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European frog-bit (Hydrocharis morsus-ranae)
Credit: © Steffi Gehrig / Flickr

Fall 2017

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Tracking Invasive Species with

Pennsylvania *i*MapInvasives

TRAINING OPPORTUNITIES >>>

Learn More About iMapInvasives by Attending A Webinar Training

Take an opportunity this fall to learn more about the *i*MapInvasives program by participating in a free webinar training. Four trainings are being offered from October thru December. Training dates are as follows:

- **October 24**—Basic Training (10:00—Noon)
- **October 30**—Reporting with the Mobile App (11:00am—Noon)
- **November 9**—Advanced Training (10:00am—Noon)
- **December 12**—Examples of Using *i*MapInvasives (10:00am—Noon)

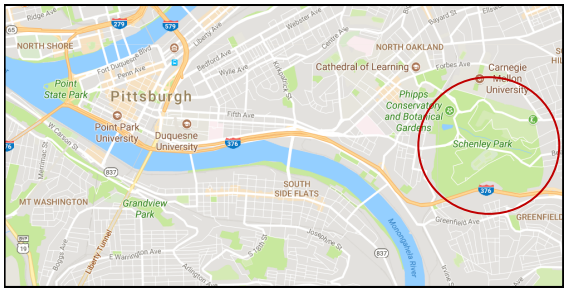
For more details on each of these webinars and information on how to register, visit the Webinar Training page of the Pennsylvania *i*MapInvasives website.

If you are unable to attend these trainings but are still interested in learning about *i*MapInvasives, please contact Amy Jewitt, the Pennsylvania *i*MapInvasives Coordinator, at *i*MapInvasives@paconserve.org.

Managing Invasive Species in Pittsburgh's City Parks

Story provided by Erin Copeland, Senior Restoration Ecologist at the Pittsburgh Parks Conservancy

The Pittsburgh Parks Conservancy (PPC) is a non-profit organization that focuses on park improvements in the city of Pittsburgh. The organization's mission is to improve the quality of life for the people of Pittsburgh by restoring the city's park system to excellence in partnership with government and the community.



Location of Schenley Park in the city of Pittsburgh.

Part of the organization's role has been restoring forests and meadows in the parks since the late 90's. This includes managing invasive and non-native plants and thereby fostering native plant diversity and ecological resilience. With increased native plant populations, high nutrient food is made available to the myriad of species that live in the parks. Increased plant diversity also fosters resilience which buffers disturbance that occurs in the parks' wilder spaces.

As newer sites recently came under the care of the PPC's horticulture and forestry staff, the organization began using *i*MapInvasives to more thoroughly track the who, what, when, and where of invasive plant management.

Walking path through meadow in Schenley Park.
Credit: Pittsburgh Parks Conservancy

For example, in 2015 a meadow was installed in Schenley Park that provides valuable habitat for native pollinators, insects, birds, and other wildlife while also serving as a place where

(Story continued on page 2…)

Feature Story (Continued from Page 1)

Meadow in Schenley Park - Credit: Pittsburgh Parks Conservancy

rainwater can collect from nearby "green" storm water infrastructure.

Soon after the meadow's installation, Canada thistle (*Cirsium arvense*) began growing. An exotic invasive species, Canada thistle is a plant that PPC staff prioritize for management because it forms dense stands and outcompetes many native and desirable species.

In response to the Canada thistle invasion, PPC staff worked with the Department of Public Works and several volunteers to periodically cut the thistle, a practice that has proven successful over time. Mechanical management for this species will continue up until PPC begins planting trees in the meadow.

Canada thistle (Cirsium arvense) - Credit: Pixabay.com

Once that planting occurs, shade produced by the trees will provide a natural and sustainable way to suppress growth of the Canada thistle, thus limiting the negative impacts this invader can impose on the surrounding native landscape.

Since the installation of the Schenley Park meadow, PPC staff take time in the winter season (when field work is slower) to record data in *i*MapInvasives. Information on all volunteers and staff involved in the meadow project was captured in the database, thus providing a better picture of the time and effort required to implement this type of restoration project.

