Expanded Detection and Control of *Hydrilla* in Ohio's Lake Erie Basin

Binational Great Lakes Aquatic Invasive Species Forum

Mark Warman
Hydrilla Project Coordinator
6-21-2017

Cleveland Metroparks

Great Lakes RESTORATION

Crooked River
Cooperative Weed Management Area

Hydrilla verticillata – Du Jour

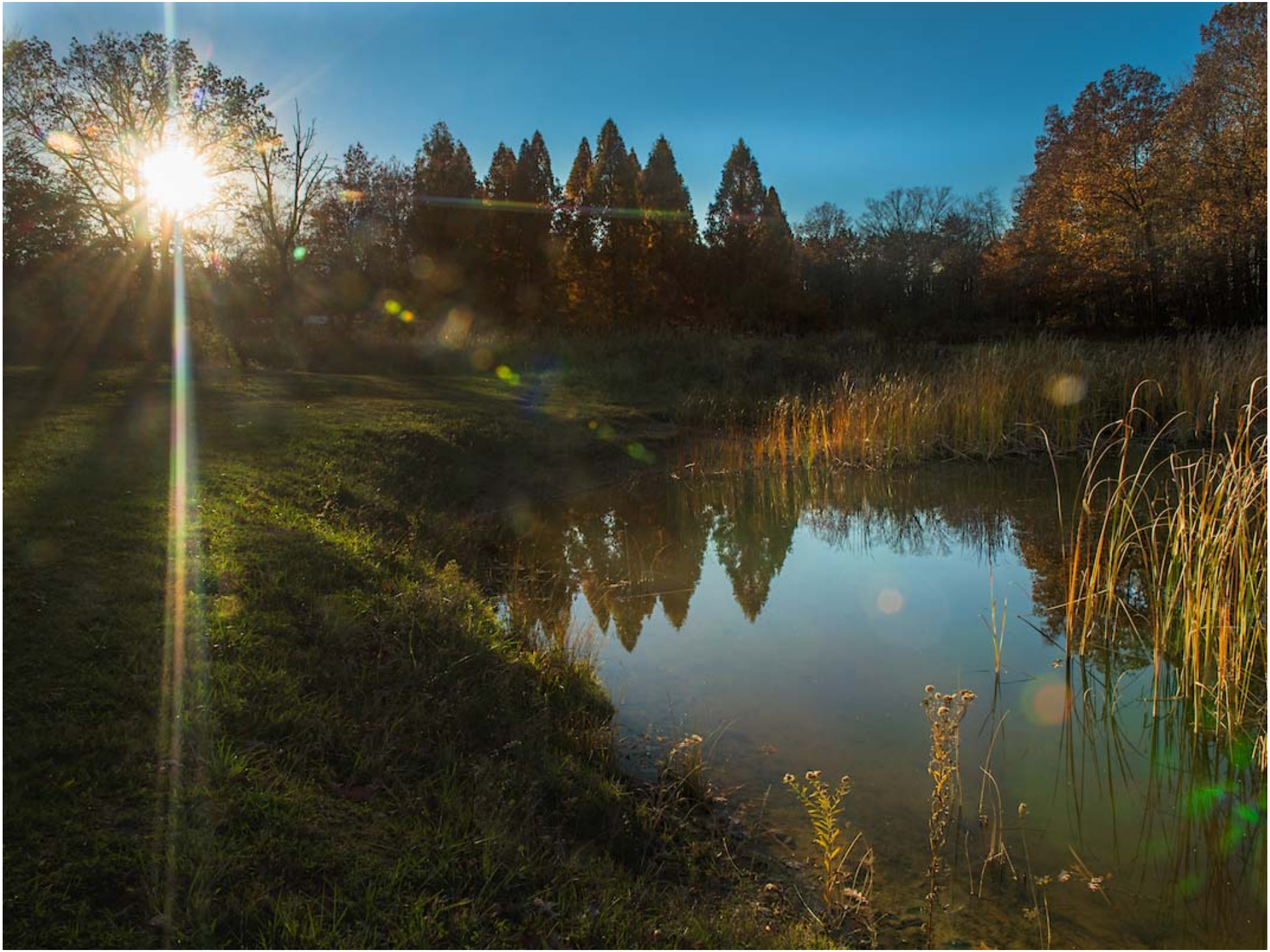
Lotussuperfoods.com

…something that is enjoying great but probably **short-lived popularity or publicity**.

Good Greens

"I love hydrilla! I take a teaspoon almost everyday in a smoothie!"

