Starry Trek: A statewide volunteer surveillance effort for an invasive aquatic macrophyte

GREAT LAKES RESTORATION INITIATIVE REGIONAL INVASIVE AQUATIC PLANT SURVEILLANCE BEST PRACTICES WORKSHOP
FEBRUARY 7, 2023

MEGAN M. WEBER & DANIEL LARKIN
UNIVERSITY OF MINNESOTA

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A response to a new invasive species in Minnesota…

Lake Koronis (& Mud Lake), 2015

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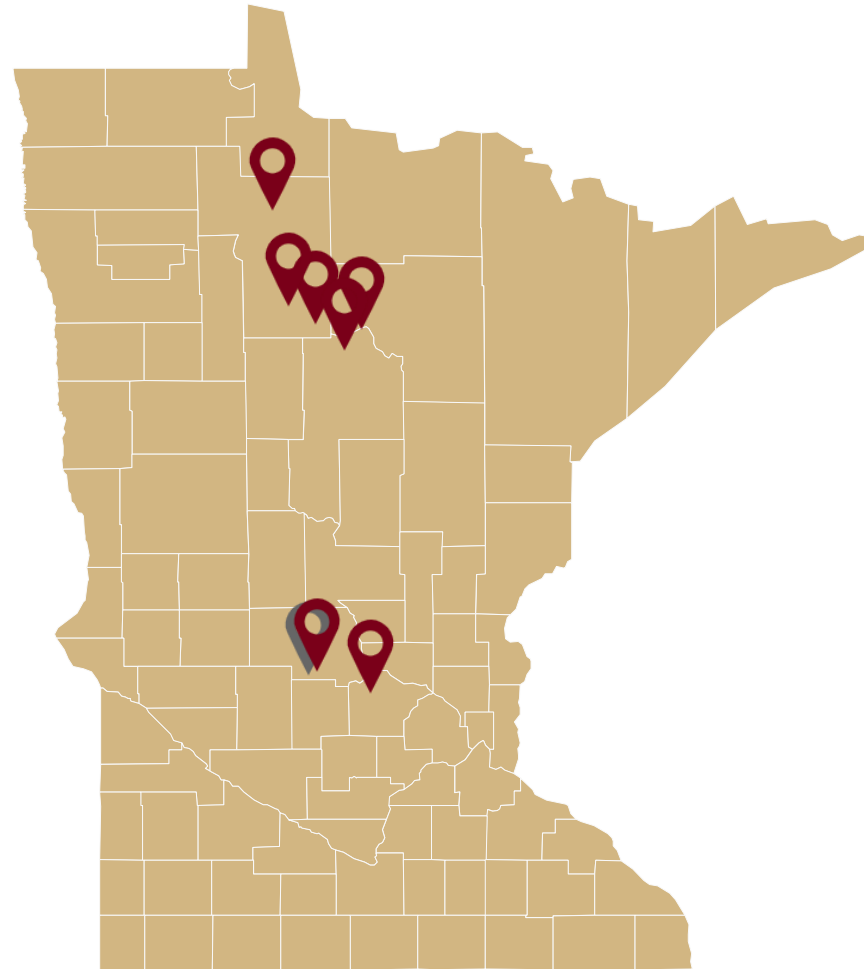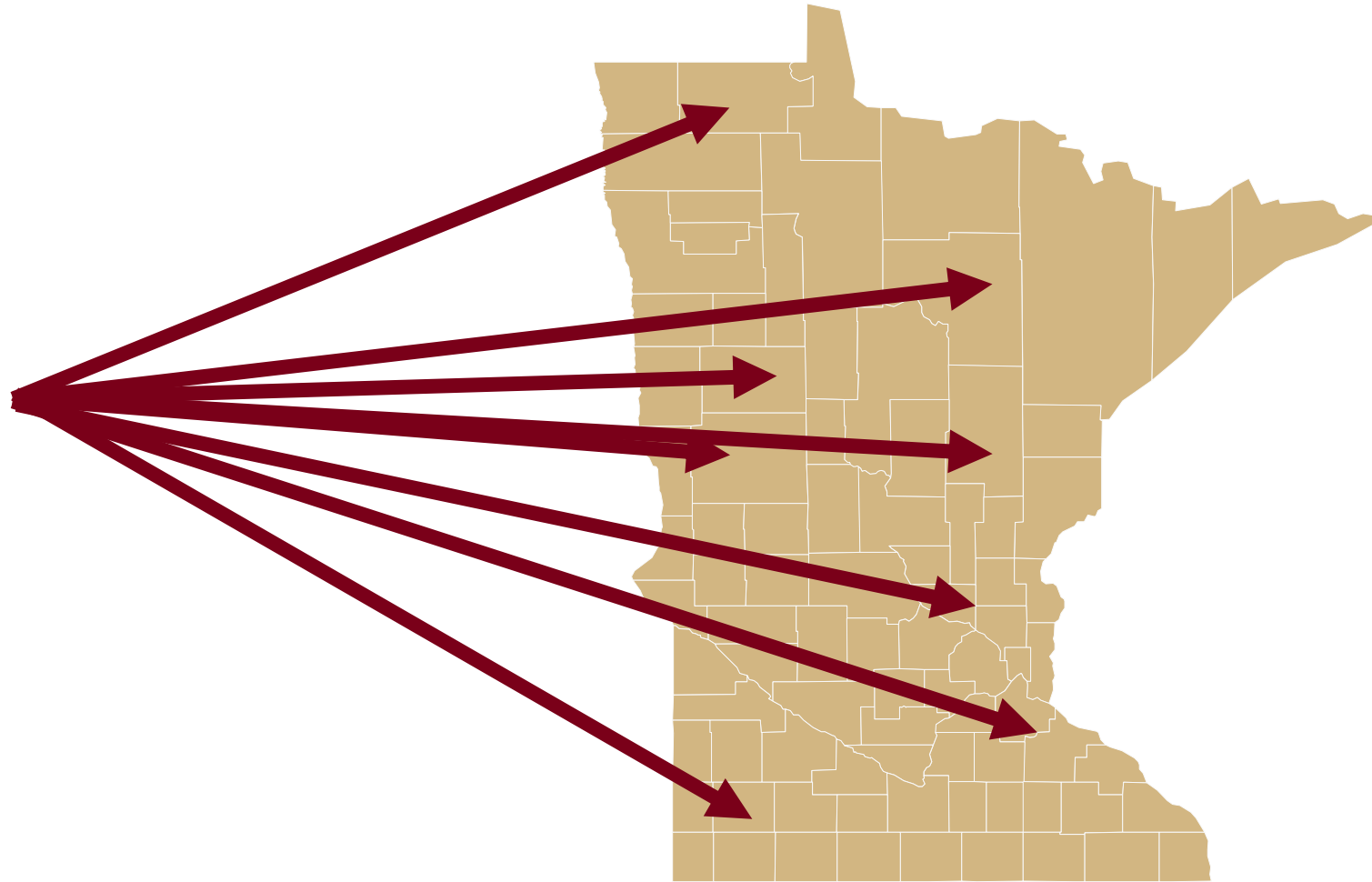
A response to a new invasive species in Minnesota...

