iMapInvasives
geotracking invasive exotic species

Aggregating and Sharing Invasive Species Data in New York

New York
Natural Heritage
Program

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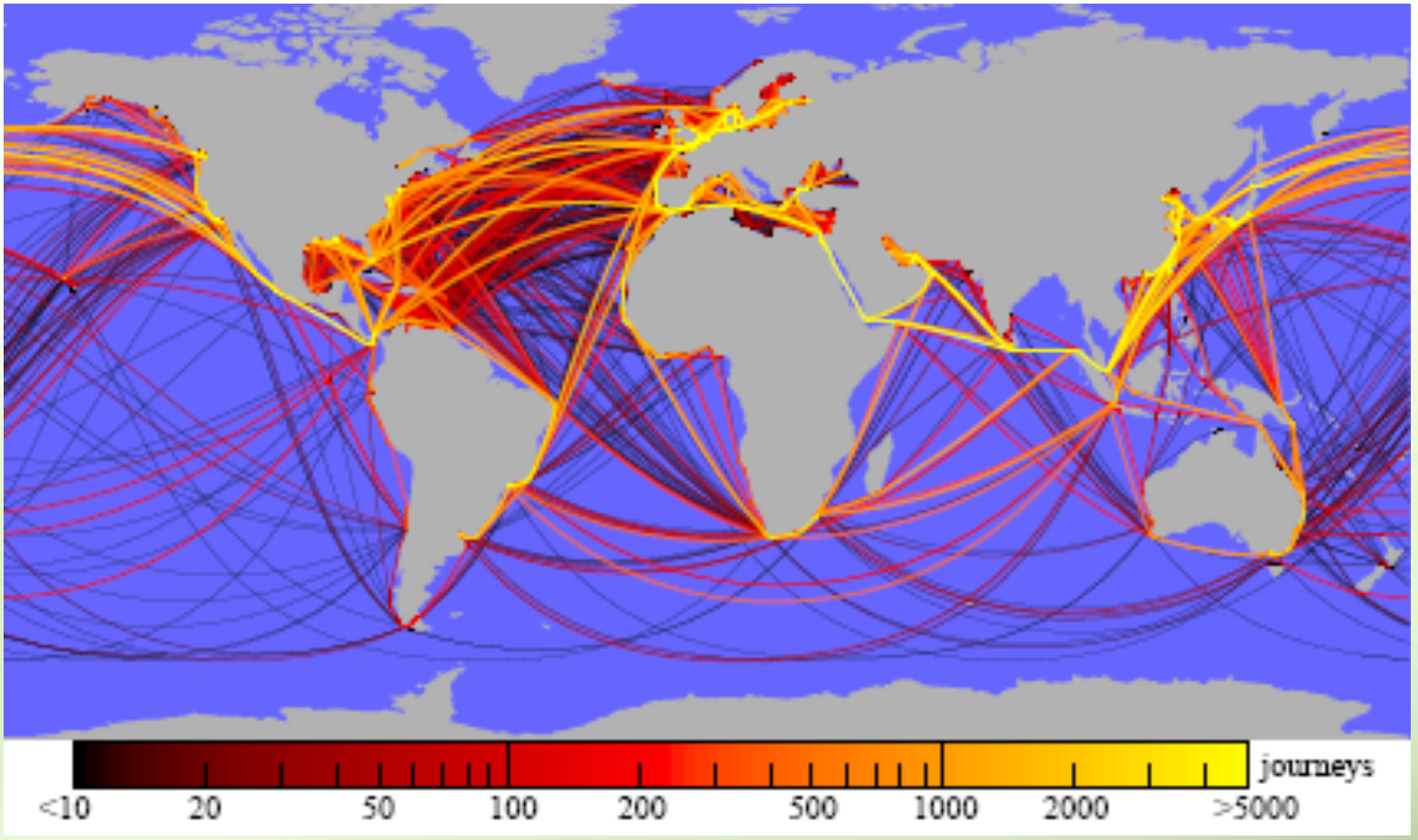
Impacts of invasive species on biodiversity

- Second largest threat to global biodiversity (after habitat loss) [1]
- Can reduce native species populations to isolated refugia, creating long-term extinction debt [2]

1. Wilcove, et al. 1998. Quantifying Threats to Imperiled Species in the United States. Bioscience.
2. Gilbert and Levine, 2013. Plant invasions and extinction debts. PNAS.

