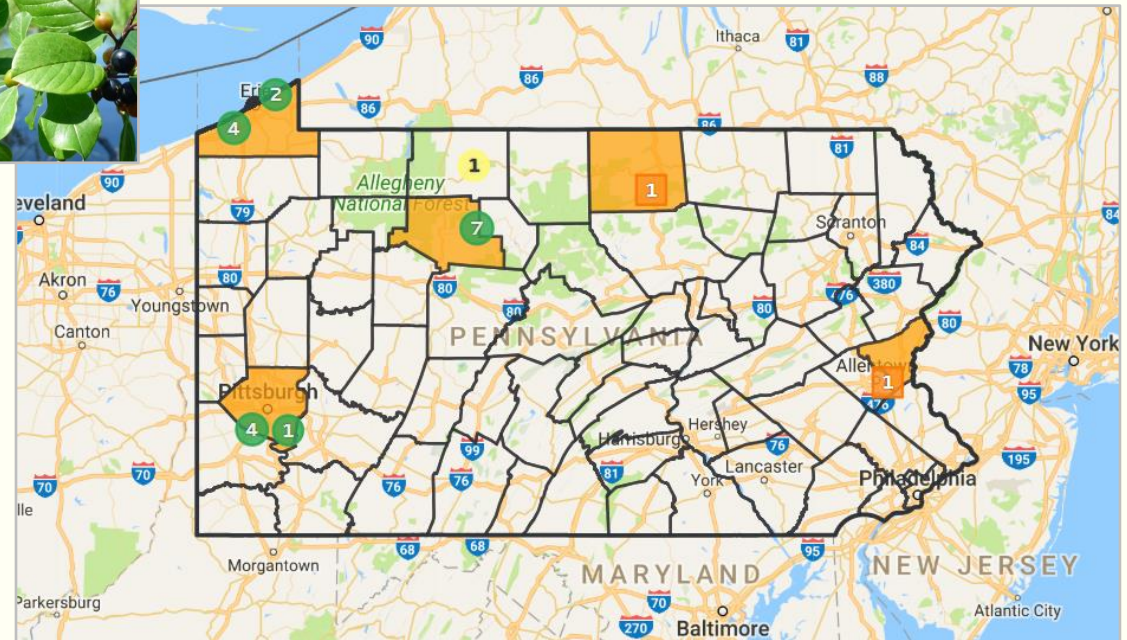


Mapping and Reporting Invasive Plants Using iMapInvasives

APIPMA Invasive Plant Workshop

Amy Jewitt, PA iMapInvasives Coordinator
July 12, 2018



Confirmed locations of glossy buckthorn findings in PA



iMapInvasives

What is iMapInvasives?

iMapInvasives is a free online database used to:

- Document invasive species findings
- Learn about locations of invasive species in Pennsylvania and surrounding states
- Document control and eradication efforts
- Prioritize invasive species survey and management efforts
- Share distribution data and management efforts with others
- Promote early detection and rapid response initiatives



These volunteers are participating in management activities aimed at controlling purple loosestrife. Their efforts can be documented in iMapInvasives as a way to pinpoint purple loosestrife locations and to record the work being done to treat this particular infestation.



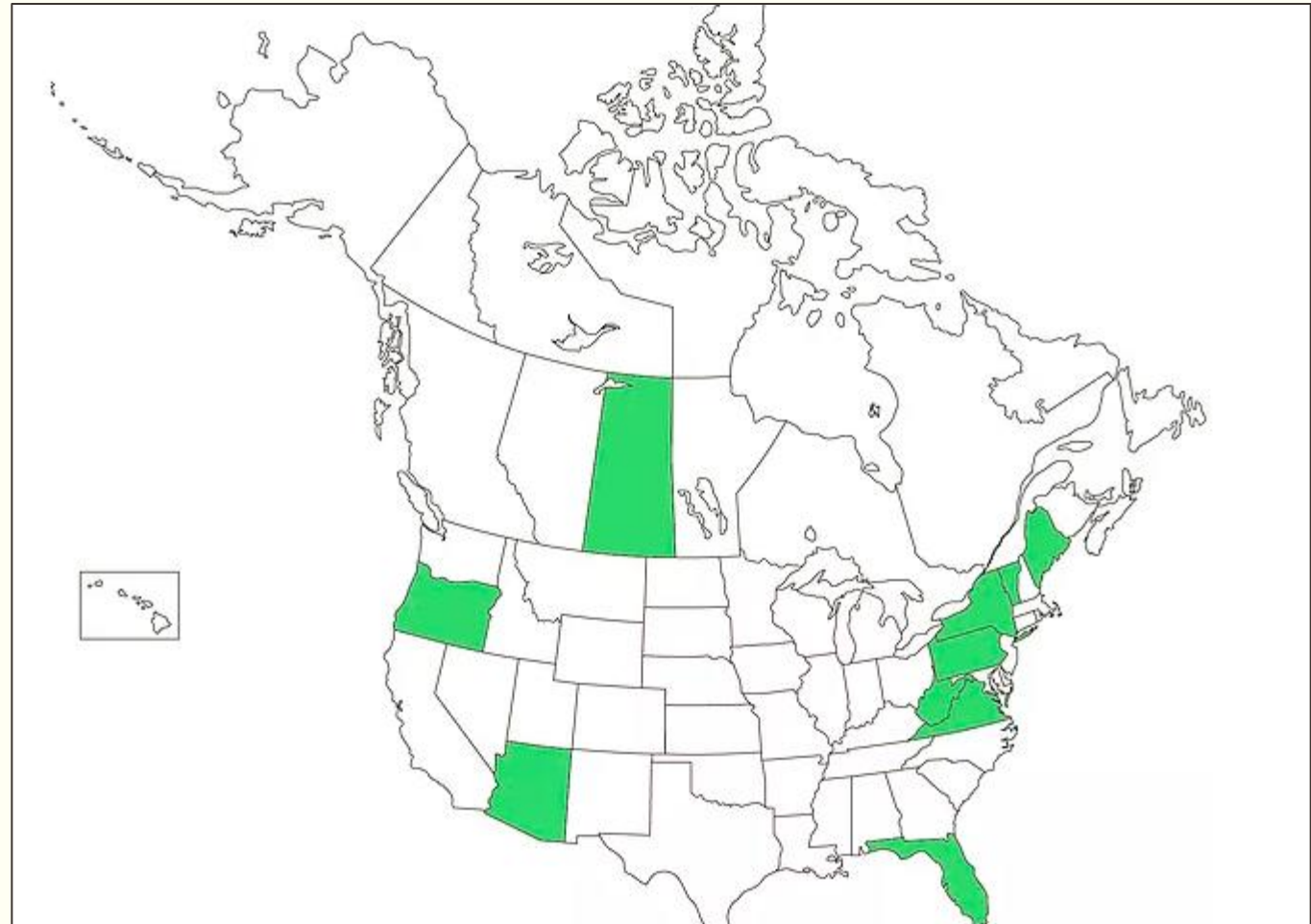
Purple loosestrife
(*Lythrum salicaria*)



iMapInvasives

iMapInvasives Encompasses a Broad Network

- There are currently nine U.S. states and one Canadian province participating in the network.
- Pennsylvania has been a member of the iMapInvasives network since 2013.
- Other network programs include:
 - Arizona
 - Florida
 - Maine
 - New York
 - Oregon
 - Saskatchewan
 - Vermont
 - West Virginia
 - Virginia





iMapInvasives

What Species are Tracked?

iMapInvasives is an all-taxa data management system.

Findings for many groups of species can be reported to iMapInvasives including:

- Terrestrial Plants
- Wetland/Aquatic Plants
- Insects
- Mammals
- Invertebrates
- Reptiles/Amphibians

Found a species we're not tracking? Tell us and we'll consider adding it!

- Species must meet basic definition of an **invasive** species.



Japanese stiltgrass



Tubenose goby



Narrow-leaf cattail



Red-eared slider

Logistics to Remember when Using iMapInvasives



Internet browsers recommended for use when accessing iMapInvasives:

- ✓ Google Chrome
- ✓ Mozilla Firefox
- ✓ Safari (*for Mac computers*)



Internet browser NOT to use:

- ✗ Internet Explorer
 - Does not work well with iMapInvasives!
- If you must use Internet Explorer to access iMapInvasives, ensure that you have the most updated version installed (I.E. 11)



KEY COMPONENTS

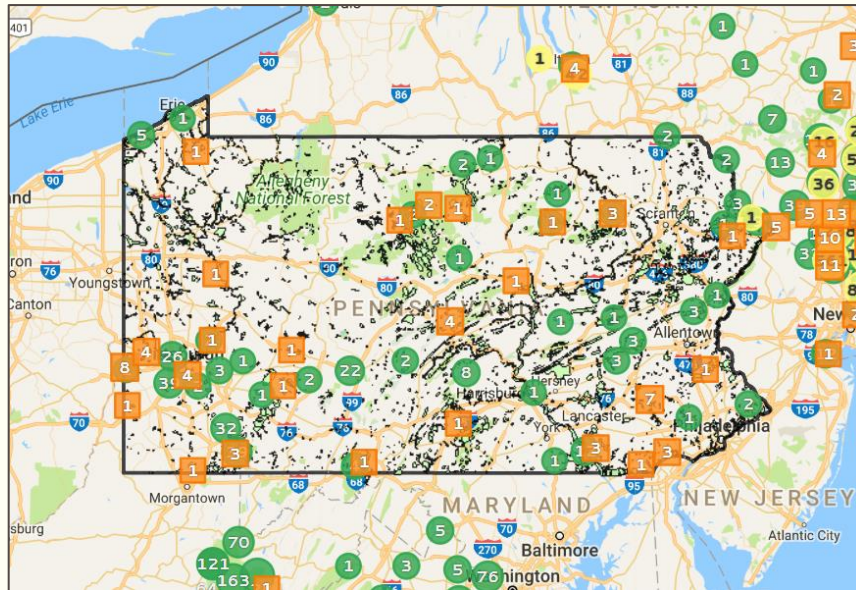
What are some of the key features of iMapInvasives?

Key Components

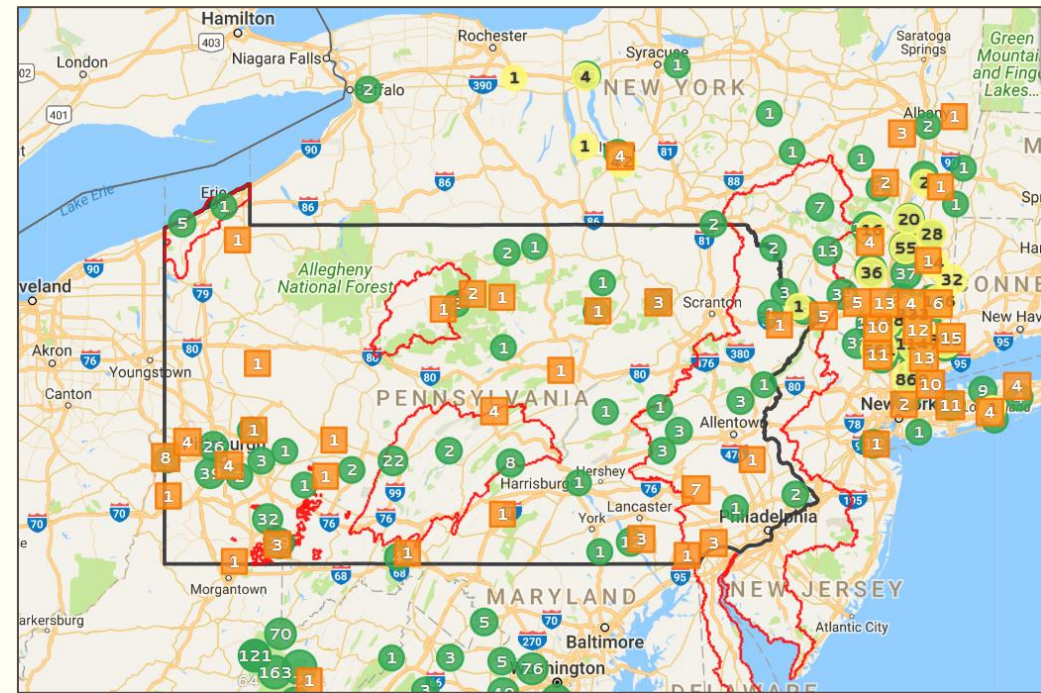
Document invasive species findings.

Easily document invasive species being found in your local area or region.

Use reference layers to help make your data more understandable.



Turn on the NHA layer to see which invasive species are threatening Natural Heritage Areas (and to plan future treatment efforts.)

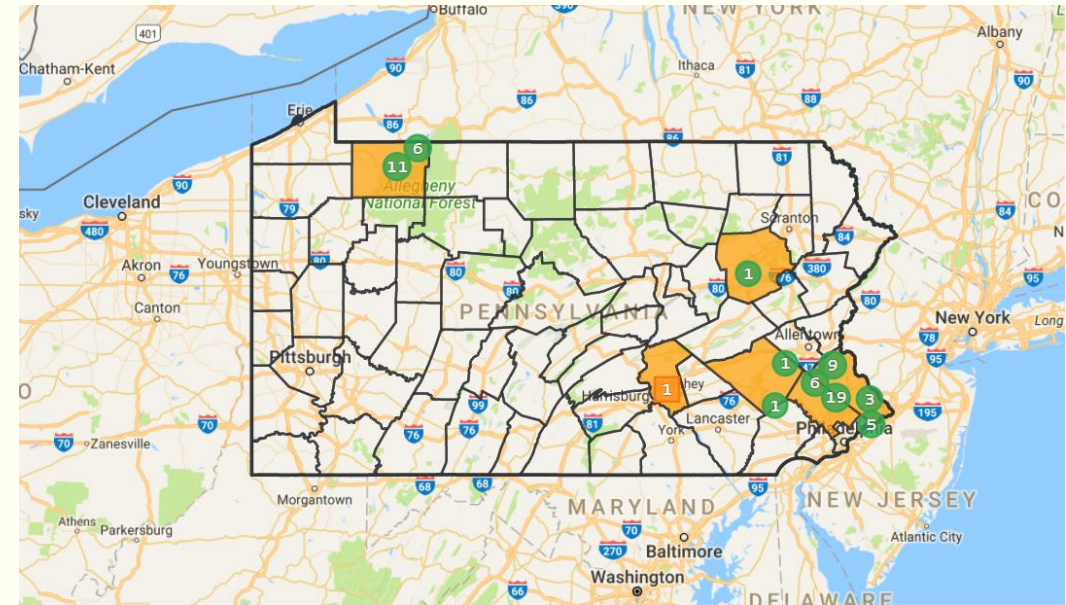


Turn on the CWMA layer to view data within a specific Cooperative Weed Management Area. **Coming soon for the APIPMA!**

Key Components

Prioritize future survey and treatment efforts.

Learn which areas in your region are most impacted by specific high priority invasive species. Locate areas of interest which should be analyzed for future treatment efforts.



Learn where water chestnut has been reported in Pennsylvania. Then use that data to prioritize survey and treatment efforts.

