

St. Lawrence Eastern Lake Ontario Invasive Species Symposium

Call for Collaboration

Wednesday Afternoon Session
June 30th, 1pm

Leveraging iMapInvasives Data to Support State-wide Invasive Species Research Initiatives



New York
Natural Heritage
Program



iMapInvasives

Sharing information for strategic management

Mitch O'Neill

End User Support Specialist,
New York Natural Heritage Program -
Invasive Species Database



NY Natural Heritage Program



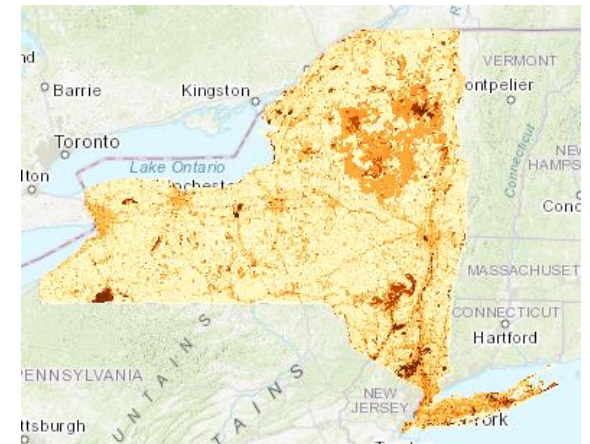
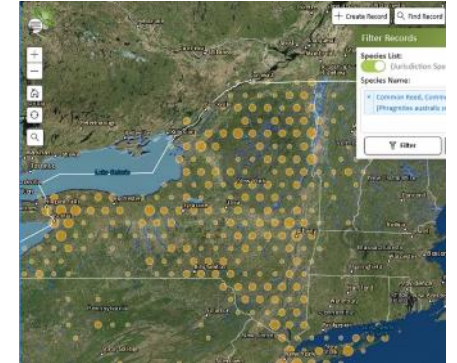
New York
Natural Heritage
Program

Our mission is to facilitate conservation of New York's biodiversity by providing comprehensive information and scientific expertise on rare species and natural ecosystems to resource managers and other conservation partners.

Partnership between NYS DEC and SUNY ESF

www.nynhp.org

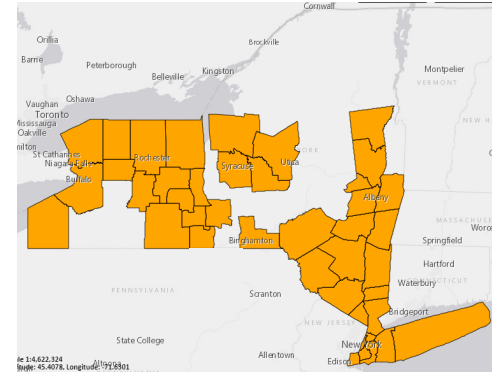
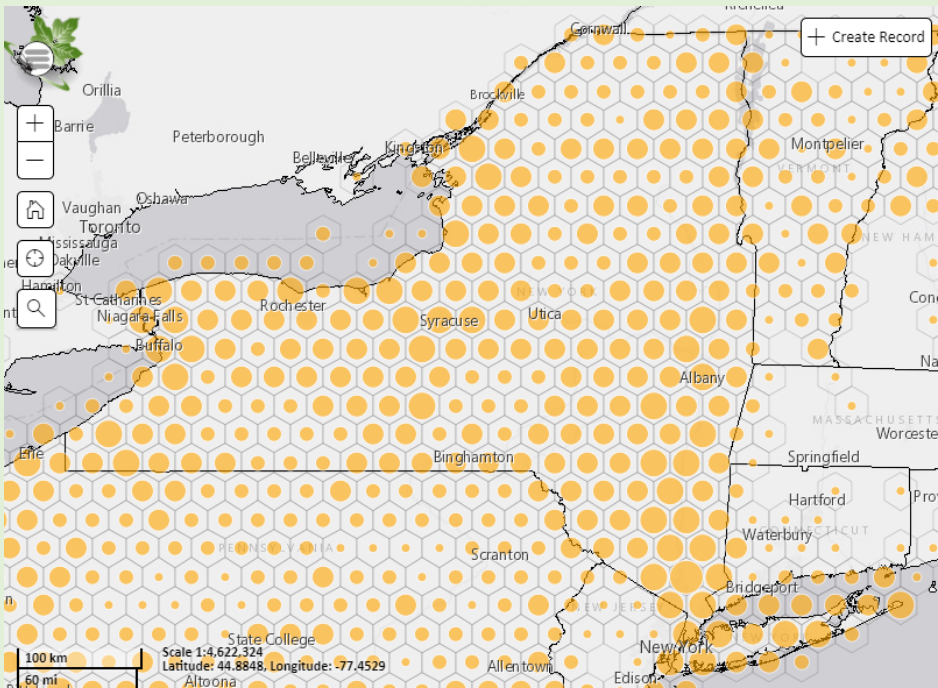
Invasive Species Database Program



Spatial Prioritization Models

iMapInvasives

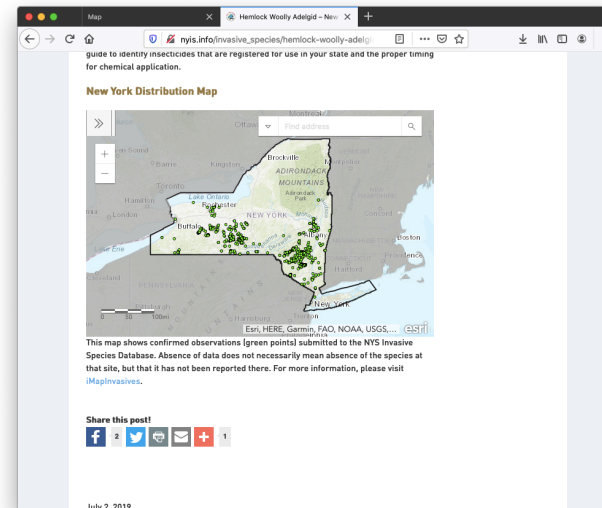
Centralized invasive species database to support PRISMs, state agencies and other partners working on invasive species issues.



Species Distributions and Reports



Early Detection Alerts



Web Map Services



Tracking Control Efforts and Results

Leveraging iMapInvasives Data to Support State-wide Invasive Species Research Initiatives

1. What is iMapInvasives?

- ❖ Centralized invasive species database
- ❖ Early detection and mapping system

2. How are the data leveraged?

- ❖ Prioritization Analyses
- ❖ Tracking Management efforts
- ❖ Applied Research

3. How can you take part?

- ❖ Report presences to iMap
- ❖ Utilize the tools and analytical products
- ❖ Report advanced data to iMap



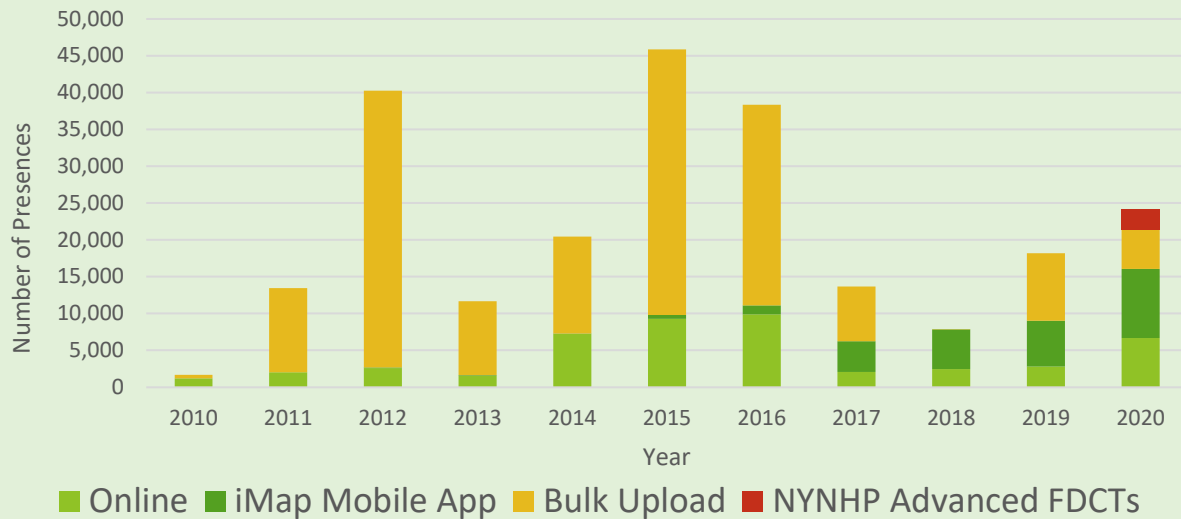
Water chestnut treatment records in iMapInvasives

