2018 Annual Report
Invasive Species Database
State University of New York
College of Environmental Science and Forestry
MOU # AM11059
RF #78415

2018 Executive Summary

In 2018 the Invasive Species Database Program (ISDB) continued to serve the needs of individuals and organizations working to protect New York from the threat of invasive species. The current, live version of the iMapInvasives database was maintained and data was reviewed. Simultaneously, NYNHP staff invested significant time and resources to providing input and feedback to the NatureServe programmers working on the ongoing development of a new iMap online database, referred to as "iMap3".

Highlights from the year included:
 I. **Software:**
  • **iMap 3.0 Development Work:** The goals of iMapInvasives 3.0 were designed around the needs of state agencies, PRISM Leaders, natural resource managers, citizen scientists, and others working on invasive species issues in the state, including the ability to utilize mobile technology more easily. The new iMapInvasives platform will utilize many features of current technology including "mobile-responsive" programming and web map services, serving confirmed iMap data "out", and providing reference layers from other databases such as USGS NAS and iNaturalist within the iMap map. All existing iMap2 fields and domain values (e.g. drop-down lists) have been reviewed and decisions have been made to keep, modify or drop fields depending on current use and input from existing users. A few key fields have been added such as "Pesticide Applicator License Number" to ensure that iMap has all the fields required for pesticide applicator tracking, and

some new fields have also been added for biocontrol release and tracking. The new system will have "detected" data and fully-integrated "not-detected" data, as well as searched area and treatment data. iMap3 will be live in June of 2019.
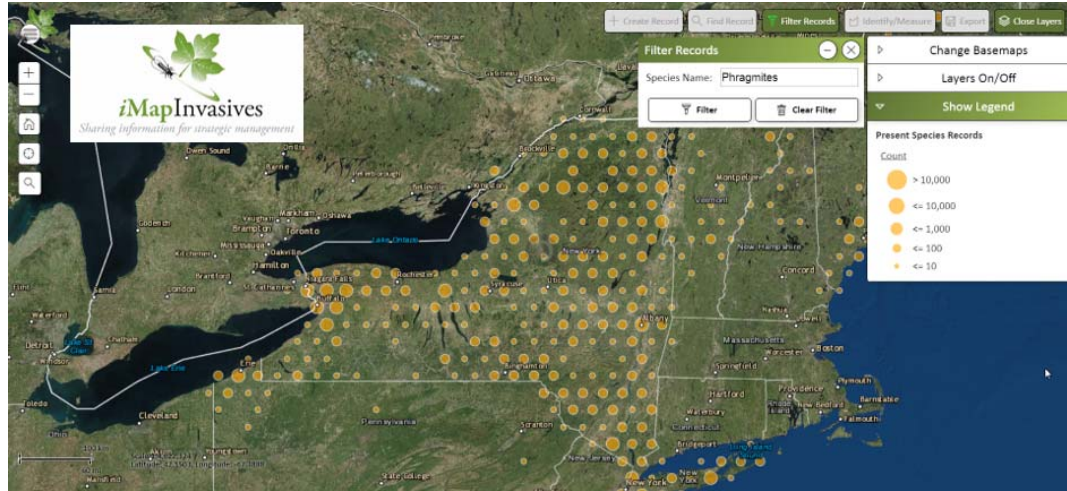
Screenshots from iMapInvasives 3 development work by NatureServe. Above: The Americas map viewer. Right: Record creator in mobile-responsive view and detailed map.
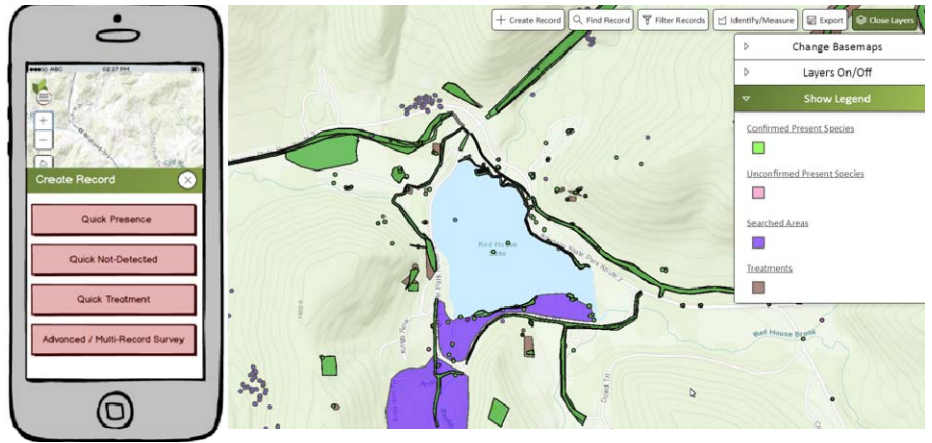
- **Pilot Apps for iMap3**: In collaboration with partners, work continued to develop several Survey123 apps for use with iMap3. These apps are designed to be used in the field, without connectivity, and then via ArcGIS Online, automatically imported to iMap3, when an internet connection is available. "OAT" allows a natural resource manager to collect data about observation, assessment, and treatment. "SAS" (Simple Aquatic Survey) is designed for use by volunteer lake monitors. And Rapid Assessment is designed for use in highly infested areas, providing a simplified workflow to create many observations, quickly. NYS Parks field staff created over 500 observations in one day using the Rapid Assessment app.

- **Watercraft Inspection Stewardship Program App (WISPA)**: WISPA was used by over 200 Watercraft Inspection Stewards from 16 participating organizations this boating season. Over 150,000 records were collected. With help from the NYS DEC-SUNY ESF WISPA summer intern, the WISPA dashboard was monitored regularly in search of "suspicious" data/anomalies; any suspicious reports were followed up. Detailed mid-summer, and year-end summary reports were delivered to each participating organization. WISPA data is a separate database and is not entered into iMap; see "iMap/WISPA "Hits" analysis, below. An article about WISPA was written for the "eSpatially New York" website.

II. **Data, The Backbone of the Invasive Species Database:**
Also see Statewide Metrics section

- **Data In:** There are four ways to enter data into iMap:
  - iMap Mobile app,
  - online data-entry,
  - bulk upload, and
  - pilot Survey123 apps.

