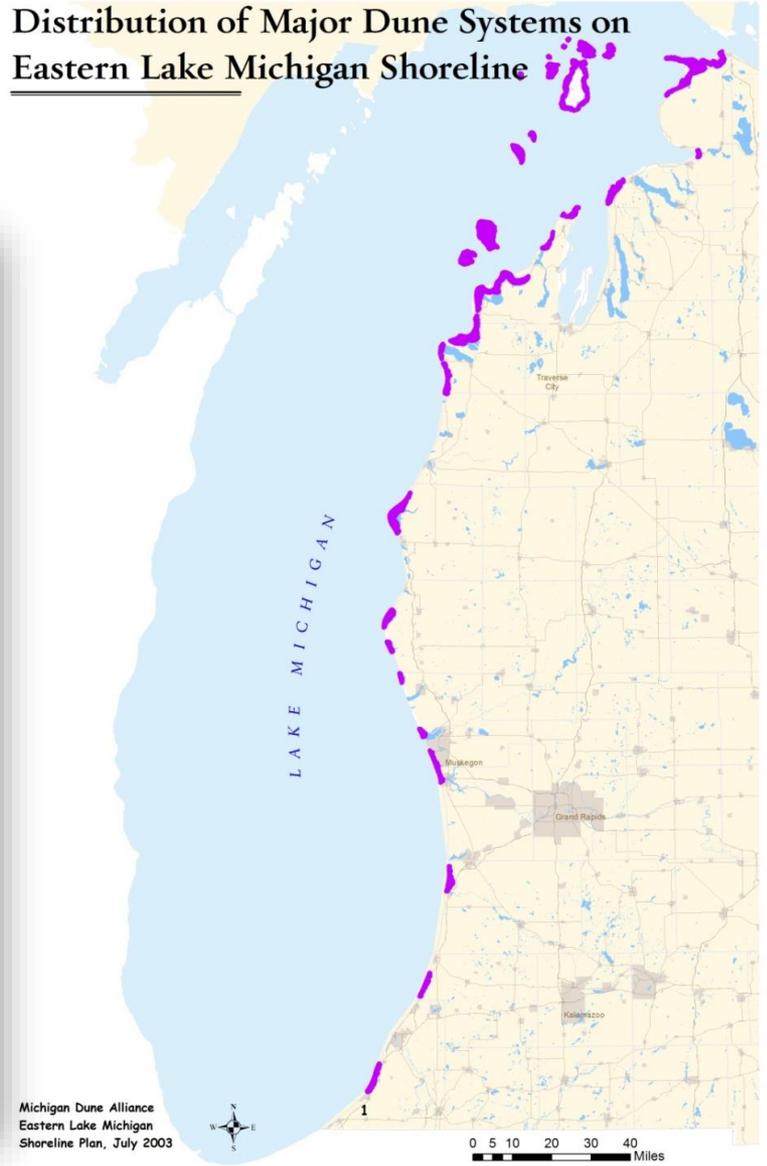




# Michigan Dunes *Unique Ecosystems...*

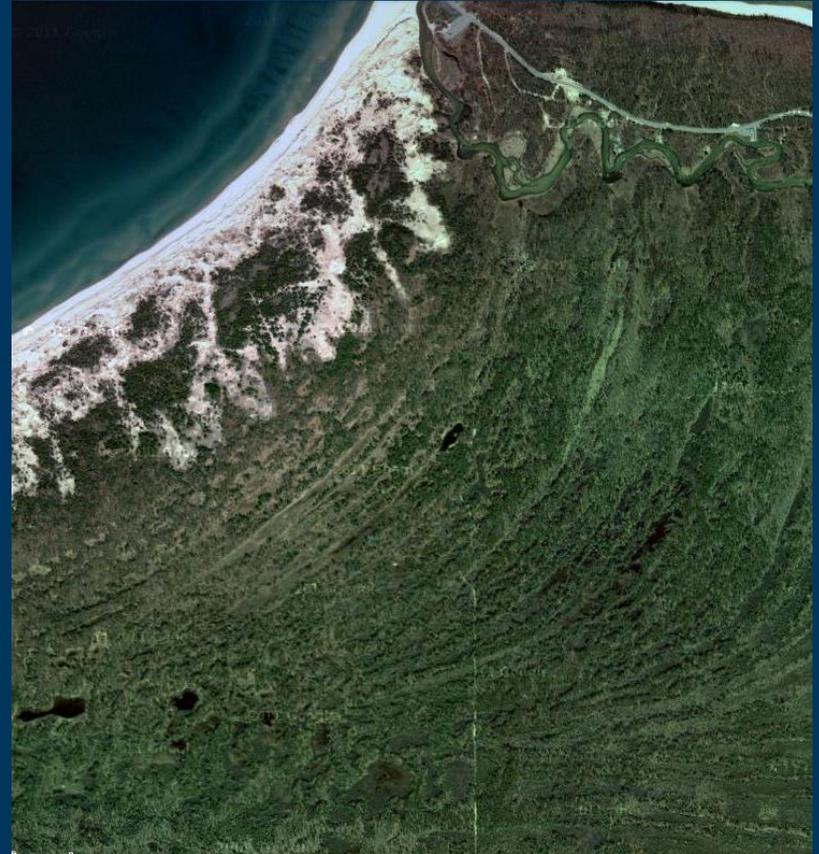


## Distribution of Major Dune Systems on Eastern Lake Michigan Shoreline



# Michigan Dunes

## *Unique Ecosystems...*



# ...Supporting Unique Species...

Pitcher's thistle  
(*Cirsium pitcheri*)



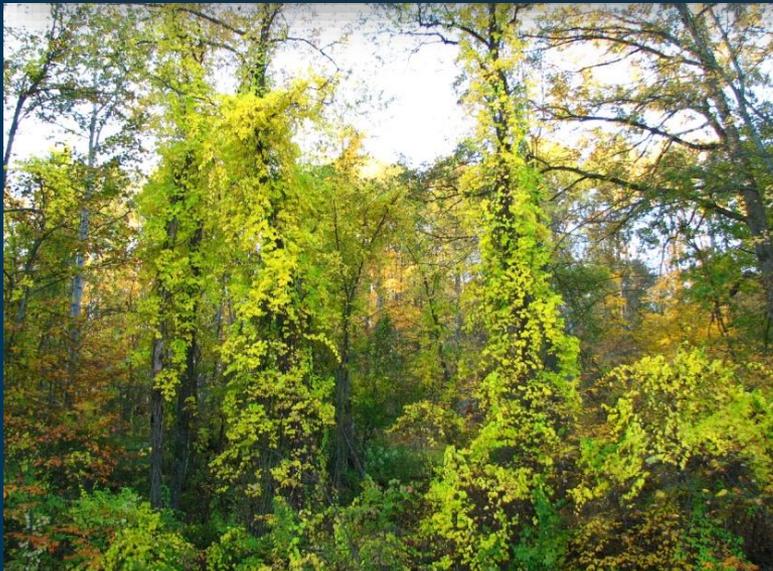
Piping plover  
(*Charadrius melodus*)



# ...and an Iconic Michigan Landscape...



# *...Under Threat from Invasives*



# What are Invasive Species?

*“Invasives are species **outside of their natural distribution range** that **negatively affect** the habitat or region they invade”*

## IMPACTS

Ecological



Economic



# Conservation at Scale: The Michigan Dune Alliance

MDA founded in 1999 by MDEQ Office of the Great Lakes

- Built as a coalition dedicated to the conservation of dunes and shoreline
- Focused on coordinating and building capacity of land conservancies along the Lake Michigan coast



Michigan Dune Alliance

The banner features the text 'Michigan Dune Alliance' in white, bold, sans-serif font against a dark red background. Below the text is a photograph of a sandy dune in the foreground, a blue lake in the middle ground, and a line of trees with red autumn foliage in the background.