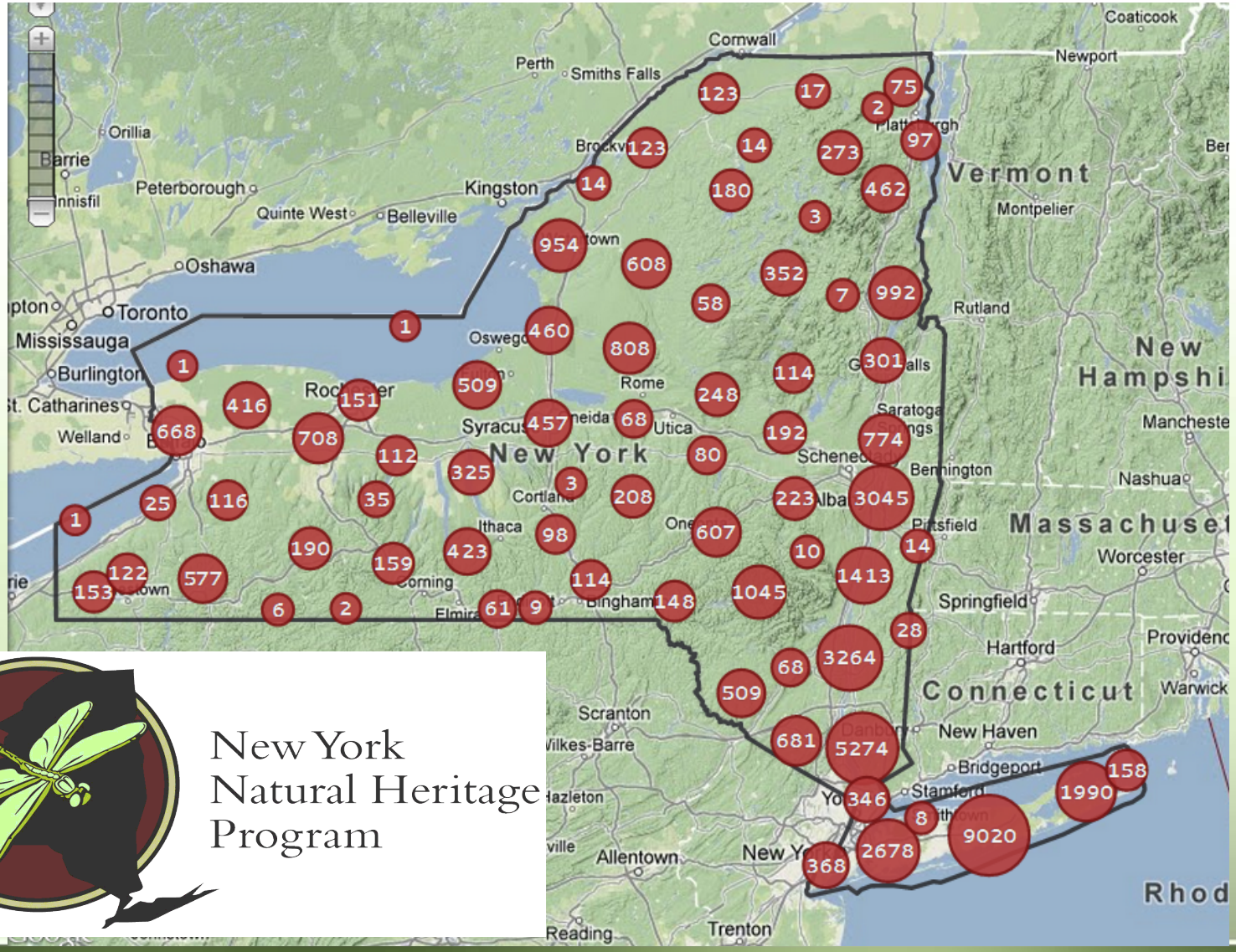
Ample opportunity for species movement



Global shipping routes in 2007 (Kaluza et al 2010)


Photograph by Michael Behne

New York State
Invasive Species Database



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New York State
Invasive Species Database

- Aggregation center for all-taxa data
- Communication network for Early Detection
- Online GIS-based platform
- Organization charged with managing and verifying data
- Available for professionals and citizen scientists