The latter, the data entered via the Survey123 apps (OAT, SAS, and Rapid Assessment; approximately 4,000 records) will be processed via a bulk-upload process in the short-term; after iMap3 is live, this data will be entered into iMap nightly. Bulk datasets from partners were not added to iMap2 this year, but instead were prepped to be added directly to iMap3. The iMap Mobile app continued to be the preferred observation data-entry method for users with 6,069 observations, as compared to 2,651 observations entered through the online user interface. Over 800 "Not Detected" reports were entered for selected species.

Hemlock Woolly Adelgid (*Adelges tsugae*)

△ NOT Detected
● Present (confirmed)
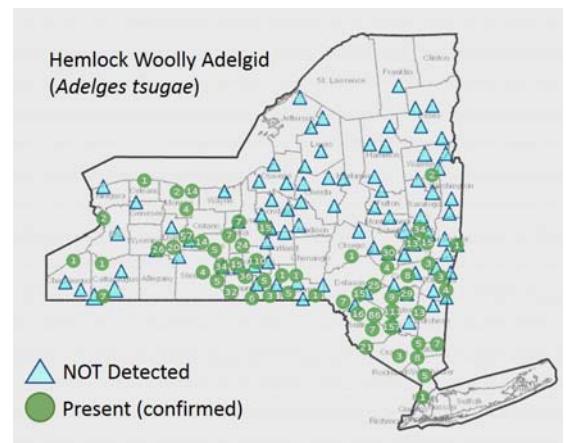
- **Data QC & Review:** NYNHP staff receive and review nightly digests of all the data entered into iMap in the past 24 hours. In addition, "Suspicious Distance" email alerts are reviewed carefully; in 2018, 180 observations triggered Suspicious Distance Email Alerts at the time they were entered into iMap. Each Suspicious Distance alert is reviewed and followed-up on as appropriate, resulting in the record being confirmed quickly or deleted quickly, depending on the result of the follow-up conversations.
- **Data Out:** Three examples of communicating important iMap data to key agencies and individuals are custom data requests, user-created email alerts, and new-to-county email alerts. In 2018, there were 25 custom data requests filled, including for Siena College, Cornell, and NYS Parks for projects ranging

from Capstone projects to parks planning and a research paper on emerging invasives. Users have created a total of 350 email alerts, for a specific species or a geography they care about such as their PRISM, county, watershed, or park. The system sent over 9,000 email alerts that met the criteria set by users. In addition, 120 users were sent a "Significant Record/New-to-County" email alert if data entered was the first record for that species in that county.

III. **Analysis and Derivative Work, Utilizing the data to facilitate Strategic Invasive Species Work:**

- **Prioritization/Optimization:** NYNHP staff worked with researchers from Cornell University and NYISRI to create a tool to help PRISM leaders decide which actions will be most effective for invasive species in their region. The invasive species tiers process and invasive species spatial prioritization models created by NYNHP are being used for this action-optimization tool, in addition to the iMap data. Also, NYNHP continued to work with DEC staff and PRISMs to create species lists through the tier process.

- **Dashboards:** Dashboards provide a customizable view of the data, including maps and charts. The iMap3 technology will utilize web-map services, thus providing current data which can be used to create custom views and analysis of the data. NYNHP has developed one pilot dashboard, "Aquatic Invasive Species Dashboard – 14 species" to demonstrate the general concept showing the ability to view a map with key data fields displayed as charts.
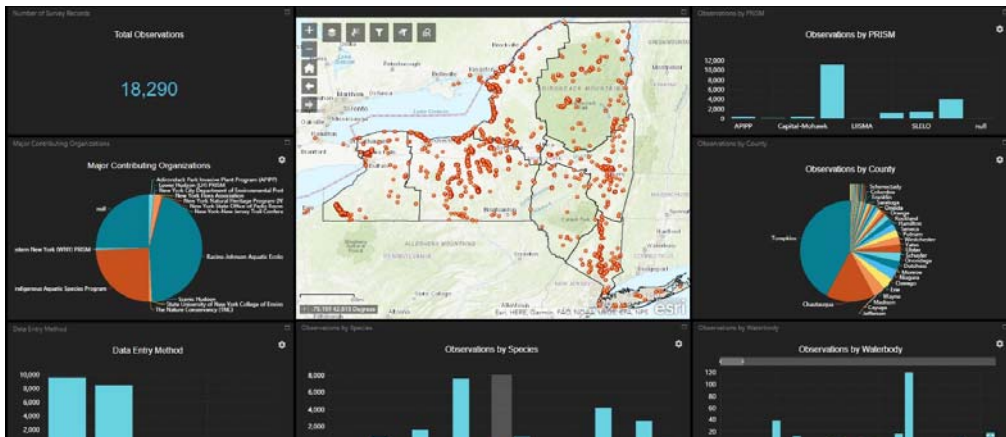
Dashboard example showing aquatic data in WISPA.

- **iMap/WISPA "Hits" analysis:** A pilot project currently underway is designed to test if invasive species reports, aka "hits", from the WISPA "retrieving" data (boats leaving the waterbody) might be a valid early detection method. First, for each WISPA waterbody, a species list of retrieving "hits" from retrieving watercraft was created. Next for each waterbody, the WISPA "hits" species list was compared to the current list of species with confirmed observations in iMap for the same waterbody. Any instance of a waterbody in which species were detected on a retrieving watercraft but do not have any corresponding confirmed observations in

