



# Aquatic Invasive Plant Pathways in Trade: Prevention Strategies in Ohio

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Cleveland Metroparks

Ohio Aquatic Invasive Plant Committee

12-11-2020



# Prevention





# Topic 1

## Availability of AIS

Brick and mortar stores

Multiple online marketplaces

Plant bundles make  
identification difficult

Aquarium dumps /  
contaminated ornamentals





# Cleveland Metroparks Brick and Mortar Surveys, 2017 - 2019

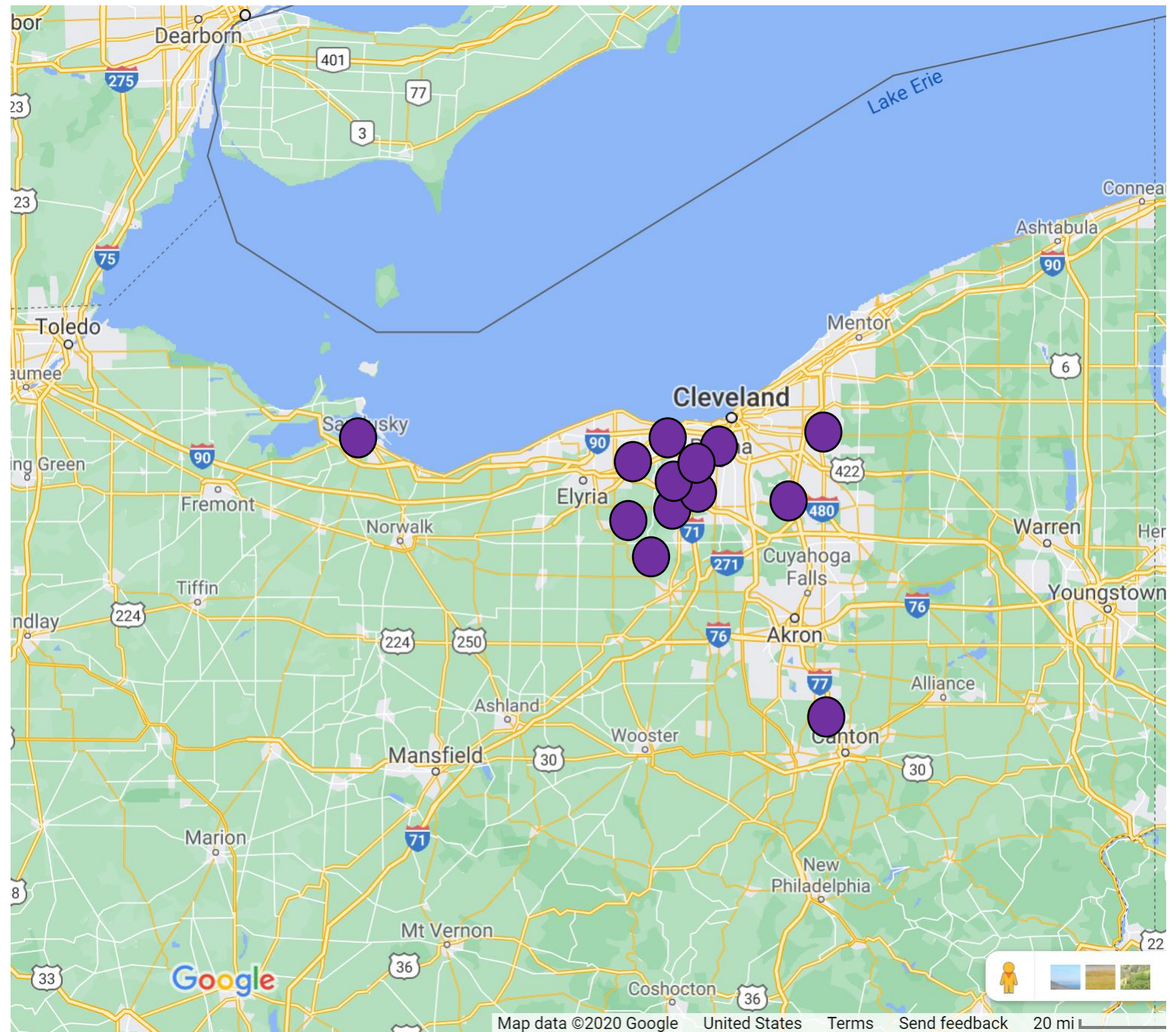
## 15 stores surveyed in person

At least 10 prohibited species confirmed

## Two vendors reported to ODA

## Good neighbor visits, never enforcement

# Distributed Ohio Sea Grant materials (Habitattitude)



# Online AIS availability

40 orders, Minnesota, 2004

Prohibited, exotic species received in 92%  
(*Butomous umbellatus*, *Lythrum salicaria*, *Hydrocharis morsus-ranae*)