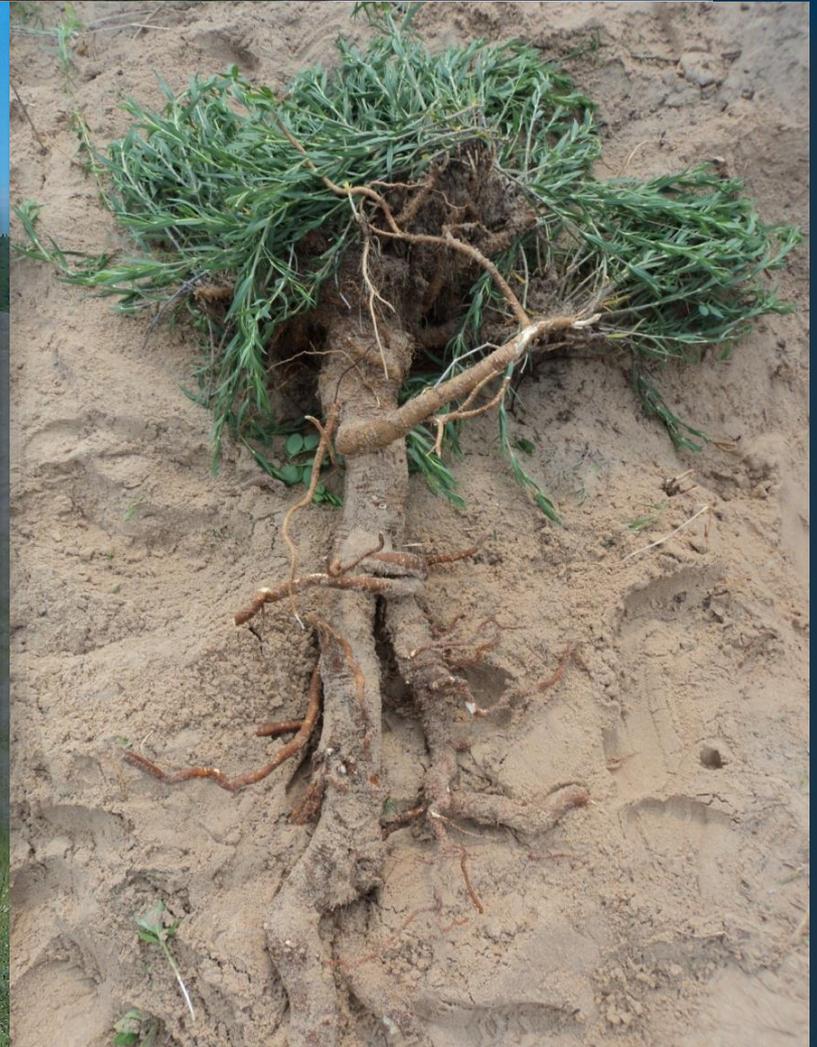
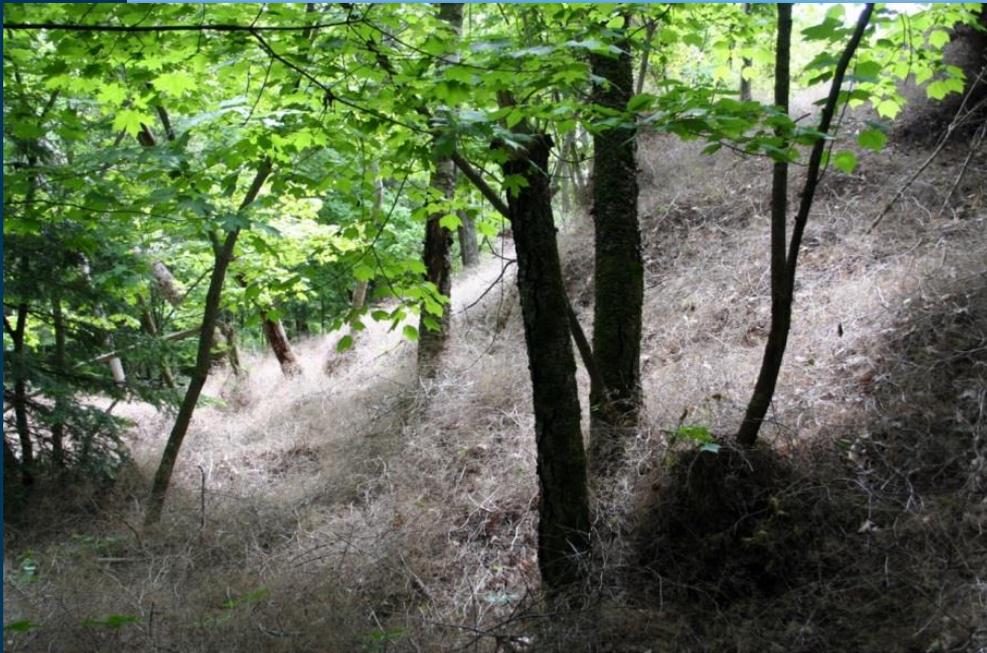
# Conservation at Scale: The Michigan Dune Alliance

## 2001 - Lake Michigan Coastal Threat Assessment

- Survey of 42 sites for invasive species
- Data collection to avoid a “ready, shoot, aim” scenario