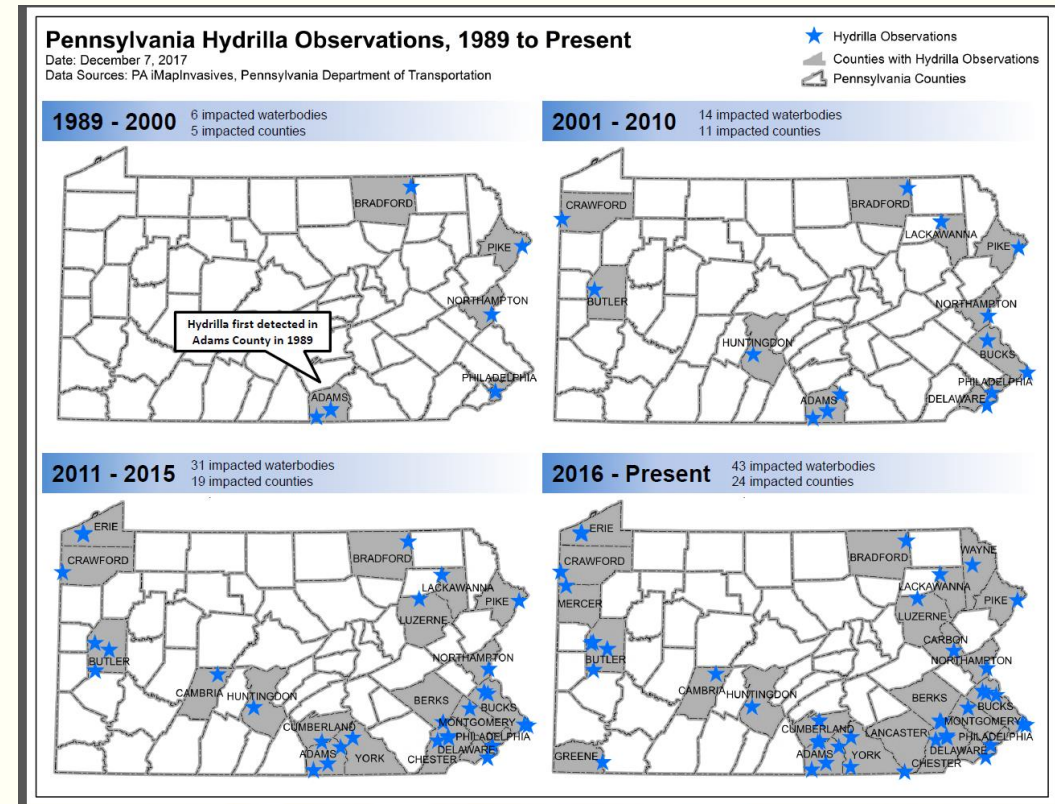
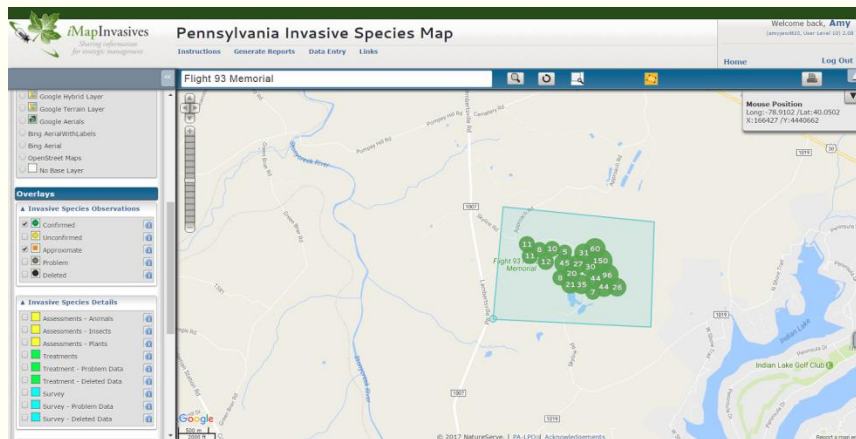
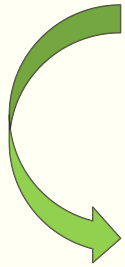


Key Components

Custom querying tools and data analysis.

Put iMapInvasives to work for you.
Use it to find:

- Distribution of a specific species.
- End-of-year reporting purposes (# of species reported, # of volunteer hours worked, total area treated, etc.)
- All species found in your area of interest (lasso tool).



Time-lapse maps of hydrilla distribution across Pennsylvania from 1989 to 2017. Maps were created by PNHP staff with data sourced from iMapInvasives.

Key Components

Detect newly arrived species.

iMapInvasives aids in early detection and rapid response efforts by sending information of newly reported species to users who set up customized email alerts.



An invasive species is logged into iMapInvasives



Key Components

Data gathering from multiple sources.

Data is being contributed to iMapInvasives from:

- Non-profits
- Cooperative weed management areas (CWMAs)
- State agencies
- School groups
- Environmental consultants
- Citizen scientists



Diversified data sources in iMapInvasives equal a well-rounded and strong database.





THE PENNSYLVANIA PROGRAM

Let's learn more about the specifics of the Pennsylvania iMapInvasives program.

Pennsylvania iMapInvasives Administrators

Staff of the Pennsylvania Natural Heritage Program (PNHP)



Amy Jewitt

Pennsylvania iMapInvasives
Coordinator



Kierstin Carlson

Conservation Information
Manager/Associate Manager for PNHP



Mary Walsh

Aquatic Ecologist for PNHP

Pennsylvania iMapInvasives Program

- In PA, iMapInvasives serves as a statewide invasive species repository.
 - **Note:** iMapInvasives is not the official database being used by all Pennsylvania-based organizations, but is an option for data tracking.
- Provides multiple tools to record distribution and invasive species management efforts
- Provides a single system where multiple organizations can gather and share data.



Top: Goats serve as a natural and effective way to manage invasive species.

Bottom: Art Gover, Research Associate with The Pennsylvania State University, performs chemical spot treatment of autumn olive by means of a foliar application.



Pennsylvania iMapInvasives Program

- Administrators will notify local and regional natural resource professionals of high priority findings.
- Examples of invasive species reported to PA iMapInvasives that raise “red flags” include:
 - Wavyleaf basketgrass
 - Black swallow-wort
 - Water chestnut
 - Hydrilla
 - European frog-bit
 - Goatsrue
 - Five-leaf aralia
 - Royal paulownia
 - Amur corktree
 - Phragmites

Goatsrue (*Trapa natans*)
Photo credit: Magnus Lundgren/Rewilding Europe



Wavyleaf basketgrass
(*Oplismenus hirtellus* ssp. *undulatifolius*)
Photo credit: USGS NAS



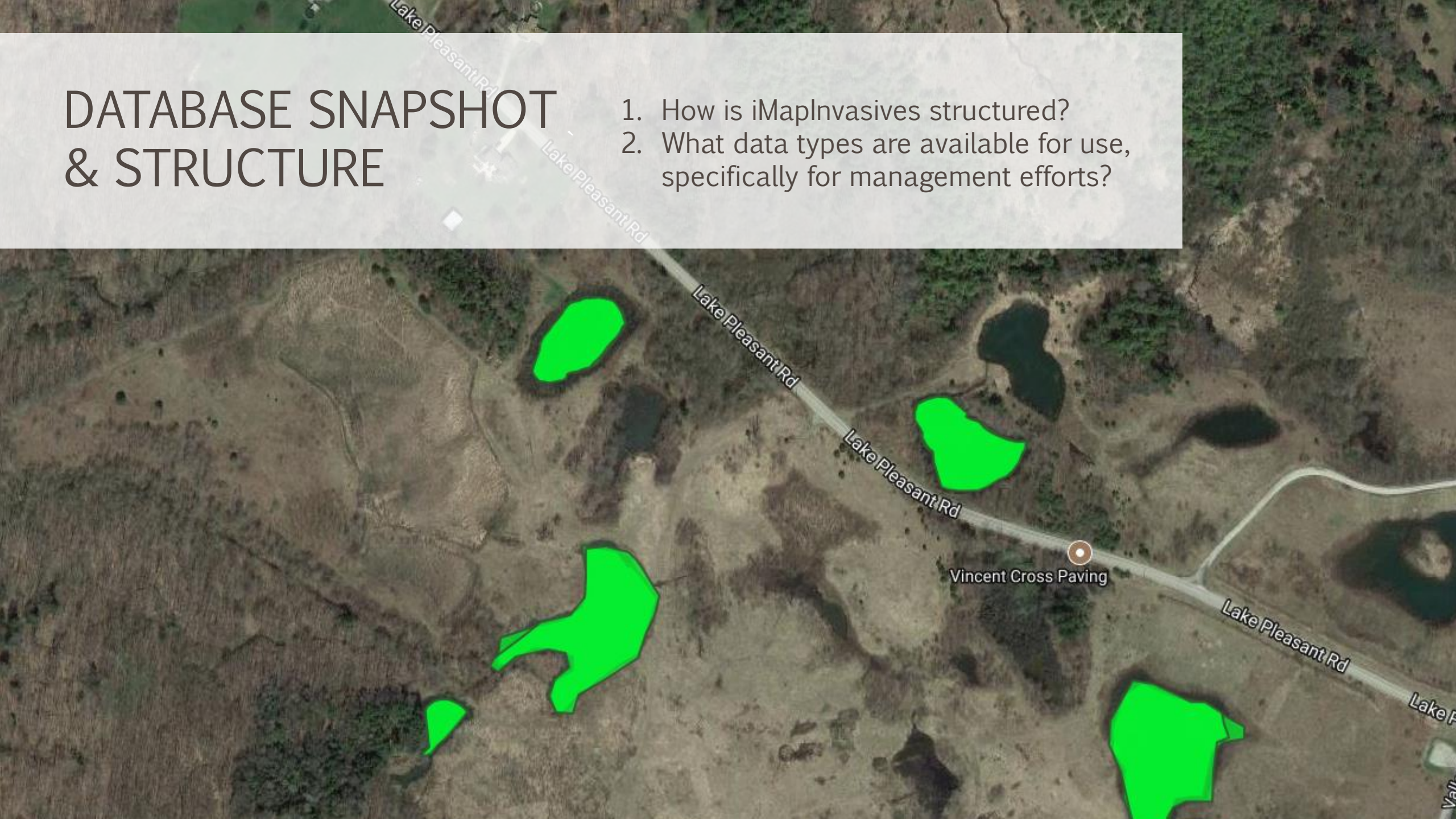
Five-leaf aralia (*Eleutherococcus sieboldianus*)
Photo credit: Digital Atlas of the VA Flora



Black swallow-wort (*Cynanchum louiseae*)
Photo credit: Harpswell Heritage Land Trust

DATABASE SNAPSHOT & STRUCTURE

1. How is iMapInvasives structured?
2. What data types are available for use, specifically for management efforts?



Database Snapshot: Main Navigation Page

Enter Data

- Enter your invasive species findings and management efforts

View the Map

- Visualize findings and management efforts on the map

View Table

- Access individual records (for all data types)

Query and Reports

- Filter for the data you are interested in viewing
- Create reports

Show Your iMap Stats

- See how many records you have entered, and for how many species.

iMapInvasives Sharing information for strategic management

Pennsylvania User Tools
Location: [My iMapInvasives](#)

Welcome back, **Amy** (amyjewitt7, User Level 7) 2.08
[Home](#) [Log Out](#)

[Show Your iMap Stats](#)

My iMapInvasives | **Resources** | **Data Management** | **System Management**

Enter Data

- Observation
- Survey
- Treatment
- Infestation Management

View the Map

- View the Map
- Not using a high-speed internet connection?

View Table

- All Observations
- Surveys
- Treatments
- Infestation Management
- Assessments
 - Animals
 - Insects
 - Plants
- IPMDAT Shared Results

Query and Reports

- **Custom Observation Query**
- All Data Summary Report
- All Species by County:
 - Report
 - Table
- Infested Lakes:
 - Table
 - Report
 - Report with Observation IDS
- Active Projects:
 - All Projects
 - My Projects with Details

Database Snapshot: Main Navigation Page

Edit My Profile

- Update your contact information and keep track of your iMapInvasives activity.

Change my Password

- Keep your login credentials secure by updating your password.

Manage my Alerts

- Create or deactivate your email alerts.

My iMapInvasives Data

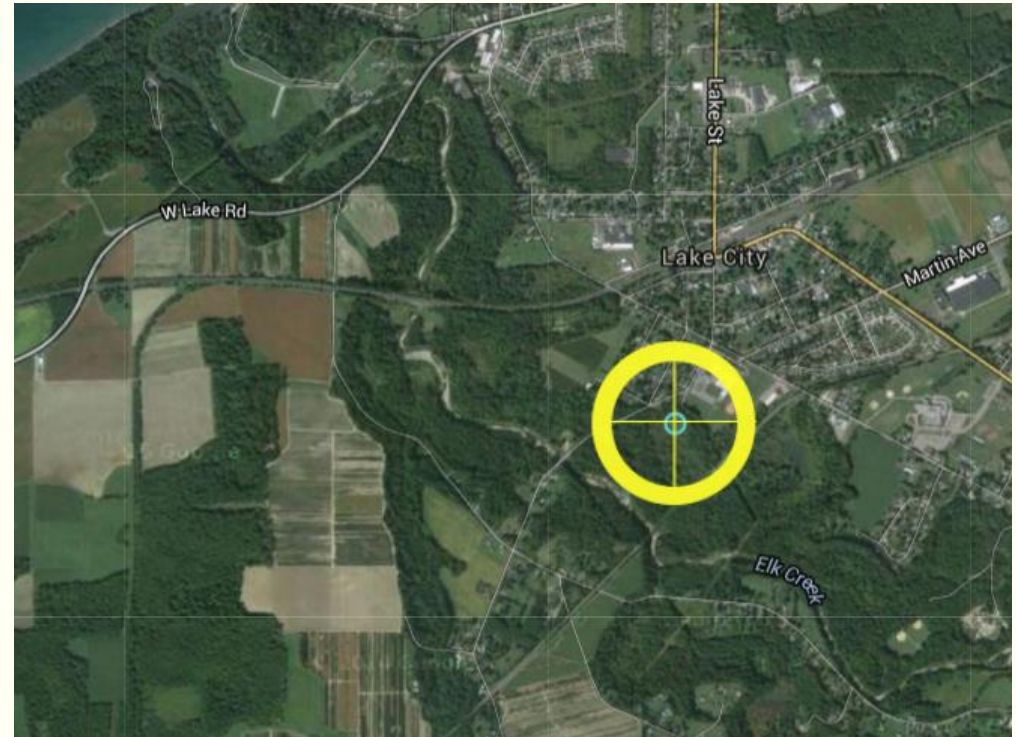
- Use this section to view and download your own data.
 - Note: Data entered by other users or ALL iMapInvasives data cannot be downloaded, but must be requested from the administrator.
- Data can be downloaded into an excel file or a geodatabase.

The screenshot displays the user interface for 'My Personal Information' and 'My iMapInvasives Data'. The 'My Personal Information' section includes 'My Profile' with links for 'Edit My Profile' and 'Change my Password', and 'E-Mail Alerts' with a 'Manage my Alerts' link. The 'My iMapInvasives Data' section is circled in red and contains three main areas: 'View My Data in a Table' with a search icon and a 'Select Data to View' dropdown; 'Download My Observation Data' (formatted for a spreadsheet) with a green arrow icon and a 'Select Data to Download' dropdown; and 'Download Related Data (ESRI gdb)' with a green arrow icon and a list of categories: 'Assessment Data', 'Treatments', 'Infestation Management', and 'Surveys', each with a 'Select Data to Download' dropdown.

Data Structure Overview

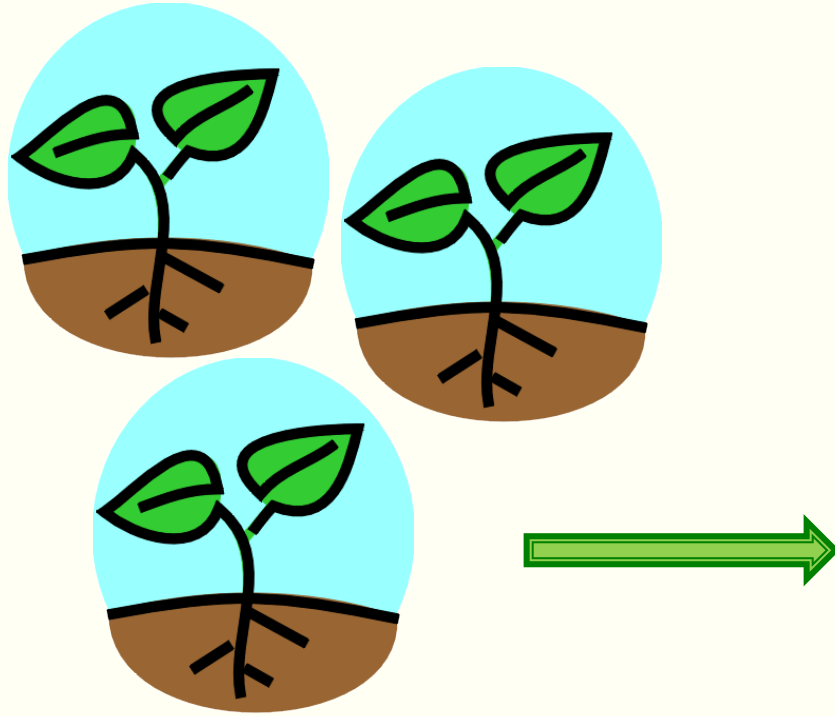


See an invasive species...