Japanese stiltgrass (Microstegium vimineum)
Credit: Bryan Dolney, Pittsburgh Parks Conservancy

Coupled with PPC's Geographic Information System (GIS) database, information gathered in *i*MapInvasives can be presented in maps to demonstrate to the general public, funders, and partners about the benefits of invasive species management and native plantings to improve this and other places in the city of Pittsburgh. The ability to effectively gather and share data on invasive species management projects via *i*MapInvasives is important for the PPC, but also for others doing this kind of work.

In addition to the Schenley Park meadow project, PPC staff also use *i*MapInvasives to track emerging invasive plants found in the parks. For example, PPC tracks mile-a-minute (*Polygonum perfoliatum*) and Japanese stiltgrass (*Microstegium vimineum*) with a goal of intensively managing these and other invasive plants that are still considered rare in some of the parks.

Mile-a-minute vine (Polygonum perfoliatum)
Credit: Bryan Dolney, Pittsburgh Parks Conservancy

Based on PPC 's current success with *i*MapInvasives, the organization has plans to continue using the online tool to document invasive species found and management efforts completed within Pittsburgh's city parks.

To learn more about the Pittsburgh Parks Conservancy or to get involved with upcoming volunteer opportunities (including invasive species control efforts), please visit the organization's website at www.pittsburghparks.org.

Seen here is the small infestation of European frog-bit found in Lake Wilhelm near Boat Launch #3. Credit: Brian Pilarcik, Crawford County Conservation District

Small Lily Pad, Big Problem

An aquatic invasive species, European frog-bit, is found for the first time in Lake Wilhelm, Mercer County.

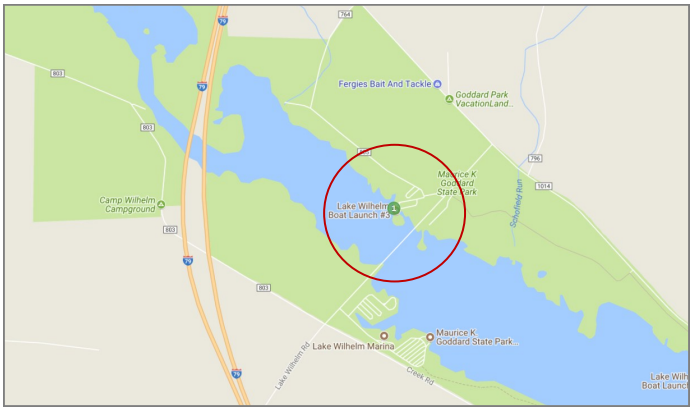
Story provided by Marisa Sprowles, DCNR Park Ranger

My initial thought upon seeing European frog-bit (*Hydrocharis morsus-ranae*) for the first time was, "*What a cute little lily pad!*" Ironically, I was standing at Boat Launch #3 of Maurice K. Goddard State Park where I work as a DCNR Park Ranger, informing incoming boaters of the threats posed by invasive species.

As part of a new boat launch stewardship program initiated this year (2017) at the park, I help to inform the public of the detrimental effects caused by invasive species and teach park visitors what can be done to prevent their spread. I also help to educate the boating community on how to thoroughly clean watercraft (i.e., boats, jet skis, kayaks, and canoes) using the Clean, Drain, Dry protocols, and the importance of performing a visual inspection of a boat prior to visiting a new lake.

Earlier this summer in July, I noticed a small, heart-shaped plant floating in the water near the boat launch where I was stationed. Not knowing the plant's identity at first, I referenced an aquatic plant guide I had on hand, and lo and behold, there it was...

"**European frog-bit** (invasive): An herbaceous aquatic plant that resembles miniature water lily… Small, thick, heart-shaped, and leathery leaves… Populations increase rapidly, forming dense mats that decrease the amount of nutrients, dissolved oxygen, and light penetration into the water. Limiting the growth of any native vegetation beneath, these mats can inhibit the movement of waterfowl and fish." (*Pennsylvania's Field Guide to Aquatic Invasive Species—Second Edition 2015*)



The mapped location of the European frog-bit finding in Lake Wilhelm, as it appears in the Pennsylvania iMapInvasives database. This finding was observed on July 21, 2017 .