(Salmon River near Port Ontario)

Data sources

2010-2016: Uploads of existing data from partner organizations

Presences by Data Entry Method



Now: Data entered by community scientists & professionals

- Species ID confirmed by experts



NEW YORK STATE
INVASIVE SPECIES
MANAGEMENT



Adirondack
ADK
Mountain Club



RIT



The Nature
Conservancy

UALBANY
State University of New York

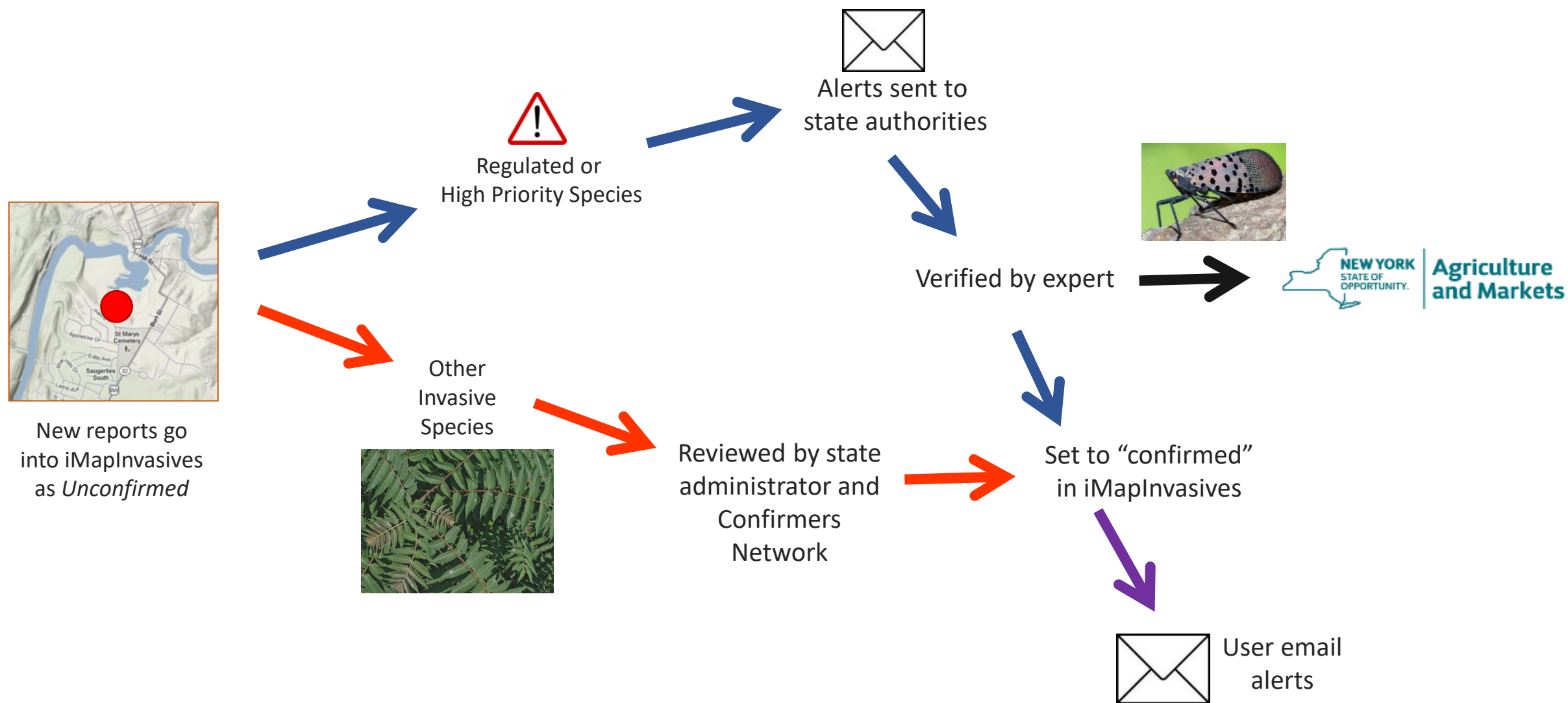


Cobleskill



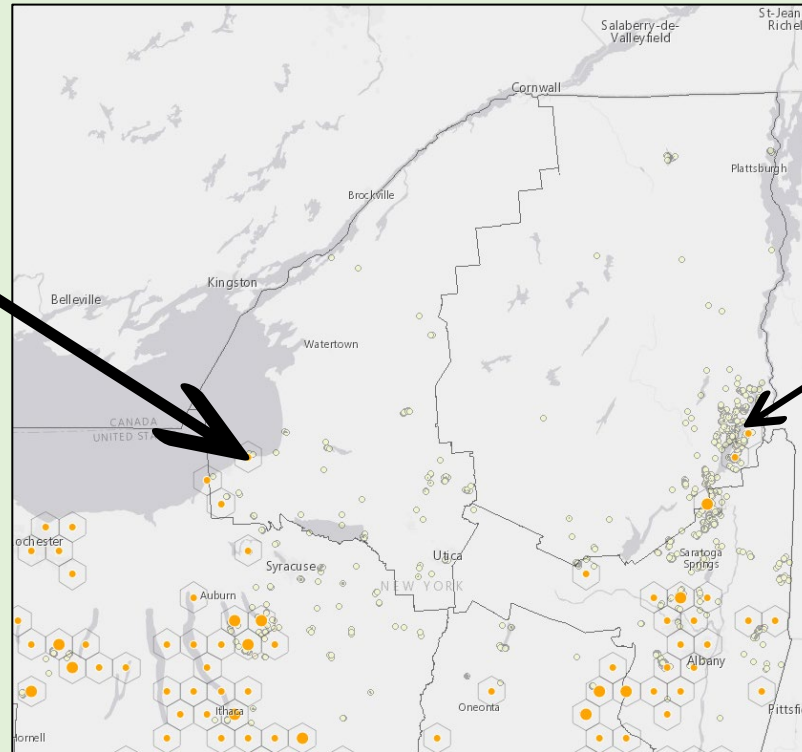
SIENAcollege

Email Alerts : *Communicating important findings*



Hemlock Woolly Adelgid

- Winter 2021 – HWA detected in SLELO for the first time
- SLELO staff – using *NYNHPs Forest Pest Data Collection Tool* (data goes into iMap)



HWA in iMap – 6/23/2021

- Summer 2020 – Camper noticed HWA and reported to iMap using the **Mobile App**
- APIPP – launched survey and assessment response

Claim a Grid Square to check for SLF & TOH

Find Unclaimed Grid Squares

Find unclaimed grid squares near a location
(For example: address, city/town, or point of interest)

Note: Use the slider below to adjust the search radius.

