Invasive Species and iMapInvasives

John Thompson
CRISP Director

Kate Cooper
Volunteer & Outreach Coordinator

INVASIVE SPECIES MANAGEMENT
CATSKILLS

CATSKILLCENTER

Meeting Agenda

- 9:00 - 10:00 Intro to Invasive Species & CRISP
- 10:00 – 10:10 Break
- 10:10 – 11:00 iMapInvasives
- 11:00 – 11:10 Breakout Groups (5 Groups of 8 w/ designated recorder for each group)
- 11:10 – 11:25 Groups report back w/ highlights of discussion)
- 11:25 – 11:30 Wrap Up

What Is an Invasive Species?

- Not native to the ecosystem
- Causes harm to the economy, human health, or the environment
- Defined by New York State Environmental Conservation Law Title 17, Article 9, 2008

Asian Longhorned Beetle

Northern Snakehead

Invasive Species Are a Threat

Invasive species are one of the greatest threats to New York's biodiversity and threaten many aspects of our human well-being

Because invasive species contribute to:

- Habitat degradation and loss
- Decreased water quality
- The loss of native fish, wildlife and plants
- The loss of recreational opportunities and tourism income
- Crop and forest damage

Biological Characteristics of Invasive Species

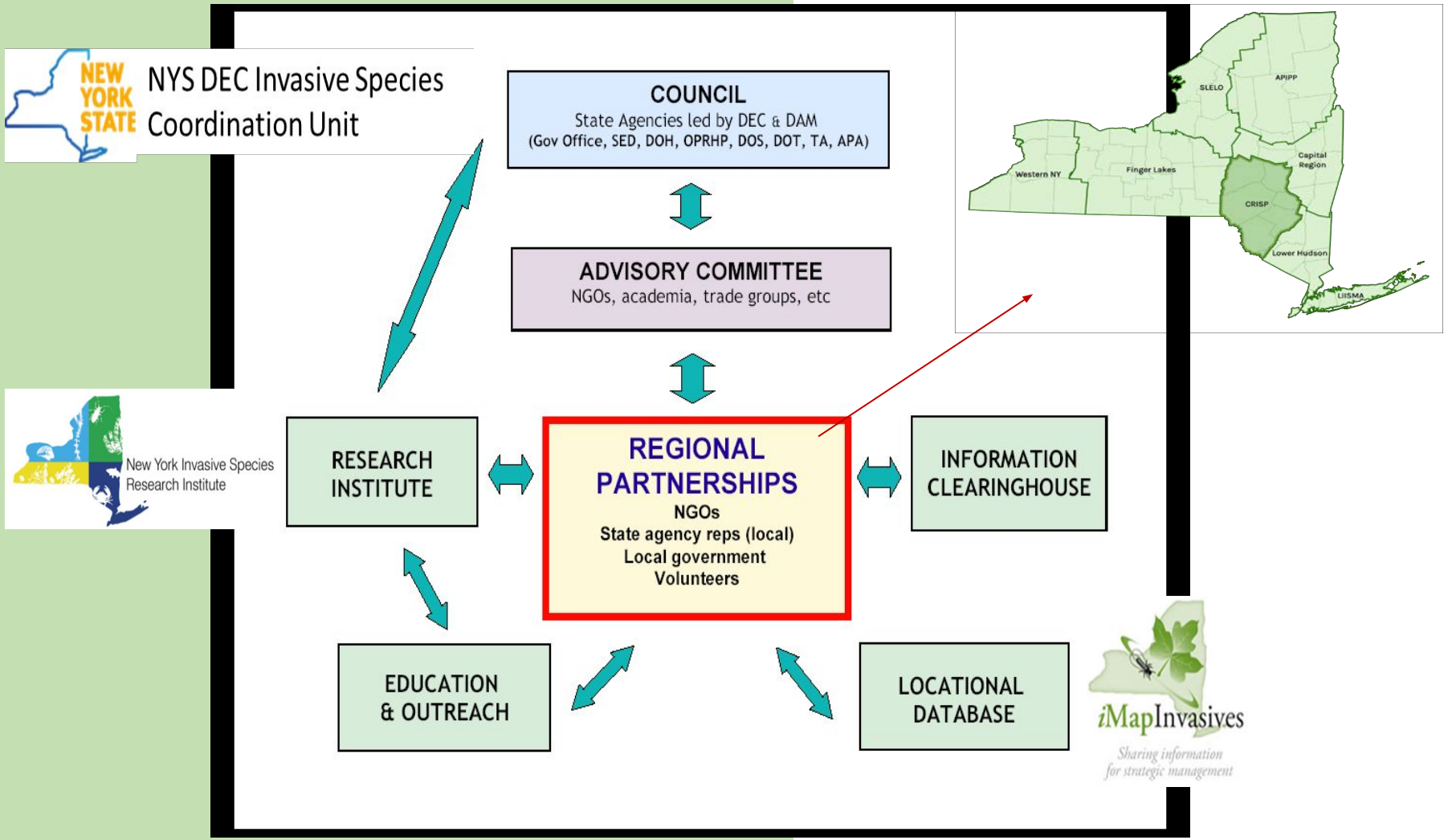
- Fast growth
- Rapid reproduction
- High germination rate
- Phenotypic plasticity
- Environmental generalists

Water Chestnut

Trapa natans

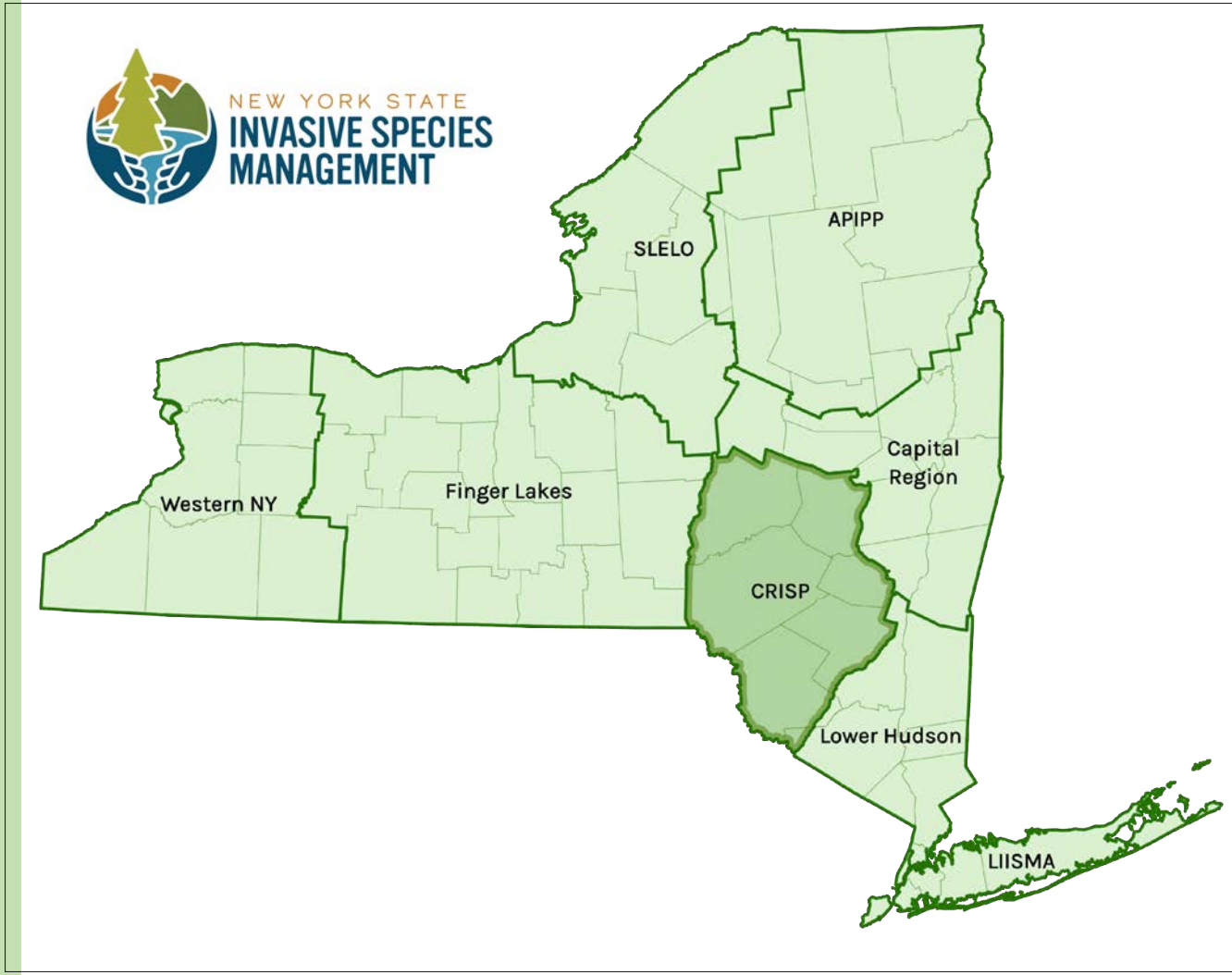
- Forms dense mats
- Dense mats shade out aquatic plants
- Decomposition of mats reduces dissolved oxygen levels and may kill fish
- Fruits have sharp spines with barbs

NYS Strategic Invasive Species Network



INVASIVE SPECIES MANAGEMENT
CATSKILLS

Promote education, prevention, early detection and control of invasive species to limit their impact on the ecosystems and economies of the Catskills

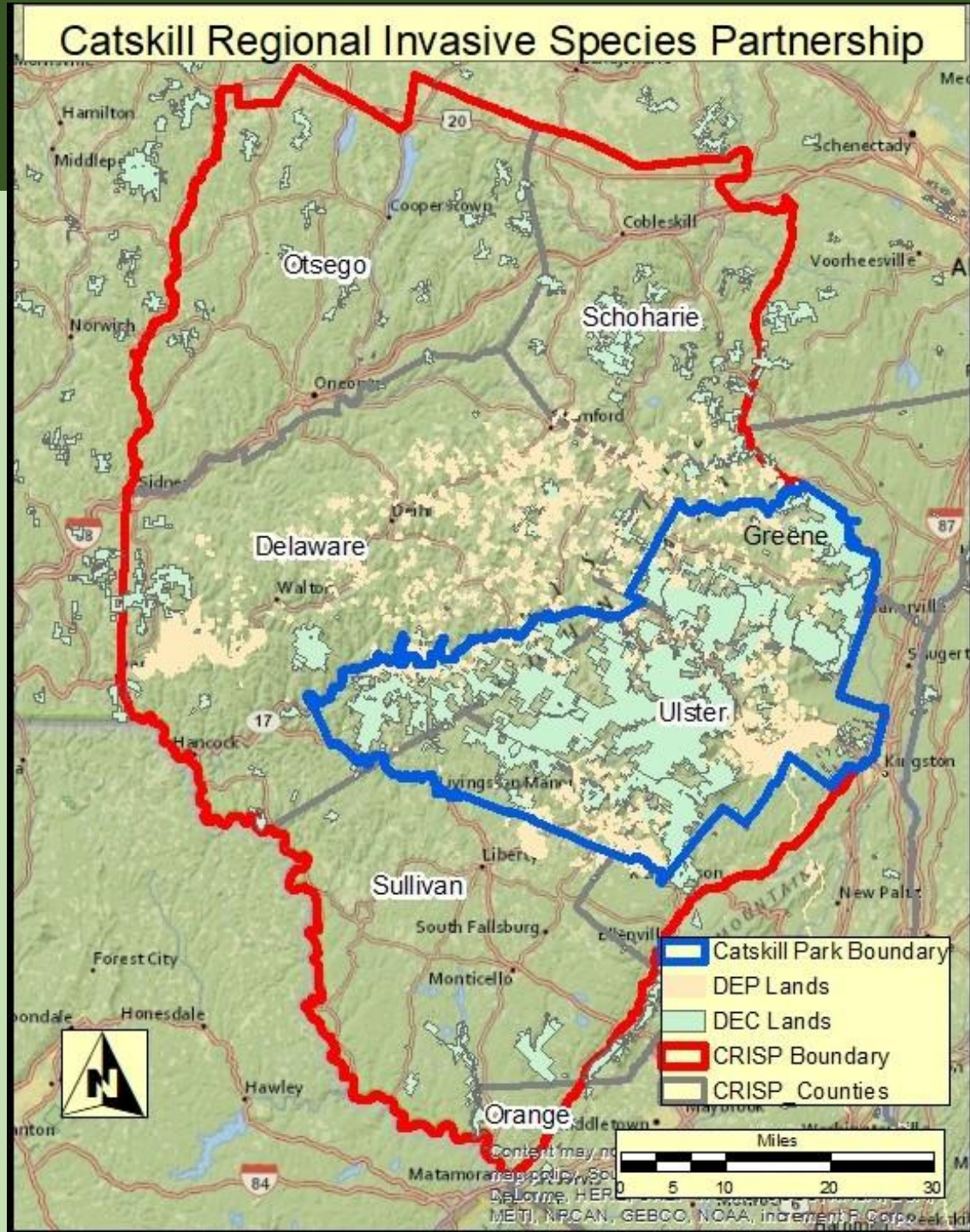


CRISP Region

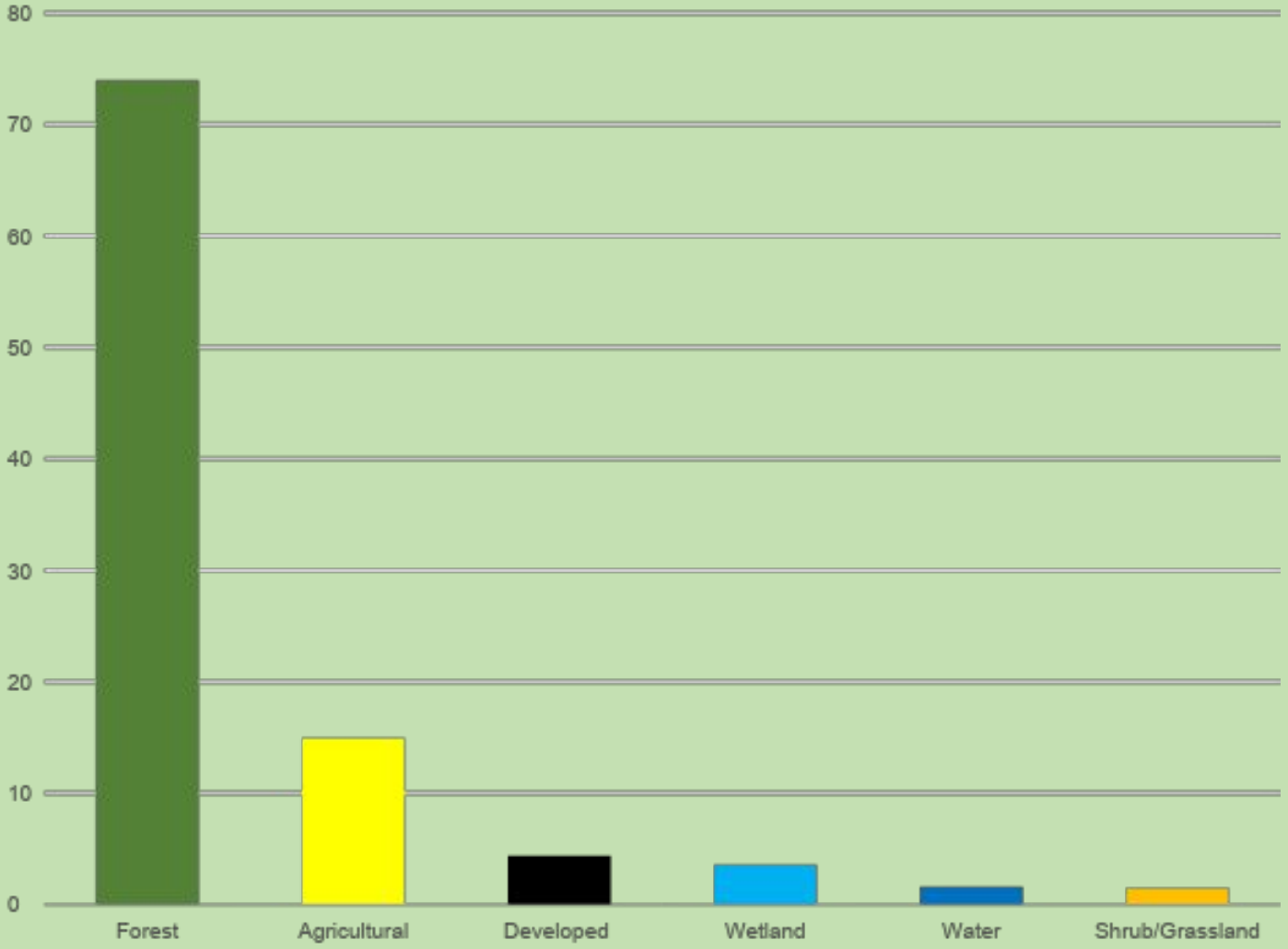
- Otsego
- Schoharie
- Delaware
- Greene
- Ulster
- Sullivan &
- Orange

Major Landowners

- NYS DEC 406,874 ac.
- NYC DEP 154,720 ac.