iMapInvasives are considered "Leads-in-need-of-follow-up." A GIS layer will be created from this data showing these waterbodies in need of follow-up survey work. If, during the survey work, the "hit" species is determined to be present, then it can be documented by submitting an observation to iMap.
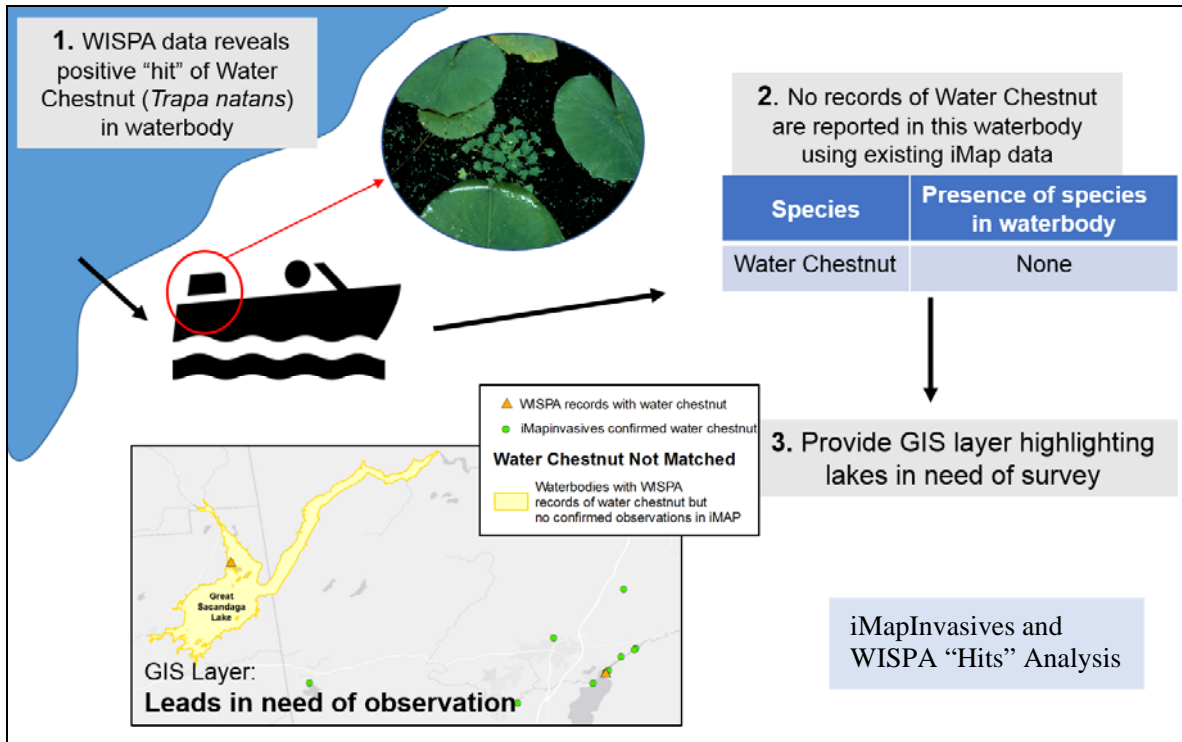
IV. Invasive Species Database Community Building, Outreach, and Networking

- **iMap Certified Trainers Network:** Brittney Rogers, SUNY ESF graduate student, continued to lead the extremely successful iMap Certified Trainers Network. In 2018, two out of every five initial training attendees have become certified trainers and hosted a total of 60 in-person trainings across New York. Through the efforts of the Network, over 650 attendees were trained or retrained, resulting in many new data contributions to iMapInvasives.

iMap Certified Trainers in attendance at the 2018 CCE Invasive Species Ins-service

- **Informational website** (separate from the iMap database): www.nyimapinvasives.org Redesigned the NY iMapInvasives informational website which provides training announcements, tutorials, and more; transitioned the informational website from a "Google classics" website to a "WIX" platform.
- **iMap Newsletter:** And in 2018, the first NY iMapInvasives newsletter was produced, distributed via email, and posted online: www.nyimapinvasives.org/newsletters .
- **NY Invasive Species Curriculum Committee:** Participated with NYS DEC, BOCES and others to develop an invasive species curriculum for middle school students. Led the iMap training for the first official workshop, and the planning workshop in the spring.
- **"Stories from the Data":**
    i. The third annual iMap Mapping Challenge was held as part of Invasive Species Awareness Week (ISAW). This year two species were highlighted: jumping worm and water chestnut. Thirty-two people participated on the webinar with 18 submitting observations and not-detected data; for a total of 53 records. Winners received species-relevant prizes and the trophies were passed to the PRISM

PRISM winners of the 2018 ISAW Mapping Challenge

    Leaders from the PRISM with the most records submitted, Lower Hudson (jumping worm) and Capital Mohawk (water chestnut).
    ii. Worked with DEC Division of Lands and Forest to establish a process for incoming spotted lanternfly (SLF) reports. Received several public reports of SLF following media blitzes and worked with DEC staff to follow-up with submitters. We also added a question to the iMap Mobile app: when an observation for tree-of-heaven is submitted, the user is asked the diameter of the tree.
    iii. Continued to collaborate with the NYS Hemlock Initiative. A custom field data collection tool, utilizing Survey123 and Collector, is under development and will provide fields specific to forest health survey work. In 2018, 366 HWA observations and 611 "not-detected" records were submitted to iMap.

Acronyms used in this document

BBA	Breeding Bird Atlas
CCE	Cornell Cooperative Extension
CTN	Certified Trainers Network
DEC	Department of Environmental Conservation
EDDMapS	Early Detection Database Mapping System
ED/RR	Early Detection/Rapid Response
EAB	Emerald Ash Borer
EPF	Environmental Protection Fund
Esri	Environmental Systems Research Institute
FNAI	Florida Natural Areas Inventory
FREAC	Florida Resources and Environmental Analysis Center, Florida State University
FSU	Florida State University
GIS	Geographic Information Systems
HPA	Highly Probable Areas
HWA	Hemlock Wooly Adelgid
IPMDAT	Invasive Plant Management Decision Analysis Tool
ISAW	Invasive Species Awareness Week
ISEHB	Invasive Species and Ecosystem Health Bureau at NYS DEC
ISC	Invasive Species Council
ISDB	Invasive Species Database
ISPZ	Invasive Species Prevention Zones
ISRI	Invasive Species Research Institute at Cornell
LPO	Lead Partner Organization
NYNHP	New York Natural Heritage Program
NYPAD	New York Protected Area Database
NYSDAM	NYS Department of Agriculture and Markets
NYSDEC	New York State Department of Environmental Conservation
NYS EPF	New York State Environmental Protection Fund
NYISRI	NY Invasive Species Research Institute
NYS OPRHP	New York State Office of Parks, Recreation, and Historic Preservation
ODK	Open Data Kit
PRISM	Partnership for Regional Invasive Species Management
RIT	Rochester Institute of Technology
SUNY ESF	State University of New York College of Environmental Science and Forestry
TNC	The Nature Conservancy
TNC-GIST	The Nature Conservancy – Global Invasive Species Team
TTT	Train-the-trainer
USGS-NAS	United States Geologic Survey – Non-indigenous Aquatic Species database
US FWS	United State Fish and Wildlife Service
WISPA	Watercraft Inspection Stewards Program App

BACKGROUND *See Scope of Work*

GOALS for the Invasive Species Database, 2017 to 2022

I. Information Management System: *i*MapInvasives 3

Provide valuable mobile and online tools for stakeholders that leverage current mapping technology through a redesign of the iMapInvasives interface and backend database.