Find address or place

Show results within 7 Miles

0 15

iMapInvasives

Grid Square Available
Focus Area grid square
US National Grid ID: 18T WN 9303
[Claim This Grid Square](#)
[Zoom to](#)

- NYS needs eyes on the ground surveying for SLF & TOH
- The goal of this project is to direct community scientists to conduct surveys for SLF & TOH in their areas, and report findings to **iMapInvasives**
- AGM, Parks, NYNHP selected 1km grid squares across the state where volunteer survey efforts would be most helpful to complement statewide efforts.
- Volunteers encouraged to “claim” a grid square to return to each season and survey
- Visit www.nyimapinvasives.org/slf for more information

Leveraging iMapInvasives Data to Support State-wide Invasive Species Research Initiatives

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2. How are the data leveraged?

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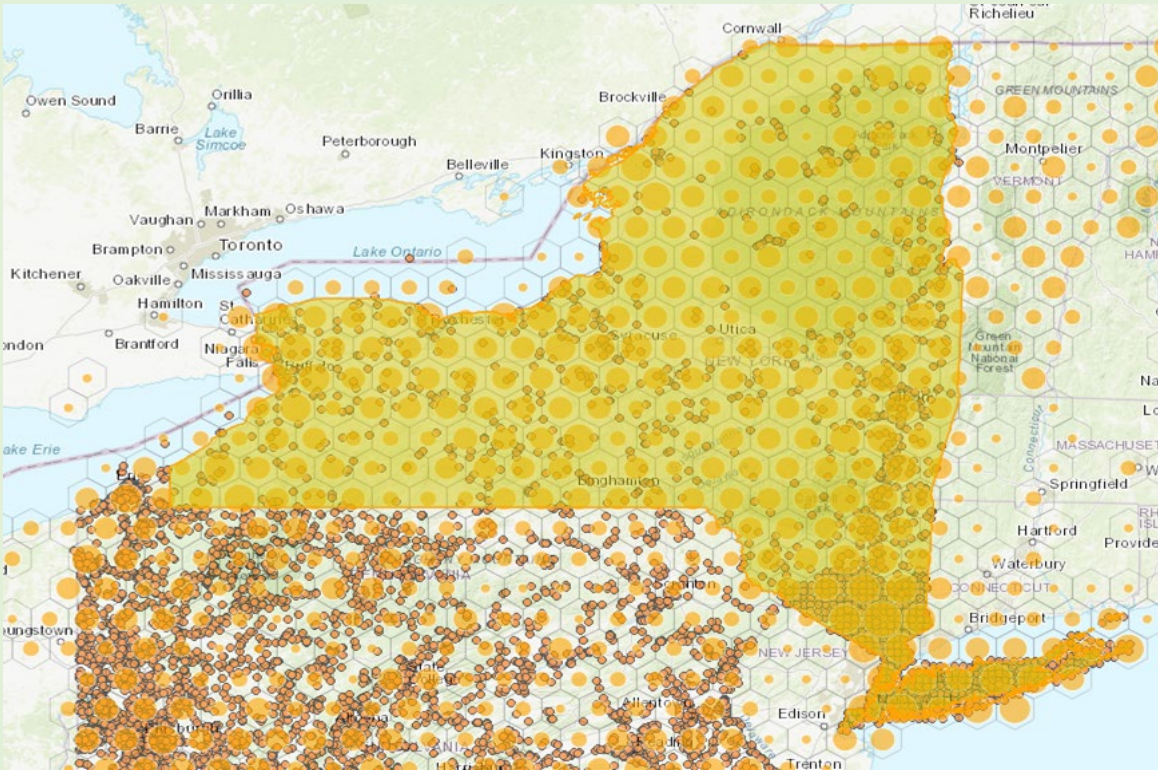
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- ❖ Report advanced data to iMap



Water chestnut treatment records in iMapInvasives

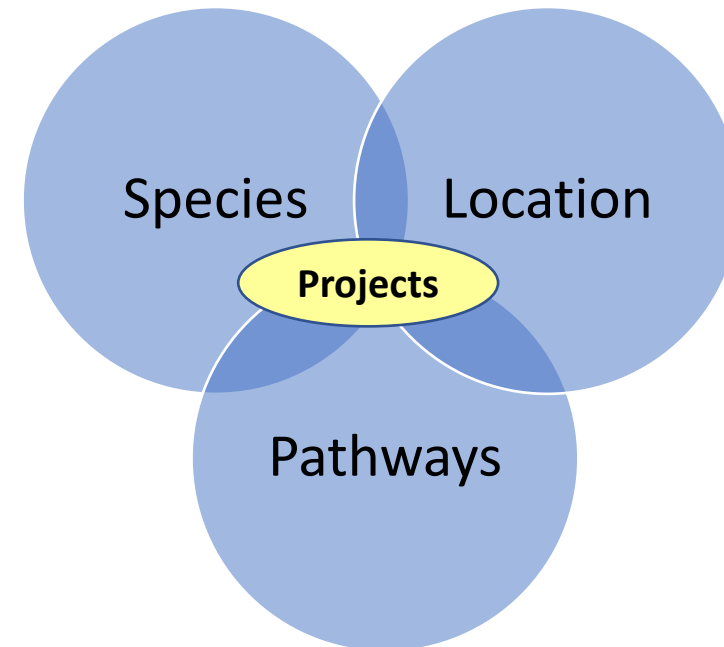
(Salmon River near Port Ontario)

Prioritization Analyses & Tools



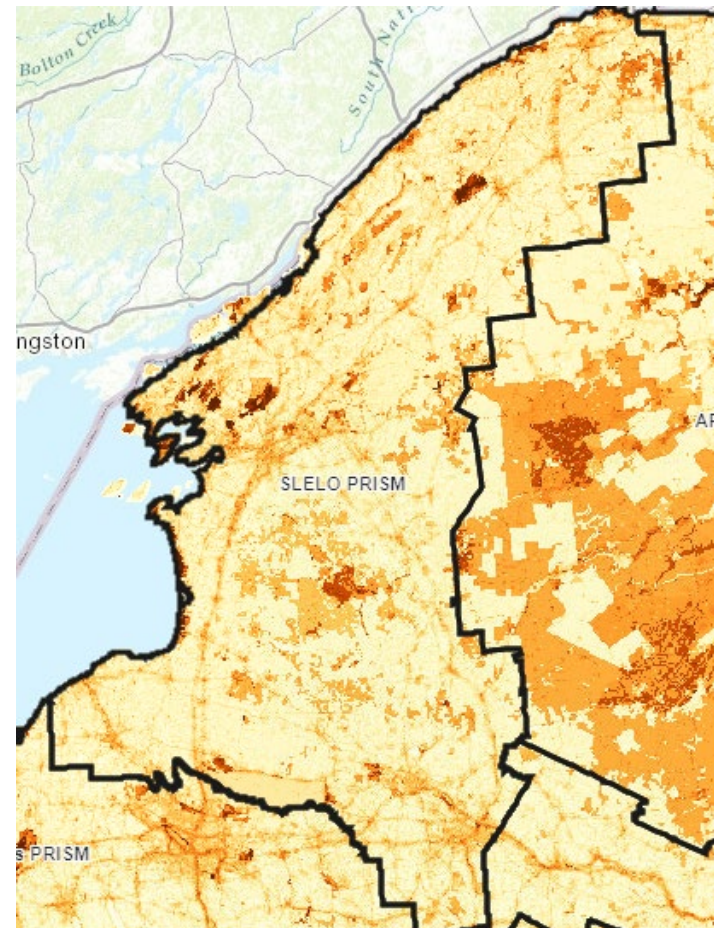
- Almost 500 unique species tracked in NY!
- >20,000 records in 2020

- Can we reduce pathways of invasion?
- Which species should we target first?
- Where will our control efforts have the biggest impact?
- Will our projects be effective?