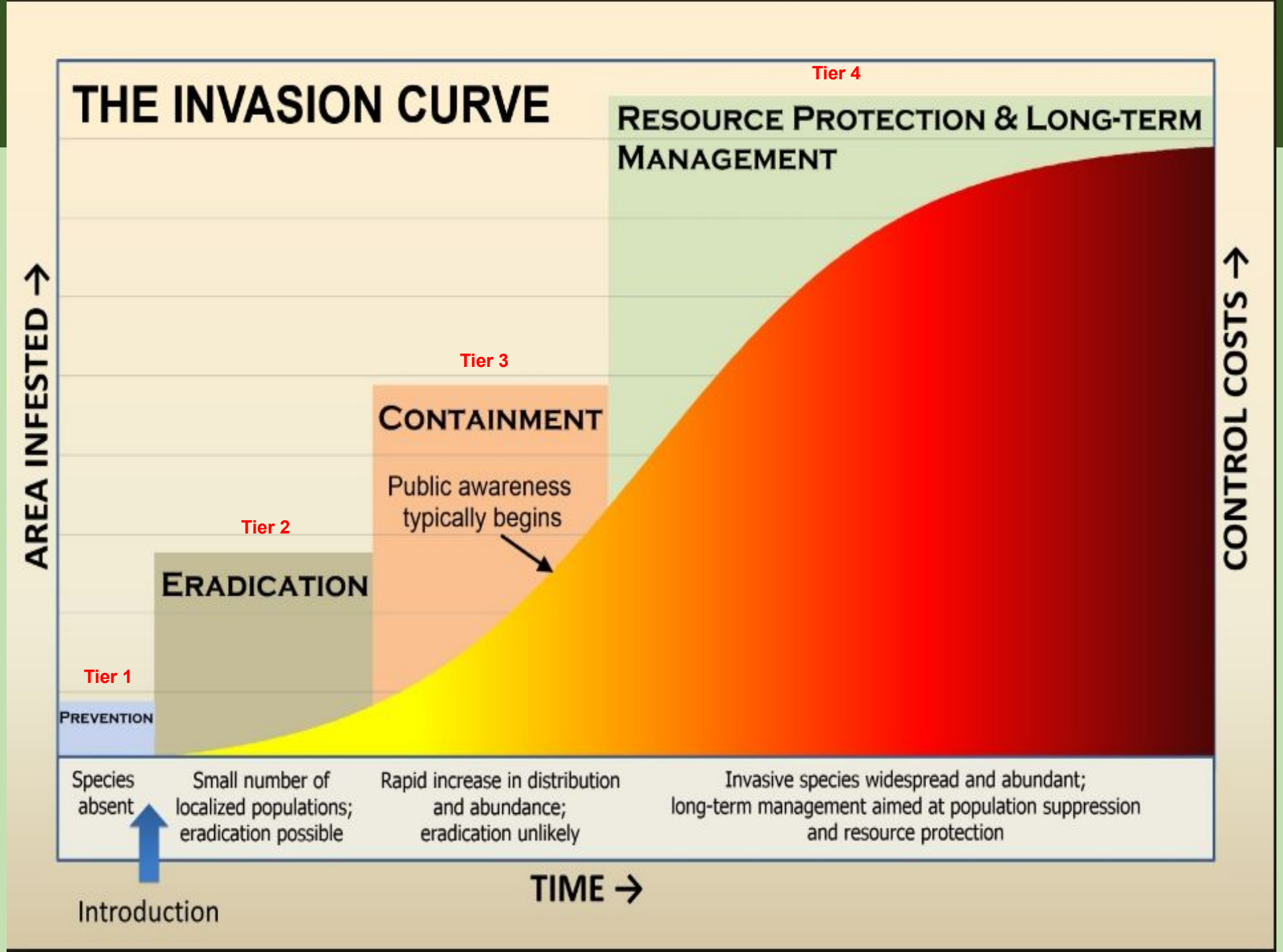


Landcover of CRISP Region



CRISP Supports 78 NYS Rare Species

Species Group	# Species
Non-vascular Plants	5
Vascular Plants	27
Insects	18
Freshwater Mussels	6
Fish	6
Amphibians	2
Reptiles	1
Birds	10
Bats	3
Total	**78**


THE INVASION CURVE
Tier 4
RESOURCE PROTECTION & LONG-TERM MANAGEMENT
Tier 3
CONTAINMENT
Public awareness typically begins
Tier 2
ERADICATION
Tier 1
PREVENTION
AREA INFESTED →
CONTROL COSTS →
Species absent
Small number of localized populations; eradication possible
Rapid increase in distribution and abundance; eradication unlikely
Invasive species widespread and abundant; long-term management aimed at population suppression and resource protection
Introduction
TIME →

2022 Results (so far)

Surveys and Treatments

- Nearly 4,000 ac. of waterbodies and uplands
- 400 ac. treated

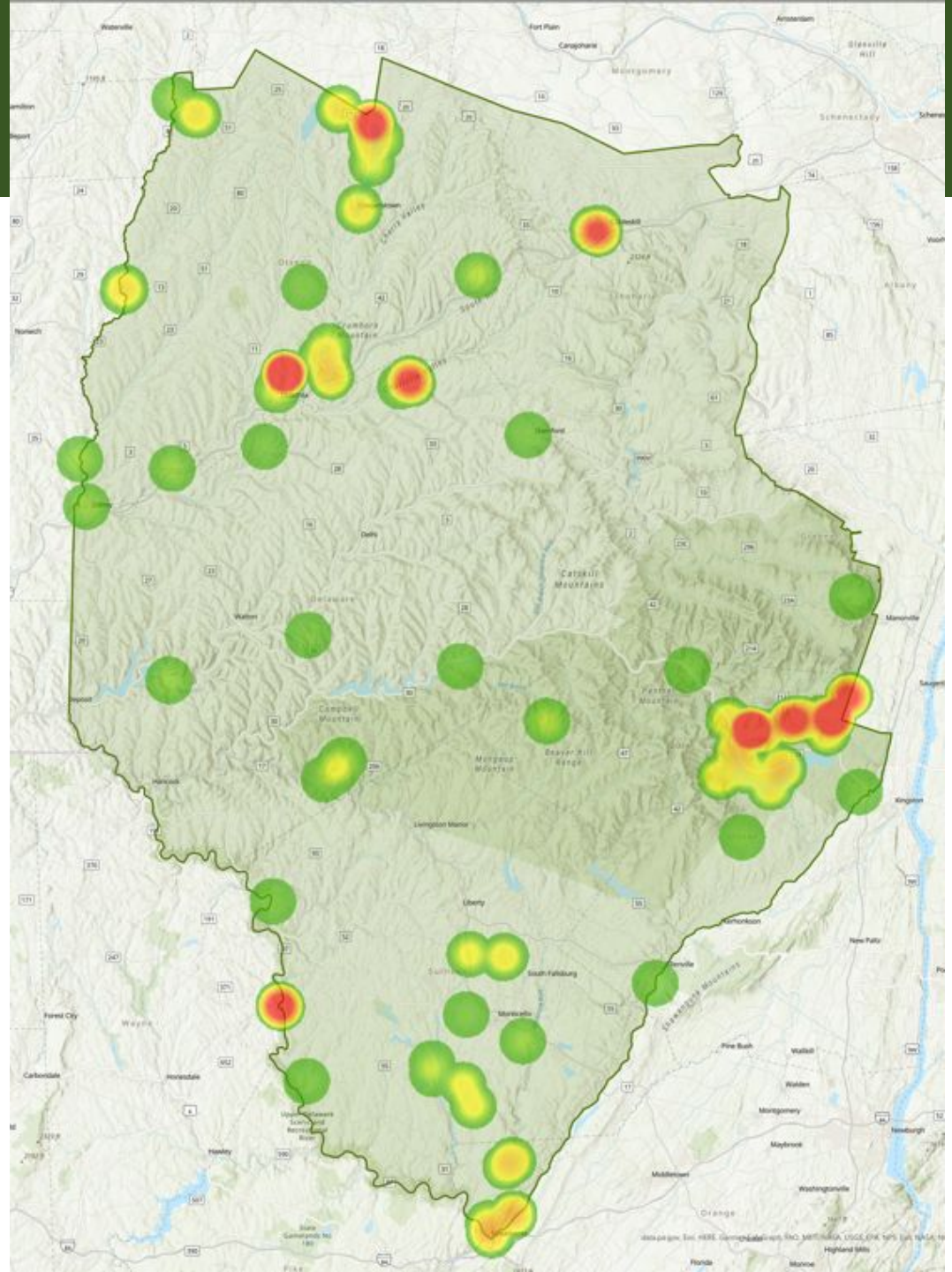
Education & Outreach

- 43 programs for 1018 people

CRISP Tier 2 Aquatic Species

Aquatic Species

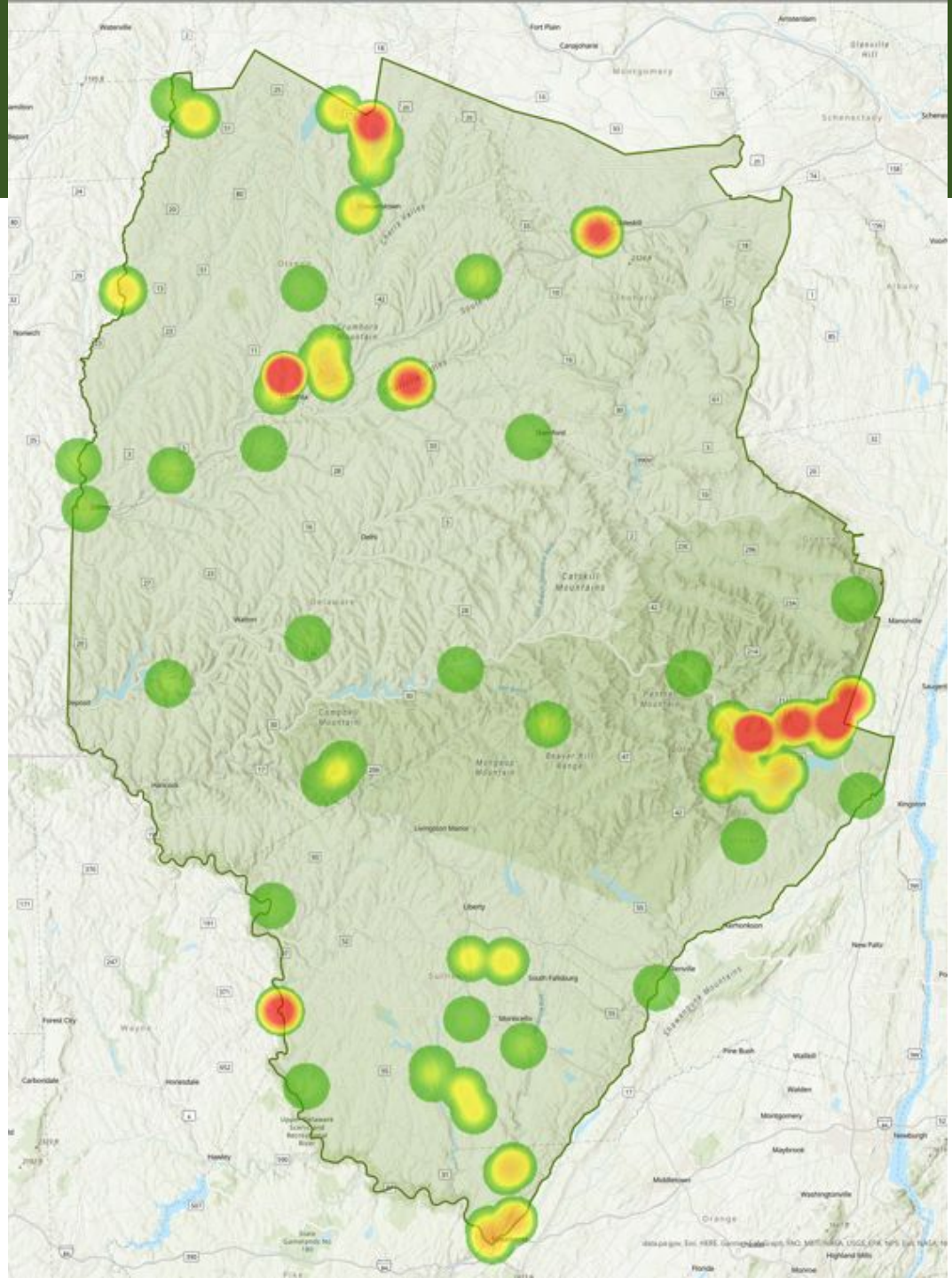
- European Frogbit (*Hydrocharis morsus-ranae*)
- Yellow Floatingheart (*Nymphoides peltate*)
- Fanwort (*Cabomba caroliana*)
- Quagga Mussel (*Dreissena bugensis*)
- Banded Mystery Snail (*Viviparus georgianus*)



CRISP Tier 2 Terrestrial Species

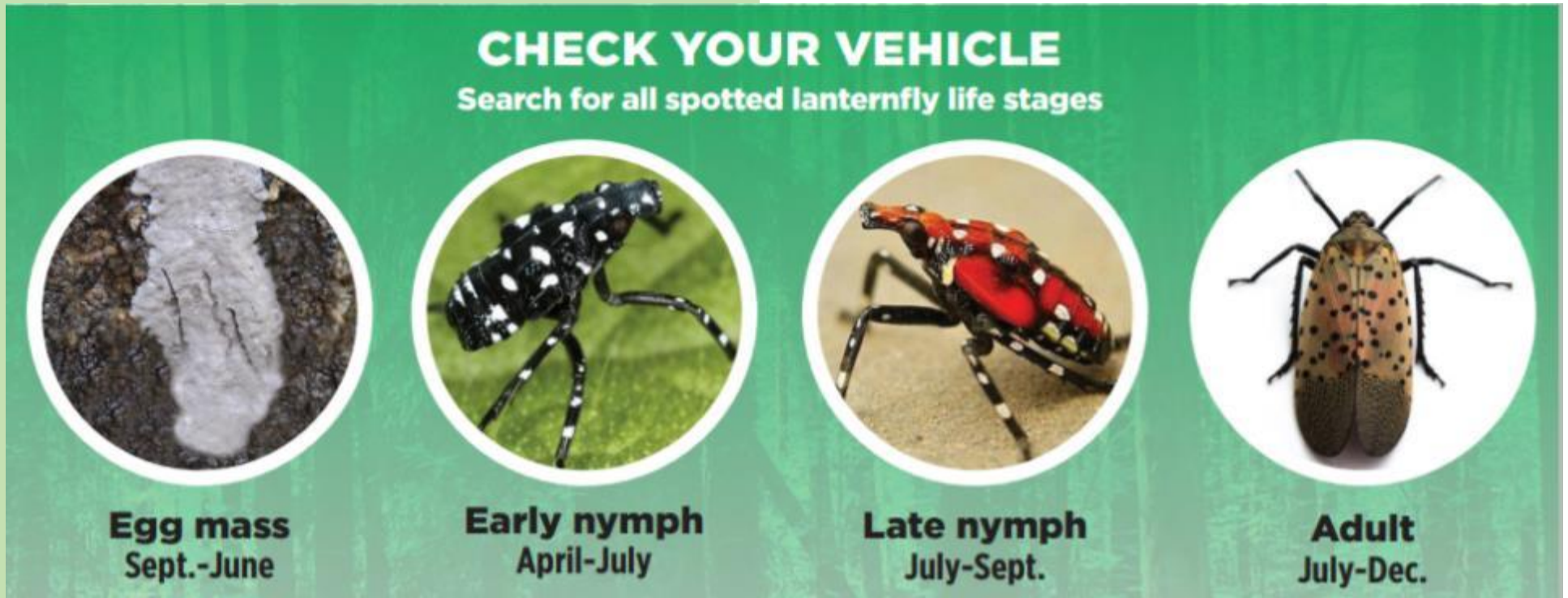
Terrestrial Species

- Giant Hogweed (*Heracleum mantegazzianum*)
- Mile-a-Minute (*Persicaria perfoliata*)
- Japanese Angelica Tree (*Aralia elata*)
- Japanese Tree Lilac (*Syringa reticulata*)
- Japanese Hops (*Humulus japonicus*)
- Black Jetbead (*Rhodotypos scandens*)
- Beautybush (*Viviparus georgianus*)
- Hardy Kiwi (*Actinia arguta*)