Benefits to a **Statewide** Invasive Species Database

- **Early detection**
- Strategic management decisions
- Inform policy
- Reduce political/geographical challenges
- Patterns – pathways of invasion
- Changes in invasiveness over time

New York
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*i*MapInvasives

Sharing information for strategic management

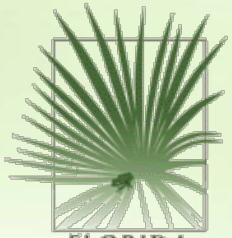
A collaborative GIS-based, online tool for invasive species data management

New York Natural Heritage Program

NatureServe

The Nature Conservancy

Protecting nature. Preserving life.™

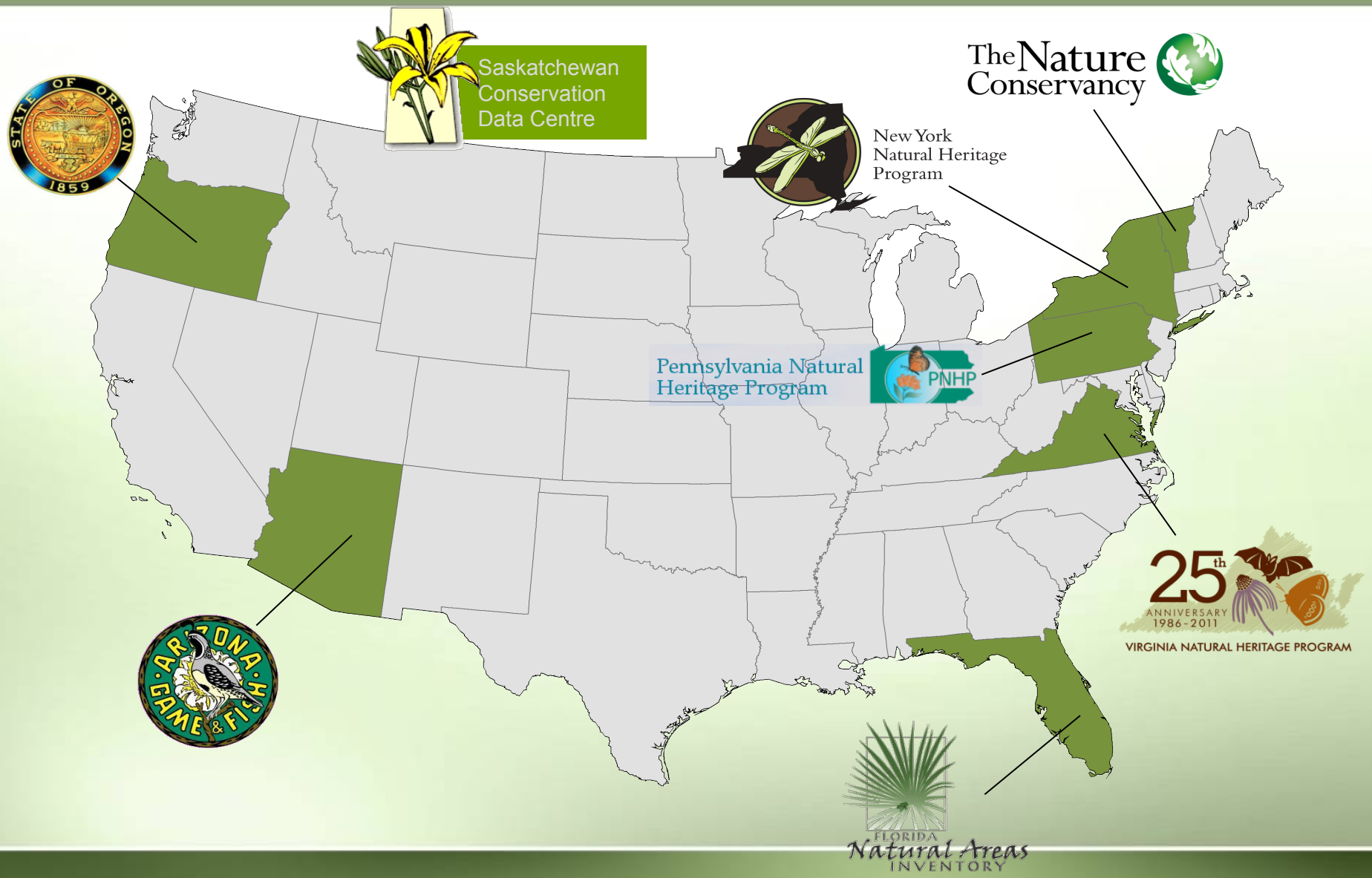


FLORIDA Natural Areas INVENTORY

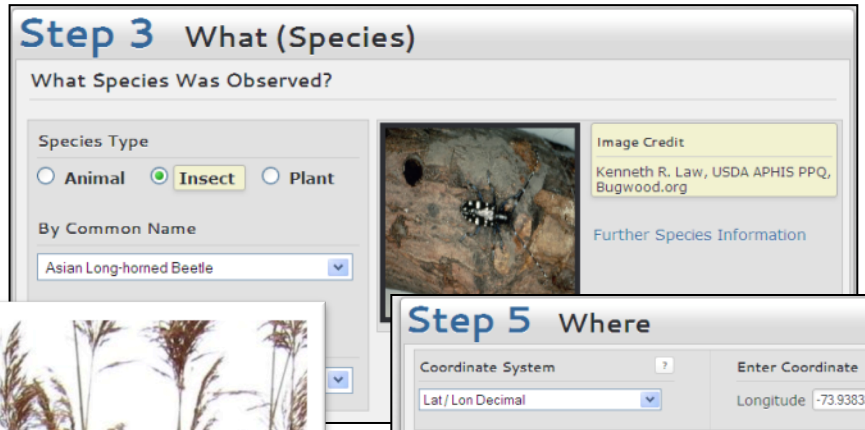
FREAC

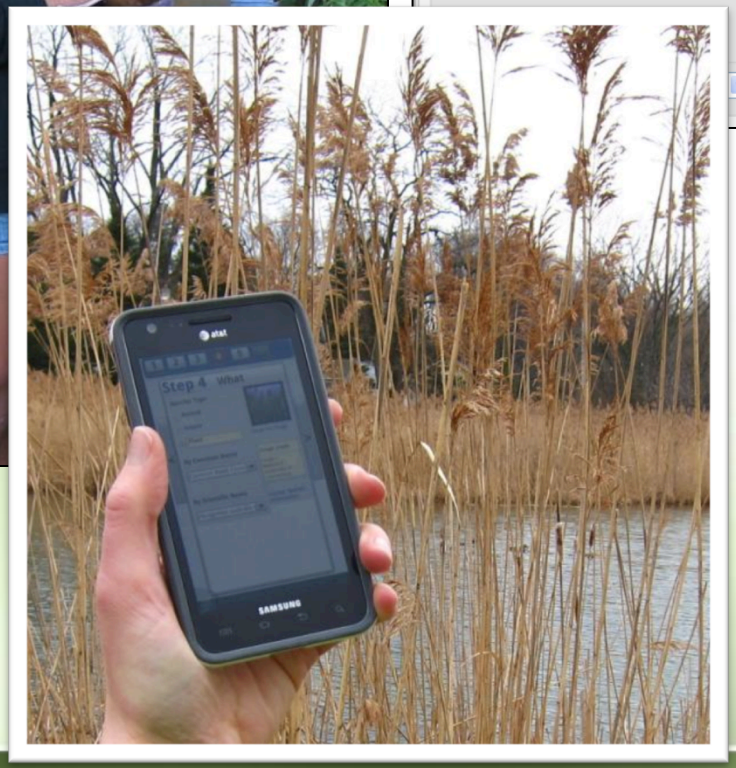
