



Responding to new invasive species findings

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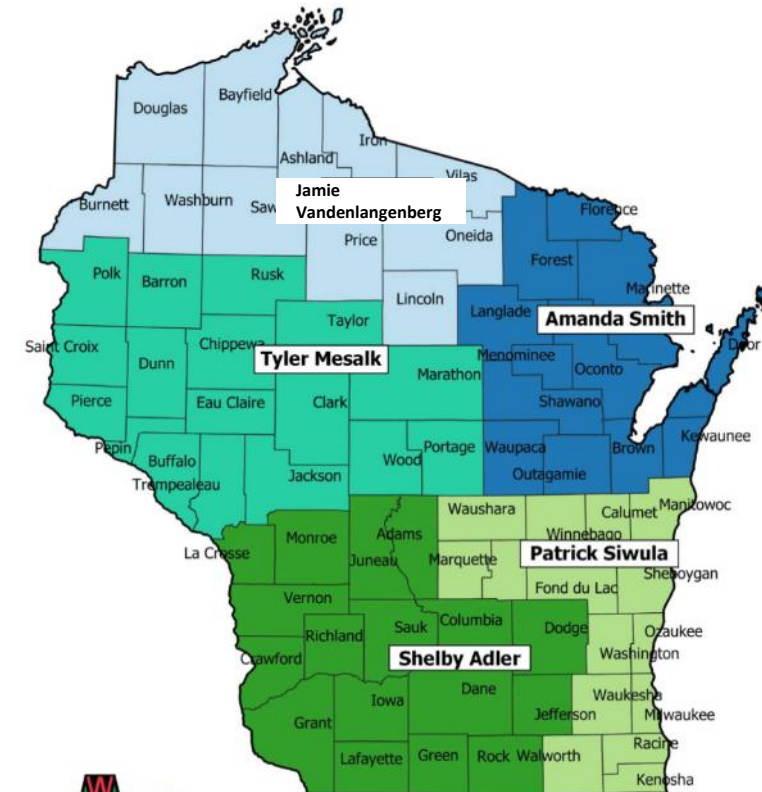
Aquatic Invasive Species Biologist

Southeast Region Aquatic Invasive Species (AIS) Biologist

- AIS Response
 - Guide response to new, high profile AIS findings within or in close proximity to surface water resources
- AIS Prevention
 - Pathways management: Organisms in Trade
- Regional Point of Contact (SE)
 - AIS grant administration, technical assistance
 - Monitoring, research, data management
 - Outreach, education
- ‘Other duties as assigned’



Statewide AIS Coordinator Work Areas



Updated: 10/11/2021

Responding to new invasive aquatic plants

Who/What/Where/When/How?

What else do we know about the aquatic plant community in the lake?

Is there ongoing management?

Do we have a comprehensive lake plan or aquatic plant management plan? Is it up to date?

Who can help?!?



Responding to new invasive aquatic plants

Species-specific considerations –

- Widespread species, or new to the state/region? Chances of re-introduction events?
- Potential to impact navigation/recreation? Native plant community?
- Are there control methods? Are there side-effects to native species?

Considering disturbance carefully – invasives thrive in disturbed systems

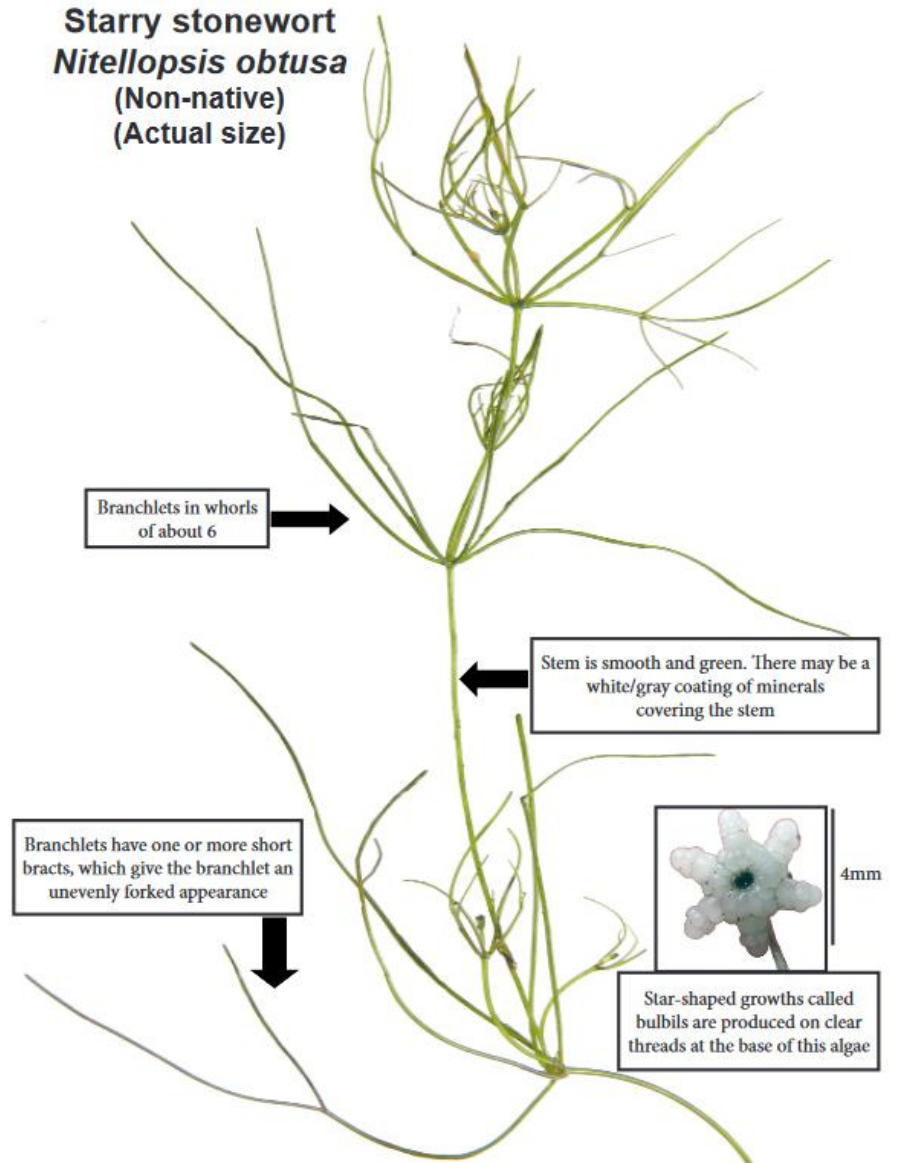
Setting realistic expectations – true eradication is typically not attainable

Learning (over time) system-specific trends and impacts – When needed, adaptive management

Starry Stonewort

Native to Eurasia, present in N. America since 1978

Unique macroalgae species – not a true plant!



Starry Stonewort

Unique macroalgae species – not a true plant!



Nitellopsis obtusa, Starry Stonewort

Nitellopsis obtusa is a macroalgae in the family Characeae which is non-native in Wisconsin. It is dioecious, meaning its gametangia (female oogonia and male antheridia) are found on separate plants. Gametangia develop at branchlet nodes adjacent to large cells called bracts. These large bract cells are easily mistaken for furcated or forked branchlets, a characteristic of the related genus *Nitella*. Instead, *N. obtusa* has simple, or non-forked branchlets similar to the more common genus *Chara*.

Only male *N. obtusa* (antheridia) plants are currently known in North America. While in the field keep an eye out for gametangia. Often, *N. obtusa* gametangia are visible with the naked eye, however determining if they are oogonia or antheridia might require a 20x Hasting triplet hand lens. The 20x hand lens is very small (8.3 mm diameter; focal distance 1.3 cm) and some find it difficult to use. It is always recommended to collect voucher specimens in the field and use a microscope to assist in identification when back in the lab.



Figure 2. *Nitellopsis obtusa* antheridium (male reproductive structure) at branchlet node. (Sleith et al., 2015).

