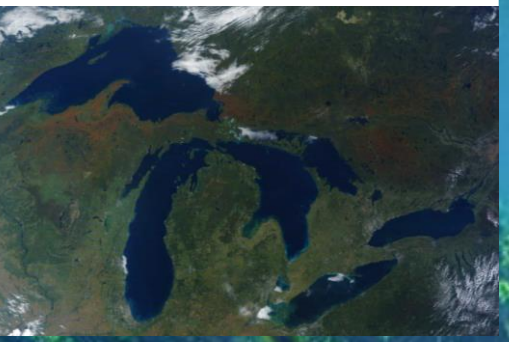

Ohio Aquatic Invasive Plant Update

Ohio AIS Committee Meeting

Mark Warman
Aquatic Invasive Species Project Coordinator

5/23/23

Image: Florida Plant Management Society

Past Aquatic Plant updates to Ohio AIS Committee

2017: Expanded Detection and Control of Hydrilla in Ohio's Lake Erie Basin

2018, Spring: Hydrilla project update

2019, Spring: Hydrilla Project +
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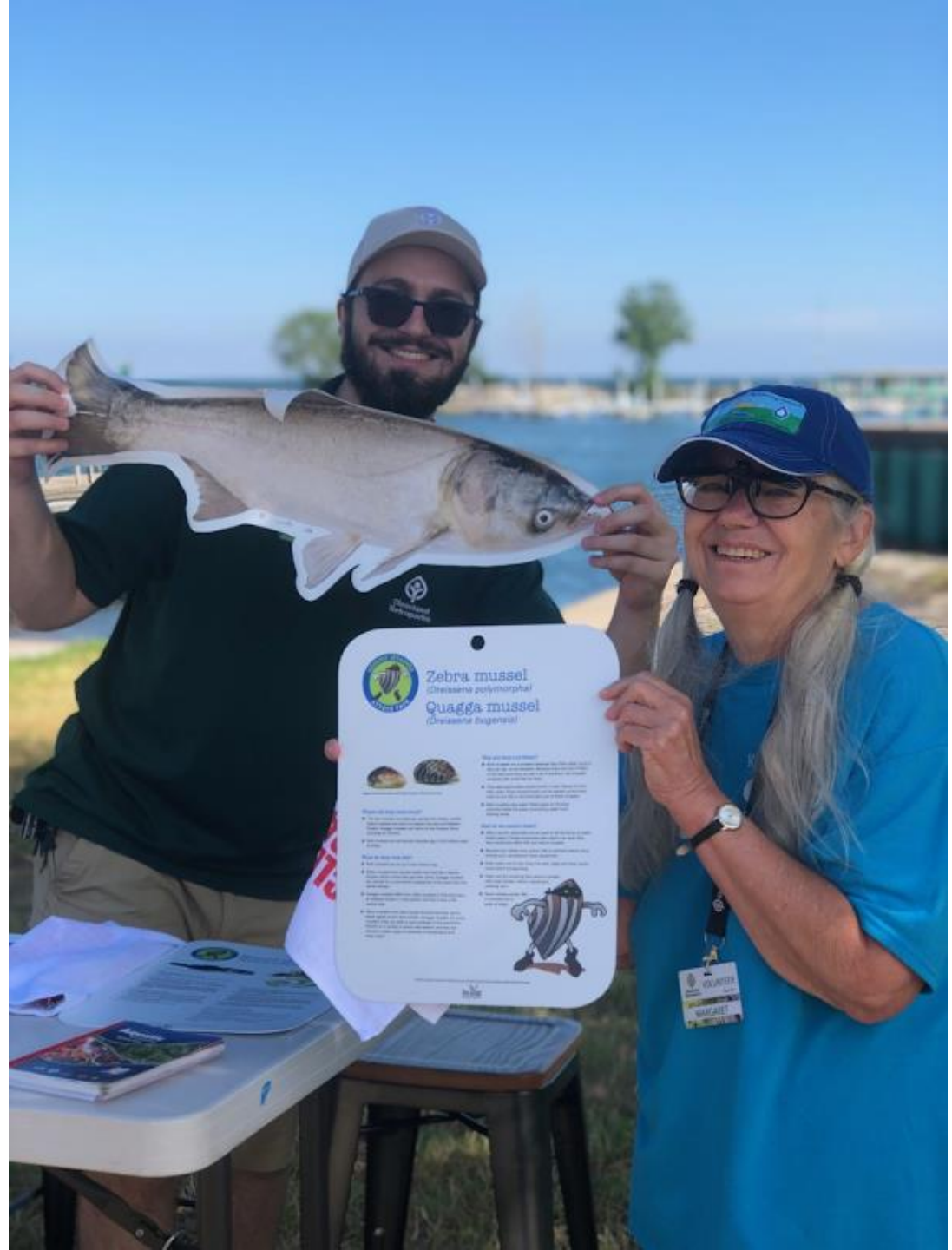
2022, Autumn: ProcellaCOR trials on *Nymphoides peltata* (yellow floating heart) & Update on Alum Creek Lake Hydrilla Management


Cabela's


CITY OF MANITOU
NATURAL
RESOURCES


Zebra mussel
Quagga mussel

Many educational opportunities

Image courtesy of
City of Barberton

Cleveland Metroparks

Role

Site surveys

Detection and decontamination materials

Assistance with management

Connect agencies to resources

Share your detections

Effects of Aquatic Invasive Plants

Impede recreation

Obstruct intakes, outflows

Reduce biodiversity

Reduce aesthetic value

Compete for sunlight

Costly to manage

Curly leaf pondweed (*P. crispus*) in Sanctuary Marsh. North Chagrin Reservation, 2019


