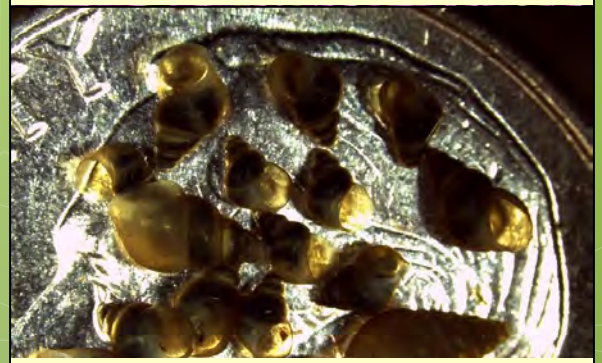
Red-Eared Slider

Purple Loosestrife



New Zealand Mudsnail

# Tracking Invasive Species with Pennsylvania *i*MapInvasives

Mary Walsh and Amy Jewitt
Western Pennsylvania Conservancy

March 14, 2015

# Invasive Species – Non-native organisms that cause harm to the environment, economy, and human health

Carolina Fanwort
Photo credit: Brian Pilarcik, CCCD

Purple Loosestrife
Photo credit: Cumbria Wildflowers

Round Goby
Photo credit: Glogster.com

Common Reed
Photo credit: Wikimedia Commons

Multiflora Rose
Photo credit: depauw.edu

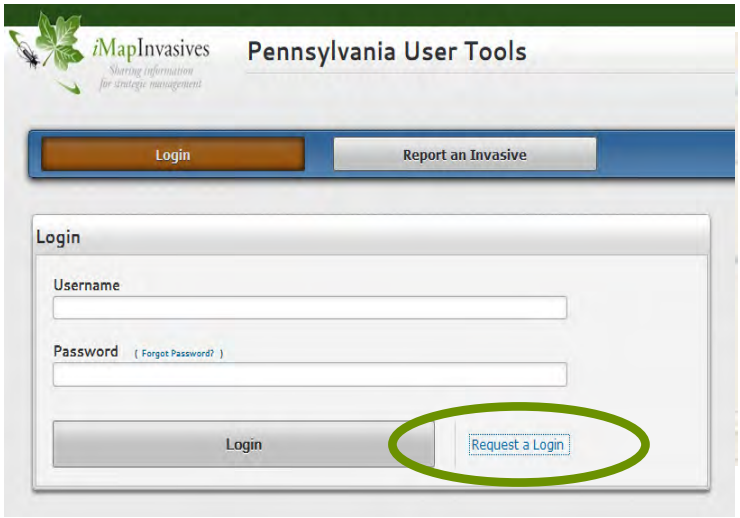
Quagga Mussel
Photo credit: Amy Benson, USGS

Didymo
Photo credit: Tim Daley, PA DEP

Japanese Barberry
Photo Credit: FNA Nature Search

# What is *i*MapInvasives?

- An on-line mapping database used for tracking **location information** on invasive species
- Used as a resource to **visualize** where invasive species are located
- Tool for natural resource professionals working to **manage invasive species**
- Available to **anyone** by signing up for a free user account




http://www.imapinvasives.org/paimi/login

# What is iMapInvasives?

- Currently being utilized in PA as well as the following states/province:
  - NY, OR, AZ, FL, VA, VT, WV, NH and Saskatchewan
- Facilitates early detection and rapid response
- Used to store and retrieve your data (points & polygons; presence and absence)
- Download as “csv” or geodatabase

# Who is it for?

- Natural resource professionals
- Citizen scientists
- Land trusts
- Watershed associations
- State agencies
- Schools and volunteer groups
- *Anyone with an interest in invasive species*

# Tools for Natural Resource Professionals

**Assessments** provide detailed information about an observation

**Surveys** are a planned search of an area to determine the presence or absence of specific invasive species

**Treatments** are actions taken to control an invasive species population

# Tools for Natural Resource Professionals – Treatment Records

Treatments are actions taken to control an invasive species population

**Steps to create a Treatment record**

1. **Draw polygon around treated area**
2. **Fill in information fields, some of which are highlighted below:**

- Treatment types
  Barrier, Bioagent, Chemical Fire, Mechanical/Manual, etc.
- Targeted Species
  Single or multiple species
- Treatment goals
  Eradication, Containment, Suppression, Experiment, etc.
- Who
  Lead contact, paid/volunteer crew, crew size
- Observations Affected
- Treatment Start/End Date

# Pennsylvania Invasive Species Management Plan Goals (PISC 2009)

- *Early Detection and Rapid Response:*
  **Detect new introductions of nonnative invasive species** and control or contain target species before they can become permanently established in the Commonwealth or move into areas in which they previously did not exist.

- *Survey and Monitoring:*
  Expand **survey and monitoring efforts** of nonnative invasive species in Pennsylvania.

- *Data Management:*
  Develop a **statewide invasive species database clearinghouse or information sharing system** linking data from various state, federal, and non- governmental entities.

# Pennsylvania Aquatic Invasive Species Plan (PISC 2006)

- *Priority strategy*:
  - Establish a **simple, coordinated reporting system(s) for AIS** detection and monitoring in Pennsylvania (Strategy 3D and Strategy 5B).
  - Establish a comprehensive process to **identify the aquatic invasive species of greatest concern** that are not yet present in Pennsylvania waters (Strategy 2A).

- *Priority action:*
  - **Engage those conducting field work to be aware of key invasive species** that they may come across. Conduct training for field staff to ensure that they can easily identify aquatic invasive species. **Implement a statewide monitoring network** to assist in the early detection and monitoring of aquatic invasive species (Action 3B1).
  - Partner with AIS management programs in nearby states **to share data and coordinate management activities**. Pay special attention to "upstream" and "downstream" neighboring states to prevent AIS introduction and spread (Action 1C1).

# What are the Benefits of iMap?

European Frog-bit
Photo credit: Christian Fischer, Wikipedia

Japanese Mysterysnail
Photo credit: B. Lathrop, DEP

- Invasive plant and animal data for Pennsylvania
- Quality controlled
- Data sharing (online accessible)
- Publicize invasive species & tracking
- Bring together agencies and organizations w/ invasive species interests
- Inform policy, planning and control efforts
- Work with regional and national tracking efforts by collating PA data

# Benefits – Early Detection & Rapid Response

- Serves as a source of invaluable EDRR info
- Info on EDRR species can come from both professional and public sources, all captured in iMap
- Email alerts serve as a tool to notify interested individuals of EDRR species present in the state/county/specific area

New Zealand Mudsnail

Photo credit: Robyn Draheim, Center for Lakes and Reservoirs

# Benefits – Data Sharing

- Invasive species clearinghouse for data across all of Pennsylvania
- Place to organize and share data with others, both internally and externally
- Alleviates the issue of data being captured only in handwritten notes, individual computers, spreadsheets, etc.

Common Reed

Photo credit: Michael St. Jean, Flickr photographer

# iMapInvasives Partners

PNHP

NatureServe

New York Natural Heritage Program

The Nature Conservancy
Protecting nature. Preserving life.™

U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

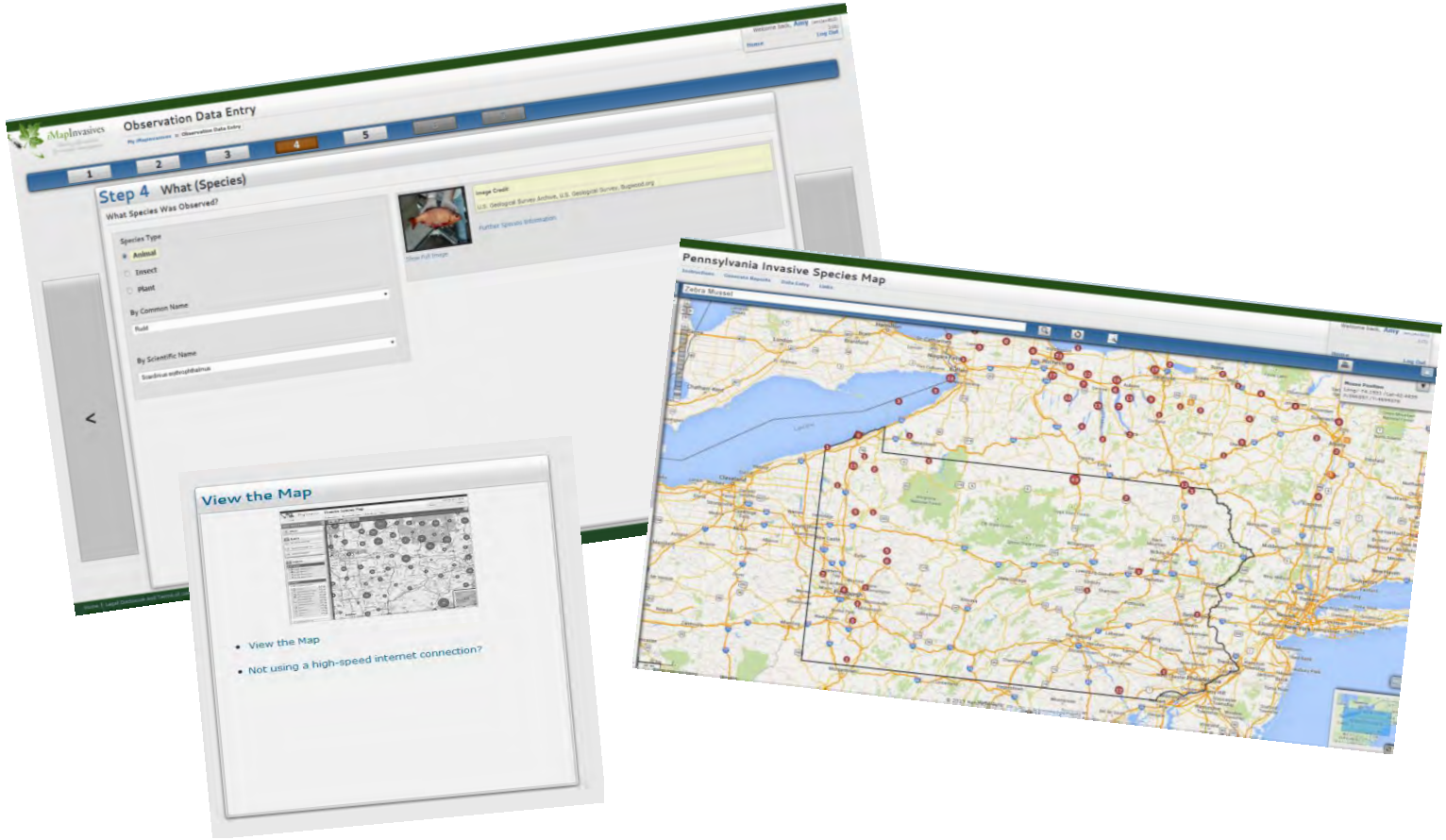
Funding for PA iMapInvasives is provided by the USFWS Great Lakes Restoration Initiative

# Brand new PA iMapInvasives Homepage

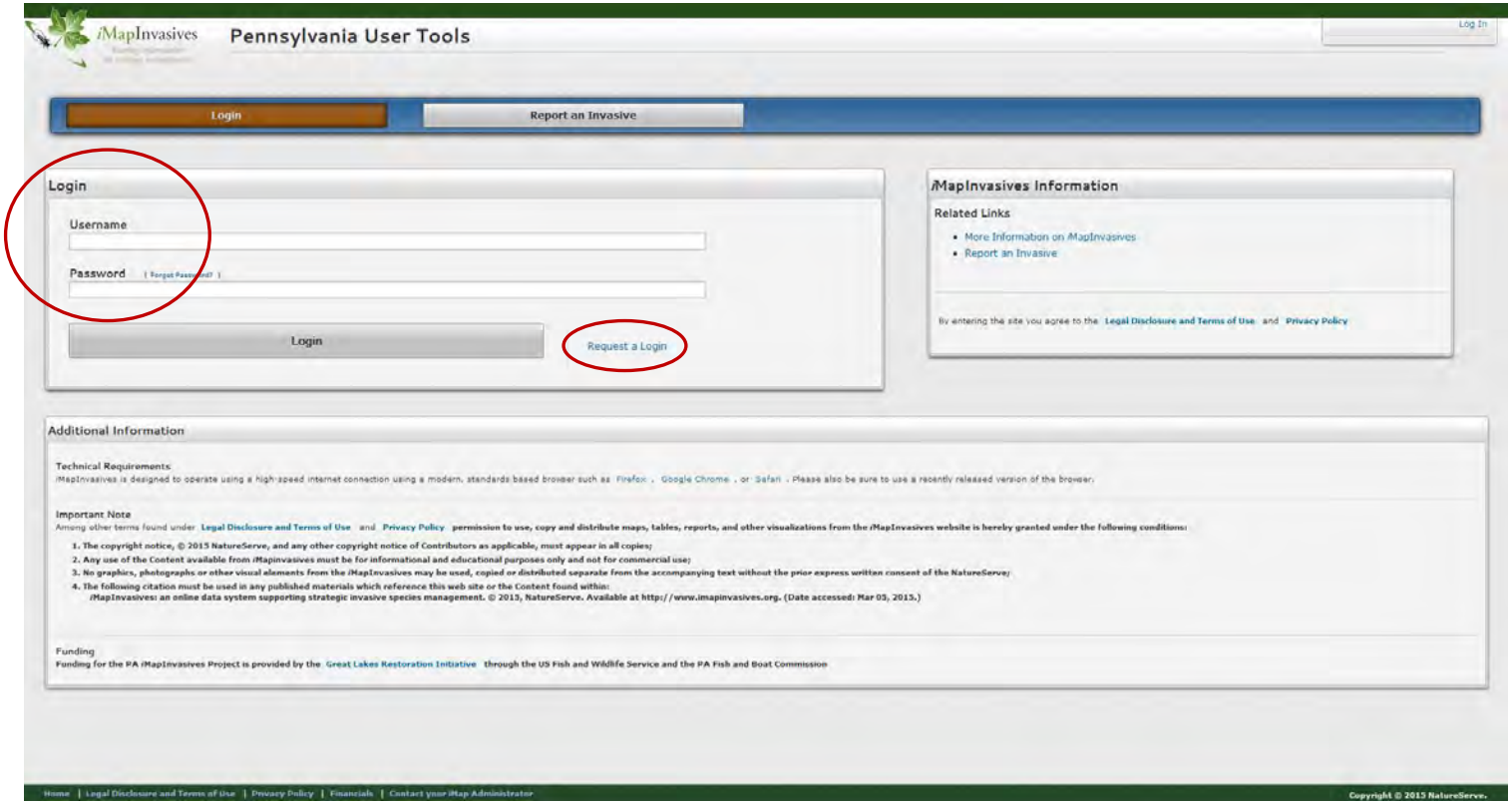
- Contains info about iMapInvasives as well as invasive species
- Highlights include a Gallery of Invaders, Invasive Species in the News, Reference Guides, and more!
- Questions or comments about iMap? Click on the "Contact Us" tab to email or call us.