Terminology

Gametangium (plural gametangia) – specialized organs where egg or sperm (gametes) are produced (Figure 1a-e)

Oogonium (plural oogonia) – organ where the egg is produced; typically oblong, light green to dark brown in color, always covered with five spiral jacket cells and topped with a cluster of five small 'crown' cells

Antheridium (plural antheridia) – organ where sperm are produced; typically globose, light green to dark orange in color (Figure 1a, Figure 2)

Oospore(s) – fertilized oogonium; result of gametes fertilization formed by sexual reproduction

Gyrogonites – calcified oospores (Figure 1c-e); can form a seed bank for long term survival

Bulbil – starch-rich, asexual reproductive structure; results in clone of parent; develop predominately on rhizoids (thin, root-like filaments), star-shaped only in *Nitellopsis* (Figure 1f)

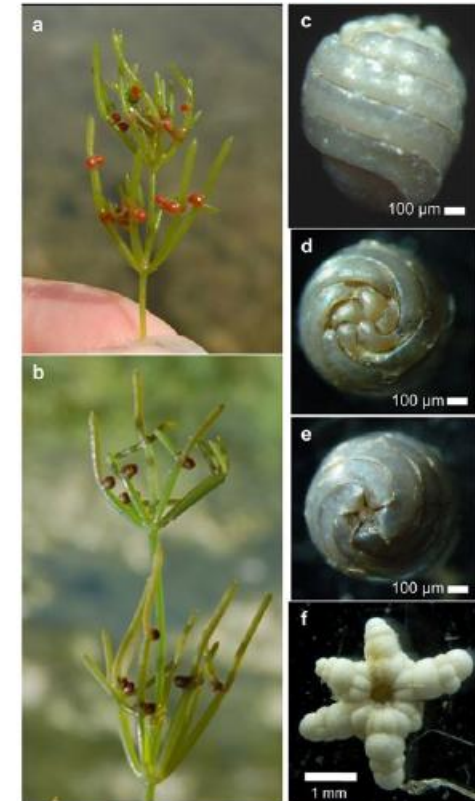


Figure 1. *Nitellopsis obtusa* a. habit of male with antheridia b. habit of female with calcified oospores (gyrogonites) c. side view of gyrogonites d. top view of gyrogonite e. bottom view of gyrogonite f. star shaped bulbil (Boissezon et al., 2017).

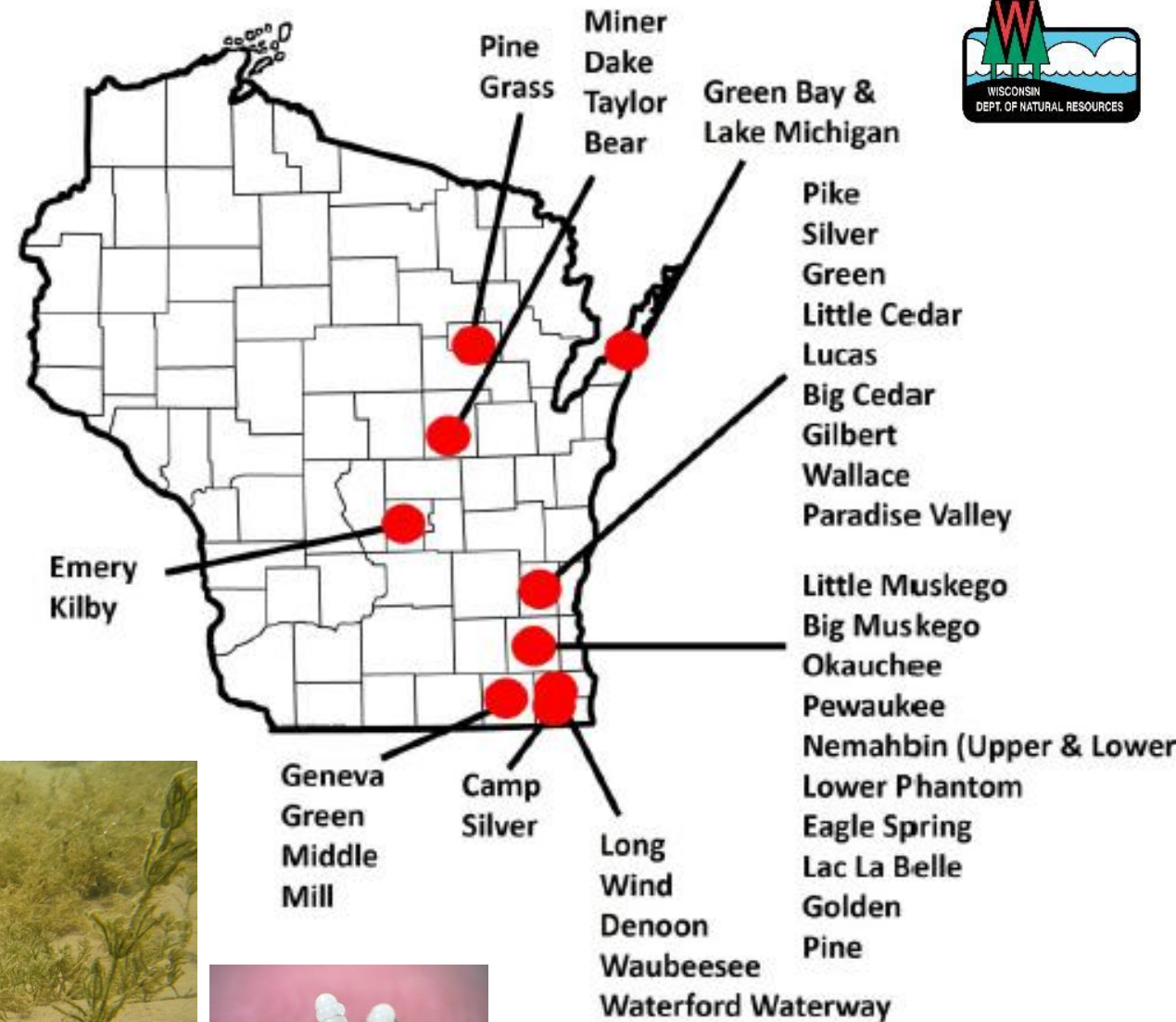
Starry Stonewort in WI

2014 – first discovery (Little Muskego Lake)