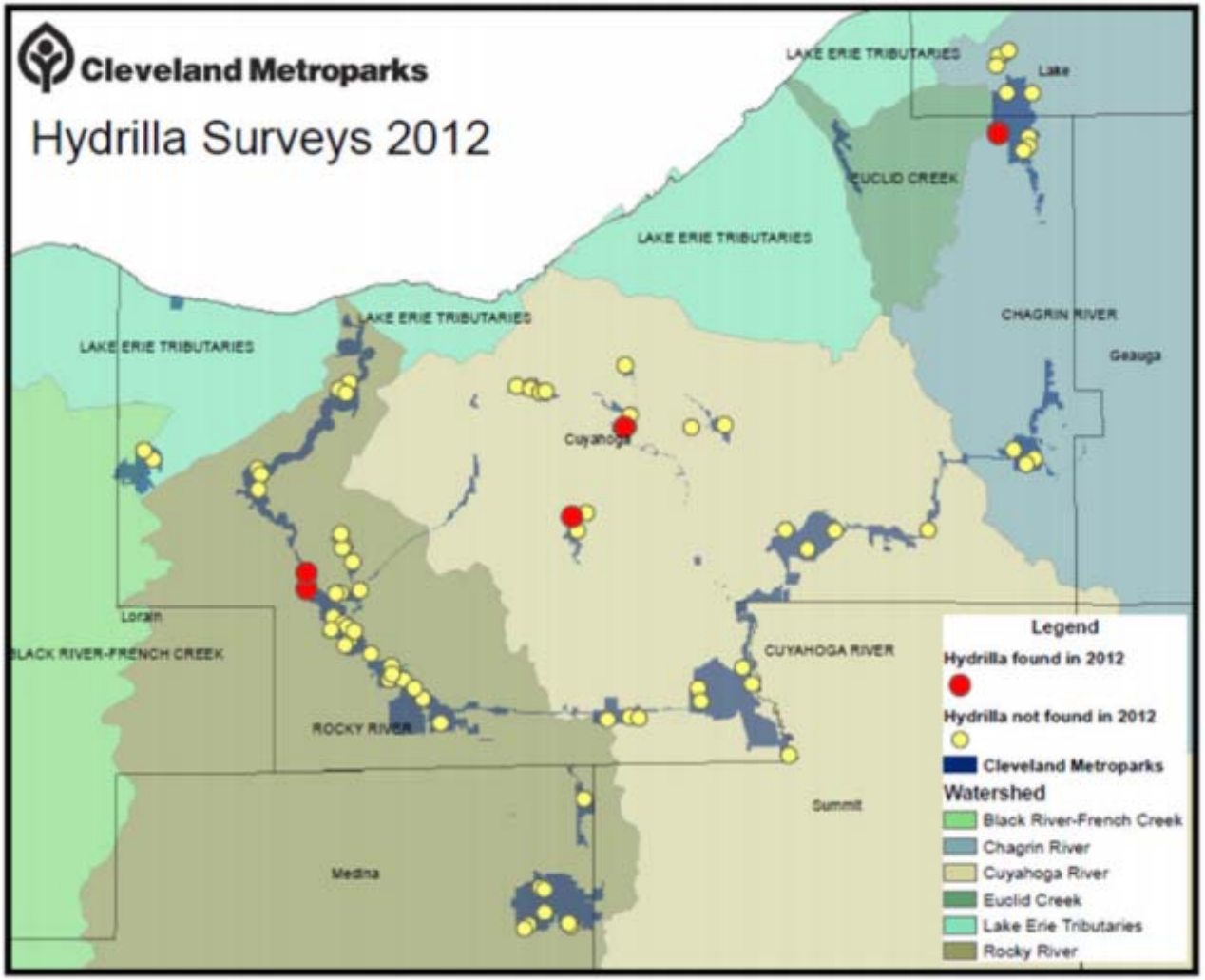
"Hydrilla is really amazing – my energy levels have been through the roof!"

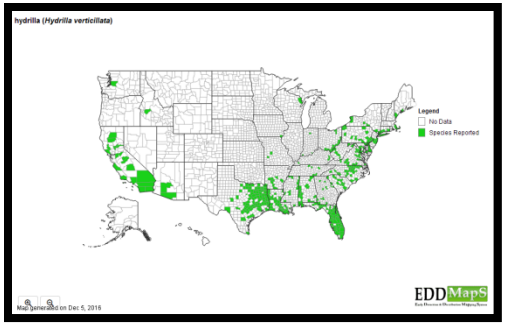


Cleveland Metroparks *Hydrilla* Management

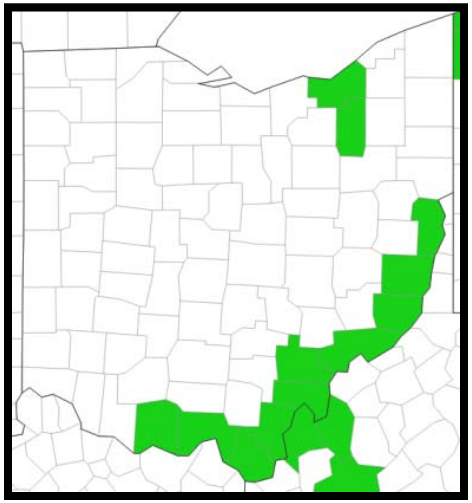
West Creek Reservation, Parma, Ohio 2011

