Maps on Demand



You can help spread the word - Emmet County



# Acknowledgements

Private Landowners, Lake Associations

Michigan Inland Lakes Partnership

Michigan Natural Shoreline Partnership

Michigan Aquatic Managers Association

State of Michigan AIS Core Team (DNR, DEQ, and MDARD)

Midwest Invasive Species Information Network

Michigan Natural Features Inventory

Michigan State University

Michigan United Conservation Clubs

US Fish and Wildlife Service

US Environmental Protection Agency

Local Conservation Districts

Cooperative Weed Management Areas

Many others...



## Additional resources & information:

[www.michigan.gov/invasivespecies](http://www.michigan.gov/invasivespecies)

[www.michiganinvasives.org](http://www.michiganinvasives.org)

[www.misin.msu.edu](http://www.misin.msu.edu)