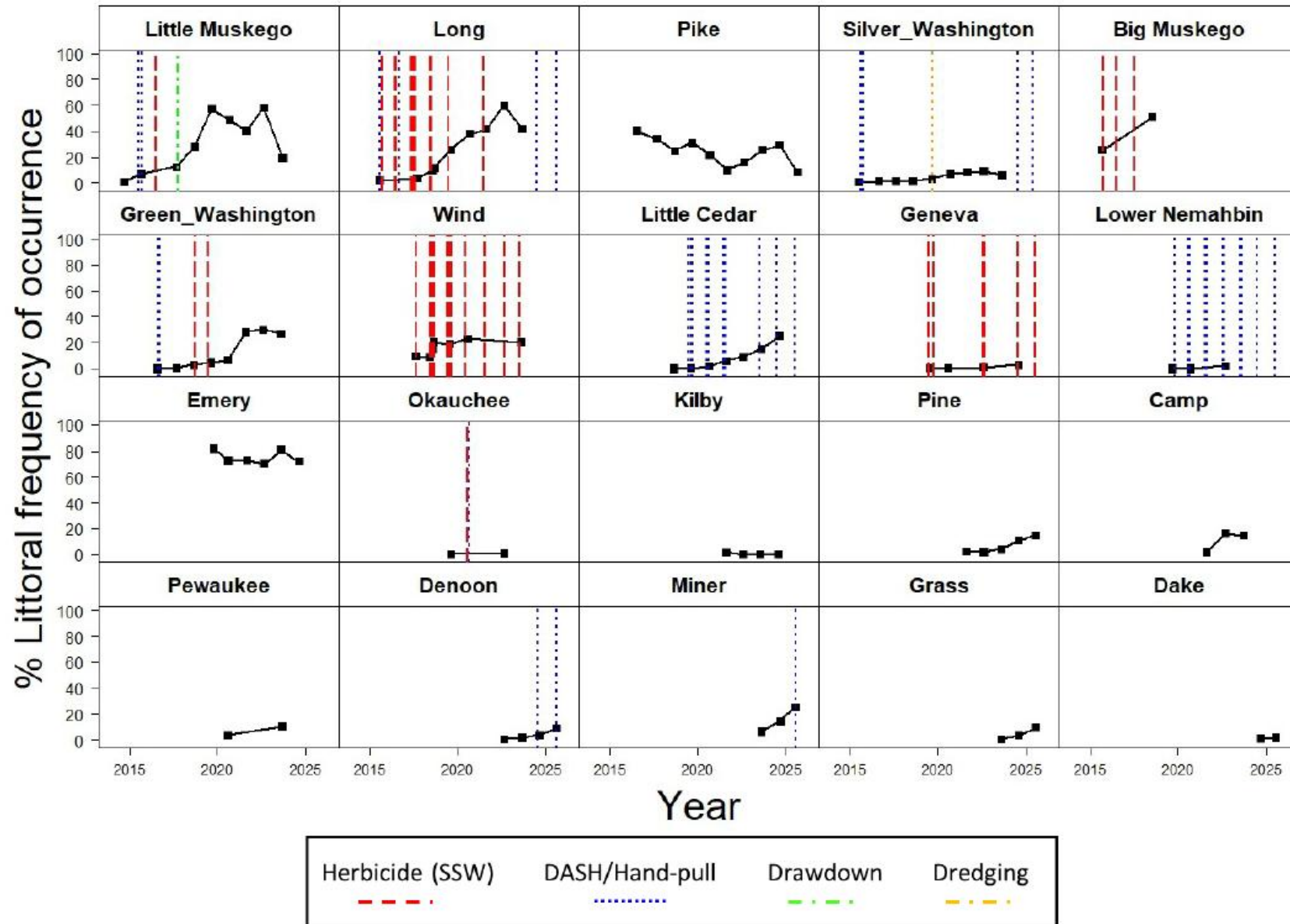
Now present in ~39 WI waterbodies

Requires hard water conditions

Unique management considerations



Starry Stonewort % Frequency



Individual Species

07/12/2016

Starry stonewort

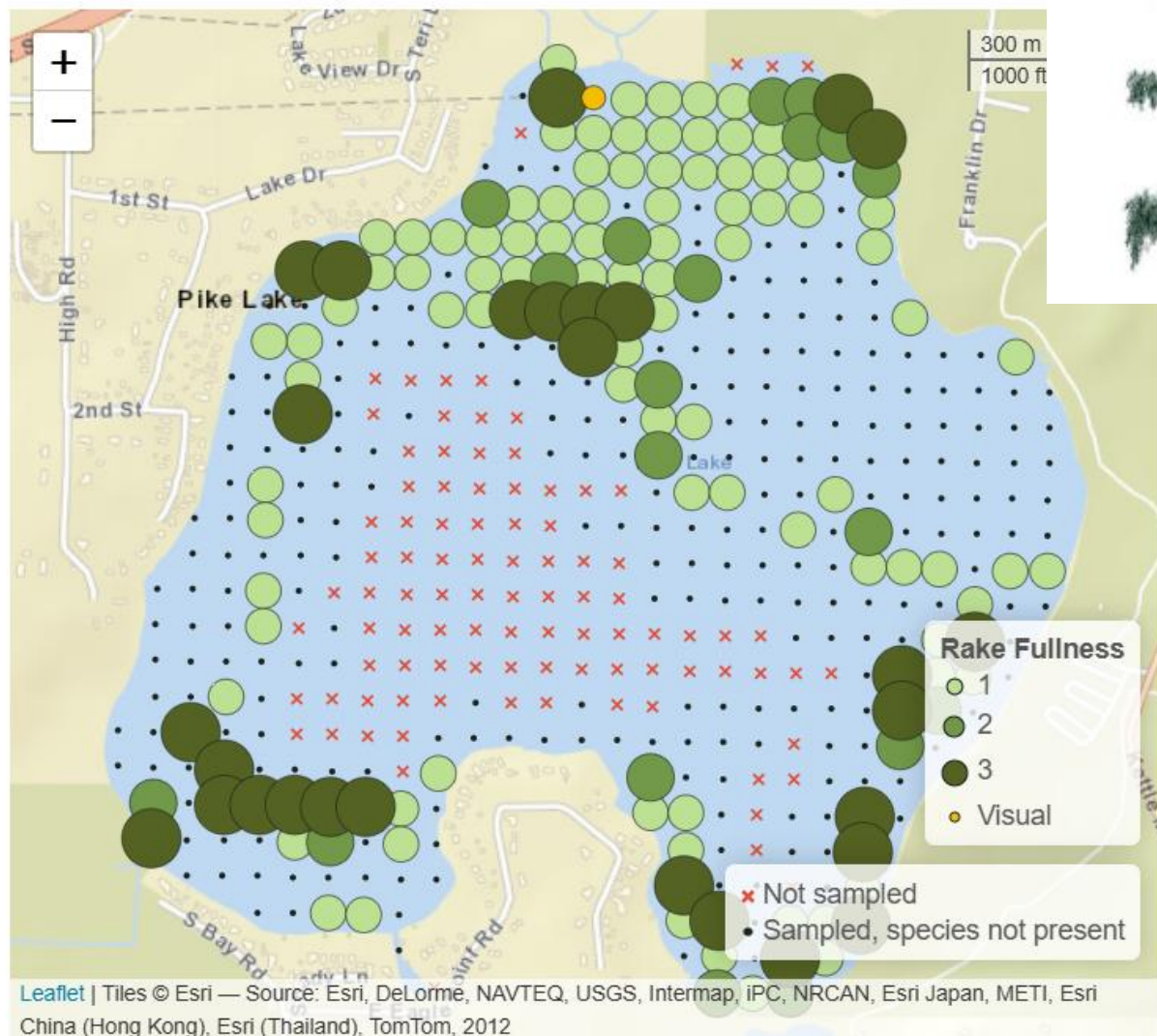
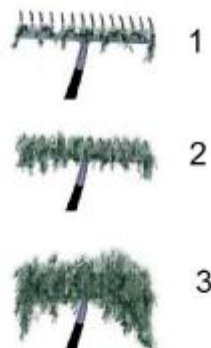