http://www.naturalheritage.state.pa.us/paimap.aspx

# Overview:
# Entering and Querying for Data

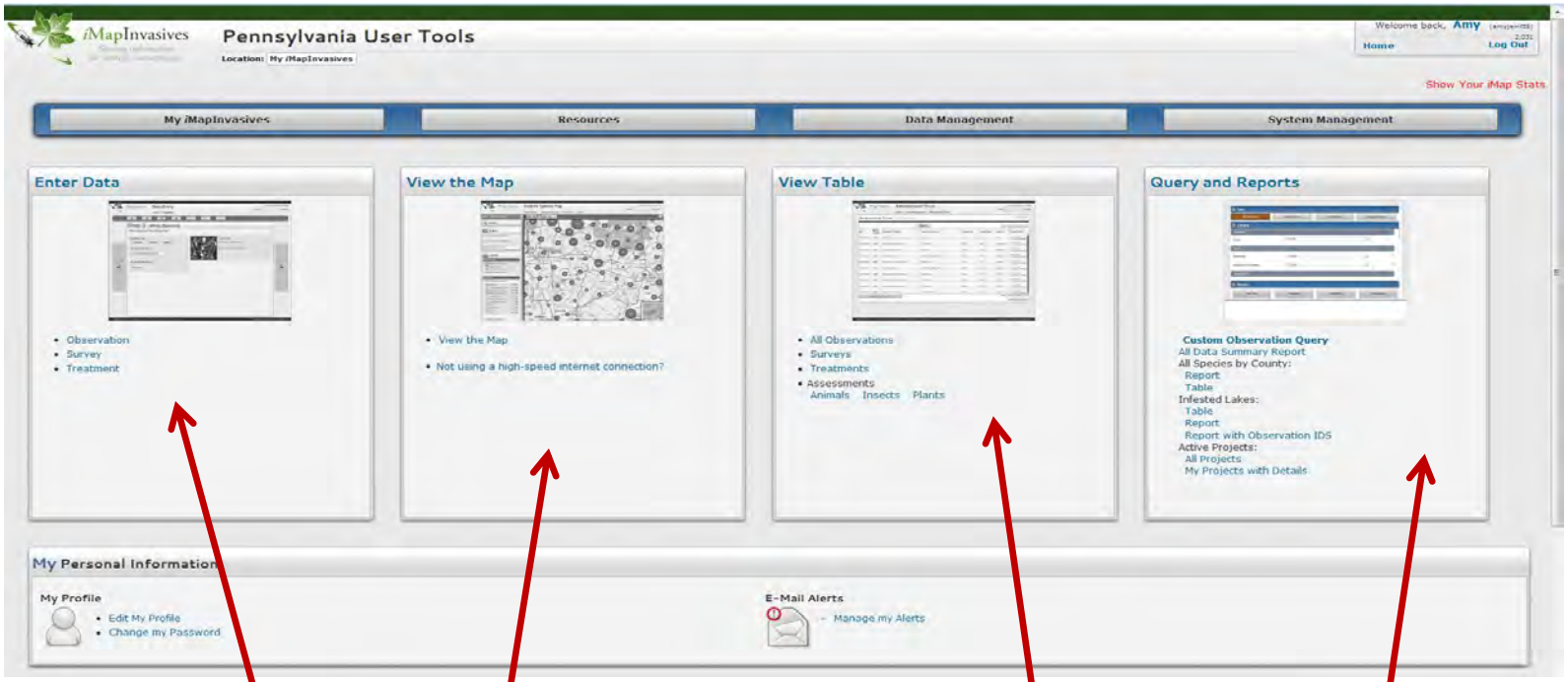


# iMapInvasives Login Page




Enter Username & Password or
Request Login if accessing for first time

# Main Navigation Page




Enter observation data

Visualize data on a map

View data in a list format

Query for specific data

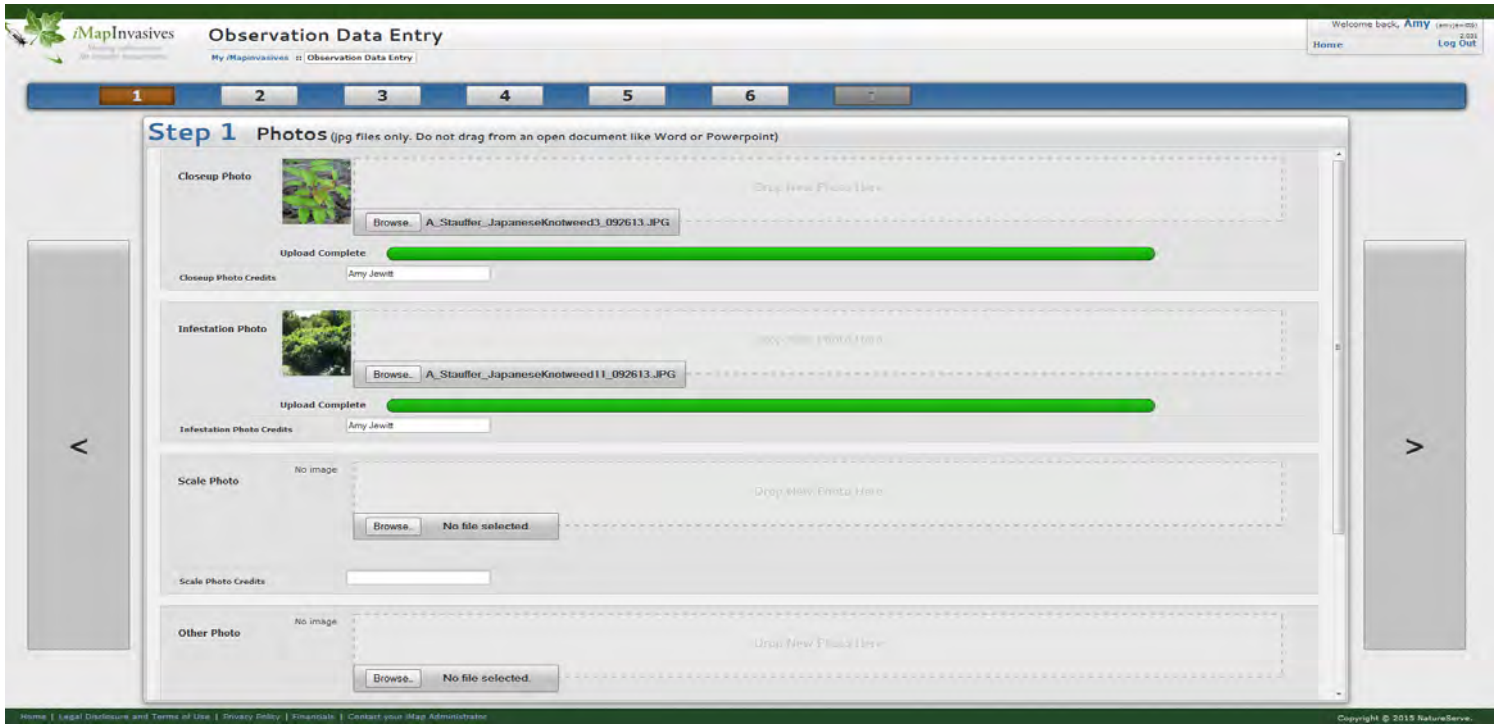
# 5 Different Record Types Available

- **Observation** – report of a specific species, at a certain place, on a specific date.
- **Assessment** – provides detailed information about an observation. This can include the intensity of infestation, damage caused by the organism, and details about the surrounding area.
- **Survey** – a planned search of an area to determine the presence *or absence* of specific invasive species.
- **Treatment** – an action taken to control an invasive species population.
- **Infestation Management** – ties together all the info about a managed population over time.

# Entering an Observation

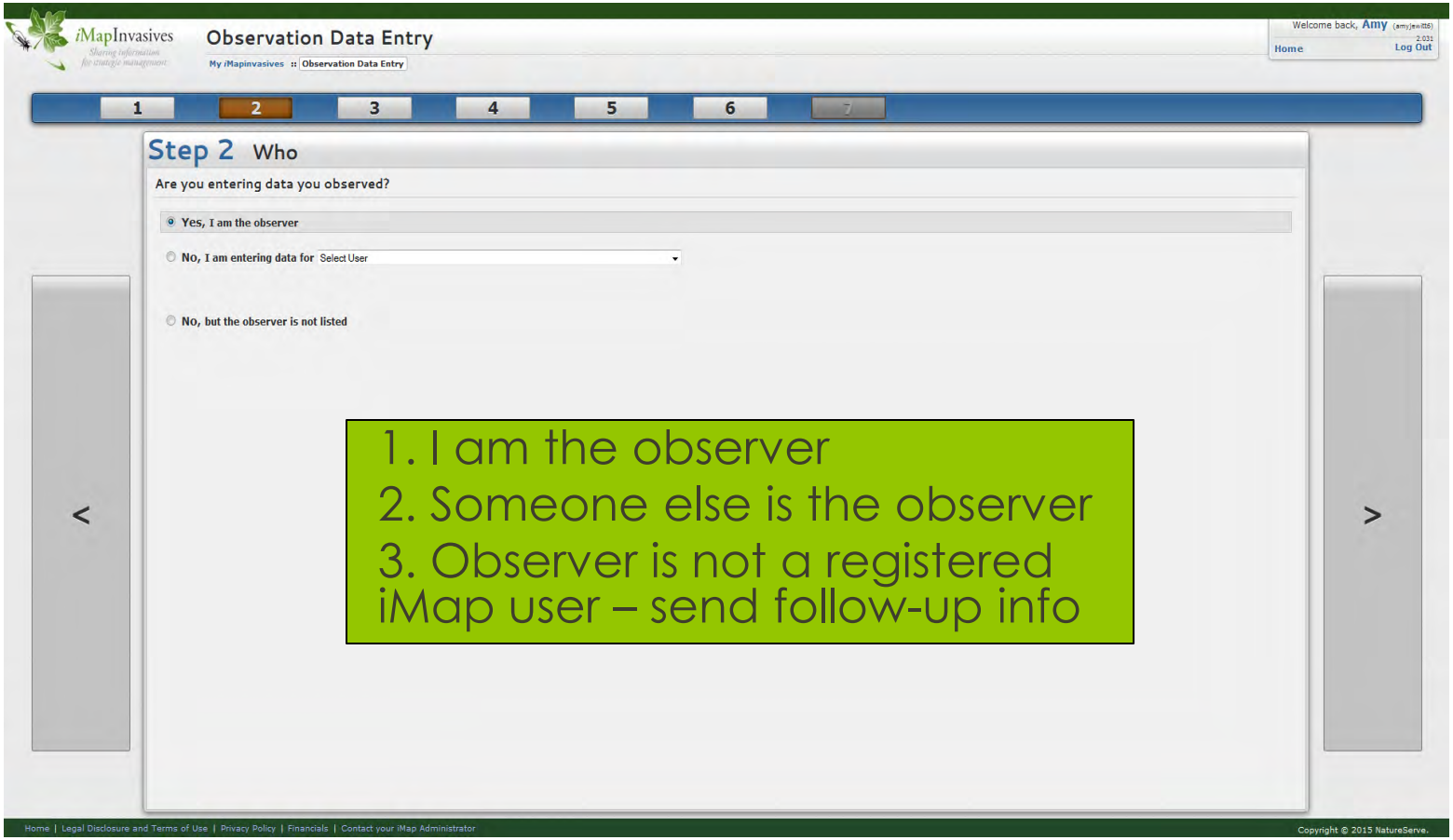
- 7-step process
- Simple and easy to use
- Good for entering small amounts of data (1-50 records)
- Bulk datasets can be sent to the state administrator for loading (50+)

# Step 1:
# Adding Photos and Photo Credits



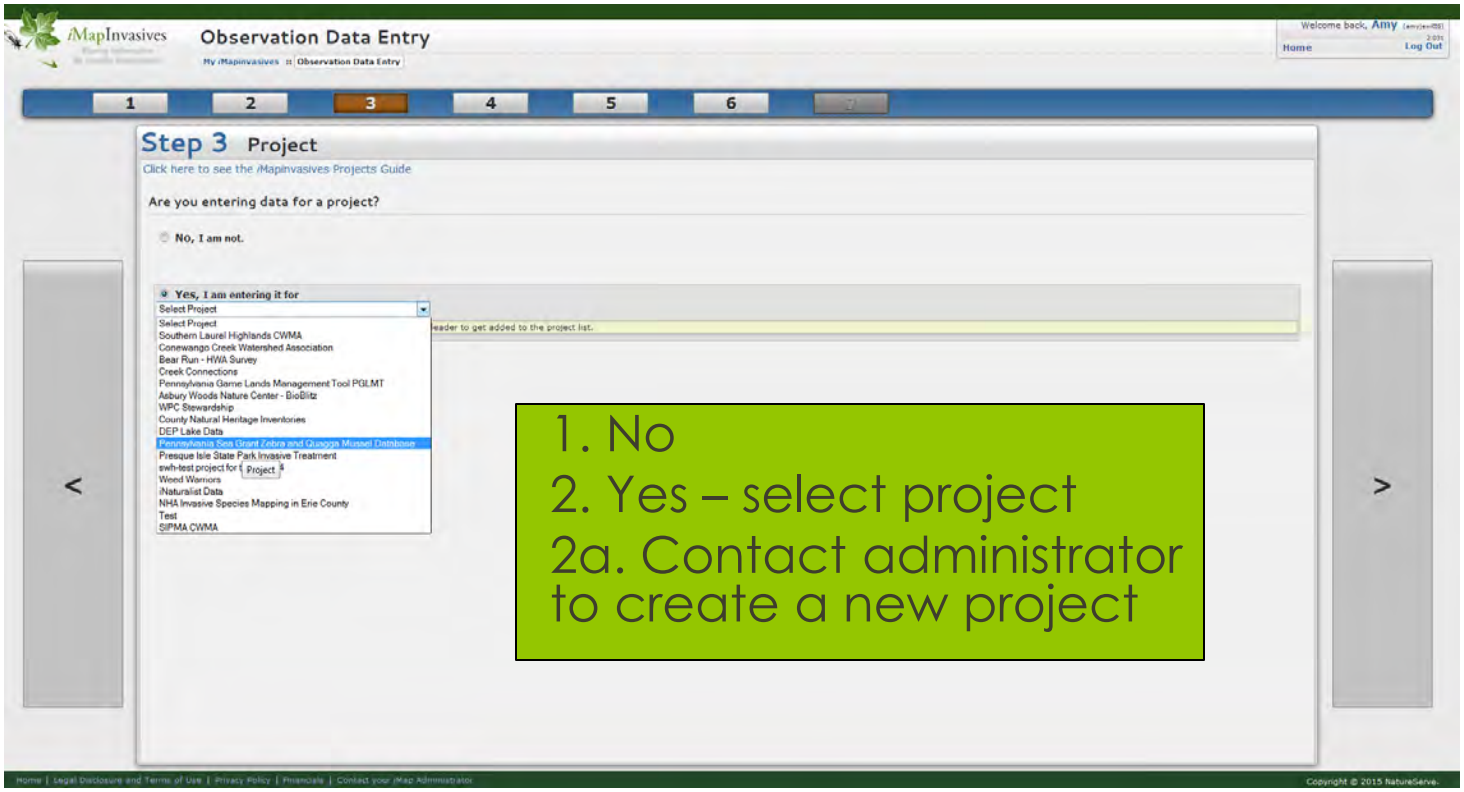

Five categories of photos: Close-up, Infestation, Scale, and Other (2)