Marisa Sprowles, DCNR Park Ranger

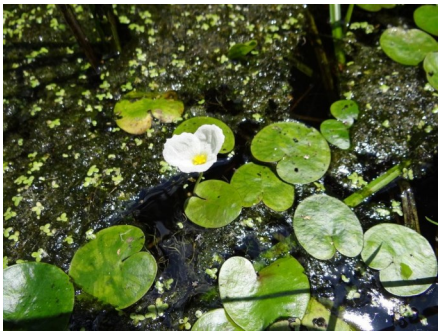
"*Can it be?*", I thought. "*A new aquatic invader at Lake Wilhelm?*" To know for sure, the next step was to consult the experts. Positively identifying the plant and getting the opinion of those well-versed in aquatic invasive species was key in documenting this unfortunate find. After consulting with Nick Decker (Resource Manager—DCNR Bureau of State Parks) and Brian Pilarcik (Watershed Specialist—Crawford County Conservation District), the news came back that the "cute water lily" was indeed European frog-bit.

Collecting samples, taking pictures, and surveying the extent of the infestation were next on the docket. Getting it marked in *i*MapInvasives was also on the list of things to do since European frog-bit had not been identified in many places in Pennsylvania. At present, it had only been found in Warren County and also in Mercer County at a separate location. Documentation of this particular finding in *i*MapInvasives provided an easy and fast way to inform others in the state of this high priority discovery.

Removal of the plants began immediately after the positive identification. Because European frog-bit is a free-floating plant, it was easy to remove from the boat launch site and in the surrounding coves. Park staff hoped the infestation was restricted to this small area only; however, it was disappointing to later find other places in Lake Wilhelm where it was also present.

Because European frog-bit was found to occur in relatively low densities around Lake Wilhelm, staff at Maurice K. Goddard State Park will likely be able to suppress the plant's population with consistent and coordinated management efforts. Additionally, the boat stewardship program will continue to educate boaters on the importance of properly cleaning and disinfecting boats and other watercraft to prevent the spread of European frog-bit to other waterways.

Identifying a problem before it is too late shows the importance of constant vigilance combined with communication, two of our best tools to fight this and other problematic species that come our way.



European frog-bit in flower. Credit: Pete Woods, Pennsylvania Natural Heritage Program

Emerging Invasive Threats >>>

Be an Invasive Species "Early Detector"

A project recently completed by the Pennsylvania Natural Heritage Program identifies several invasive species to be on the lookout for in Pennsylvania.

Water solider — Credit: Jörg Hempel, CC BY-SA 2.0

In 2017, the Pennsylvania Natural Heritage Program (PNHP) received funding from the Wild Resources Conservation Program to determine invasive plants likely to arrive in Pennsylvania over the next ten years — species considered "emerging threats" to the Commonwealth.

Asiatic sand sedge — Credit: © Takahiro Yamaguchi

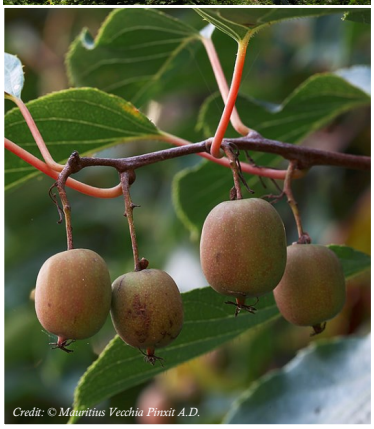
The project identified 12 species, each of which are highlighted in a brochure created by the PNHP. Citizen scientists and natural resource professionals are encouraged to be on the lookout for these species and report their findings to *i*MapInvasives.