Rice Lake, 2016
Lake Sylvia, 2016
Upper Red Lake, 2016
Moose Lake, 2016
Turtle Lake, 2016
Lake Winnibigoshish, 2016
Cass Lake, 2016

Lake Koronis (& Mud Lake), 2015

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What about here?

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And so began our enterprise…

MINNESOTA AQUATIC INVASIVE
SPECIES RESEARCH CENTER
UNIVERSITY OF MINNESOTA
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UNIVERSITY OF MINNESOTA
EXTENSION

m
DEPARTMENT OF
NATURAL RESOURCES

W Extension
UNIVERSITY OF WISCONSIN-MADISON

RIVER ALLIANCE
of WISCONSIN

W
WISCONSIN
DEPT. OF NATURAL RESOURCES

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Lake monitoring protocols

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AIS Monitoring Protocol: Public Access

Follow these steps to create your own monitoring program at any public access. If you would like to use the protocols on private land (for example: resorts, private marinas, neighbor's shoreline, etc.) be sure to seek permission first. There is no single, correct way to conduct AIS monitoring. These protocols provide one method to.

Identify the boundaries of the public access.

Upon arrival to the designated site, identify the boundaries of the public access. You will begin your search at one end and walk to the other along the shore. Repeat the steps below at five points spaced roughly evenly between the site boundaries (if there is a dock or pier at the public access, use it as one of your sampling locations. You can sample off any side of the dock. If the dock is at a boat landing, focus on the area(s) where boats are traveling).