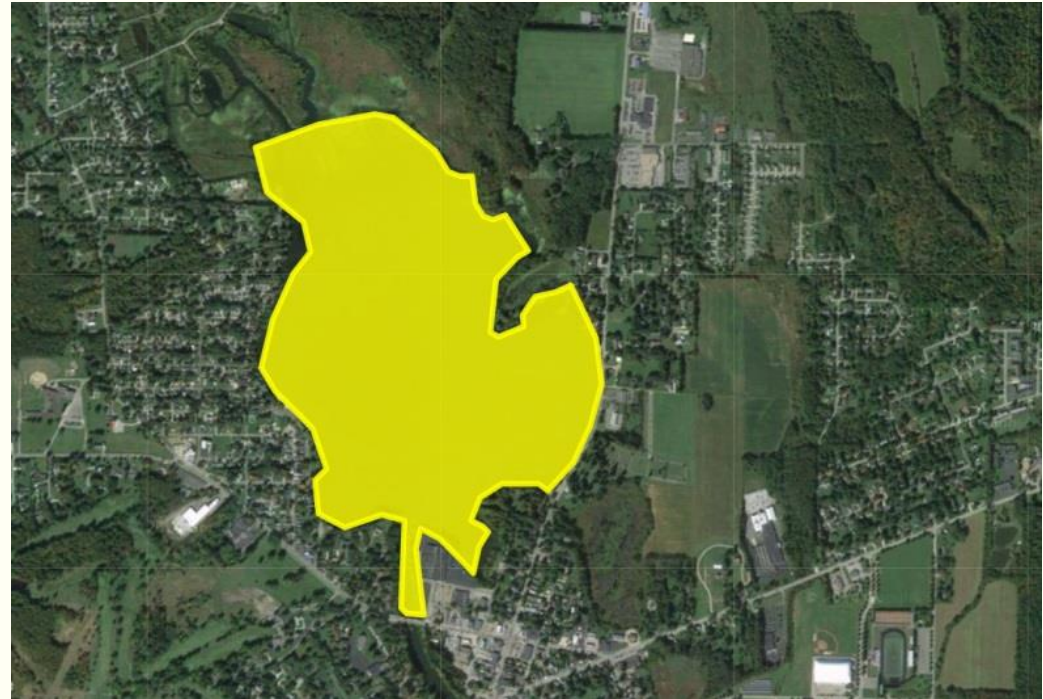


Plot its location as an Observation point

Data Structure Overview

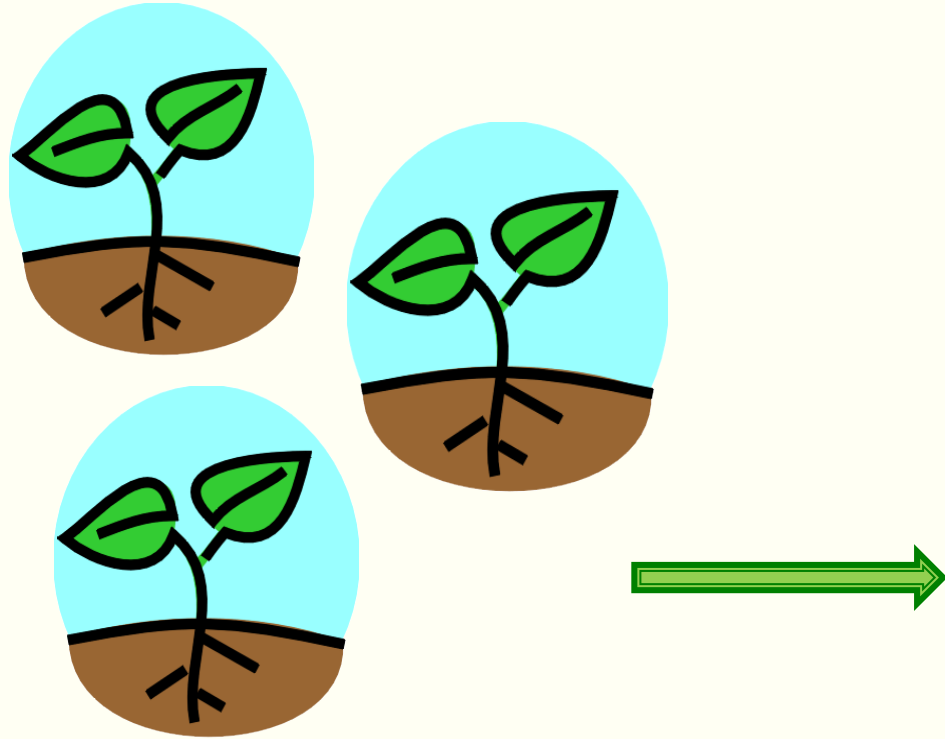


Want to record infestation size?



Add an Assessment record

Data Structure Overview

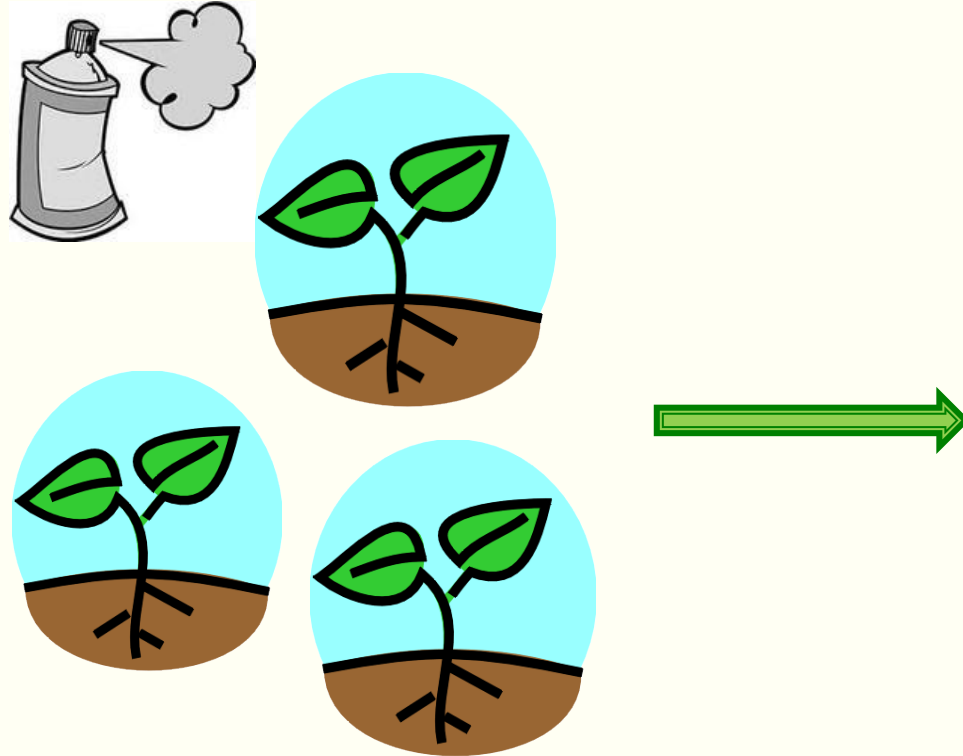


- Planning a search of a specific area?
- Need to record absence data?



Add a Survey record

Data Structure Overview

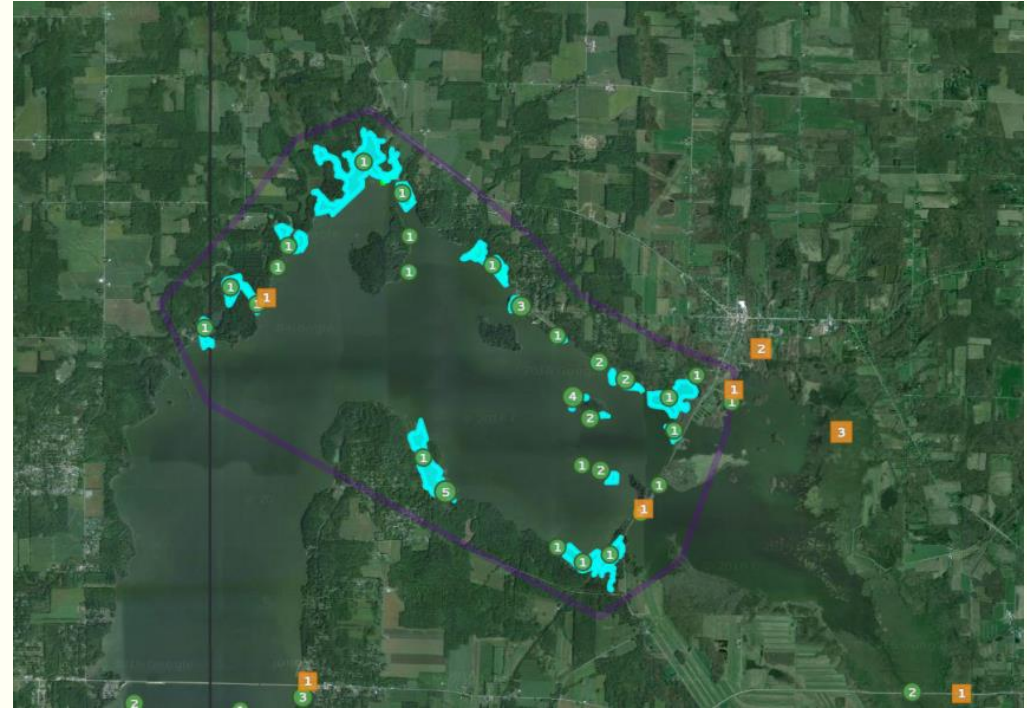
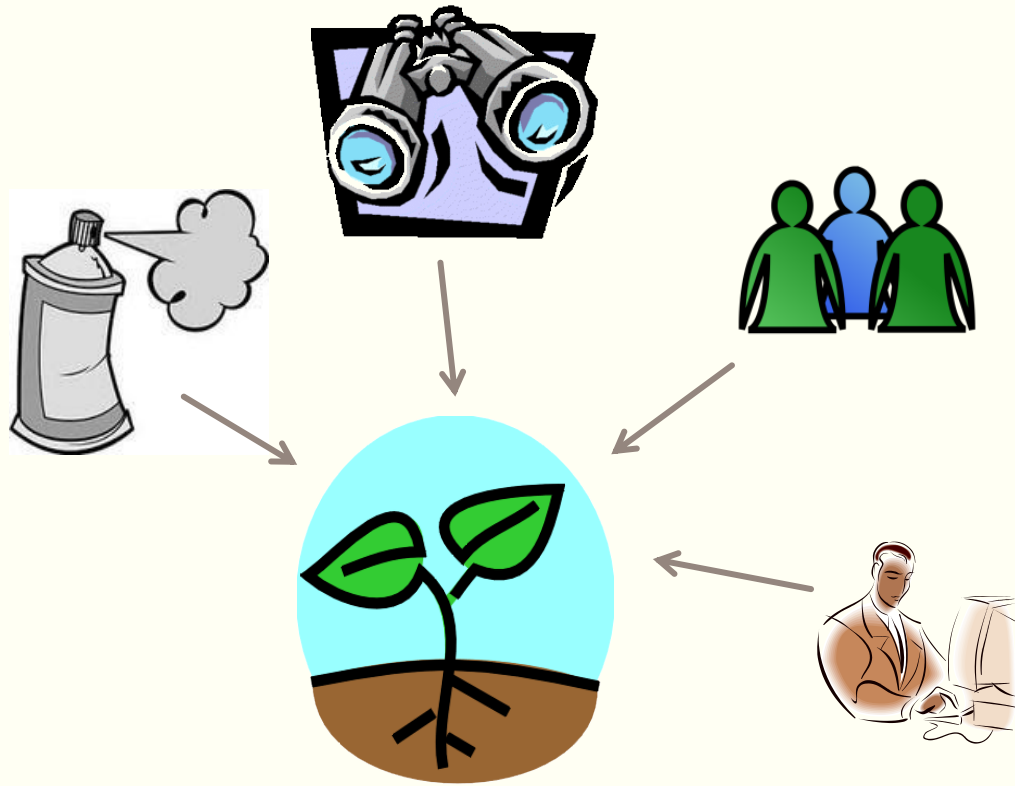


Treated an infested area?



Add a Treatment record

Data Structure Overview



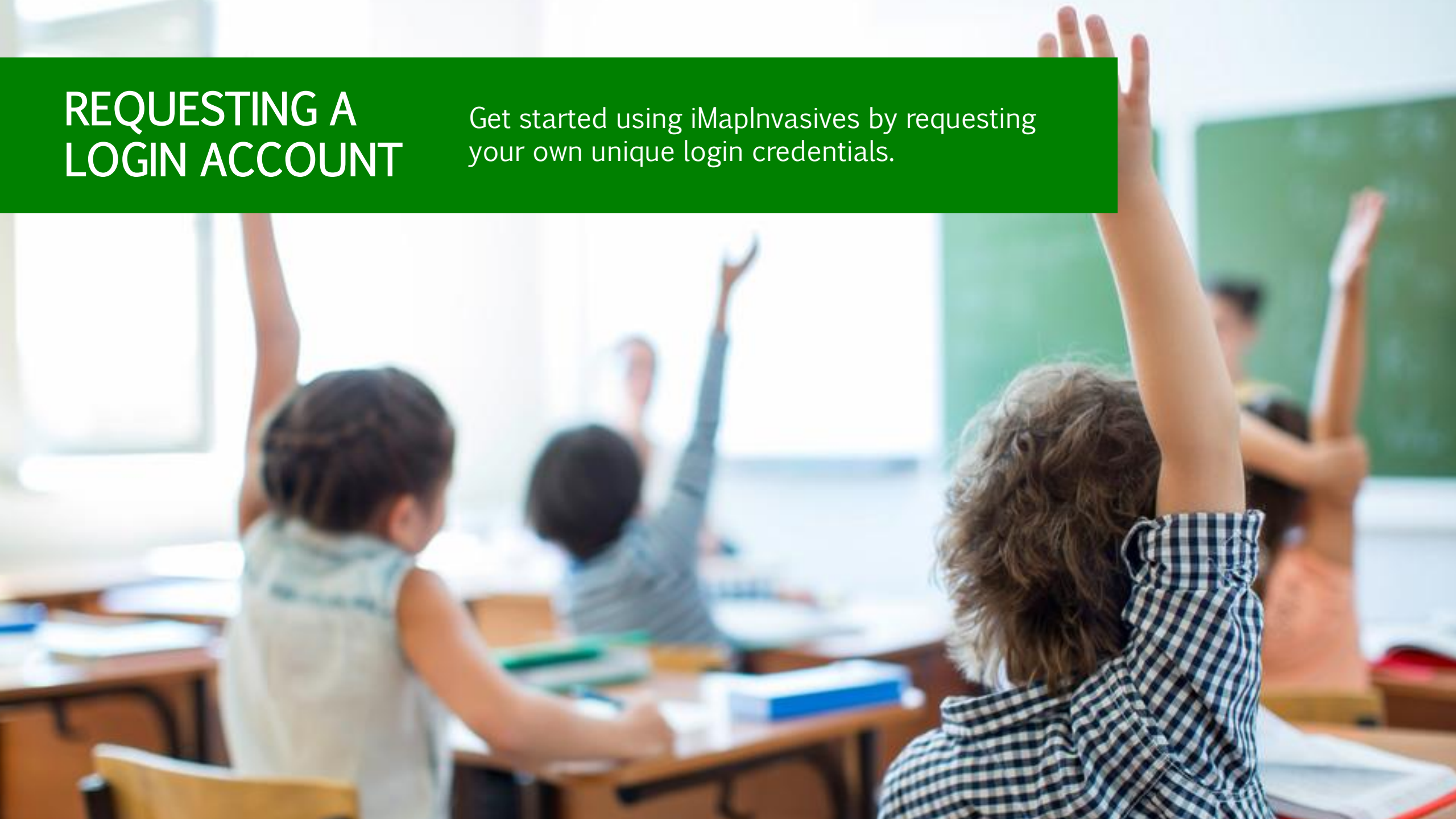
Add an Infestation Management record

Want to track all management efforts for a single species in a particular area?



REQUESTING A LOGIN ACCOUNT

Get started using iMapInvasives by requesting your own unique login credentials.