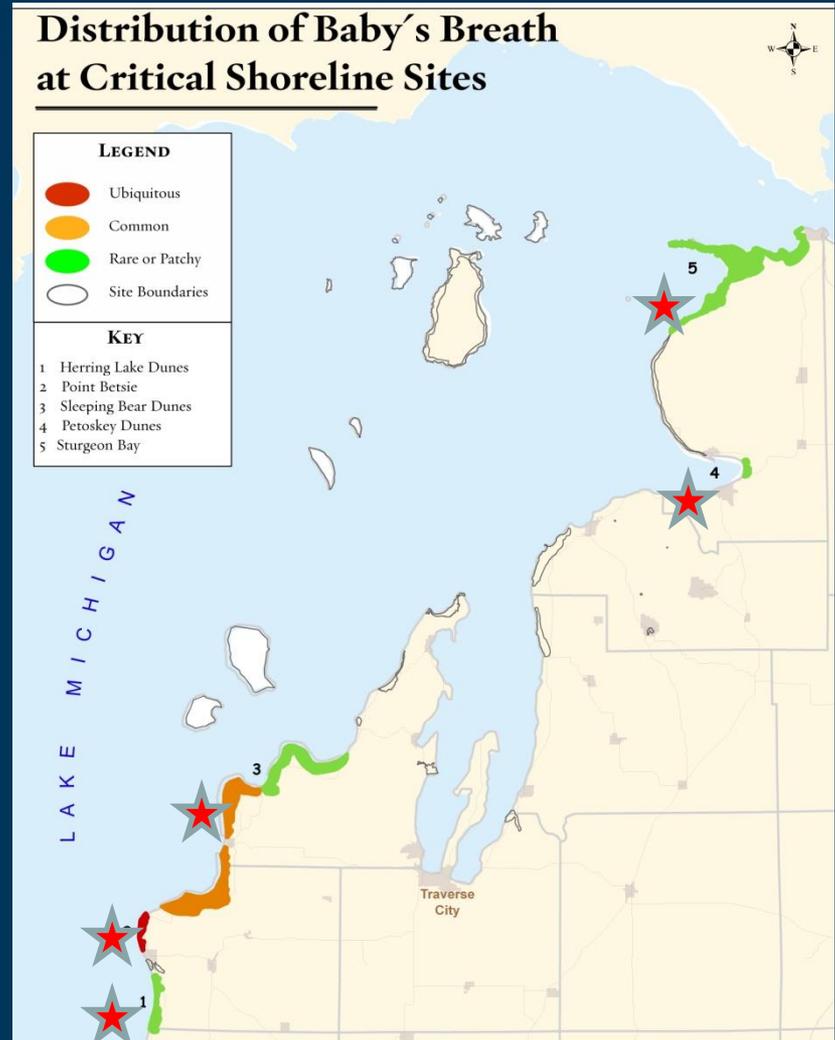


# Baby's-breath (*Gypsophila paniculata*)



## Effectively eliminate baby's-breath from the dune systems of Northwest Lower Michigan Project is currently **on schedule**

- ~1,800 acres infested
- In 7 years, nearly **80%** of all baby's-breath populations have received control treatments
- Eradication at Wilderness State Park, "maintenance level" at Petoskey State Park