Hydrilla distribution





Recorded in 29 states
2017 distribution

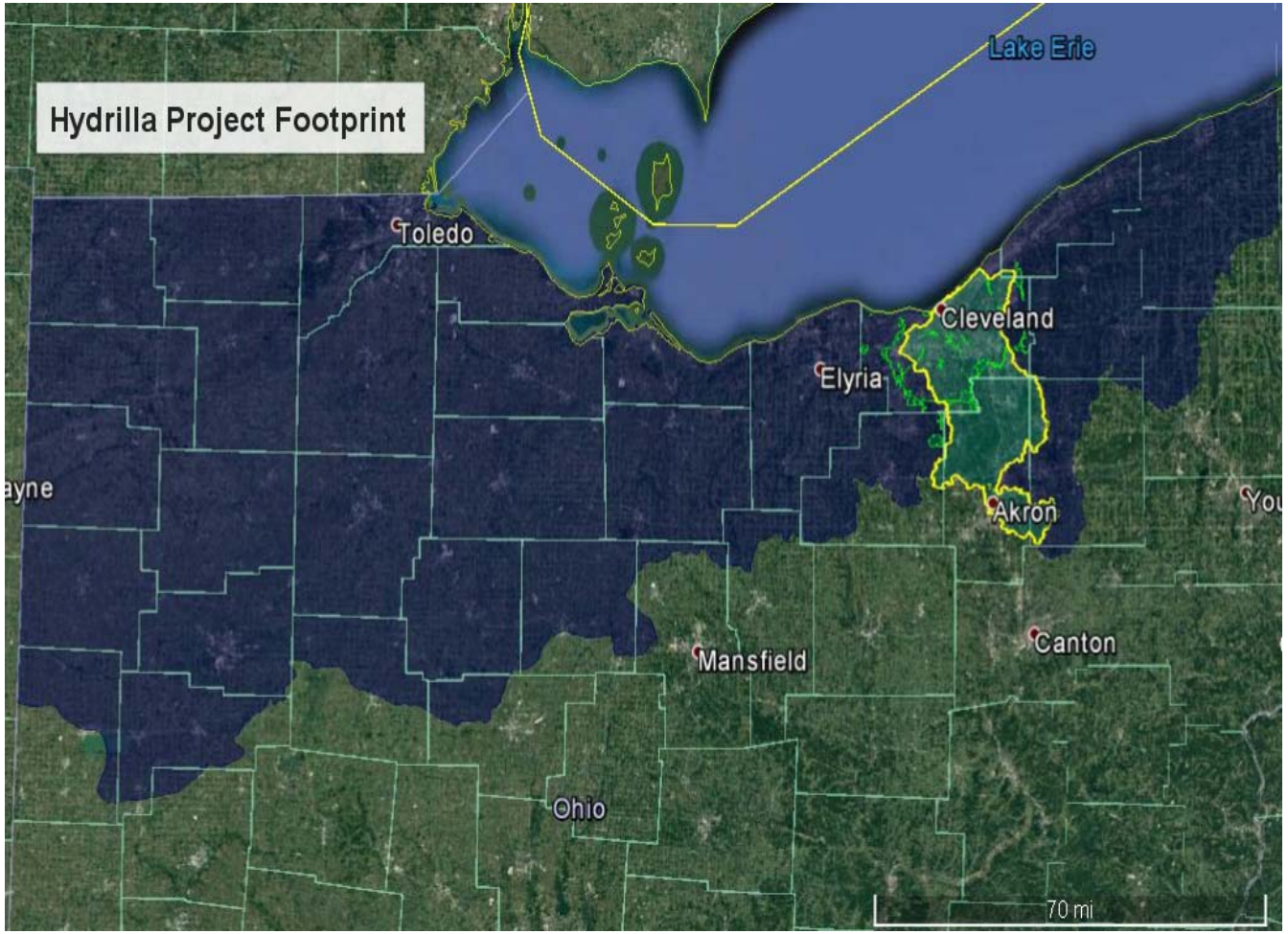


Infested counties

- 80 + sites annually
- Rocky River, Chagrin, Cuyahoga
- Presence / absence

- One report outside of CM

CM Hydrilla Project (2017-2018)