Prioritization Analyses & Tools

Spatial Prioritization



Ecological Significance

+

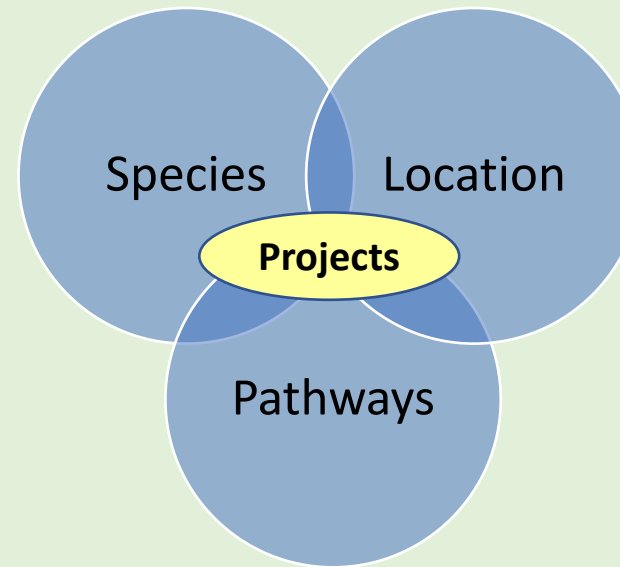
Protected/Natural

+

Risk of Spread

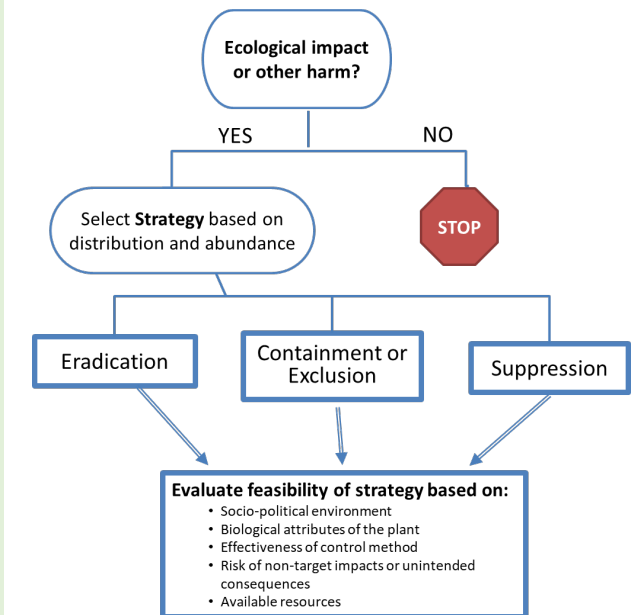


www.nyimainvasives.org/data-and-maps



INVASIVE PLANT MANAGEMENT
IPMDAT
DECISION ANALYSIS TOOL

ipmdat.org

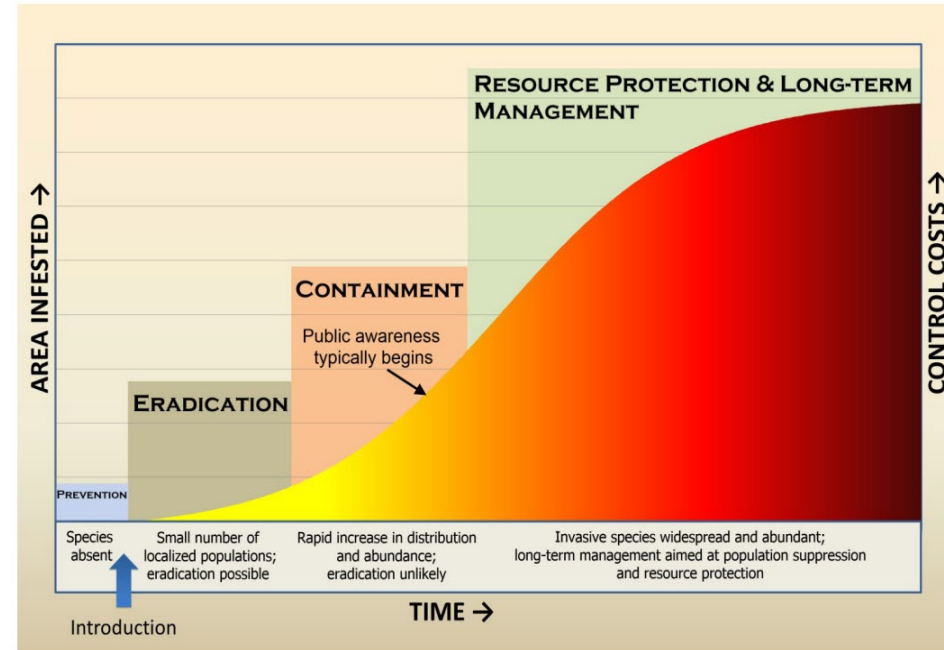


New York
Natural Heritage
Program

The Nature
Conservancy
Protecting nature. Preserving life.™

Prioritization Analyses & Tools

- **Species Tiers**
- Lakes and Ponds Vulnerability Assessment
- AIS “Hits” Analysis
- Hemlock Prioritization [NYSHI]



State of Victoria, Department of Primary Industries 2010)

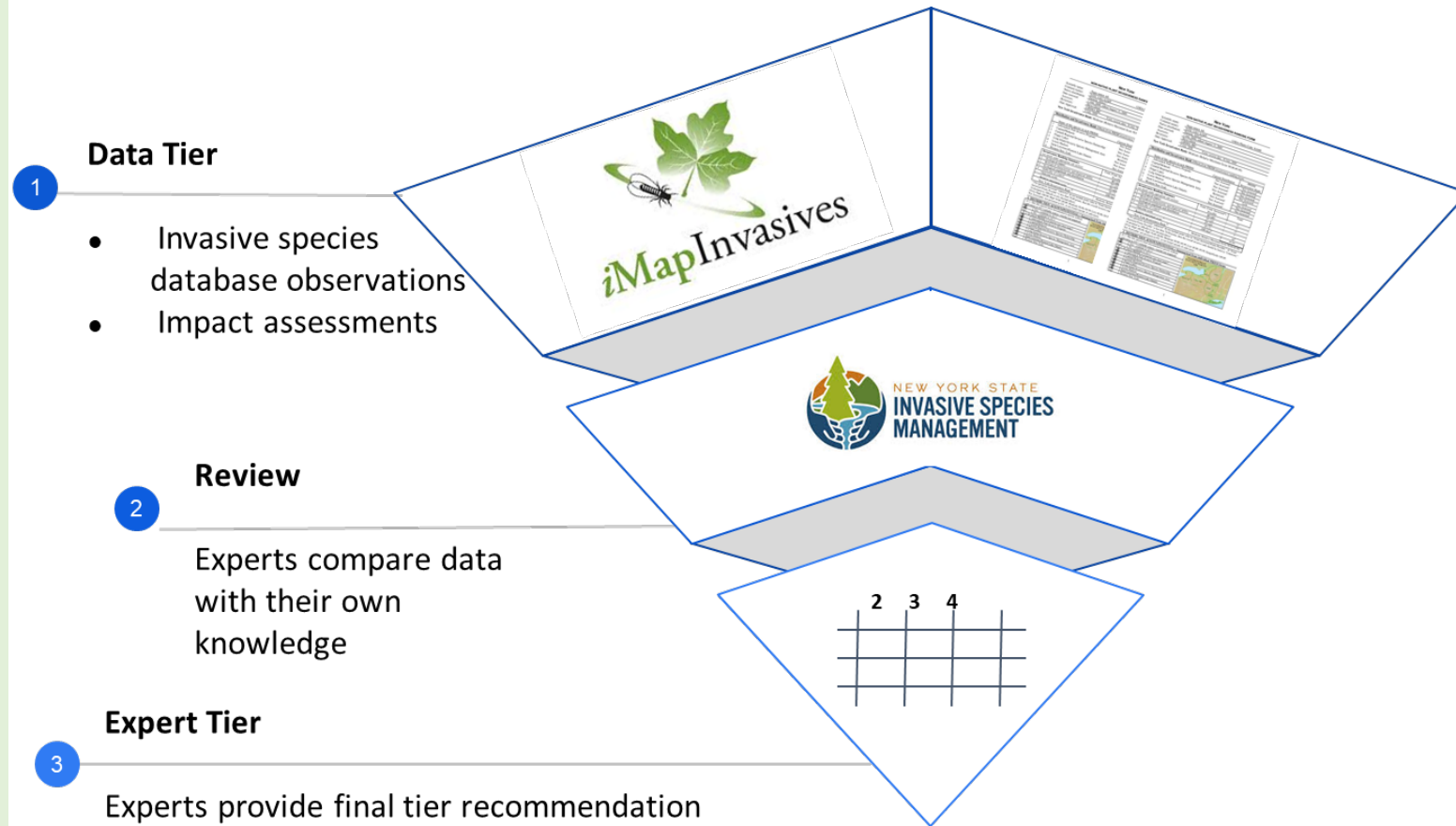


Tier 1: Early Detection/Prevention
Tier 2: Eradication
Tier 3: Containment
Tier 4: Local Control

