



NY iMapInvasives

Sharing Information for Strategic Management— Issue 2

iMapInvasives is New York's data management system designed to assist professionals and citizen scientists protecting our state's resources from the threat of invasive species. This comprehensive invasive species database, managed by the NY Natural Heritage Program, can be used for sharing data on infestations and management efforts and staying informed through email alerts and GIS-based reports.



New York
Natural Heritage
Program



iMapInvasives is managed by the New York Natural Heritage Program, a partnership between SUNY College of Environmental Science and Forestry and the NYS Department of Environmental Conservation, with funding from the NYS Environmental Protection Fund.

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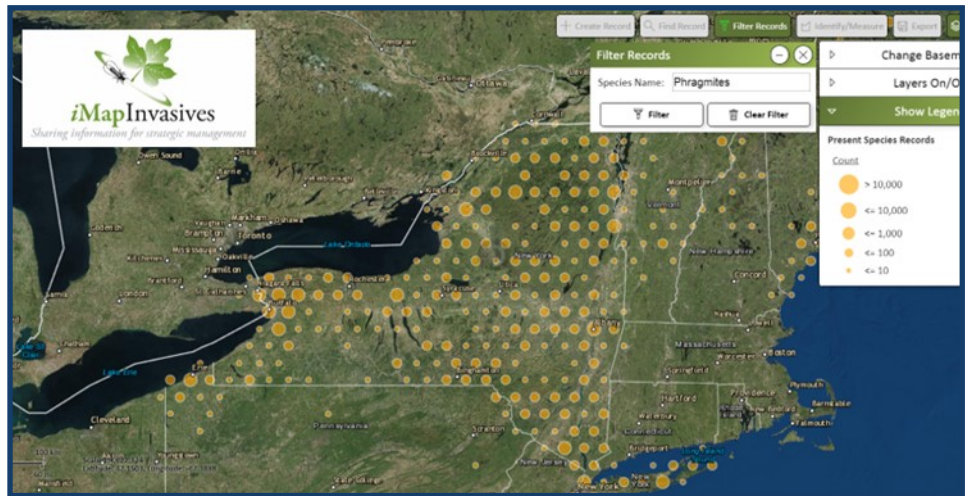
iMapInvasives 3.0 is coming soon!

Submitted by Jennifer Dean, Invasive Species Biologist, NYNHP

iMapInvasives launched in 2010 to serve the mapping and data needs of a growing community of natural resource professionals and concerned citizens dealing with invasive species. The system was built with mostly open-source technologies that, at the time, were cutting edge for web-based collaborative mapping. But as anyone who owns a smartphone more than two years old can attest to, technology is moving faster than anyone can keep up with.

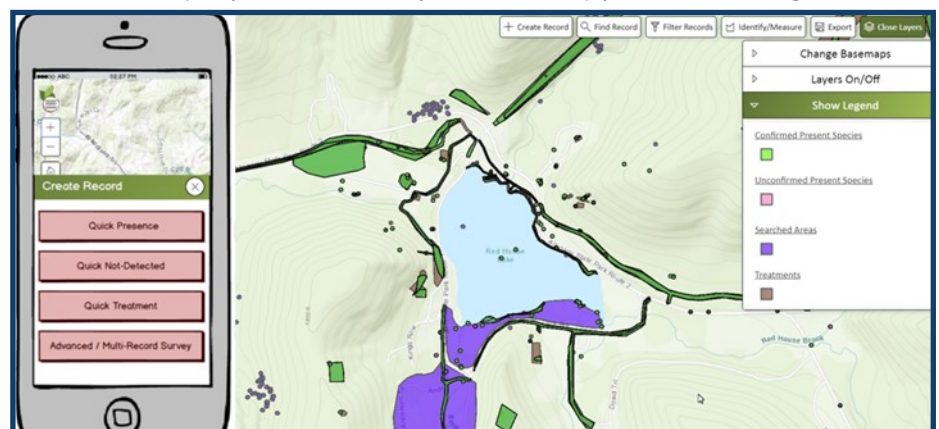
Many innovative web- and mobile-based mapping technologies have emerged since 2010. In 2017, the iMapInvasives network partnered with NatureServe, a leader in conservation-related data and technology, to create the next vision of iMap. *Now we are weeks away from the launch of iMapInvasives 3.0!*