# Step 2: Who is the Observer?



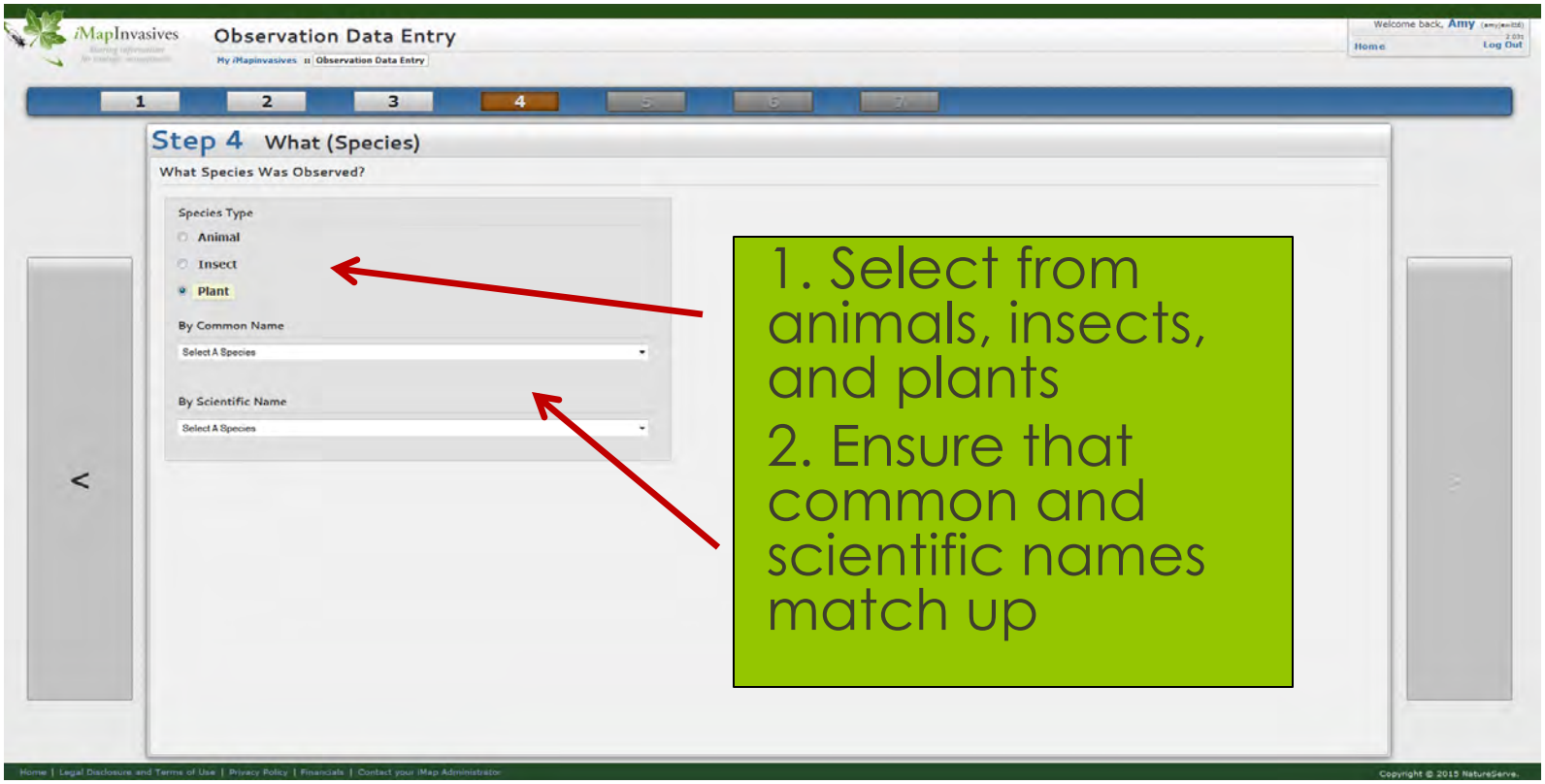

1. I am the observer
2. Someone else is the observer
3. Observer is not a registered iMap user – send follow-up info

# Step 3:
# Is this Data part of a Project?

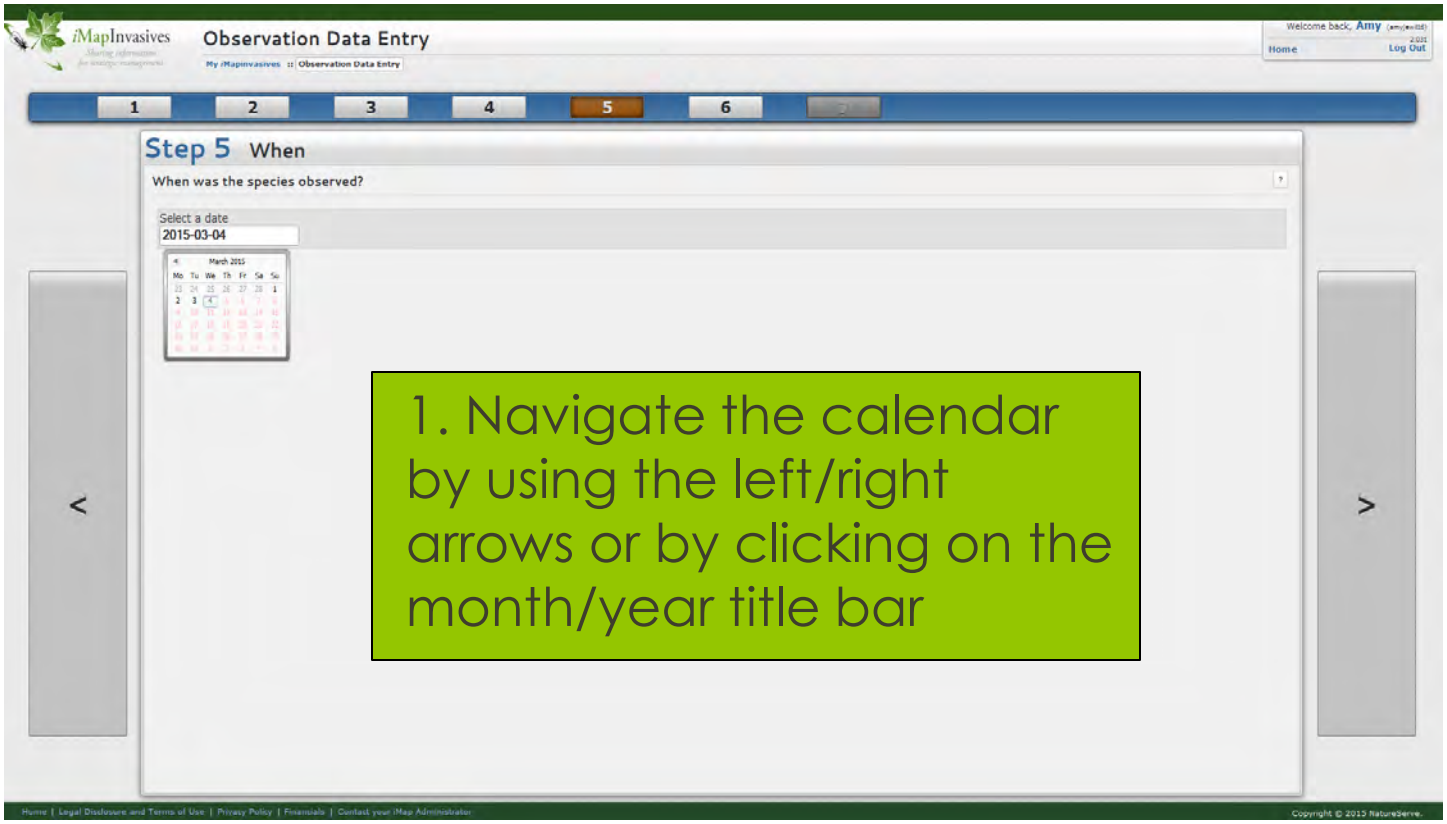



Projects provide a way to group data for faster and easier querying

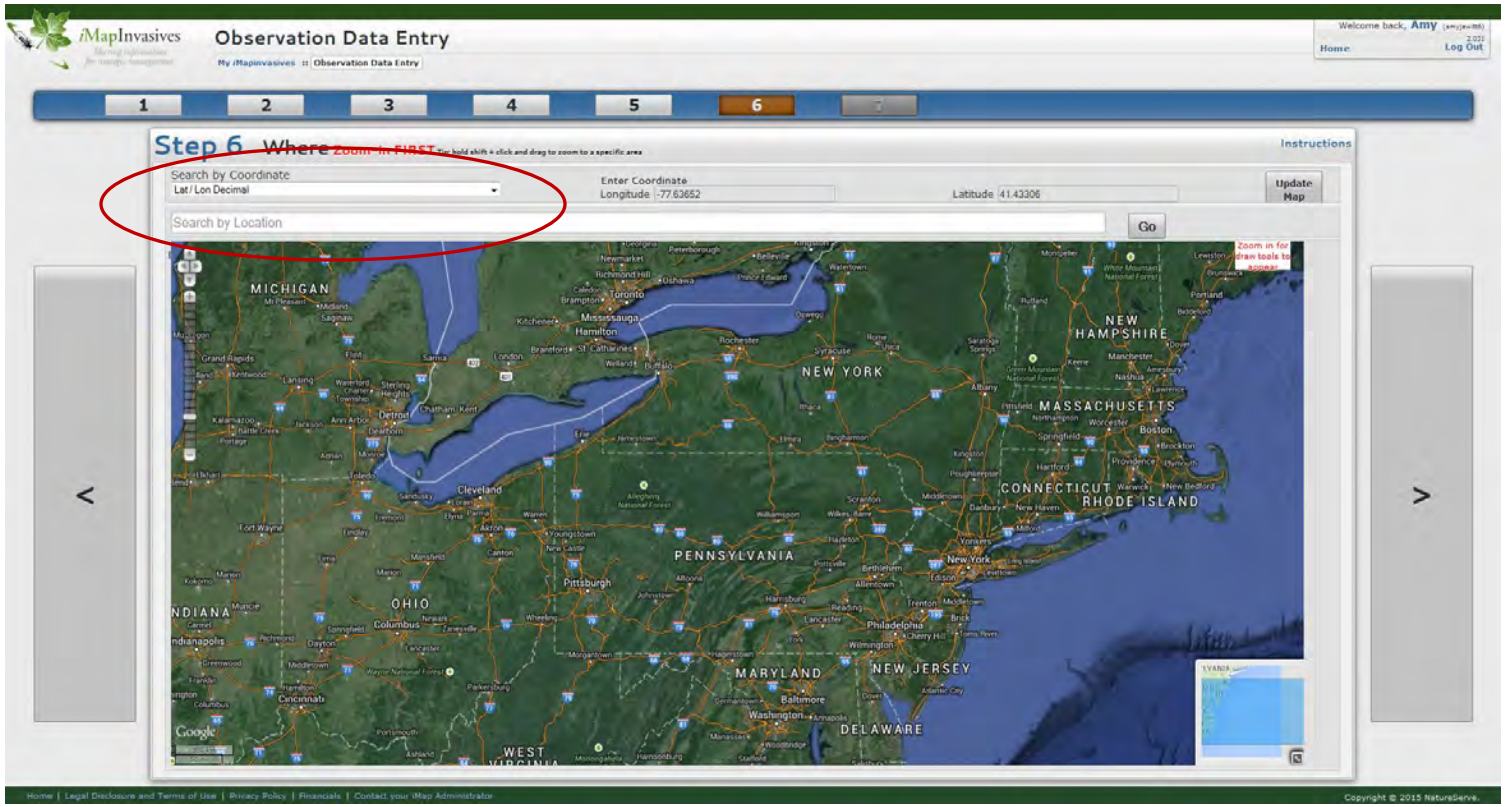
# Step 4:
# What Species was Observed?