II. Invasive Species Data and System Data

Continue to build and serve high-quality datasets for stakeholders to use for strategic decision-making and prioritization.

III. Analyses and Derivative Products

Create analytical tools and products derived from the invasive species data that help advance the work of stakeholders and lead to strategic decision-making.

IV. Invasive Species Database Community Building, Outreach & Networking

Increase the early detection capacity of NYS by building a community around the database through trainings, outreach and networking, and contributing to a statewide symposium.

Audiences served

- <u>NY ISC Agencies</u> Meet regularly with NYS ISC Agencies; develop and implement ways that iMap can assist their staff with their agency work such as specific apps or special trainings for their staff. For interested agencies, serve specific iMap data to agency internal servers, filtered as appropriate for their agency needs
- <u>Citizen/Professional Scientist</u> - Expand Early Detection capacity through community-building activities, especially utilizing technology and/or social media; build community of Trained Trainers to conduct *i*MapInvasives Trainings statewide, e.g., iMap Certified Trainers Network
- <u>Natural Resource Managers</u> – Develop *i*MapInvasives 3.0. Expand field data collection tools (mobile devices); develop/enhance methods to assist the site-level management needs such as a Spatial Prioritization Tool; continue to maintain the Invasive Plant Management Decision Analysis Tool
- <u>Decision-Makers</u> – Develop and enhance analysis and derivative products such as Reports/Dashboards; and develop/enhance a Spatial Prioritization Tool; update the Invasive Plant Management Decision Analysis Tool and more build direct relationships
- <u>Specific User Groups</u>: Develop custom apps, web/mobile, as appropriate, for specific user groups, such as regional groups, lake associations, hiking organizations, species-specific, etc.
- <u>Regional, National, Global Invasive Species Efforts</u> – serve generalized iMap data via static data exchanges and web map services (coming in iMap3) for consumption by other databases such as USGS NAS and EDDMaps.
- <u>All</u> – In partnership with NYS DEC Bureau of Invasive Species and Ecosystem Health, and NY Invasive Species Research Institute (ISRI), contribute to statewide Invasive Species Symposiums

2018 Actions by Task

Goal I: Information Management System: *i*MapInvasives [And WISPA]

1. **Develop *i*MapInvasives3** [and WISPA update]
- NatureServe continued development work for the *i*MapInvasives3 online database through the contract managed by NYNHP and SUNY ESF. Monthly iMap3 Project Team calls were held, and weekly focused webinars were also conducted. Two in-person meetings were held, one in Arlington, VA, and one in conjunction with the Northeast Natural Heritage Conference, held in western Pennsylvania.
- NYNHP staff, together with other LPOs and NatureServe staff, continued the process of closely evaluating each field and each domain value table for the fields in the current iMap database as well as fields and domain values being used with the current Survey123

apps (e.g. OAT, Observation-Assessment-Treatment, and SAS, Simple-Aquatic-Survey). The back-end database was finalized.

- The iMap "classic" mobile app will be modified to submit data into iMap3; initial programming and testing for this has been undertaken by the GIS Applications Developer, in coordination with the NatureServe programmers.
- Pilot Survey123 apps - *see Executive Summary*
- NYNHP staff met with APIPP staff to learn more about the mobile field data collection tool developed by The Nature Conservancy, "IPMMS". The Invasive Plant Management Monitoring System is an app developed using Esri's Collector app. The plan is to provide current season IPMMS data as a reference layer in iMap3, and to incorporate previous season's data into iMap3 via the bulk upload process.
- Watercraft Inspection Stewardship Program App (WISPA) - *see Executive Summary*

2. **Maintenance, User Feedback, Updates, and Testing for *i*MapInvasives3 (iMap3) version updates**
    - This year, the GIS Applications Developer completed the transition of the iMap "classic" mobile app programming from the volunteer to NYNHP staff. Version 2.0.48 of the classic iMap mobile app was available for users in the app store and the play store. One of the enhancements requested by the user feedback group, the ability to store and use photos from the device library, was part of this release. In addition, the update included modifications to improve overall stability and usability and improved compatibility with the latest iPhone models.
    - Approximately 100 users, about half from NY, and half from other jurisdictions, agreed to participate with the ad-hoc iMap3 User Interface Feedback group. This invitation to review the user interface was extended to DEC staff actively using iMap and staff from each PRISM, in addition to many other partners across the state. Feedback will be gathered via online surveys; each survey will be focused on a specific piece of the iMap3 functionality. The first online survey, focused on the "Create Record" functionality, was designed and emailed to the UI Feedback group. The feedback was reviewed by NYNHP staff and grouped into three categories:
        A. **Minor modifications** proposed for iMap 3.0;
        B. **Suggestions for Future:** good suggestions, outside the scope-of-work for the iMap3 contract – hold for consideration in future functionality work;
        C. **Unsupported** suggestions, either philosophically or monetarily.
      Items from group "A" have been communicated to the NatureServe Programmers.

Goal II: **Invasive Species Data and System Data**

3. **Invasive Species Data into iMap –** For 2018 numbers, *see Statewide Metrics*.
    - Work continued on the machine-learning Google street view images project with RIT, and assistance from several partners including the Siena College intern and Capital Mohawk PRISM staff.