Scan the area for at least 30 seconds.

If there is heavy vegetation, spend more time as needed. While scanning, examine plant fragments and shells on the shore, as well as plants and animals in the water. Polarized sunglasses help reduce glare and improve visibility into the water.

If you can do so safely, you may wade into the water to collect any suspicious plant/animals you see. Avoid concrete pads at boat launches as these are often very slippery. If the water is too deep or you cannot collect the organism safely, attempt to use your rake to collect it. If you are unable to collect it, make note of the location, write a description, photograph it if possible, and report what you have found to your local DNR AIS Specialist. You should not enter the water if you don't feel safe doing so, don't have the proper attire to do so, or are otherwise unable to do so at the time.

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Toss the sampling rake into the water.

Use an underhand motion and be sure to hang onto the end of the rope with your non-throwing hand when tossing the rake. Aim for concentrations of plants or anything suspicious you noticed during your scan. Pull the rake in with the rope and examine all aquatic vegetation attached to the rake. Use the provided identification resources to determine whether they may be starry stonewort or other target AIS in the collected vegetation.

Report your find via EDDMapS.

Photograph your specimen and submit a report to EDDMapS using the EDDMapS app or on www.eddmaps.org/midwest.

Collect and label any suspected AIS.

Place plants, plant fragments, or other organisms into an appropriately sized resealable bag (or other sealable container). Create a label using pencil with collection location, date, and your name and contact information and place it inside the bag/container with the organism. Make sure to seal the bag/container and contact your local DNR AIS Specialist for instruction on what to do with the collected specimen. The Specialist may request to see the specimen or decide images from your report are enough and provide you instructions for disposal.

Clean your equipment.

Be sure to clean your equipment and shoes after completing your monitoring and before visiting any other water body to prevent spreading any potential AIS.

Download them here!
z.umn.edu/AISmonitoring

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Lake monitoring protocols

1. Identify boundaries of public access
2. Search begins at one end and ends at the other
3. Plan 5 equally spaced locations within public acc. boundaries
   1. Note: If there is a dock or pier, make that one of the locations
      1. Sample off any side, but try to focus on area(s) boats frequently travel through

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Lake monitoring protocols
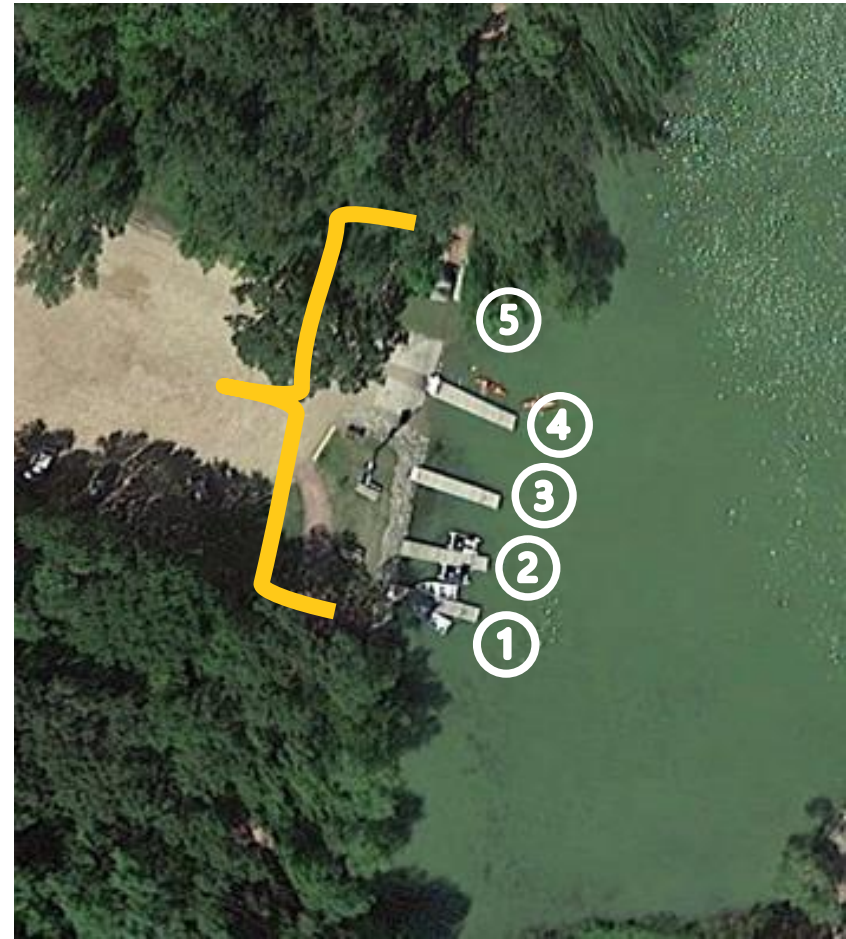
Lake monitoring protocols