FLORIDA RESOURCES AND ENVIRONMENTAL ANALYSIS CENTER

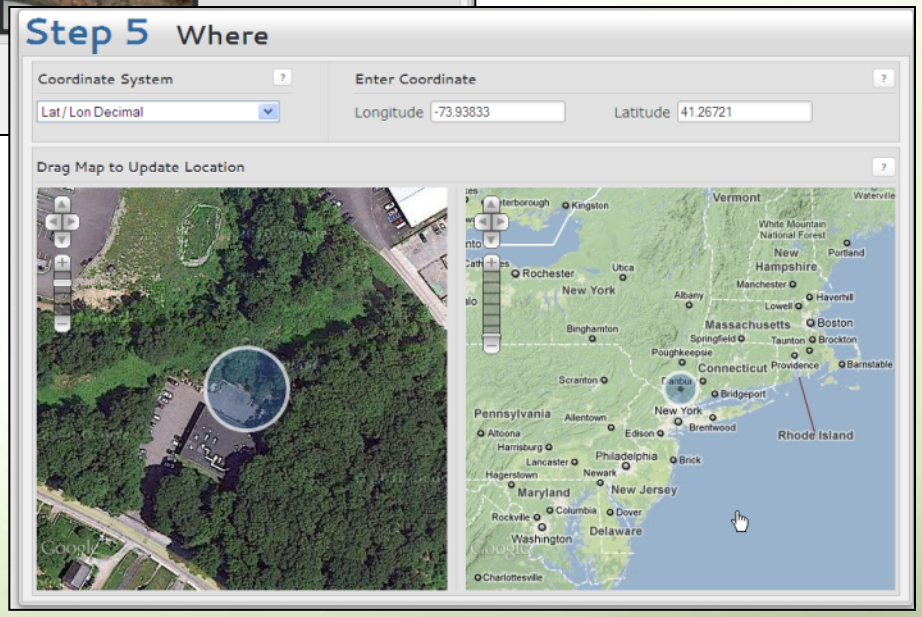
Participating States/ Province



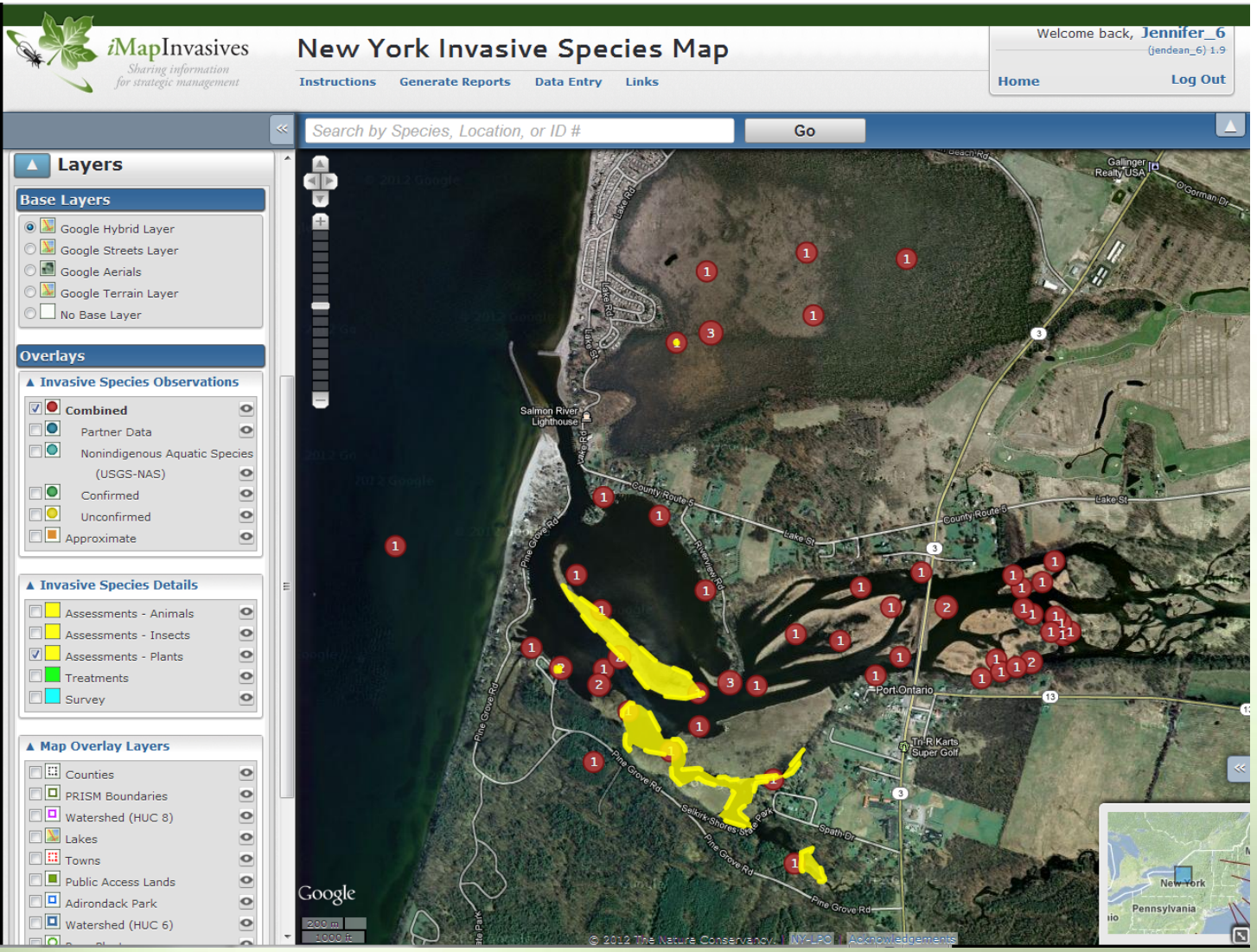
Online data entry for observations







Managing advanced data



Data types

Observation

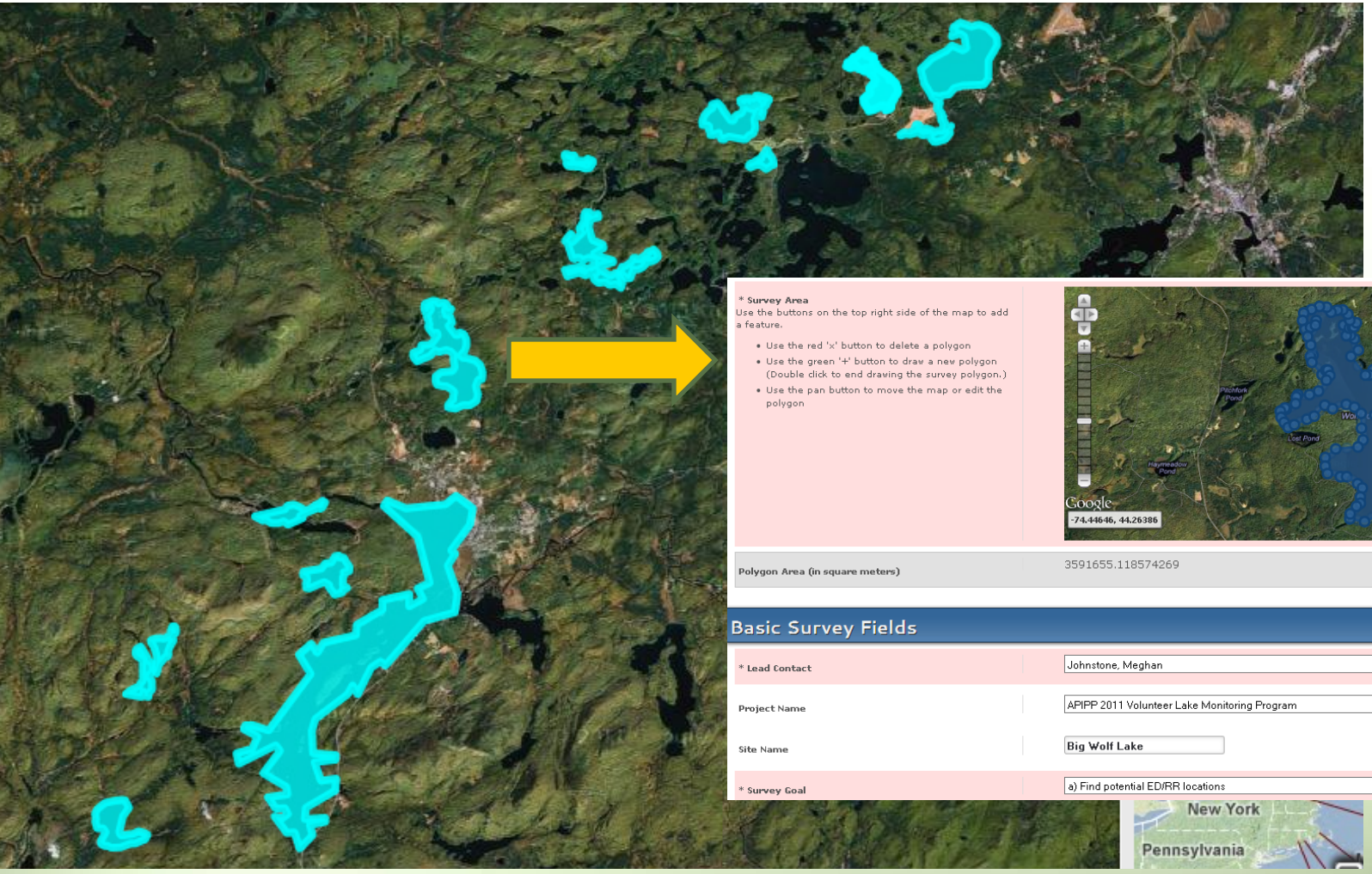
Assessment

Survey

Treatment

Infestation Management

Surveys – Presence/Absence Data