The new iMapInvasives (fondly referred to as [iMap3](#)) will look and feel completely different. The first thing you will notice is that everything starts from the map: **logging in, creating records, filtering data, viewing data in tables, etc.** The entire database is built with mobile-responsive programming, so if you have data connectivity while in the



field, you will be able to enter all data types, browse the species lists, view the data, and even zoom to your location through the web browser on your phone or tablet. The current iMap Mobile App will still work with the new system, which is ideal if you need to collect a lot of presence data while without connectivity to upload later. For iMap's "power users" collecting lots of advanced management data from the field, there will be a suite of Esri applications available that we have customized to efficiently and automatically upload to iMap3.

Viewing data: At first glance, zoomed out to North America, you may wonder why the map is covered in what looks like honeycombs. Hexagons are a great way to visualize large sets of spatial data while helping to improve loading speeds (see ["Why Hexagons?" by Esri](#)). As you zoom in, the hexagons recalculate to display presence data appropriately for that scale, and they can be filtered by species. Once you zoom in enough to roughly span the size of most NY counties (1:288,895 to be exact), the hexagons disappear, and all data types, including



treatments and searched areas, can be turned on to display as precise points and polygons.

Overall data structure: To better handle spatially related data, the new “Searched Area” record type represents an area of your invasive species work for that day. When adding a simple presence record, you won’t even notice that this additional record type is added automatically. But when you need to add lots of information about the work you did at one site today, such as treating and assessing many species at once, then the Searched Area base record efficiently ties everything together.

iMap accounts: With iMap3, you will be logging in with your email address and new password, instead of the iMap2 “johsmith” username convention. New users will be able to automatically create accounts with instant access to mapping presence and not detected records anywhere in the Americas. If you are doing invasive species work for an organization, you can request to join that organization to enter and view detailed treatment records. There are also special permissions that can be assigned to user accounts, like confirming

records and managing your organization’s data.

Data sharing: Simpler and easier data sharing to better align with today’s open data expectations through embedded data download and web map service capabilities. There will still be exceptions for data that needs to remain confidential, such as highly regulated species or for private property concerns, but the majority of the data in iMap3 will be available for download by users.

Current iMap users will continue to receive email updates with important details about this transition. Be sure to check the [iMapInvasives website](#) for information as it is released. We hope once you learn the new system you will love it as much as we do!

Important Deadlines:

March 25th—Submit all pending iMap mobile app observations.

April 1st—iMap2 offline for two weeks to migrate existing database.

April 15th—Launch of new platform, basic map viewing and data entry.

July 15th—Release of advanced functionalities (ex. queries, reports)

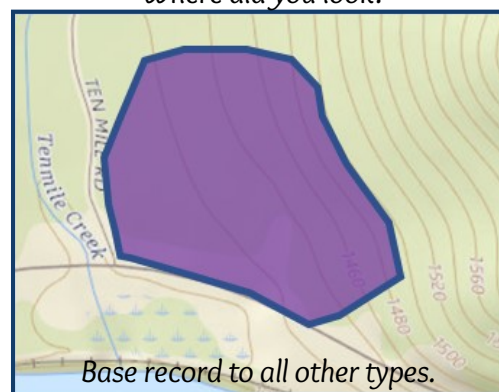
Page 2; Top-Bottom: Screenshots from iMap3 development work by NatureServe; The Americas map viewer....Record creator in mobile-responsive view and detailed map.

Page 3: Samples of Searched Area and the three record types that area can include.