The species highlighted in the brochure include hardy kiwi vine (*Actinidia arguta*), Asiatic sand sedge (*Carex kobomugi*), diffuse knapweed (*Centaurea diffusa*), marsh thistle (*Cirsium palustre*), swamp stonecrop (*Crassula helmsii*), reed mannagrass (*Glyceria maxima*), policeman's helmet (*Impatiens glandulifera*), Chinese privet (*Ligustrum sinense*), water primrose (*Ludwigia grandiflora ssp. hexapetala*) Asian spiderwort (*Murdannia keisak*), java dropwort (*Oenanthe javanica*), and water solider (*Stratiotes aloides*).

Invasive Species Profile >>>

Hardy Kiwi Vine (Actinidia arguta)

Credit (top and middle photos): T. Lauzenheiser/Mass Audubon and T. Rawinski/USFS



Credit: © Mauritius Vecchia Pinxit A.D.

Species at a Glance: The hardy kiwi vine threatens natural areas by forming dense mats that overwhelm native vegetation. Despite its invasive qualities, this species is still promoted as an alternative crop vine by various agricultural entities who are apparently unaware of its capacity to become established in and disrupt natural ecosystems. Avoiding this threat by not propagating hardy kiwi vine is prudent and forward-thinking.

Identification: The hardy kiwi is a twining, woody vine with alternate, simple leaves. Its leaves have distinctive red petioles and finely-toothed wavy margins. Flowers are pale green/white and clustered in the leaf axils, while the fruits are green, grape-shaped, and smooth.

Similar Species: This species can be confused with other species of *Actinidia*, including the most familiar, the fuzzy kiwifruit (*Actinidia deliciosa*).

Habitat: Hardy kiwi vine can be found in terrestrial settings including forests, shrublands, and meadows. It is also found in landscaped settings as a cultivated species.

Spread: Hardy kiwi vine can germinate and grow under a closed canopy and climb surrounding vegetation, eventually killing its support. The vine then spreads to surrounding trees, opening larger gaps in the forest over time.

Distribution: Native to northeast Asia, hardy kiwi vine was introduced into the United States in 1886 from cuttings as a horticultural plant. Cultivars were selected for fruit characteristics and have recently become popular. Nearby reported locations include Ontario, Maine, Massachusetts, New York, New Jersey, Pennsylvania, and Ohio. In Pennsylvania, it has been reported in Philadelphia County.

Environmental Impacts: Hardy kiwi vine forms dense mats of intertwining vines that can severely overwhelm nearby vegetation, including trees. In winter, tree trunks and branches supporting hardy kiwi vines will break under excess weight caused by snow and ice. This species can tolerate cold temperatures (-25°F or lower) and is able to grow 20 feet or more per year.

Note: Content for this invasive species profile comes from the Pennsylvania Natural Heritage Program and Massachusetts Audubon.

Huntingdon County Conservation District Encourages Citizens to Report Invasive Species

A new sign in Detwiler Park encourages park visitors to find and report their sightings of invasive species to iMapInvasives. Credit: Amy Jewitt/PNHP

A new educational sign in Detwiler Park in the town of Huntingdon encourages local citizens to find and report their sightings of invasive species to *i*MapInvasives.

Story adapted from personal communication with Stacia-Fe Gillen, HCCC Watershed Specialist

Japanese stiltgrass (Microstegium vimineum) Credit: Amy Jewitt/PNHP

As part of a recent grant awarded to the Huntingdon County Conservation District (HCCC), citizens in the town of Huntingdon are now being encouraged to find and report the invasive species they see in Detwiler Park to *i*MapInvasives. Located along Rt. 26 near Juniata College, the roughly 20-acre park comprises a variety of native plants including red osier dogwood, cardinal flower, American sycamore, and skunk cabbage, but also has a healthy population of non-native invasive species too. Some of the invasive plant species in the park include Japanese stiltgrass, multi-flora rose, and privet, among others. All of these species, both native and invasive, are pictured on the HCCC sign (see above).

Multiflora rose (Rosa multiflora) - Credit: Nick Macelko/PSU Eco Action

In order to raise public awareness of the invasive species present in Detwiler Park and the threats they pose to the native plants and wildlife, the HCCC decided to install an educational sign at the park's entrance. Stacia-Fe Gillen, Watershed Specialist for the HCCC, explains, "*Detwiler Park is a widely utilized public park in the community of Huntingdon. We realized that to effectively get the word out about the issues being caused by invasive species, an educational sign would suit our goal perfectly*."