At each sampling location

1. SCAN the area for 30 seconds
   - Spend more time if needed (eg: areas of heavy vegetation)
   - Include plant fragments and shells on shore & plants and animals in the water)
   - Use polarized sunglasses (if available)
2. TOSS the sampling rake into the water
   - Aim for concentrations of plants or anything suspicious from the scan
   - Be sure to hang onto one end of the rope
3. EXAMINE material attached to the rake
   - Pull material off the rake and examine it
   - Use provided ID resources to help identify suspicious organisms

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Putting the odds in our favor: Targeting early detection with phenology

Glisson et al. 2022 *Aquatic Botany*

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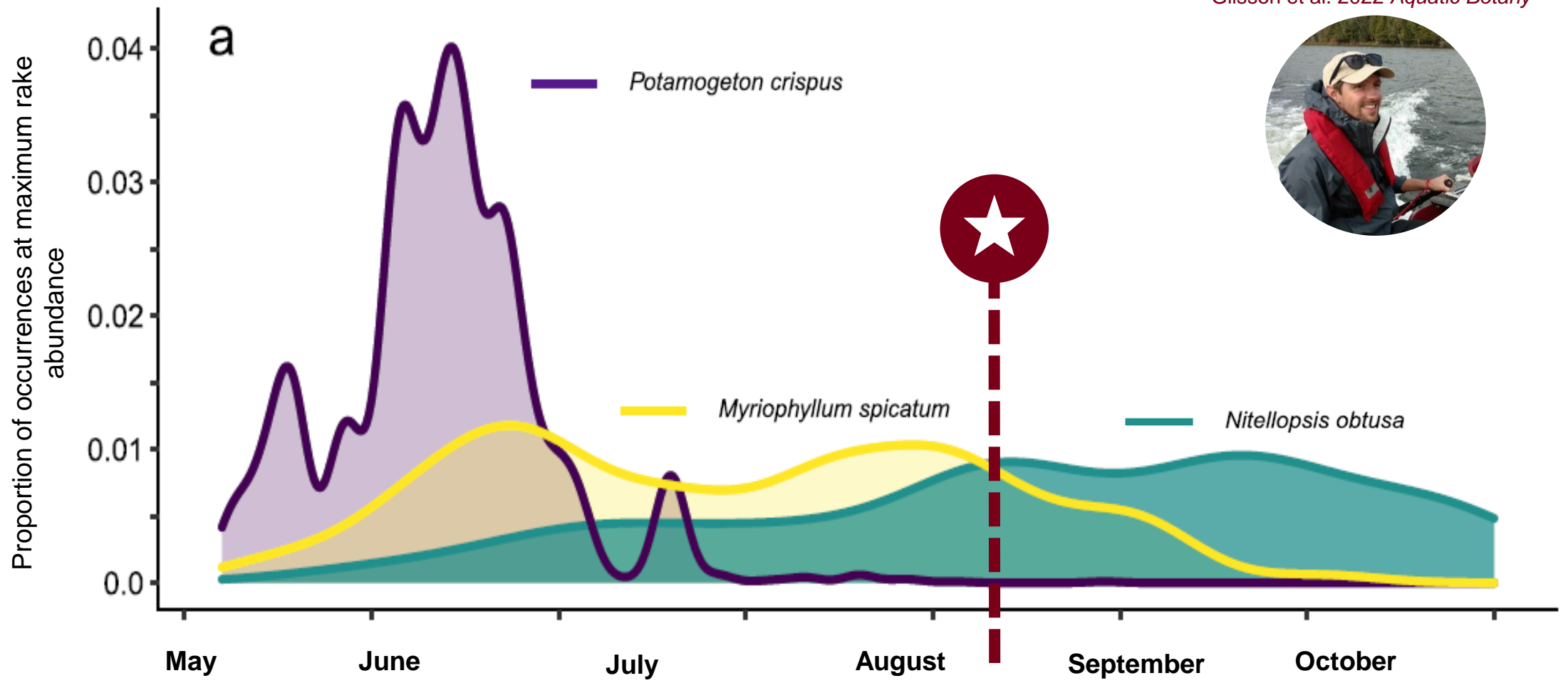
Putting the odds in our favor: **Pairing risk modeling with local knowledge**
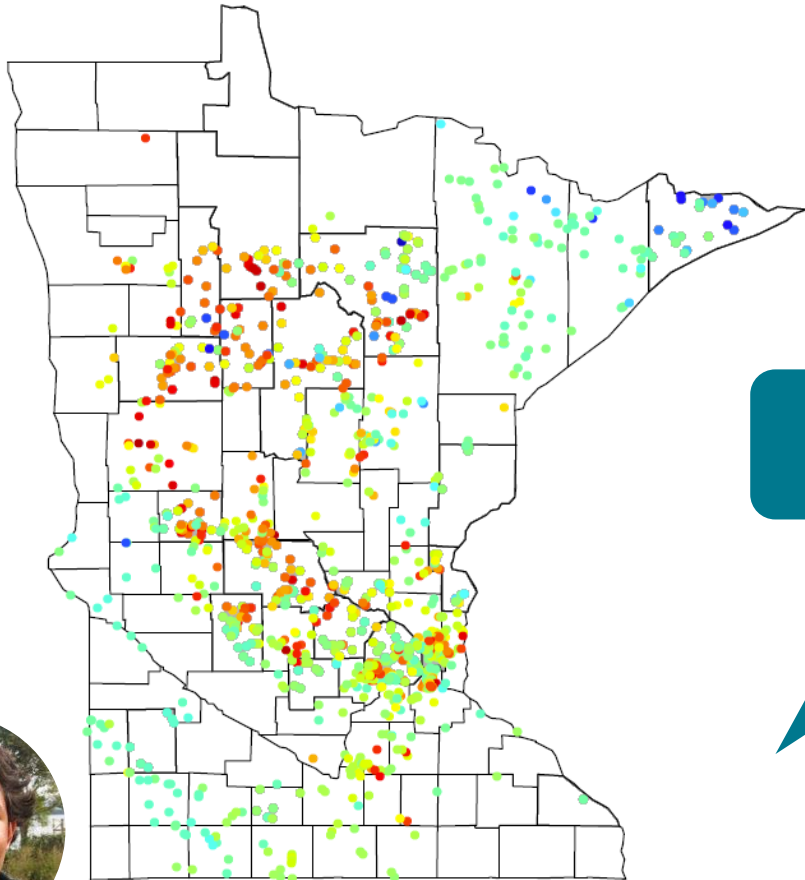
Muthukrishnan et al. 2018. *Aquatic Botany*

Lake Le Homme Dieu, Rotary beach, **very high recreational activity/inspections per hour**

Knife Lake, public access off HWY 65, **Busiest access in county**

Fall Lake, Fall Lake Campground. **High boater traffic, Boundary Waters entry point**, *and upstream of many Boundary Waters lakes, other invasives present.*

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Putting the odds in our favor: Demonstrated method success

2015
- Koronis/Mud

2016
- Cass
- Moose
- Turtle
- Upper Red
- Winnibigoshish
- Rice
- Sylvia

2017
- **Grand**
- Minnewaska

2018
- Medicine
- Pleasant
- **Wolf**

2019
- **Beltrami**

2020
- **Carnelian**

2021
- Leech
- Pimushe

2022
- Bemidji
- Bowen
- Thunder
- Turtle River

Approx. **20%**

Photo: MN DNR Invasive Species Program

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Putting the odds in our favor: Demonstrated method success