https://survey123.arcgis.com/share/a08d60f6522043f5bd04229e00acdd63

REPORT SPOTTED LANTERNFLY
send a photo to spottedlanternfly@agriculture.ny.gov



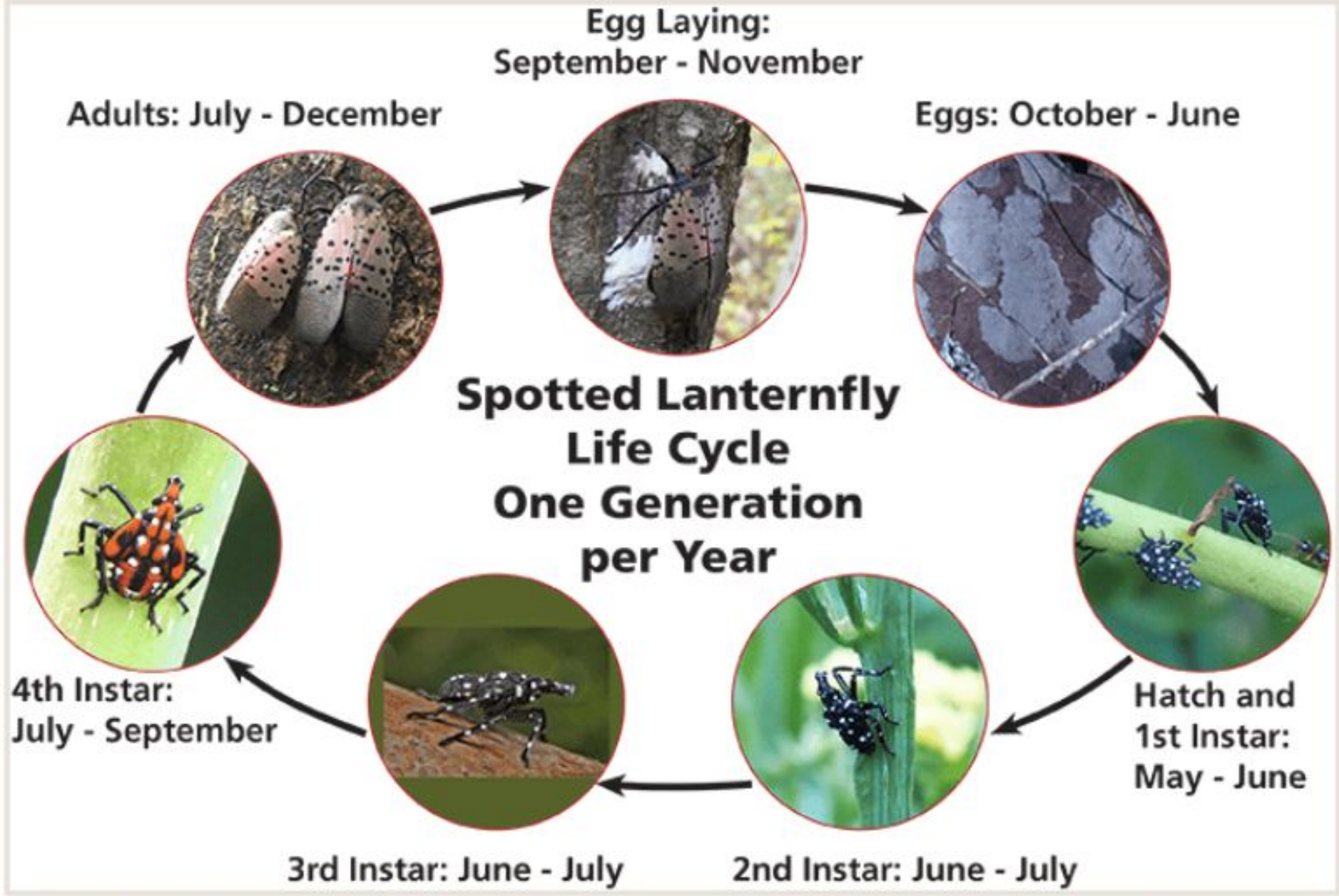
Spotted Lanternfly *Lycorma delicatula*

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Eggs												
Nymphs												
Adults												

Emilie Swackhammer, PSU

Dorgan

REPORT SPOTTED LANTERNFLY
send a photo to ReportSLF.com



Photos: Egg Laying, Hatch and 1st Instar, 2nd Instar, Adults: Emelie Swackhamer, Penn State University, Bugwood.org; Eggs: Lawrence Barringer, PA Dept. of Agriculture, Bugwood.org; 3rd Instar: Dalton Ludwick, USDA-ARS/Virginia Tech; 4th Instar: Richard Gardner, Bugwood.org.

Spotted Lanternfly Impacts

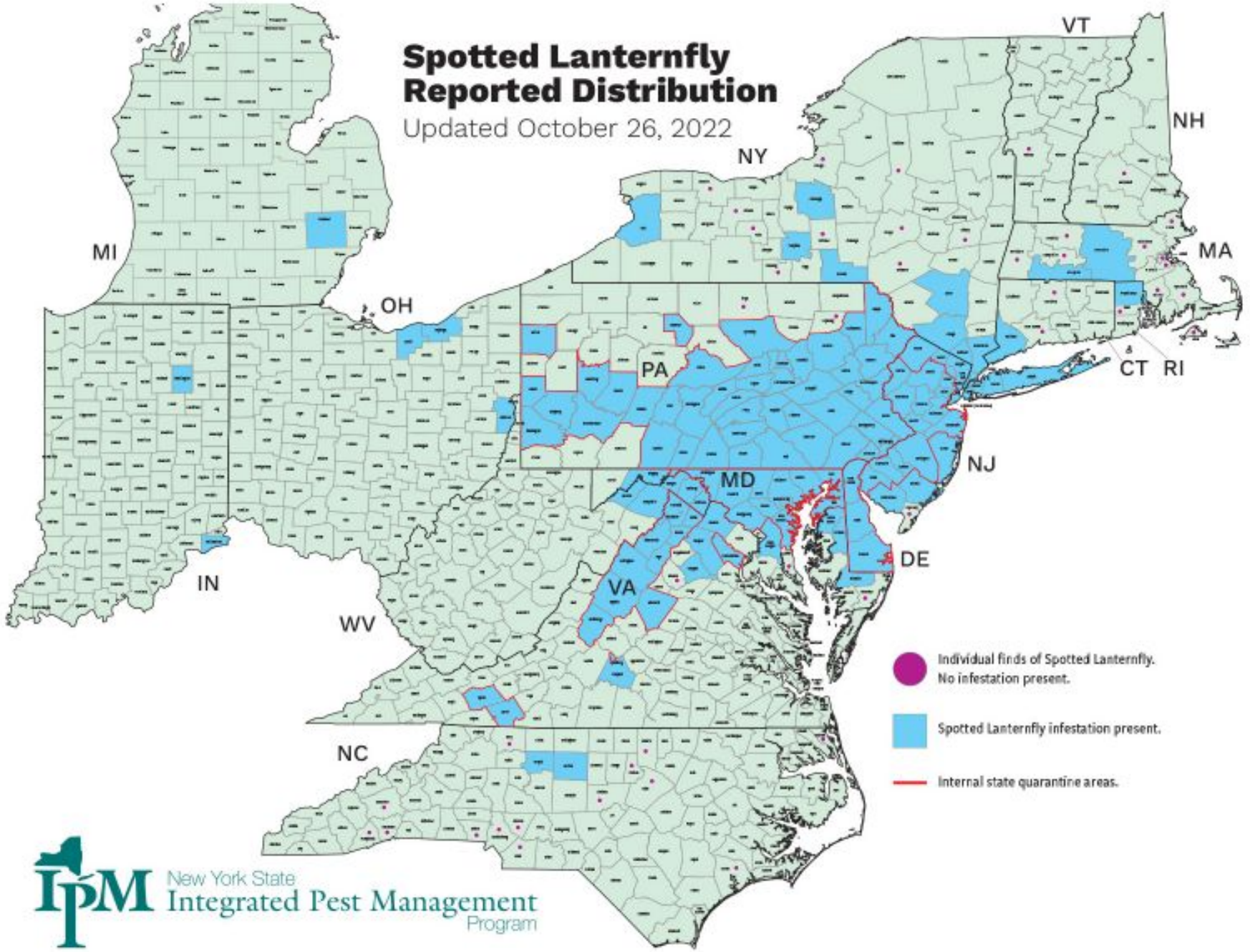
- Adult clustering, swarming and Honeydew accumulation can impact quality of life
- Honeydew promotes sooty-mold growth
- Adults in high populations can impact our quality of life

PA Dept. of Agriculture

Spotted Lanternfly Are Hitchhikers

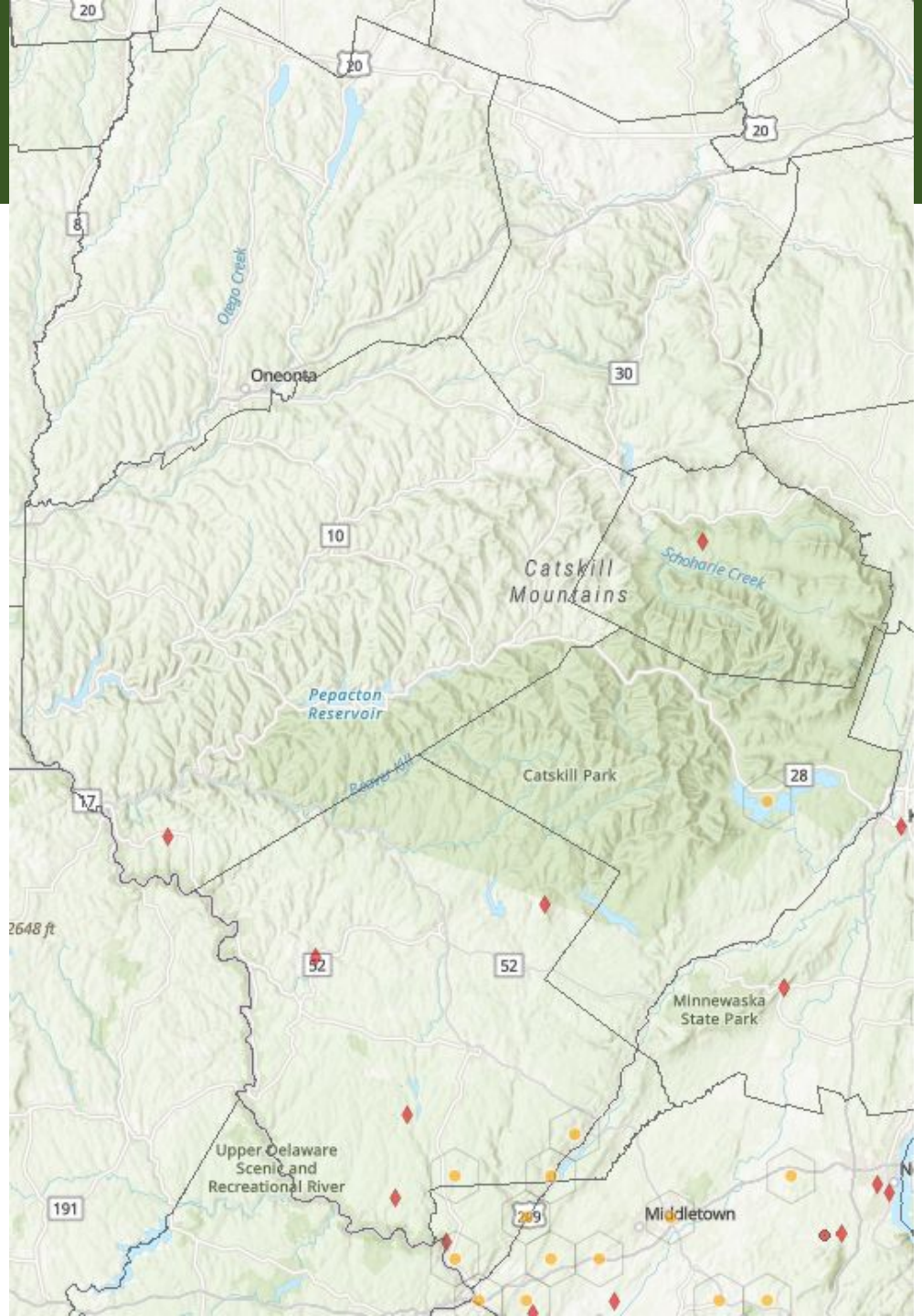
- All life stages can hitchhike to new areas
- Eggs and Adults pose the greatest risk for movement

Confirmed Spotted Lanternfly Locations



Spotted Lanternfly in CRISP

- Established populations in Port Jervis area



https://www.nyimapinvasives.org/slf

Spotted Lanternfly & Tree-of-heaven: *NY needs your help!*

Spotted lanternfly (SLF) is an invasive pest from Asia that feeds on a variety of plants including grapes, hops, and maple trees, posing a severe threat to NYS forests and agriculture (more info). SLF's preferred host plant, Tree-of-heaven (TOH), is already found in much of the state. SLF was first found in PA in 2014, and several populations have since been found in NY. Agencies and conservation partners across the state are working to protect our state resources from these invasives, and we are requesting help from volunteers to complement these efforts.

Photo collage of Spotted Lanternfly (*Lycorma delicatula*) and Tree-of-heaven (*Ailanthus altissima*)

Volunteers needed:

New York State is seeking volunteers like **you** to look for SLF and TOH in your area. You can supplement NYS efforts to prevent negative impacts from invasive species by knowing what to look for and how to report observations to New York's official invasive species database, iMapInvasives.

Webinar Series: *Identifying & Reporting Spotted Lanternfly and Tree-of-heaven with NY iMapInvasives*

Watch our May 25th recording here:

Play Webinar

Next webinar scheduled for the fall, more info coming soon

What does being a volunteer entail?

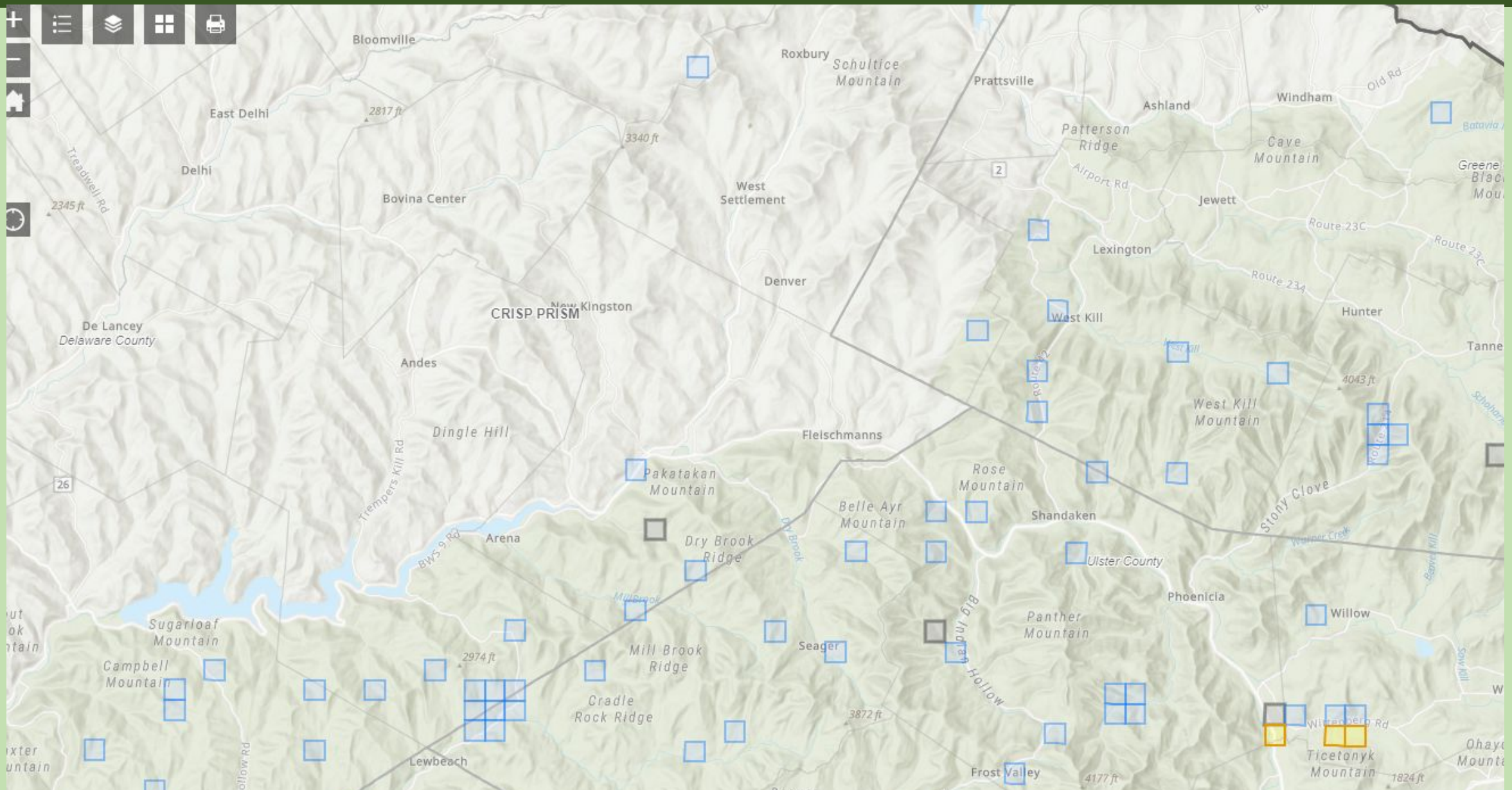
- Picking a location to go to and survey at least **three times** in 2022 *(once in Spring, Summer, and Fall)*
- Checking for spotted lanternfly and tree-of-heaven
- Reporting your observations to iMapInvasives

More info below!