# Step 5:
# What is the Observation Date?

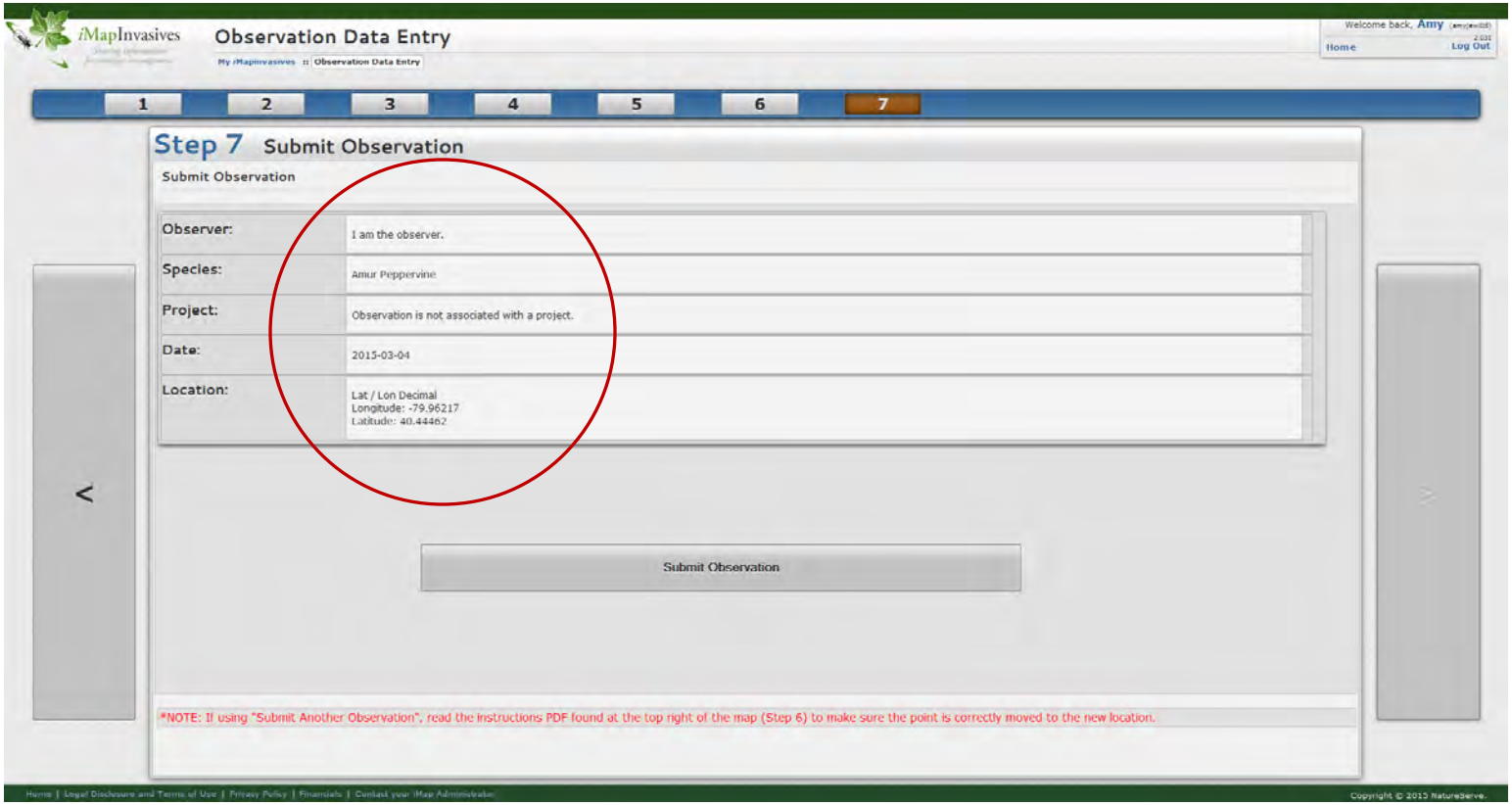


# Step 6:
# What is the Location?




Search by entering coordinates, a specific address, or location name

# Step 7: Summary Page

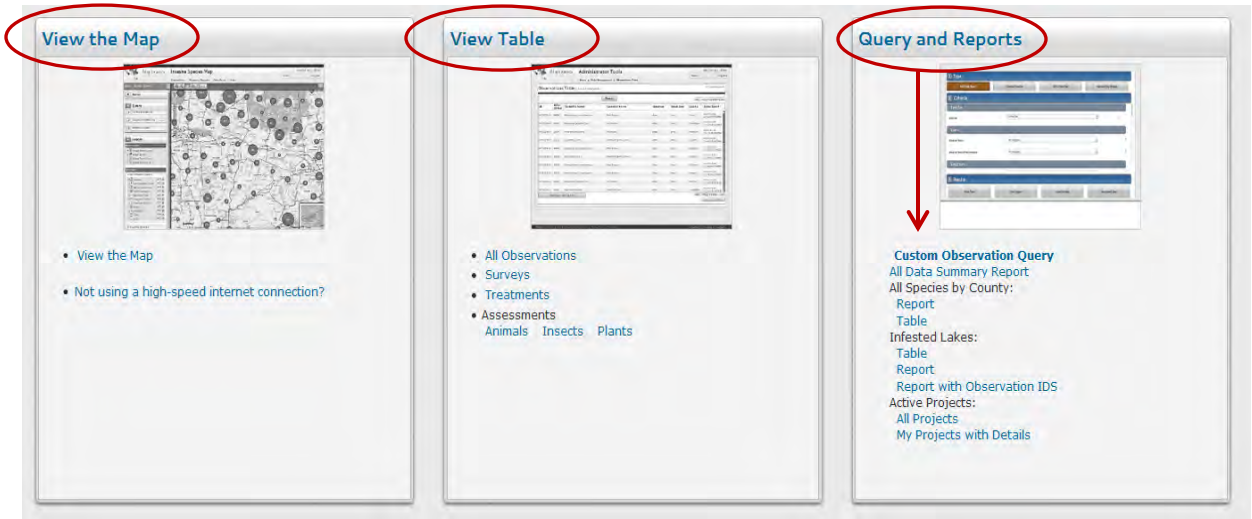



Check accuracy of observation data before submitting

# Observation Data Entry Training Video


View PA iMap training video for additional info on how to include more details to an observation record, available on the Homepage and YouTube.

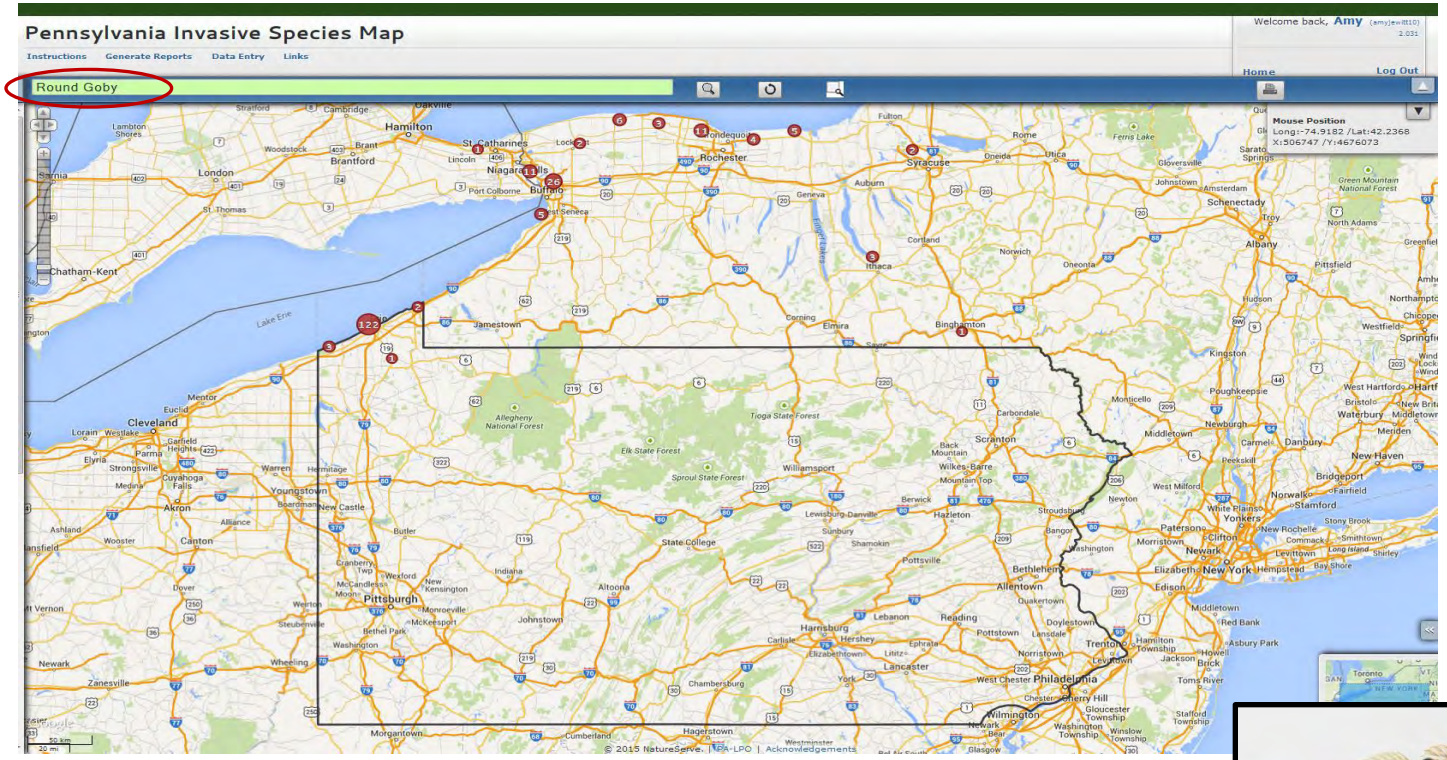
# Querying for Data




Choose to query for data using the Map, the Table, or create a Custom Observation Query

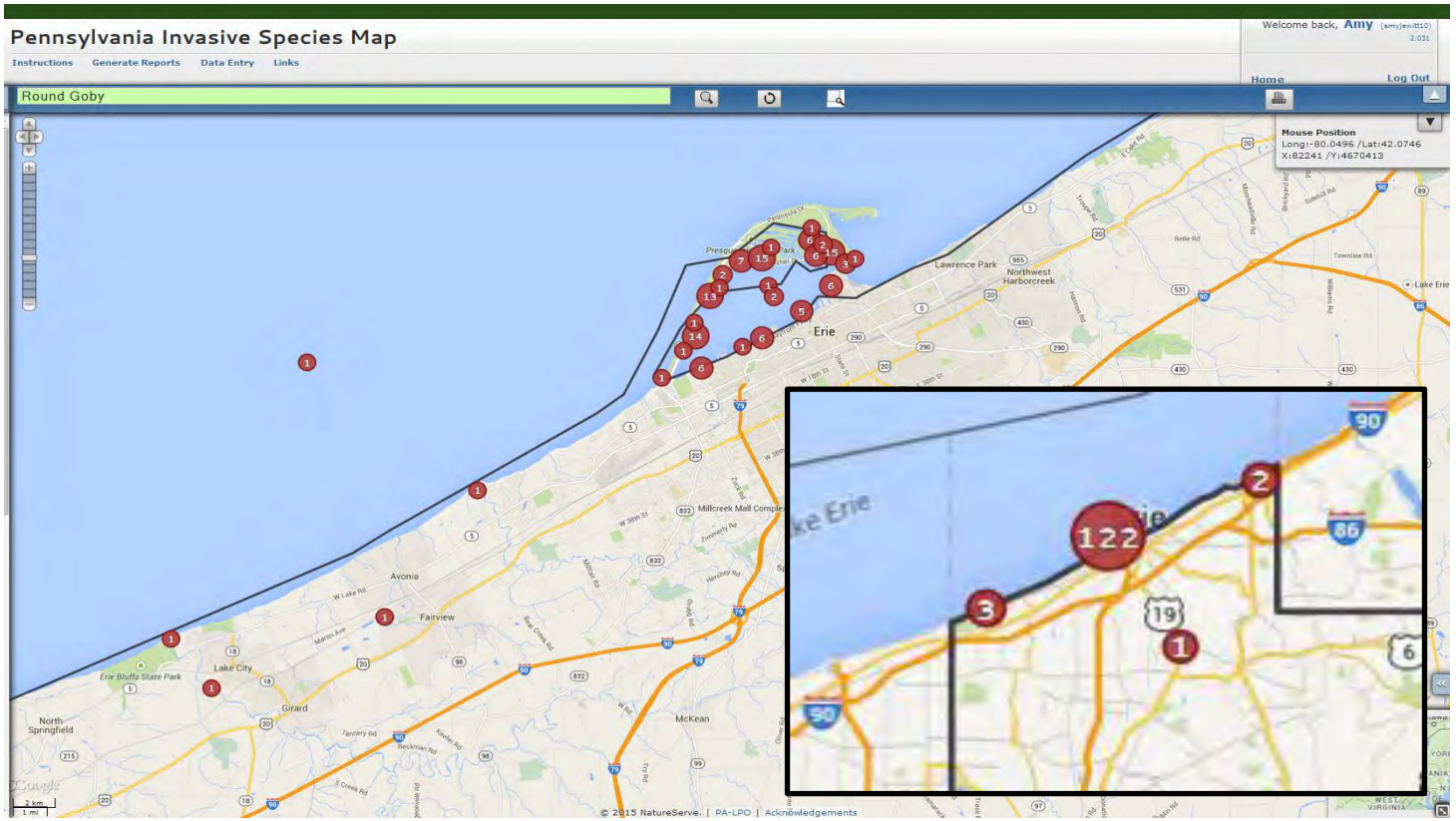
*Custom querying guide available on Homepage*

# Querying with the Map



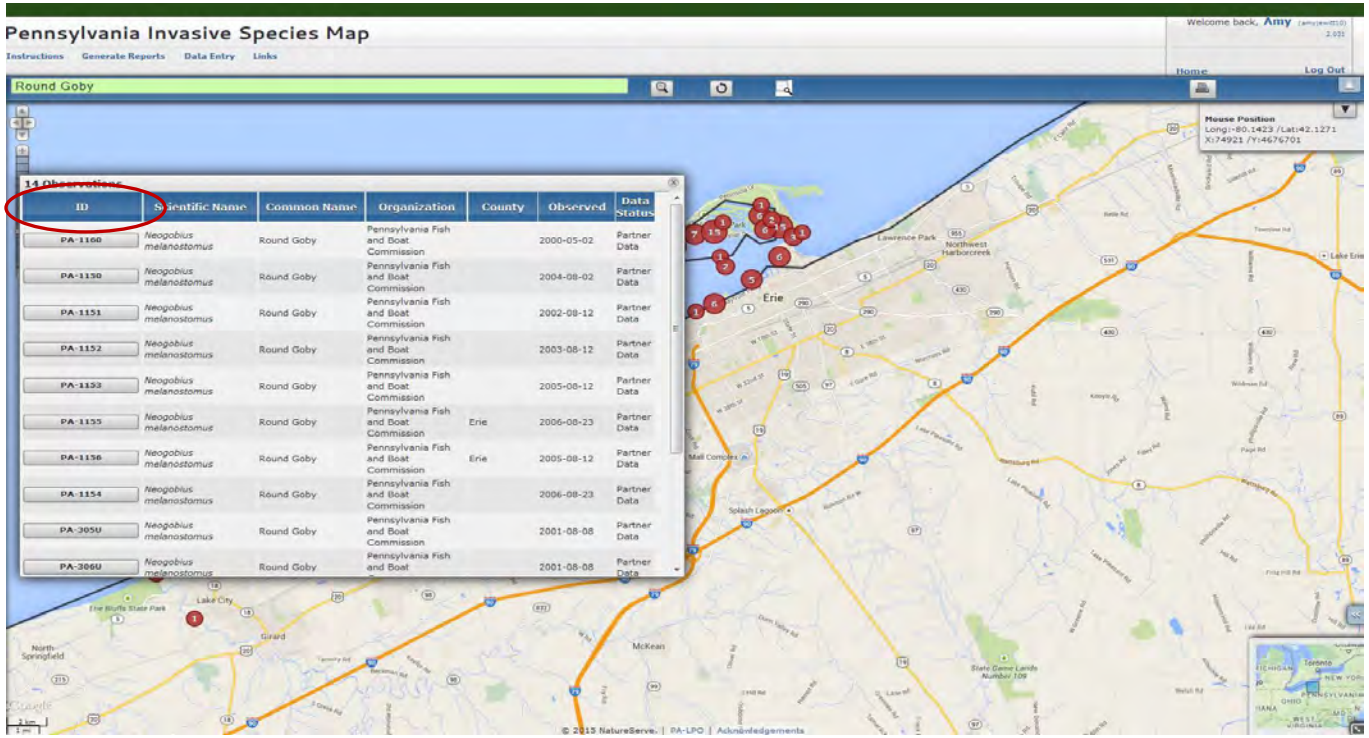

- Search by Species Name – ex. Round Goby
- Notice NY records appear too (another iMap state)

# Querying with the Map



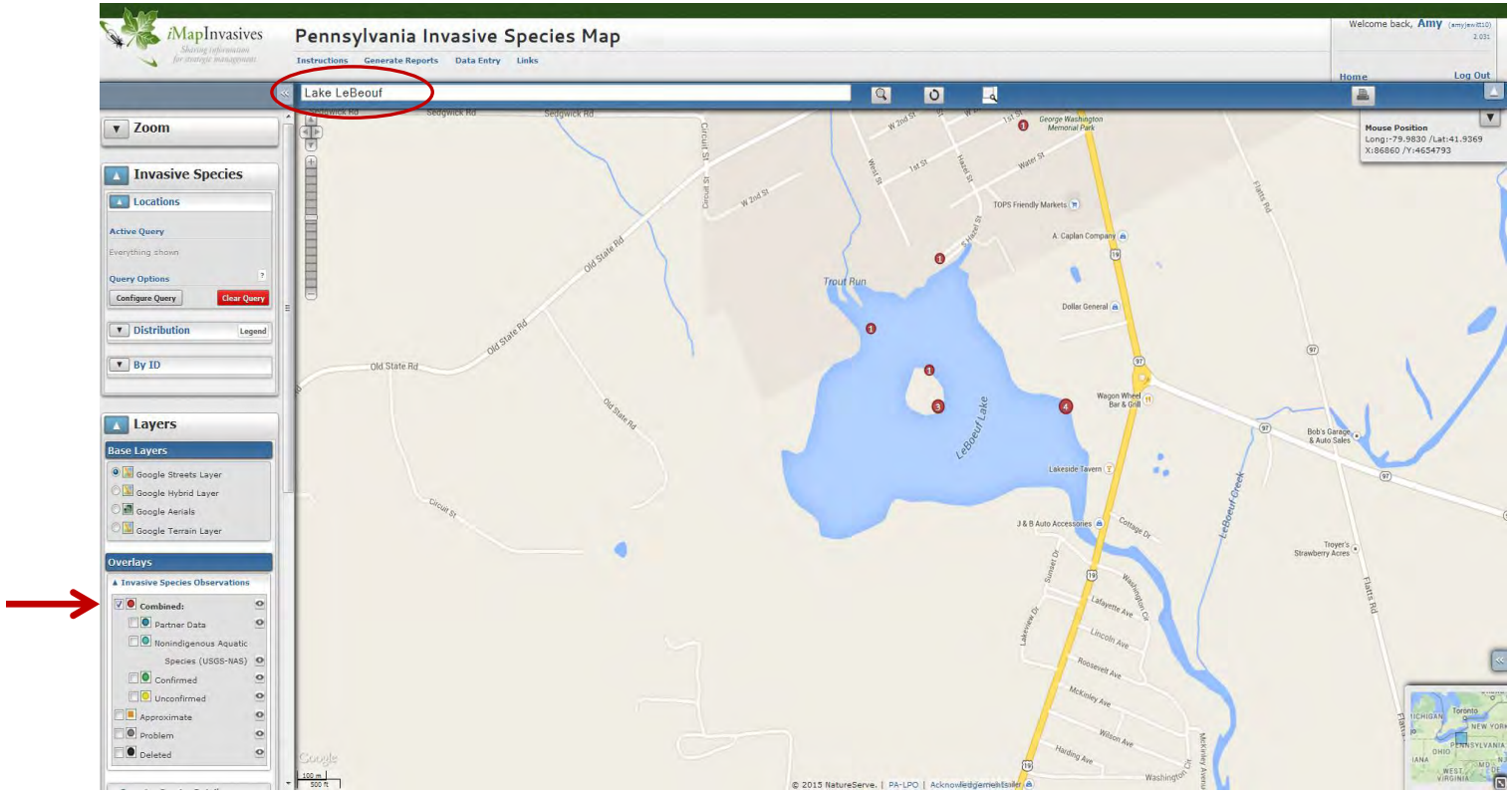

- Zoom in to see more precise locations of records
- Notice numbers in circles get smaller as you zoom in