# Zetterberg Preserve - 2006



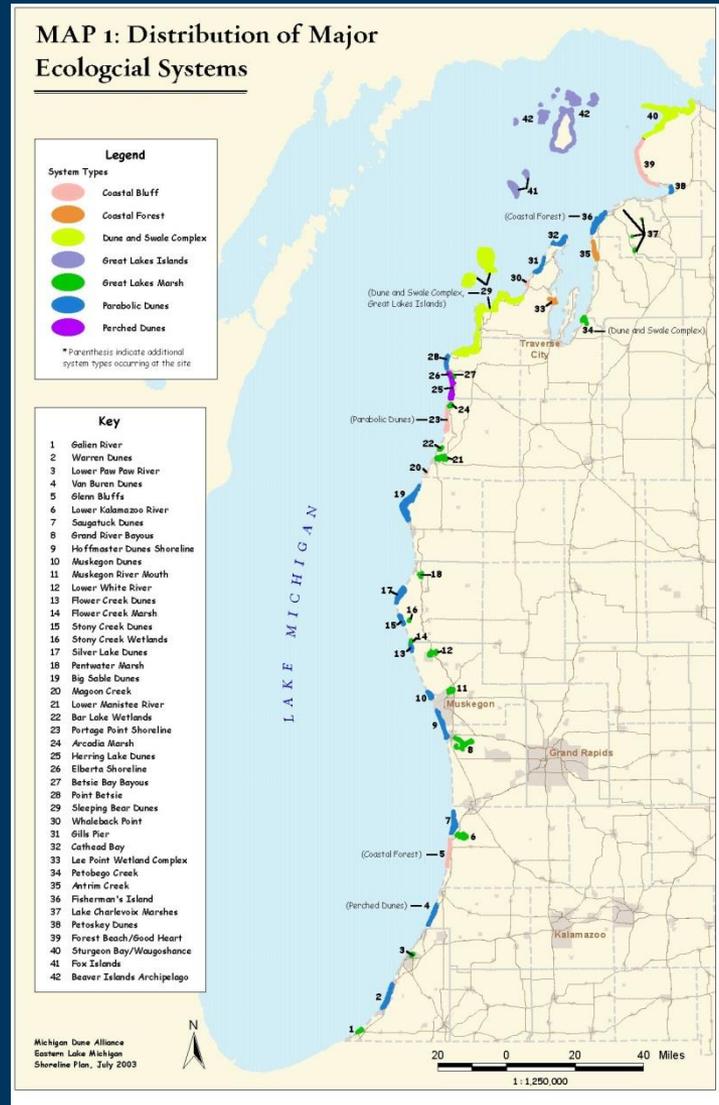
# Zetterberg Preserve - 2010



# Conservation at Scale: The Michigan Dune Alliance

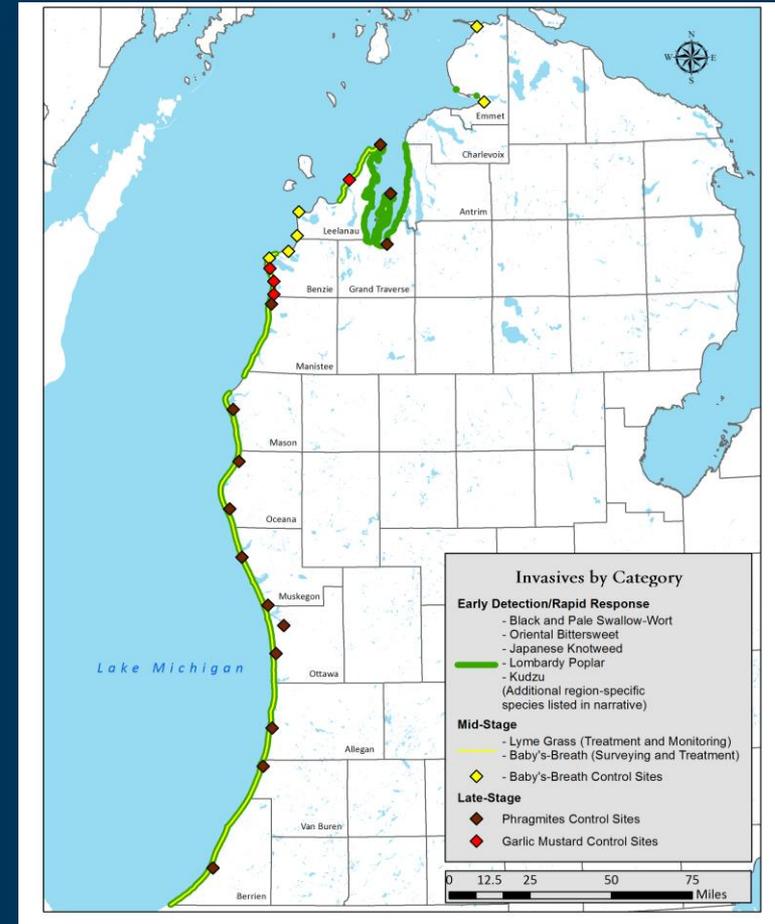
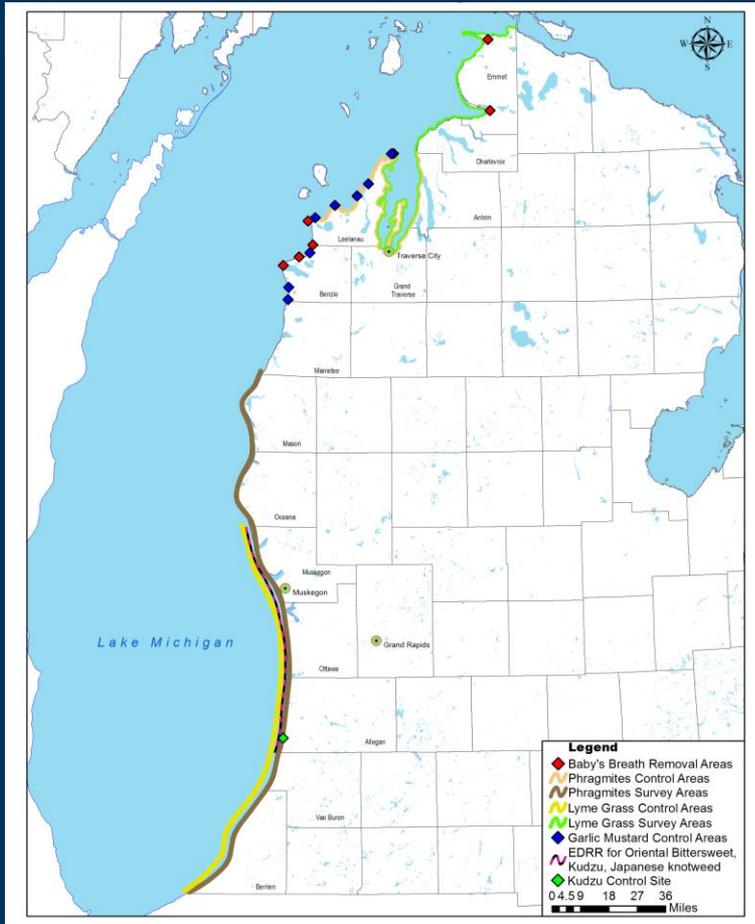
## 2001 - Lake Michigan Coastal Threat Assessment