Tier 5: Monitor

Prioritization Analyses & Tools

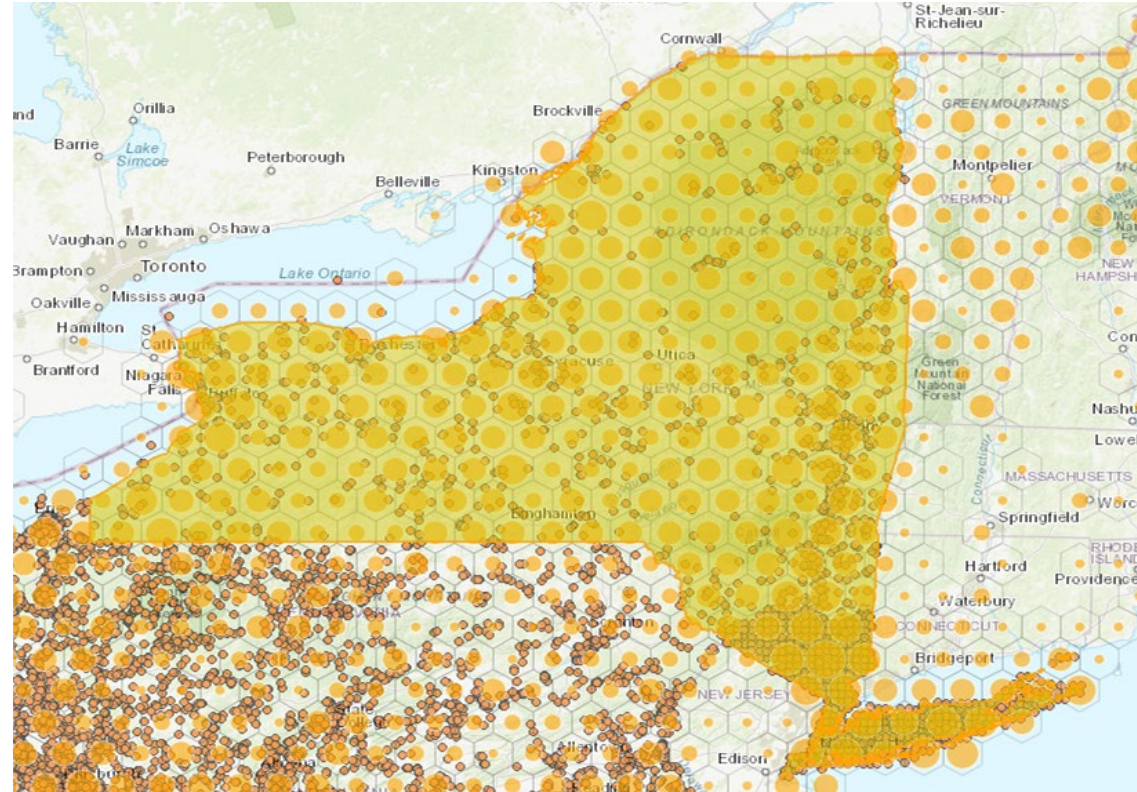
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From Dylan Finley, SUNY-ESF

Prioritization Analyses & Tools

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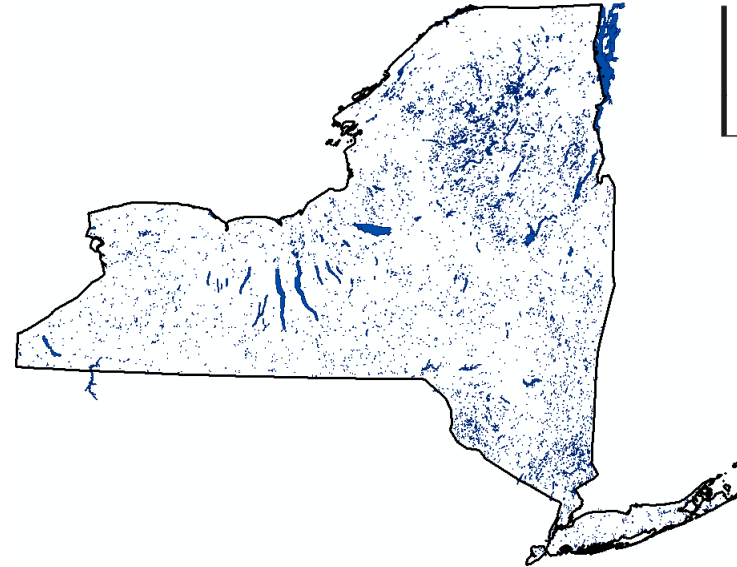


- Run statewide and for each PRISM
- iMap Presence data
 - Number of populations in the region
 - Species found outside of region but not yet within

Prioritization Analyses & Tools

- Species Tiers
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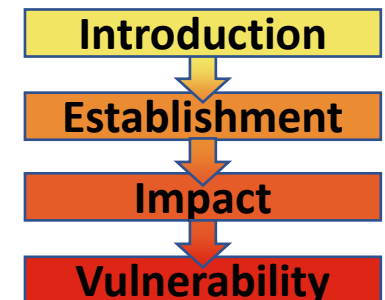
- Prioritize survey and management efforts to the most Vulnerable lakes.
- Which lakes are most vulnerable to invasion?



PERSPECTIVE / PERSPECTIVE

A management framework for preventing the secondary spread of aquatic invasive species

M. Jake Vander Zanden and Julian D. Olden



Prioritization Analyses & Tools

- Species Tiers
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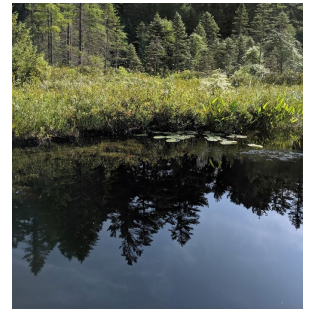
Which lakes are most vulnerable to invasion?