Ohio State Parks Facebook Page
SHORELINE
MARINE CONSTRUCTION

As of August 22, 2022

- 5,100 acre lake
- Seven harvesters + support staff
- 59,509 yd^3 removed

- 3,970 dump trucks (15 yd^3)
- 258 train cars (231 yd^3)
- 2.5-mile train*

House Bill 377 – at least $1.25m budgeted

SHORELINE MARINE CONSTRUCTION

*high-side gondolas, 231 yd^3 capacity, 52 ft length

Project Goals

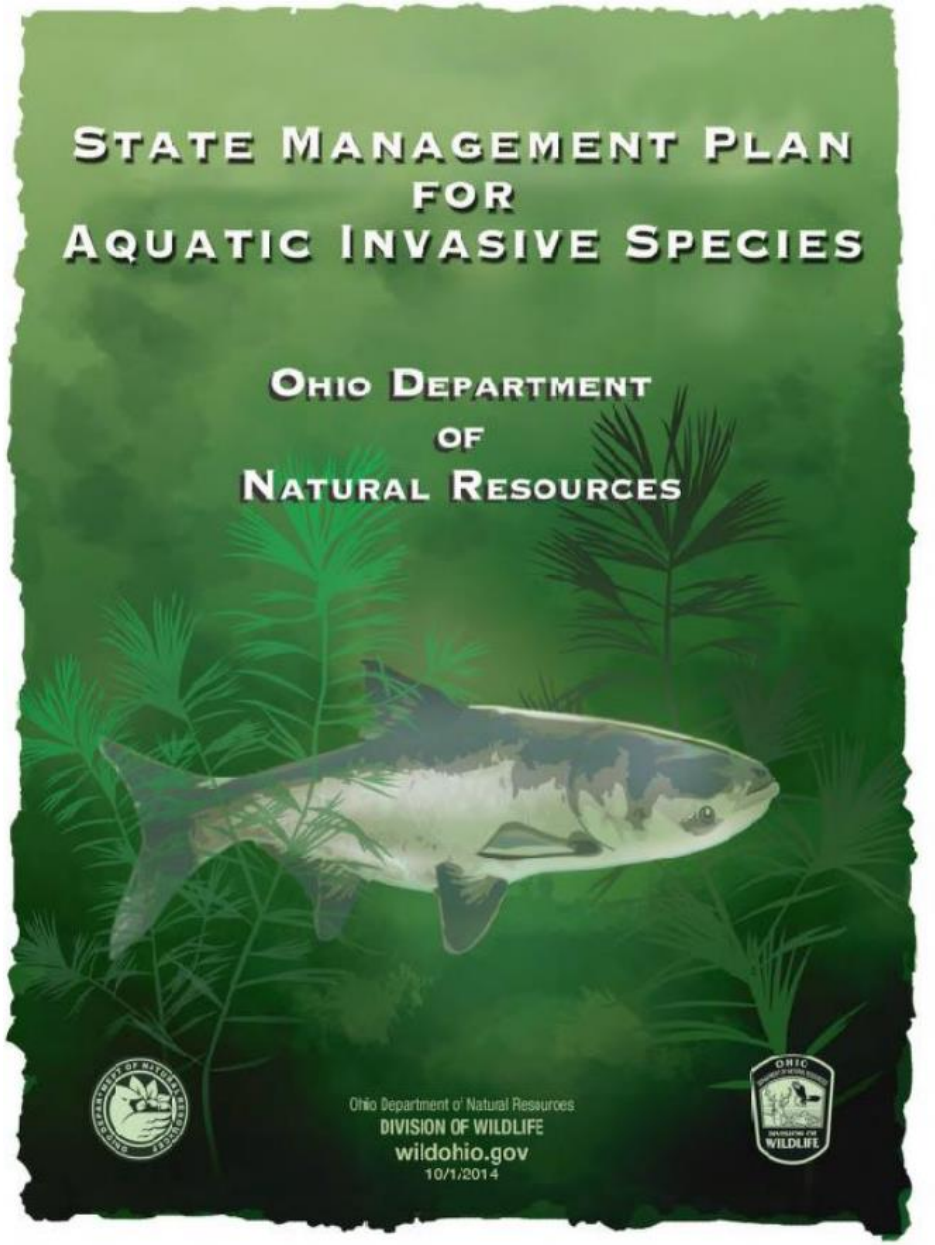
Limit the extent and prevalence of AIS to undetectable levels of negative ecological and recreational impact

Limit the probability of the hydrilla population at AIS from being a source for introduction to other waterbodies, especially the Great Lakes