- Survey of **42 SITES** for invasive species
- Data collection to avoid a “ready, shoot, aim” scenario



2010-2011

2012-2013



How to survey, treat, and monitor **500+ miles** of shoreline?

# Michigan Dune Alliance partners active in SOGL

Leelanau Conservancy



Grand Traverse Regional Land Conservancy



West Michigan Cluster – Stewardship Network

Southwest Michigan Land Conservancy



Outdoor Discovery Center Macatawa Greenway



National Park Service @ Sleeping Bear Dunes

Michigan DNR – Parks and Rec. Division

US Forest Service @ Manistee National Forest

The Nature Conservancy



## ED/RR

- Most efficient and effective control strategy
- Best chance for long-term success



## Prioritization

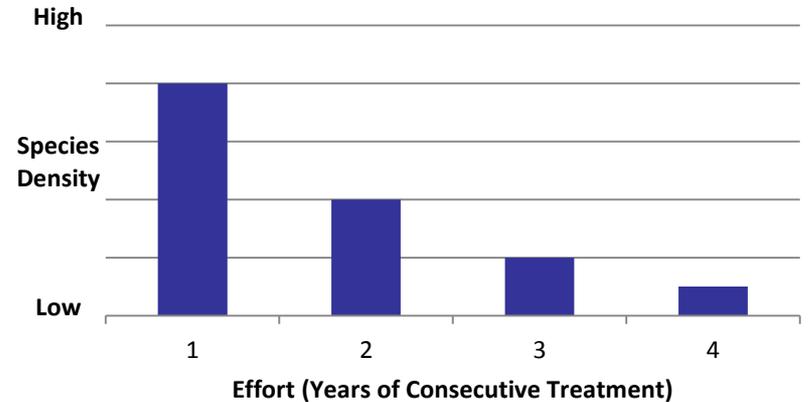
- Keeping widespread, well-established species out of the areas we care most about