- The short-term database assistant has been working on several datasets that will be bulk uploaded into iMap3:
  - APIPP terrestrial from IPMMS
  - CRISP campground data
  - CRISP EDRR data
  - CRISP HWA data
  - Finger Lakes PRISM - water chestnut Strike Team data
  - Great Lakes Center - slender false brome data
  - NYS DEC Giant Hogweed - 2015-2018 (observations and treatment)
  - NYS DEC Urban Street Tree data from various cities/towns/counties (selected datasets)
  - NYBG - The New York Botanical Garden
  - SUNY Potsdam - purple loosestrife data
  - Regional Inlet Invasive Plant Program (RIIPP), Japanese Knotweed data
  - USDA Forest Service Forest Inventory Analysis dataset
  - USGS NAS observations

4. **Maintain, Review, and Quality Control the Invasive Species Data –** *see Executive Summary*
5. **Maintain, Review, and Quality Control the System Data** - Over 1,850 new user accounts were created in a timely fashion, including user accounts for iMap trainings conducted by iMap Certified Trainers.
6. **Serve Invasive Species Data through many different platforms -** The current iMapInvasives website was maintained. NYNHP staff continued work with NatureServe staff to set specific details for the web map services that will be served from iMap3.

Goal III: Analysis and Derivative products

7. **Queries & Reports, including year-end reports –** Several audience-specific handouts were created including one for the Hemlock Initiative, and one for municipalities about collecting data on giant hogweed and wild parsnip. In addition, year-end reports were created for each PRISM Leader.
8. **Email alert system –** *See Statewide Metrics and Executive Summary*
9. **Operational Dashboards/Insights –** A dashboard view of the Watercraft Inspection Stewards Program App (WISPA) was created, reviewed by partners, and implemented. The data displayed is connected directly to current/live WISPA data and includes information for 14 key aquatic invasives. The link was shared with the WISPA Lead for each participating organization; and the dashboard was monitored regularly by the WISPA Intern.
10. **Other ways to engage and increase participation from citizen scientists** – Participated with NYS Parks in an online workshop for high school teachers planning to map invasive species with their classes through the "ESF in the Classroom" program.
11. **Spatial Prioritization/Species Prioritization** – Continued to work with the Cornell/NYISRI team who is creating an optimization tool for the state. Worked with the DEC IS Response and Management Coordinator and the NYNHP botanist to develop a

draft terrestrial plant list for the species tiers process at the state level. Provided feedback to the Finger Lakes PRISM on their species tiers classification.

12. **Updated Invasive Plant Management Decision Analysis Tool (IPMDAT)** - Key elements of the Invasive Plant Management Decision Analysis Tool will be incorporated into the Optimization Tool being developed by Cornell/NYISRI mentioned in the Executive Summary.

13. **GIS Services** – NYNHP staff and Sea Grant staff discussed options for providing species distribution maps for NYIS.info. A custom GIS report for observation and assessment data for the Lower Hudson PRISM and a special summary report for SLELO were created.

Goal IV: Invasive Species Database Community Building, Outreach & Networking

14. Continue to expand the early detection network surrounding the database
Trainings – 99 iMap trainings were held across the state by a mix of NYNHP staff (48 trainings) and partner organizations (51 trainings), many of which are certified iMap trainers. Key trainings included:
- 9th Annual Statewide iMap Spring Training Blitz – trainings were held in each PRISM by NYNHP staff with extra sessions coordinated with help from PRISM leaders and partners. A second blitz training for SLELO was held and conducted by an iMap Certified Trainer.
- NYS OPRHP – Parks Strike Team summer crew – trained on iMap data entry and use of Survey123 OAT field data collection tool.
- Mapping Challenge - the 3rd annual mapping challenge webinar was held to train users to enter water chestnut or jumping worm search efforts into iMap.
- The Certified Trainers Network, a train-the-trainer approach to increasing awareness and use of iMapInvasives, was facilitated by SUNY ESF graduate student Brittney Rogers in coordination with the iMapInvasives team. 11 Certified Trainers Network webinars, attended by 150 people, were held. Participants are required to lead an iMap training to complete their certification process.
- 3 WISPA trainings were held for Watercraft Inspection Steward Programs by NYNHP staff, plus additional trainings were held by partner organizations.

Media Content
- Informational website - *see Executive Summary*
- Instagram – the Education & Outreach summer intern created an "NYiMapInvasives" Instagram account and posted regularly throughout the summer (33 posts in 2018).
- Brittney Rogers' work on the iMap Certified Trainer's Network was featured on the SUNY ESF "Going Green" news segment that aired across the state.

Outreach to Target Audiences
- Invasive Species Awareness Week (ISAW) – The iMap Education & Outreach Intern participated in NYS DEC ISAW planning meetings; the 3rd annual iMap mapping

challenge was held; NYNHP staff assisted with an ISAW event at Thacher State Park which included an iMap training by an iMap Certified Trainer, and an iMapInvasives table was manned at the Empire Plaza Farmer's Market.

- NY Local Government – NYNHP staff, in partnership with the Capital-Mohawk PRISM, and the Town of Colonie, worked with two Siena College Interns on local projects. One intern used the Google street image work for a small section of Colonie near the Albany Pine Bush Preserve to map Japanese knotweed, and the other intern conducted invasive species inventory work on a new Mohawk Hudson Conservancy preserve. Both students gave presentations about their work at a Town of Colonie Conservation Advisory Committee meeting on April 5th.
- Colleges and Universities
    - o DEC-ESF Interns: Two summer interns were hired through the DEC-ESF Internship program, a WISPA intern, and an Education & Outreach intern.
    - o The RIT iMap Capstone project completed the fifth year of the partnership. The Finger Lakes PRISM will be the next five-year partner working with RIT on invasives projects. NYNHP supported this Capstone group with iMap Train-the-trainer work, and design support of an iMap User survey.
    - o Lectures to five college classes (3 at SUNY Cobleskill, SUNY Cortland, and Cornell University).
    - o The SUNY ESF iMap graduate student taught a semester-long course offered to ESF students about citizen science.
    - o Provided guidance to Siena college students working on an invasive species survey for the Town of Colonie and Cap-Mo PRISM.
- DEC Invasive Species Curriculum Workgroup - *see Executive Summary*

15. Maintain relevancy of database by building relationships with stakeholder groups
- **User Feedback Group –** Held two in-person user feedback meetings, a spring meeting in Albany, and a fall meeting at SUNY ESF. Both were well-attended and provided valuable feedback to NYNHP staff.
- **Ad-hoc iMap3 User Interface Feedback Group –** Established an ad-hoc iMap3 User Interface Feedback Group to provide specific, targeted feedback on selected parts of the iMap3 user interface.
- **Meet with key stakeholders**
    - o Participated on the NYS DOT Swallowwort Biocontrol Technical Advisory Committee
    - o Met with NYS Parks staff to discuss specific details of the OAT app
    - o Met with NYS Hemlock Initiative staff to discuss the Survey123 app for specific biocontrol monitoring fields
    - o Met with the new NYS DAM Invasive species coordinator about agricultural data and data needs. Received first dataset officially from the agency to add to iMap.
    - o Met with NYS DEC Forest Health staff to discuss data alignment and needs, especially for high profile forest pests.
    - o Participated in kickoff meeting for an aquatic-specific invasive species spatial prioritization model to be created by NYNHP spatial modelling staff.