# Querying with the Map



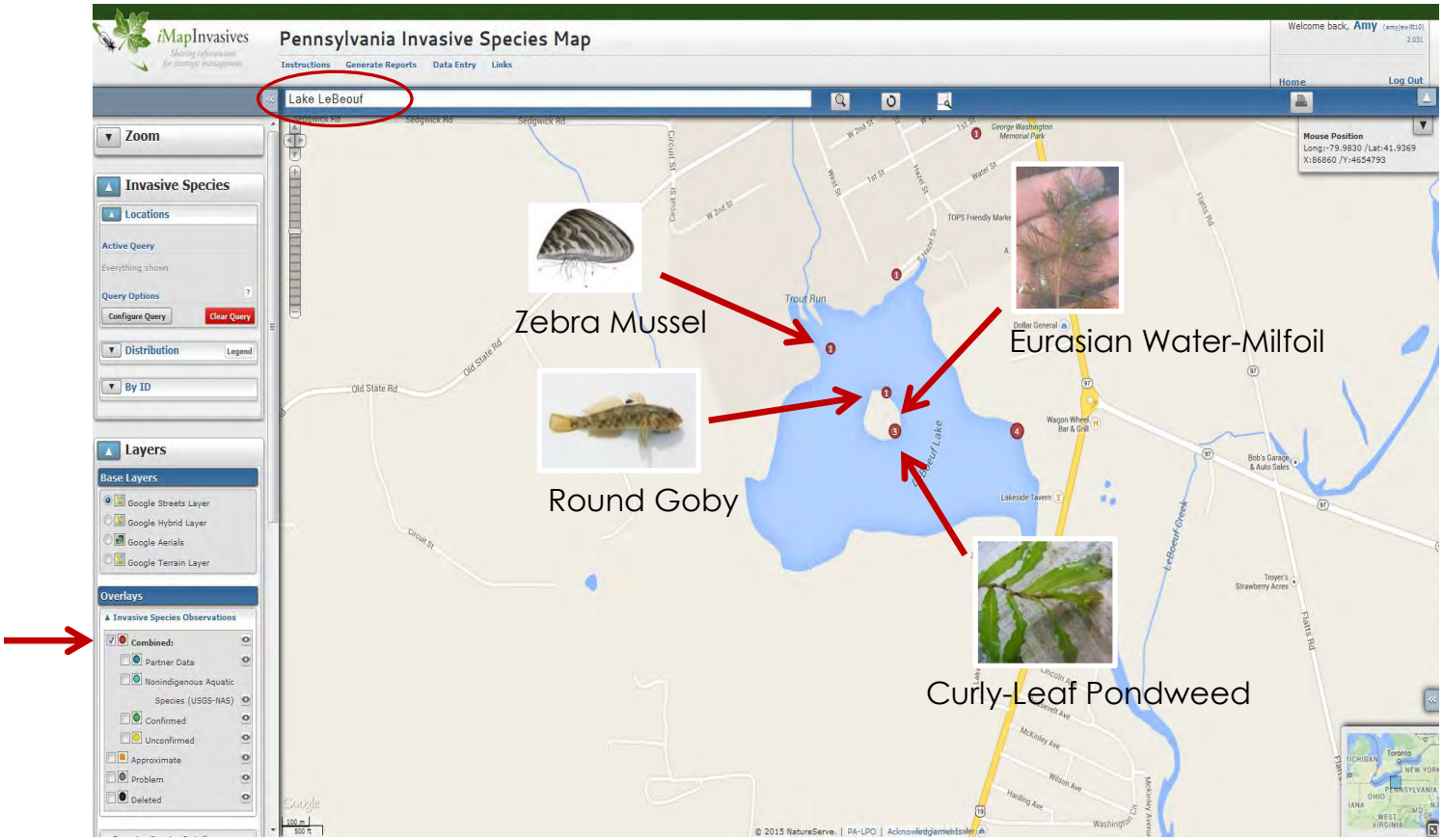

- Click red circles to view associated observations
- ID #s link directly to specific record and related details

# Querying with the Map



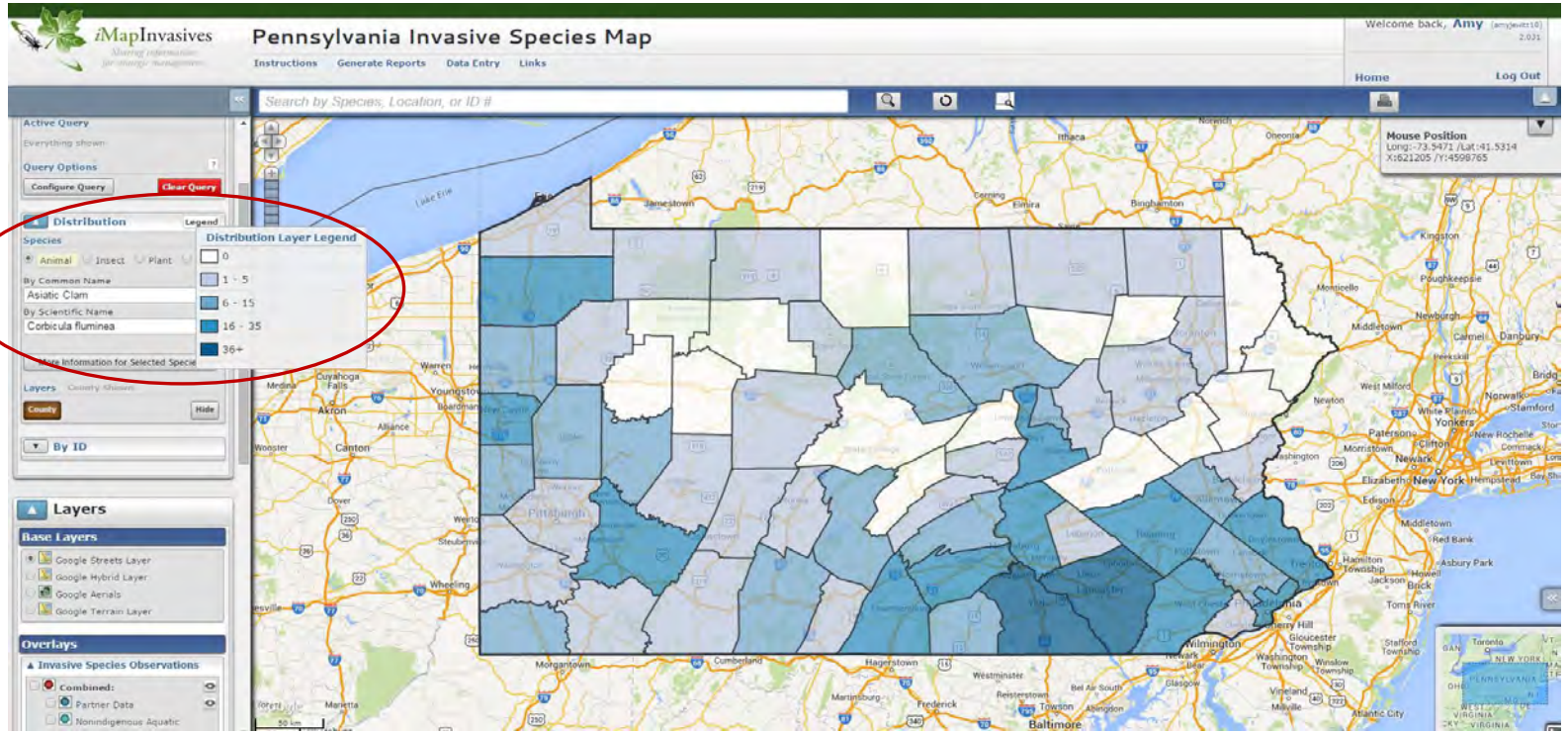

- Search by location – Ex. Lake LeBeouf

# Querying with the Map



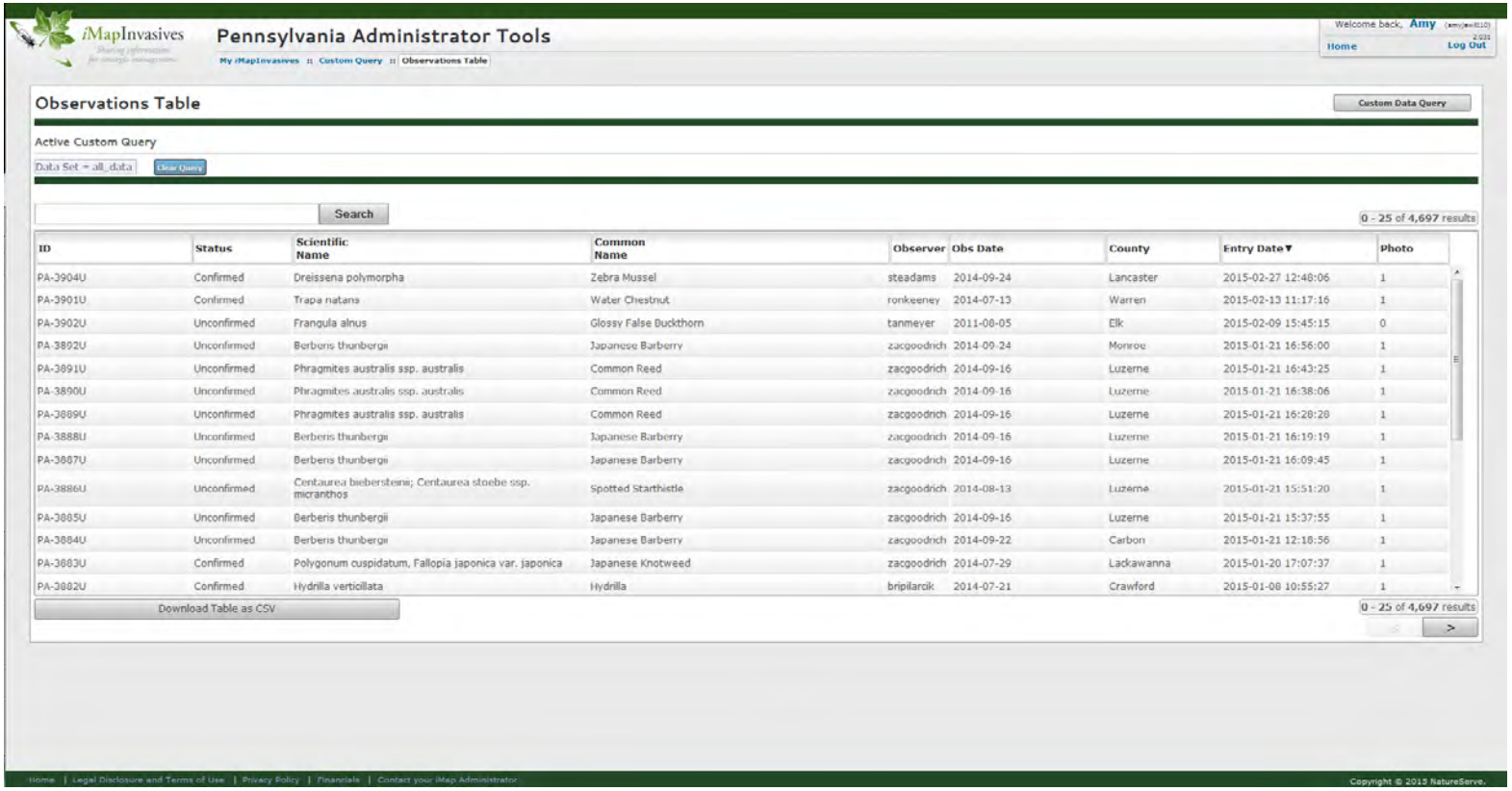

- Find out what species have been reported in Lake LeBeouf

# Querying with the Map for County Distribution Info



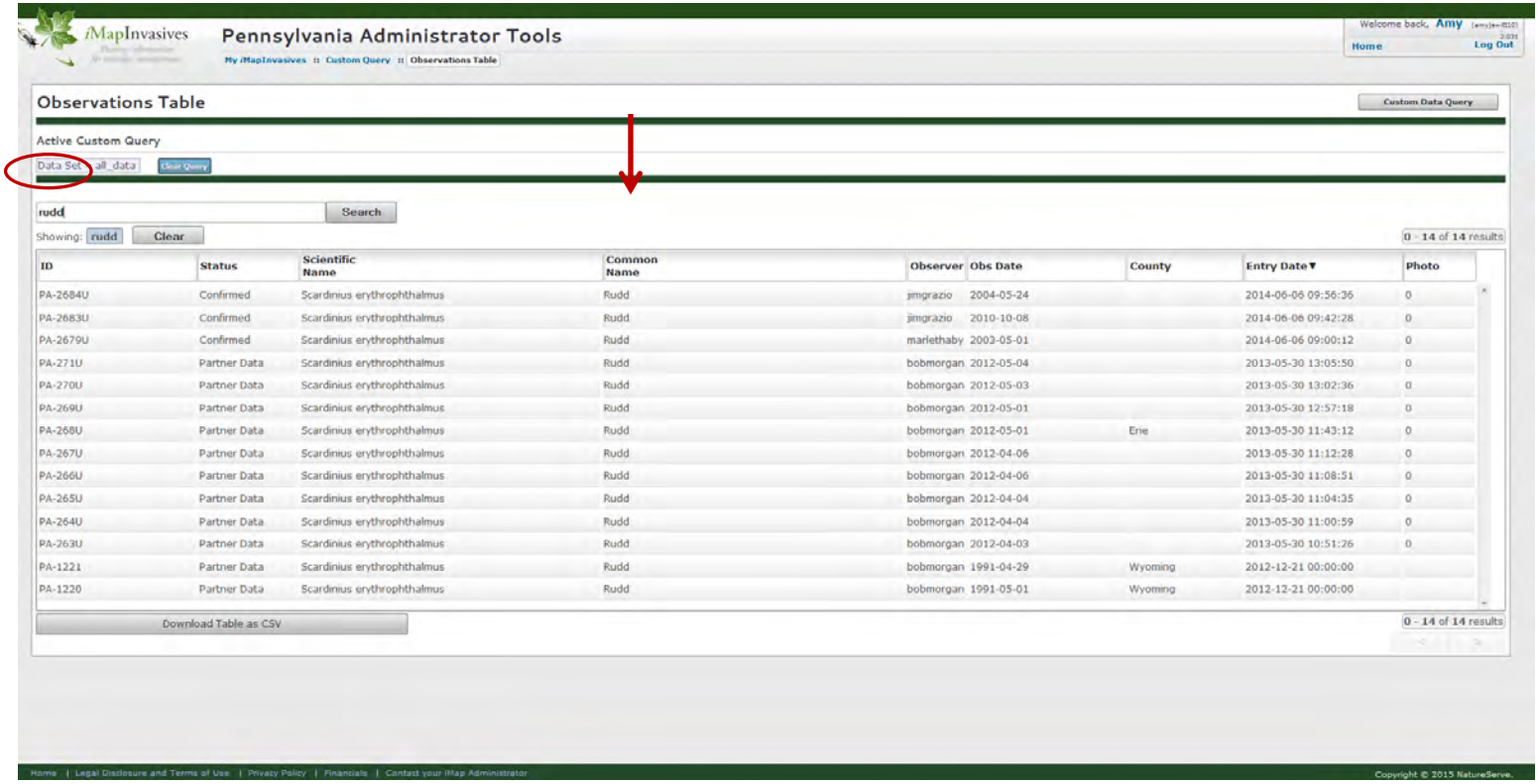

- View species distribution in PA counties
- Distribution density is shown as color goes from light to dark
- Ex. Asian clam distribution across state (based on current data)