93% contained species not specifically requested

18% orders contained misidentified plants

43% contained unordered seeds

Also present: *Hydrilla verticillata*, *Lythrum salicaria*, *Salvinia molesta*, *Potamogeton crispus*

Maki, K., Galatowitsch, S. 2004. Movement of invasive aquatic plants into Minnesota (USA) through horticultural trade. Biological Conservation, Vol 118, issue 3, pg 389-396



5 rhizomes Hydrilla verticillata, Hydrilla underwater plants, shrimp, aquatic food

Item no:

Seller:

Report Category

Prohibited and restricted items

Reason for Report

Animals, plants, and wildlife

Detailed Reason

Other wildlife items that can't be listed

The item in this listing is an animal, plant, or wildlife item that isn't allowed on eBay.



ebay brian\_burke@ebay to mj\_562  
11-20-2019 01:36 PM



**Re: Prohibited invasive plant for sale - Hydrilla verticillata**

Mark,

Thanks for letting me know there wasn't action taken when reporting it via Report this Item. In the future if you see other plants that should be removed start there, but if the item hasn't been removed within 48 hours don't hesitate to email me.

Thanks

Brian

# Topic one – Availability of Aquatic Invasive Plants

## Prevention Strategies

- Expand inspections of brick-and-mortar stores in Ohio
- Notify partners (Ohio Department of Agriculture) when prohibited species are for sale
- Persist and elevate prohibited species concerns in online marketplaces
- Include trade/hobbyist groups in outreach





# Anacharis

Topic 2: Confusing common names and look-a-likes



Hydrilla  
*Hydrilla verticillata*  
Invasive in Ohio



Brazilian waterweed  
*Egeria densa*  
Invasive in Ohio



Elodea  
*E. canadensis* or *E. nuttallii*  
Native to Ohio



African waterweed<sup>2</sup>  
*Lagarosiphon major*  
Non-indigenous in Ohio

# Anacharis

Topic 2: Confusing common names and look-a-likes

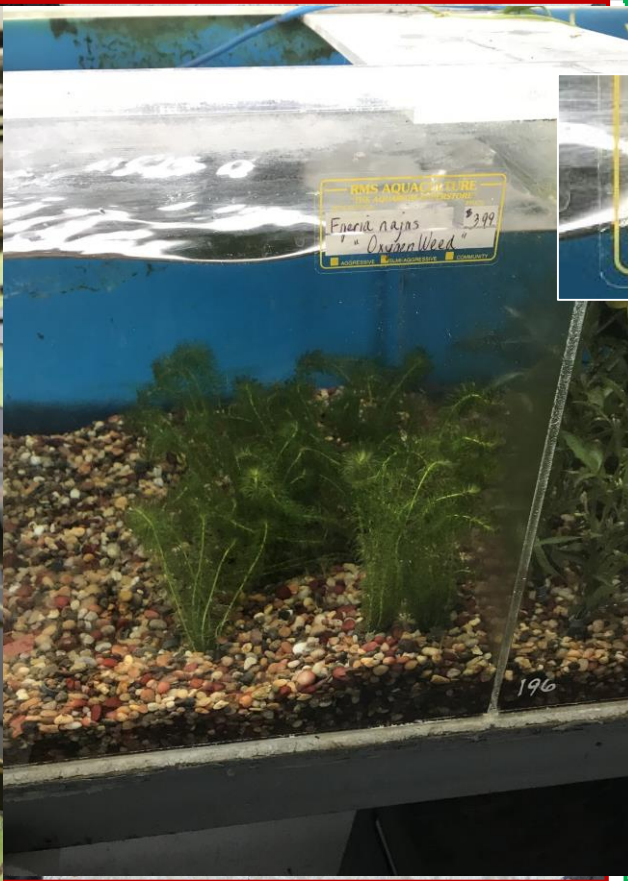
<sup>1</sup>Chiuluan, Taiwan, iNaturalist