- **Stay aligned with PRISM goals –** monitored list serves; attended several PRISM meetings, including Cap-Mo committee meetings (see table below); participated in quarterly PRISM Leader calls; participated on monthly PRISM webinars.
- **Beyond NY Borders**
    - iMapInvasives Network – participated in Lead Partner Organization, Executive Committee, and Technical Advisory Committee calls. In addition, participated in several iMap3-specific calls and two in-person meetings with the iMap3 Project Team, one at NatureServe offices in Arlington, VA, the other at the Northeast Heritage Conference in Pennsylvania.
    - Attended the North American Invasive Species Management Association Annual Meeting: presented about NY iMapInvasives work and attended discussions about national data standards with other big national databases (USGS BISON, USGS NAS, and EDDMaps)
    - National Invasive Species Council – submitted an application for Jennifer Dean to serve on the NISC Advisory Committee
    - Northeast Natural History Conference – Attended, presented a poster, had an iMap table, and organized a session, *Impact of Invasive Species on Native Biodiversity*

16. **Biennial Invasive Species Symposiums –** Participated in the Cornell In-Service, and presented a session on iMapInvasives and the Certified Trainers Network.

Statewide Metrics

iMapInvasives Metrics (cumulative since 2010)

Observation Records (by type)	April 1, 2018	July 1, 2018	Oct. 1, 2018	Dec. 31, 2018
Aquatic Animal	14,392	14,417	14,438	14,452
Terrestrial Animal	475	482	520	521
Insect	5,333	5,454	5,492	5,593
Aquatic Plant	23,526	23,603	23,682	23,721
Terrestrial Plant	150,305	152,560	156,160	156,980
Not Detected: HWA	*2,831*	*3,008*	*3,109*	*3,135*
Not Detected: Spotted lanternfly	*0*	*9*	*162*	*170*
Not Detected: Jumping worm	*0*	*2*	*12*	*12*
Not Detected: Water chestnut	*29*	*30*	*41*	*41*
TOTAL	**196,891**	**199,565**	**203,616**	**204,625**

iMapInvasives Metrics (cumulative since 2010)

Observation Records (by entry method)	April 1, 2018	July, 2018	Oct. 1, 2018	Dec. 31, 2018
Bulk Upload	150,784	150,784	150,784	150,784
On-line	36,766	37,146	38,652	39,095
Mobile browser	271	292	309	311
Mobile App	9,070	11,343	13,871	14,435
TOTAL	**196,891**	**199,565**	**203,616**	**204,625**
Advanced data				
Survey	1,405	1,409	1,421	1,443
Treatment	1,461	1,465	1,539	1,552
Infestation Management Records	75	75	75	75
OAT Records	723	1,898	3,478	4,127

Email Alerts	April 1, 2018	July 1, 2018	Oct. 1, 2018	Dec. 31, 2018
Email alerts in-place and active	246	270	293	350

iMapInvasives Metrics (cumulative by quarter, totals for 2018 only)

	Accounts Requested	Projects	Species Reported	Users entering data	Organizations
April 1, 2018	133	32	49	104	33
July 1, 2018	269	71	142	280	82
Oct. 1 2018	225	104	200	453	116
Dec. 31 2018	95	112	223	593	133

2018 Social Media Posts:

Month	FaceBook	Instagram
January	3	0
February	1	0
March	3	0
April	1	0
May	4	0
June	6	8
July	6	11
August	3	4
September	3	2
October	4	2
November	6	6
December	0	0
Total	**40**	**33**

2018 Event and Meeting Participation

Name	Category	Date
ESF in the High School	Presentation	3/29/2018
Northeast Natural History Conference	Meeting/Presentation	4/13-4/15
NYS Federation of Lake Associations	Meeting/Presentation	5/1/2018
Invasive Species Mapping Challenge	Presentation	6/27/2018
Huyck Preserve Public Lecture Series	Presentation	7/5/2018
ISAW Farmer's Market	iMap Table	7/11/2018
Northeast Regional Invasive Species & Climate Change Management Symposium	Meeting	7/12/2018
Adirondack Lake Alliance Symposium	iMap Table	8/8/2018
NYS Geospatial Summit	Meeting	9/26/2018
NYS DEC - BOCES Invasives Species Curriculum Workshop	Meeting/Presentation	9/28/2018
North American Invasive Species Management Association Annual Meeting	Meeting/Presentation	10/16/2018
NYS Outdoor Education Association Conference	Meeting/Presentation	10/20/2018
Northeast Regional Natural Heritage Meeting	Meeting/Presentation	10/22/2018
Fall NEARC Meeting	Meeting/Presentation	10/29/2018
CCE Invasive Species In-service Conference	Meeting/Presentation	11/13/2018
NYS HWA Manager's Meeting	Meeting	12/7/2018
iMap Certified Trainers Network Webinar	Presentation	12/19/2018
PRISM monthly calls	iMap Updates	Monthly
NYS ISC Meetings	iMap Updates	Quarterly
NYS ISAC	Meeting	Quarterly
PRISM Leader Calls	iMap Updates	Quarterly

2018 Custom Reports and Flyers

Flyers
1. Custom Wild Parsnip/Giant Hogweed handout for municipalities. It was customized for the Town of Ancram per their request.
2. Hemlock Woolly Adelgid flyer, observed and not-detected for Hemlock Initiative partners meeting

Reports
1. SLELO- October 2018- YTD Metrics for Partner Meeting
2. Lower Hudson- November 2018- Observation and Assessment shapefiles created for partner meeting.