# Querying with the Table



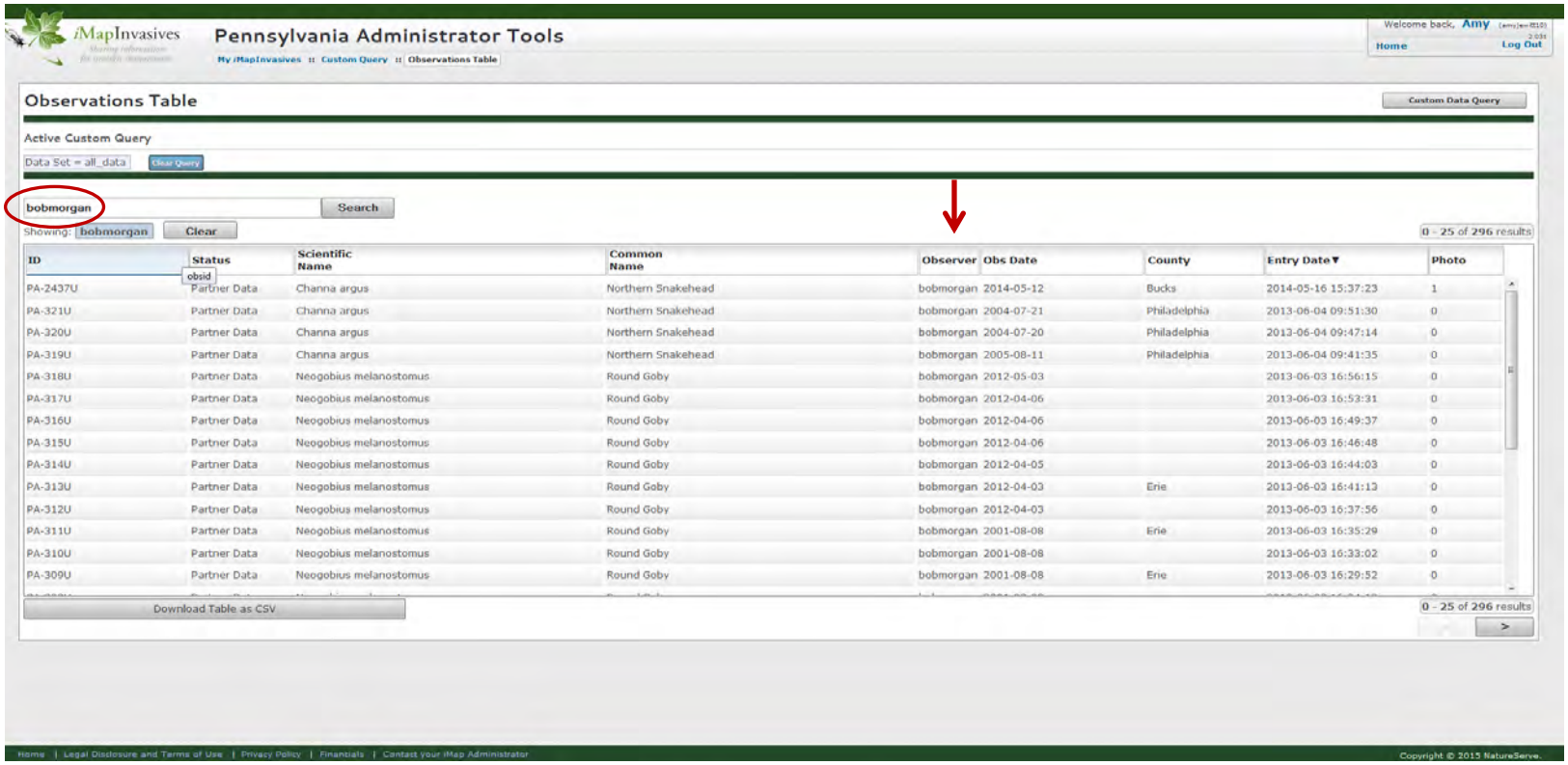

Search all observations

# Querying with the Table - Search by Species



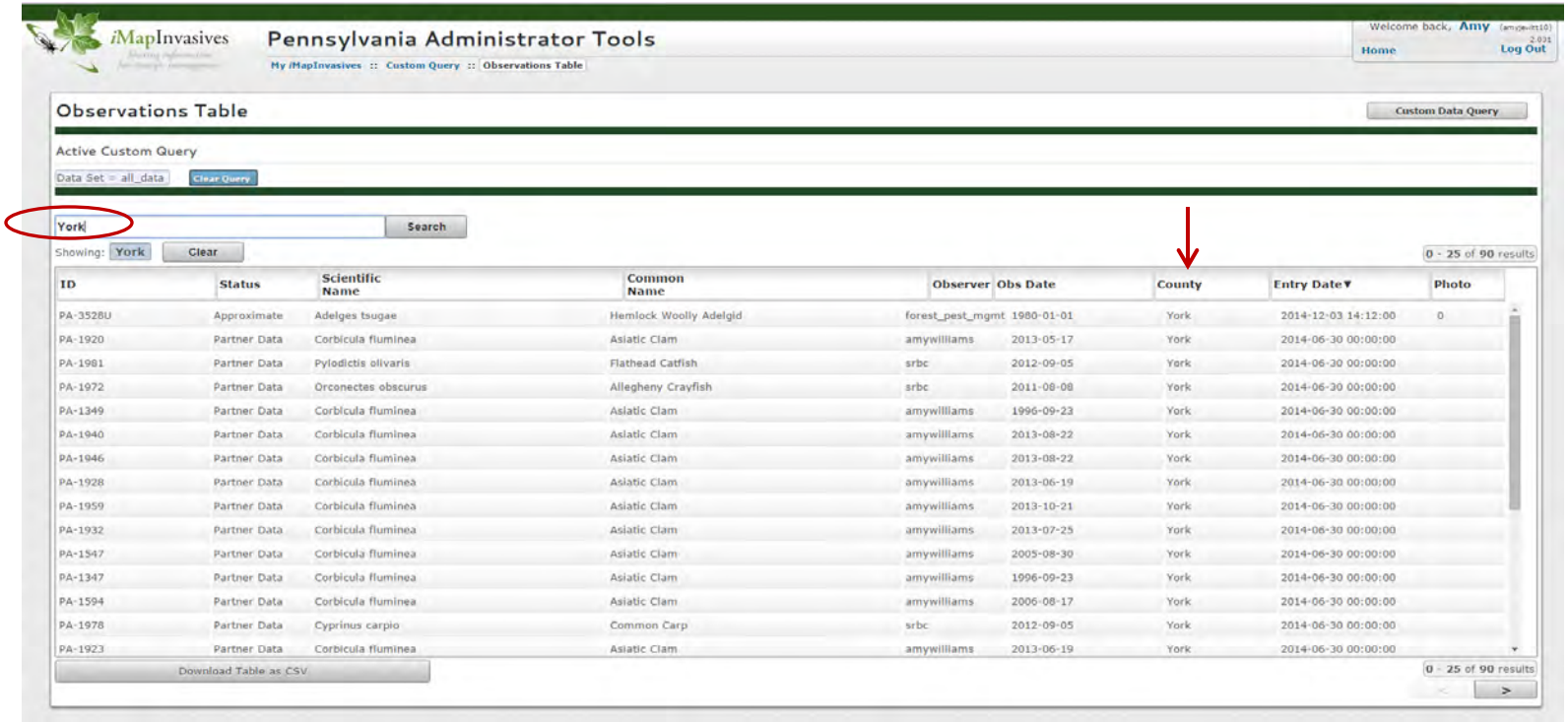

Search by species – Ex. Rudd
(Search by common name or scientific name)

# Querying with the Table – Search by Observer Name



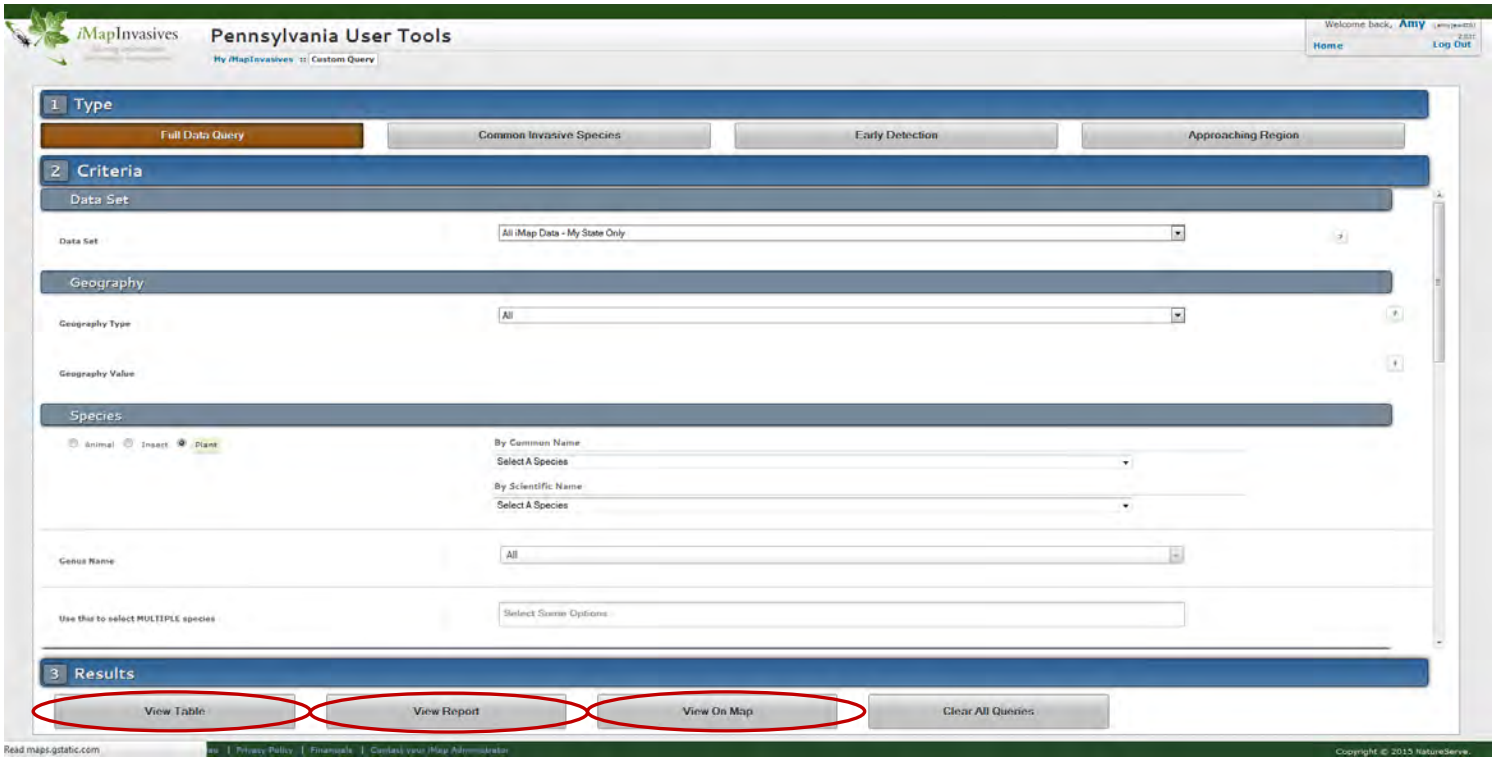

- Search by Observer Name (i.e. User Name) – Ex. "bobmorgan"