Sourcing Partner Data for bulk uploads

Benefits of collections data to invasive species efforts

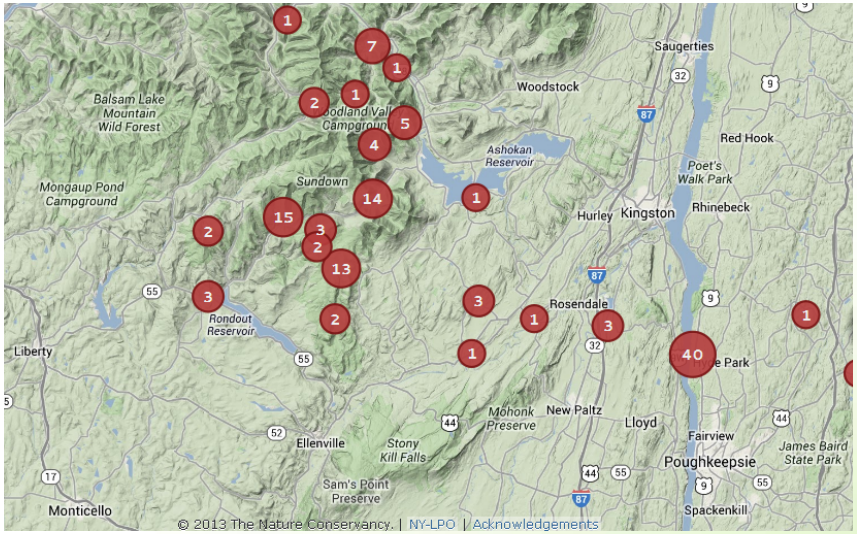
- Timeline of infestation
- Fill data gaps
- Native vs. non-native status
- Global collections – ID species new to continent
- Data on species not currently on the radar

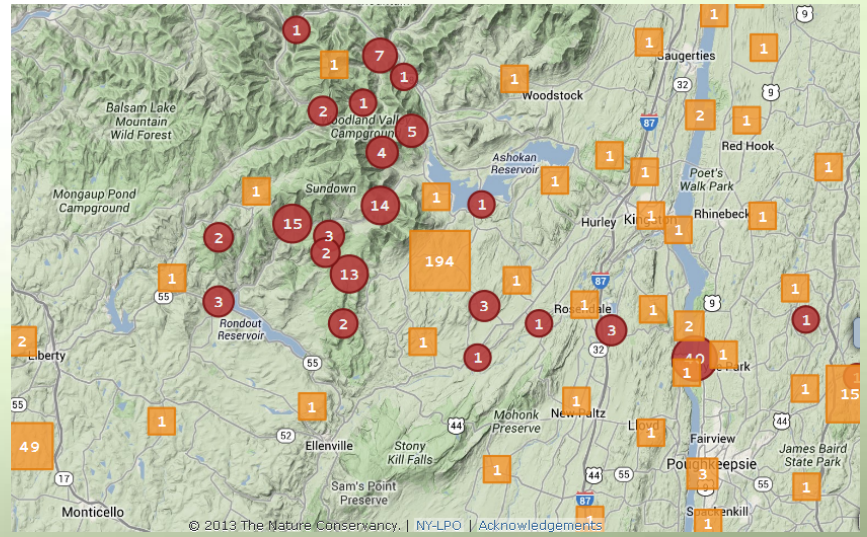
Delving into collections data

- Data requirements
  - Collection info only needed
  - Minimum data requirements – who, what, when, where
    - Also: organization, repository info, comments
  - All taxonomic groups, non-native
  - Ideally, like to get records of first findings for each county/ geographic area
- Started with the “low-hanging fruit”
  - Databased collections
  - Leads from colleagues