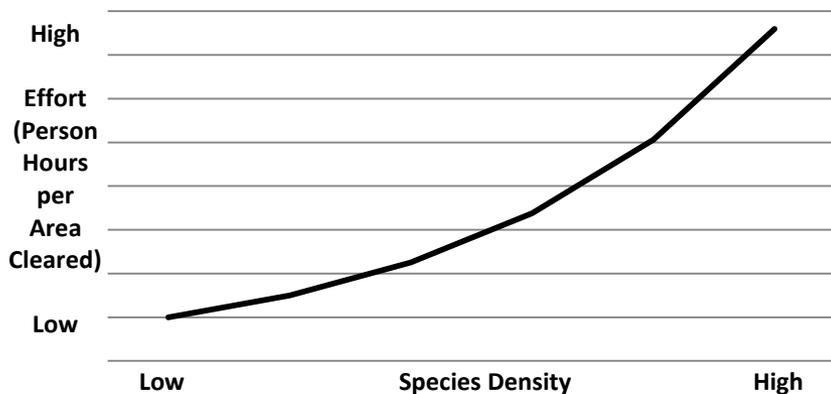
## Effective eradication

- Reducing populations to manageable and minimally-threatening levels

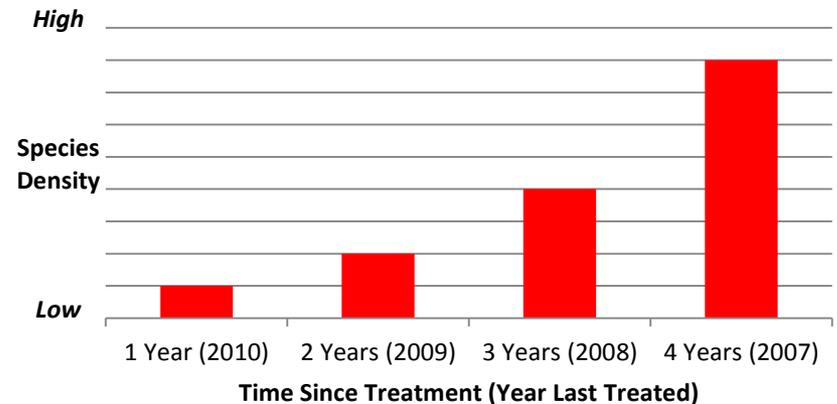
### Treatment Effectiveness



### Crew Efficiency



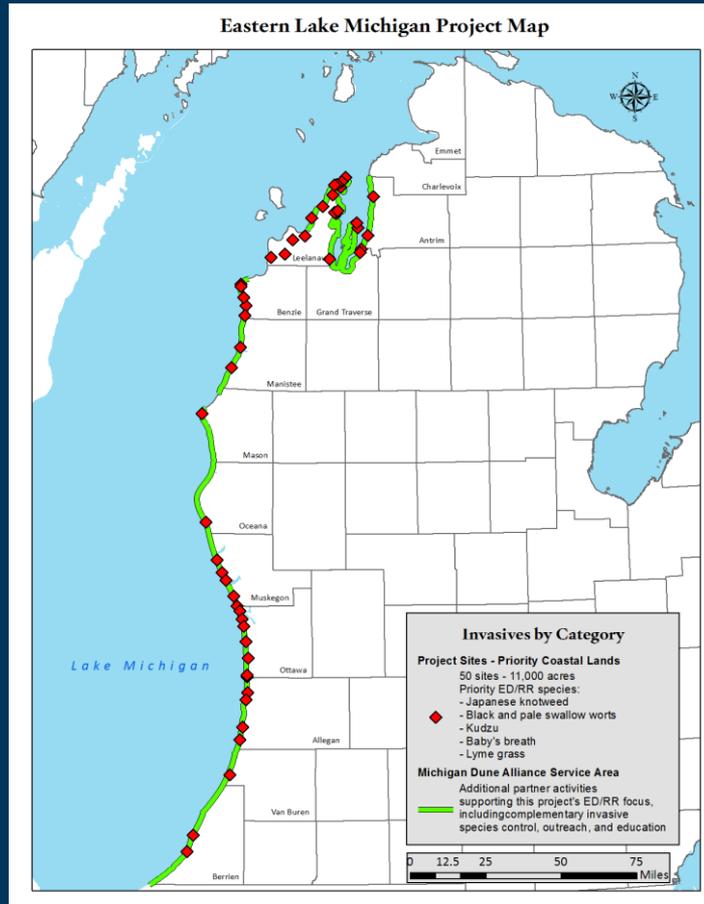
### Invasive Species Rate of Return



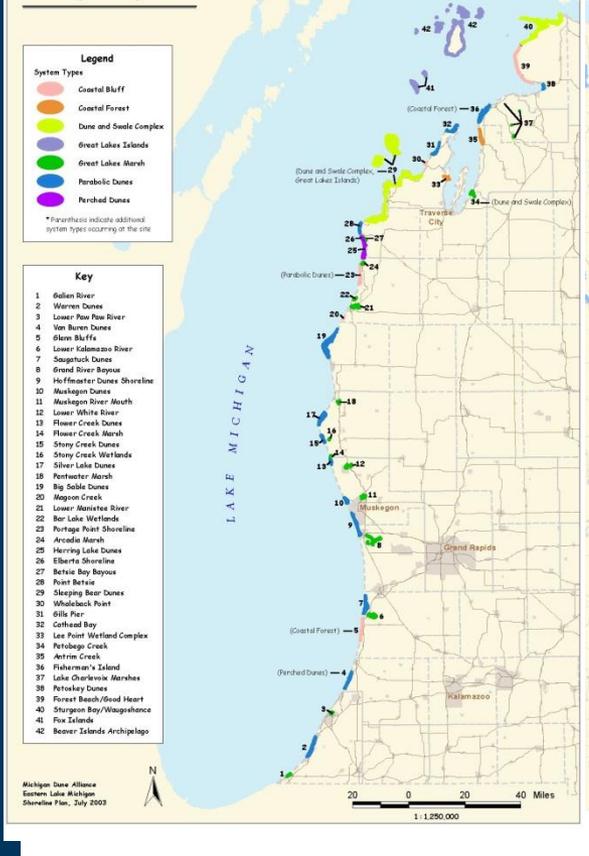
# SOGL outcomes to date

- Phragmites treatment along **145 miles** of shoreline
- **40%** of all known lyme grass populations treated
- Over **36,000 acres** of public and private lands surveyed for 15 of the highest-threat species
  - 30,000 along Eastern Lake Michigan
  - 6,200 on Beaver Island
- Treatment to **reduce populations by 50-75%** underway
- Kudzu population in SW-MI under management toward **eradication**
- Strategic plan for Eastern Lake Michigan and Beaver Island developed and **adopted**

2015-2016:  
**Sustainable  
Invasive  
Plant  
Control in  
Eastern  
Lake  
Michigan**



**MAP 1: Distribution of Major Ecological Systems**



50+ semi-contiguous, high value sites targeted for ED/RR species **ERADICATION**

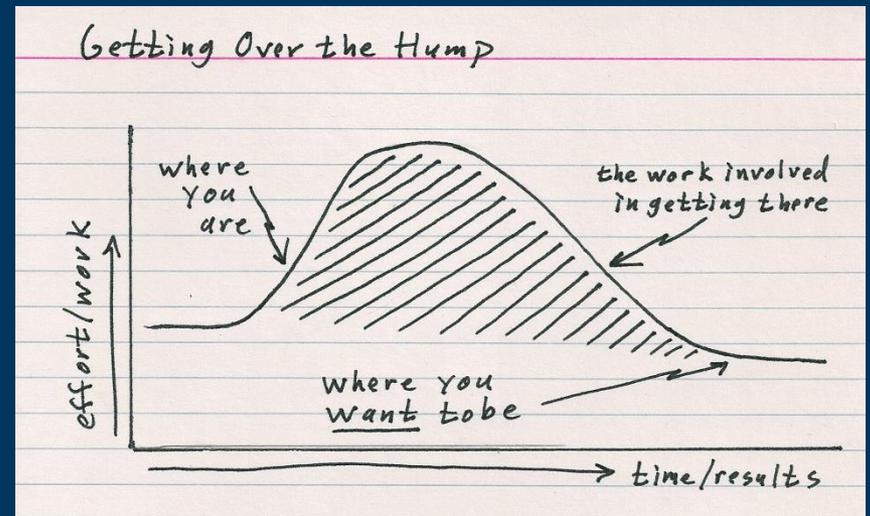
# MDA funding awarded

## ■ Private

- 2007-2009 - \$375,000