# Querying with the Table – Search by County



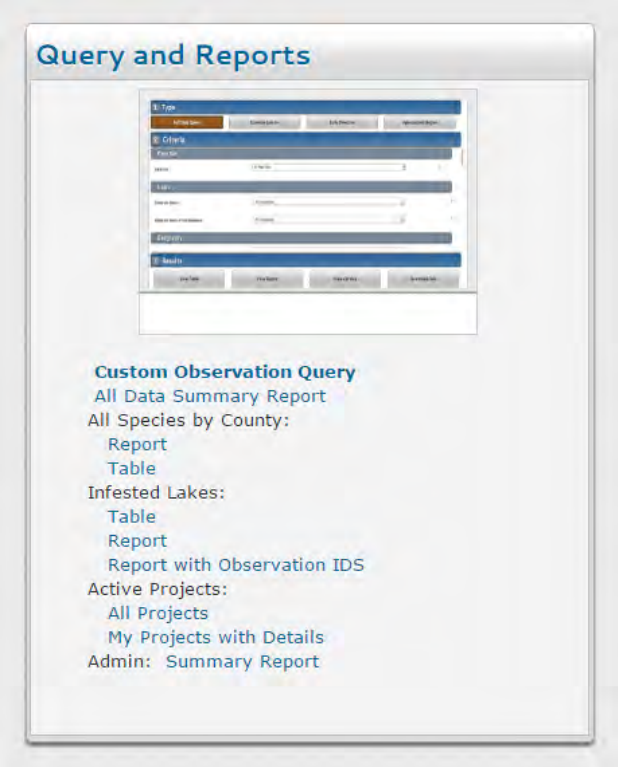

- Search by County – Ex. York County

# Create a Custom Observation Query

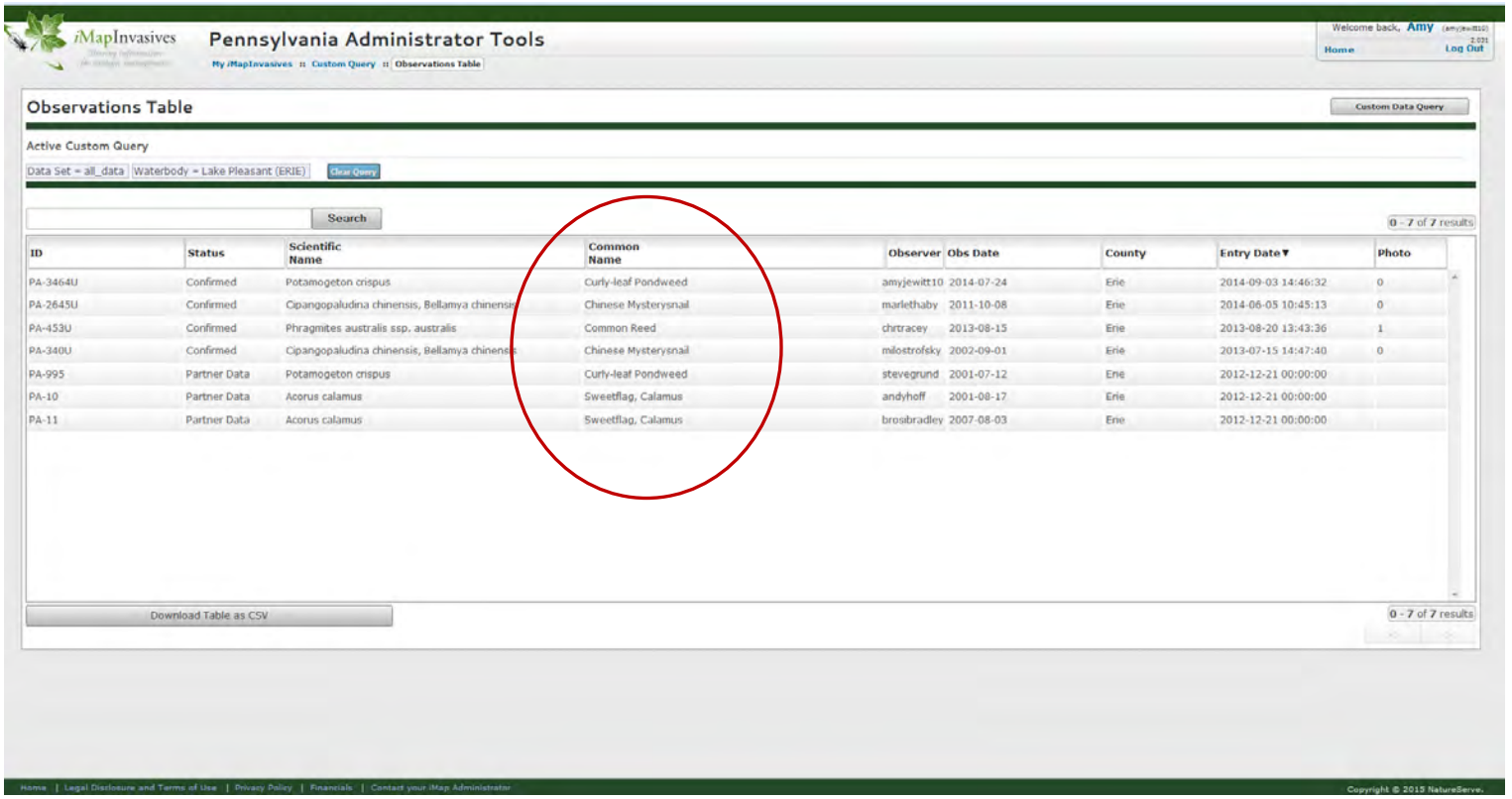



- Choose to filter by any number of categories – many available!
- View query results in a table, report, or on the map.

# Examples of Custom Data Queries and Ways to View the Results

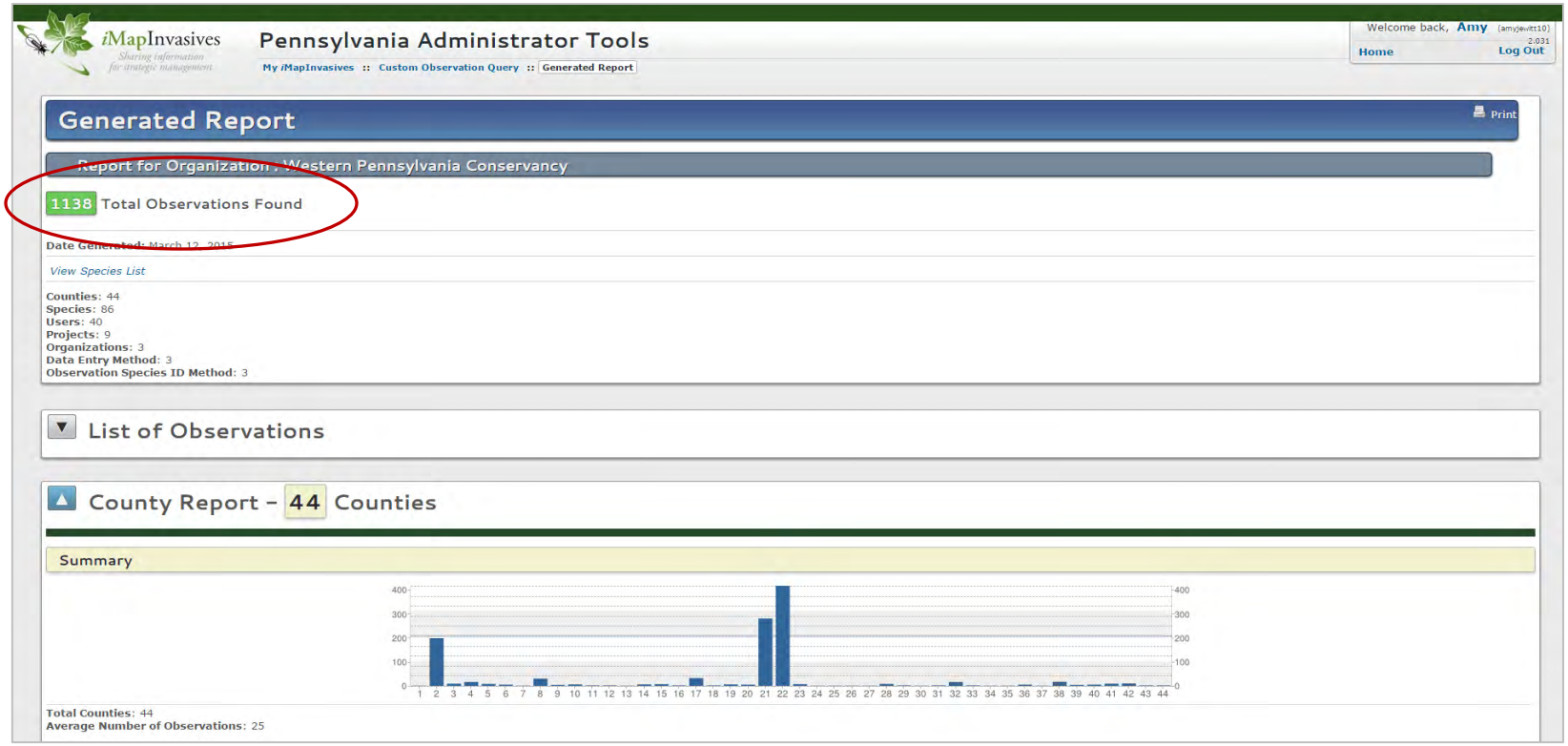


# Create a Custom Query *View Results in a Table



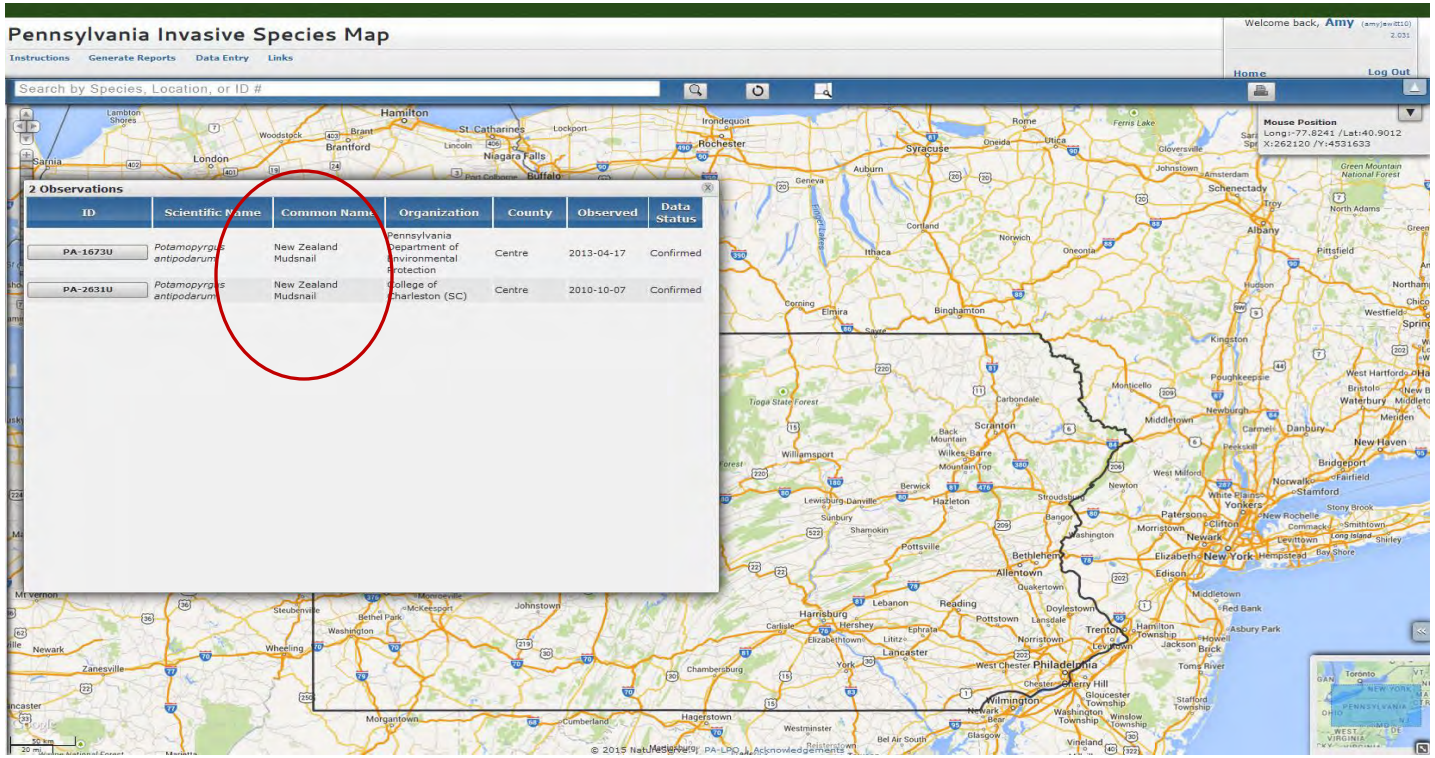

- Ex. What invasive species have been found in Lake Pleasant (Erie County)?
- Answer: Curly-leaf pondweed, Chinese Mysterysnail, Common Reed, and Sweetflag (according to present data)

# Create a Custom Query
# *View Results in a Report



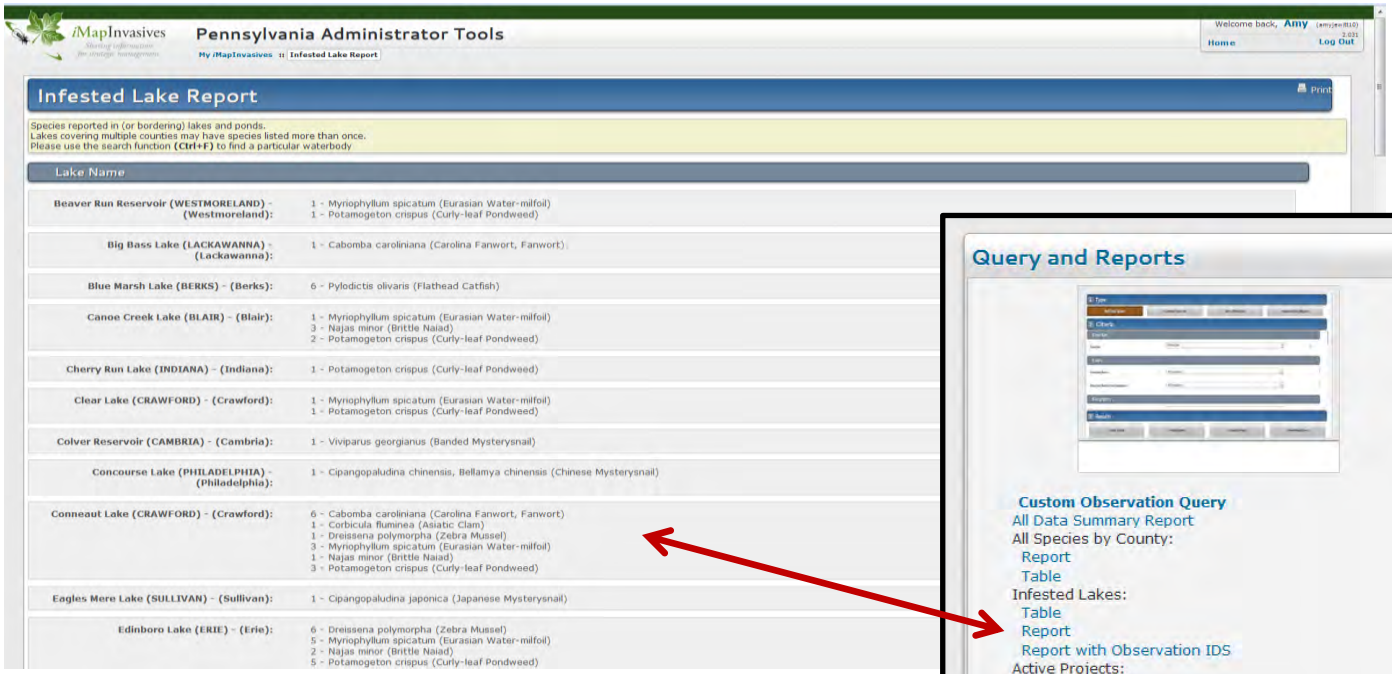

- Ex. What data is currently in iMap from my organization? (Western PA Conservancy)
- Answer: 1138 observation records (MUCH more info available in report!)

# Create a Custom Query
# *View Results on the Map




- Ex. What aquatic animals are located in Centre County?
- Answer: New Zealand Mudsnail (according to present data)

# Infested Lake Report







**Great tool for natural resource professionals!**

- This report is a quick and easy way to view a list of infested lakes and their associated invasive species. Available Under the Query and Reports section on the Main Navigation page.