2018 Custom Data Requests

Organization Type	Organization name
University (12 requests)	Cornell
	Siena
	SUNY ESF
	SUNY Albany
	Pace
	Iona
	Clarkson
	CUNY Lehman
	Lafayette
	Paul Smith
Local Non-Profit (5 requests)	Ecological Research Institute
	Hudsonia
	Roger Tory Peterson Institute of Natural History
	Raquette Lake Preservation Foundation
	The Invasives Project at Pound Ridge
National (3 requests)	USGS-NAS
	USGS-BISON
	EDDMaps
State (2 requests)	NYS DOT
	NYS Parks
County (2 requests)	Erie County Parks
	Niagara County SWCD

2018 iMapInvasives Training Sessions

- **iMap Team (NYNHP staff) Trainings: 48 Trainings and Webinars (768 people trained)-** *45 iMap trainings, 2 WISPA trainings, 1 Invasive Species Field Data Collection Tool training, 1 SAS training*
- **Certified Trainers Network Trainings: 50 (550 people trained)**

Date	Instructor	Training Location	Location	# attended
1/4/2018	Brittney Rogers	Certified Trainers Network Webinar 1 TTT	Oswego	20
1/4/2018	Brittney Rogers	online recording - TTT	Oswego	1
1/9/2018	Brittney Rogers	Certified Trainers Network Webinar 2 TTT	Oswego	12
1/17/2018	Brittney Rogers	Certified Trainers Network Webinar 3 TTT	Oswego	10
1/18/2018	Rebecca Hargrave	SUNY Morrisville - Invasives Class	Morrisville	9
1/18/2018	Jennifer Dean	SUNY Cobleskill Conservation Biology Class	Cobleskill	19
1/20/2018	Laurel Gailor	Columbia Land Conservancy HWA	Chatham	14
1/26/2018	Brittney Rogers	NYSAF Training - TTT	Syracuse	31
1/27/2018	Meg Wilkinson	SLELO HWA Training Workshop	Rome	6
2/7/2018	Jillian Harris	FORCES Steward Training - TTT	Niagara Falls	2
2/16/2018	Jillian Harris	FORCES Steward Training - TTT	Niagara Falls	5
2/21/2018	Brittney Rogers	SUNY ESF Interpretation Students - TTT	Syracuse	4
2/23/2018	Megan Pistolese, Frank Williams	SLELO HWA Workshop - TTT	Redwood	14
2/27/2018	Bill Brown Jessica Rogers	SUNY Potsdam Environmental Inquiry Class	Potsdam	19
3/13/2018	Brittney Rogers	Certified Trainers Network Webinar 4 - TTT	Oswego	15
3/14/2018	Patty Wakefield-Brown	Water Quality Symposium - TTT	East Syracuse	7
3/24/2018	Charlotte Malmborg	HWA NYS Hemlock Initiative - TTT	Skaneateles	10
3/28/2018	Brittney Rogers, Alyssa Lu, Michael Joint, Ryan Benincase	SUNY ESF Campus Challenge - TTT	Syracuse	10
3/29/2018	Emily Pacifico, Josh Strobel and Zach Sutherby, Brittney Rogers	RIT Conservation Biology - TTT	Rochester	27
3/29/2018	Brittney Rogers	SUNY ESF EFB 502 Class - TTT	Syracuse	41

Date	Name	Event	Location	Count
4/3/2018	Emily Pacifico, Josh Strobel and Zach Sutherby, Meg Wilkinson	RIT Conesus Lake Association - TTT	Lakeville	10
4/7/2018	Brittney Rogers, Alyssa Lu, Michael Joint, Ryan Benincase	ESF Park Invasion Clarks Res - TTT	Jamesville	14
4/11/2018	Donna Vogler	SUNY Oneonta Lake Management program TTT	Oneonta	10
4/11/2018	Sarantia Mitsinikos	Taconic Outdoor Education Center SCA Training - TTT	Putnam Valley	11
4/14/2018	Tim Kennelty, Glenda Berman	Spring Gardening Day Columbia Greene CCE - TTT	Ghent	4
4/18/2018	Patty Wakefield brown	DEC Forest Health Giant Hogweed Crew - TTT	New Paltz	19
4/19/2018	Brittney Rogers	Certified Trainers Network Webinar 5 - TTT	Oswego	13
4/24/2018	Patricia Shulenburg	iMapInvasives Workshop - TTT	Watertown	7
4/28/2018	Spencer Barrett	Albert Family Community Forest - TTT	New Lebanon	2
4/28/2018	Brittney Rogers, Mike Joint, Ryan Benincase, Alyssa Lu	SUNY ESF Green Lakes Training - TTT	Syracuse	7
5/7/2018	Brittney Rogers	Certified Trainers Network Webinar 6 - TTT	Oswego	11
5/10/2018	Meg Wilkinson, John Marino, Leah Gorman, Spencer Barrett	Capital Mohawk PRISM Training - TTT	Wilton	17
5/12/2018	Tim Kennelty	Columbia Land Conservancy iMapInvasives Training- TTT	Chatham	3
5/16/2018	Jennifer Dean	Woodstock Adult Education Class	Woodstock	9
5/17/2018	Jennifer Dean	Lower Hudson PRISM Training	Bronx	24
5/18/2018	Shannon Fabiani	Skaneateles Boat Stewards - TTT	Skaneateles	9
5/21/2018	Kristin King	WNY Watercraft Inspection Steward Training - TTT	Niagara Falls	28
5/23/2018	Patty Wakefield brown	FLI Watercraft Stewards Training - TTT	Geneva	24
5/24/2018	Leah Gorman	LH Watercraft Inspection Steward Training - TTT	Staatsburg	10