Risk assessment and action plan

Balance recreation, natural resources, cost

Prioritize management of certain species

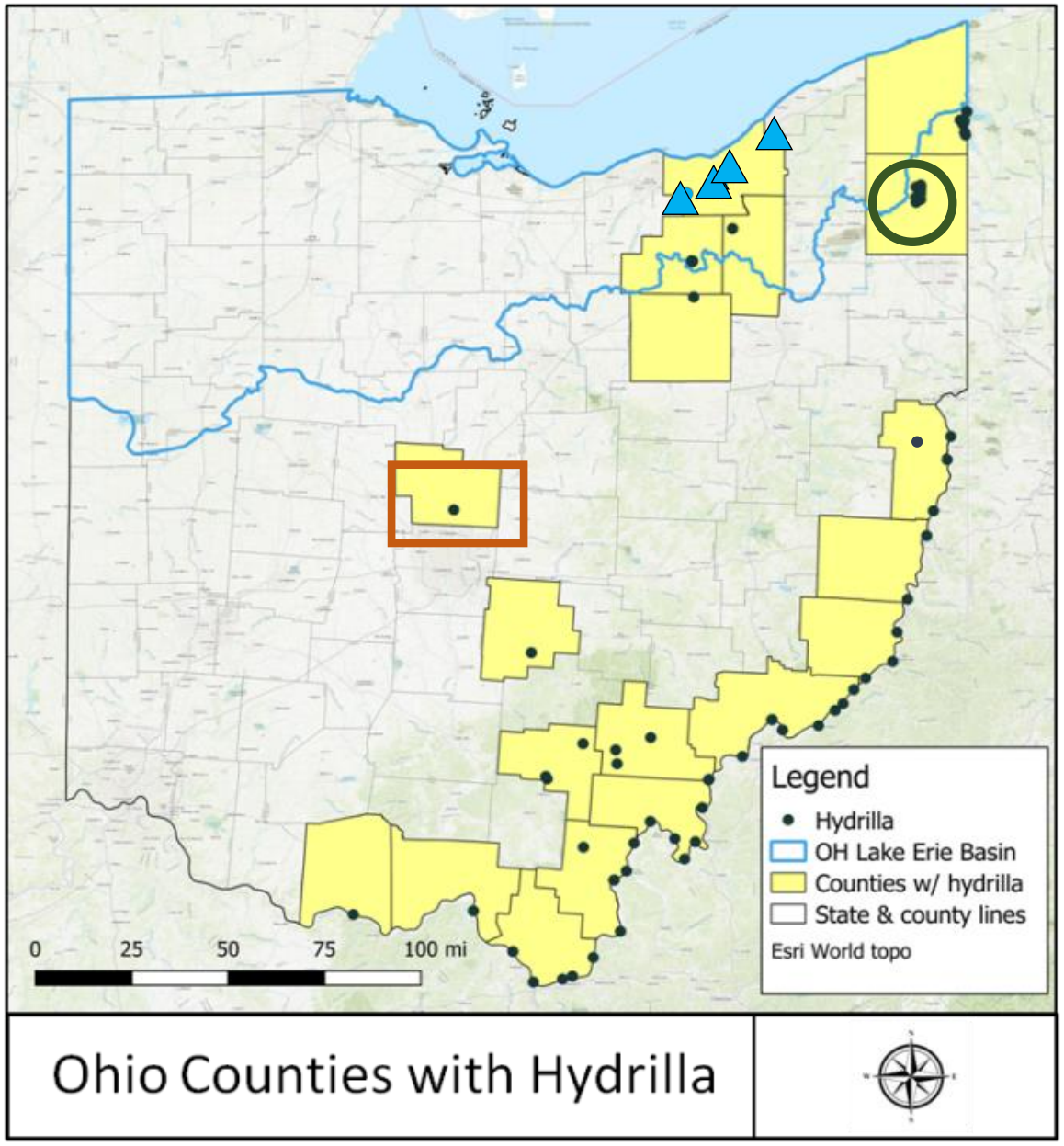


Hydrilla in Ohio

Mosquito Creek Lake

No longer detectable

Alum Creek Lake

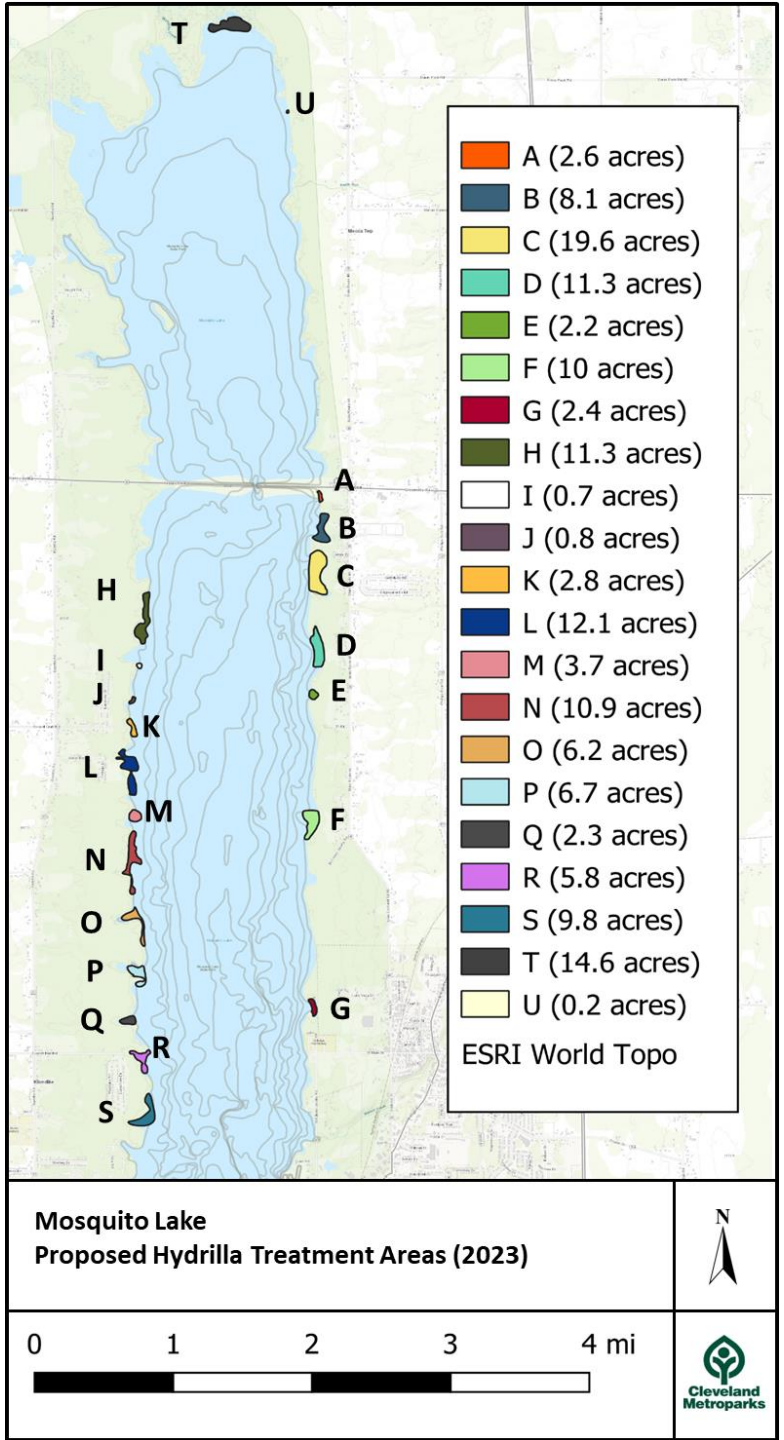


Mosquito Proposed Treatment

	2021	2022	Change
Acres	81	142	+61
Sites	14	21	+7
Avg depth (ft)	3.65	3.5	(-0.15)