Stacia-Fe goes on to remark, "*I thought to include iMapInvasives (on the sign) after learning about the program through a conference I attended. My chief goals for the sign were to offer a visual guide for at least three native and three invasive plant species found along the Nature Trail (in Detwiler Park), convey the ecological significance of native and invasive plants, and recruit park visitors to report invasive plant species*."

Stacia-Fe understood that for the sign to be truly effective, it had to include a call to action, so she devoted the bottom section to say, *"Fight the good fight! If you see an invasive species, take a photo and submit to iMapInvasives. Join for free by signing up at http://www.imapinvasives.org. You can also volunteer to remove these invasive species from Detwiler Park by contacting the Huntingdon Community Center (HCC) at 814-643-4241."*

Privet spp. (Ligustrum spp.)
Credit (above and left): Dan Nydick/Western Pennsylvania

To learn more about the work being done by the Huntingdon County Conservation District, contact the District Manager, Celina Seftas, at 814-627-1626 or cseftas@gmail.com.

iMapInvasives in Action! >>>

Summer Event Challenges Participants to Hunt for Water Chestnut

Water chestnut — Credit: Ron Keeney, Conewango Creek Watershed Association

Water chestnut (*Trapa natans*) is considered a high priority invasive species in Pennsylvania because it causes significant harm to the environment and is not (yet) widespread within the state. Given this status, findings of water chestnut should be documented in a database such as *i*MapInvasives and managed quickly to ensure spread does not occur into new waterbodies or continue to invade waterbodies where infestations currently exist.

Earlier this summer, the Pennsylvania *i*MapInvasives program issued a challenge to anyone willing to accept it: In the month of July, visit your local lake, pond, stream, or river and search for water chestnut. Report your findings, both presence and absence, to *i*MapInvasives using your desktop computer or mobile device. At the end of the month, all findings recorded in *i*MapInvasives will be tallied and a grand prize awarded to the person with the most records documented in *i*MapInvasives.

Heavy water chestnut infestation in Bradford Reservoir (Bucks County) — Credit: Nick Macelko (PSU Eco Action)

Eleven people accepted the "Water Chestnut Chasers Challenge", representing a group of both natural resource professionals and citizen scientists.

Findings from the challenge indicated a handful of new waterbodies in Bucks County that were heavily infested with water chestnut. These new infestations were not previously known about (according to data in PA *i*MapInvasives) and represent important "early detection" findings.

In total, waterbodies located in 19 counties were searched by challenge participants, and thankfully, many did not contain water chestnut infestations. According to data in *i*MapInvasives, water chestnut is currently found in six Pennsylvania counties including Berks, Bucks, Dauphin, Luzerne, Montgomery, and Warren.

One unexpected outcome from the challenge was the opportunity to shine a spotlight on the importance of data from citizen scientists, a group of people often overlooked for their contributions to science and efforts related to the management of invasive species. In the case of the 2017 water chestnut challenge, many of the new (positive) findings came from a citizen scientist.

Data resulting from the challenge are intended for use by natural resource professionals all across Pennsylvania who have an interest in managing this high priority aquatic invader.

Learn more about the results of the 2017 Water Chestnut Chasers Challenge by accessing the Resources tab of the Pennsylvania *i*MapInvasives website (*www.paimapinvasives.org*) and scrolling to the bottom of the page, or by clicking here.

ENCOURAGING WORDS >>>

Benjamin Mummert, Director of Land Stewardship at the Central Pennsylvania Conservancy

"When invasive species find their way into Pennsylvania, iMapInvasives reveals their geographic distributions by distributing information across political and institutional boundaries and among citizen scientists (via email alerts). In addition to innovatively collecting and publicly publishing this important occurrence data, iMapInvasives serves as a network that connects citizens and professionals in efforts that collaboratively address the threats invasive species pose."