5/29/2018	Jennifer Dean, John Marino	NYS OPRHP - Parks Strike team/WISPA Training	Thatcher State Park	38/WISPA
5/31/2018	Lindsay Dombroskie	FORCES iMapInvasives Mobile App Training Trainapalooza - TTT	Ithaca	30
5/31/2018	Jennifer Dean	WNY PRISM Training	Basom	26
6/1/2018	John Marino	Capital Mohawk PRISM Simple Aquatic Survey Training	Cap Mo	SAS
6/2/2018	Colleen Lutz	CRISP PRISM Training	Mt. Tremper	18
6/5/2018	Jennifer Dean	LIISMA PRISM Training	Brentwood	30
6/5/2018	Meredith Taylor	NYC DEP Training - TTT	Lower Hudson	7
6/6/2018	Brittney Rogers	Finger Lakes PRISM Training - TTT	Owego	28
6/9/2018	Brittney Rogers	iMapInvasives Training - TTT	Danby	29
6/13/2018	Colleen Lutz, Jessica Ingham	SLELO PRISM Training	Canton	21
6/18/2018	Megan Pistolese, Frank Williams	SLELO PRISM Training 2 - TTT	Oswego	17
6/19/2018	Jennifer Dean	APIPP PRISM Training	Bolton Landing	8
6/19/2018	Amanda Barber TTT	iMapInvasives 101 - TTT	Cortland	4
6/22/2018	Elyse Henshaw	Roger Tory Peterson Institute of Natural History Basic Training- TTT	Jamestown	3
6/22/2018	Elyse Henshaw	What Are These Weeds? Intro to Chautauqua Lake's Aquatic Invasive Species 1-TTT	Bemus Point	3
6/22/2018	John Marino	Watercraft Inspection Program Application Training	DeVeau Woods SP	WISPA
6/25/2018	Dylan Finley, Keri VanCamp	Vassar Ecological Preserve iMap Training - TTT	Poughkeepsie	9
6/25/2018	John Marino	Watercraft Inspection Program Application Training	Staatsburg	WISPA
6/27/2018	Patty Wakefield brown	FLI Macrophyte Survey Program - TTT	Geneva	6
6/27/2018	Patty Wakefield brown	FLI Watercraft Stewards Training 2 - TTT	Geneva	7
6/27/2018	Jennifer Dean, Emma Antolos	Water Chestnut and Jumping Worm Training	Albany	38
6/28/2018	Zack Simek, Jessica Ingham	APIPP Mobile App Training	Bolton Landing	4
6/28/2018	Donna Vogler	iMapInvasives Student Training - TTT	Oneonta	2
6/30/2018	Sarantia Mitsinikos	Invasive Species Identification and iMapInvasives Training - TTT	Gardiner	10

6/30/2018	Jessica Ingham	Schodack Island State Park Mobile App Training	Schodack	1
7/5/2018	Wendy Paterson	Buffalo Niagara Waterkeeper iMapInvasives Training - TTT	Buffalo	13
7/10/2018	Kristopher Williams	ISAW Capital Mohawk Training - TTT	Moreau	11
7/11/2018	Jillian Harris, Kristin King	DeVeaux iMapInvasives Training - TTT	Niagara Falls	3
7/11/2018	Patricia Wakefield-Brown	Invasive Species Identified! FLCC Teacher Workshop - TTT	Honeoye	9
7/12/2018	Michele Wunderlich	NY Invasive Species Awareness Week iMapInvasives Training - TTT	Auburn	11
7/13/2018	Meg Wilkinson, Joellen Lampman, Emma Antolos	Invasive Species Awareness Week iMapInvasives Training- Thacher Park TTT	Voorhesville	19
7/14/2018	Elyse Henshaw	Roger Tory Peterson Institute of Natural History Basic Training ISAW- TTT	Jamestown	8
7/16/2018	Steven Pearson, Luke Gervase	Flax Pond iMapInvasives Training - TTT	Setauket	10
8/8/2018	Brittney Rogers	NY Great Lakes Ecosystem Education Exchange Workshop - TTT	Oswego	21
8/13/2018	Brittney Rogers	Certified Trainers Network Webinar 7 - TTT	Oswego	9
8/13/2018	Brittney Rogers	Certified Trainers Network Webinar 8 - TTT	Oswego	14
8/14/2018	Sarantia Mitsinikos	SCA iMapInvasives Training - TTT	Hamlin Beach SP	12
9/1/2018	Jennifer Dean	SUNY Cobleskill FWLD101	Cobleskill	4
9/5/2018	Eric Struening	SUNY Cobleskill Terrestrial Ecology Class	Cobleskill	43
9/13/2018	Wendy Paterson	Buffalo Niagara Waterkeeper iMapInvasives Training 2 - TTT	Buffalo, NY	7
9/17/2018	Brittney Rogers	Intro to CitSci SUNY ESF - TTT	Syracuse	11
9/17/2018	Brittney Rogers	Wayne County CCE Master Gardeners - TTT	Newark	20
9/19/2018	Brittney Rogers	Region 7 iMapInvasives Training - TTT	Cortland	11
9/20/2018	Jennifer Dean	UNY Cortland Conservation Biology Class	Cortland	17
9/22/2018	Brittney Rogers	NYSOEA - TTT	Huguenot	4

9/24/2018	Donna Vogler	SUNY Delhi Basic iMapInvasives Training - TTT	Delhi	7
9/28/2018	Jennifer Dean	Capital Region BOCES Invasive Species Teacher Workshop	Albany	27
10/4/2018	Brittney Rogers, Carri Marschner	Cornell Field Biology Class Thurs - TTT	Ithaca	32
10/5/2018	Brittney Rogers, Carri Marschner	Cornell Field Biology Class Friday - TTT	Ithaca	30
10/16/2018	Brittney Rogers	Certified Trainers Network Webinar 9 - TTT	Syracuse	10
10/18/2018	Brittney Rogers	Certified Trainers Network Webinar 10 - TTT	Syracuse	19
10/31/2018	Jessica Miller, Ashley Young	Otsego County Soil and Water Conservation District Advanced iMapInvasives Training - TTT	Cooperstown	5
11/3/2018	Monica Dore, Alex Novick	Lake George Land Conservancy HWA Mobile App Training - TTT	Bolton Landing	13
11/5/2018	Meg Wilkinson, Bob Stromberg, Spencer Barrett	Saratoga Library HWA Mobile App - TTT	Saratoga Springs	9
11/6/2018	Brittney Rogers	Certified Trainers Network Webinar 11 - TTT	Syracuse	10
11/10/2018	Steve Shope	Clark Reservation Training - TTT	Jamesville	6
11/14/2018	Paige Restivo	iMapInvasives Invasive Species Training Workshop-TTT	Oneonta	3
11/20/2018	Rebecca Hargrave	SUNY Morrisville Faculty Training - TTT	Morrisville	4
12/4/2018	Rebecca Hargrave	SUNY Morrisville Freshman Orientation Class 2 - TTT	Morrisville	39
			TOTAL	1,318