<sup>2</sup>Genetic confirmation needed, best guess based on morphology

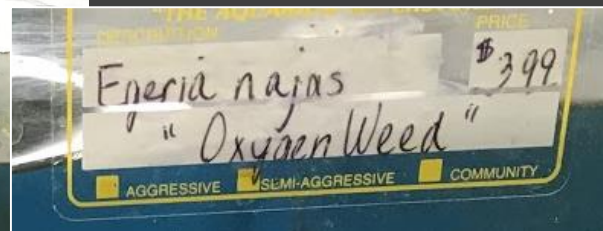




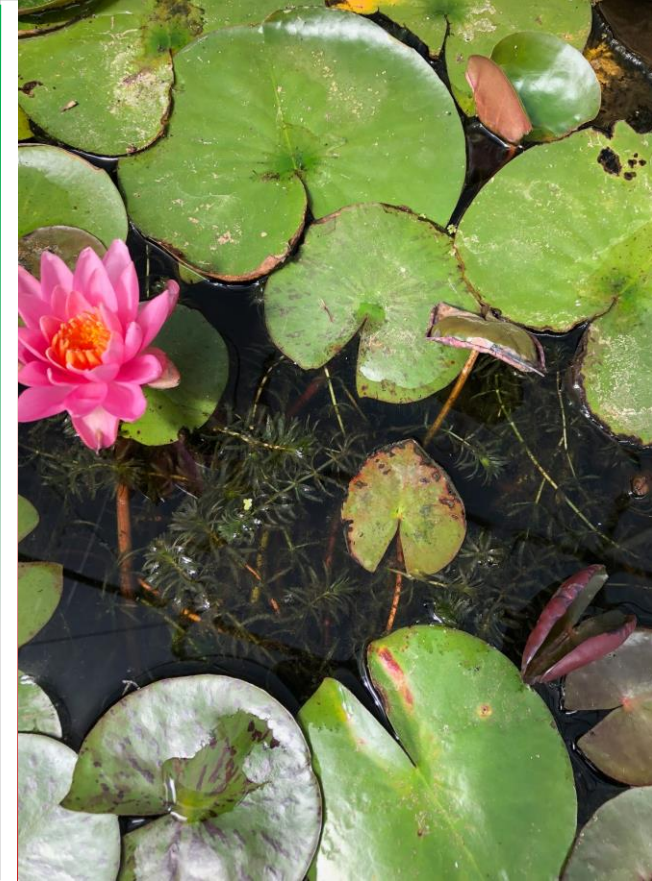
Hydrilla  
*Hydrilla verticillata*  
Invasive in Ohio



Brazilian waterweed  
*Egeria densa*  
Invasive in Ohio



Misidentified  
specimen



African waterweed<sup>2</sup>  
*Lagarosiphon major*  
Non-indigenous in Ohio

# Anacharis

Challenge 2: Confusing common names and look-a-likes

<sup>1</sup>Chiuluan, Taiwan, iNaturalist

<sup>2</sup>Genetic confirmation needed, best guess based on morphology

# *Elodea canadensis*

Native to Ohio

Also known as:

Elodea

Canadian waterweed

Common waterweed

*Anacharis canadensis*

*Elodea brandegeae*

*Elodea ioensis*

*Elodea laifolia*

# *Egeria densa*

Invasive in Ohio

Also known as:

Elodea

Wide-leaf anacharis

Brazillian elodea

Brazilian waterweed

South American waterweed

*Anacharis densa*

*Elodea densa*

*Elodea densa* var. *longifolia*

*Philotria densa*



# *Elodea canadensis*

## Native to Ohio

# *Egeria najas*

## Native to S. America

# *Egeria densa*

## Invasive in Ohio

### BEST

### ELODEA CANADENSIS

use for cell study, ponds, and aquaria

Also known as:  
 Elodea  
 Canadian waterweed  
 Common waterweed  
*Anacharis canadensis*  
*Elodea brandegeae*  
*Elodea ioensis*  
*Elodea laifolia*