Early Detection and Rapid Response in Lake Erie Basin

Outreach

- Training
- Presentations
- Shared resources

Continued management

Expanded detection

- Survey
- Collaborate
- Fund / Oversee treatment

Methods: Surveys

- Wader surveys

-Rake toss surveys

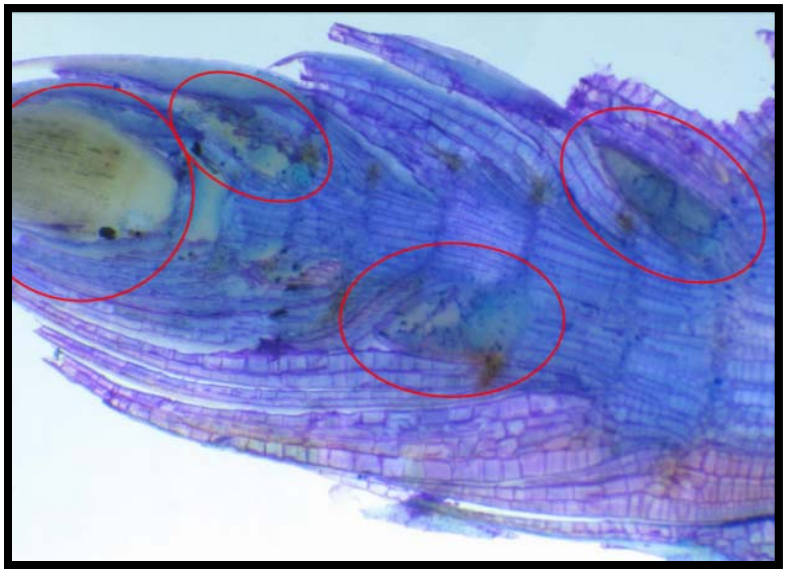
-Boat surveys

-Decontamination

-Tuber sampling…

Aquatic Ecological Restoration Foundation

Tubers

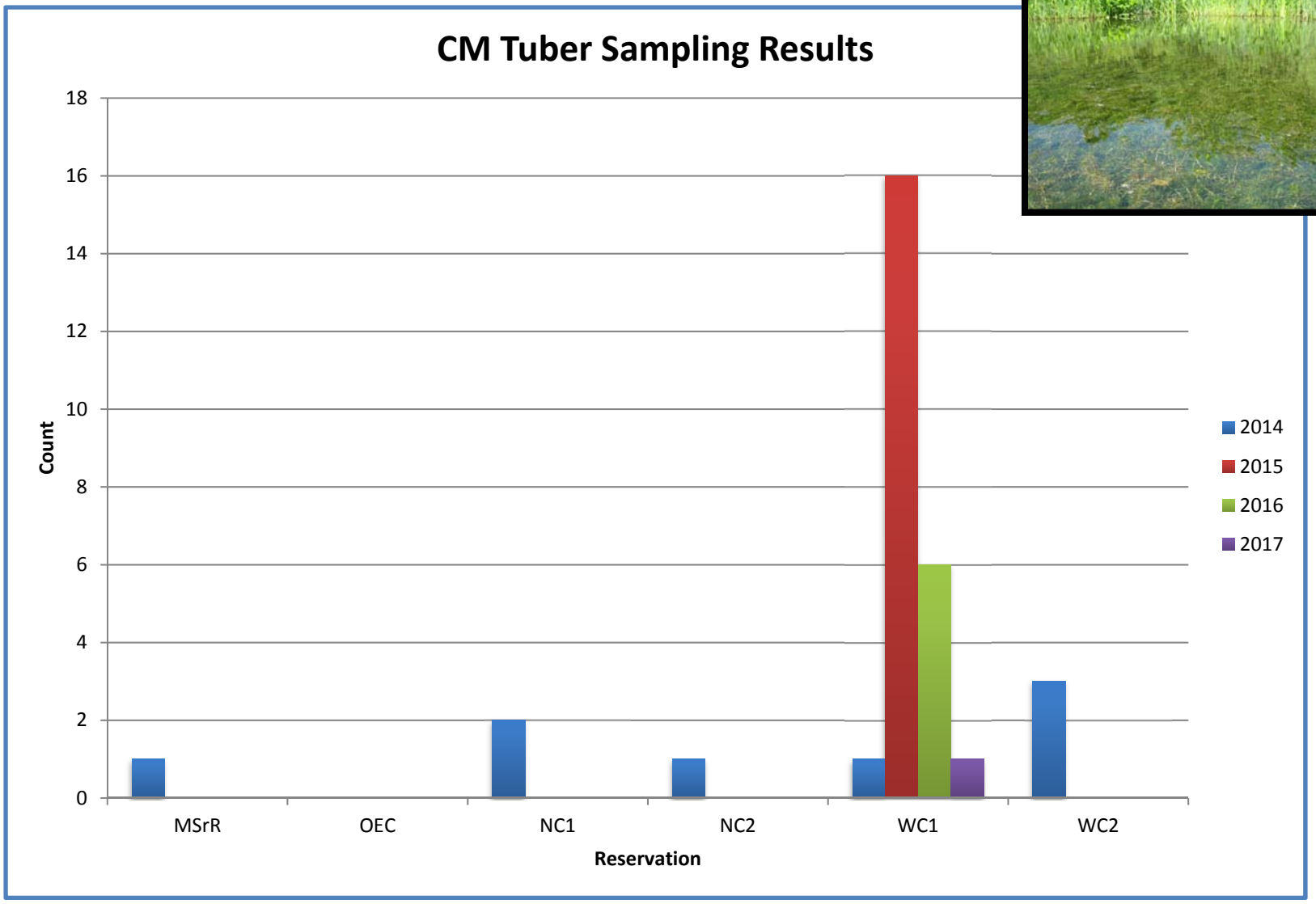


NC State University

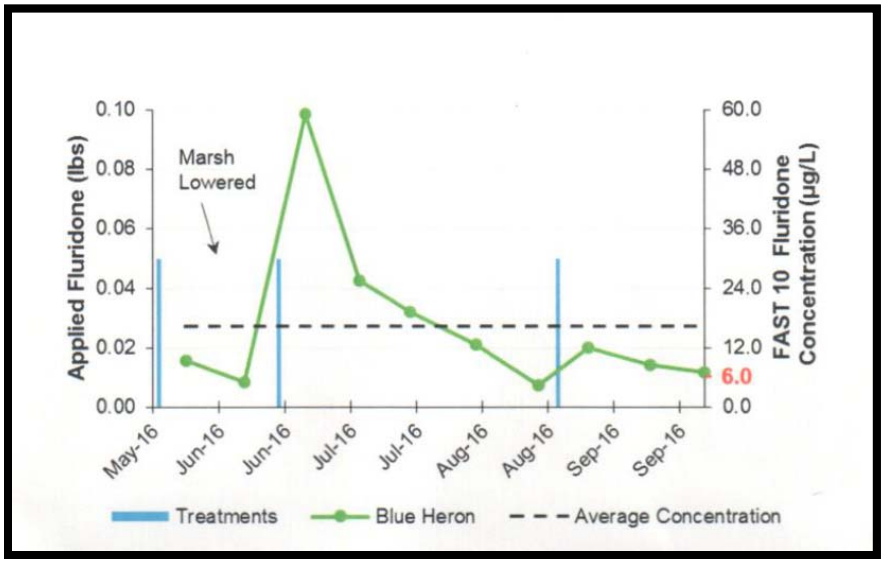
NC State University

- Monecious tubers at density of 3,000 m^2
- **7-10 years** elimination of tuber bank
- One year of treatment skipped, tuber density rebound 74%

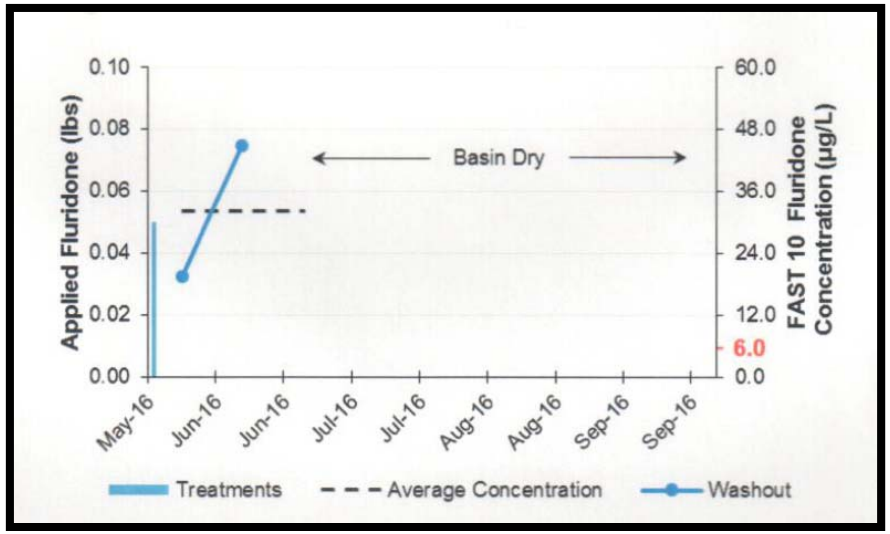
Tubers


CM Tuber Sampling Results
18
16
14
12
10
8
6
4
2
0
Count
MSrR
OEC
NC1
NC2
WC1
WC2
Reservation
2014
2015
2016
2017

Control of *Hydrilla*



Aqua Doc



Aqua Doc

- Shallow wetlands
- Flouridone & penoxsulam
- 6ppb target, residue measured biweekly
- Vegetation present at one site