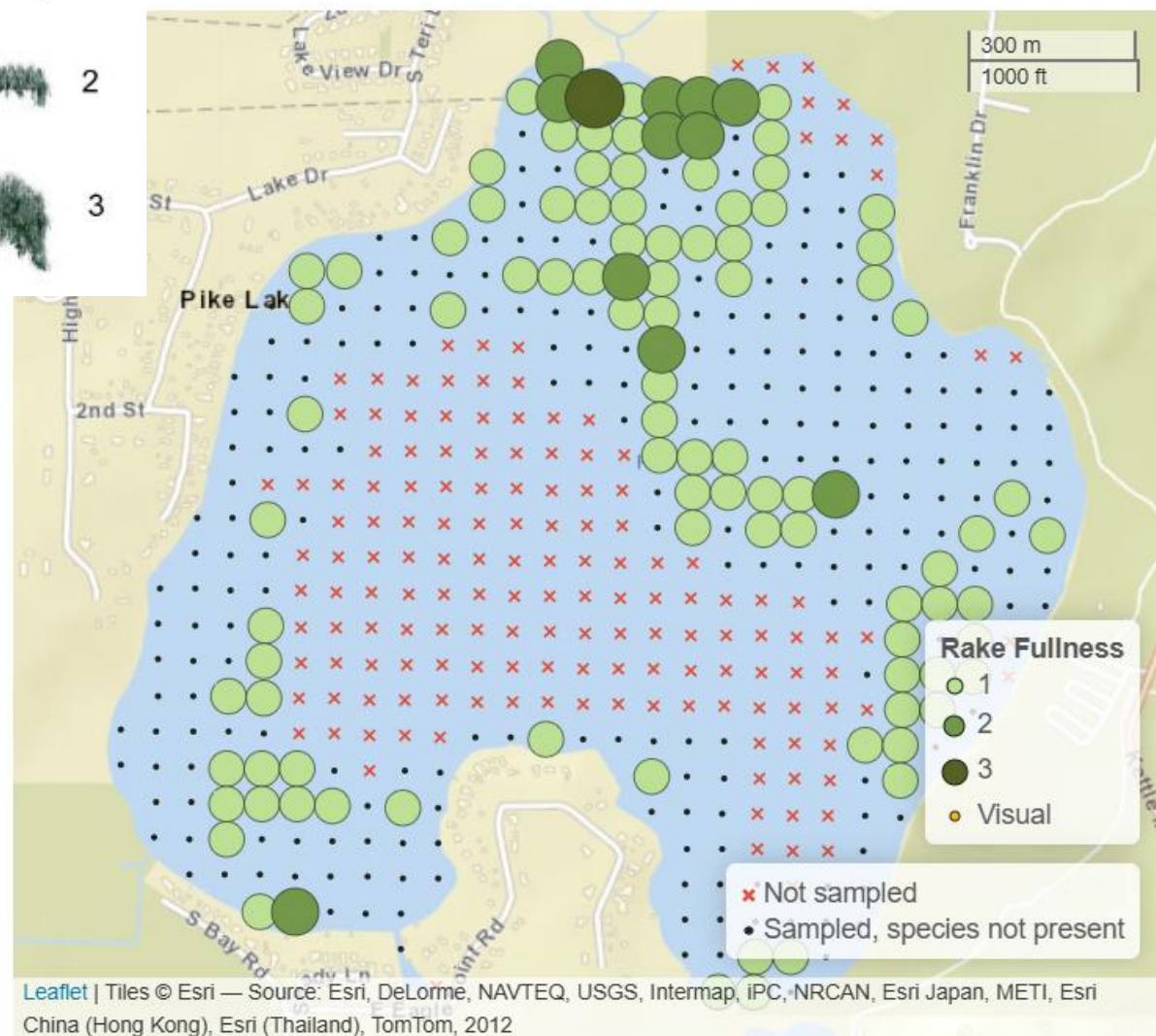
Illustration of Rake Fullness Rating



al Species

017

Starry stonewort



Individual Species

09/10/2018

Starry stonewort

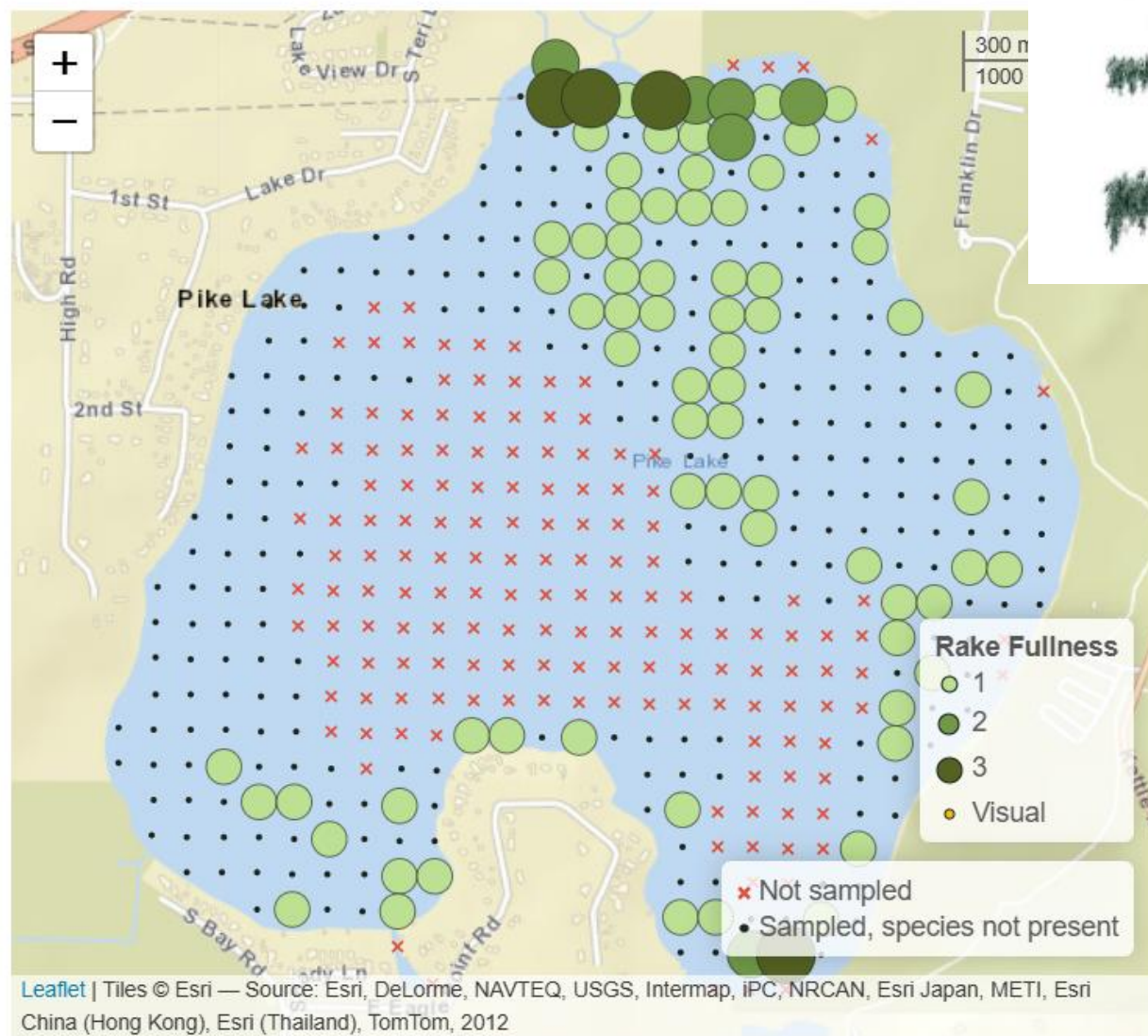
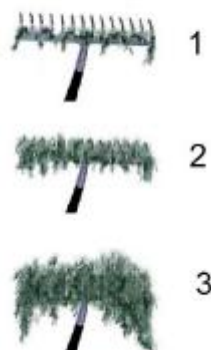