Data types in iMap3

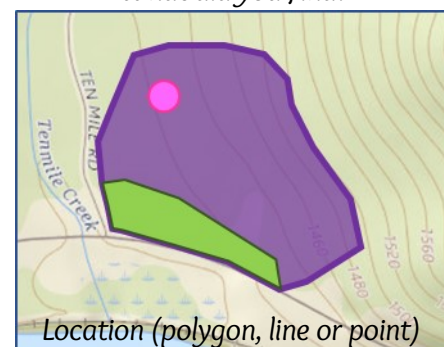
Searched Area

Where did you look?



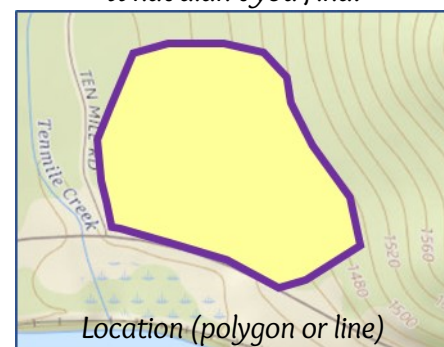
Presence

What did you find?



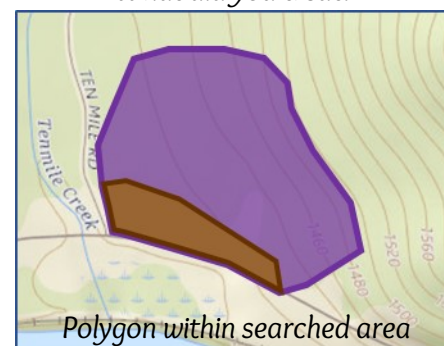
Not Detected

What didn't you find?



Treatment

What did you treat?

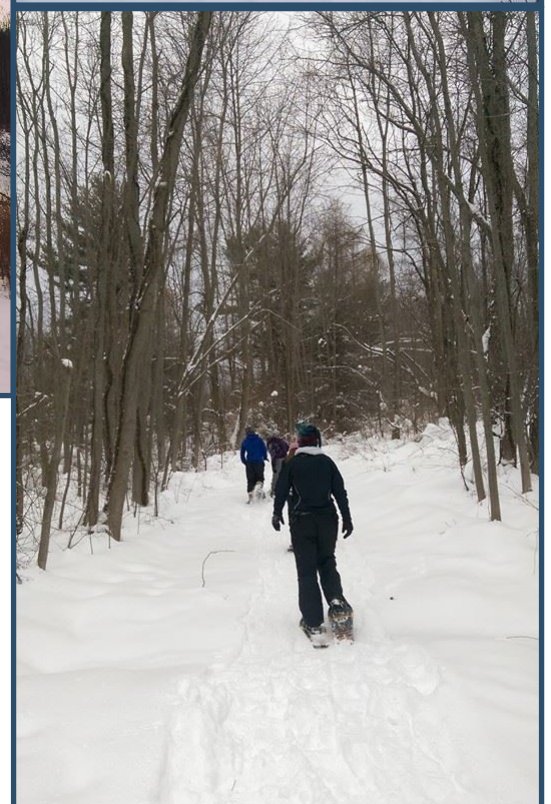


Do you iMapInvasives in the winter?

Submitted by Colleen Lutz, iMapInvasives Assistant Biologist, NYNHP

New York State can provide many opportunities for fun in the summer as well as the winter. Due to its usual cold temperatures and snowfall, New York offers many opportunities to enjoy winter sports such as skiing, sledding, snowshoeing, and skating.

Visit the [NYSDEC](#) and [I LOVE NY](#) websites for more information on winter activities in New York. Remember to sign trailhead registrations and be prepared with the right gear for any weather. Hopefully you can find a fun winter activity to enjoy before spring arrives in your region!



Page 2; Top right: Michael Lawler cross country skiing at Beaver Lake Nature Center. Photo by Bill Colvin.

Bottom left—right: Snowshoeing at SUNY Oswego's Rice Creek Field Station as part of Oswego Expeditions and "Education through Exploration". Photo by [Oswego Expeditions](#).