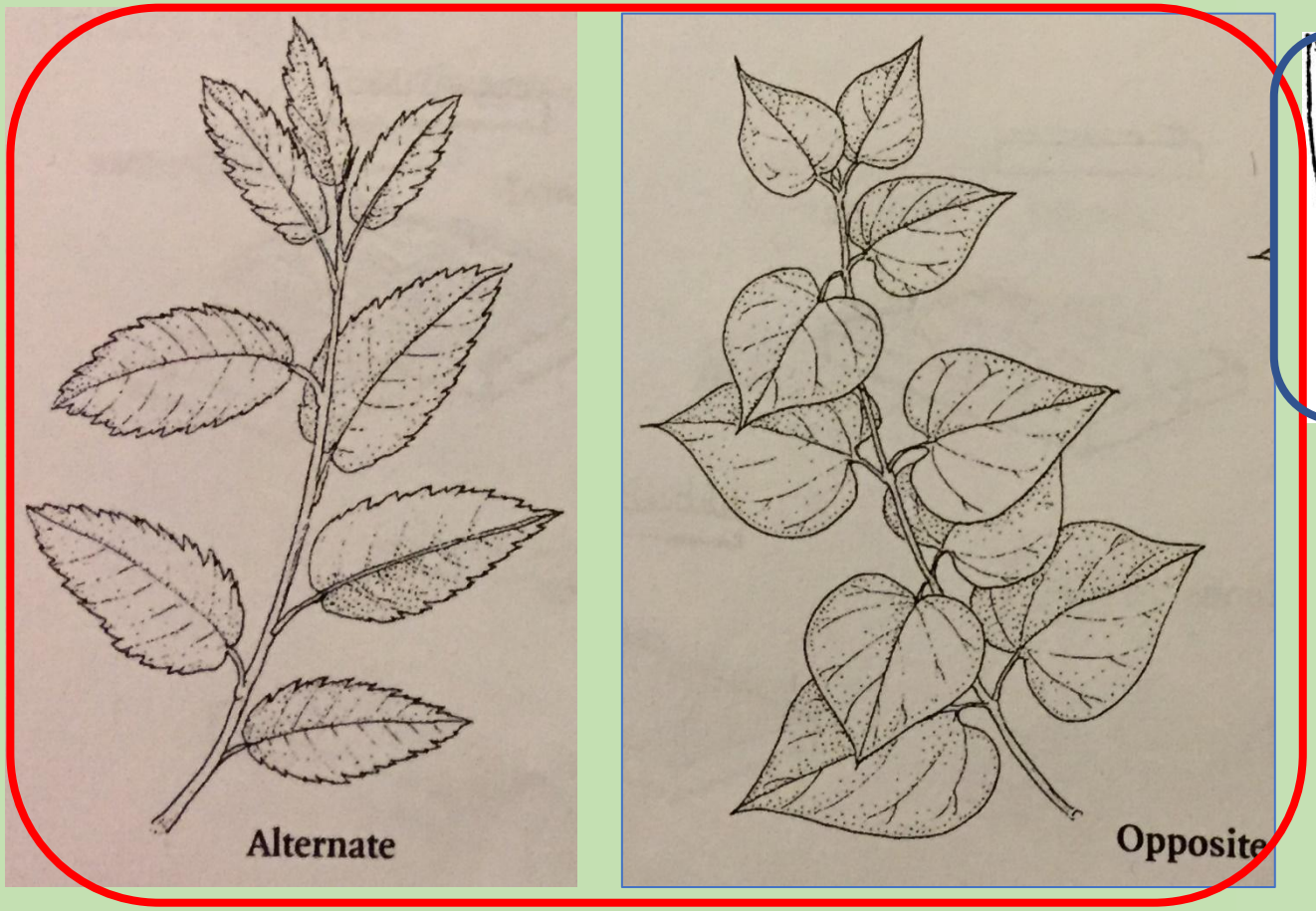
Conservation partners have identified 1km grid squares across the state where volunteer survey efforts would be most helpful. These may be close to known infestations, along major pathways, and/or near important commodities that could be harmed by SLF. Use the interactive map below to sign up for a grid square!

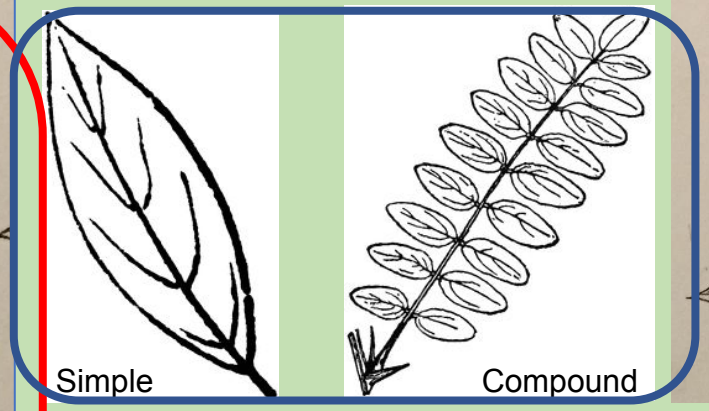
Volunteers Needed to Adopt Survey Blocks

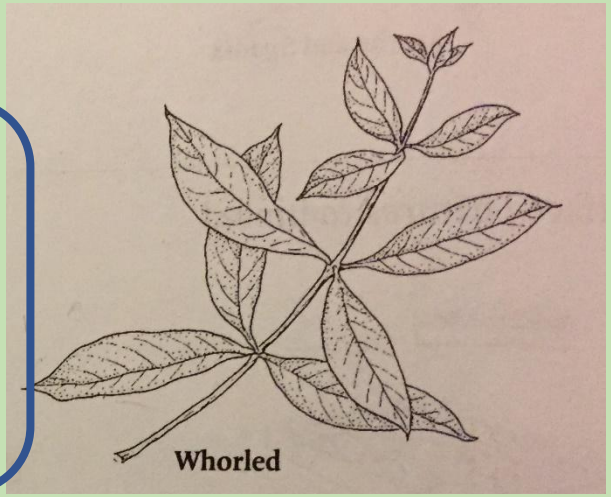
https://www.nyimapinvasives.org/training

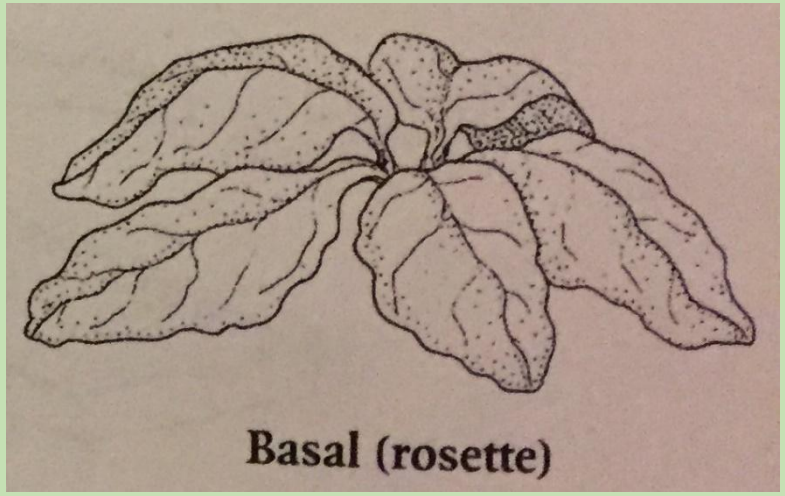


A Few Botanical Terms









Tree of Heaven

Ailanthus altisimma

- Native to China
- Introduced as an ornamental in 1784 in Philadelphia
- Grows up to 55 ft tall
- Has allelopathic effect on nearby vegetation

Ecological Research Alliance

Tree of Heaven identification

- Typically grows in thick clusters
- Large compound leaves, alternate
- 3 feet long with up to 40 leaflets
- Leaflets have small lobes at the base
- Crushed foliage has a strong acrid smell

Arieh Tal, New England Wildflower Society

Arthur Haines, New England Wildflower Society

Lookalikes

- Staghorn sumac

Minnesota State University

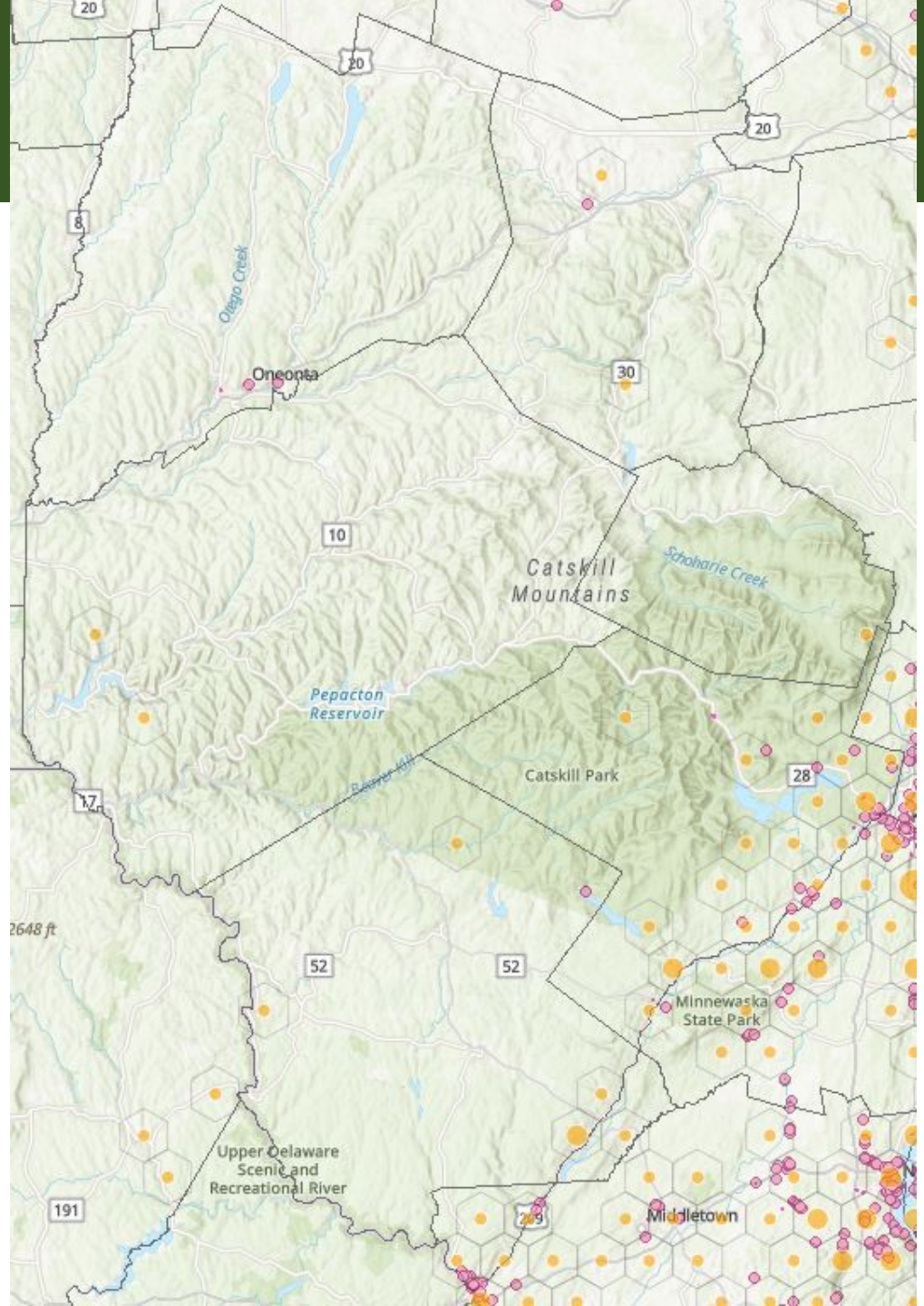
Minnesota State University

- Black walnut

Arthur Haines, New England Wildflower Society

Tree-of-Heaven in CRISP

- Mostly along Route 209 from Port Jervis to Kingston
- Scattered Elsewhere
- Unconfirmed in Otsego County

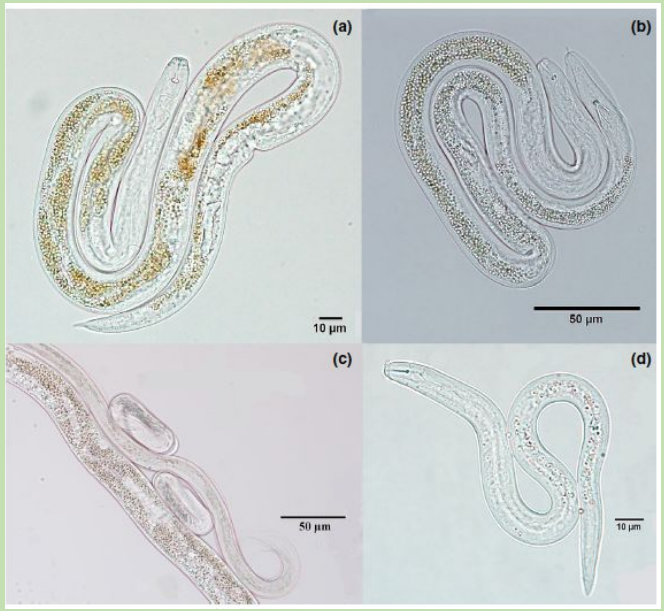


Beech Leaf Disease

Litylenchus crenatae mccannii

Carta, 2020

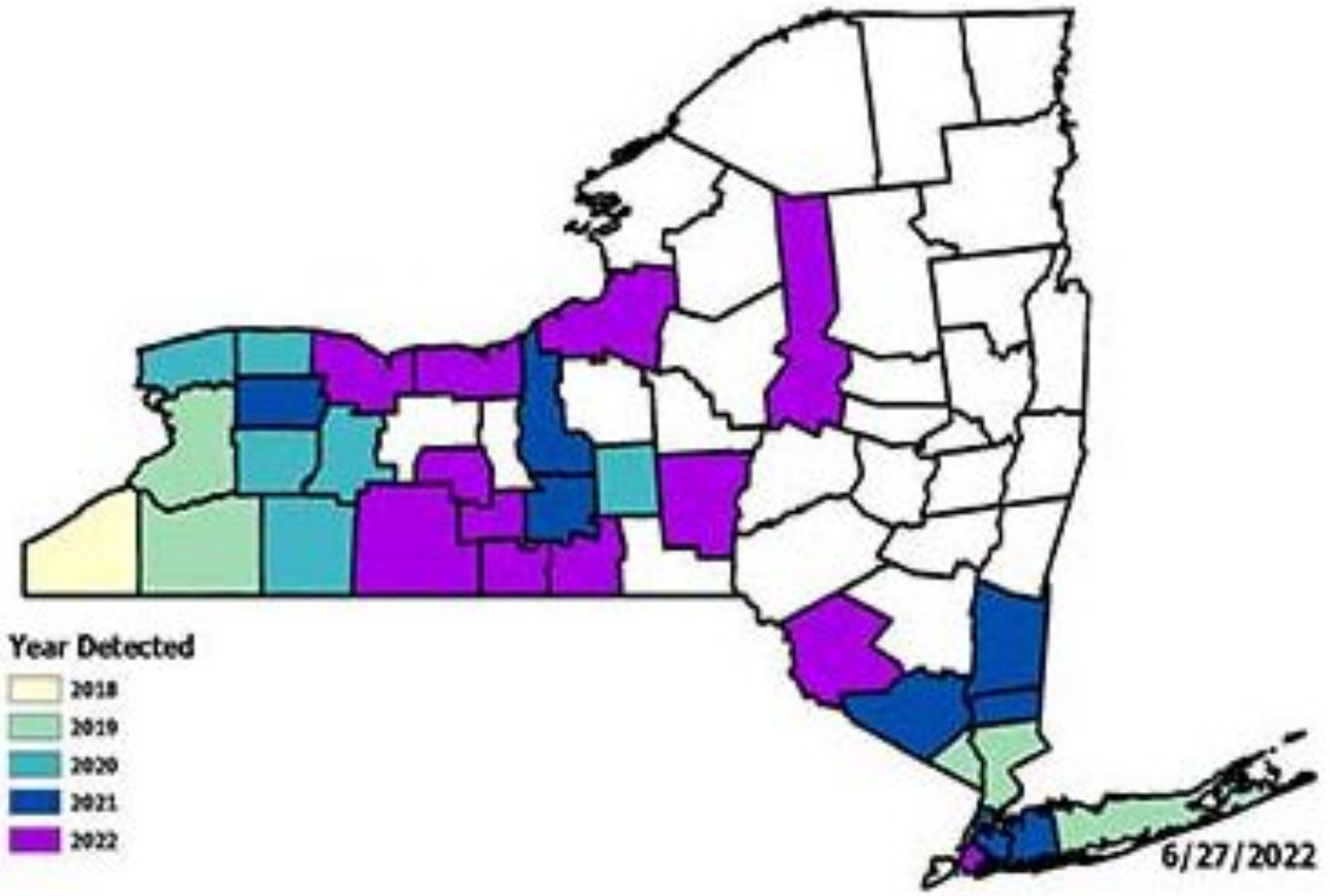
Beech leaf disease symptoms caused by nematode subspecies *Litylenchus crenatae mccannii* (Anguinata) described from *Fagus grandifolia* in North America



Polarized light microscopy of live *Litylenchus crenatae mccannii*
(a) female (b) male (c) eggs (d) juvenile

FIGURE 1 Leaf symptoms include darkened green bands, chlorosis and necrosis, Perry, OH Fall 2017 (a) American beech *Fagus grandifolia;* (b) European beech, *Fagus sylvatica* images of David McCann