Regional Costs

$99,152.47

2011 - 2016

75%

25%

Methods: Outreach

- Hands-on, in-the-field training

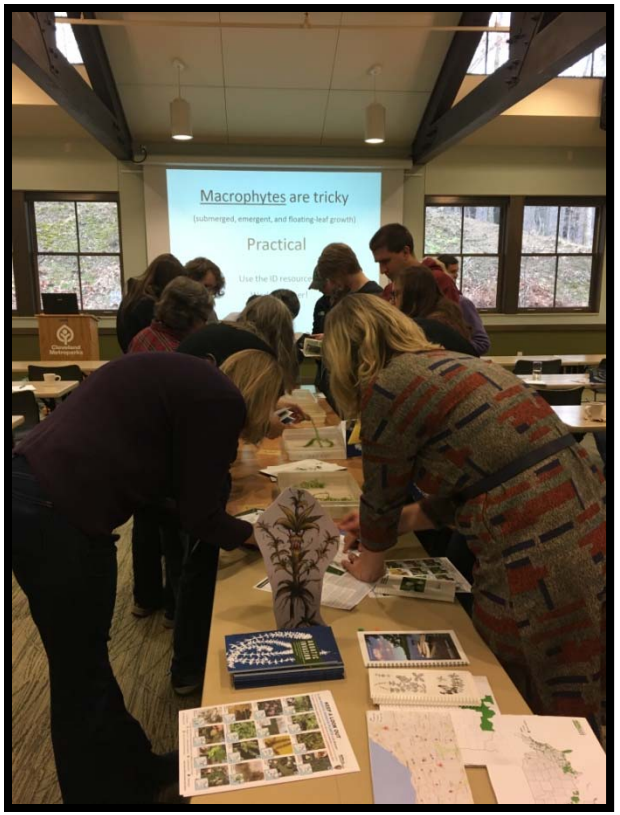
- Support from Ohio Sea Grant

- Mobilizing CM volunteers

-Decontamination protocol

-Recruit for Strike Team

- Shared on CWMA website



Watershed Volunteer Program training

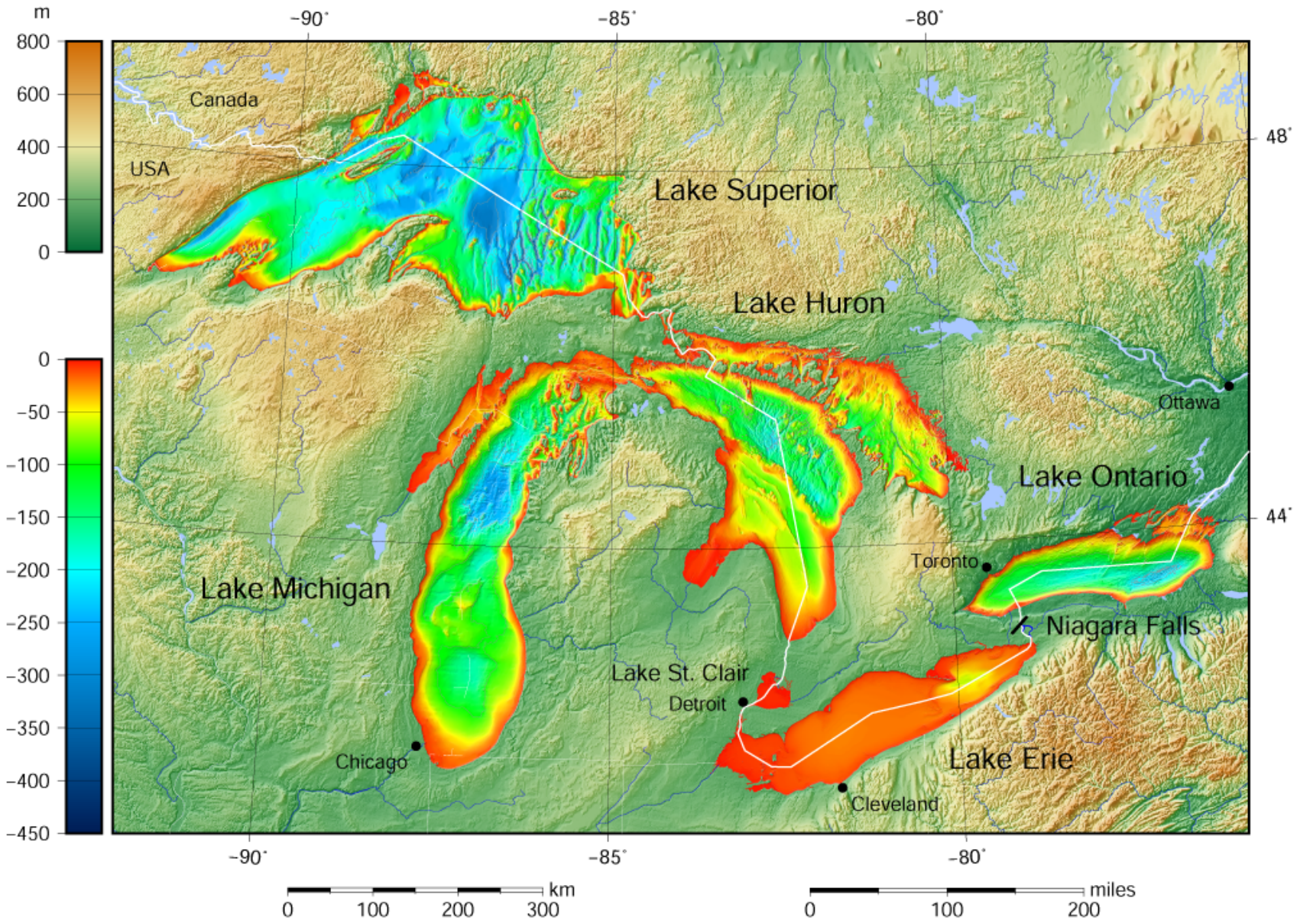
Methods: Data sharing

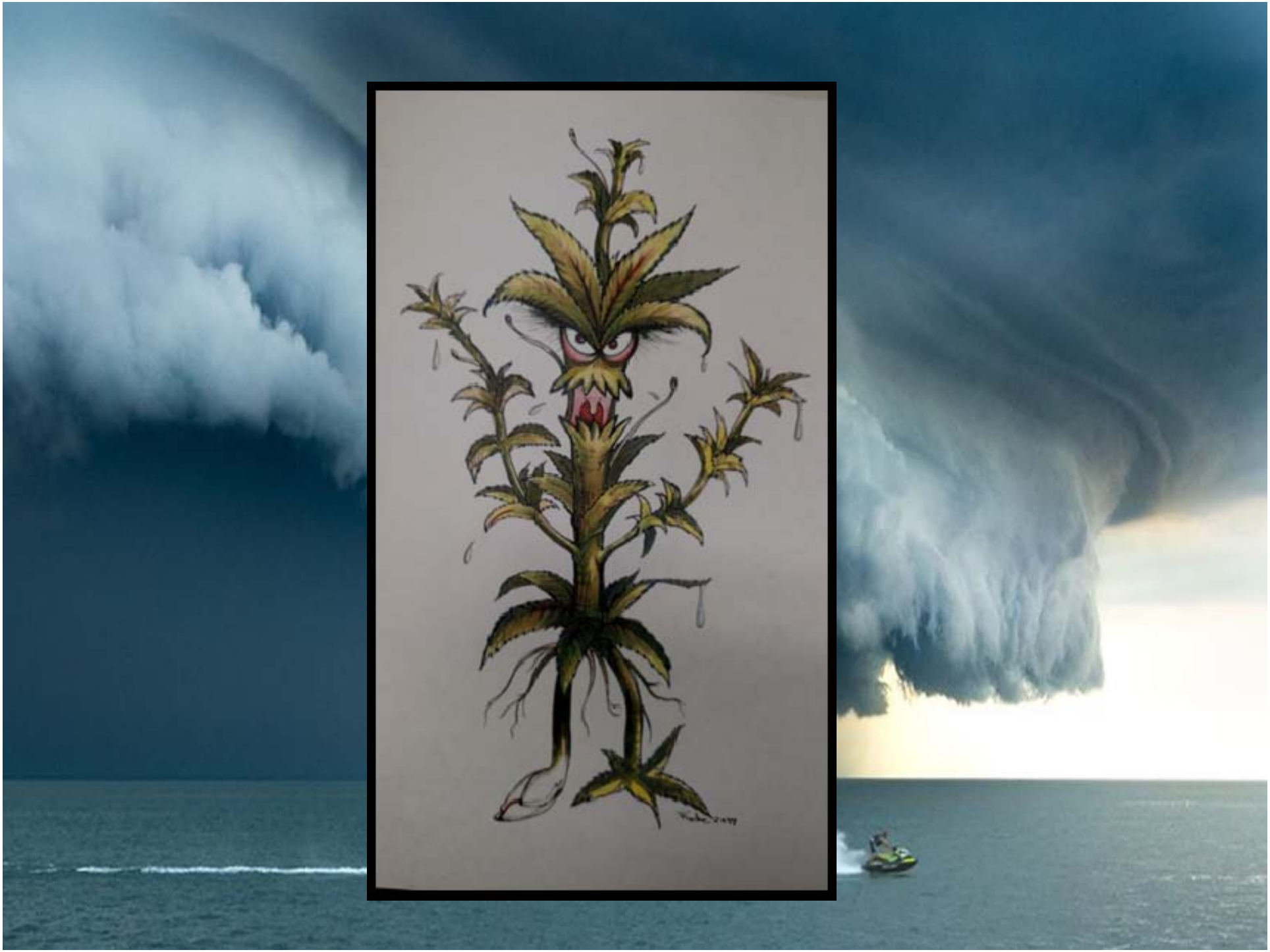
- Cleveland Metroparks Database
  - Fulcrum
- Great Lakes Early Detection Network app
- EDDMapS
- CWMA website