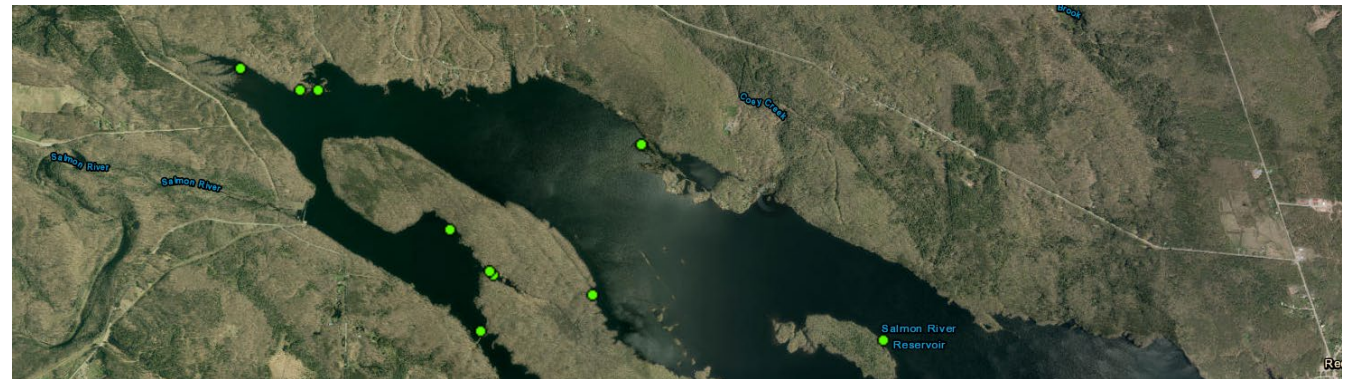
Risk of introduction



Risk of establishment



High risk of negative impacts if invaded



Proximity to nearby iMap records

Suitability models using iMap data

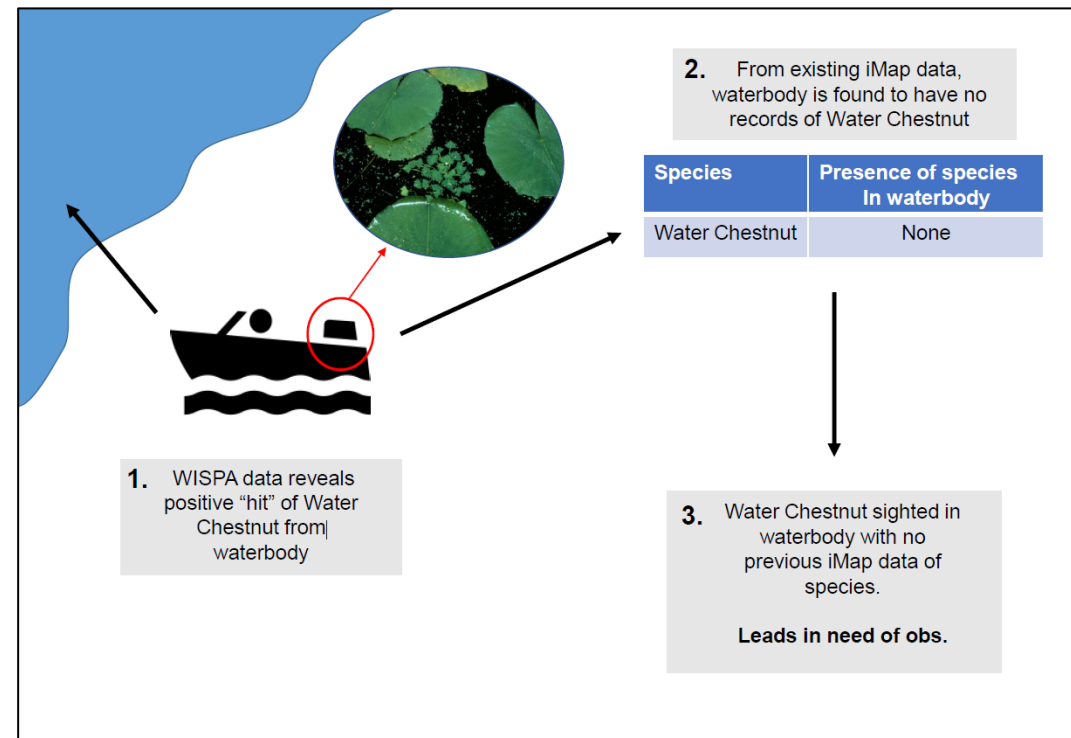
Uninvaded lakes are important to protect

Prioritization Analyses & Tools

- Species Tiers
- Lakes and Ponds Vulnerability Assessment
- **AIS “Hits” Analysis**
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Hits Analysis – “Leads in Need of Observations”

- When AIS detected on a boat exiting a lake, but we don’t have that species reported in iMap at that lake
- *Sent to PRISMs* - Prioritize Early Detection Survey

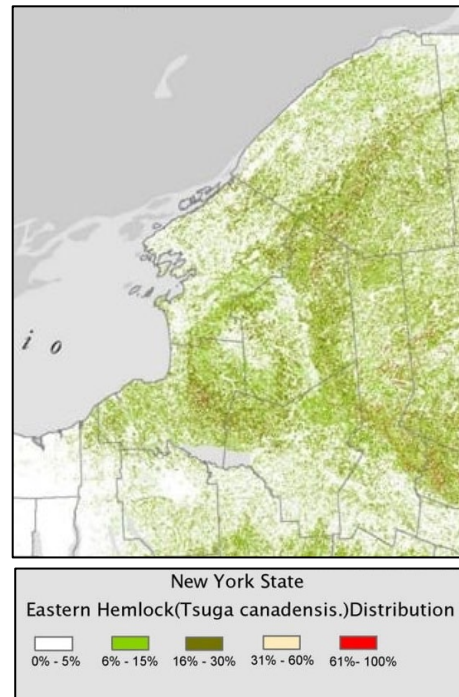


Prioritization Analyses & Tools

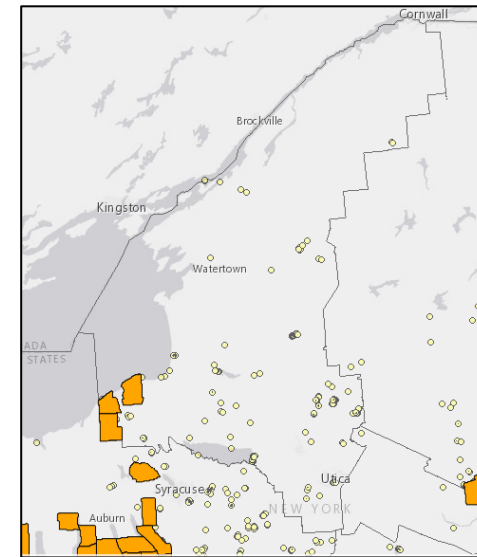
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- **Hemlock Prioritization [NYSHI]**

How to prioritize surveys and management?

Ecological factors - Stand traits, proximity to water, habitat quality, etc.



NYSDEC Hemlock map at
<https://blogs.cornell.edu/nyshemlockinitiative/>



PRIORITIZATION TOOL

*Stay on for
Dr. Marschner's
talk at 2:15!*

**How to collect the info
needed for the
Prioritization tool?**

Prioritization Analyses & Tools

- Species Tiers
- Lakes and Ponds Vulnerability Assessment
- AIS “Hits” Analysis
- **Hemlock Prioritization [NYSHI]**

How to collect the info needed for the Prioritization tool?

Forest Pest Data Collection Tool (NYNHP)

- Form within Esri's Survey123 Field App
- Data crosswalked into iMapInvasives
- If you select HWA in the form...

Stay tuned for training materials for the Fall HWA survey season!

The image displays three overlapping screenshots of the iMap3 - Forest Pest Data Collection app interface. The leftmost screen shows the 'Hemlock Prioritization Module' with sections for 'Hemlock Stand Traits and Conditions', 'Forest Type' (Old Growth, Primary, Secondary), 'Natural Community Type', and 'Habitat Quality'. The middle screen shows 'Site Terrain Features' (Near a stream, river or shore; Near drinking water; Rare species present; Other) and 'Additional Stand Trait Comments'. The rightmost screen shows 'Hemlock Stand Characteristics', 'Hemlock Site Evaluation' (Hemlock Woolly Adelgid, Average HWA Density), 'Stand Composition' (All or mainly hemlock, Mixed stand, Mainly other species), 'Tree Sizes' (Mostly large trees, Mostly medium-sized trees, Mostly small trees, Mixed tree sizes), 'Live Crown Ratio (Compacted)' (1% to 100%), and 'Crown Density'.

Stay on for Dr. Marschner's talk at 2:15!