How to Request a Login Account

Get started with iMapInvasives by requesting a free login account via:

- www.iMapInvasives.org
 - Click on “Login Now” button
 - Choose Pennsylvania
 - Click “Request a FREE Account” button
- www.PAiMapInvasives.org
 - Click on “Register” button in top right corner

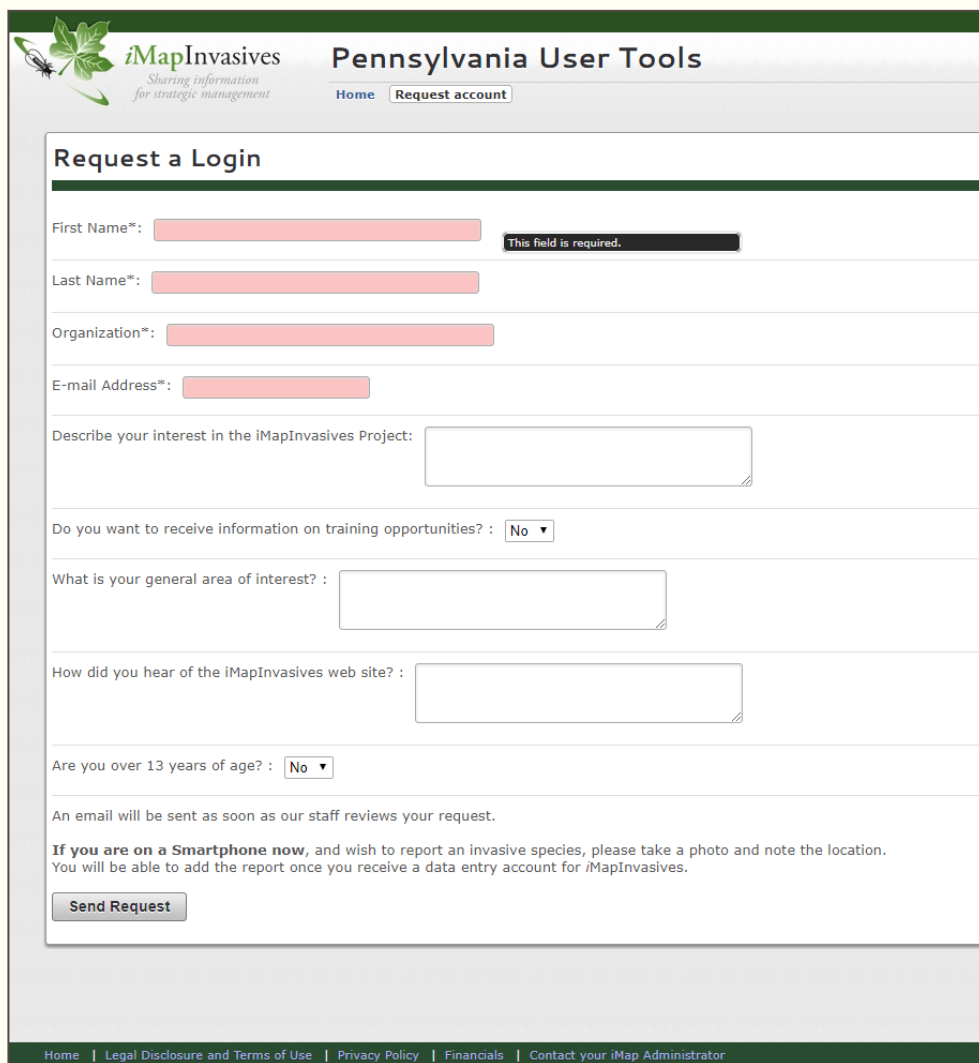
A login account is required in order to utilize the database and all the tools it has to offer.

You’ll also need a login account to use the iMapInvasives mobile app.

Choose to have accounts in multiple locations (i.e., PA, NY, ME, etc.)

The image contains two screenshots of the iMapInvasives website. The top screenshot shows the main website interface with a navigation bar and a central menu. A red box highlights the 'Request a FREE Account' button, and an arrow points to it from the right. The bottom screenshot shows the Pennsylvania-specific page with a 'Register' button circled in yellow in the top right corner. A vertical watermark 'www.iMapInvasives.org' is visible on the left side of both screenshots. An arrow points from the 'Request a FREE Account' button in the top screenshot down to the 'Register' button in the bottom screenshot.

Requesting a Login Account



The screenshot shows the 'Request a Login' form on the iMapInvasives Pennsylvania User Tools website. The form includes the following fields and options:

- First Name*:** A text input field with a red border and a tooltip that says 'This field is required.'
- Last Name*:** A text input field with a red border.
- Organization*:** A text input field with a red border.
- E-mail Address*:** A text input field with a red border.
- Describe your interest in the iMapInvasives Project:** A large text area.
- Do you want to receive information on training opportunities? :** A dropdown menu with 'No' selected.
- What is your general area of interest? :** A text input field.
- How did you hear of the iMapInvasives web site? :** A text input field.
- Are you over 13 years of age? :** A dropdown menu with 'No' selected.

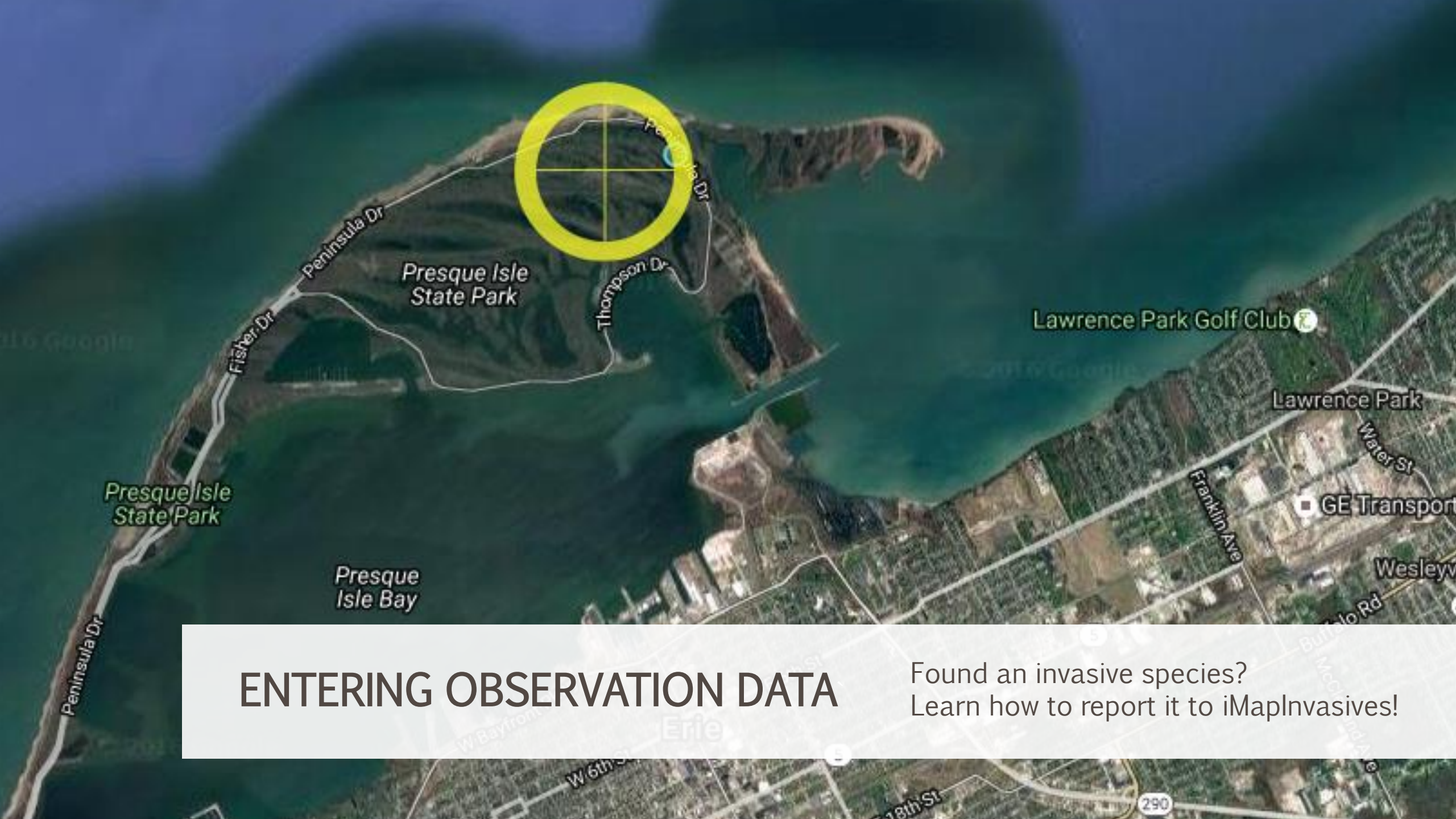
Below the form, there is a message: 'An email will be sent as soon as our staff reviews your request.' and a note: 'If you are on a Smartphone now, and wish to report an invasive species, please take a photo and note the location. You will be able to add the report once you receive a data entry account for iMapInvasives.' A 'Send Request' button is located at the bottom of the form.

At the bottom of the page, there is a footer with the following links: Home | Legal Disclosure and Terms of Use | Privacy Policy | Financials | Contact your iMap Administrator

Once your login request is submitted, you will receive an email from the state administrator with your unique credentials.

- Login credentials are not issued instantly; it may take several days for the administrator to respond.





ENTERING OBSERVATION DATA

Found an invasive species?
Learn how to report it to iMapInvasives!

Observation Data

- An observation is a report of an invasive species, found at a specified location, on a specific date.
- Multiple observations can be made for the same population of species.



Asian clams (*Corbicula fluminea*)
Photo credit: Joe Proudman/UC Davis



Asian clams (*Corbicula fluminea*)
Photo credit: West Branch Susquehanna
Restoration Coalition

Observation Data

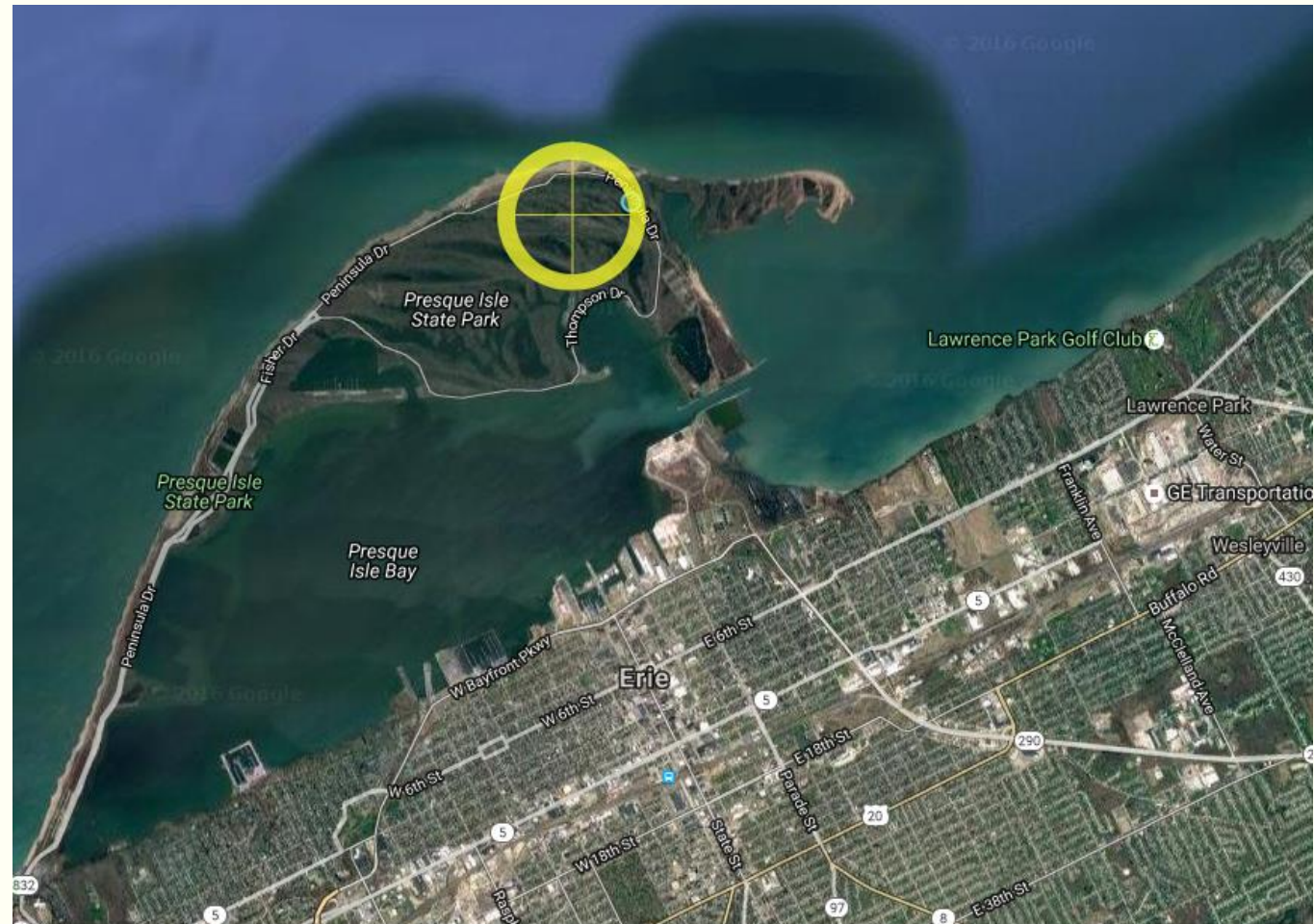
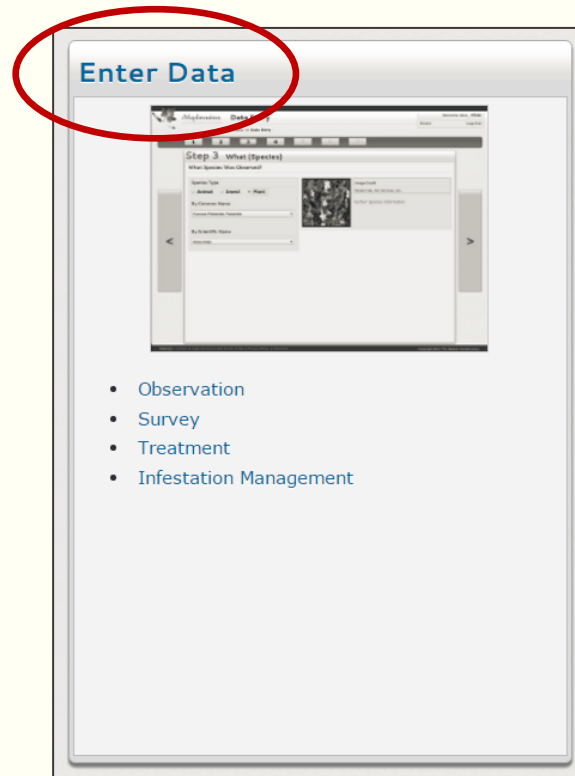
- Enter observations manually via a desktop interface or our mobile app
- Bulk uploading available
 - Submit large datasets to administrator for upload (75+ records)
- Observation data includes:
 - Photos
 - Observer name & organization
 - Project name (if any)
 - Species
 - Date
 - Location



Garlic mustard (*Alliaria petiolata*)
Photo credit: lusaorganics.typepad.com

How to Enter Observation Data

Once logged into Pennsylvania iMapInvasives, click on “Enter Data” on left side of screen.



Entering Observation Data: Step 1

Add Photos

- Choose up to five photos to include with your observation.
- Categories include:
 - Close-up
 - Infestation
 - Scale
 - Two “other” categories
- Avoid taking photos from far away (except for an infestation photo).
- Take photos from various angles
 - Aerial view
 - Side view
 - Underside
 - Distinguishing features
 - Total population (infestation)

Infestation photo



Distinguishing features (close-up)



Distinguishing features (close-up)



Scale photo

Entering Observation Data: Step 2

Select the Observer

- Yourself OR
- Another person
 - You can enter data that someone else observed, but they must have an iMapInvasives login account.
 - Check drop-down list for person's name; if it doesn't appear, send an email to the Administrator to have the person's name added to our list of registered users.



Photo credit: Rhode Island Natural History Survey

Entering Observation Data: Step 3

Include Data in Project

- What's a project?
 - Projects provide a way to organize data into a group that can then be easily searched or downloaded.
 - Projects also provide a way for multiple agencies to submit and share data for a common initiative.
- Entering data in a project is **optional**...
- However, all data entered within the APIPMA should be tagged under the project "APIPMA Initial Database".



View of observation data collected at the National Park Service's Flight 93 National Memorial. This group of data is easy to query because it's been grouped together under an iMapInvasives project (i.e., "NPS Flight 93 Invasive Species Survey [2013]").

Entering Observation Data: Step 4

Select the Species Found

Choose which species you observed.

- Note: Beware of selecting a reported species by its common name. A single species may be known by many different common names.
- Always double check that a scientific name matches up with the species you wish to report.