2015
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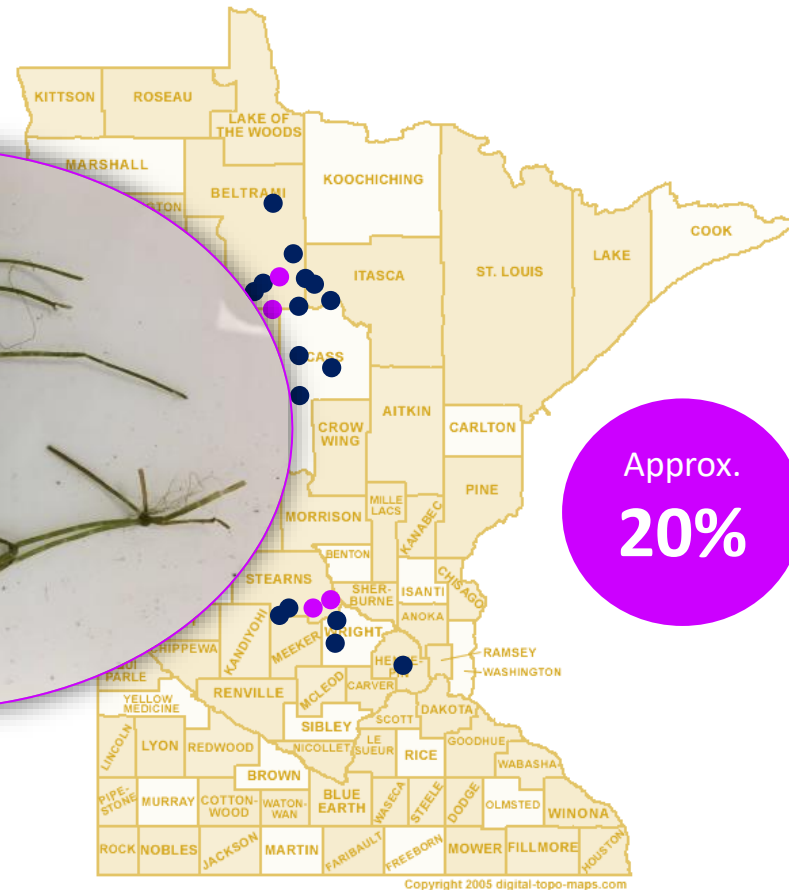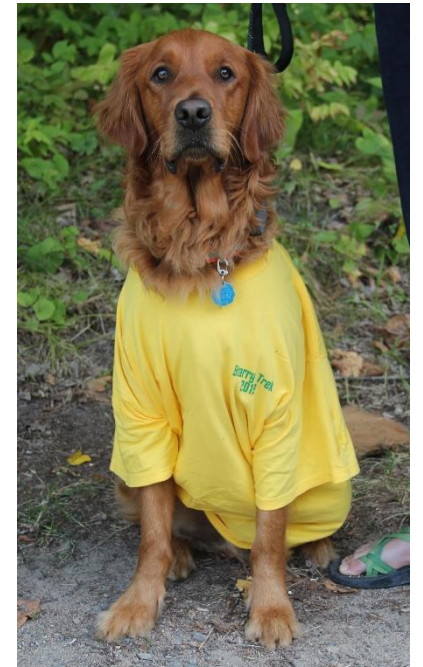