EDDMapS
Early Detection & Distribution Mapping System

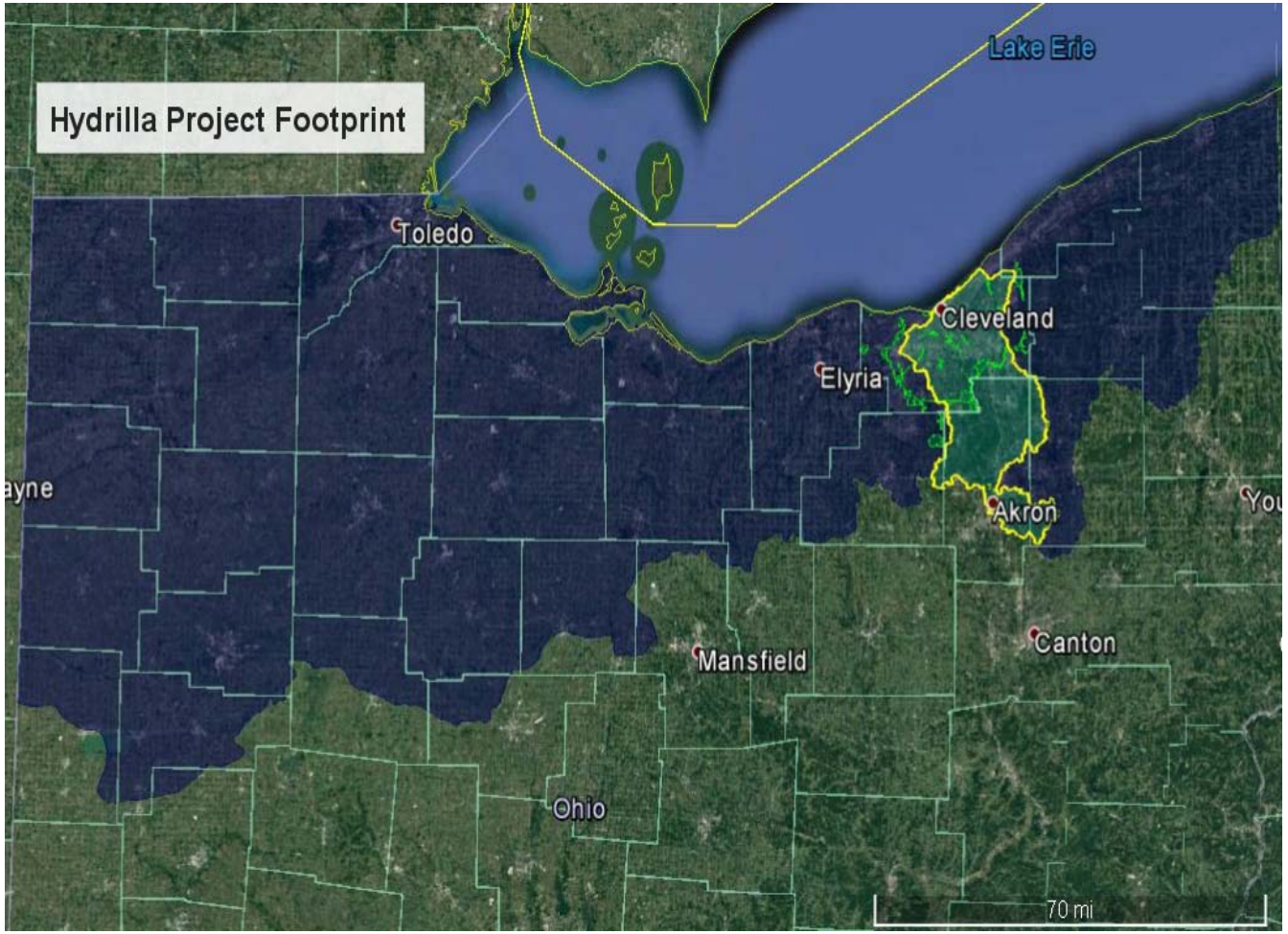
Great Lakes Early Detection Network

Possible *Hydrilla* Territory





Hydrilla Project Review



Help us have an impact in the Great Lakes

Outreach

- Training
- Presentations
- Shared handouts

Continued management

Expanded detection

- Survey
- Collaborate
- Fund / oversee treatment

Hydrilla Identification

<u>Key features</u>

Whorled leaves, 5 typical (4-8)