Beech Leaf Disease Spread Since 2018



Beech Leaf Disease Symptoms

Light Banding

Heavy Banding

Chlorosis
Necrosis
Puckering
Curling

Fall Beech Leaf Disease Symptoms

Beech Leaf Disease Symptoms at Leaf Out

Lighter Severity

Light banding

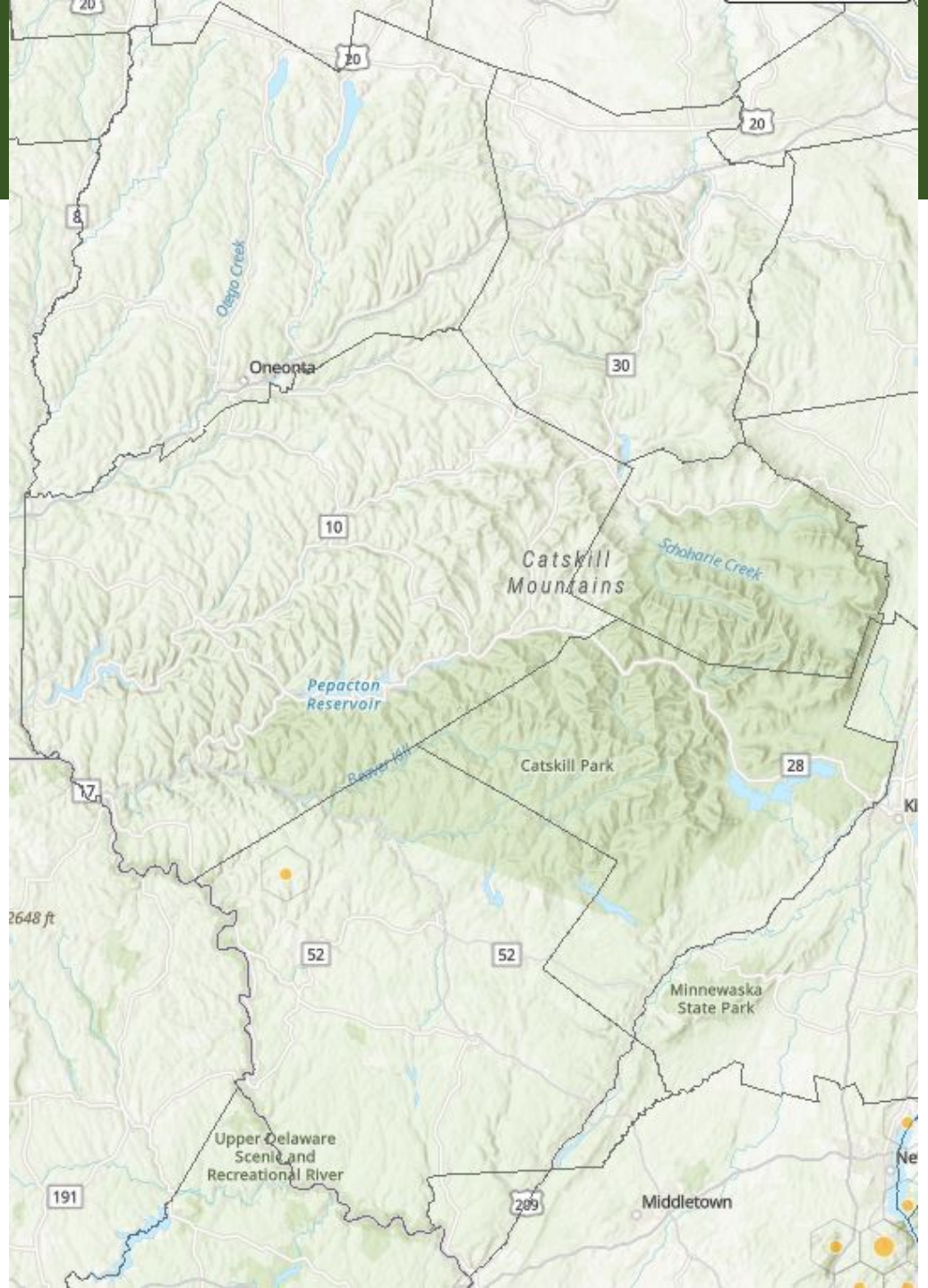
Higher Severity

Necrosis and Curling

Beech Leaf Disease in CRISP

Confirmed in Sullivan County:

- Crystal Lake Wild Forest
- Spring Glen



When in Doubt, Please Report

- Location
- # of trees looked at # of trees showing symptoms
- Good clear photos

The best diagnostic photos show the banding from below

Report through **iMapInvasives** or email **forestthealth@dec.ny.gov**

Negative data is good data!

Jumping Worm – Crazy Worm

- Metaphire hilgendorfi
- Amynthas agrestic
- Amynthas tokioensis

Jumping Worm Impacts

- Consume leaf litter & organic matter
- Change the structure of the soil
- Alter nutrient cycling
- Change composition of understory

Jumping Worm Look-Alike

Photo courtesy Wisconsin DNR

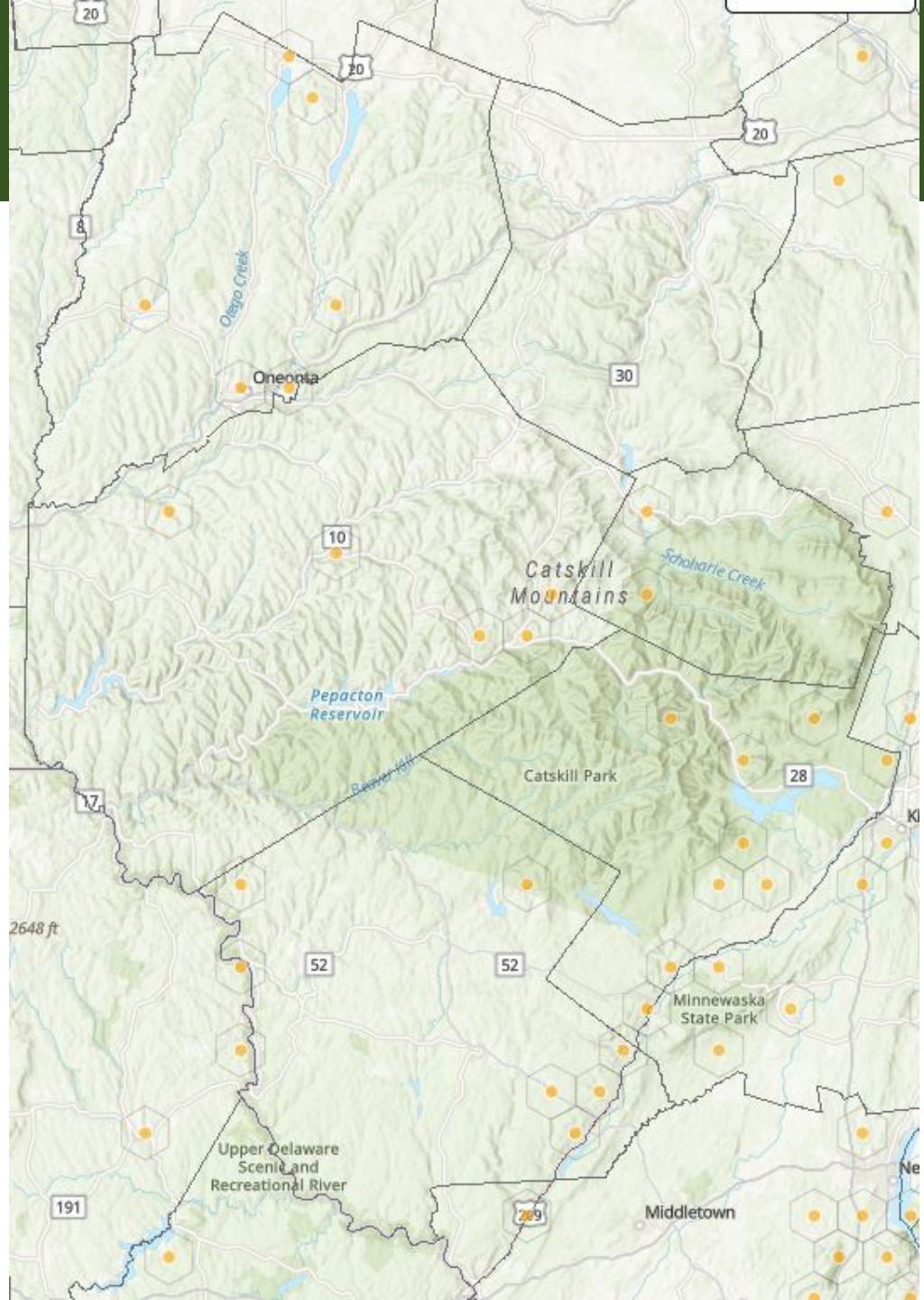
Egg capsule

Marie Johnston, UW–Madison

- Jumping Worms - Annual, overwinter as cocoons
- Jumping Worms - Grow throughout the season

Jumping Worm in CRISP

- Generally in lower elevations, residential areas, woodlots and stream corridors
- No records in Schoharie County



Green Stink Worm

Amynthas hupeiensis

Take Action: Prevention

- Learn to ID Jumping Worms & castings
- Inspect new mulch, compost, soil
- Weed-free compost should be worm-free
- Request equipment (landscaping, logging) arrive and leave clear of soil
- Periodically rake leaf litter to check for worms
- Survey with a mustard mixture. Mix a gallon of water with 1/3 cup of ground yellow mustard seed and pour slowly into the soil. This will drive any worms to the surface.
- Report worm observations to iMapInvasives

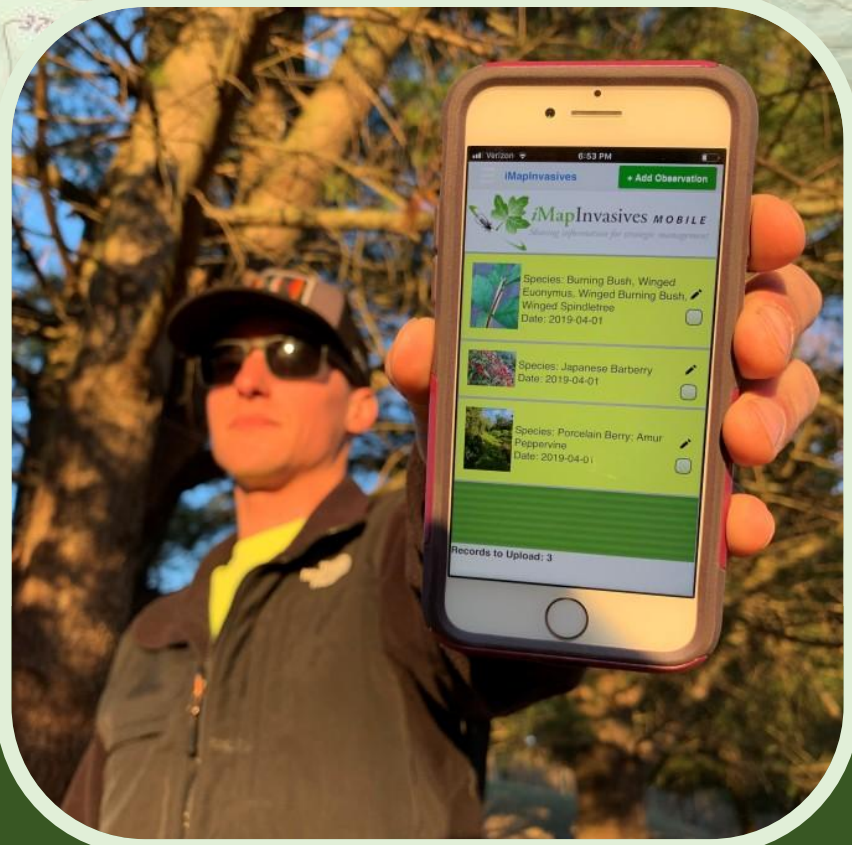
Jumping worms are PROHIBITED by the New York State Dept. of Environmental Conservation. Prohibited invasive species cannot be knowingly possessed with the intent to sell, import, purchase, transport or introduce.

Take Action: Minimize the Spread

- ☐ Clean soil from boots and gear
- ☐ Clean soil from ATV's and Mountain Bikes
- ☐ Clean soil from gardening tools
- ☐ Minimize sharing plants, soil, compost, or moving leaves
- ☐ Rinse roots, if you are sharing plants

Marie Johnston, UW–Madison

Questions?



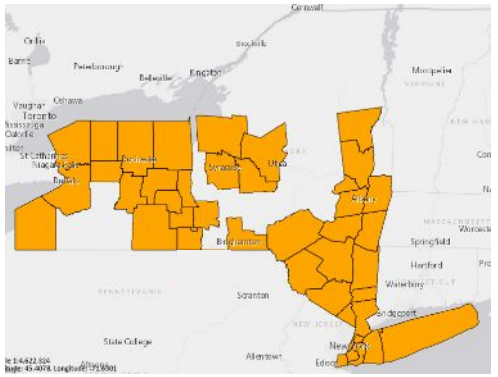
Introduction to iMapInvasives 2022

*i*MapInvasives

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

New York Natural Heritage Program

In NY, iMap is administered by NYNHP: nynhp.org



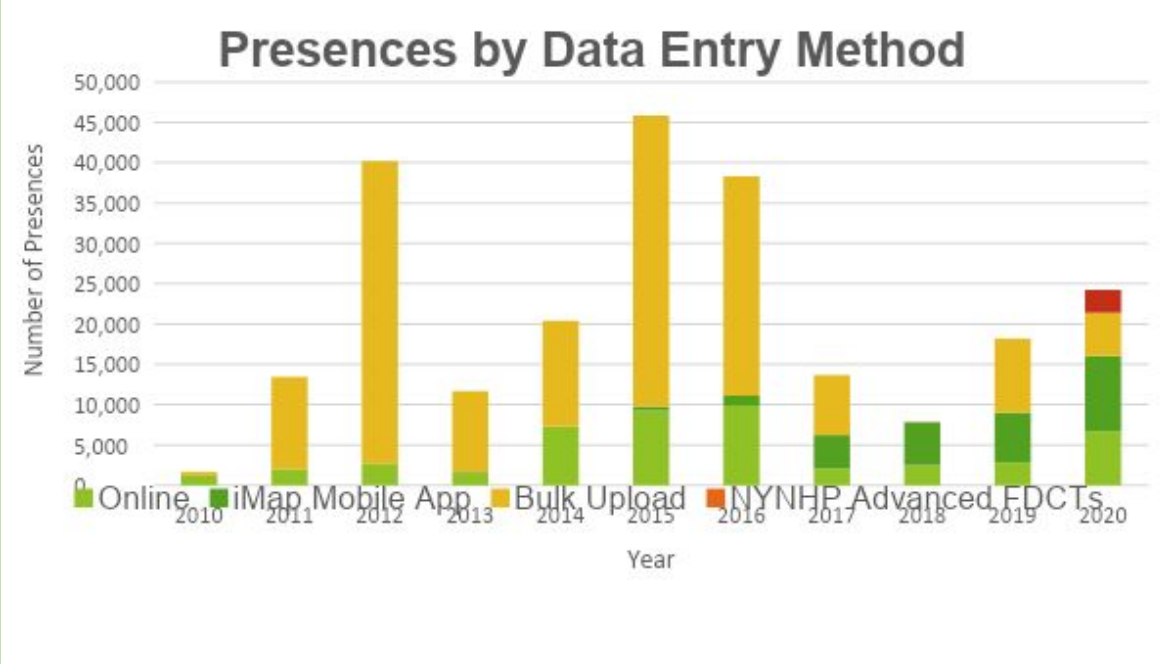
Species Distributions and Reports

Early Detection Alerts

Web Map Services

Tracking Control Efforts and Results

Data sources



- **2010-2016**: Uploads of existing data from partner organizations
- **Now**: Data entered by community scientists & professionals ***in real time***
  - Species ID confirmed by experts

NEW YORK STATE INVASIVE SPECIES MANAGEMENT

NEW YORK STATE HEMLOCK INITIATIVE — KEEPING THE LEGACY ALIVE

Adirondack ADK Mountain Club

NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation

NYSFOLA

RIT

Agriculture and Markets

NEW YORK STATE Parks, Recreation and Historic Preservation

The Nature Conservancy

UALBANY State University of New York

CCE Cornell Cooperative Extension

Adirondack Park Agency

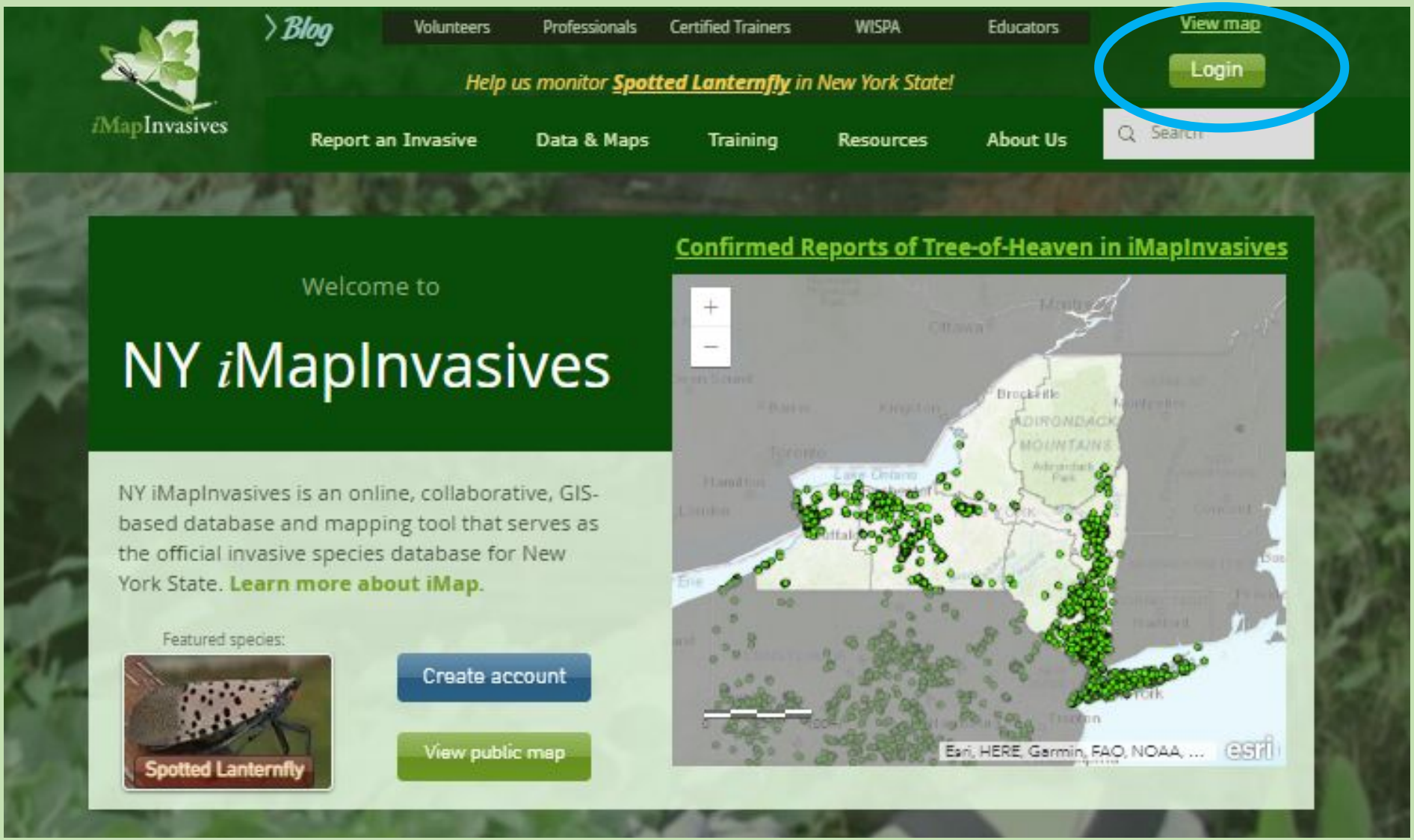
SUNY Cobleskill

NEW YORK STATE OF OPPORTUNITY Department of Transportation

And you!