Hydrilla detected in more locations in 2022

Buffer added around some sites

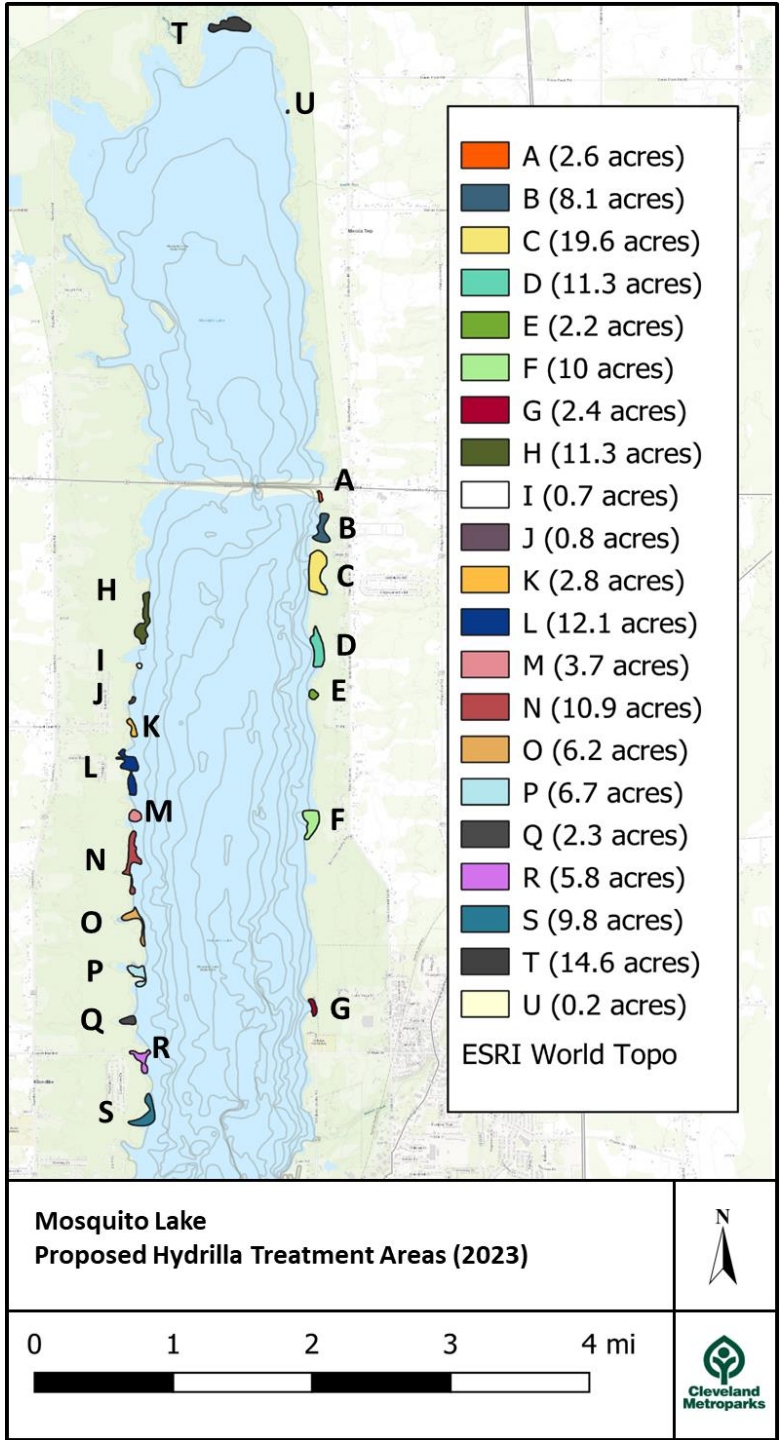


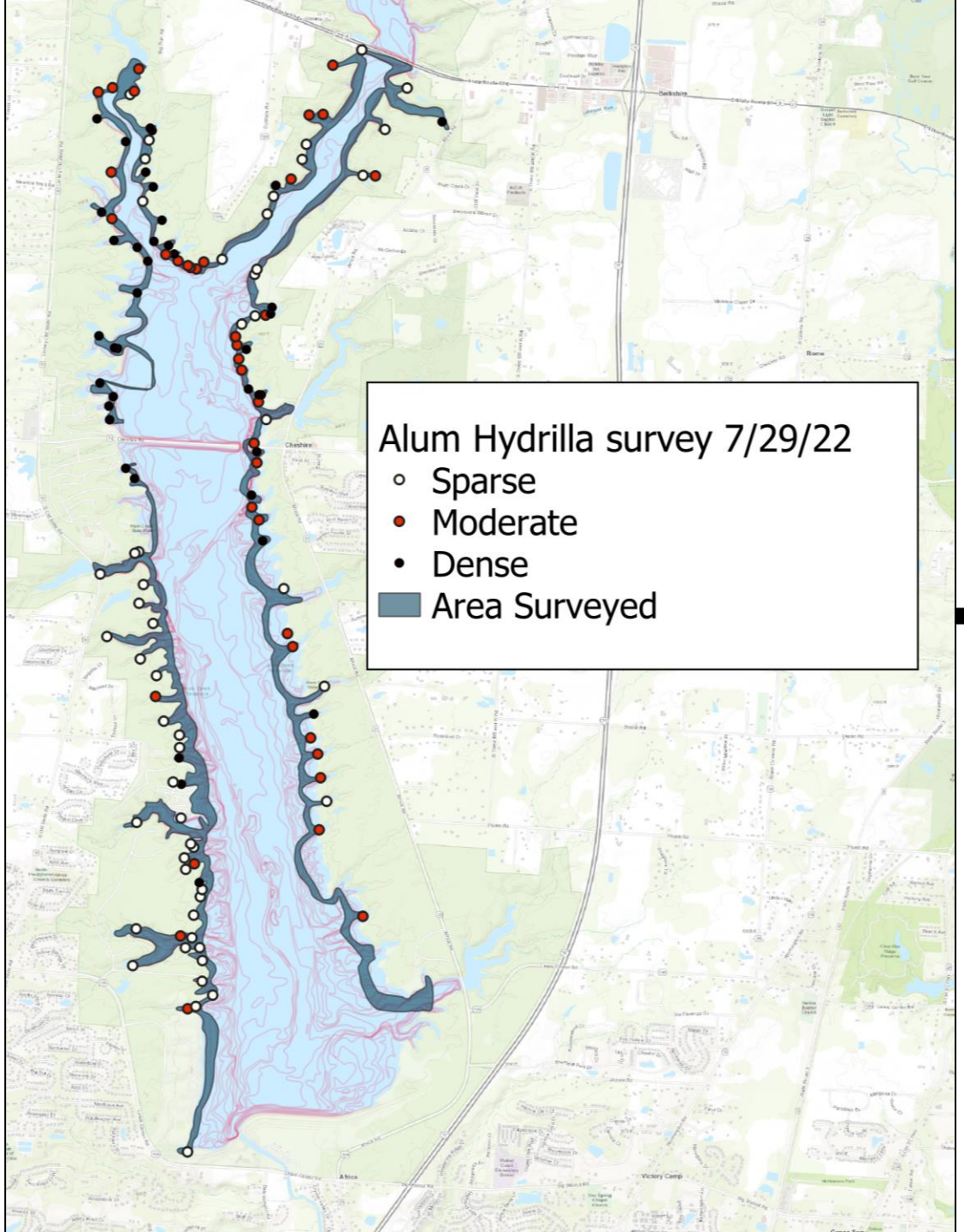
Mosquito Management

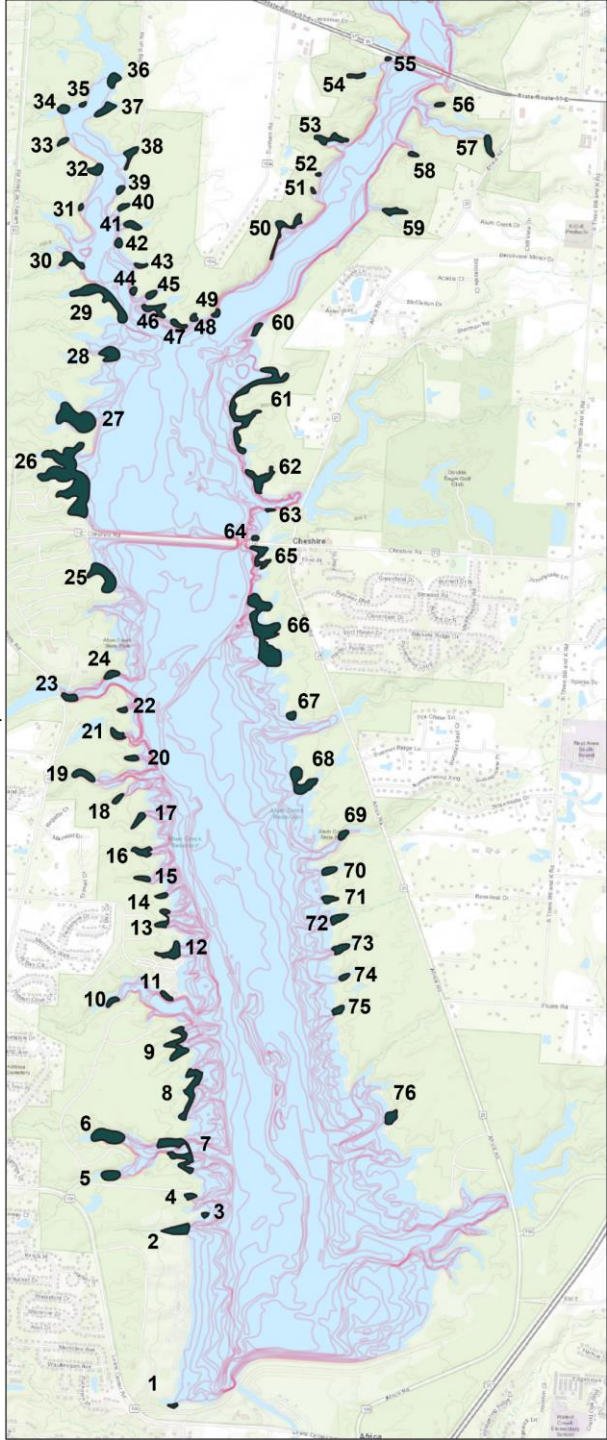
Shortfall ~45K for full site treatment

11 of 21 sites

Boat ramps, wildlife sanctuary, historic boater locations




Alum Hydrilla survey 7/29/22
Sparse
Moderate
Dense
Area Surveyed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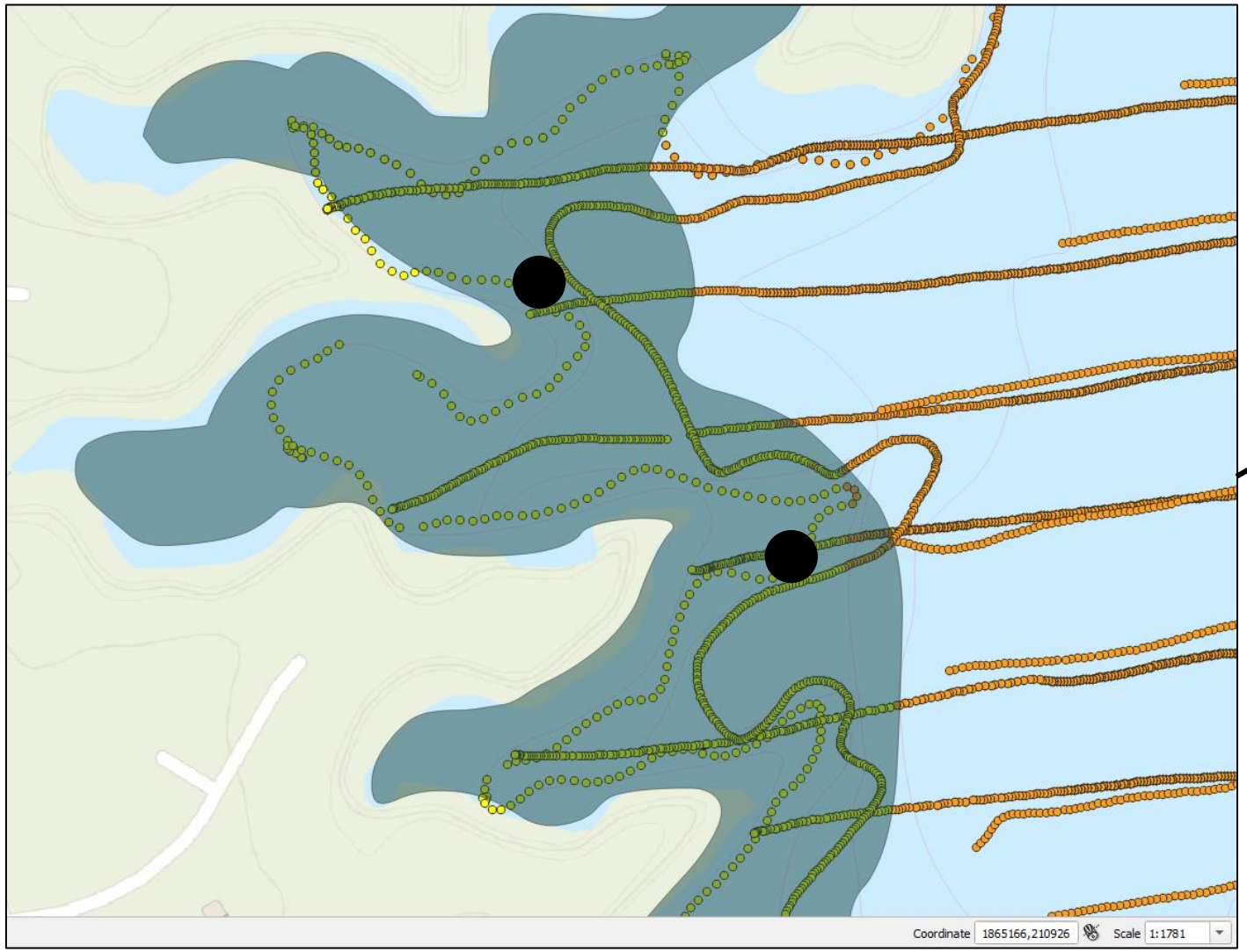
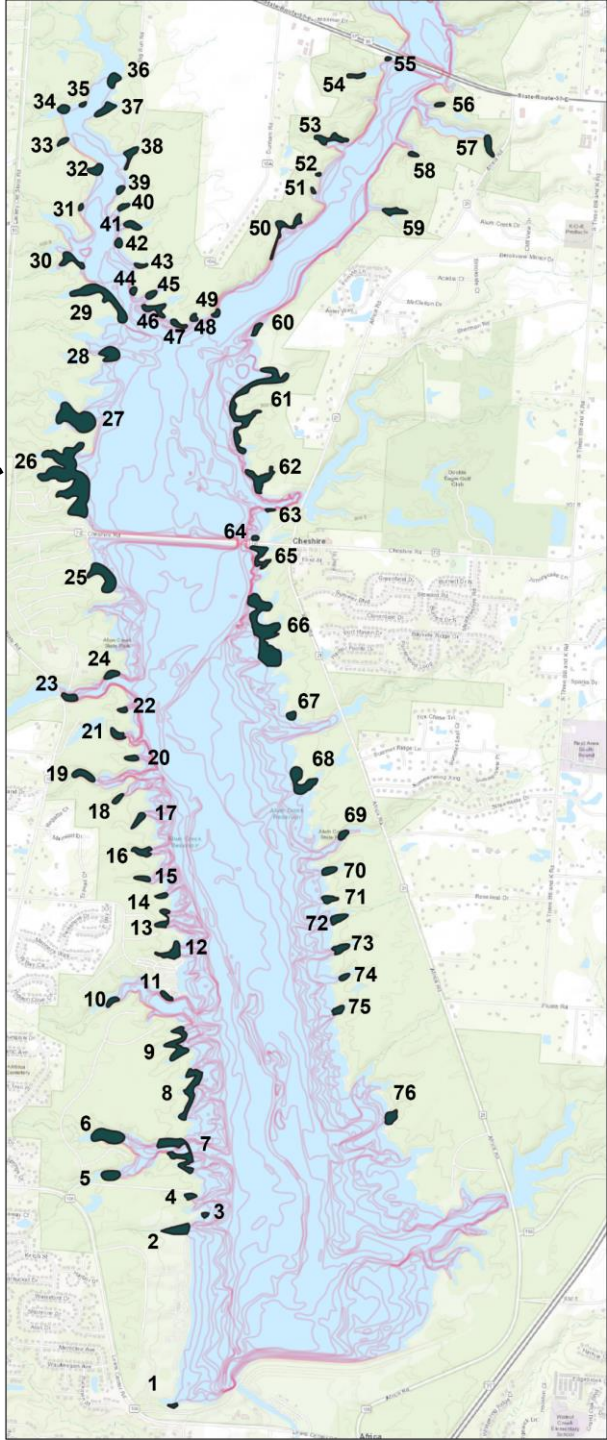
Campground boat launch