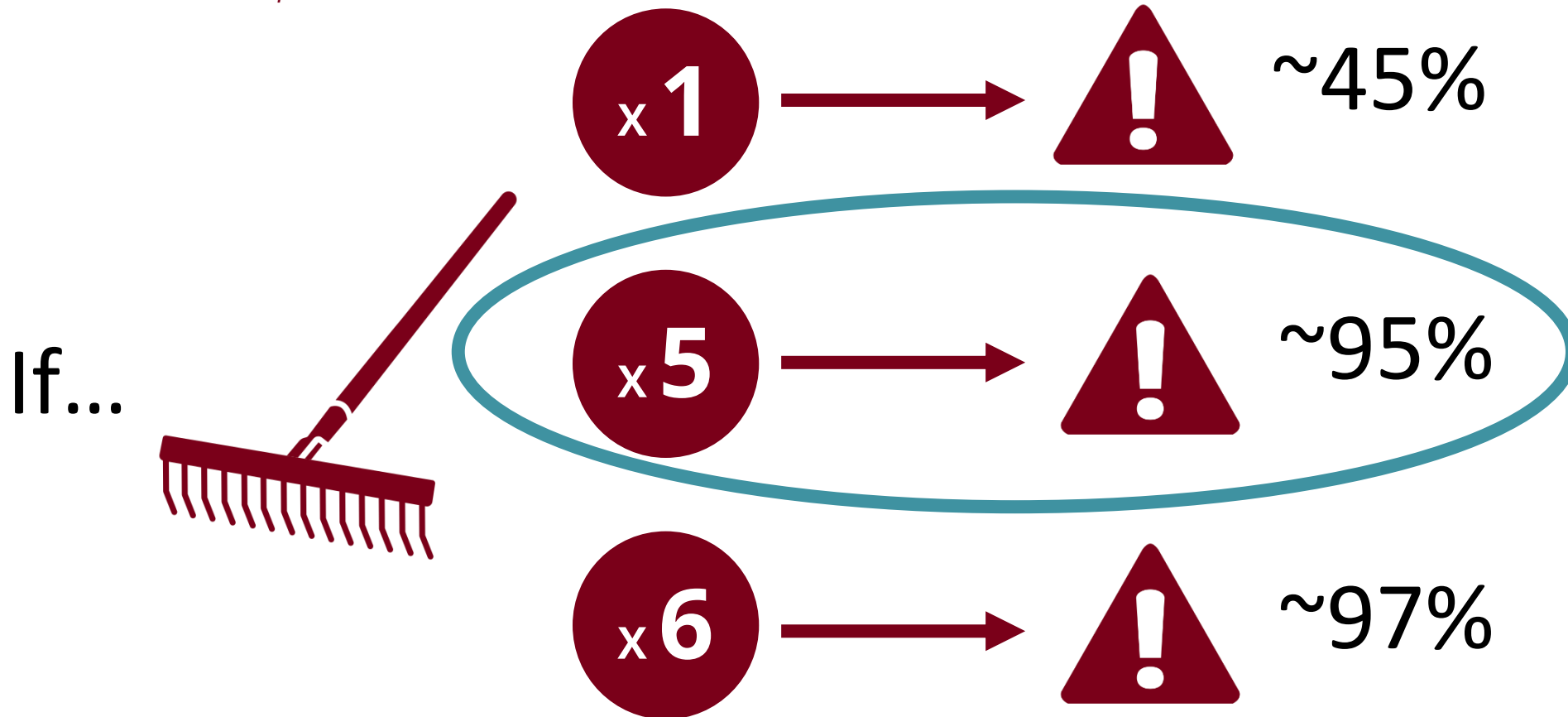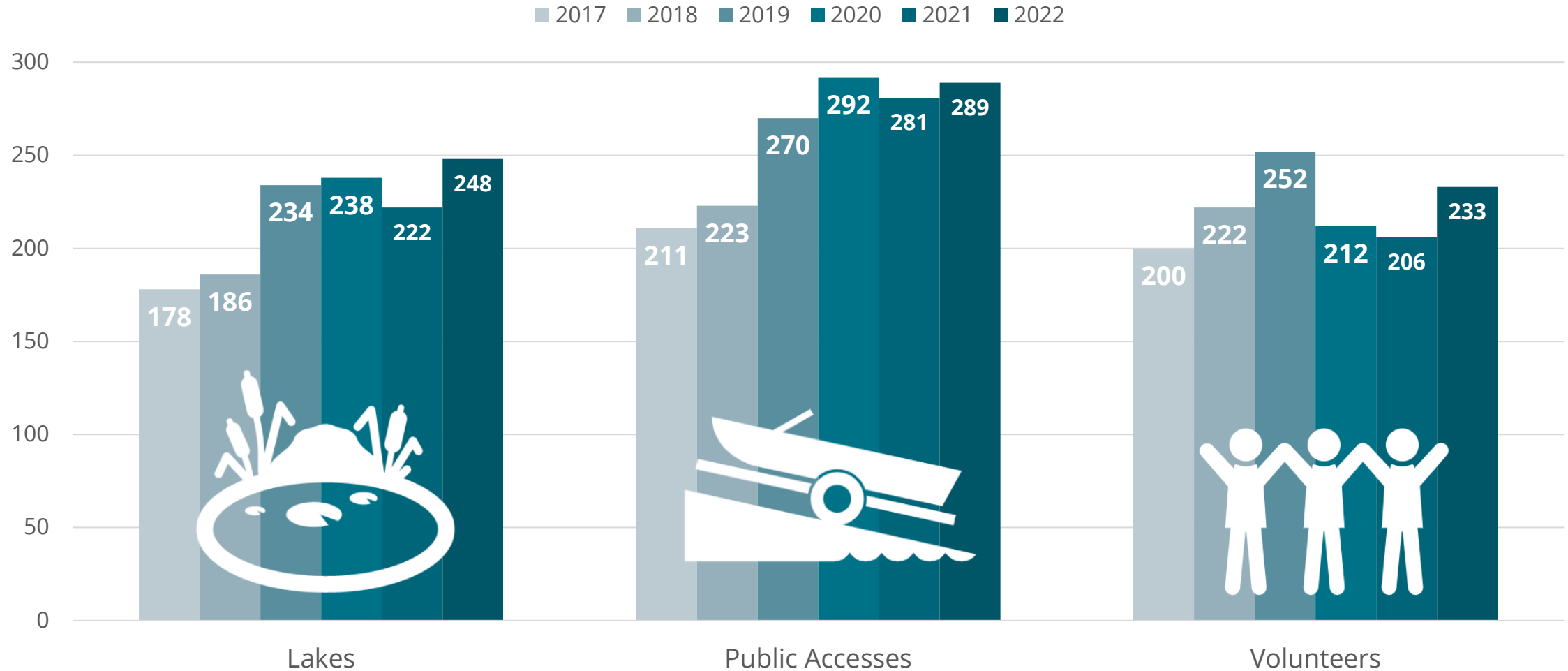
2022
- B
- Bo
- Thur
- Turtle Riv