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- ❖ **Tracking Management efforts**
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Water chestnut treatment records in iMapInvasives

(Salmon River near Port Ontario)

Tracking Management

iMap3 launched in 2019

- ❖ Included *Treatment data*
- ❖ Treatment data recorded by PRISMs, OPRHP, and other Agencies & non-profits

Analyzing & visualizing treatment effectiveness over time

- ❖ Water Chestnut Pulls

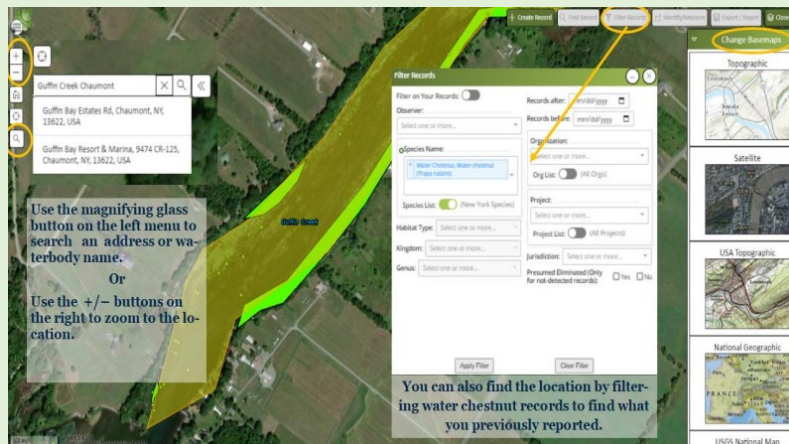


Water chestnut treatment records in iMapInvasives

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Tracking Water Chestnut Pulls

- Tons of effort going on across the state
 - How do we track it?
 - Can we assess effectiveness?
 - How do our management efforts effect populations over time?
- PRISM network and DEC have been interested in tracking and summarizing pull efforts statewide
 - SLELO was one of the first organizations to start working on this – Google forms




Can we leverage iMapInvasives?

Make your Efforts Count!



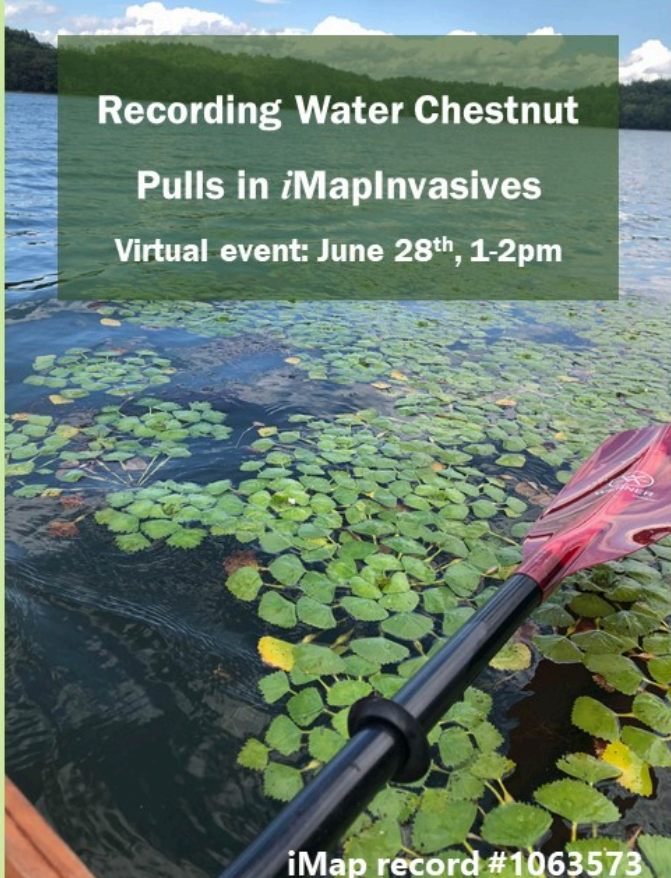
iMap Record #1061150



iMap record #1062458

Recording Water Chestnut Pulls in iMapInvasives

Virtual event: June 28th, 1-2pm



iMap record #1063573

www.nyimapinvasives.org/training

Tracking Water Chestnut Pulls

Make your Efforts Count: Leveraging iMapInvasives to Track Water Chestnut! June 28, 1pm

www.nyimainvasives.org/training

1. Pre-treatment survey

- Record **Presence Polygon**
- *Density – Trace, Sparse, Dense, Monoculture*

2. Treatment Survey (WC Pull)

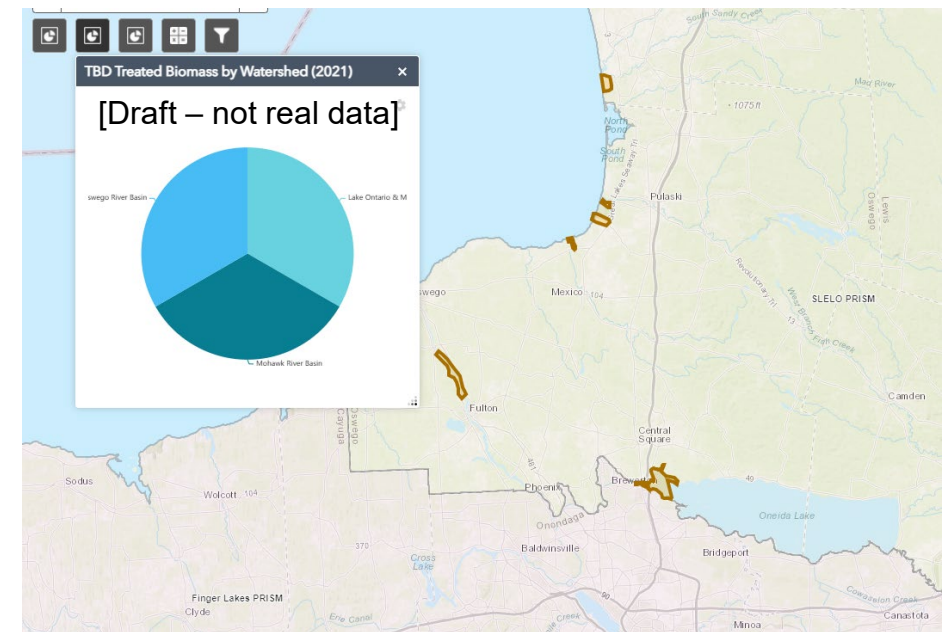
- Record **Treatment Polygon**
- Method = Pull, Biomass estimate, volunteer effort estimate (hours, number of people)

3. Post-treatment survey

- Record **Presence Polygon**
- *Density*

WC Action Sites Dashboard – PRISM AIS Staff

- Track biomass pulled and volunteer efforts statewide:
Area of Polygon * Density * Biomass Estimation Factor
- Change over time – is management reducing abundance?