Step 4 What (Species)

What Species Was Observed?

Species Type

Animal

Insect

Plant

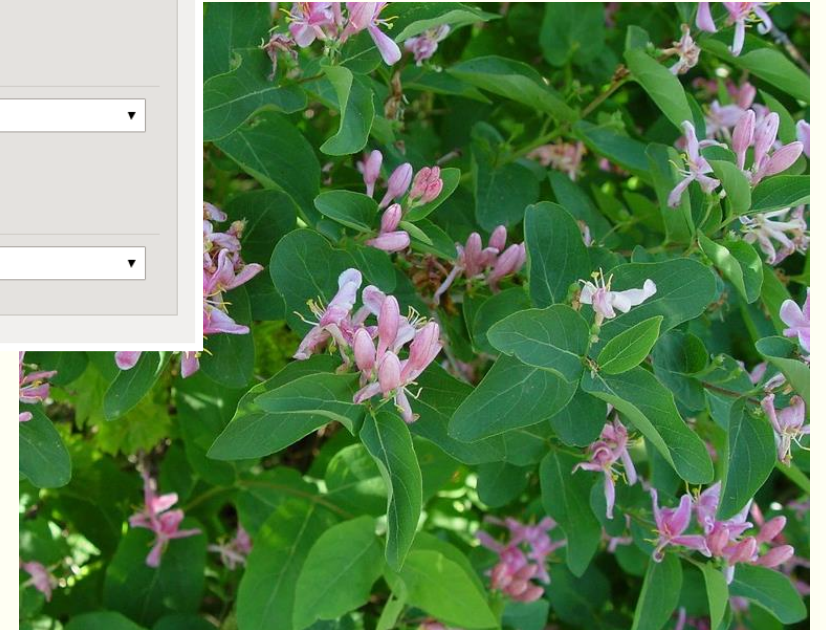
By Common Name

Tatarian Honeysuckle ▼

By Scientific Name

Lonicera tatarica ▼

Tatarian honeysuckle
Photo credit: Arthur Haines



Entering Observation Data: Step 5

Select the Date

Use the calendar to choose your observation date.

Calendar will default to current day.

Note: Observation date cannot be typed; you must “navigate” to it.

★ If entering data collected in the past:

- Click on the “month title bar” to bring up all the months in the present year.
- Click the “year title bar” to bring up a list of years.

When was the species observed?

Select a date

2017-03-20

Mo	Tu	We	Th	Fr	Sa	Su
27	28	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

Select a date

2017-03-20

2017

Jan	Feb	Mar
Apr	May	Jun
Jul	Aug	Sep
Oct	Nov	Dec

Display list of months in a designated year

Select a date

2017-03-20

2000-2019

2000	2001	2002	2003	2004
2005	2006	2007	2008	2009
2010	2011	2012	2013	2014
2015	2016	2017	2018	2019

Display list of years

Entering Observation Data: Step 6

Identify the Observation Location

Navigate to the location where the observation was made by entering:

- GPS coordinates
 - Ex. 41.553172, -80.526448
- Address
 - Ex. 800 Waterfront Drive, Pittsburgh, Pennsylvania
- Name of a managed area
 - Ex. Gifford Pinchot State Park
- Waterbody name
 - Ex. Lake Pleasant, Pennsylvania

The screenshot shows the iMapInvasives Observation Data Entry interface. At the top, there is a navigation bar with steps 1 through 7, where step 6 is highlighted. Below the navigation bar, the title "Step 6 Where Zoom-in FIRST" is displayed. The interface includes a search bar with "Lake Marburg" entered, a "Go to location" button, and a "Place point at coordinates" button. The main area is a satellite map showing Lake Marburg and surrounding areas. A yellow circle highlights a specific location on the map. The interface also includes a progress bar with steps 1 through 7, and a "Place point at coordinates" button. The bottom of the interface contains a footer with "Home | Legal Disclosure and Terms of Use | Privacy Policy | Financials | Contact your iMap Administrator" and "Copyright © 2017 NatureServe."

Entering Observation Date: Step 7

Once you've entered all of the required information, review your record details and submit your observation to iMapInvasives!

The screenshot shows the 'Step 7 Submit Observation' form in a web browser. The form is titled 'Submit Observation' and contains the following fields:

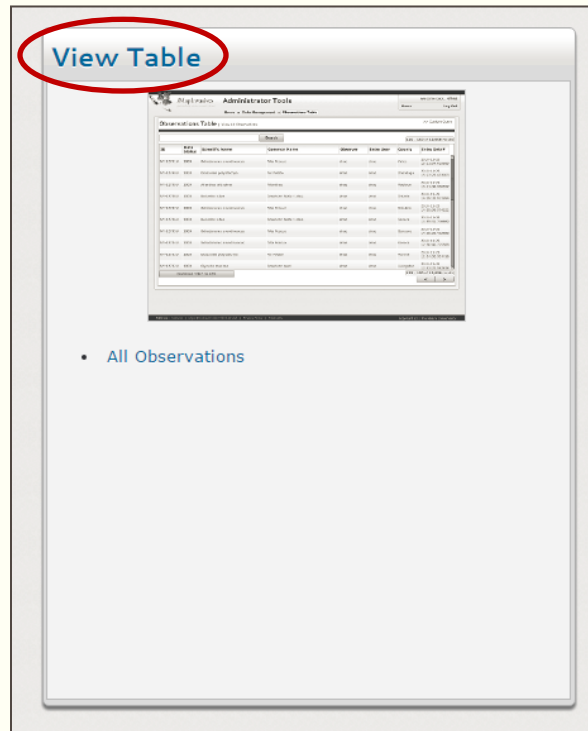
Observer:	I am the observer.
Species:	Black Jetbead
Project:	Observation is not associated with a project.
Date:	2017-03-20
Location:	Lat / Lon Decimal Longitude: -76.914128 Latitude: 39.7916021

Below the form is a 'Submit Observation' button, which is highlighted by a red arrow. The form is part of a multi-step process, with step 7 being the final step.



Entering an Observation – Important Note!

After creating your record, return to it using the Table on the Main Navigation page and add details to further describe your finding.



iMapInvasives Pennsylvania Administrator Tools
Sharing information for strategic management
My iMapInvasives :: Custom Query :: Observations Table

Welcome back, **Amy**
(amyjewitt10; User Level:10) 2:08
Home Log Out

Observations Table Custom Data Query

Active Custom Query
Data Set = all_data Clear Query

Search 0 - 25 of 10,424 results

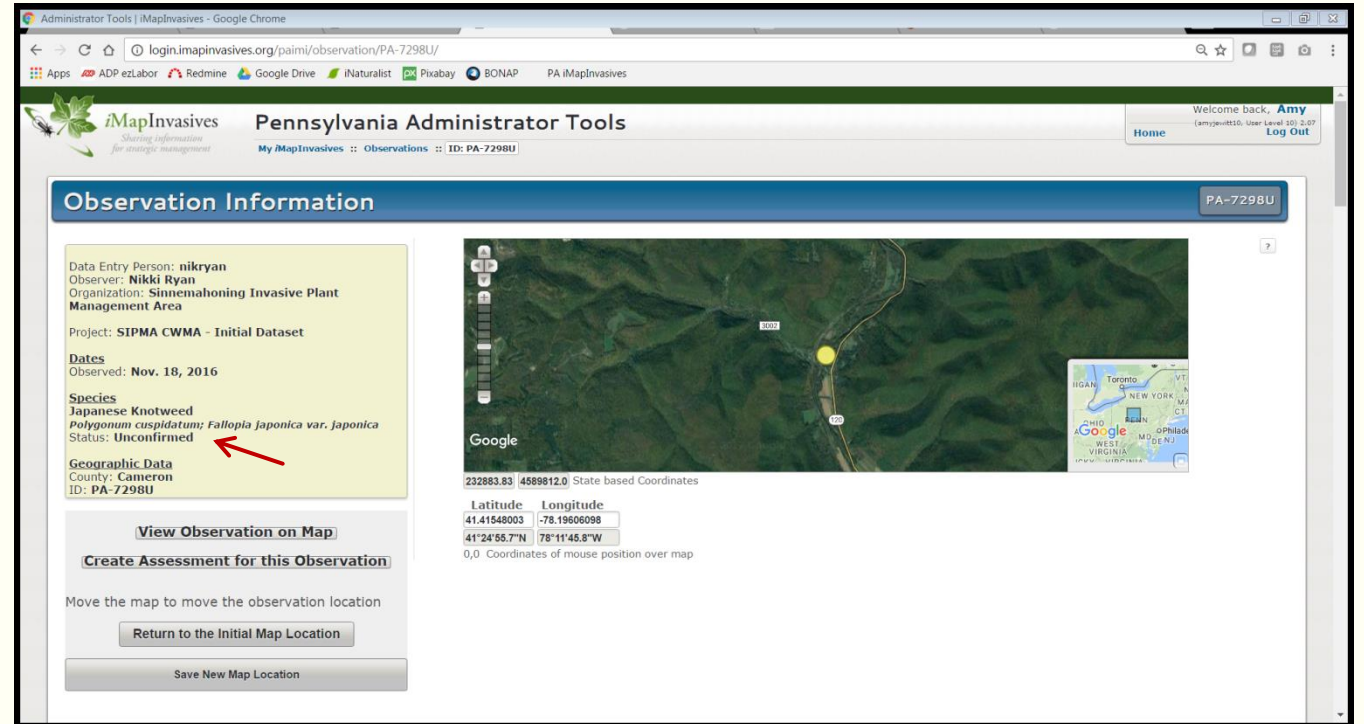
ID	Status	Scientific Name	Common Name	Observer	Organization	Date	County	Photo(s)	Entry Date	Entry Person
PA-8790U	Approximate	Artemisia vulgaris	Mugwort	petwoods	Western Pennsylvania Conservancy	2017-09-29	Allegheny	Yes	2017-10-20 15:33:18	amyjewitt10
PA-8789U	Approximate	Ajuga reptans	Carpet-bugle	petwoods	Western Pennsylvania Conservancy	2017-09-29	Allegheny	Yes	2017-10-20 15:29:33	amyjewitt10
PA-8788U	Approximate	Cyprinus carpio	Common Carp	Jeskester	Allegheny Land Trust	2017-07-08	Allegheny	No	2017-10-20 15:24:52	amyjewitt10
PA-8787U	Approximate	Viburnum opulus var. opulus	Guelder-rose Viburnum	petwoods	Western Pennsylvania Conservancy	2017-07-08	Allegheny	Yes	2017-10-20 15:21:43	amyjewitt10
PA-8786U	Approximate	Cardamine impatiens	Touch-me-not Bittercress	petwoods	Western Pennsylvania Conservancy	2017-07-08	Allegheny	Yes	2017-10-20 15:17:22	amyjewitt10
PA-8785U	Approximate	Lythrum salicaria	Purple Loosestrife	petwoods	Western Pennsylvania Conservancy	2017-07-08	Allegheny	Yes	2017-10-20 15:12:35	amyjewitt10
PA-8784U	Approximate	Securigera varia	Common Crown-vetch	petwoods	Western Pennsylvania Conservancy	2017-07-08	Allegheny	Yes	2017-10-20 15:08:46	amyjewitt10
PA-8783U	Approximate	Passer domesticus	House Sparrow	davyeany	Western Pennsylvania Conservancy	2017-07-08	Allegheny	No	2017-10-20 15:01:23	amyjewitt10
PA-8782U	Approximate	Sturnus vulgaris	European Starling	davyeany	Western Pennsylvania Conservancy	2017-07-08	Allegheny	No	2017-10-20 14:56:09	amyjewitt10
PA-8781U	Approximate	Sturnus vulgaris	European Starling	davyeany	Western Pennsylvania Conservancy	2017-04-29	Allegheny	No	2017-10-20 14:51:05	amyjewitt10
PA-8780U	Approximate	Passer domesticus	House Sparrow	davyeany	Western Pennsylvania Conservancy	2017-04-29	Allegheny	No	2017-10-20 14:47:35	amyjewitt10

Download Table as CSV 0 - 25 of 10,424 results

Entering an Observation – Important Note!

Additional details can include:

- Comments
 - Additional observers, # of species observed, site conditions, etc.
- Site directions and access information
 - Locked gate, permission required from landowner, rough terrain.
- Specimen collected? If so, where is specimen being housed?
 - Museum, herbarium, botanical garden, etc.



The screenshot displays the iMapInvasives Pennsylvania Administrator Tools interface. The page title is "Observation Information" for observation ID PA-7298U. The user is logged in as Amy. The observation details are as follows:

- Data Entry Person:** nikryan
- Observer:** Nikki Ryan
- Organization:** Sinnemahoning Invasive Plant Management Area
- Project:** SIPMA CWMA - Initial Dataset
- Dates:** Observed: Nov. 18, 2016
- Species:** Japanese Knotweed
Polygonum cuspidatum; Fallopia japonica var. japonica
Status: **Unconfirmed** (indicated by a red arrow)
- Geographic Data:** County: Cameron, ID: PA-7298U

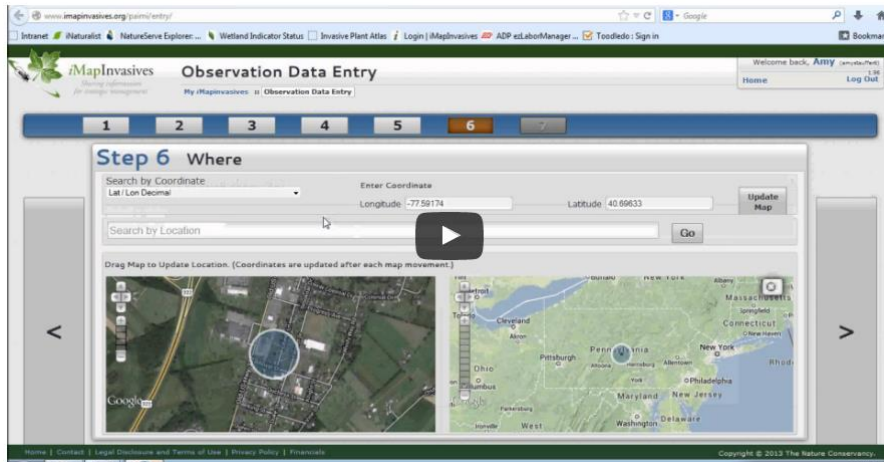
Below the details are buttons for "View Observation on Map", "Create Assessment for this Observation", "Return to the Initial Map Location", and "Save New Map Location". A map on the right shows the location with coordinates: 232883.83, 4589812.0. The map also displays latitude and longitude values: 41.41548003, -78.19606098 and 41°24'55.7"N, 78°11'45.8"W.

***Note that your observation(s) will always appear as "Unconfirmed" once submitted.** When the administrator reviews your record and confirms the species ID is accurate, your record will be labeled as either "Confirmed" or "Approximate".

Observation Data Entry – Refresher Training

To refresh on entering an observation record, watch our training video anytime!

- Available on the Training page of the PA iMapInvasives website OR on YouTube.com.







Pennsylvania iMapInvasives

Register Login

What is iMap? About Us Training Events Contribute Data Resources Testimonials Contact Search

Training

For anyone interested in learning more about iMapInvasives, various training options are available.