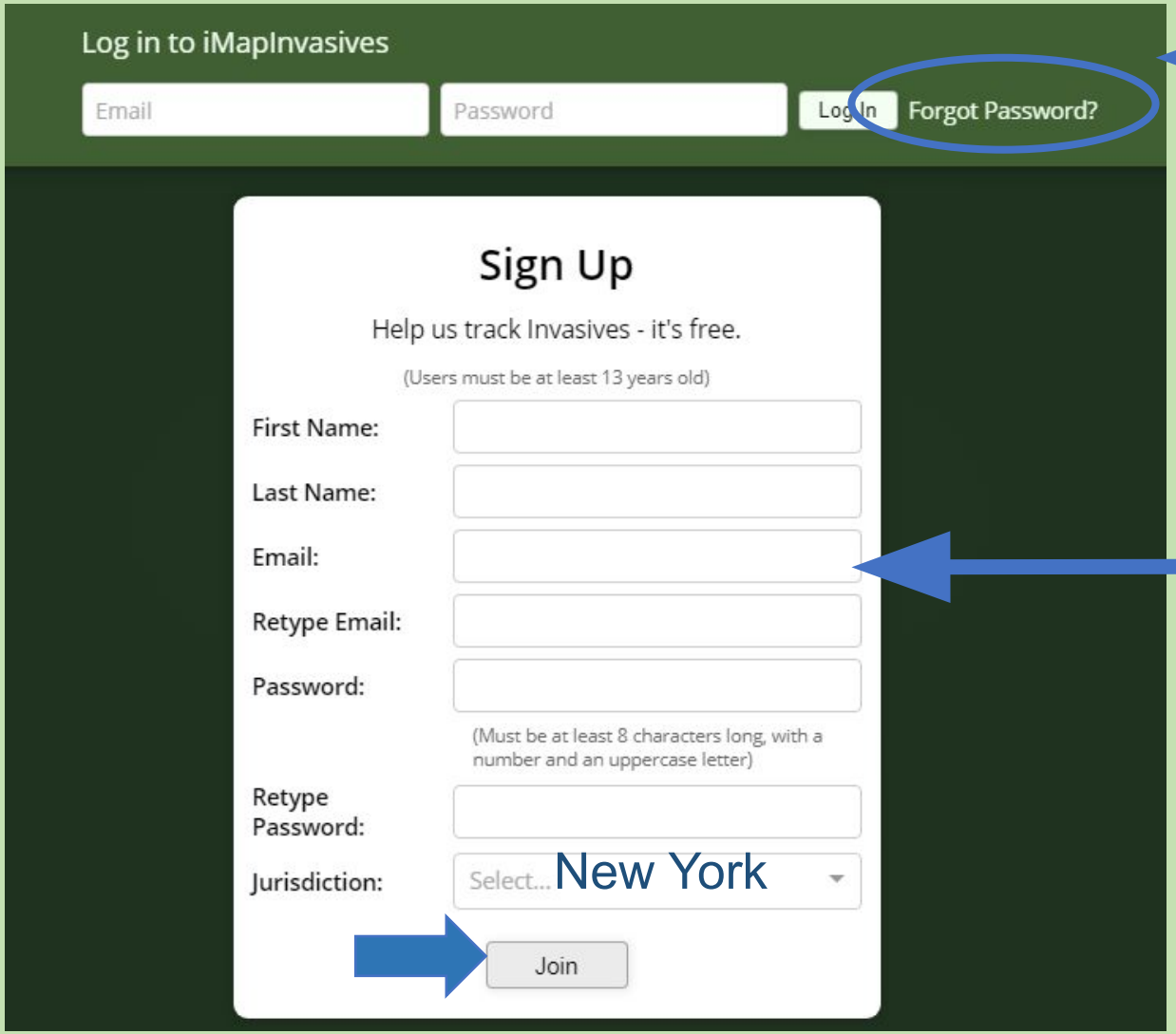
SIENA college

Nyimapinvasives.org



Create Account/Login

imapinvasives.natureserve.org



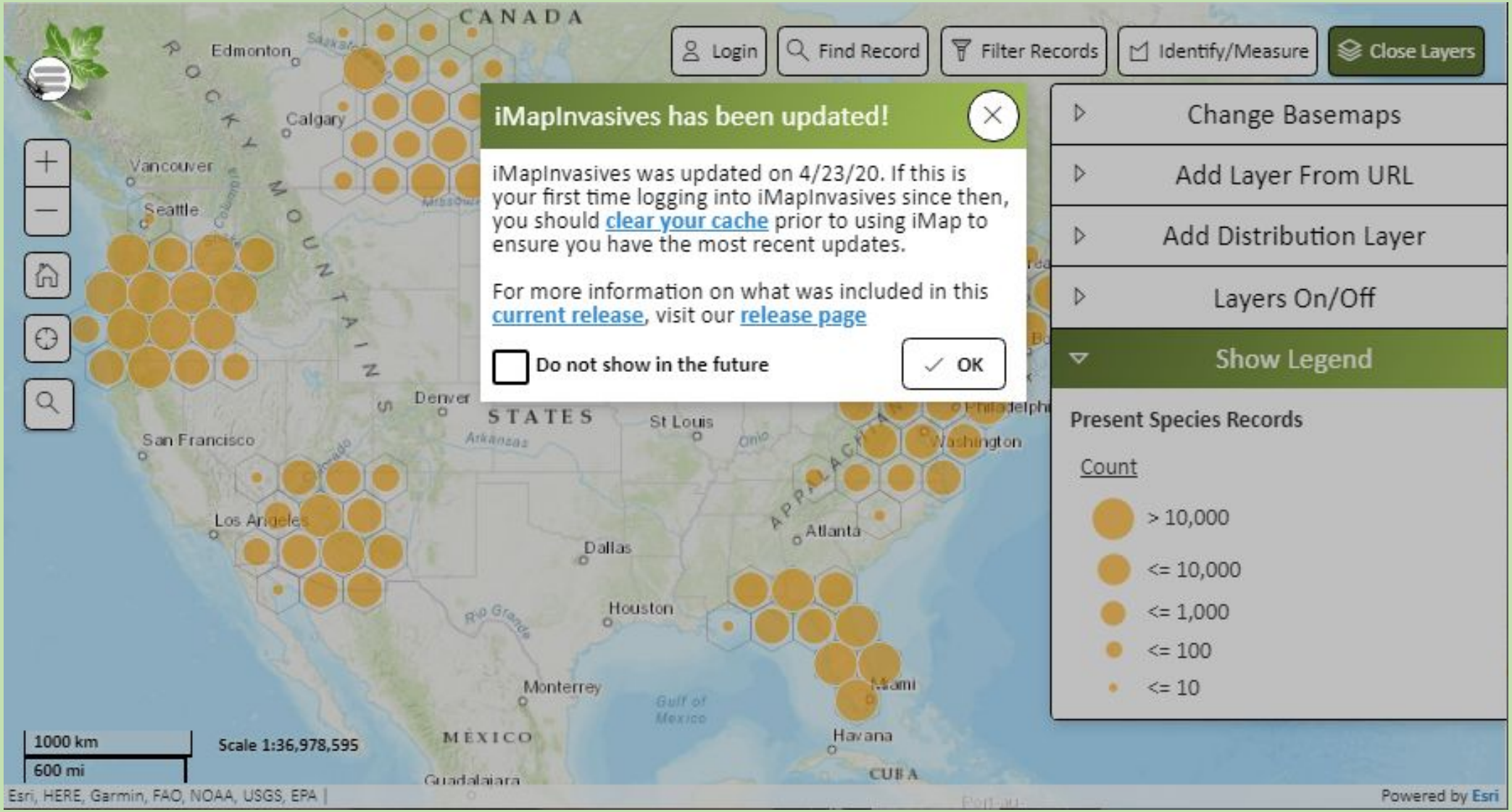
Login (if you have account)

Create Account

Check email for link ("click here"), click open the User Agreement.

Read User Agreement and accept

Login

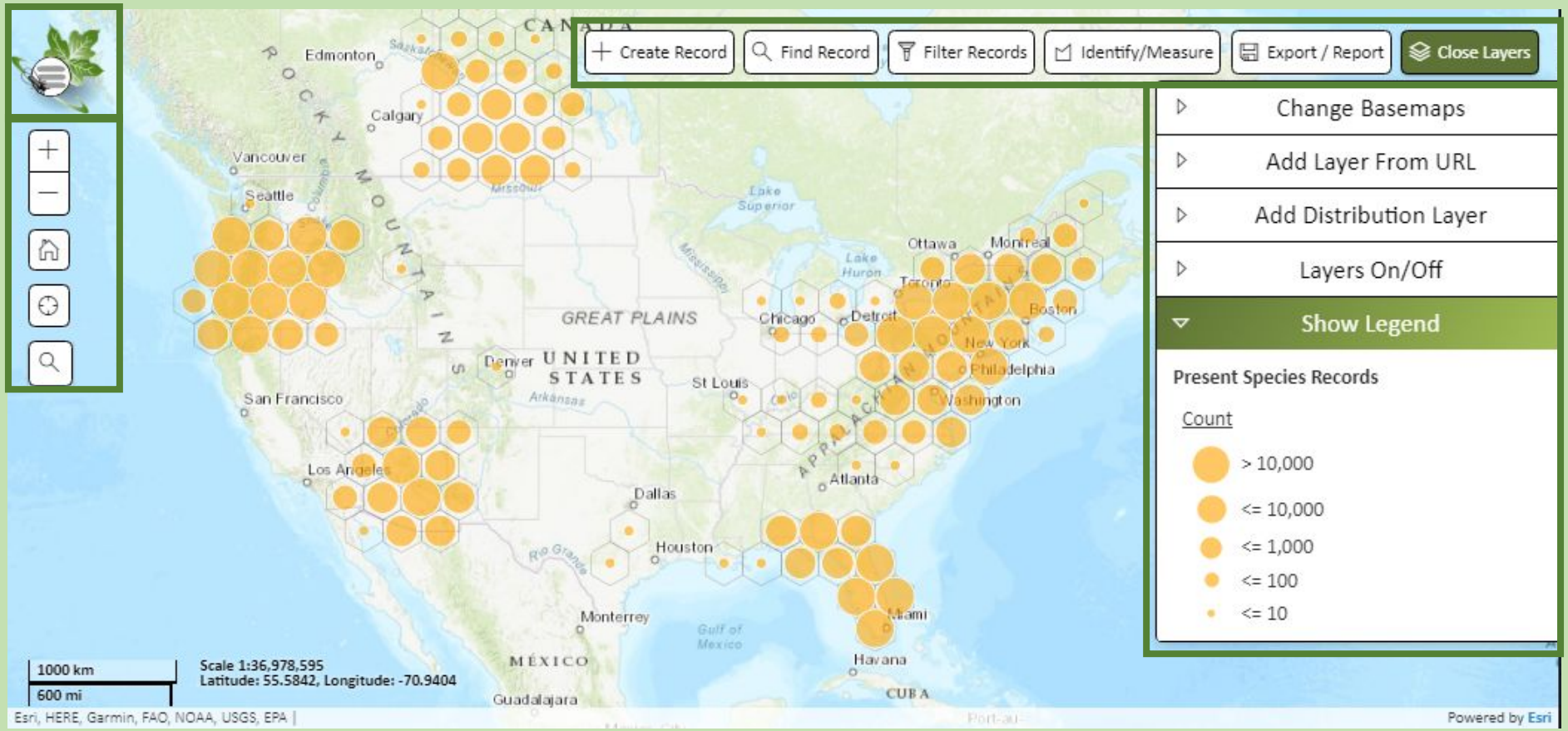

Login
Find Record
Filter Records
Identify/Measure
Close Layers
iMapInvasives has been updated!
iMapInvasives was updated on 4/23/20. If this is your first time logging into iMapInvasives since then, you should clear your cache prior to using iMap to ensure you have the most recent updates.
For more information on what was included in this current release, visit our release page
Do not show in the future
OK
Change Basemaps
Add Layer From URL
Add Distribution Layer
Layers On/Off
Show Legend
Present Species Records
Count
> 10,000
<= 10,000
<= 1,000
<= 100
<= 10
CANADA
Edmonton
Calgary
Vancouver
Seattle
San Francisco
Los Angeles
Denver
STATES
St Louis
Dallas
Houston
Atlanta
Washington
Miami
Monterrey
MÉXICO
Havana
CUBA
Guadalajara
1000 km
600 mi
Scale 1:36,978,595
Esri, HERE, Garmin, FAO, NOAA, USGS, EPA |
Powered by Esri

Login

Main Menu

Action Tools

Navigation



Geographic Layers

iMap Data Inputs and Outputs

- *Email Alerts*
- *Web Map Services*

iMap Platform

Mobile App

- Point records only
- Presence, not-detected
- Does not require connectivity, *once configured*

Web Interface

- **Point, line, and polygon** records
- Presence, not-detected, **treatments**
- **Requires connectivity**

Mobile App

Available on the App Store

Get it on Google play

Download app from Google Play or iOS App Store (search for “imapinvasives”)

Please follow along

Questions? Chatbox

Good Photos are Essential!