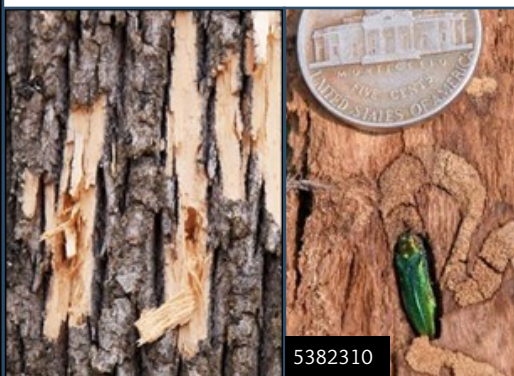
Page 3; Top to bottom right: SUNY Cobleskill students surveying for HWA in 2018, by Jennifer Dean, NYNHP... HWA observation submitted to iMapInvasives, by Nick Dietschler, Cornell University... EAB adult closeup, David Cappaert, MSU... Woodpecker damage and Ash "blonding" by Mark Whitmore, Cornell University... EAB gallery and adult, Eric R. Day, Virginia Polytechnic Institute and State University, www.bugwood.org.

Did you know that enjoying these fun activities is also a perfect time to observe and report certain invasive pests? Check out these insect pests that pose a serious threat to New York forests that can be spotted during the winter.

Hemlock woolly adelgid (HWA, *Adelges tsugae*), is an aphid like insect that attacks hemlock trees (*Tsugae* spp.). It forms white woolly masses of a waxy substance at the base of the needles on the underside of the branches. This white mass is produced by female in late winter. The best time to view and detect HWA is from February to May, but it is possible to see the white masses throughout the entire year. Hemlock trees are important foundational species in northern forests. They are often found in riparian corridors and on the banks of streams. Their dense stands help regulate water temperature and stream flows by providing dense shade. Loss of stands of these trees creates openings in the canopy which are not likely to be filled by other species. This can decrease water quality due to surface runoff and soil loss and create higher stream temperatures. You can survey for HWA by looking at the branches of trees within a safe, arms reach. For more information about HWA, check out the website for the [New York State Hemlock Initiative](#).



Emerald ash borer (EAB), *Agrilus planipennis*, is a small invasive beetle about the size of a penny. Native to Asia, it most likely arrived in America in packing material. This insect deposits its eggs under the bark of ash trees. As the eggs hatch, the larvae live and eat the transportive tissue of the tree, disrupting the transportation of water and nutrients, eventually killing the tree. As seen in the photo below, the larvae create s-shaped galleries in the tree's transport tissue under the bark. One distinctive sight of an EAB infestation is "blonding" of the bark of the ash tree. This damage is caused by downy and hairy woodpeckers who eat the larvae and leave patches of bark damage in the tree. These signs can be especially easy to see in the winter when the leaves are off the trees. Other signs include "D" shaped emergence holes. For more information see [Tree ID](#) or [EAB](#).



You can report your EAB or HWA sightings to iMapInvasives by [logging into your account](#). If you don't have an iMapInvasives account, you can [request one](#).

Honeysuckle at SUNY Cobleskill

Documenting and Monitoring Project via iMapInvasives

Submitted by Eric Struening and Dr. Roger Masse, SUNY Cobleskill

In September 2018, students in BIOL 211 - Terrestrial Ecology at SUNY Cobleskill learned how iMapInvasives can play an important role in documenting and monitoring invasive species. Students have been using iMapInvasives at SUNY Cobleskill since Fall 2015. We incorporate this useful application to advance our students' knowledge of invasive species identification, mapping, and monitoring.

This year, Dr. Roger J. Masse (Assistant Professor of Wildlife Management) and Eric Struening (Instructional Support Assistant—Wildlife) initiated a project that included both documenting and treating invasive honeysuckle (*Lonicera* spp.) on a nearby private property. Our goal is to return to the same site year after year to monitor the success of the treatment efforts utilized by our students. Students were first taught how iMapInvasives is applied in the field and how to properly take and upload photos for submission with the mobile app. Students also learned about “hack and squirt”; a technique that can be used as a control measure for invasive species.