Depth points from ODNR



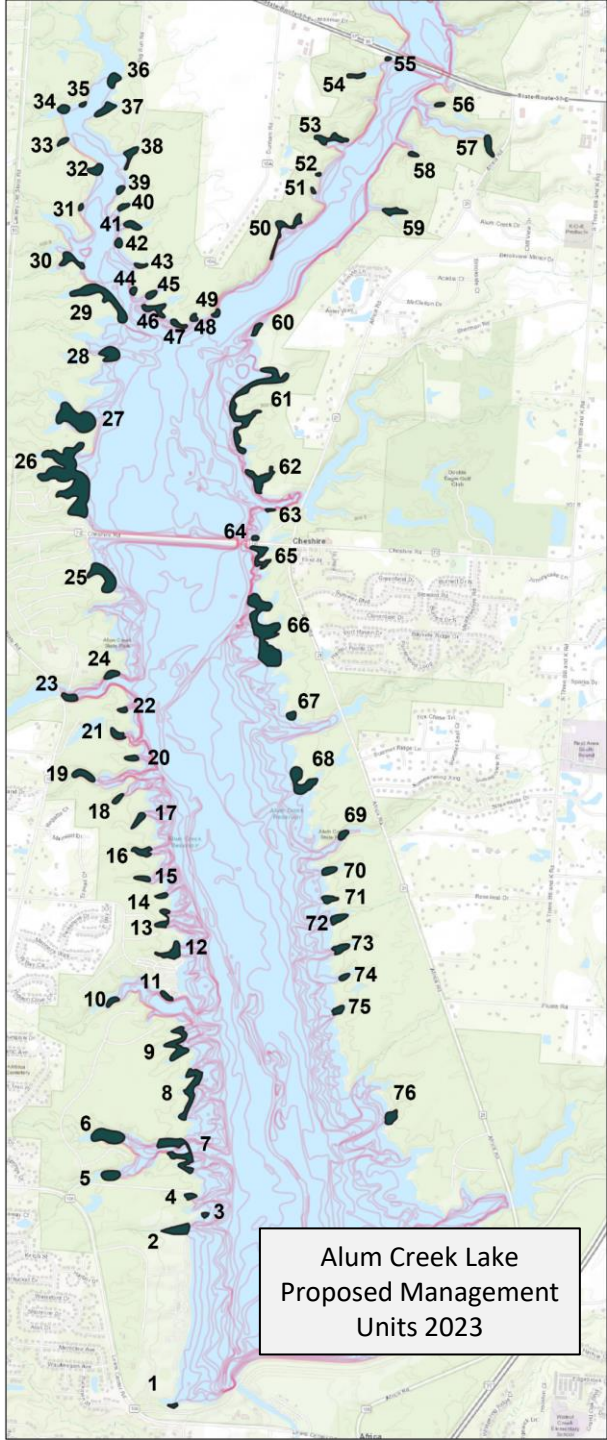
Alum Proposed Treatment

Average of 5.9 feet

76 units

147.7 acres total

Estimated $200,000 for herbicide (fluridone)