Approx. **20%**
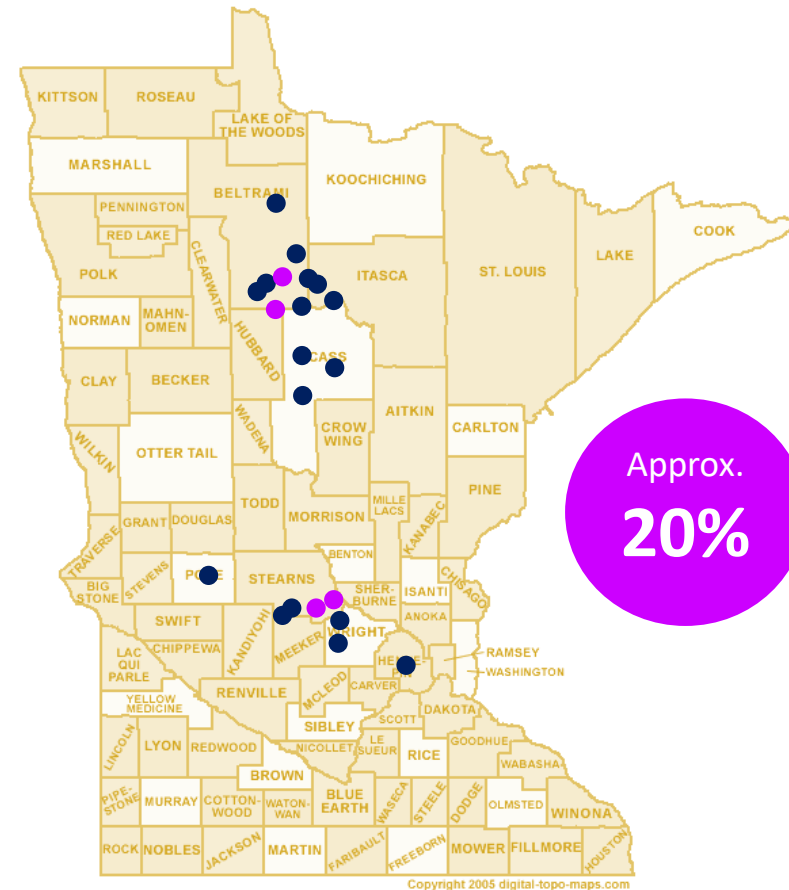
Photo: MN DNR Invasive Species Program

Putting the odds in our favor: Demonstrated method success

W. Glisson *unpublished data*

If…

x1 → ⚠ ~45%

x5 → ⚠ ~95%

x6 → ⚠ ~97%

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Starry Trek: The Results

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Thank you!

Programs are funded in part by:

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND

Jointly supported by the Minnesota Aquatic Invasive Species Research Center and U of M Extension

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