Students were placed into teams and used the mobile app to document honeysuckle throughout the property. Once documented, students used hand tools and Bayer Brush Killer Pro Plus in a concentrated bottle with proper safety equipment to treat individual stems. The “hack and squirt” treatment allows you to use a concentrated herbicide to target and kill the roots of unwanted species. The key in this treatments was to use loppers and bow saws to cut honeysuckle stems near the base of the root, and then treat the cut stems with the herbicide. Students placed spray shields around the cut stems to ensure the herbicide was only sprayed on the target honeysuckle species. Thus, the herbicide treatment would not harm other species in close proximity. This product treats a broad spectrum of woody stems so careful spot application on newly cut honeysuckle stems was emphasized.

In the coming years, students will return to the same site to use iMapInvasives to examine the effectiveness of this control method. This exercise will also help to reinforce the utility of

iMapInvasives for invasive species monitoring and management. In addition, other invasive species will be targeted for monitoring and control once honeysuckle becomes less prevalent.

“Real field-work experiences illustrating what biologists face while making management decisions about invasive species in NYS is a key component for our undergraduate students at SUNY Cobleskill.”

Things to keep in mind prior to a lab or exercise in the field; be sure to submit preliminary training or lesson plans to the NY iMapInvasives team, and to collect information for usernames with login credentials to the database. Each year, we have the pleasure of hosting Dr. Jennifer Dean (NYNHP) on the campus to share information with students on what iMapInvasives is all about including any important news or updates regarding the app or invasive species across New York. This is a tremendous help and allows our students to meet a professional working on invasive species in the field.



Page 4; Clockwise: Students in Terrestrial Ecology course conducting field-work... Stem following treatment... Student performing the “hack and squirt” technique. Photos by Eric Struening and Dr. Roger Masse, SUNY Cobleskill.

Page 5; Top: Honeysuckle spp. with bright colored fruit in summer. Photo Steve Shope, Council of Park Friends. Bottom: Closeup of honeysuckle spp. leaves. Spencer Barret, CapMo PRISM.