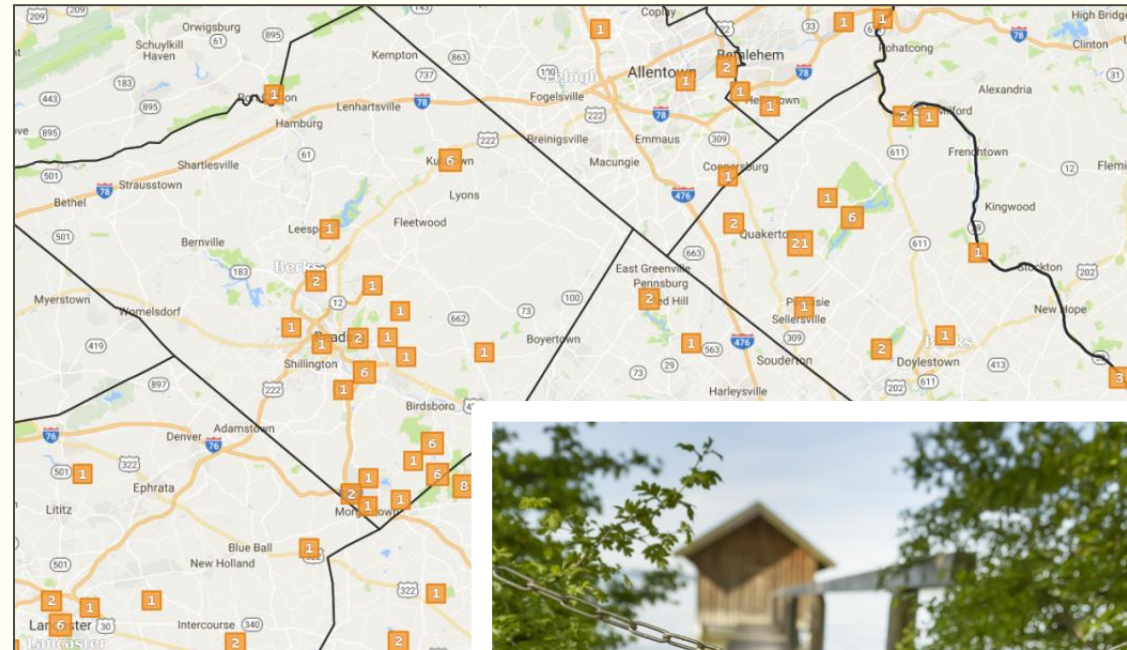
 <p>Webinars</p> <p>Our webinar trainings are scheduled at various times throughout the year and cater to a wide range of groups and individuals.</p> <p>View Schedule</p>	 <p>Video</p> <p>Found an invasive species? Watch our training video to learn how to enter your finding as an observation record.</p> <p>Watch</p>	 <p>Training Request</p> <p>Increase your organization's understanding of iMapInvasives by requesting a special training session, either in-person or via webinar.</p> <p>Request</p>	 <p>Archives</p> <p>Access resources from past webinar trainings including PowerPoint presentations and video recordings.</p> <p>View</p>
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Entering Data on Private Property

Not sure if or how to enter data for invasive species found on private property?

- If possible, talk with the landowner first and ask if it's okay to document invasive species found on the property. If yes, then all is well!
- If no, another option is to enter Approximate data.
 - Only administrator can label an observation as approximate.
- Create observation records and notify iMap administrator to label records as Approximate.

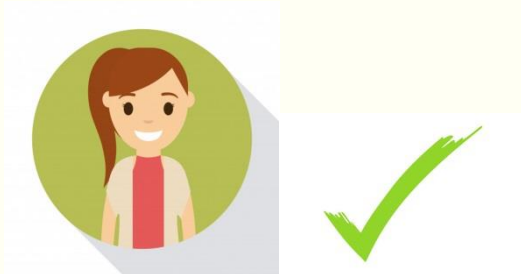
Orange squares on map in iMapInvasives symbolize approximate data.



Project Leader – Capability to Confirm Data

Project leaders have option to confirm project data.

- APIPMA coordinator has ability to confirm all data in “APIPMA Initial Database” project.
 - This will help to expedite data confirmation for APIPMA project(s).
 - Only other people who can confirm data are iMapInvasives Administrator(s).
- Data confirmation instructions for project leaders are available upon request.



iMapInvasives Sharing information for strategic management
Pennsylvania Administrator Tools
My iMapInvasives :: Custom Query :: Observations Table

Observations Table

Enable Data Status Change Mode

Data Set = all_data | Data Status = Unconfirmed | [Clear Query](#)

[Search](#)

ID	Status	Scientific Name	Common Name	Observer	Organization	Date	County	Photo
PA-9906U	Unconfirmed	Rubus phoenicolasius	Wineberry	ricgardner	_No Organization Provided	2018-05-20	Berks	Yes
PA-9905U	Unconfirmed	Acer platanoides	Norway Maple	ricgardner	_No Organization Provided	2018-05-20	Berks	Yes
PA-9904U	Unconfirmed	Lonicera maackii	Amur Honeysuckle	ricgardner	_No Organization Provided	2018-05-20	Berks	Yes
PA-9903U	Unconfirmed	Hesperis matronalis	Dame's Rocket	ricgardner	_No Organization Provided	2018-05-20	Berks	Yes
PA-9902U	Unconfirmed	Ornithogalum umbellatum	Common Star-of-bethlehem	ricgardner	_No Organization Provided	2018-05-20	Berks	Yes
PA-9901U	Unconfirmed	Chelidonium majus	Greater Celandine	ricgardner	_No Organization Provided	2018-05-20	Berks	Yes
PA-13846345U	Unconfirmed	Lycorma delicatula	Spotted Lanternfly	nicmacelko	Eco Action (PSU)	2018-06-05	Bucks	Yes



USING THE MOBILE APP

Reporting invasive species while
in the field just got easier!

iMapInvasives Mobile App

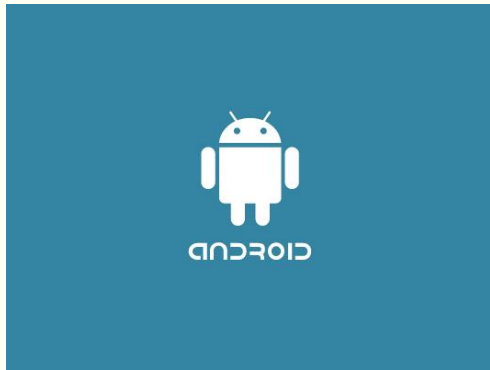
- Report invasive species data when you're outdoors and away from your computer.
- Quick and easy!
- An internet connection is not necessary to create an observation (using the app).
- Upload observations when Wi-fi is available.



Credit: news.hjnews.com

iMapInvasives Mobile App

Designed for use on Android and Apple devices.



Usable on both smartphones and tablets.
(Device must have integrated GPS capability.)



iMapInvasives Mobile App

Report invasive species findings using your mobile device's camera and GPS.

An internet connection is not required!



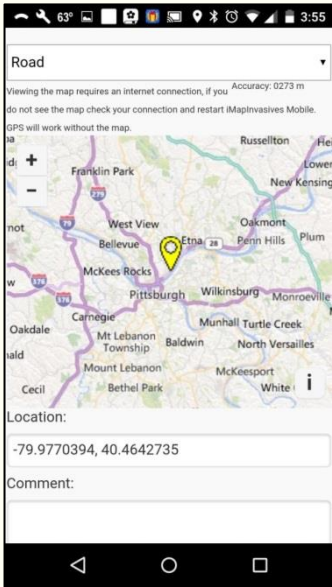
You could be here...

Or here...



Or here... and still be able to use the iMap Mobile App!



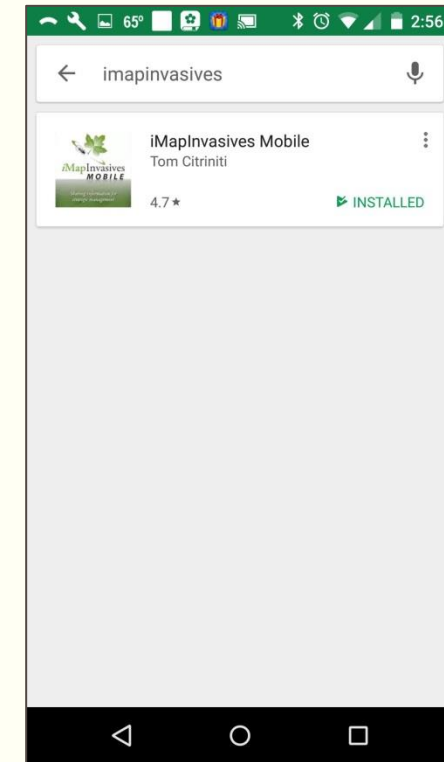
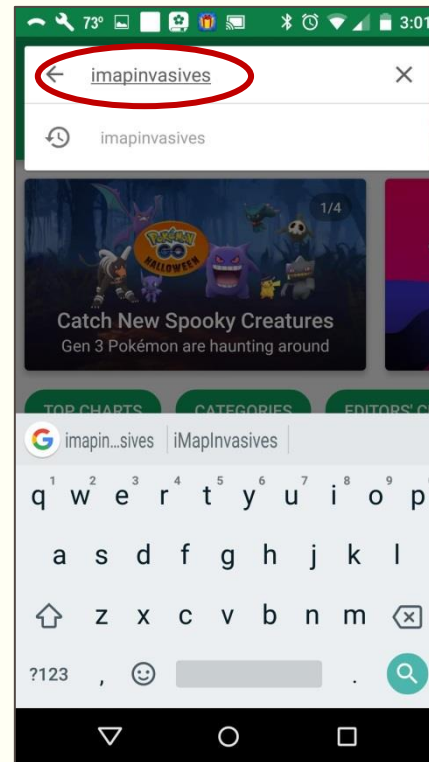
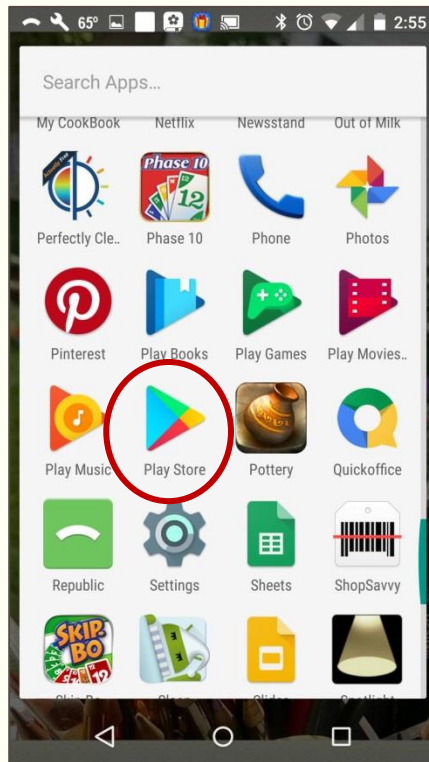


GETTING STARTED

Step-By-Step Instructions and Screenshots

Getting Started

- Download the app (example provided on Android smartphone):
 - Visit the Play Store
 - Search using the key word “iMapInvasives”
 - Follow prompts to install the app

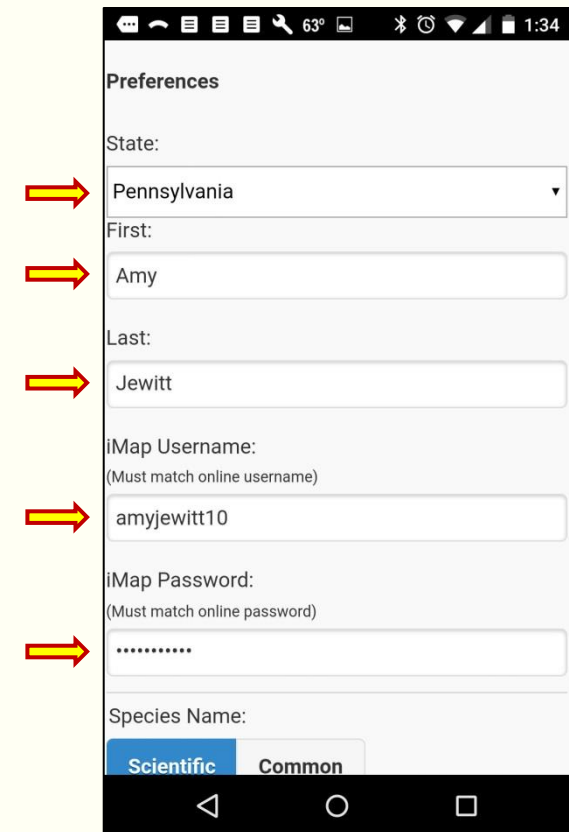
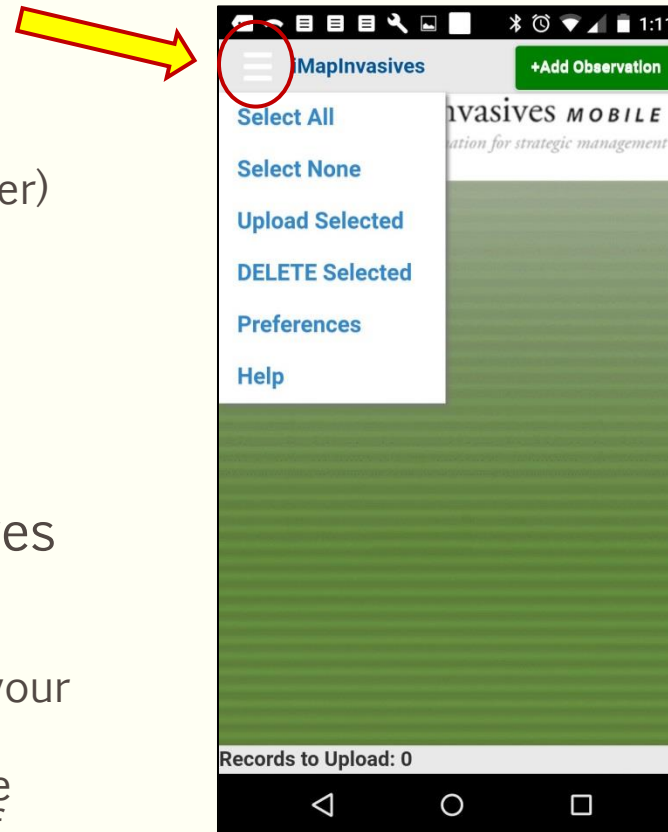


Getting Started

Once installed...

Set Your Preferences

- Tap the menu icon (upper left corner)
- Choose your default state (Pennsylvania)
- Fill in your first and last name
- Fill in your assigned iMapInvasives user name and password
 - This information is provided by the Administrator when first assigned your login credentials.
 - Username is typically the first three letters of your first name and all of your last name; all lowercase and no spaces.
 - Ex. Briana McCormick - brimccormick

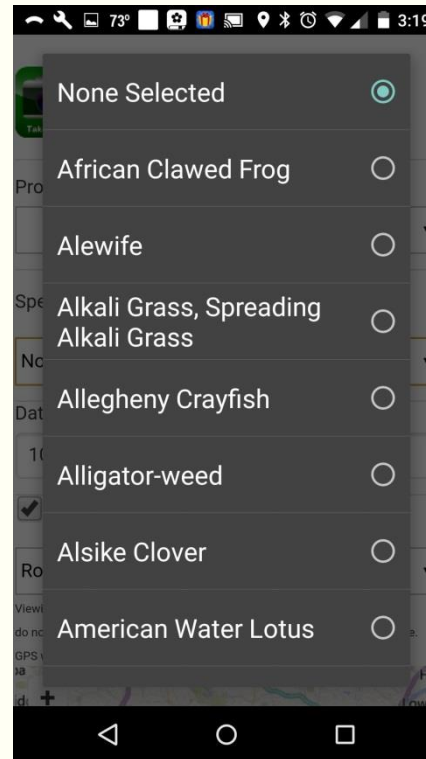
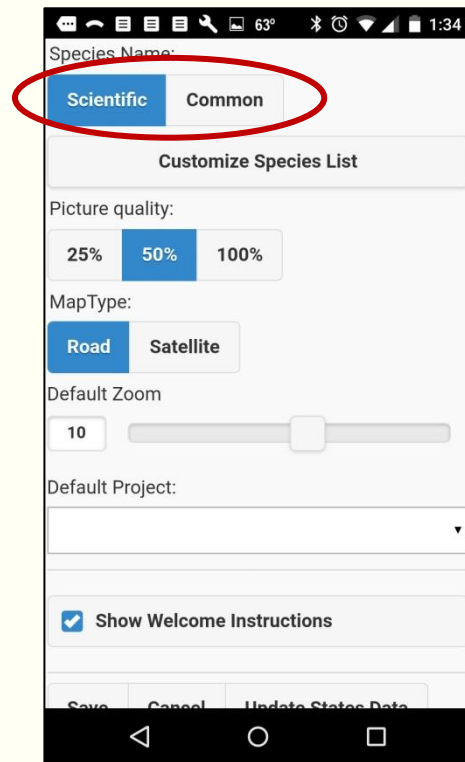


Getting Started

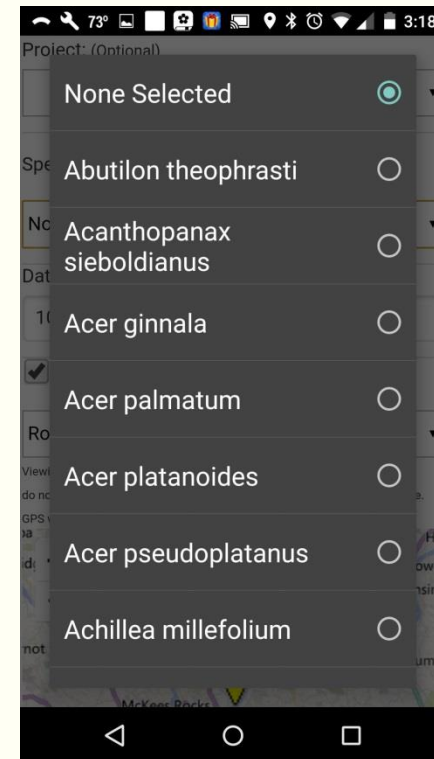
Preferences continued...