# Email Alerts

- Access email alerts from the Main Navigation page
- 3 types of alerts available
- Keeps you informed of latest info reported to iMapInvasives
- Invaluable EDRR tool
- Reference guide available on the Homepage

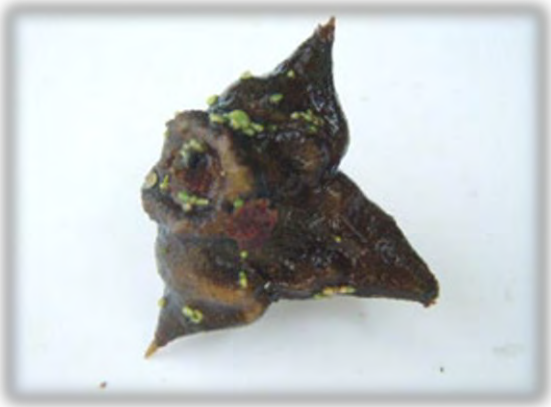
Zebra Mussels
Photo credit: Becky Bochaty, Flickr user

Black Swallow-Wort
Photo credit: www.fws.gov

# Continual Alert

- Most basic type of email alert available
- This alert will send you an email whenever its conditions are met, until the alert is deactivated

Water Chestnut
Photo credit: eattheweeds.com



Water Chestnut (Nutlet)
Photo credit: Dave Donachy, PA Game Commission

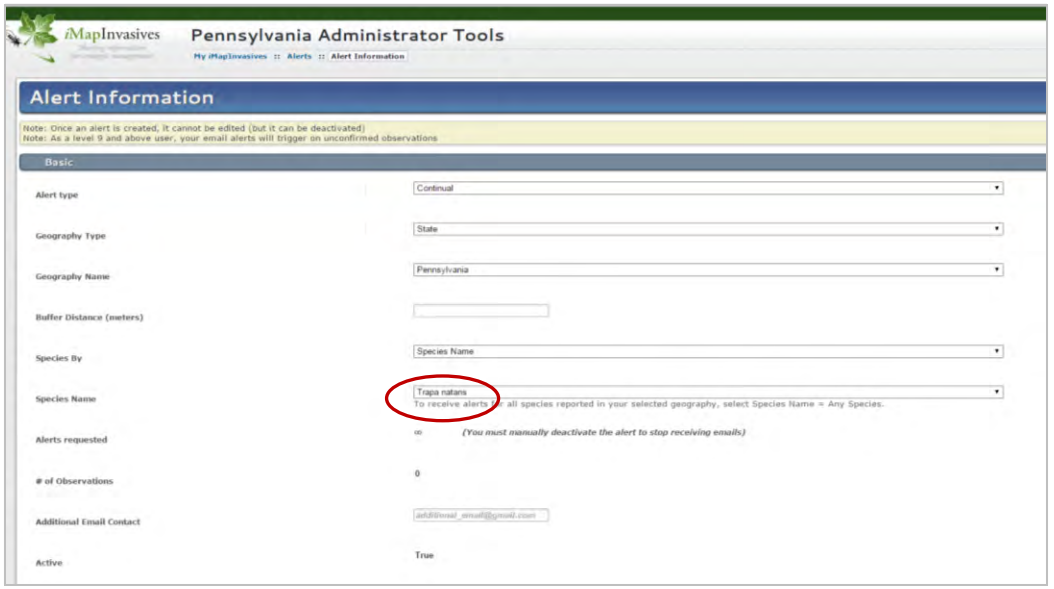
# Example of a Continual Alert

Alert type = Continual

Geography Type = State

Geography Name = PA

Species Name = Trapa natans

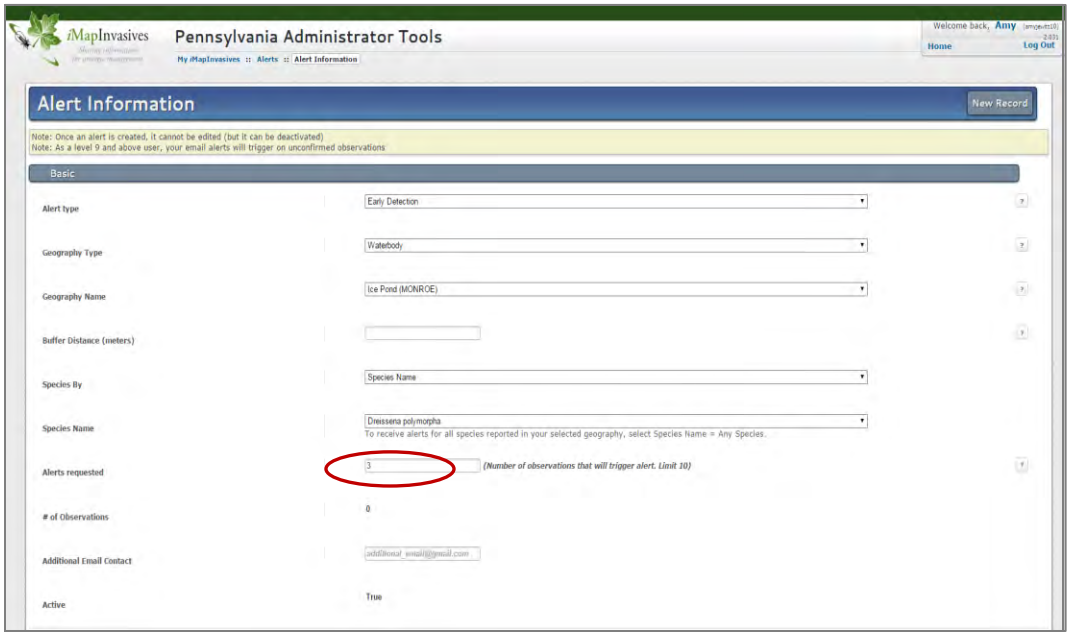



- For this continual alert, I will be notified whenever Water Chestnut (Trapa natans) is reported anywhere in Pennsylvania.

# Early Detection Alert

- This type of alert is only active for the first few confirmed reports in your area of interest as a way to notify you of a new species coming into your area.
- Once there are many confirmed reports, you will stop getting notices as this species would now be considered **established** rather than an **early detection** species.

# Example of an Early Detection Alert




Alert type =
Early Detection

Geography Type =
Waterbody

Geography Name =
Ice Pond (Monroe)

Species Name =
Dreissena polymorpha

Alerts requested = 3

- For this Early Detection alert, I will be notified the first three times that Zebra Mussel (Dreissena polymorpha) is reported in Ice Pond in Monroe County. The fourth and subsequent observations will not generate an alert.

# New to Geography Alert

- This type of alert will notify you when an area of interest you specify receives a report for a new species never reported there before. **This can be for any species, not necessarily an early detection species.**
- From this alert, EVERY new record for the specified geography is automatically sent to the user, though only one alert per species is sent.
- This alert is tailored around many species, not just a single species (Continual and Early Detection alerts are better for that purpose).

# Example of a New to Geography Alert

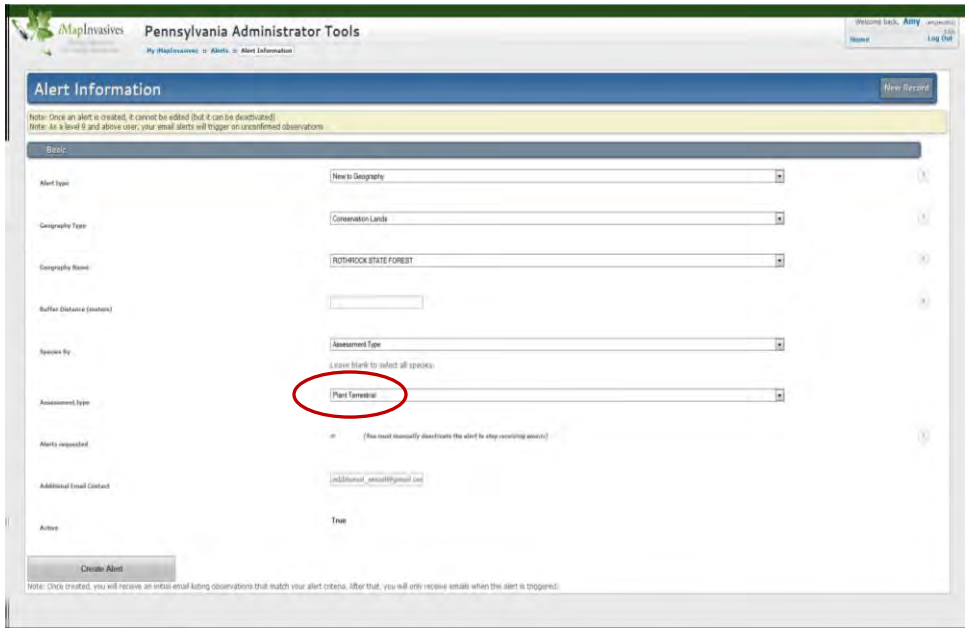
Alert Type = New to Geography

Geography Type = Conservation Lands

Geography Name = Rothrock State Forest

Species by = Assessment Type

Assessment Type = Plant Terrestrial




- For this New to Geography alert, I will be notified whenever a new terrestrial plant is reported in Rothrock State Forest, until I deactivate the alert.

# Test Your *i*MapInvasives Knowledge!

Correct answers will be rewarded with candy ☺

# Question 1

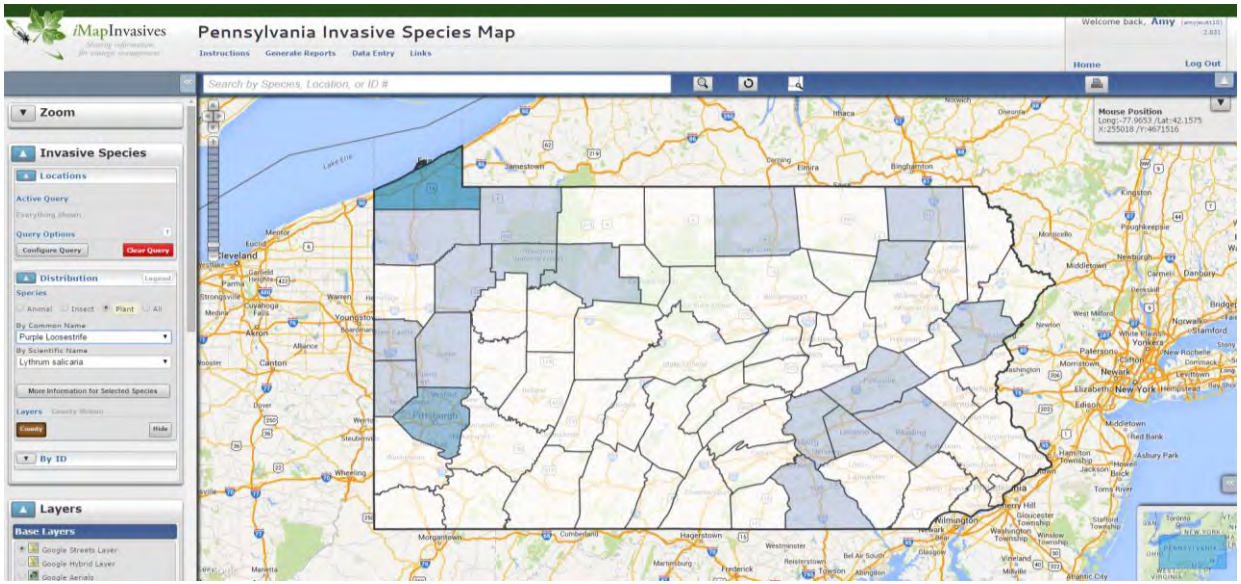
- What are the 5 different types of records you can create in iMapInvasives?
- Answer: Observation, Assessment, Survey, Treatment, and Infestation Management.

# Question 2

- When entering an observation record, what are 3 ways you can select the observation location?
- Answer: GPS coordinates, specific address, and location name.

# Question 3

- In general, what is this map depicting?



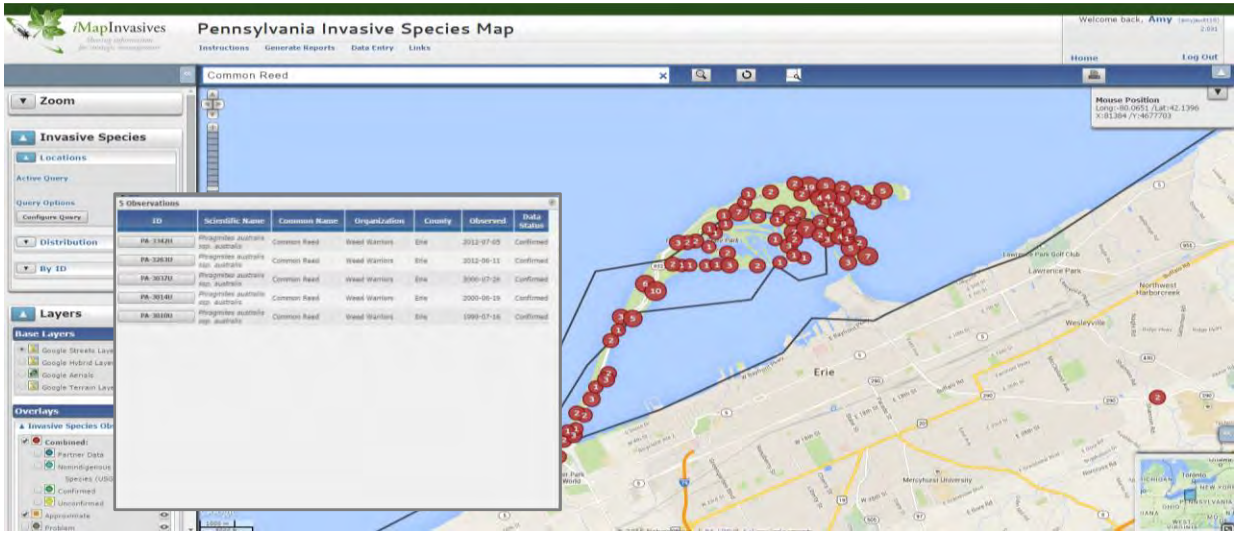

- Answer: County distribution of a species across the state (based on current data in iMapInvasives)

# Question 4

- When entering an observation record that was observed by someone else, how do I record that person's name as the observer if they don't have a iMap login account?
- Answer: You can't. Even though you can enter an observation record for someone else, that person must first have an iMap login account to properly record him/her as the observer. A login account can be created by sending the person's name and email address to the iMap administrator.

# Question 5

- What happens when I click on a red "observation" circle on the map?




Answer: A concise list of all associated observations appears and provides a link to each individual observation record found in the list.

# Question 6

- What is the function of an early detection email alert?
- Answer: An early detection alert provides a way to notify you of a new species coming into your area. Once there are many confirmed reports for a certain species, you will stop getting alerts as this species would now be considered **established** rather than an **early detection** species.

# Question 7

- What is an iMapInvasives project?
- Answer: A project in iMap is a way to group certain data together for easier and more efficient querying later on.

# Question 8

- If I wanted to set a customized filter to view only aquatic invasive animals found in Montgomery County, what tool would I use?
- Answer: The Custom Observation Query tool found on the Main Navigation page under the Query and Reports section.

# Question 9

- True or False: When entering a survey record, only presence data can be entered.
- Answer: False; surveys in iMapInvasives allow users to record both presence and absence data.

# Question 10

- What is the name of the tool which allows you to view a specific report about invasive species infesting Pennsylvania's lakes?


- Answer: The Infested Lakes Report located on the Main Navigation page under the Query and Reports section.

# Bonus Question!

- What should I do when I have a question on how to use the iMapInvasives database (and where can this info be found)?
- Answer: Send an email to imapinvasives@paconserve.org or call 412-586-2305. You can find this info on the new PA iMapInvasives Homepage.

# Please be in touch with any questions or comments…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