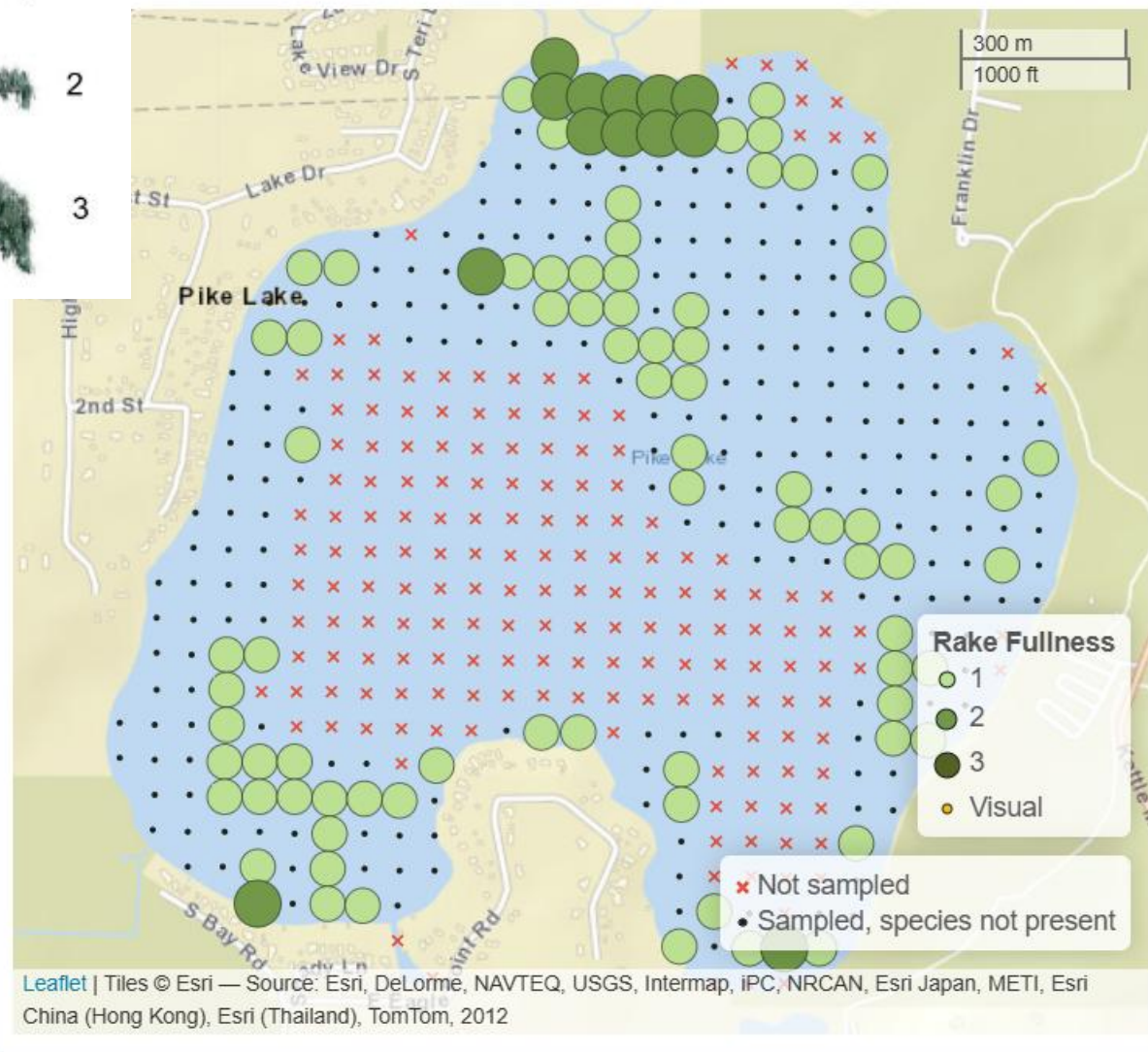
Illustration of Rake Fullness Rating



Visual Species

019

Starry stonewort



Individual Species

09/01/2020

Starry stonewort

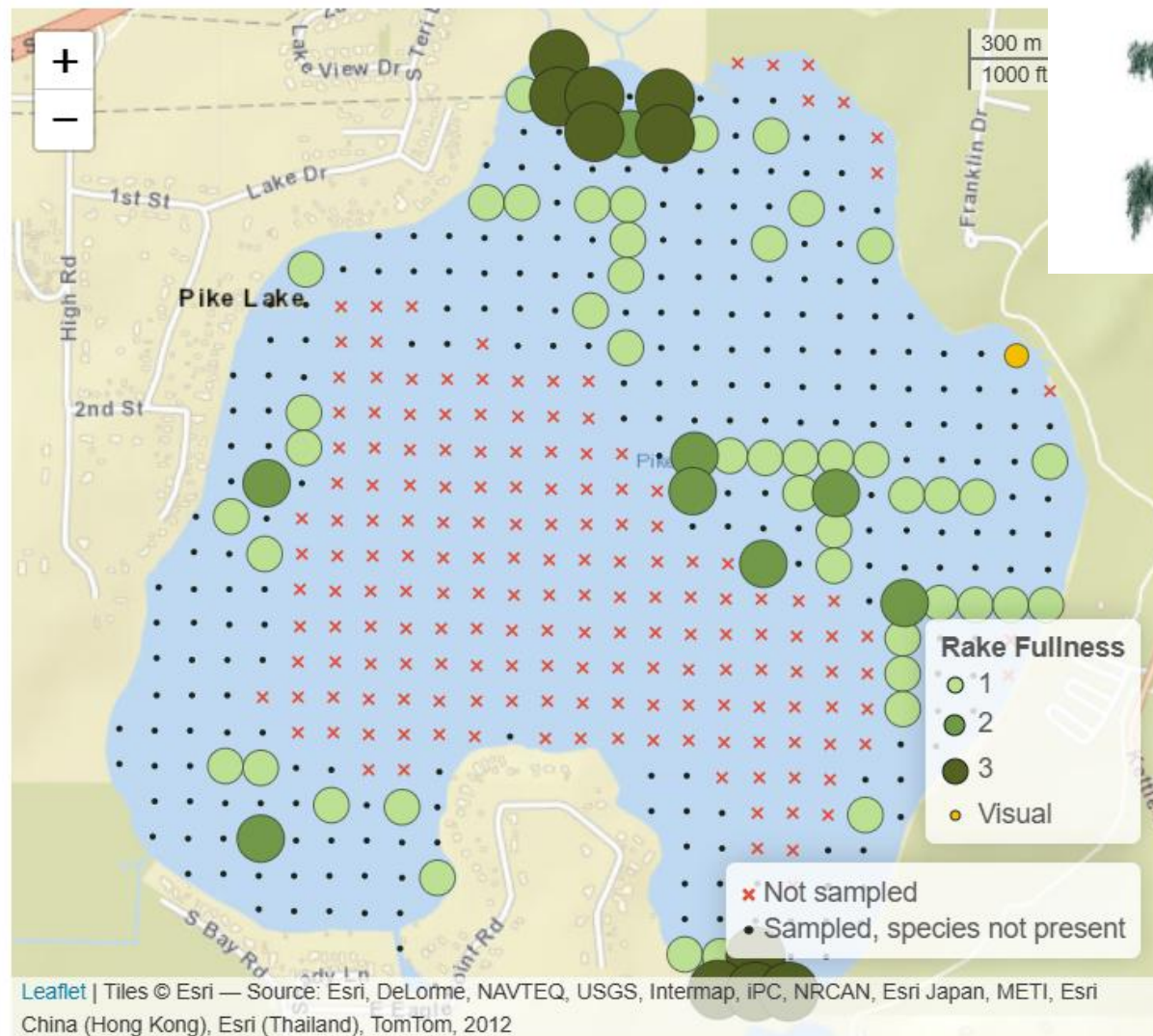
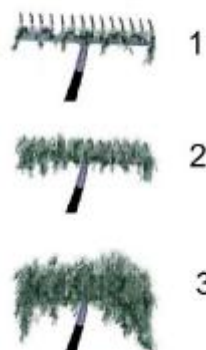