Choose how you want to see the species list

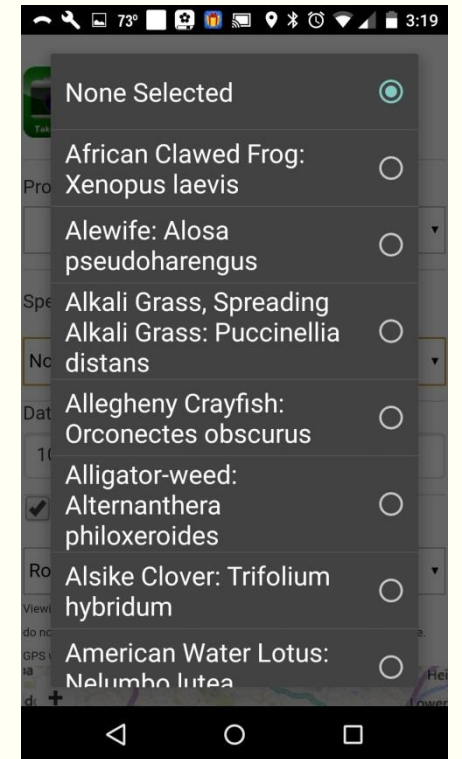
- Common, Scientific, or both



Common Names



Scientific Names

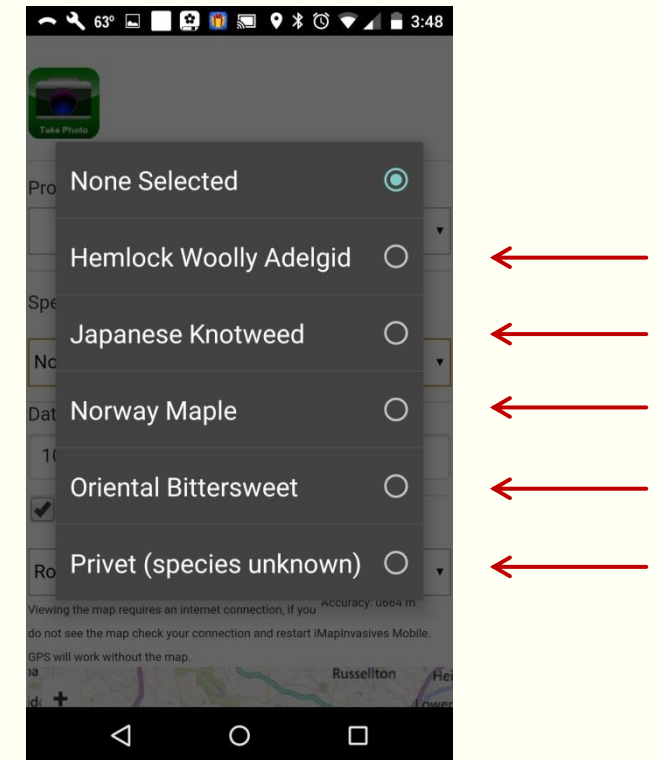
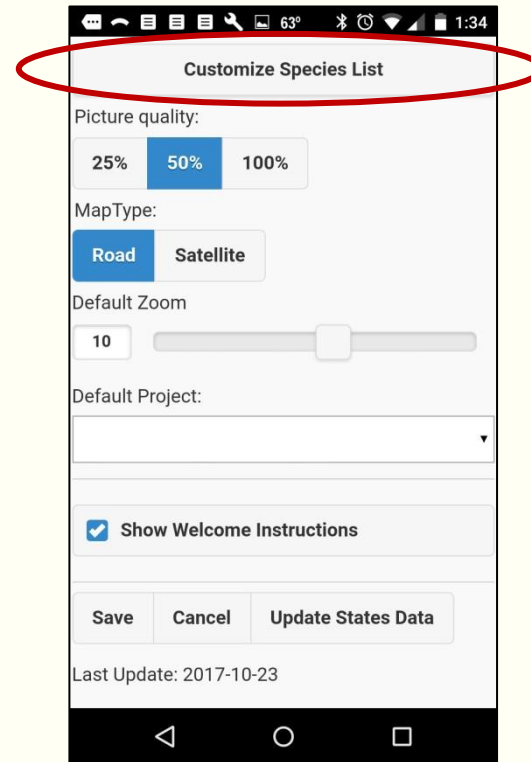


Common & Scientific

Getting Started

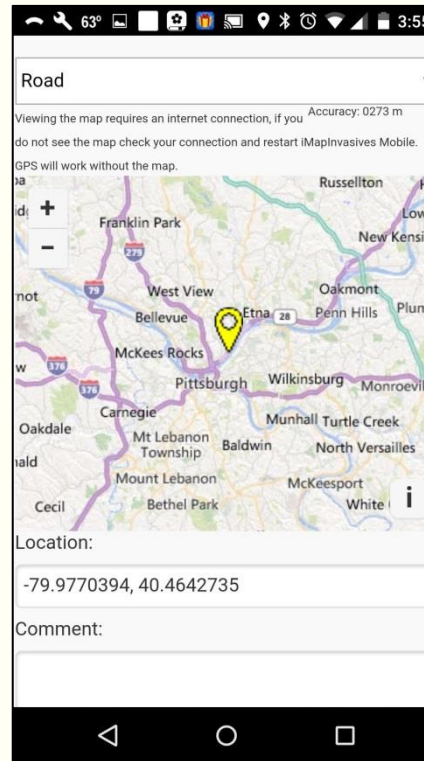
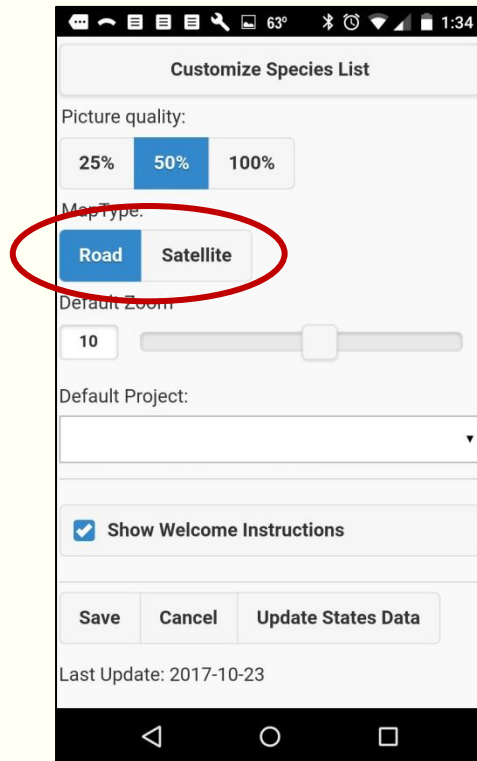
Preferences continued...

- Create a custom species list (optional)
 - Use this feature to save time finding the species you work with most frequently.
 - Only the species you choose will appear in the species selection pane when adding an observation.
 - If you choose not to create a custom list, the entire tracked list will display when adding an observation.
- In these screenshots, I've selected a custom list of five species:
 - Hemlock woolly adelgid, Japanese knotweed, Norway maple, oriental bittersweet, and privet species.



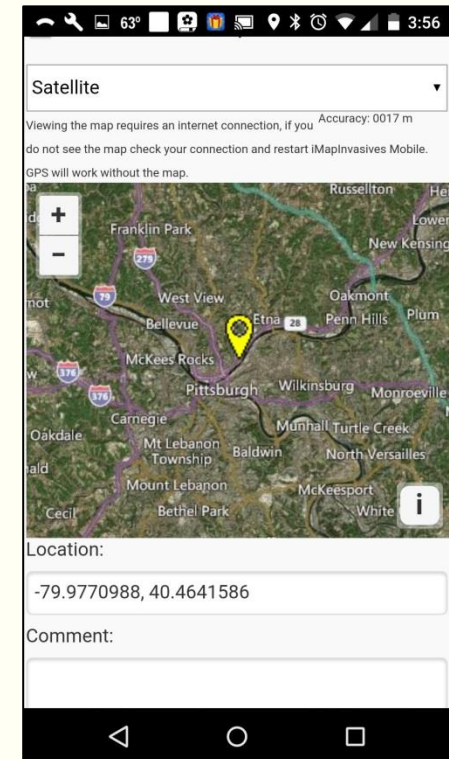
Getting Started

Choose which map you'd prefer to see when entering your observation points.



Road View

OR

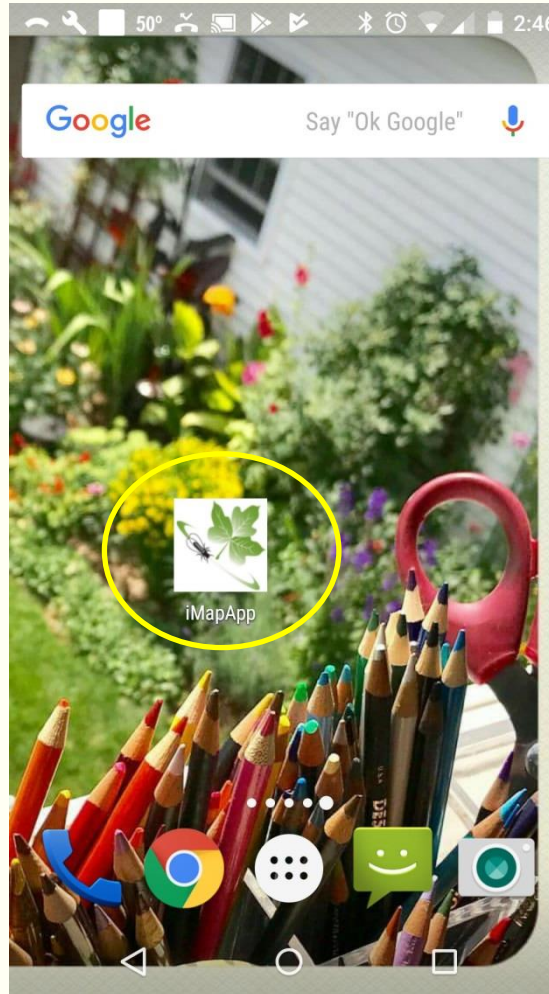


Satellite View

Entering Observations Using Mobile App

Access App Homepage

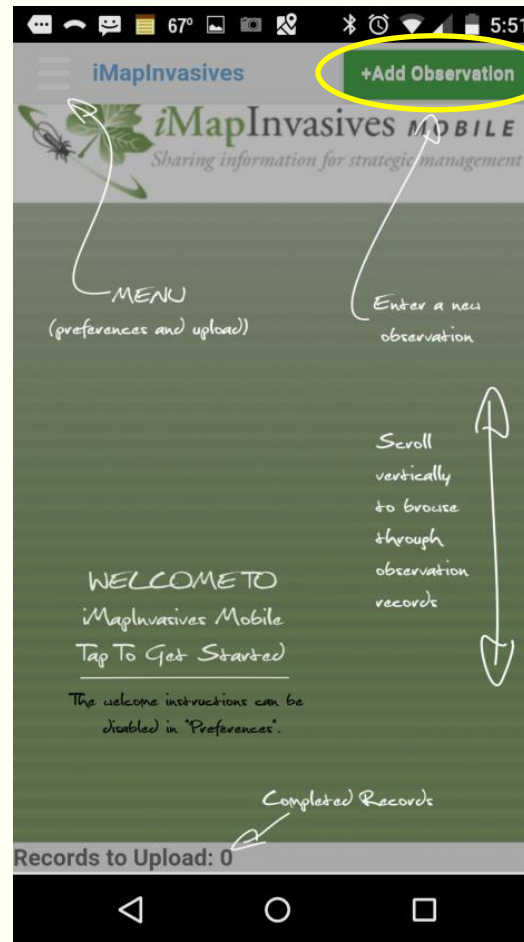
- Open the app on your phone/tablet and review the instructions outlined on the homepage.
 - Example provided on Android smartphone.



Entering Observations Using Mobile App

Step 1. Add Observation Button

- In the upper right corner, click “Add Observation” to begin logging your invasive species findings.



Example Scenario

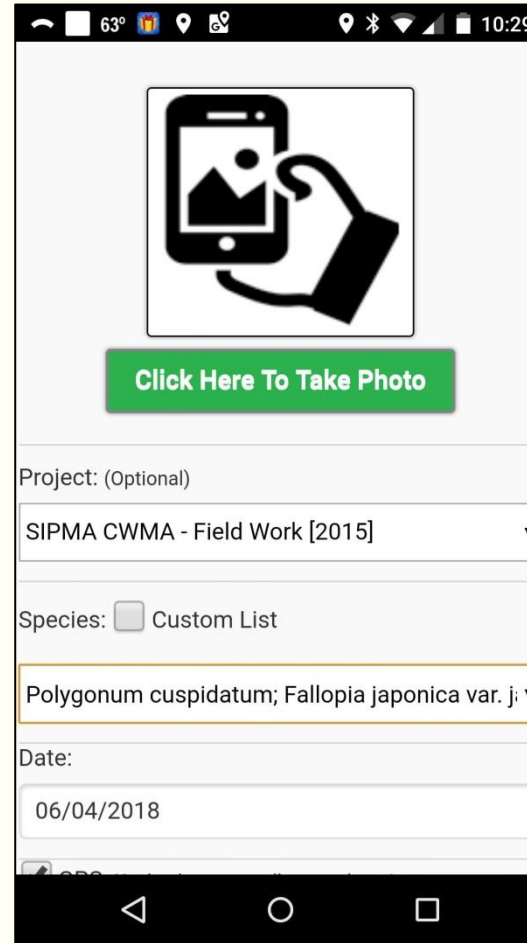


Create an observation for Japanese knotweed (*Fallopia japonica*)

Entering Observations Using Mobile App

Step 2. Take Photo

- Tap the camera icon to open your phone's camera and take a **distinguishing** photo of the species found.
- The app can only save one photo per observation; however, you can take additional photos with your phone and then add them to the observation when you return to a desktop computer.



The screenshot shows the mobile app interface. At the top, there is a status bar with icons for signal, Wi-Fi, battery, and time (10:29). Below the status bar is a large icon of a hand holding a smartphone with a camera icon on the screen. Below this icon is a green button with white text that says "Click Here To Take Photo". Underneath the button is a form with several fields: "Project: (Optional)" with a dropdown menu showing "SIPMA CWMA - Field Work [2015]"; "Species:" with a checkbox for "Custom List" and a dropdown menu showing "Polygonum cuspidatum; Fallopia japonica var. j."; and "Date:" with a text input field showing "06/04/2018". At the bottom of the screen is an Android navigation bar with back, home, and recent apps icons.

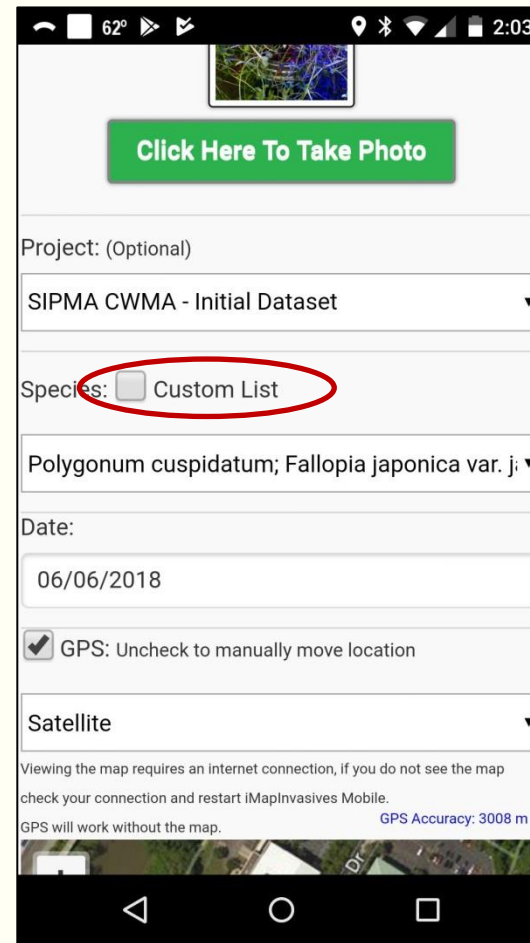


Japanese knotweed (*Fallopia japonica*)

Entering Observations Using Mobile App

Step 3. Fill in Observation Details

- Select the project name “APIPMA Initial Dataset”.
 - Projects are an optional tool which allow data to be grouped together for easy querying at a later date.
- Select the species observed.
 - Choose to use a custom list, if desired.
- Date automatically defaults to current day, though can be changed if needed.