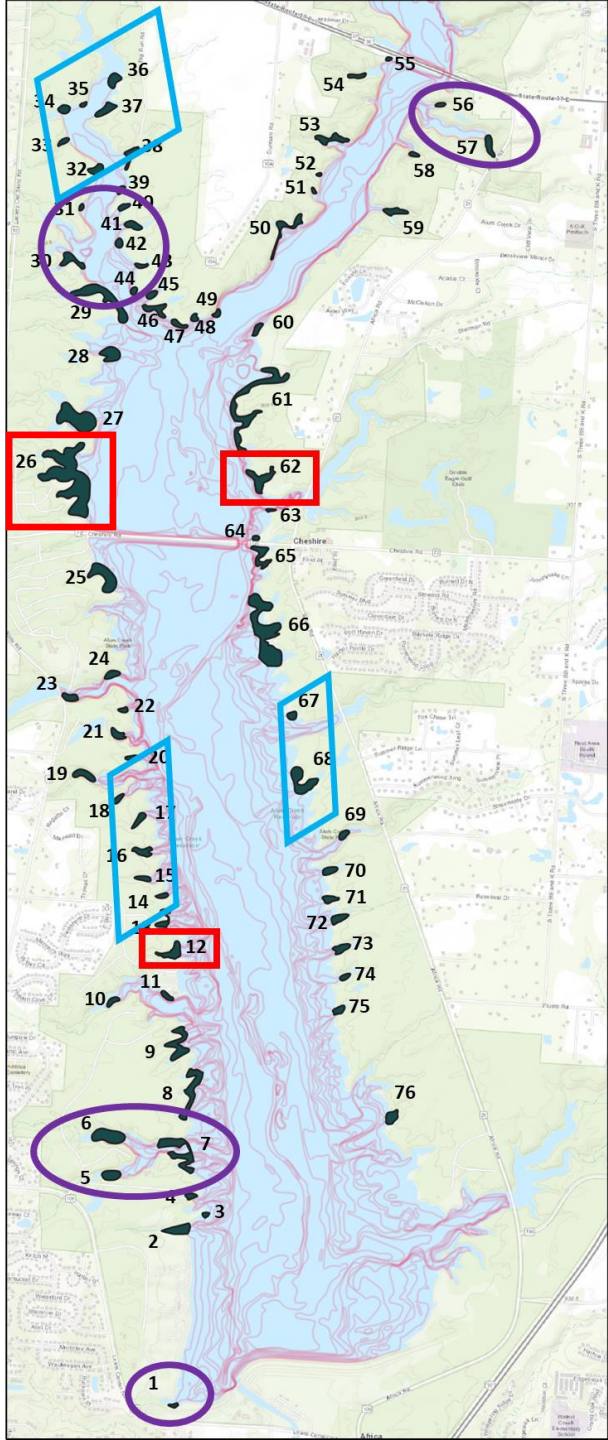
Alum Ranked Sites

Tier 1 – boat ramps, risk of external spread

Tier 2 – recreation areas such as docks and swim spots

Tier 3 – expanded around recreation and access points

Treatment area	Area (acres)	Avg. depth (ft)	Volume (Acre ft)	Treatment (lbs SonarOne) May 25 (30 ppb)	Jun. 10 (50 ppb)	Aug. 25 (25 ppb)	Total
12	2.2	5	11.0	17.82	29.70	14.85	**62.37**
26	19.7	8	157.6	255.31	425.52	212.76	**893.59**
62	3.3	6	19.8	32.08	53.46	26.73	**112.27**
Totals	**25.2**	**6.3**	**188**			**Total lbs**	**1068.23**
Tier 1 sites are at Hollenback, Chesire, and the State Park Campground Boat Ramps. It is recommended to manage hydrilla here to avoid the risk of external spread						Total tubs	54
						Cost	**$ 37,530**
						Cost/acre	$ 1,489.29
						Cost/acre ft	$ 199.20

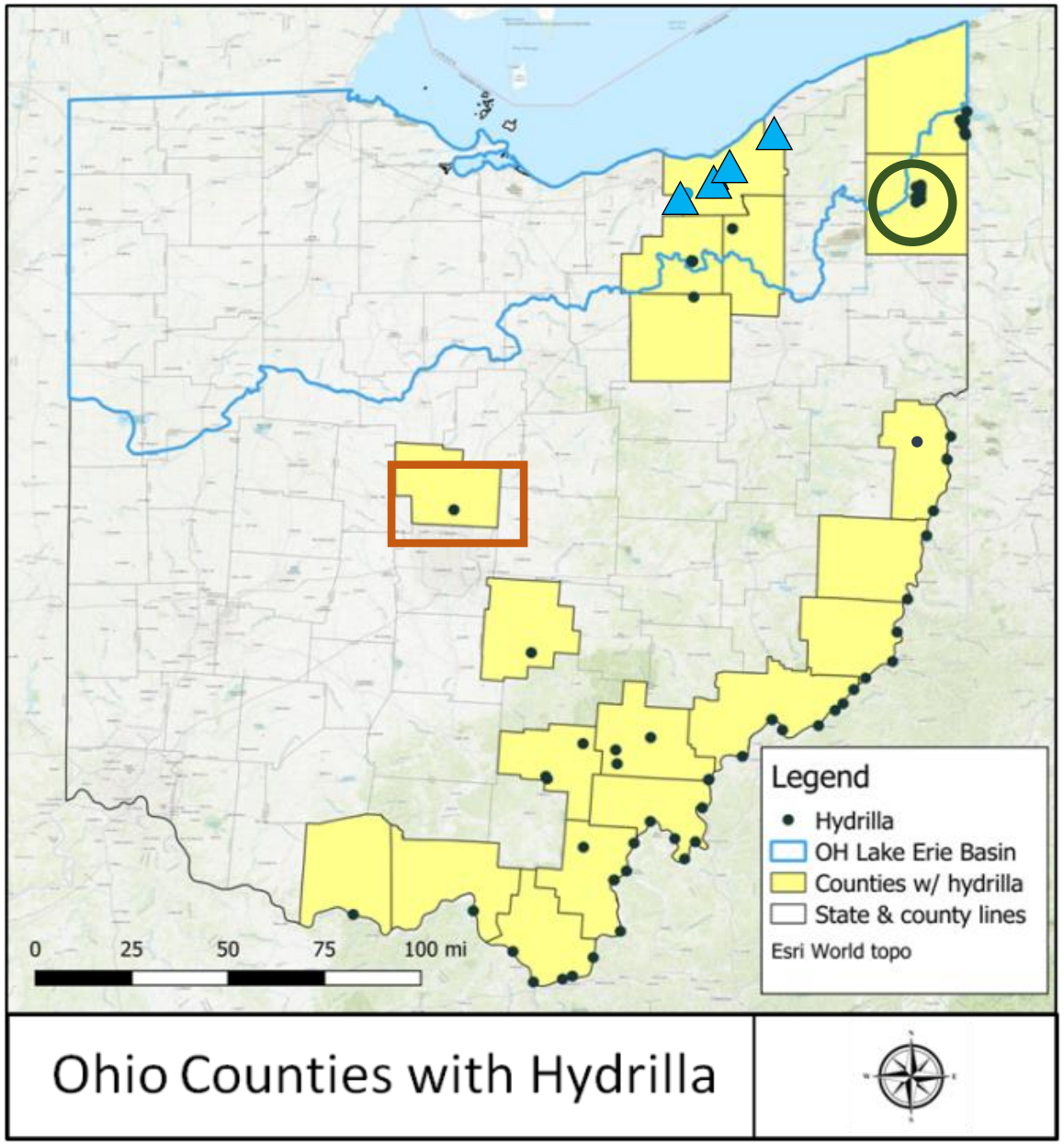


Hydrilla in Ohio

Mosquito Creek Lake

No longer detectable

Alum Creek Lake



Prevention

Outreach

Great Lakes Landing Blitz provided materials

Three kits (R) to USACE, State Parks, Div. of Wildlife

Signs available to be posted

Distributed 12 kits around Ohio. USACE Huntington, ODNR State Parks, ODNR Wildlife District 1

Early Detection in Ohio

Nick Radabaugh, October 2021

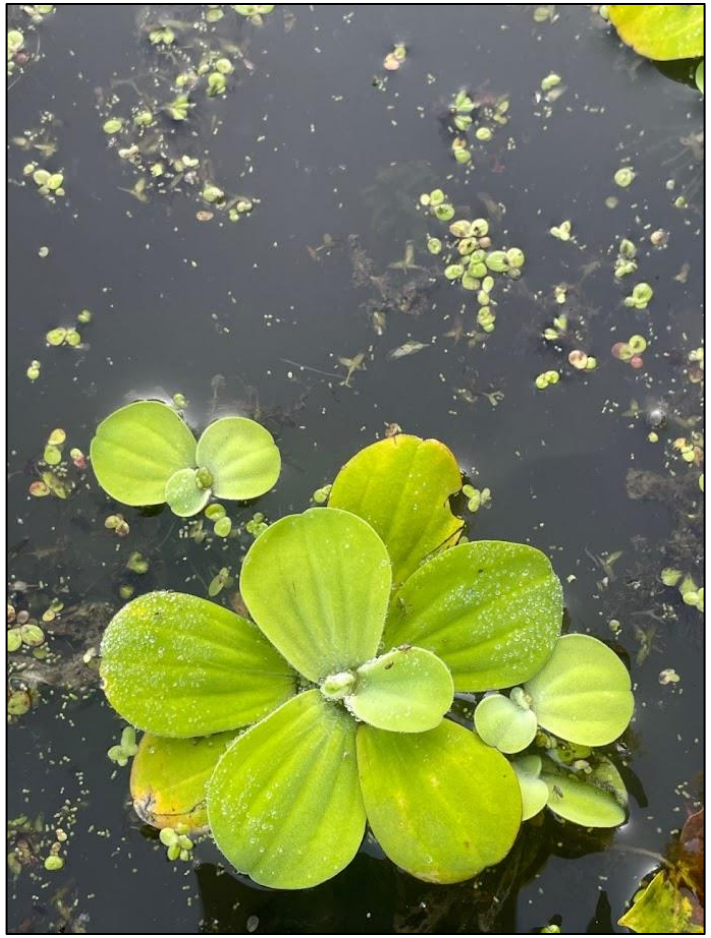
Hydrilla, identified during annual fish sampling

Are aquatic plants somewhere they shouldn't be?