Considerations: This plant is native to Wisconsin and can be ordered locally.  
 Characteristics: Leaves in whorls of 3, edges appear smooth to the naked eye

### ALLOWED

### EGERIA NAJAS

use with caution

Also known as:  
 Elodea  
 Narrow-leaf anacharis  
*Anacharis hilariana*  
*Anacharis naias*  
*Elodea guyanensis* f. *longifolia*  
*Elodea kochii*  
*Elodea najas*  
*Elodea paraguayensis*



Considerations: This plant is not native in Wisconsin, but is not a regulated invasive species.  
 Characteristics: Leaves in whorls of 5, obvious serrated edges, smooth midrib (under leaf)

### PROHIBITED

### EGERIA Densa

do not use

Also known as:  
 Elodea  
 Wide-leaf anacharis  
 Brazilian elodea  
 Brazilian waterweed  
 South American waterweed  
*Anacharis densa*  
*Elodea densa*  
*Elodea densa* var. *longifolia*  
*Philotria densa*



Considerations: This plant is a prohibited invasive species. It cannot be bought, sold, transported, transferred, or introduced in Wisconsin.  
 Characteristics: Leaves in whorls of 4 – 8, edges appear smooth to the naked eye

# What is more bothersome to your inner stickler?

- 1) Asian Carp in reference to multiple species (CarpS)
- 2) *Egeria densa* named as Elodea
- 3) My outrage for both is so hot it could boil water





*Trapa natans*

European water chestnut  
Prohibited in Ohio



*Ludwigia sedoides*

Mosaic plant  
Permitted in Ohio

# Topic two – Confusing Common Names and Look-a-likes

## Prevention Strategies

- National adherence to accepted common names (ITIS)  
Washington, Michigan → *Egeria densa* as **Brazilian elodea**
- Avoid sale of look-a-like species
- Prohibit the sale of look-a-like species\*
- Evaluate utility of non-indigenous species  
Water lettuce (*P. stratoites*), water hyacinth (*E. crassipes*)...

\*Likely unrealistic, but would better defend Ohio's natural waterways from AIS



## Topic three – Lack of alternatives and awareness

$$\text{Availability} + \text{Confusion} =$$

A recipe for non-native species acquisition in Ohio

# Native Plants List for Local Growers

Adapted from Janet Schreier, Upper Midwest Invasive Species Conference Talk  
Minnesota Water Garden Society

## Easy to find

Caltha pallustris (Marsh Marigold)  
Pontedaria cordata (Pickerel Rush)  
Sagittaria (arrowheads)  
Iris versicolor (Blue flag iris)  
Lobelia cardinalis (Cardinal Flower)  
Menyanthes trifoliata (Bog bean)



## Hard to find

Hibiscus laevis  
Nymphaea odorata (Waterlily)  
Nelumbo lutea (lotus)  
Nuphar advena & lutea (spatterdock)  
Calla palustris (Calla lily)  
Equisetum scirpoides (dwarf horsetail)  
Hippuris vulgaris (Mare's Tail)



# Programs in other states

Tina Wolbers, Minnesota DNR, AIS Prevention Planner

Ranked #1 on list

Pathway	Source	Behaviors	Average Impact	Average Uptake	Average Market	Product of Averages
Retail Plant Trade	Planting of high-risk plants (intentional or unintentional)	Accurately identify and only sell non/low-risk species (retailers)	4.4	3.0	4.3	56.3

Community-Based Social Marketing (CBSM), 2019 presentation link below:

<https://www.glc.org/wp-content/uploads/GLP-May-2019-WOLBERS-MN-DNR-CBSM-Wolbers.pdf>

## RIPPLE

Paige Filice, Michigan State Extension, Natural Resources Educator

Link to project site below:

[https://www.michigan.gov/invasives/0,5664,7-324-68000\\_75850---,00.html](https://www.michigan.gov/invasives/0,5664,7-324-68000_75850---,00.html)



# Topic three – Lack of alternatives and awareness

## Prevention Strategies

- Encourage local growers to grow hard-to-find native plants
  - Sea Grant Aquaculture Focus?
- Publish Ohio list of native plants
- Adapt/implement other Great Lakes States programs
- ODNR flip guide for native aquatic plants