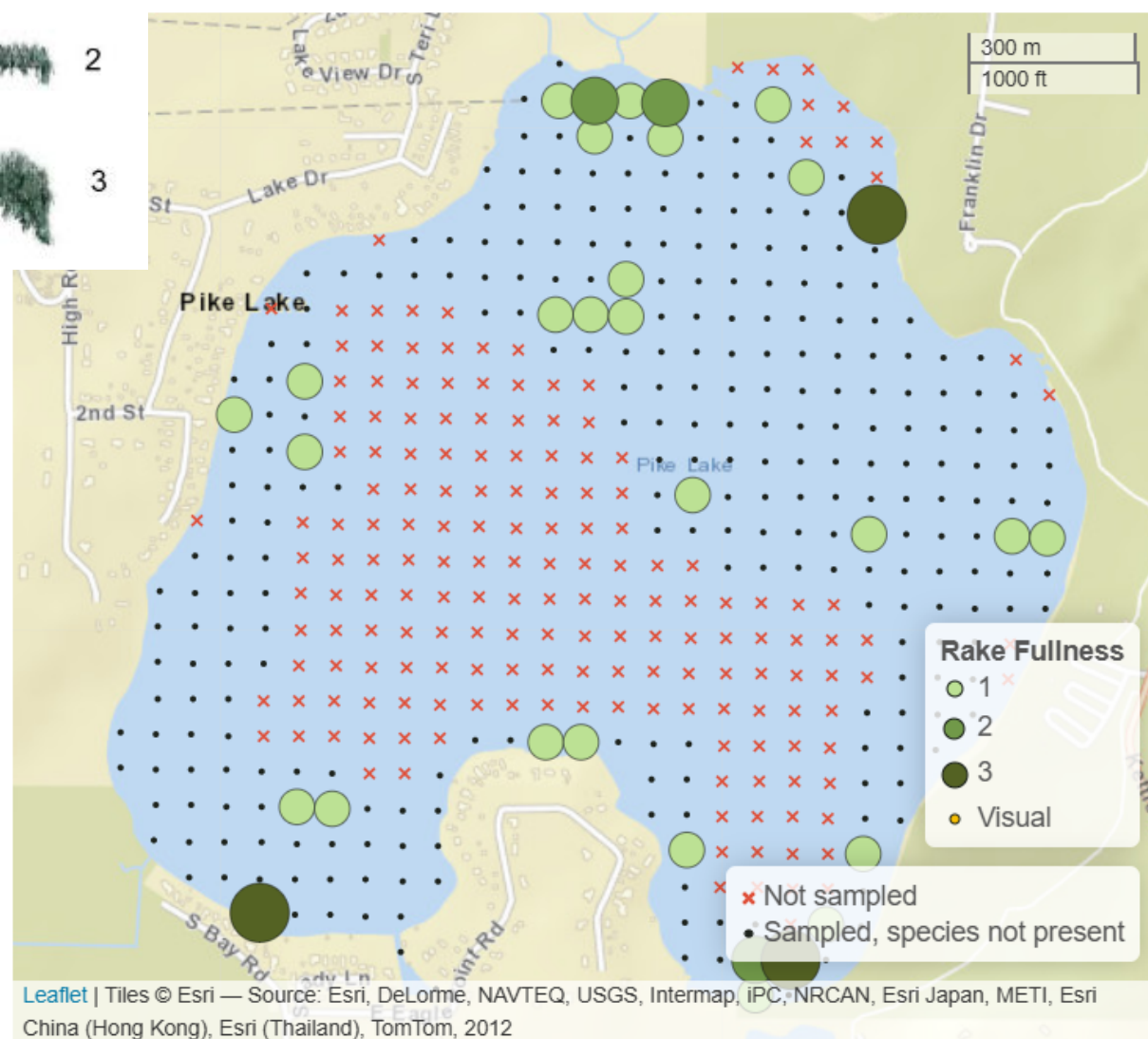
Illustration of Rake Fullness Rating



al Species

21

Starry stonewort



Individual Species

08/29/2022

Starry stonewort

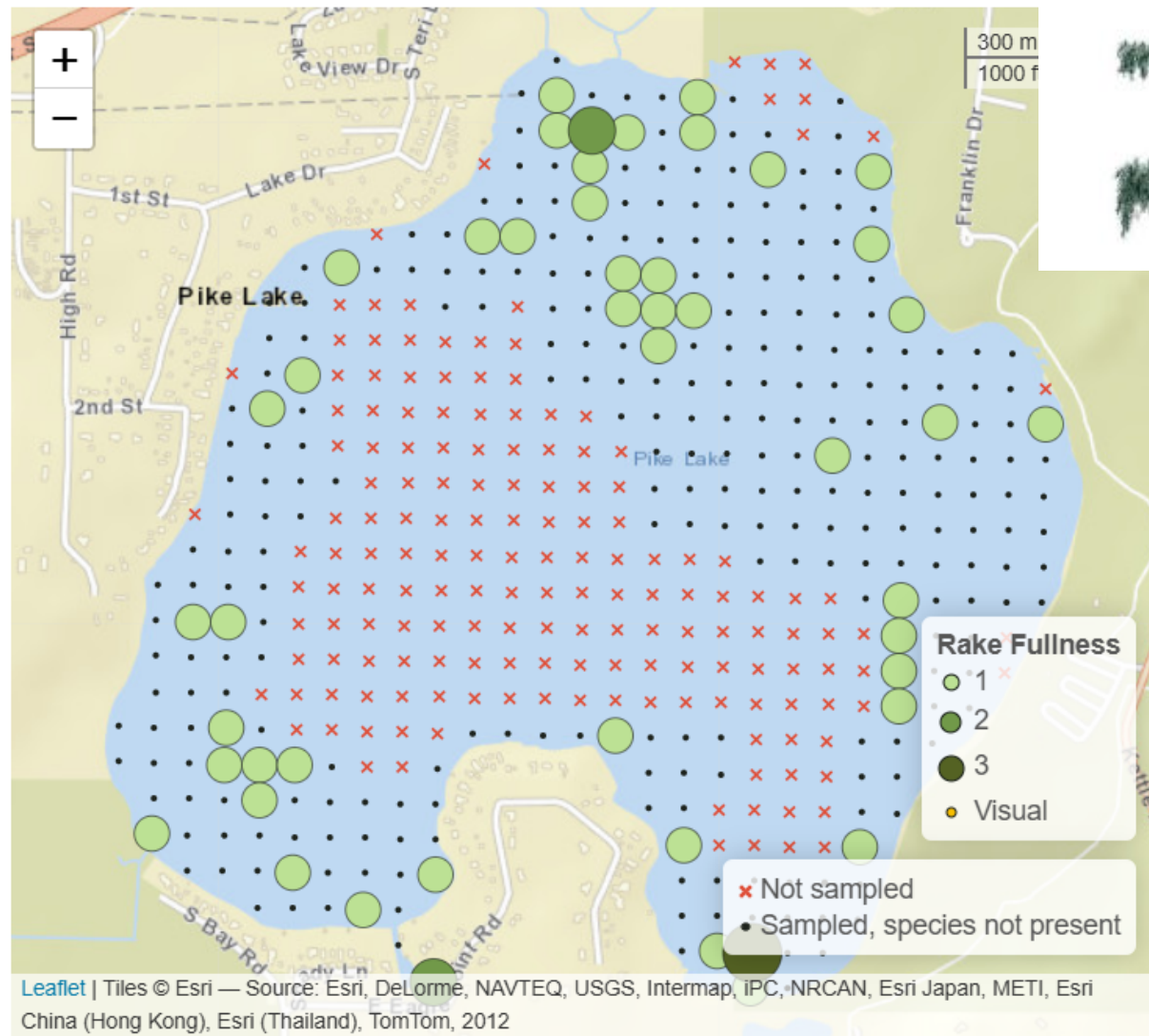
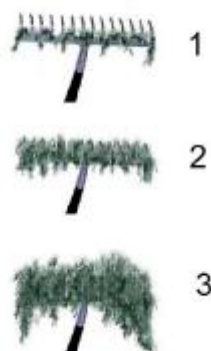