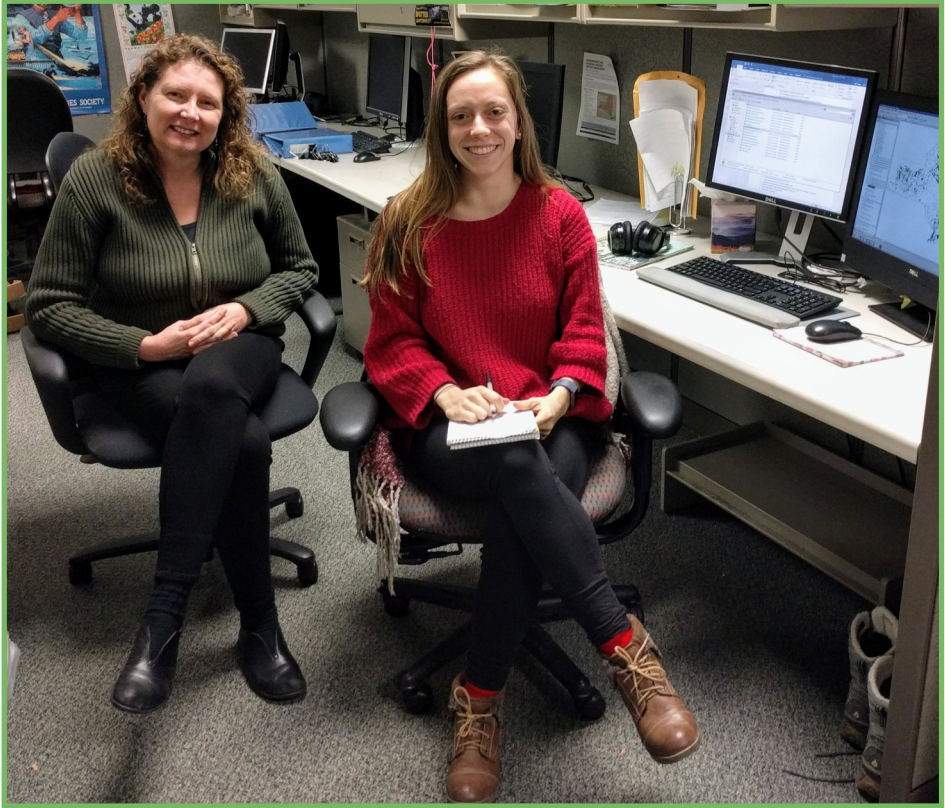
Behind the Scenes: Bulk Data Management

Submitted by Carli Fraccarolli, iMapInvasives Database Assistant, NYNHP

“While iMapInvasives users (like you) are working hard to submit observations, the iMap team works hard to support and supplement user-submitted data via ‘bulk uploads’.”

Behind the scenes, our team collaborates with everyone from citizen scientists to federal agencies to provide you with approximately 75% of the data you see on the online map! As the majority of data comes from bulk uploads, the bulk data management process is vital to keeping the iMapInvasives (iMap) database up-to-date and user-friendly.

Bulk datasets are critical for filling data gaps in the iMap database. Albeit user reports are an extremely valuable aspect of iMap, especially for present-day observations and early detection. However, it has been the case in the past that single reports, even collectively, may not illustrate the complete distribution of certain species. For example, when only considering online-entered data for Phragmites, the species appears to be absent from the Southern Tier and Adirondacks. This is likely due to lower human populations, so fewer iMap users are mapping directly into the database. But thanks to bulk datasets provided by conservation partners in these areas (such as APIPP), we now have a more complete picture



of the distribution of phragmites across the state.

Bulk data wrangling begins with communicating with the stakeholder about their data. Those collecting invasive species data are numerous and interdisciplinary, with various organizations and agencies collecting data at all levels from local to federal. Normally, we trust that bulk data records coming from one of our partner organizations can be considered vetted and confirmed right away, while data from other sources must be re-examined later before

confirmation. When data is received by our team, we then assume the task of turning it into accessible, confirmed information for our iMap users.

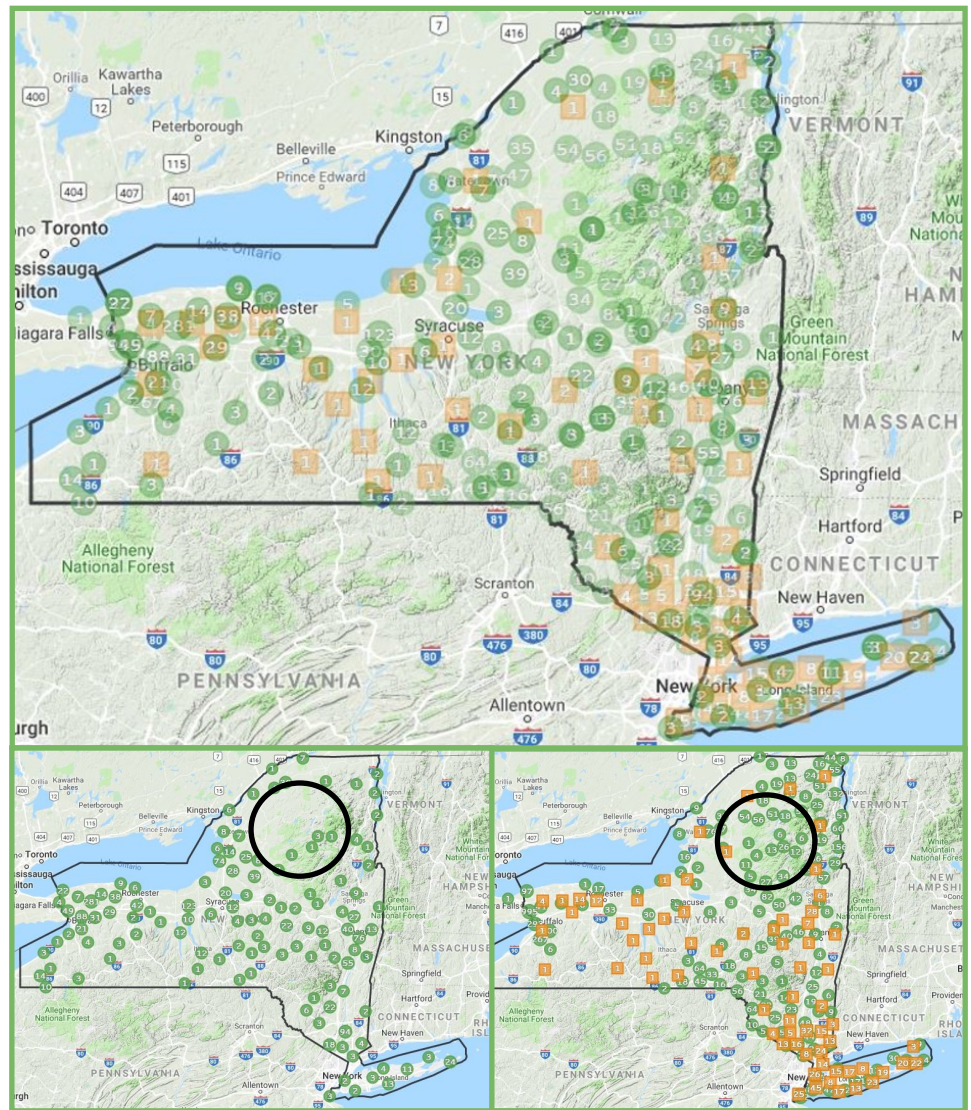
Everyone has their own, slightly different way of collecting data, so each bulk dataset we work with varies in content and format. As long as there are GPS coordinates, however, the data can be turned from numbers on a spreadsheet into points on a map. This is one of the most exciting parts of the data manipulation process, as the information instantly becomes