## Topic 1 – Availability of AIS in Ohio

- Expand inspection of brick-and-mortar stores in Ohio ✓
- Persist and elevate prohibited species concerns in online marketplaces ✓
- Notify partners (ODA) when prohibited species are for sale ✓
- Include trade/hobbyist groups in outreach

## Topic 2 – Confusing common names and look-a-likes

- National adherence to accepted common names (ITIS) ✓
- Accurately identify and sell only non/low risk species
- Evaluate utility of non-indigenous species,  
especially those that may become established in Ohio in a warmer climate

## Topic 3 – Lack of alternatives and awareness

- Encourage local growers to grow hard-to-find native plants
- Publish Ohio list of native plants ✓
- Adapt/implement other Great Lakes state's programs
- ODNR flip guide for native aquatic plants



Items Cleveland Metroparks AIS plants project actively engaged with



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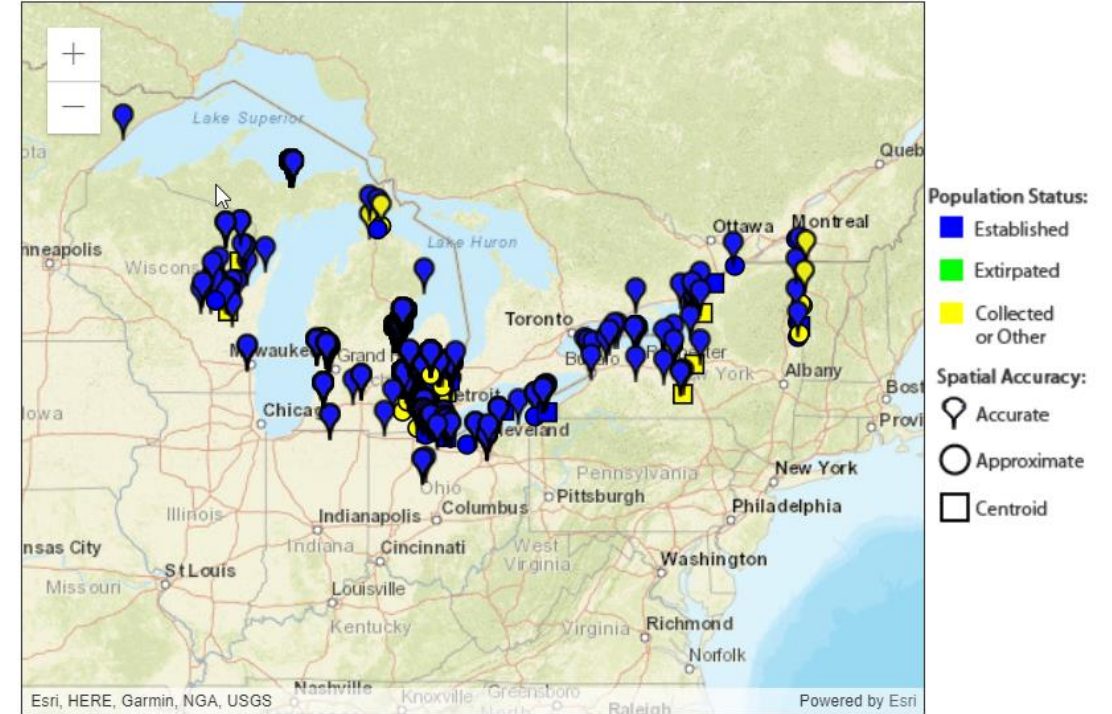




# GLRI FLOWERING RUSH STUDY

## Off Topic

- USACE received funds to research flowering rush in the Great Lakes region in FY21 with potential to receive additional funding in future years
- Proposed plan is to study the phenology and genetics of the GL population
- Establish three study sites:
  - Unity Island in the upper Niagara River, (NY)
  - Mentor Marsh in Lake Erie
  - Site in MI or potentially Ottawa National Wildlife Refuge
- **Still looking for match recipients (50/50) for FR management – Contact Mike Greer (Michael.J.Greer@usace.army.mil)**



Source: NOAA GLANSIS



US Army Corps  
of Engineers®