For verification text Mark @ 216-346-2234 or email @ mjw1@clevelandmetroparks.com

We'll sort it.

1. Pinnate mosquitofern, *Azolla pinnata*
2. Anchored water hyacinth, *Eichhornia azurea*
3. Indian swampweed, *Hygrophila polysperma*
4. Yellow flag iris, *Iris pseudacorus*
5. African oxygen weed, *Lagarosiphon major*
6. Asian marshweed, *Limnophila sessiliflora*
7. European water-clover, *Marsilea quadrifolia*
8. Arrowleaf false pickerelweed, *Monochoria hastata*
9. Heartshape false pickerelweed, *Monochoria vaginalis*
10. Brittle waternymph, *Najas minor*
11. Duck lettuce, *Ottelia alismoides*
12. Water lettuce, *Pistia stratiotes*
13. Arrowhead, *Sagittaria sagittifolia*
14. Crack willow, *Salix fragilis*
15. Common salvinia, *Salvinia minima*
16. Giant salvinia, *Salvinia molesta*
17. Simple bur-reed, *Sparganium erectum*
18. Water soldier, *Stratiotes aloides*



Water Lettuce
Pistia stratoites

Ohio's least wanted plants

Flowering Rush,
Butomus umbellatus

Yellow floating heart
Nymphoides peltata

European Frogbit
Hydrocharis morsus-ranae

Hydrilla
Hydrilla verticillata

Flowering Rush, *Butomus umbellatus*

- Emergent vegetation
- Grows around pond edges
- Bulbils help reproduction

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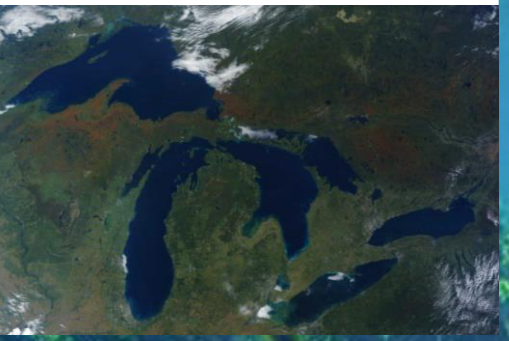
Great Lakes RESTORATION



Cleveland Metroparks

Mark Warman

mjw1@clevelandmetroparks.com

216-346-2234 (c)

Medina County Pond School

5-10-2023

Image: Florida Plant Management Society

Other waterbodies around

Herbicide

Fluridone – trade names Fluridone & Sonar

Fluridone “bleaches” only vegetation at as low as <1ppb

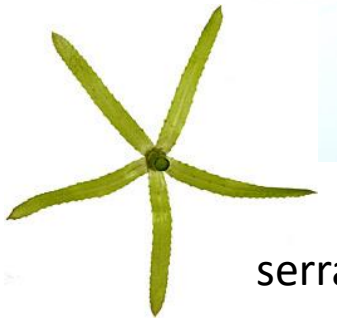
Systemic

Contact time of 45 – 90 days

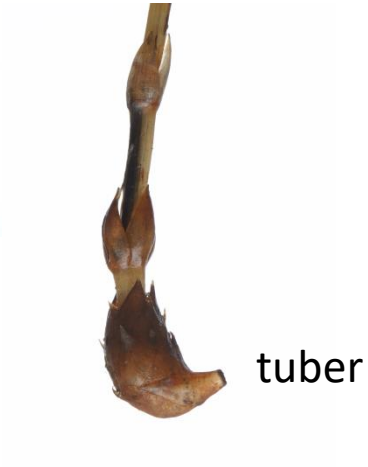
30 ml amber nalgene

Residue testing ~once a month
CM has testing supplies available

Hydrilla
Hydrilla verticillata



serrated leaves



tuber

Grows to the surface, branches profusely

Inch-a-day growth

Grows in 4% sunlight

Produces tubers

NCAA bracket winner of AIS

8 of 16 detections (‘17-’19) on private property

Yellow Floating Heart (YFH)
Nymphoides peltata

Flowers, 10-1-19

Sam Austin

Seed pods, 10-1-19

YFH Management

Chemical

Diquat

Imazapyr

ProcellaCOR

Mechanical

Carefully hand-pull

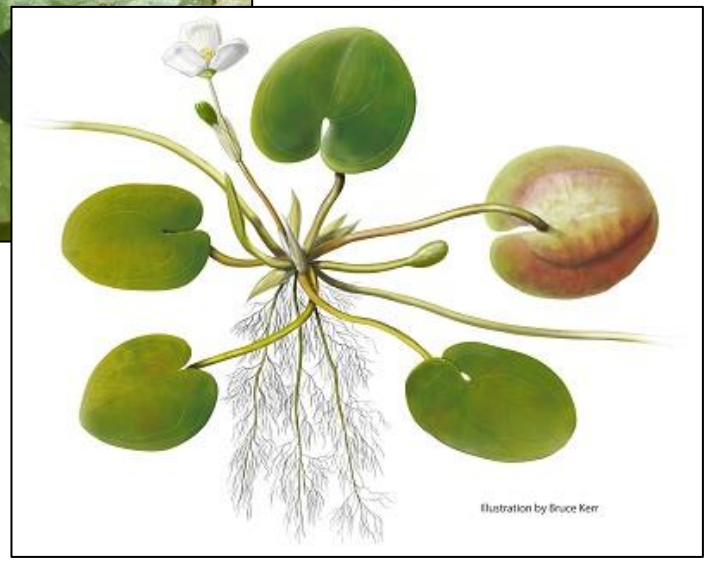
Michigan United Conservation Clubs

Biological

Some native generalists exist

No agents yet approved

European Frogbit
Hydrocharis morsus-ranae



Associated with emergent veg.