- Need to focused and close-up enough
- Hand or sheet of paper behind plant provides scale and helps with focus

Mobile App

1. Setup Account and App — *Connectivity required*

2. Record invasive species — *Connectivity* **NOT** *required*

3. Upload records to iMap — *Connectivity required*

Mobile App Setup

Preferences

Jurisdiction Species List:

(Select the jurisdiction in which you will collect data)

New York

iMapInvasives Username (Your Email Address):

(Enter the email address associated with your iMapInvasives account)

emailaddress@example.com

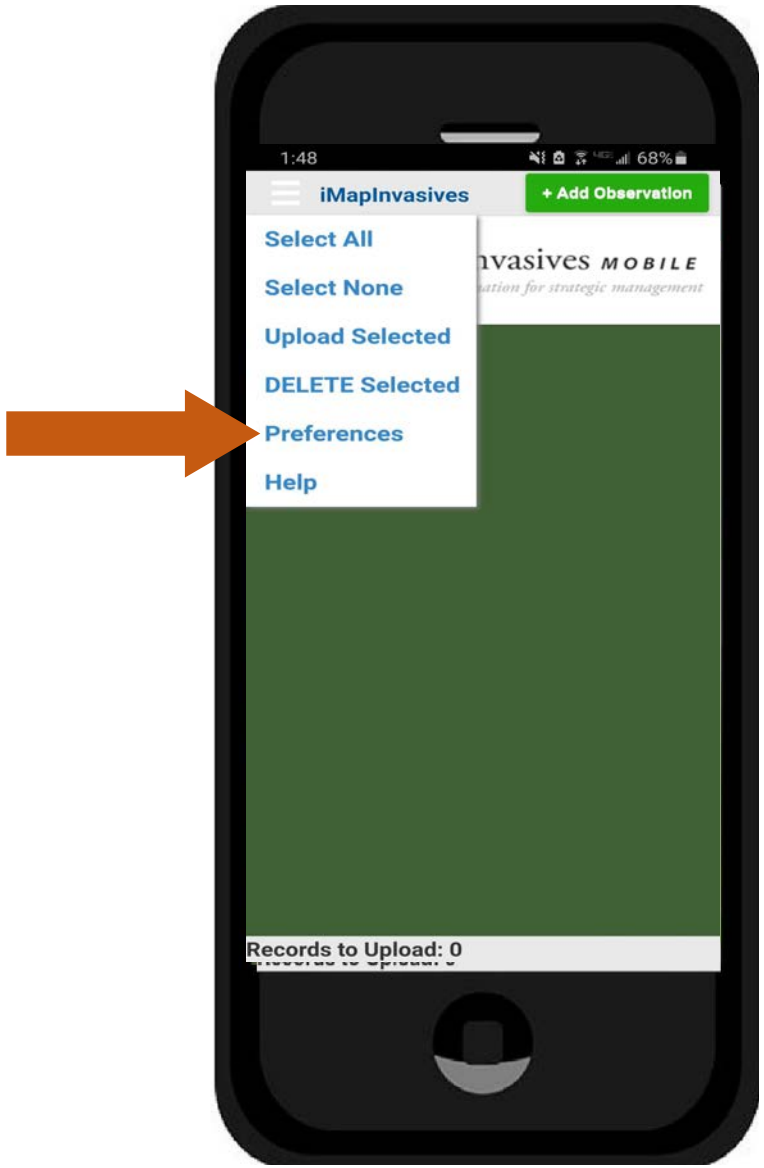
iMapInvasives Password:

(Must match your iMapInvasives password)

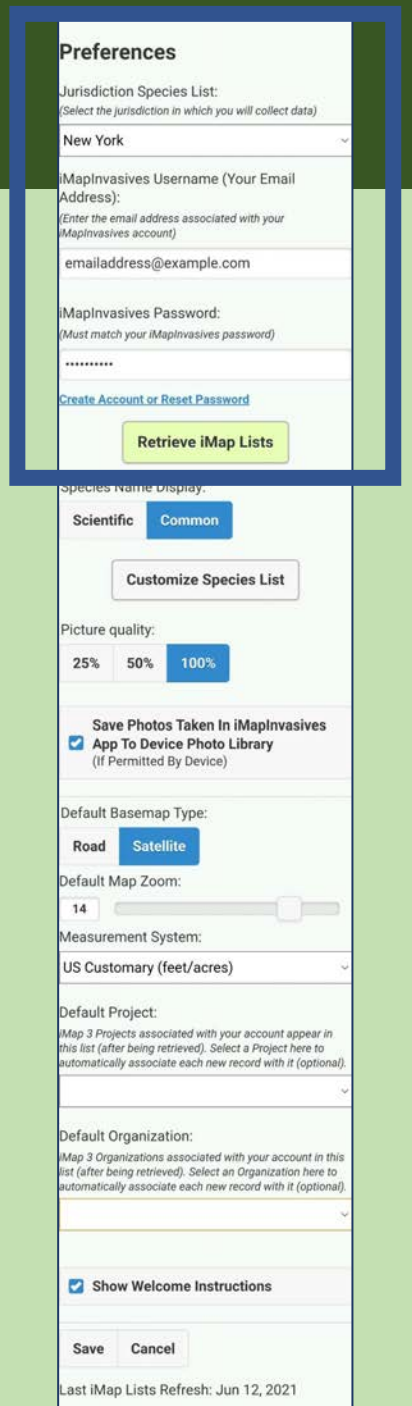
••••••••••

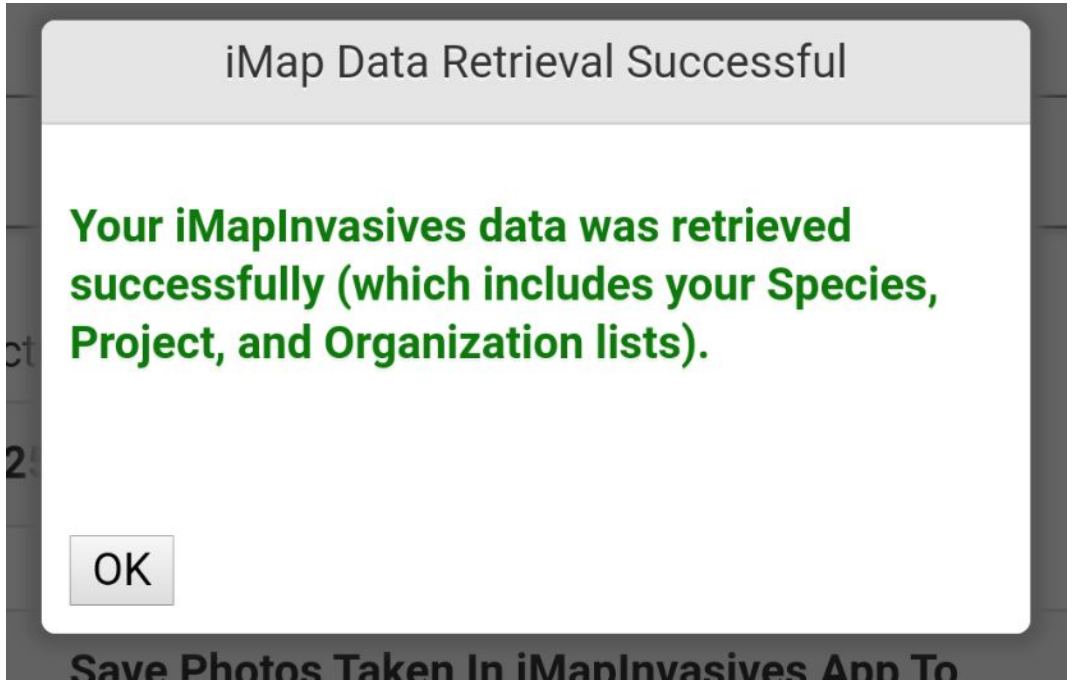
Create Account or Reset Password

Retrieve iMap Lists



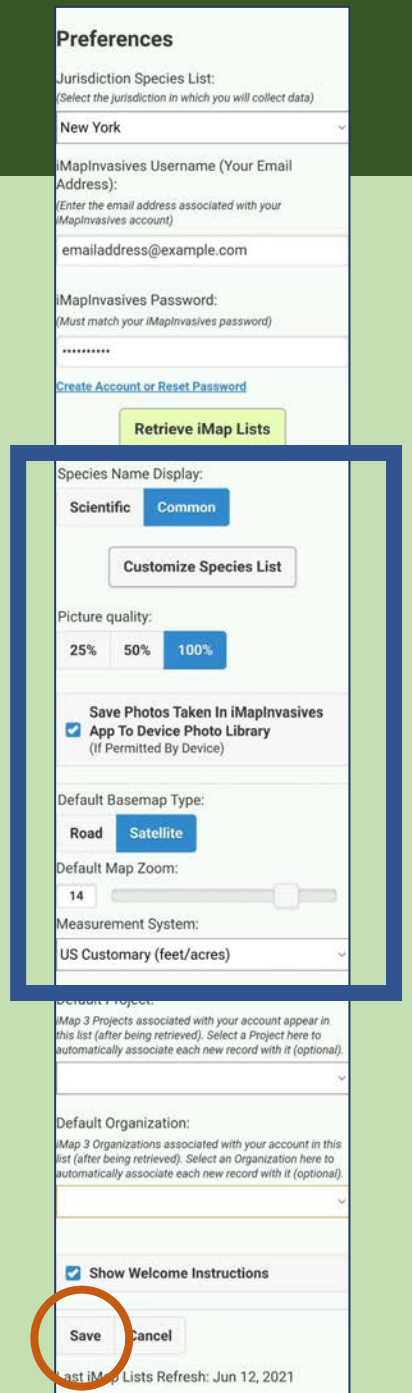
Mobile App Setup

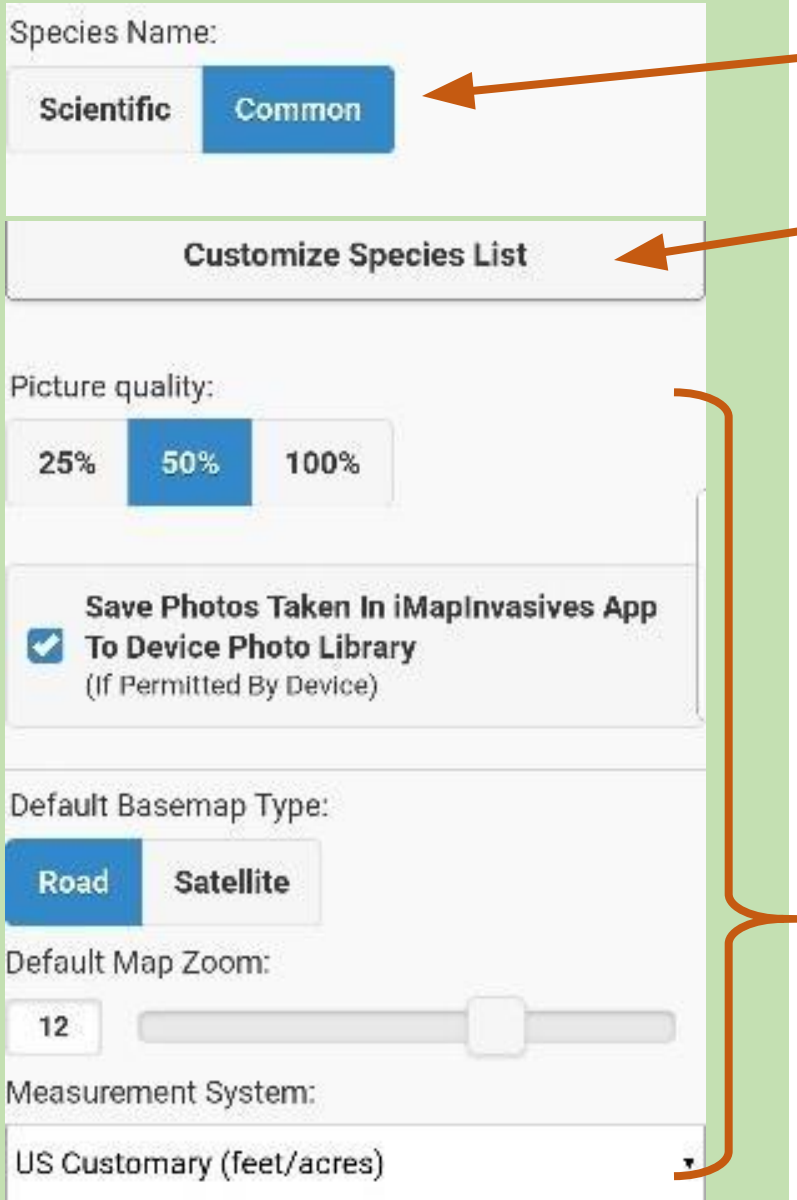




- Username and password Must match iMap account online
- Sometimes iPhone's add space after password

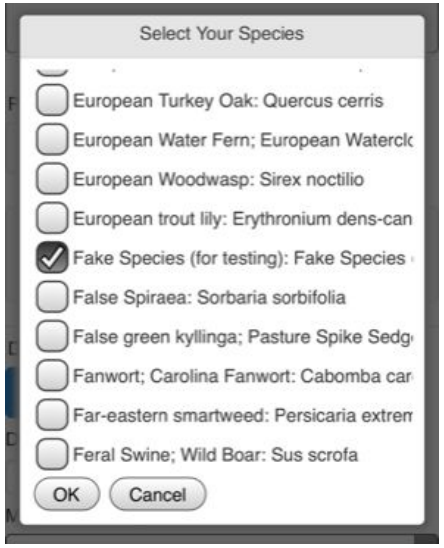
Preferences - optional





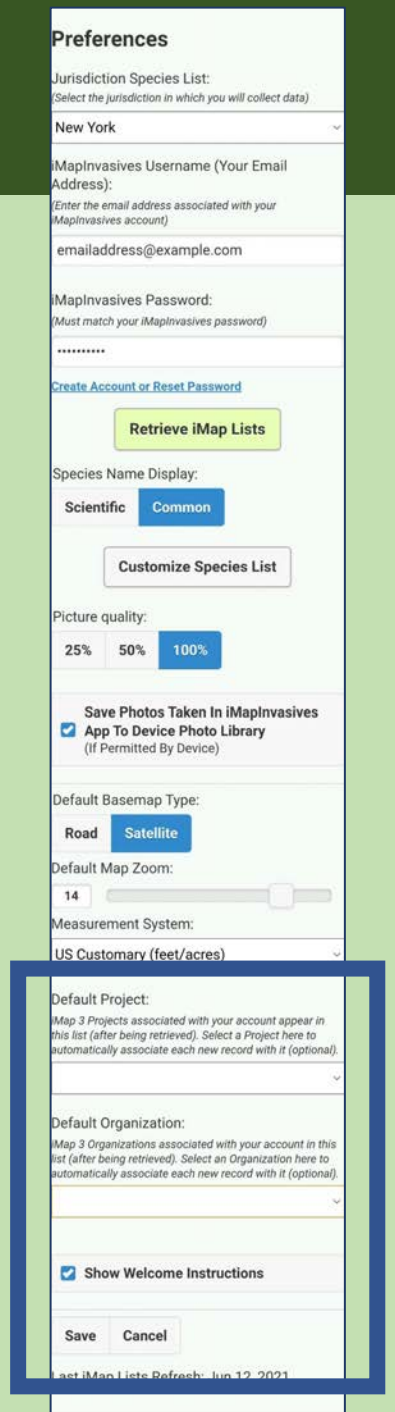
View lists as scientific or common names

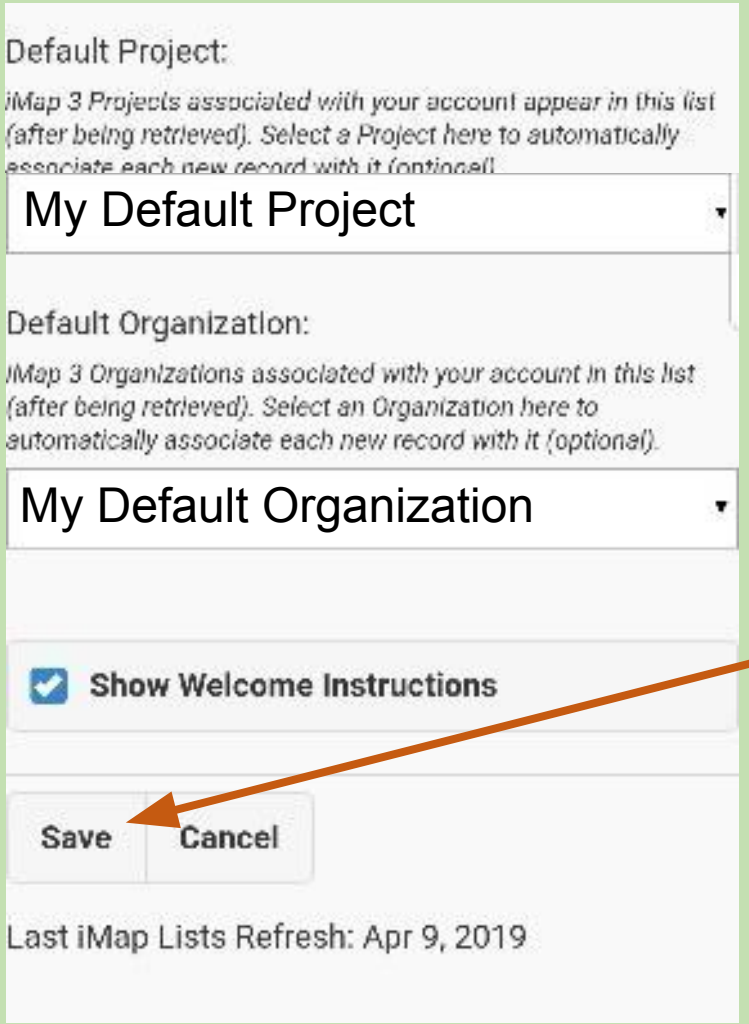
Optional – Make a short list of species you know, are interested in, and expect to survey for in your area



Defaults are typically fine

Mobile App - preferences





Save!