62° 2:03

[Click Here To Take Photo](#)

Project: (Optional)
SIPMA CWMA - Initial Dataset

Species: Custom List

Polygonum cuspidatum; Fallopia japonica var. j.

Date:
06/06/2018

GPS: Uncheck to manually move location

Satellite

Viewing the map requires an internet connection, if you do not see the map check your connection and restart iMapInvasives Mobile.
GPS will work without the map. GPS Accuracy: 3008 m

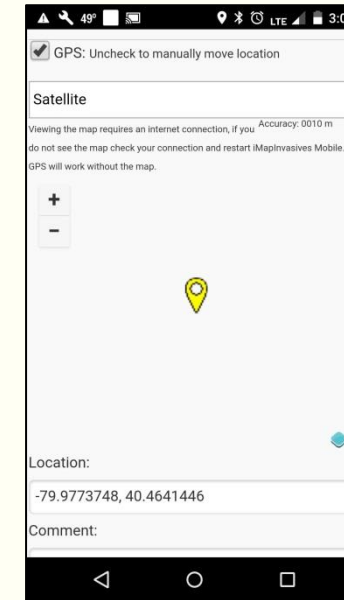
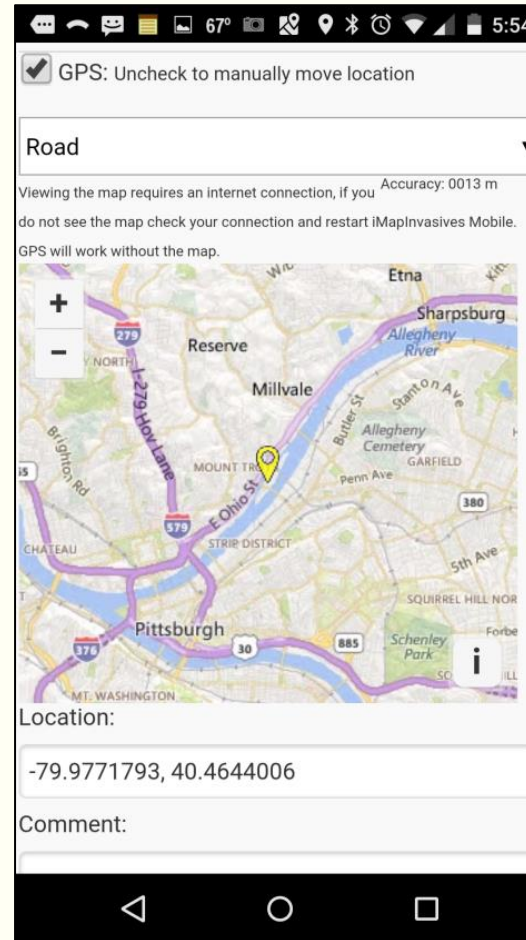


Japanese knotweed (*Fallopia japonica*)

Entering Observations Using Mobile App

Step 4. Check Observation Location

- GPS capability in phone/tablet will automatically determine your location.
- If needed, uncheck the “GPS” box to manually move the point to another location.
 - If you do not have an internet connection when making an observation, the base map will NOT display. However, as long as your GPS is working, it will mark the correct location.



In this screenshot, the base map has disappeared because I do not have an internet connection. However, the GPS is still functioning.

An observation can still be created even when the basemap is gone!



Japanese knotweed (*Fallopia japonica*)

Entering Observations Using Mobile App

Step 5. Assessment Questions

- Depending on what species you select, assessment-related questions appear.
 - These questions will only appear for terrestrial plants and insects.

Location (Longitude, Latitude):
-79.9770544, 40.4642998

Insect Search Effort:

Number of trees/hosts surveyed:
[input field]

Hours spent surveying:
[input field]

Observation Comments:
[input field]

Save Cancel

Location (Longitude, Latitude):
-79.9770542, 40.4642464

Plant Assessment:

Size of area containing invasive:
(or type precise area with units into Comments box)

Distribution of invasive:
[dropdown menu]

Observation Comments:
[input field]

Save Cancel

PI Single plant or clump

Scattered plants or clumps

Dense plants/clumps

Monoculture

Linearly scattered (e.g. along road/trail)

Save Cancel



Location (Longitude, Latitude):
-79.9770569, 40.4642963

Plant Assessment:

Size of area containing invasive:
(or type precise area with units into Comments box)

Distribution of invasive:
Scattered plants or clumps

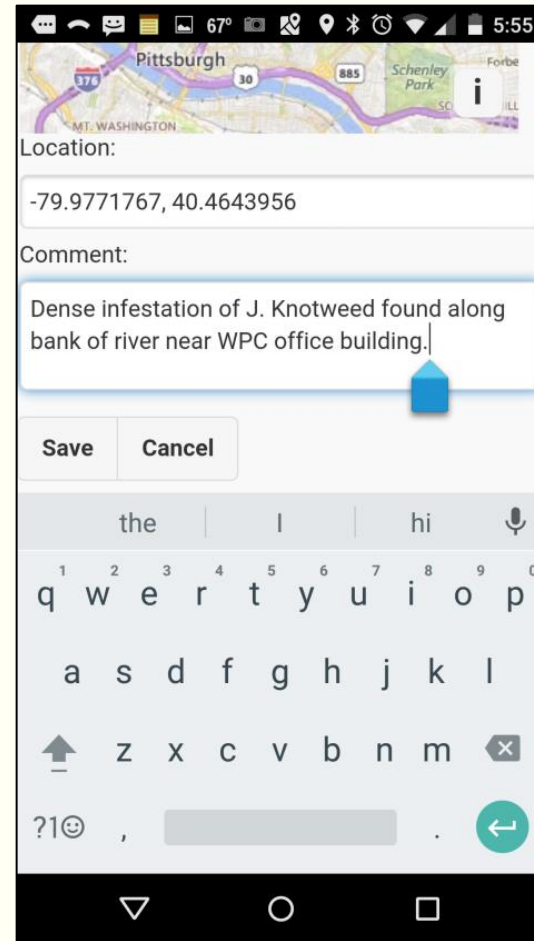
Observation Comments:
Half acre section along riparian corridor of Allegheny River infested with Japanese knotweed.

Save Cancel

Entering Observations Using Mobile App

Step 6. Add Comments

- To make your observation more informative, add some comments.
- Comments could include information on population density, other nearby landmarks, additional observers, etc.
 - *“Dense infestation of Japanese knotweed found along bank of river near the Western Pennsylvania Conservancy’s office building.”*



Japanese knotweed (*Fallopia japonica*)

Entering Observations Using Mobile App

Step 6. Save Your Observation

- Save your observation to a list on the app's homepage. This list can be uploaded into iMapinvasives once you're back in data connectivity (Wifi).

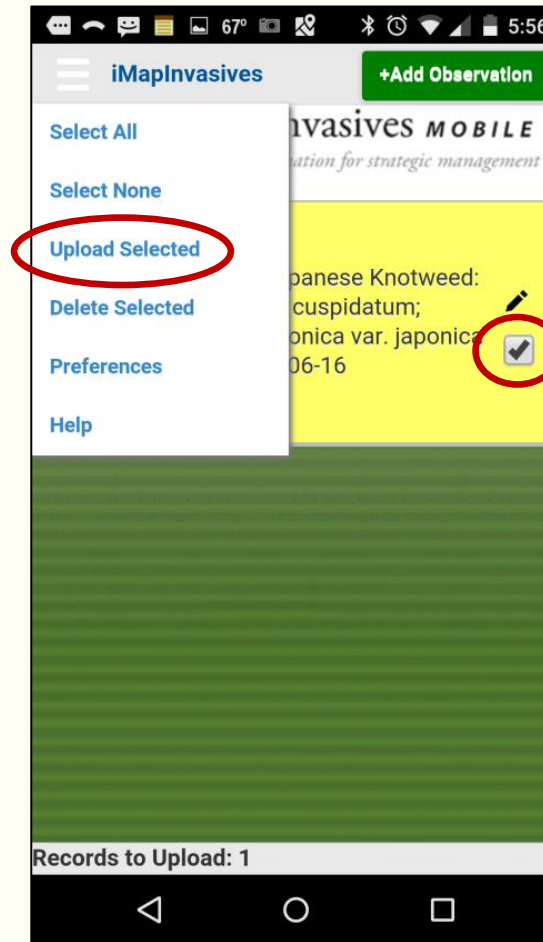


Japanese knotweed (*Fallopia japonica*)

Entering Observations Using Mobile App

Step 7. Upload Your Observation(s)

- To upload your observation (once you're back in an area with Wi-fi), click on the check box next to each observation record.
- Then access the main menu and click "Upload Selected".

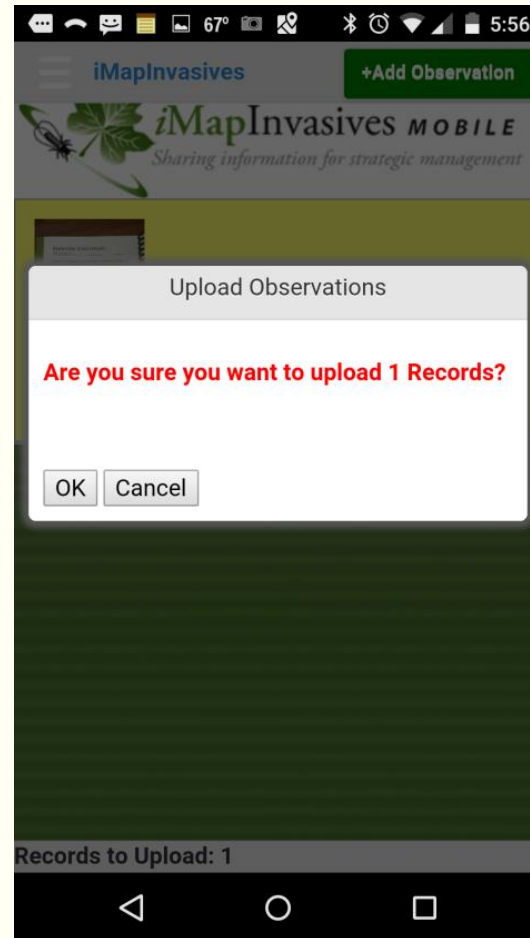


Japanese knotweed (*Fallopia japonica*)

Entering Observations Using Mobile App

Upload Confirmation

- Confirm that you would like to upload the selected records to the iMapInvasives database by clicking “Ok”.
- Note that the records will disappear from your iMapInvasives app.
- **Hint:** If you continue to see the observation in the list, this means it has NOT been uploaded into the main iMapInvasives database.
 - If this happens, try uploading again.



Japanese knotweed (*Fallopia japonica*)

Entering Observations Using Mobile App

Step 8. Add Additional Comments and Photos

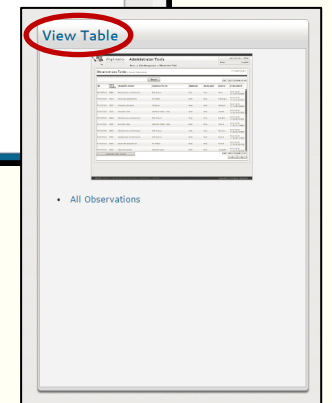
- After uploading your observation(s), return to a desktop computer to add other details and upload up to four more photos.
- Access your record(s) by logging into PA iMapInvasives and clicking on “View Table” from the main navigation page.



Japanese knotweed (*Fallopia japonica*)

Project: PPC - Frick Park - Frick Woods
County: Allegheny
Entry Date: 2017-03-23 16:34:20
Observation Date: 2017-03-23 00:00:00
Status: Unconfirmed
Expert Name from User: -----
Observation Comments: Seeds of second year plants have not been allowed to disperse for the past two seasons.
Location Determination Method: -----
Observation Method: -----
Site Access: -----
Site Directions: -----

Log into Pennsylvania iMapInvasives at www.PAiMapInvasives.org.



Entering Observations Using Mobile App

Now what? What happens once your report has been submitted?

An iMapInvasives administrator or APIPMA project leader will:

- Review your record details and photo(s).
- If the species ID is correct, your record will be confirmed.
- If there are questions regarding your record, you will be notified.

The screenshot displays the 'Observation Information' page for record ID PA-5544U. The page is divided into several sections:

- Data Entry Person:** amyjewitt10
- Observer:** Amy Jewitt
- Organization:** Western Pennsylvania Conservancy
- Project:** SIPMA CWMA
- Dates:** Observed: June 16, 2016
- Species:** Japanese Knotweed
Polygonum cuspidatum; *Fallopia japonica* var. *japonica*
Status: Unconfirmed (indicated by a red arrow)
- Geographic Data:** County: Allegheny, ID: PA-5544U

Below the information is an 'Observation Location' section with input fields for Latitude (40.464422) and Longitude (-79.977214). A red arrow points to the 'Geographic Data' section. A map on the right shows the location in Allegheny County, PA, with coordinates 77554 4451218 and 79°58'38"W, 40°27'51.9"N. Buttons for 'Return to the initial Map Location', 'Save New Map Location', and 'View Observation on Map' are visible.

Notice this record is still labeled as Unconfirmed, meaning the Administrator has not yet reviewed it or is in the process of contacting the observer with questions.

iMapInvasives Mobile App

For more details on how to use the iMapInvasives mobile app, please view the [Mobile Tools](#) page found at www.iMapInvasives.org.





iMapMobile App *NEW*
(Android & iPhone)

GET IT ON
Google play

Available on the
App Store

The iMapMobile app allows for quick and easy invasive species reporting for citizen scientists and natural resource professionals. With iMapMobile, you can report invasive species locations to your online iMapInvasives account by using your mobile device's camera and GPS, even when you're out of connectivity range. You need to have an active iMapInvasives account in a participating state or province for your iMapMobile observations to sync. ([Request a free iMapInvasives account here.](#)) After submitting a batch of records, be sure to log into iMapInvasives when you're back at your computer to add additional photos and comments to each observation record.

Mobile App User Manual

Entering Observations Using Mobile App

Pop Quiz: What's wrong with these observation pictures?



Both photos: Too far away – can't confirm species ID



Close up, but still inadequate for identification

Entering Observations Using Mobile App



FUZZY! This is a view of an area where New Zealand mudsnails were found. Helpful, but hard to see...

Entering Observations Using Mobile App



Too far away – can't confirm species ID



Cultivated species – don't report to iMapInvasives

KEEP IN MIND...

Cultivated species should NOT be reported to iMapInvasives, and here's why...



Cultivated Species

Cultivated species are planted purposefully in yards, gardens, and landscaped areas.

Even though some are considered “invasive”, these plants will not be treated, cut, or removed by natural resource professionals.

- However, their presence can lead to “escapees” that can invade natural areas.

The purpose of tracking data in iMapInvasives is to ultimately manage/control the species found.



Don't report this!



Report this!



Cultivated Species

Other examples of cultivated species not to report:



Japanese spiraea (in home garden)

Don't
report
this!



Report
this!

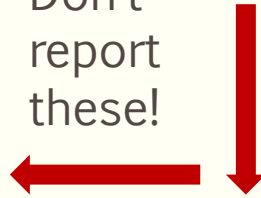


Japanese spiraea (in natural setting)

Cultivated Species



Don't
report
these!



Japanese barberry (in home gardens)

Report
this!



Japanese barberry (in natural setting)

Observation Data – Cultivated Species

Tree-of-heaven (in parking lot)



Don't report this!



Report
this!



Tree-of-heaven (in natural setting)

Observation Data – Cultivated Species

Hardy kiwi vine (in home garden)



Don't report this!



Report
this!



Hardy kiwi vine (in natural setting)

More Tools Available in iMapInvasives!

Learn about other tools available in iMapInvasives!

Check out our [Training Archives](#) page where you can watch webinar recordings on topics including:

- Polygon data entry
- Viewing data on the map
- Lasso tool
- Querying and analysis
- Examples of using iMapInvasives



Questions?

Amy Jewitt
Pennsylvania iMapInvasives Coordinator
ajewitt@paconserve.org
412-586-2305

www.paimapinvasives.org



Western Pennsylvania Conservancy