Profound shading, dense mats

Free floating

Produces turions

Often purple under leaf

Introduced in Ottawa CA in 1932

Still water habitat preference

EFB Management

Chemical

Diquat

Endothall

Flumioxazin

Sonar

Mechanical

Carefully hand-pull

May leave fragments

Should be done in the spring

Biological

Some generalist feeders can eat this plant

No agents approved yet

Ways to participate with this project

Schedule a site survey with Cleveland Metroparks

June 15 – October 1

Ohio’s Lake Erie Basin only

Share suspicious plants

Email me plant photos

mjw1@clevelandmetroparks.com

Volunteer with Cleveland Metroparks

Ways to get involved

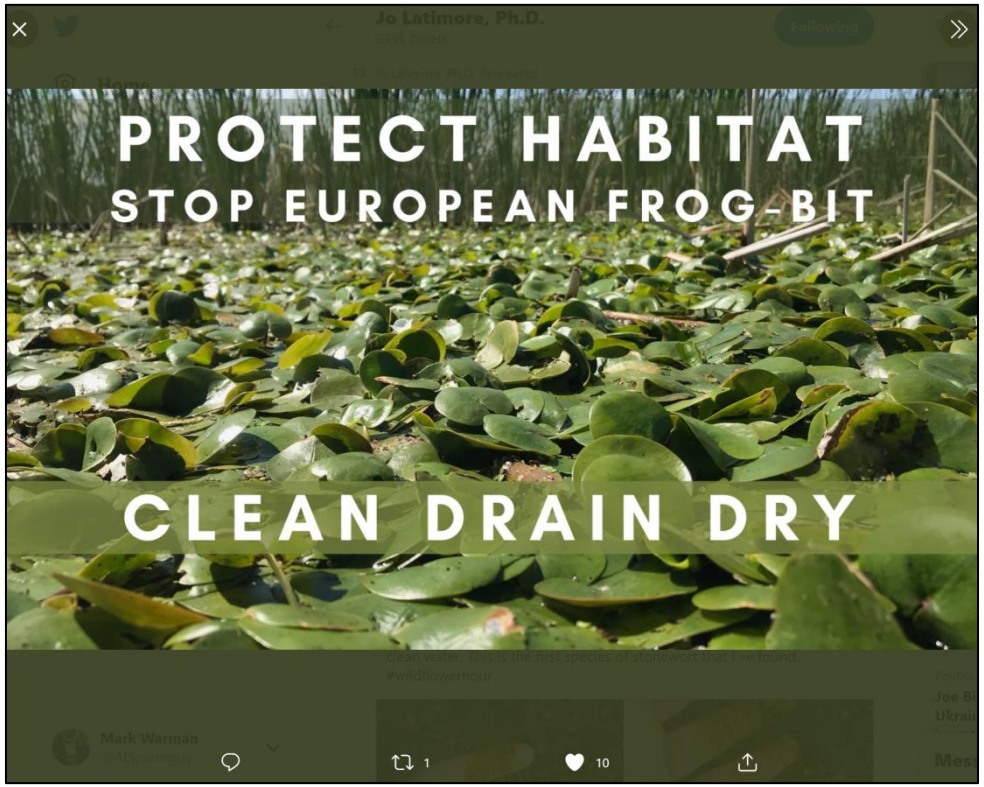
Publish observations to national databases – USGS, EDDMapS

Refer aquatic invasive plants questions to Cleveland Metroparks

Submit photos to iNaturalist

Include aquatic plants in outreach programs, distribute information

Join for an aquatic plant survey in the field, July - September



Michigan Google photo album

Hand pulling

Small patches

Multiple efforts
Multiple years

European Frogbit
Hydrocharis morsus-ranae

Chemical Management- Forced air application

- Solid granules
- Large areas
- Non-species specific
- Broadcasts 20 + ft
- Common hydrilla mgmt

Hydrilla verticillata

5 leaves per whorl

Serrated leaves

Tubers

Eldoea sp.

Hydrilla

Elodea sp.

3 leaves per whorl

Hydrilla

5 leaves per whorl (3-8)

Sheltered boat launches are macrophyte habitat

Boats, trailers snag plants

Excellent early detection opportunity

Sheltered boat launches are macrophyte habitat

Boats, trailers snag plants

Excellent early detection opportunity

Take photos – important tool for ED

In water

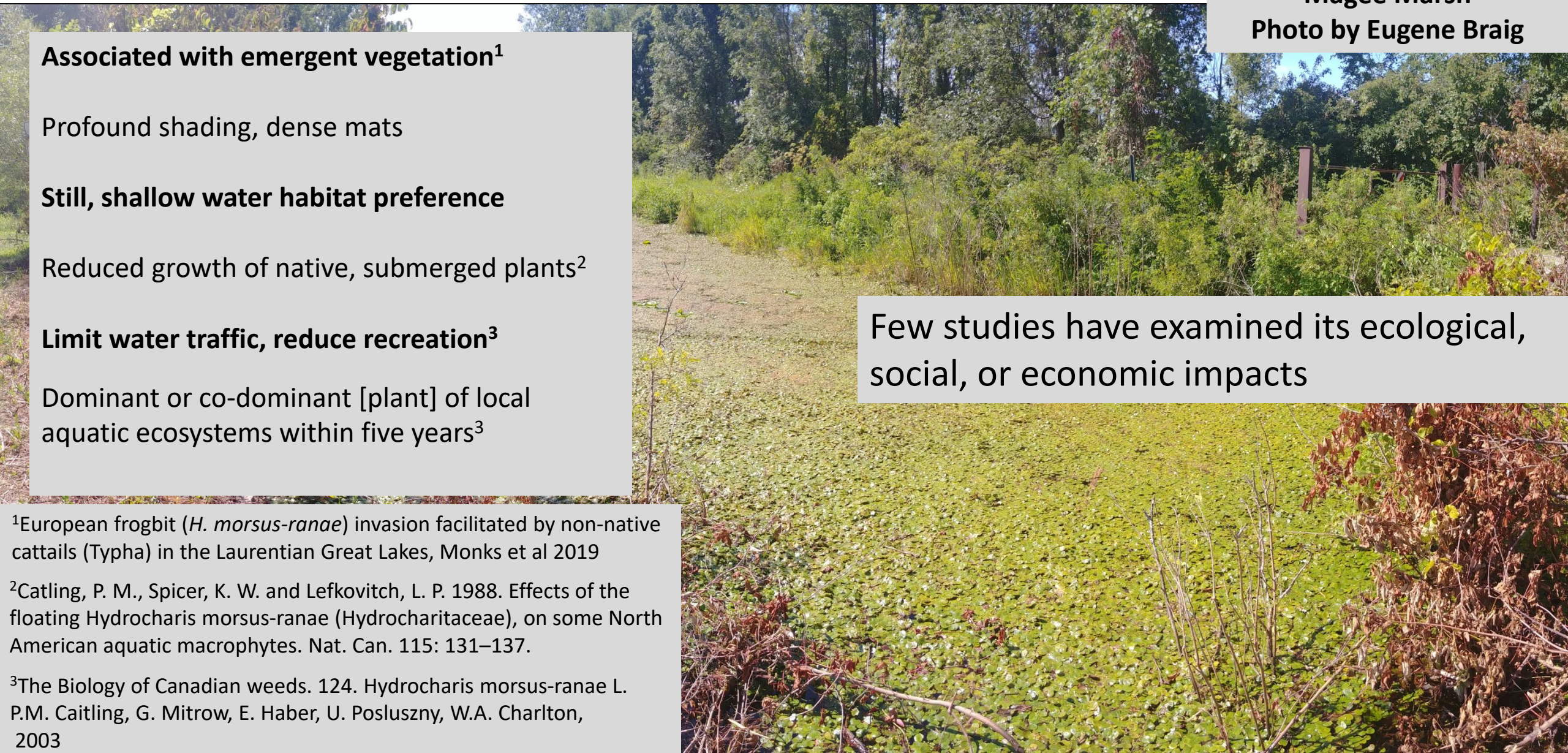
Out of water

Close up of plants
Flowers?
Fruits?

Brittle Naiad – *Najas minor*

European Frog-bit

Hydrocharis morsus-ranae



Magee Marsh
Photo by Eugene Braig

Associated with emergent vegetation[1]

Profound shading, dense mats

Still, shallow water habitat preference

Reduced growth of native, submerged plants[2]

Limit water traffic, reduce recreation[3]

Dominant or co-dominant [plant] of local aquatic ecosystems within five years[3]

Few studies have examined its ecological, social, or economic impacts

[1]European frogbit (*H. morsus-ranae*) invasion facilitated by non-native cattails (Typha) in the Laurentian Great Lakes, Monks et al 2019

[2]Catling, P. M., Spicer, K. W. and Lefkovitch, L. P. 1988. Effects of the floating Hydrocharis morsus-ranae (Hydrocharitaceae), on some North American aquatic macrophytes. Nat. Can. 115: 131–137.

[3]The Biology of Canadian weeds. 124. Hydrocharis morsus-ranae L. P.M. Caitling, G. Mitrow, E. Haber, U. Posluszny, W.A. Charlton, 2003

Sparse
1-10%

Moderate
10-25%

Dense
25-100%

In flower

Photos from Jason Meyers

2022 Management

Two boat ramps identified as priorities

Treated 5.5 acres – Cheshire & Hollenback Boat Ramps on 8/18/22

Aquathol K (Endothall a.i.) @ 3 ppm

SonarOne (Fluridone a.i.) @ 60 ppb

Cheshire Ramp

Endothall @ 3 ppm
Fluridone @ 60 ppb
13 DAT

Photos from Jason Meyers

Cheshire Ramp

Endothall @ 3 ppm
Fluridone @ 60 ppb
13 DAT

Photos from Jason Meyers