Mobile App

1. Setup Account and App

Connectivity required

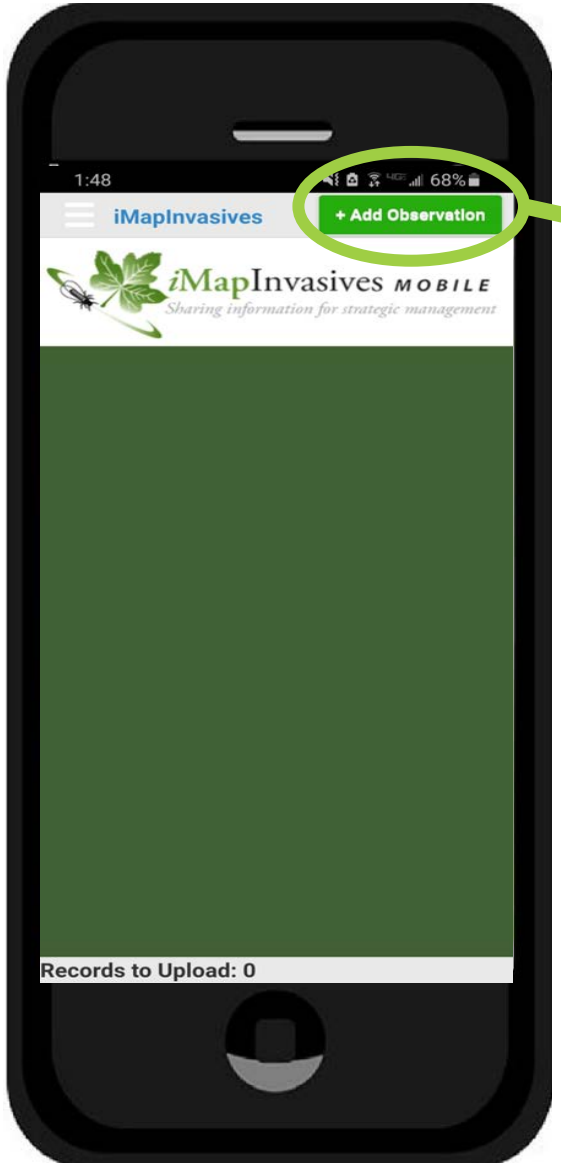
2. Record invasive species

Connectivity ***NOT*** *required*

3. Upload records to iMap

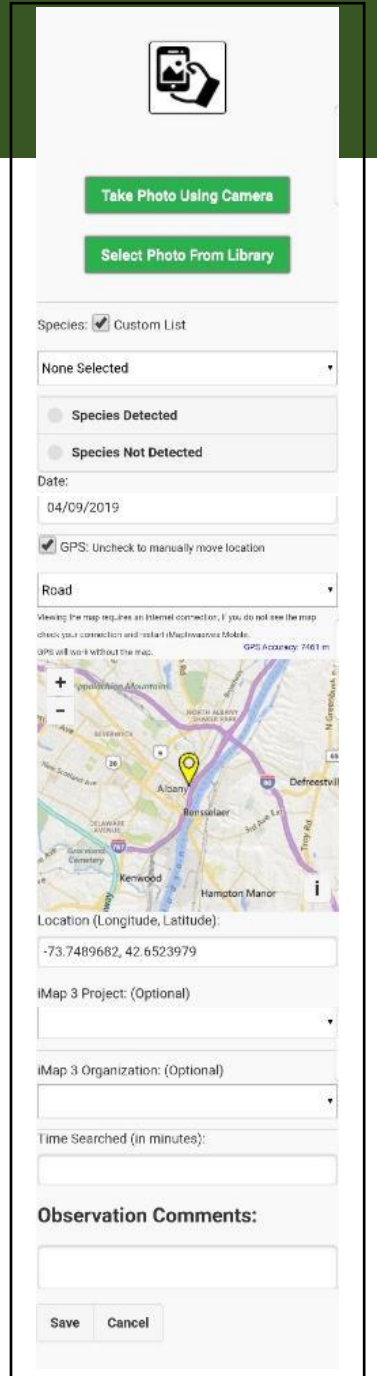
Connectivity required

Recording an observation

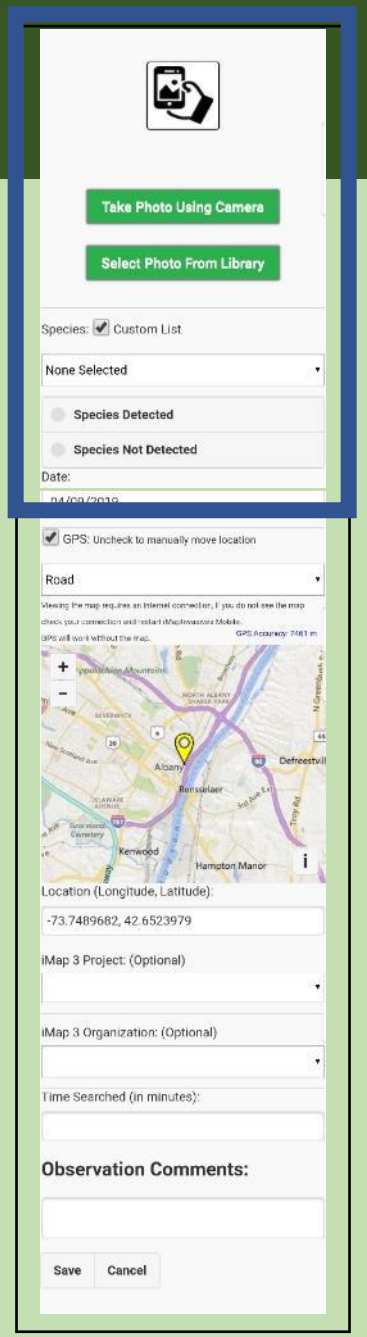


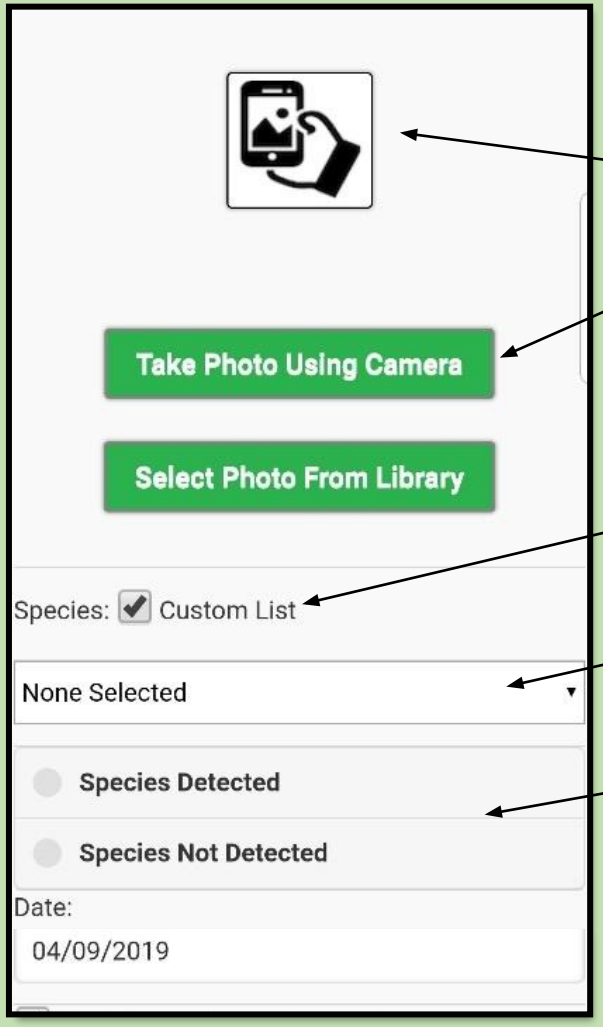
+Add Observation

- Please follow along
- Submit a record “A Fake Species”



Add Observation





Take photo with camera

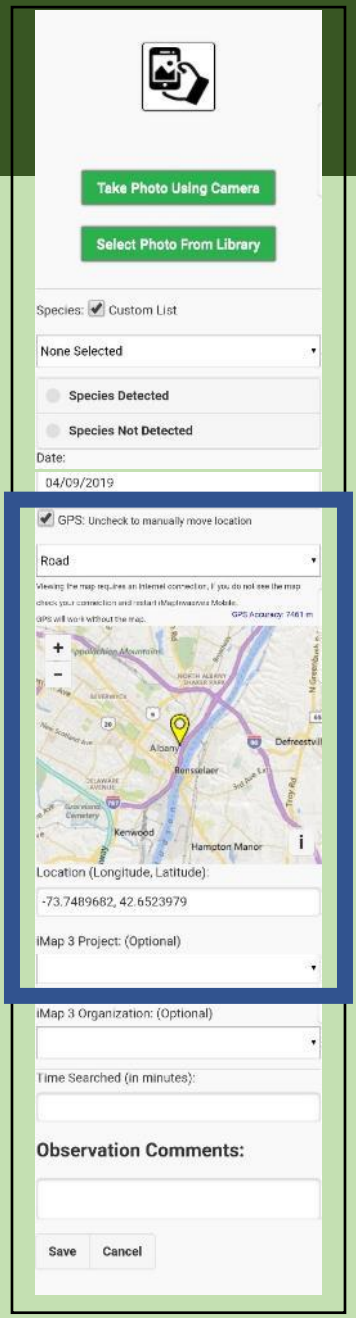
Enable your custom species list

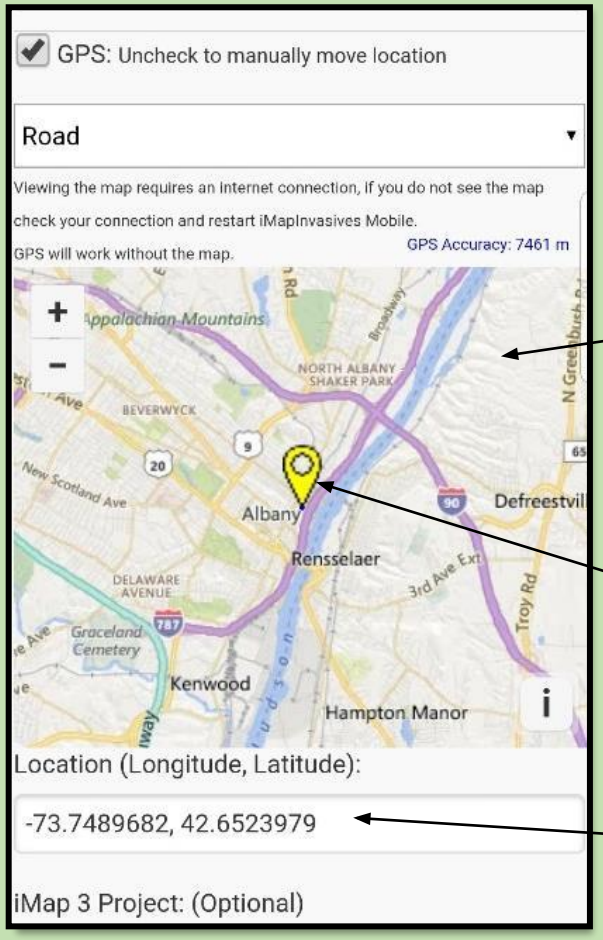
Select Species – **A Fake Species**

Select Detected or Not Detected

***New! If you select photo from library, the iMap app will pull the location and date metadata from the photo (assuming your camera is set to capture metadata, and the appropriate permissions are available

Add Observation



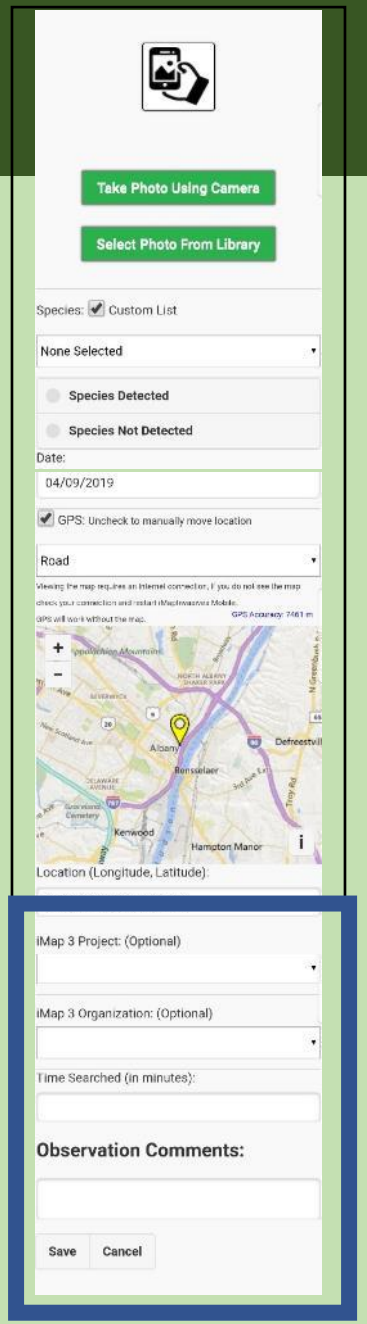


Note: Map will be blank when out of connectivity

Your location

Your coordinates: If 0,0 is displaying in the Location box, make sure your GPS is enabled on your device

Add Observation



Enter the approximate time you were searching for invasive species (very helpful)

Add any comments that may enhance the quality of your observation report

Don’t forget to save your changes!

Mobile App

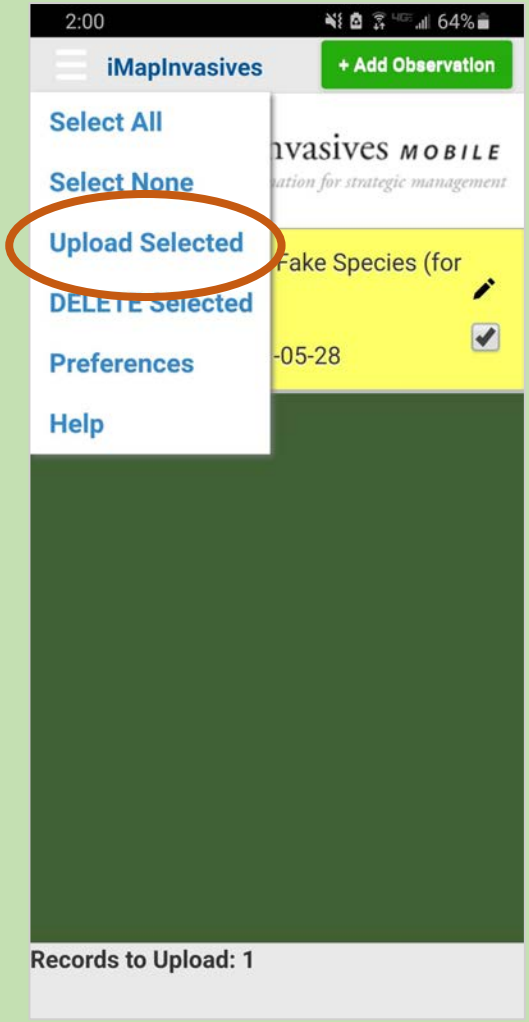
1. Setup Account and App
2. Record invasive species
3. Upload records to iMap

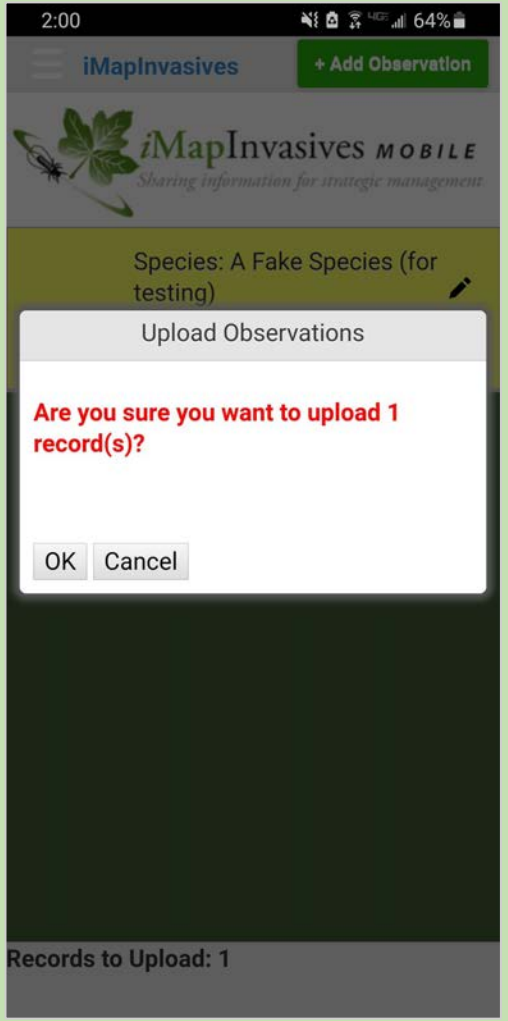
Connectivity required

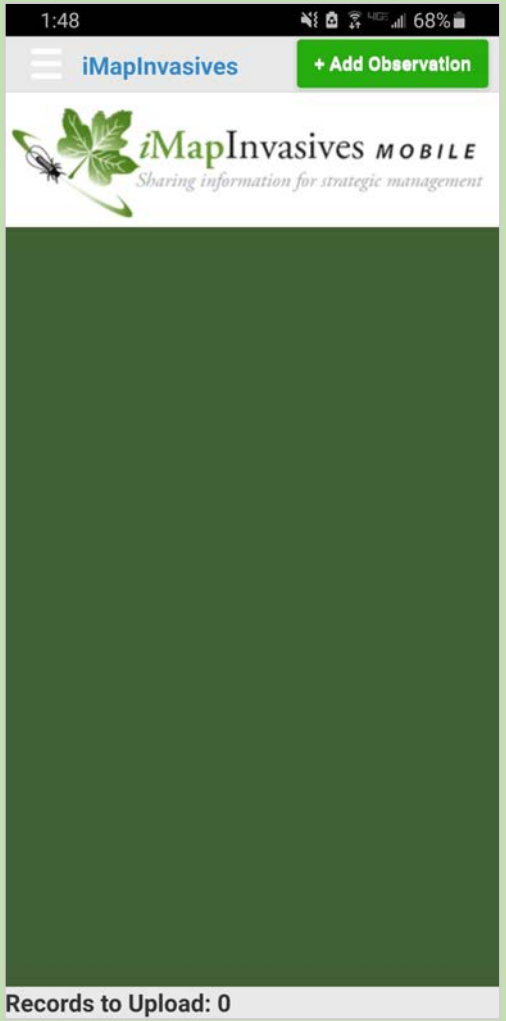
Connectivity **NOT** *required*

Connectivity required

Uploading Records







John Thompson
CRISP Director
jthompson@catskillcenter.org

Kate Cooper
Volunteer & Outreach Coordinator
kcooper@catskillcenter.org

INVASIVE SPECIES MANAGEMENT
CATSKILLS

CATSKILLCENTER

www.catskillinvasives.com
Facebook: @catskillinvasives