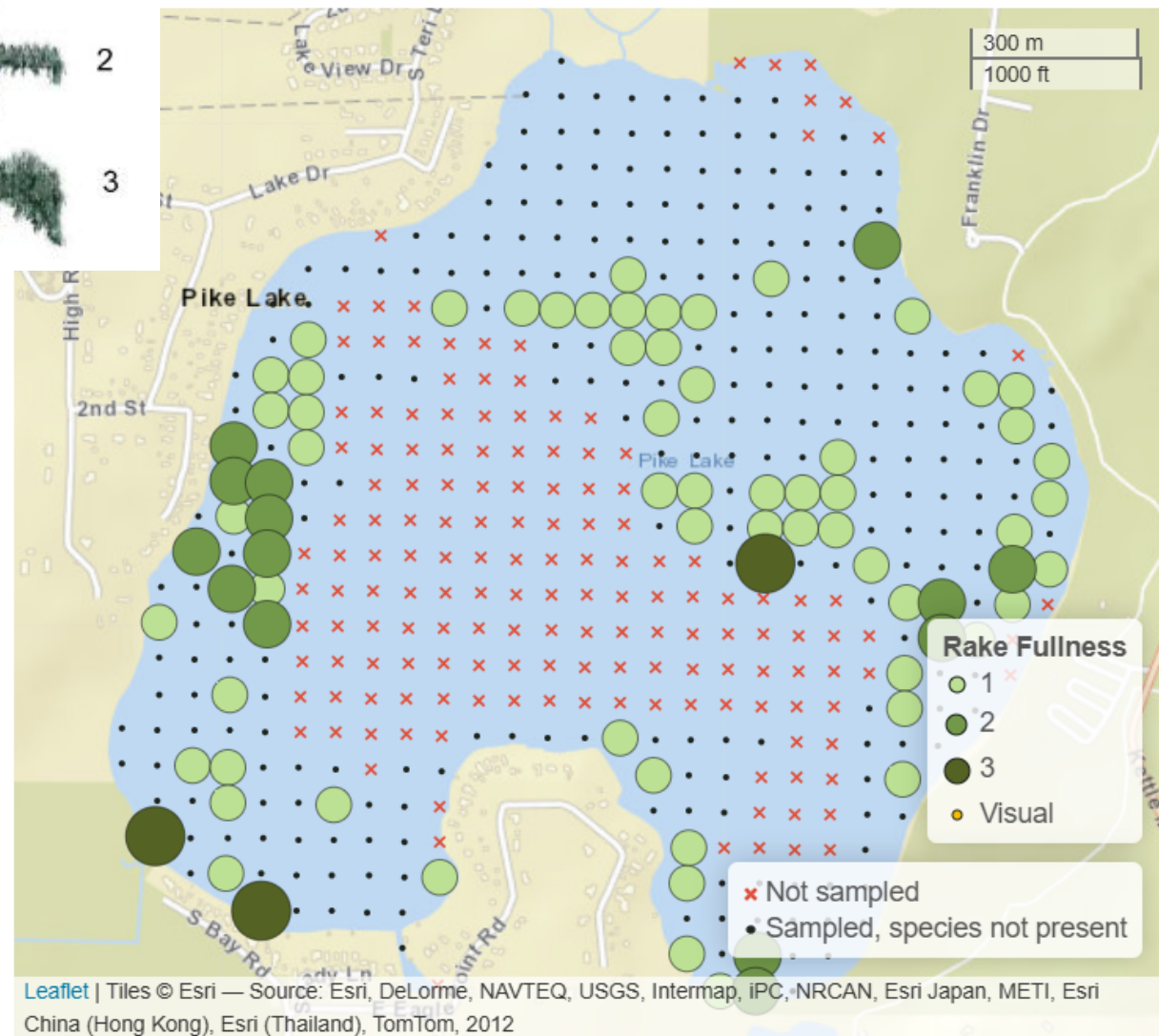
Illustration of Rake Fullness Rating



Individual Species

08/29/2022

Starry stonewort



August, 2024

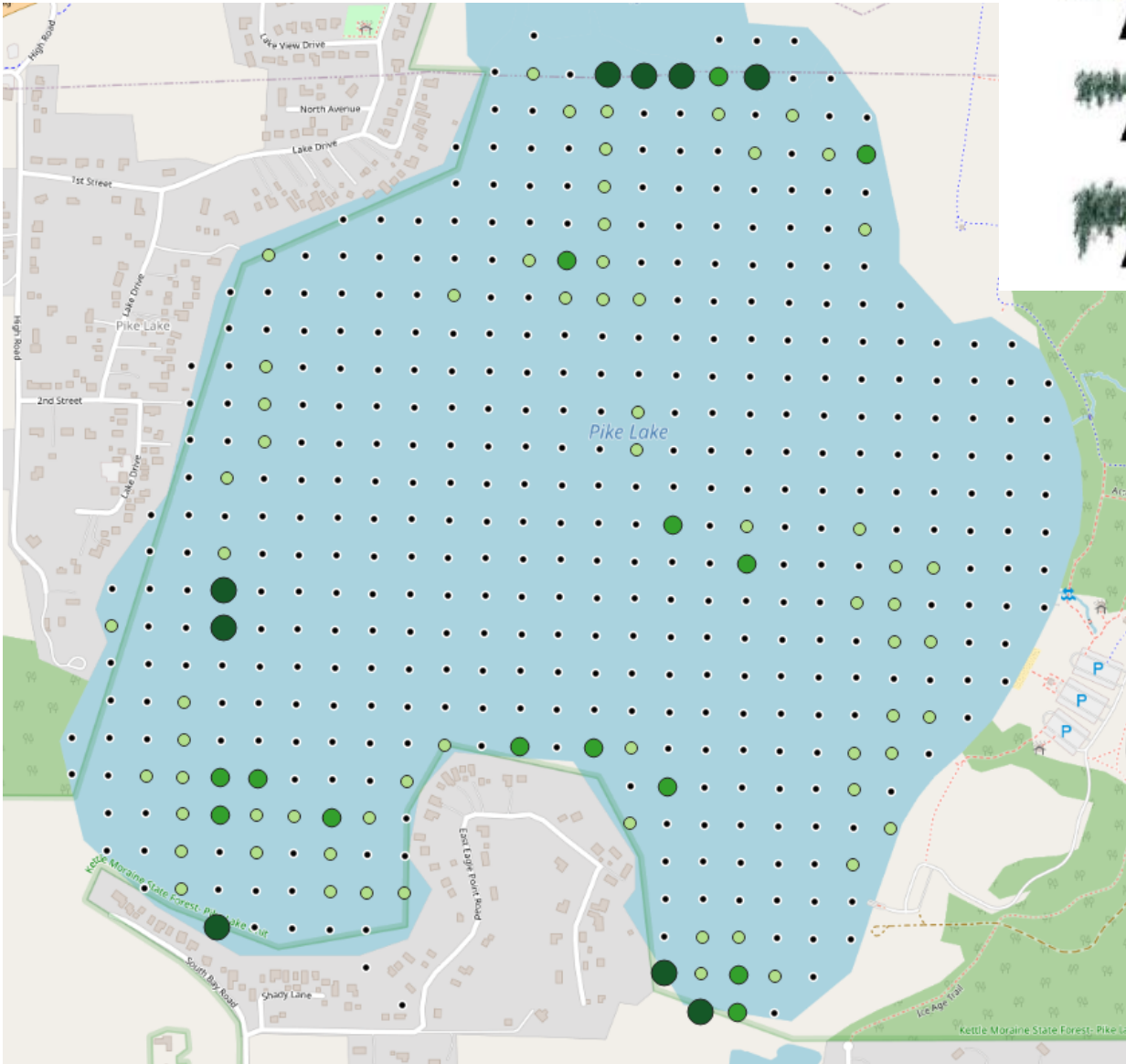
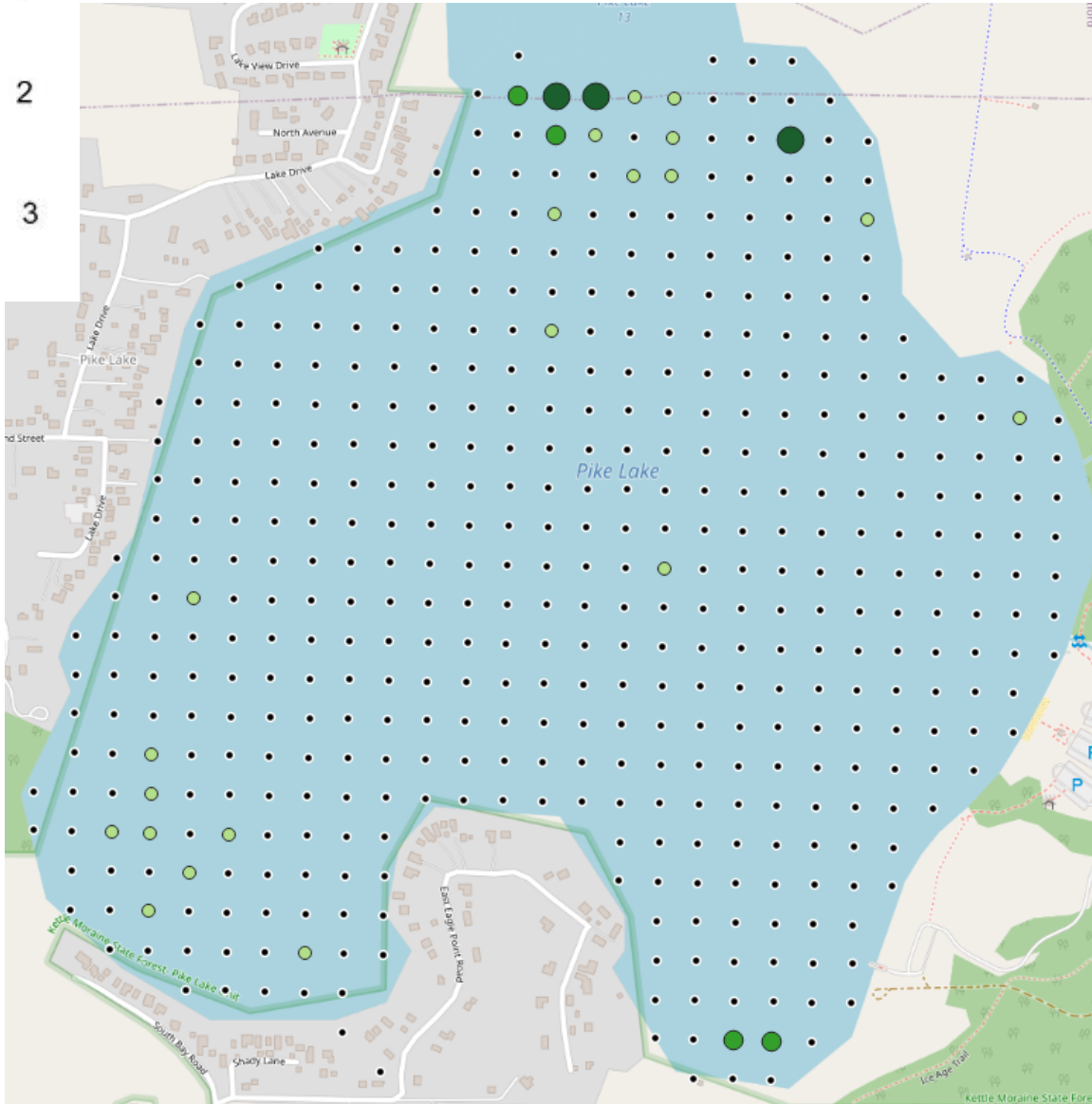


Illustration of
Rake Fullness
Rating



August, 2025





Response – Starry Stonewort

Build understanding of population dynamics in the system – PI surveys, citizen monitoring, learn from other groups, etc.

If management is warranted - Containment-based management approach, using selective methods (hand-removal, DASH)

Framework to address :

- Nuisance conditions as they arise (nav/rec impeded)
- When located in high traffic/shallow areas (ie. boat launch, channels)
- How monitoring will be done