more palpable. We finally get a glimpse of what users will see when they visit our website.

At the very least, we look for five basic elements when preparing data for upload to the database: what invasive species were observed... who observed them... where and when they were observed... and a unique identifier for each individual observation. These key elements allow us to publish data in the standardized format you see in iMap.

Once all five required fields are captured, and any missing or ambiguous information is clarified, it is possible for us to prepare the dataset for its final destination – the iMapInvasives database. Ultimately, all data from bulk datasets will be viewable and downloadable by iMap users, unless the owner specifically indicates that they would like it to be kept confidential. This allows our users to have instant access to data when in the field working on different invasive species management issues – one of the many other benefits of having open access to important invasive species data and distributions.

All things considered, it is a time-consuming, but, valuable process, to



manipulate the different fields and formats of bulk datasets into iMap database standards. From the field to your screen, the 150,000+ bulk data records you see in iMap have come a long way, and there are likely many more datasets that have yet to make the journey.

Page 6; Heidi Krahling and Carli Fraccarolli, the bulk data duo.

Page 7; Top: Overlaying bulk-uploaded records onto online-entered records fills in gaps and better illustrates the distribution of *Phragmites australis ssp. australis* in NY. Bottom left: Online-entered *Phragmites australis ssp. australis* records with gap highlighted in Adirondack region. Bottom right: Bulk-Uploaded records filling in areas missing data for *Phragmites australis ssp. australis* across New York.

Did you know!?

You can search for and view bulk data by creating a new query and setting your Data Entry Method to *Bulk upload* as shown to the right.

1 Type	
Full Data Query	Common Invasive Species
2 Criteria	
Data Entry Method	
Data Entry Method is equal to	Bulk upload

NYSDEC, iMapInvasives and Partners Collaborate on New Invasive Species Curriculum