Initial Challenges

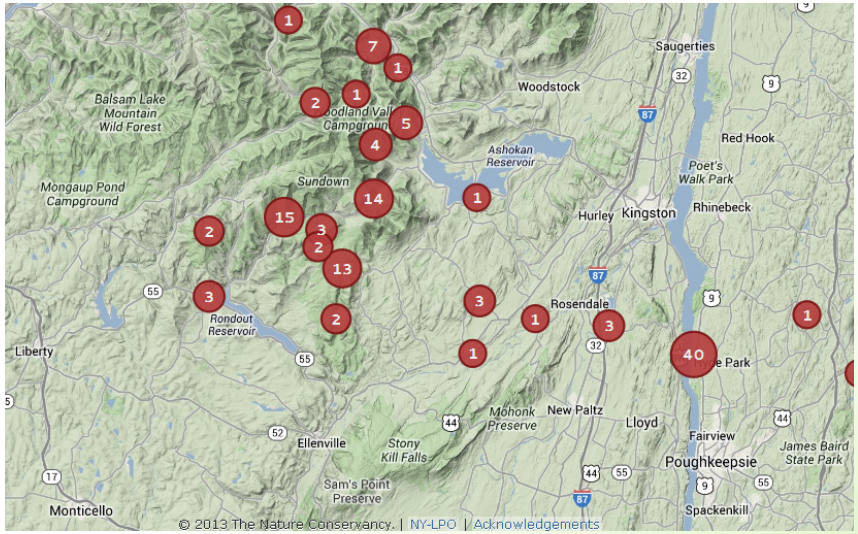
- Many records not geo-referenced

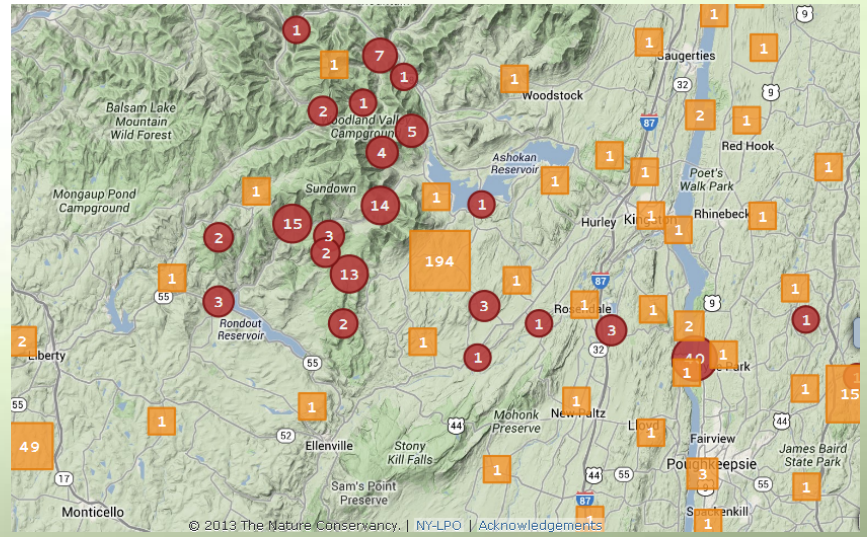




Initial Challenges

- Many records not geo-referenced
- Lining up/interpreting fields
- Filtering out the right species
  - Non-native to area
  - synonyms
- Unclear observer names
- Triggering email alerts





Ongoing challenges

- **Where to look?**
  - Many small, scattered pockets of data
  - Especially for animal records
- Avoiding duplicates
- How to best update datasets

Our data needs from NHCs

- One aggregated place to digitally access data
- Ability to download data and/or serve into our database
- Native/non-native filter
- Easy updating (new records option?)
- Side-by-side comparisons of images
- What else is out there that is not yet digitized?

Kudzu in NYC and Long Island

NY: Aggregation center for all-taxa data

- Online data entry (~7,000 observations)
  - Natural resource managers
  - Citizen scientists / educators

- Existing datasets (~67,000 records)
  - Local, state and federal agencies
  - Researchers
  - **Collections data (~13,000)**