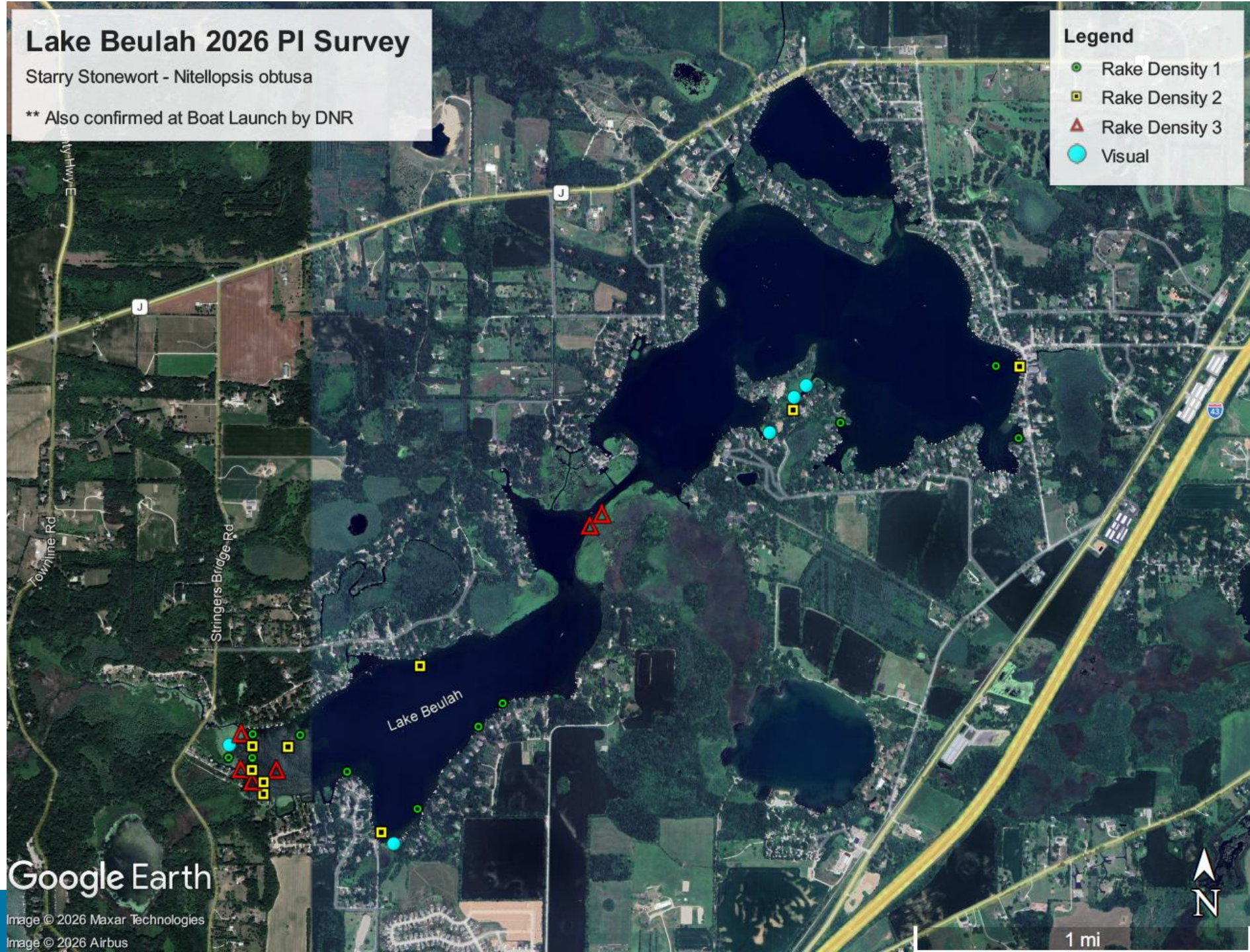
Lake Beulah 2026 PI Survey

Starry Stonewort - *Nitellopsis obtusa*

** Also confirmed at Boat Launch by DNR

Legend

- Rake Density 1
- Rake Density 2
- ▲ Rake Density 3
- Visual



Google Earth

Image © 2026 Maxar Technologies

Image © 2026 Airbus



Early Detection & Response grants

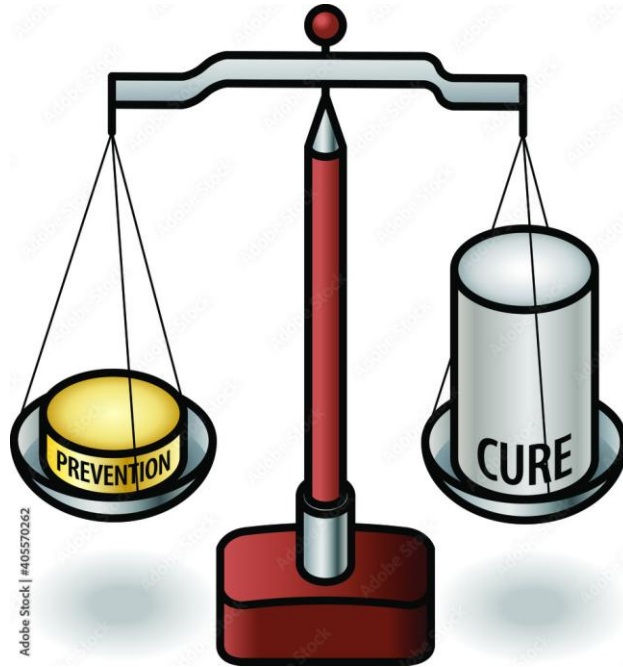
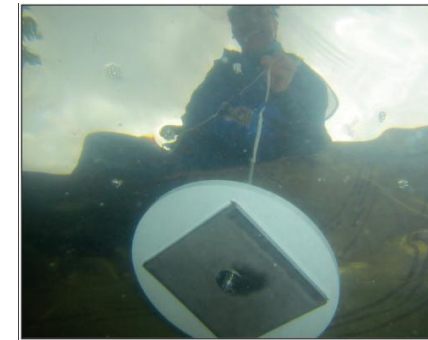
- Surface Water Grant Program → Rolling deadline, outside of typical grant cycle
- Available for new findings of AIS, emphasis on NR40 'prohibited' species (i.e. SSW)
- Grant activities flexible
 - Monitoring, control, outreach/education, prevention
 - Must be done in close coordination with Dept. staff
- \$25,000 max award, 75% state / 25% grantee cost share (\$33,450 total project costs)
 - Cost share can be cash or in-kind donated labor/equipment



Early Detection & Response grants

- Short term:
Potential EDR grant activities at Beulah:
 - Monitoring + control of SSW located at launch and/or high traffic channels
 - Full lake PI in 3 years to track lakewide population
 - Outreach/education to lake residents/users
- Long-term:
 - Updated APM plan will outline framework/triggers for SSW mgmt. at Beulah, as part of overall ongoing lake management activities
 - Build and maintain a resilient system – minimize removal of native species

The Big Picture

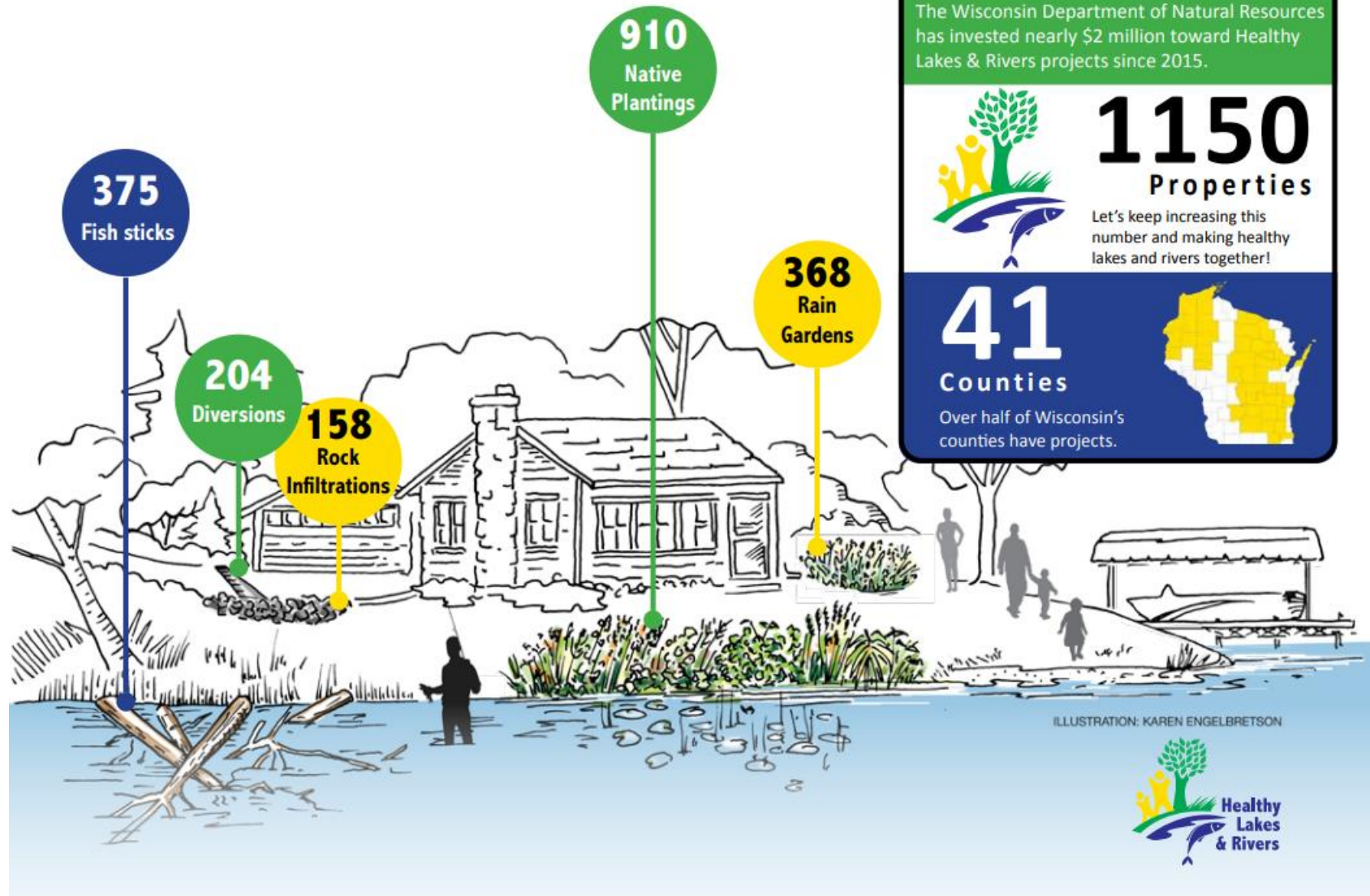


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CONNECT WITH US

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"WILD WISCONSIN:
OFF THE RECORD"