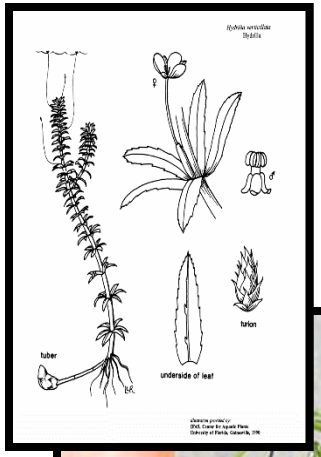
Teeth on leaf margin

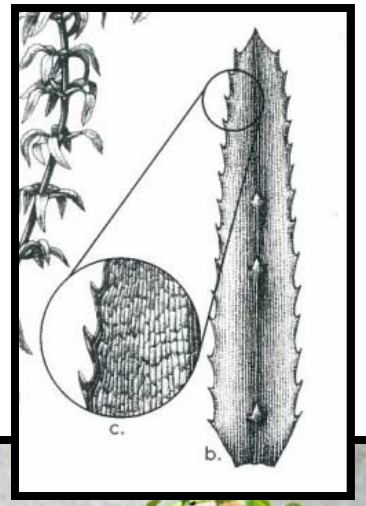
Ribs on underside

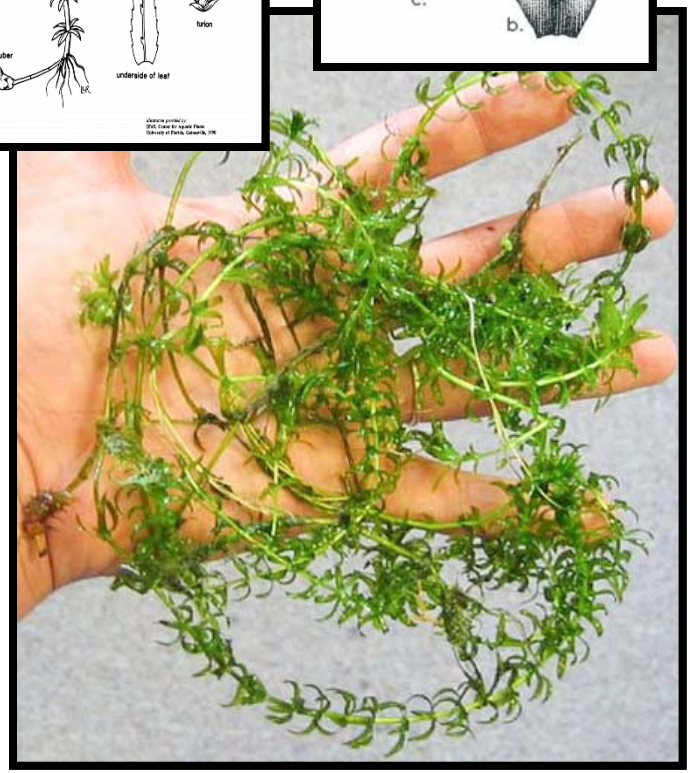
Tubers

~ 1 cm in length

IDTools.org





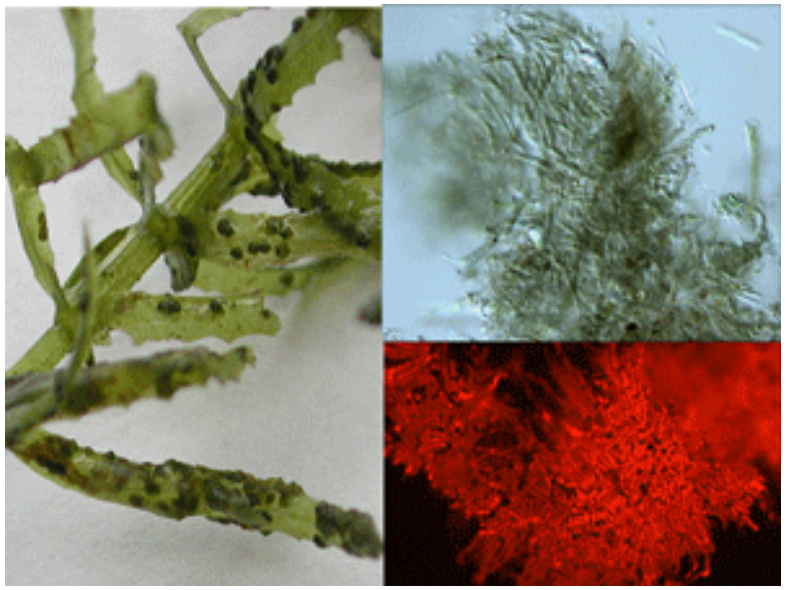


Chesapeake Bay Program

Avian Vacuolar Myelinopathy

Aetokthonous hydrillicola

"Eagle Killer that lives on Hydrilla"



Toxic cyanobacteria grows on *Hydrilla*

Fatal brain lesions

>1,000 American coot deaths

At least 100 bald eagle deaths

First recorded in 1994

SCDNR, 2016

Affects Canada geese, great horned owls, killdeer, mallards, ring-necked ducks, buffleheads, northern shovelers, American widgeons, and other waterfowl

Ecosystem effects

-Reduced sport fish weight

- Fish kills
- Decreased oxygen

Scores Of Fish Die - Hydrilla Blamed

October 29, 1994 | By Katherine Bouma of The Sentinel Staff

-Outcompetes native vegetation

-Alters water chemistry

- Implicated in zooplankton and phytoplankton declines

-Stratifies water column

Question:

What do you need to survey for hydrilla?