By Emma Antolos, Invasive Species Education and Outreach Coordinator, NYSDEC

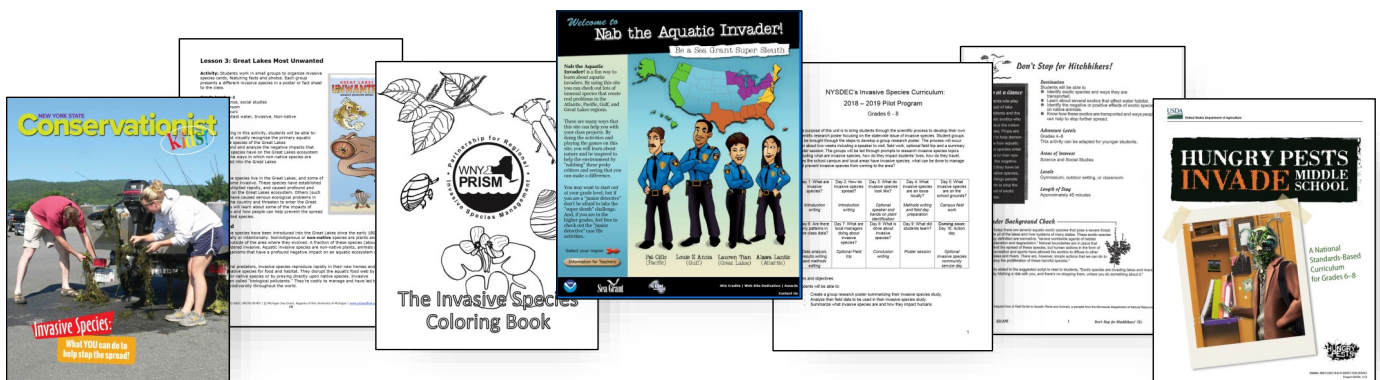
iMapInvasives, NYS Department of Environmental Conservation, Boards of Cooperative Educational Services (BOCES), NYS Education Department and partners teamed up to create a new invasive species curriculum for middle school students (grades 6-8). The two-week curriculum is aligned to the New York State P-12 Learning Standards and is available for download on [DEC's website](#).

The goal of the curriculum is for students to gain a better understanding of invasive species and their impacts through research and hands-on projects. Students will be given an opportunity to utilize iMapInvasives and contribute data to statewide efforts. By the end of the unit, we hope to create a new generation of early detectors!

We encourage educators who implement the curriculum to provide feedback. We are also offering day long workshops for a more in-depth introduction to the curriculum. Contact your [local PRISM](#) for information about workshops available in your area.



Top: Students utilizing iMapInvasives in the field.
Middle: Emily Caboot, DEC intern, presents the new curriculum to local teachers at the Capital Region BOCES.
Bottom: Examples of the numerous Educator Resources currently available on NYSDEC's website.



Many thanks to Emily Caboot for all her hard work writing the new DEC curriculum!

2018: A Year in Review

The more information we have about invasive species, the more effective our efforts are to minimize their impacts on the places we love. iMapInvasives trainings help by growing the number of people knowledgeable about, and looking for, invasive species, and are boosting our ability to catch new invaders early.

All Bulk Upload: 150,784... On-line: 39,095... Mobile App & Browser: 14,746

7%

19%

74%



7,736 Observation Records



1,300 Training Attendees



350 Active Email Alerts



217 Species Reported



127 Organizations



100 Projects



98 Trainings

Interested in Attending a Training in Your Area?

Check out our [online calendar](#) for upcoming iMapInvasives events in New York. If you don't see a training in your area and would like to request one, contact us for more information! If you would like to host your own training, learn how via the [Certified Trainers Network](#).

iMapInvasives 2019 Photo Contest

Give It Your Best Shot!



Photos by Brittney Rogers

Three Categories:

Aquatic Species
Terrestrial Plant
Terrestrial Animal



Submission Criteria:

1. Must include an invasive species in NYS
2. Be taken between 04/01/2019 and 07/01/2019
3. Be Submitted as observation into iMapInvasives (either via mobile app or online)
4. [Email us your photo](#):
 - Subject line "Photo Contest Entry"
 - Your name
 - Date and Location
 - Species
 - Category
 - Record ID number from observation

Contest Winners:

Two lucky winners will be chosen from each category (six total) and will win a prize. The top six photos will be announced during the 2019 NY Invasive Species Awareness Week (July 7-13, 2019). The winning photos from the contest will be featured on the iMapInvasives website, social media and in future newsletter issues.

Connect with us...



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