- 2010-2012 - \$450,000
- 2013-2014 - \$100,000

## ■ Public

- 2010-2012 - \$750,000
- 2012-2014 - \$1,000,000
- 2015-2016 - \$500,000



## MDA partner's role

- Matching funds
  - 2010-2012 - \$250,000
  - 2012-2014 - \$500,000
  - 2015-2016 - \$250,000
- Project implementation
  - On-the-ground knowledge and expertise
  - Regional understanding, local clout
- Outreach and education
  - Increasing awareness and driving continued interest
  - Complementary work (increasing native plant demand, training volunteers, etc.)

## TNC's role

- Funding provided to MDA partners
  - 2007-2010 - \$100,000
  - 2010-2012 - \$500,000+
  - 2012-2014 - \$700,000+
  - 2015-2016 - \$350,000
- Project Design and Administration
  - Capacity to draft, receive, and manage Federal grants (e.g. GLRI)
- Science and Technical Expertise
  - Species and site prioritization
  - Research on outcomes of management

# The Future of Coastal Restoration

- Islands
  - Beaver Island
  - Door Peninsula/Green Bay
- Sustainability
  - Economic benefits of invasives removal
- Lake-wide scale
  - Northern and Western Lake Michigan
- Export/Transfer
  - Partnership framework for other Great Lakes coasts