Hydrilla Identification

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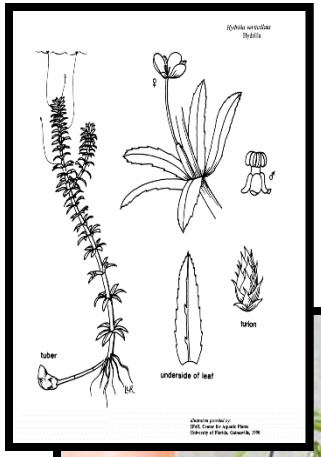

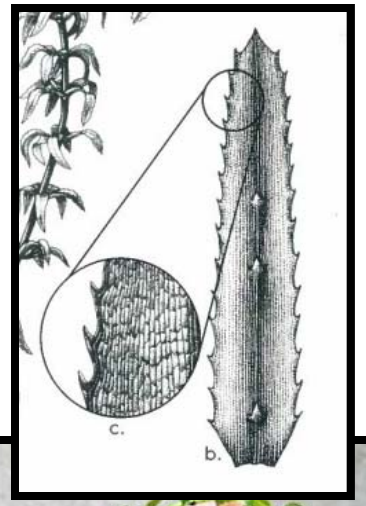

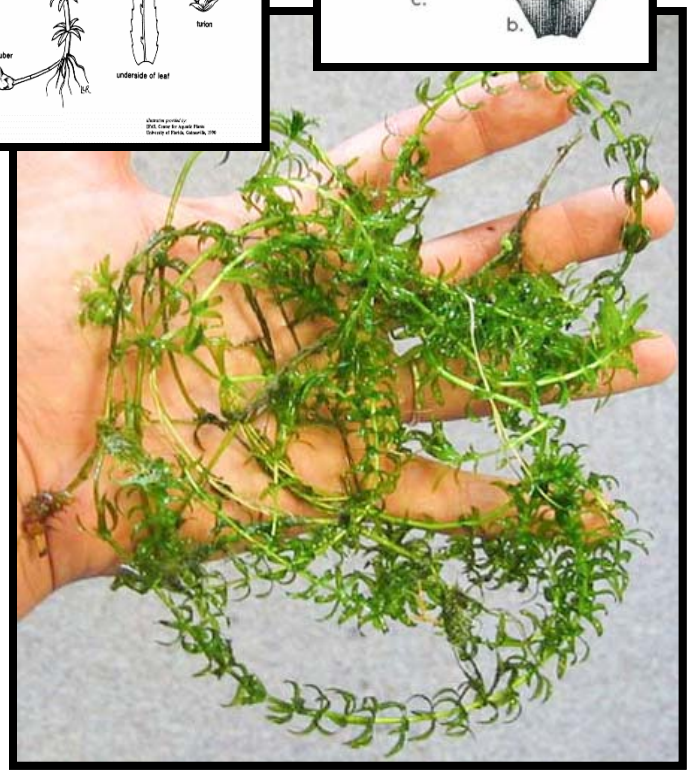

Chesapeake Bay Program

Thank You

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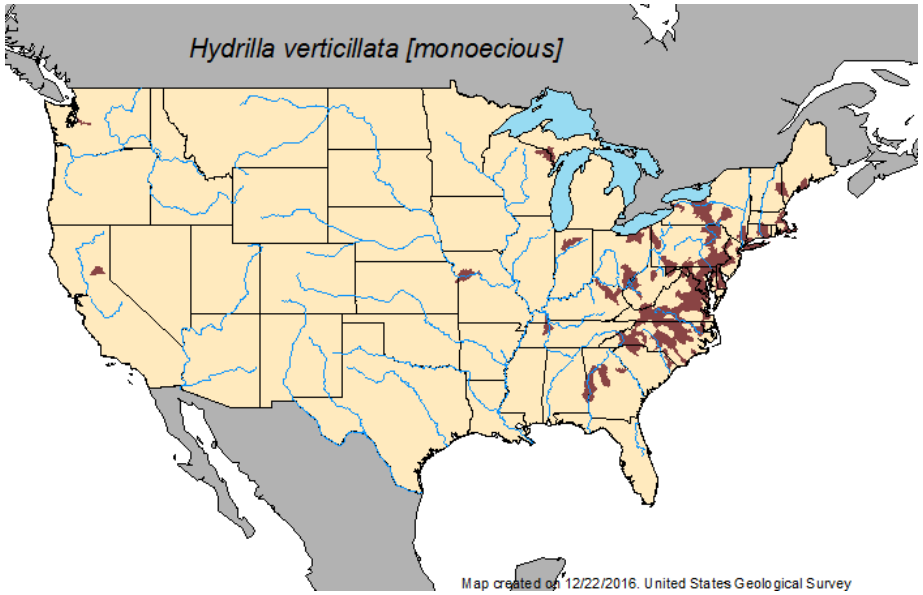
Hydrilla Strike Team

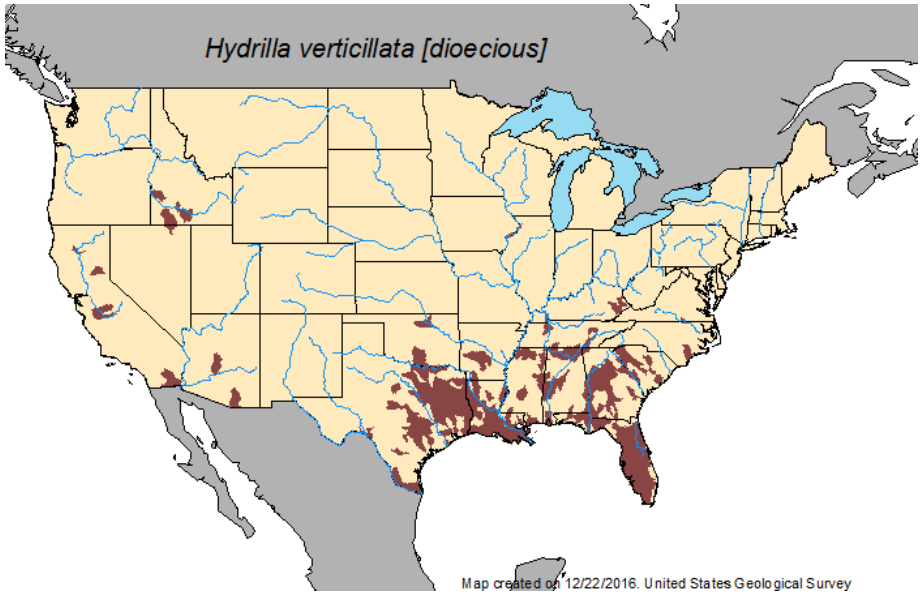
Cleveland Metroparks

Great Lakes RESTORATION

Crooked River
Cooperative Weed Management Area

Monoecious and dioecious





USGS

Monoecious

- Introduced in 1980s
- Sexual reproduction organs on same plant
- Less robust
- Senesces every year
- May produce seed
- Tubers formed June – November
- Data suggests a chilling period is required for tuber germination

Dioecious

- Introduced in 1950s
- Sexual reproduction organs on different plants
- More robust
- No seed production
- Tubers formed October – April
- Data suggests a chilling period is not well supported for tuber germination