Fall 2021: Incoming Masters Student at SUNY-EF

- Post-treatment effectiveness
- Dylan Perry - ESF; Jennifer Dean - NYNHP

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Water chestnut treatment records in iMapInvasives

(Salmon River near Port Ontario)

Applied Research

Tools for monitoring and study of peregrine pheretimoid earthworms (Megascolecidae)

Timothy S. McCay ^a ✉, George Brown ^b, Mac A. Callahan Jr. ^c, Chih-Han Chang ^d, Andrea Dávalos ^q, Annise Dobson ^e, Josef H. Görres ^f, Bradley M. Herrick ^g, Samuel W. James ^h, Marie R. Johnston ⁱ, Damhnait McHugh ^a, Tanya Minter ^a, Jean-David Moore ^j, Maryam Nouri-Aiin ^f, Marta Novo ^k, Jaime Ortiz-Pachar ^l, Rebecca A. Pinder ^m, Justin B. Richardson ⁿ ... Katalin Szlavetz ^p

Show more ▾

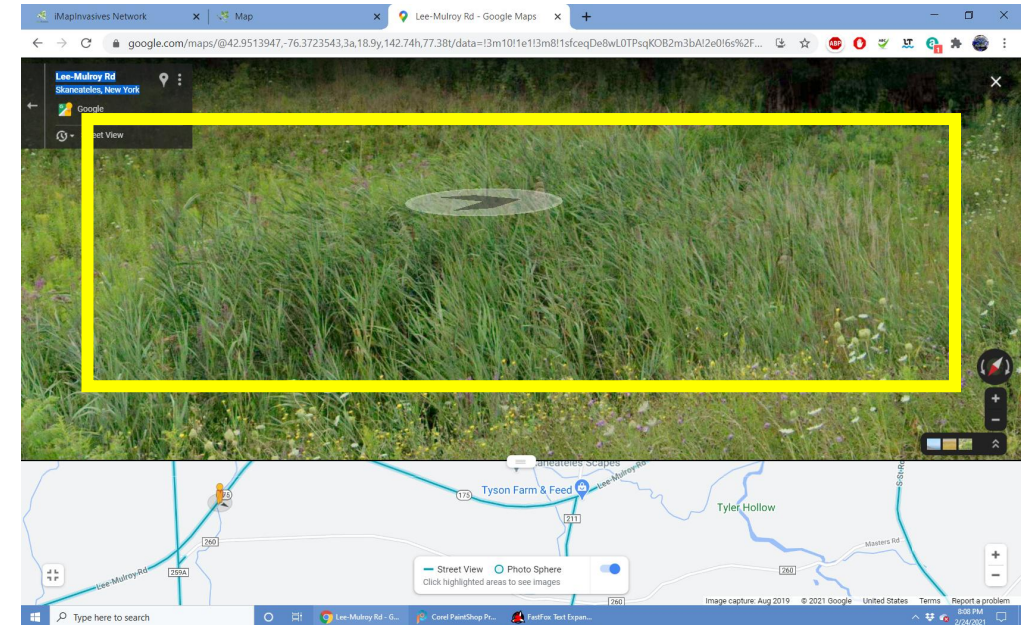
+ Add to Mendeley Share Cite

<https://doi.org/10.1016/j.pedobi.2020.150669>

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Detecting invasive species in street-view imagery using machine learning (in progress)



Liam Megraw
Dr. Christy Tyler

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How Can You Take Part?

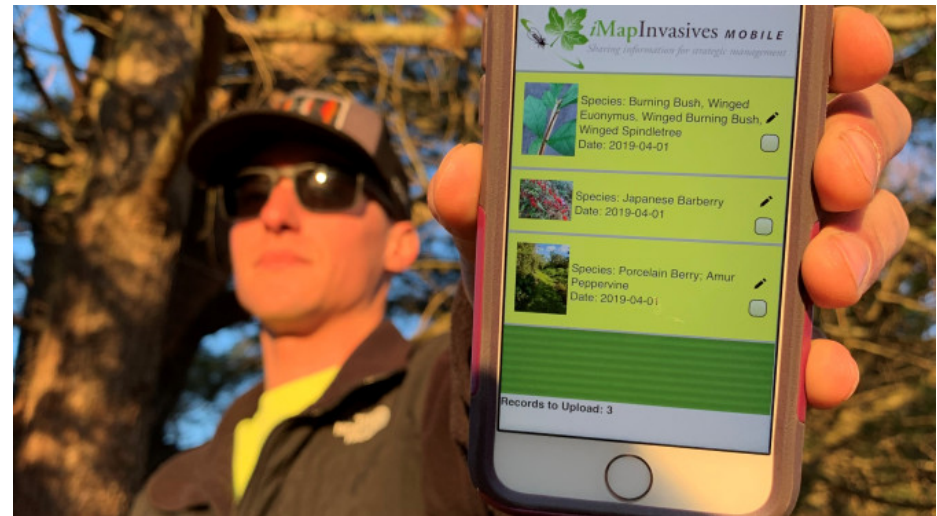
❖ Report presences to iMap

❖ Utilize the tools and analytical products

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Support early detection efforts, improve our knowledge of distributions

→ SLF Grid Square Project: nyimapinvasives.org/slf



Feed into many analyses which produce tools for natural resource Managers

- Species Tier Analysis
- Spatial Prioritization Analyses

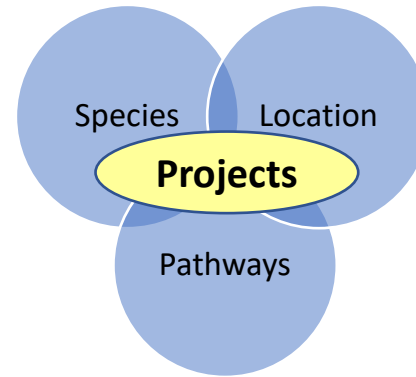
Get started today: www.nyimapinvasives.org/training

How Can You Take Part?

❖ Report presences to iMap

❖ Utilize the tools and analytical products

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[Nyimainvasives.org/data-and-maps](https://nyimainvasives.org/data-and-maps)

- ❖ Species Tier Lists
- ❖ Spatial Prioritization (terrestrial)
- ❖ IPMDAT (project-specific)
- ❖ Lakes and Ponds Vulnerability Assessment (*next field season*)



Hemlock
Prioritization
Tool

How Can You Take Part?

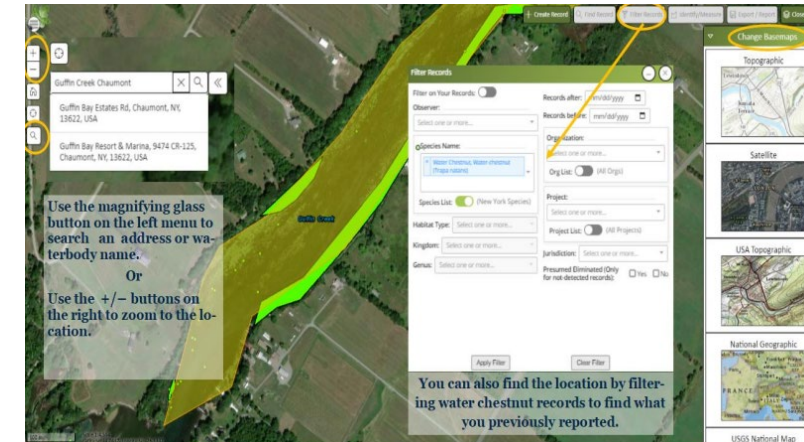
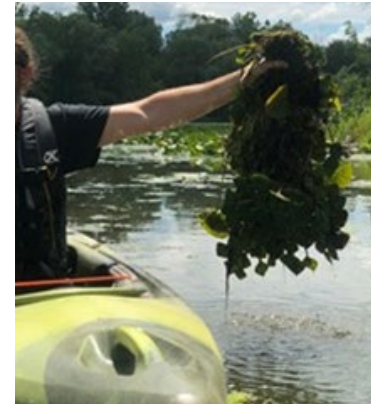
❖ Report presences to iMap

❖ Utilize the tools and analytical products

❖ Report advanced data to iMap

TREATMENTS!

- Record **Density** in Pre- and Post- treatment surveys
- Record Treatments!
- **Water Chestnut Pulls**



Record advanced data for Hemlock Prioritization

- *Forest Pest Data Collection Tool*
- Stay tuned – training materials before Fall

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Call for Collaboration

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June 30th, 1pm

Mitch O'Neill

End User Support Specialist,
New York Natural Heritage Program -
Invasive Species Database



@nyimapinvasives

Email us: imapinvasives@dec.ny.gov
website: nyimapinvasives.org

Upcoming iMap webinars

Make your Efforts Count – WC Pulls in iMap
June 28, 1pm

6th Annual Invasive Species Mapping Challenge!
June 30, 1pm

www.nyimapinvasives.org/training

