Treating Phragmites in High Quality Natural Communities

Phyllis Higman
Michigan Natural Features Inventory

Thanks to Sue Tangora, Mark Sargent, Brian Piccolo, Pam Grassmick, Suzan Campbell, Daria Hyde, Ed Schools, Leslie Kuhn, Steve Thomas, Dave Cuthrell, Mike Monfils, Yu Man Lee, Ellen Jacquert, all our northern Michigan Partners and our funders

DNR, DEQ, USFWS, NFWF
People protect what they know and value.

- MNFI
- Coastal zone
- Strategic action
- Pop Quiz
- Impacts
- What to do?
Michigan Natural Features Inventory

Maintain comprehensive database on Michigan’s rare elements of biodiversity

GIS based:

15,438 element occurrences (EO’s)
endangered, threatened, special concern

420 plants

302 animals

76 natural communities

Endangered

Globally imperiled

Threatened
Listings and Ranks

- State & Federal Endangered: E LE
- State & Federal Threatened: T LT
- State Special Concern: SC
- Global Ranks: G1......G5
- State Ranks: S1......S5
- Element Occurrence Ranks: A-D

NatureServe Programs collect and track data the same way – enables comparisons across jurisdictions

Legally protected:

Not legally protected; use to prioritize conservation
Coastal Zone EO’s

Upper Peninsula
Michigan

Lake
Michigan

~1/3 database records are in coastal zone
Michigan’s Coastal Heritage
Strategic Plan

Meeting the Challenge of Invasive Plants: A Framework for Action

prepared for the
Michigan Department of Natural Resources
Wildlife Division

by:
Phyllis Higman & Suzan Campbell

Michigan Natural Features Inventory
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Project Coordinators
Mark Sargent & Sue Tangora
Michigan Department of Natural Resources
Wildlife Division
Our challenge is to pick the right battles.

- important
- success likely

Widespread awareness (many locations)

Detection (scattered locations)

Introduction

No hope!!

Prevention
Early detection-rapid response

Prioritizing winnable battles. Control, contain, restore.
Early Detection & Treatment of Phragmites in Northern Michigan

- **Regional approach:**
  - high quality areas
  - Phragmites just coming in

- **Collaboration:**
  - Education
  - Surveys
  - Prioritizing
  - Treatment
  - Monitoring
Collaboration!
Overlay of phragmites on biodiversity scored sites

- **Darker green:** higher score
- **Red:** phragmites points

Helen Enander, Kraig Korroch, Daria Hyde, Suzan Campbell, Ed Schools,
Outcomes!

- 12+ workshops conducted
- 275 miles surveyed
- 1 regional phrag distribution map
- 1 coastal biodiversity map
- 14+ local coordinators
- 220 acres treated
- 7 invasive phragmites ordinances
Outcomes!

Phragmites — Native or Not?
Distinguishing native Phragmites from the invasive non-native subspecies in the Great Lakes region.

Phragmites — and the rare plants, animals and natural communities along Michigan’s northern coasts.

Thanks to Suzan Campbell, Daria Hyde
Early Detection and Rapid Response (EDRR) along Michigan's northern coastlines

Coastal Zone:
- 7 Federal listed species
- 40 State listed & SC species
- 15 wetland types

Inland wetlands too!
Houghton’s goldenrod

State and federal threatened

Photo: Phyllis Higman
Photo: Sue Crispen
American Bittern

State special concern
Spotted Turtle

State threatened

Photo: Jim Harding
Hine’s Emerald Dragonfly

State and federal endangered

Photo: William Smith
Native Phragmites

Photo: Suzan Campbell
What to do?

- Don’t throw the baby out with the bathwater!
- Mapping distribution of phragmites and sites of concern is critical!
- Understand species life history!
- Species and communities are not static!
1. Learn what’s in your area!

- Information requests
- Data contracts
- Web database access
- Web info & applications
  - Natural features abstracts
  - Rare species explorer
  - Watershed element data
  - Biorarity/probability layers
  - County Lists
- DNR: Michigan Endangered species assessments
- Surveys and workshops!
2. Map Important places! = values

If you don’t know what and where they are, how can you strategize to protect them?
3. Hone Your Identification Skills!
4. Implement Early Detection Monitoring

- important places
- likely entry points
5. Map phragmites distribution!
6. Prioritize treatment!

- Important places
- Success likely
- Outliers
- Sources
- Pathways

Green: higher score
Red: phrag
7. Understand potential impacts

**Techniques:**
- Herbicides*
- Mowing/cutting
- Fire
- Flooding
- Grazing

**Impacts:**
- Toxic kill
- Physical kill
- Displacement
- Disrupted food webs
- Disrupted nesting
- Disrupted eggs
- Disrupted hibernacula
- Altered biotic conditions

* approved aquatic formulation!
* approved aquatic surfactants!
8. Consider timing of techniques

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<tr>
<th>Technique</th>
<th>Timing</th>
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<td>Glyphosate</td>
<td>August - September</td>
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<td>Imazapyr</td>
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<td>Cutting</td>
<td>2 wks after herbicide; late summer, fall, winter</td>
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<td>Mowing</td>
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<td>Burning</td>
<td>1 yr after herbicide application; late summer, fall, winter before green-up</td>
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<td>Flooding</td>
<td>mid-August – July after drawdown</td>
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<td>Grazing</td>
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Birds

A: Pre-nesting  Red: Highly vulnerable
N: Nesting  Tan: Potentially vulnerable
Y: Nesting young  Blue: Not vulnerable
P: Post-nesting

Mike Monfils, Daria Hyde
Best guesses; lack rigorous studies!
# Amphibians & Reptiles

## Active Times

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### Legend

- **Red**: Highly vulnerable
- **Tan**: Potentially vulnerable
- **Blue**: Not vulnerable
- **A**: Active adults
- **B**: Breeding
- **N**: Nesting, eggs, young
- **M**: Metamorphosis, hatchling, emigration, emergence
- **E**: Aestivation
- **H**: Hibernation

### Additional Information

- **Yu Man Lee, Daria Hyde**
- Best guesses, lack studies...
Butterflies and Moths

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A: Pre-nesting
L/N: Larvae, Nymphs
P: Pupae
E: Eggs

Red: Highly vulnerable
Tan: Potentially vulnerable
Blue: Not vulnerable

Best guesses; lack rigorous studies!

Dave Cuthrell, Daria Hyde
Recommendations

- Detect phragmites early!
- Field survey to assess what you have
  - Hand swiping, spot treat vs. broadcast
  - Burn early spring* prior to animal emergence OR late summer
  - Search and temporary relocate
  - Flush nests and critters
  - Work an inside out pattern

*will stimulate stems that weren’t killed
Detect infestations early! Monitor the results! Study impacts on species! Identify **winnable** battles in highly infested areas!

Photo: Suzan Campbell