IN THIS ISSUE >>>

Photo credit: Rocky Mountain Blitz

Issue FIVE

Winter 2016/2017

Providing Insight into the Benefits and Uses of the Pennsylvania iMapInvasives Database

Tracking Invasive Species with

Pennsylvania *i*MapInvasives

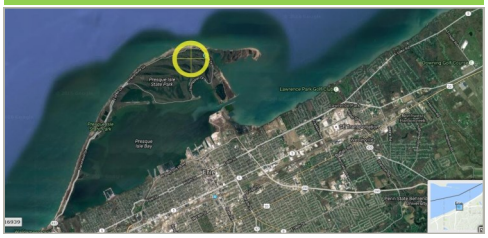
TRAINING OPPORTUNITIES >>>

Learn More About iMapInvasives by Attending a Webinar Training

Take an opportunity on March 22 and April 27, 2017 to learn more about the *i*MapInvasives program by participating in a free webinar training. The March webinar focuses on learning the basics of using *i*MapInvasives and is recommended for both natural resource professionals and citizen scientists alike. The April webinar is an advanced training where tools useful to natural resource professionals will be highlighted.

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

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



Teachers in "Advancing Science" Program are Introduced to iMapInvasives

By learning about the citizen science components of iMapInvasives, teachers are adding a new tool to their "teaching tool belt".

Story by Lesa Bird, Mobile Educator with Advancing Science

Advancing Science, a Science in Motion program that serves south central Pennsylvania, hosted a workshop in January 2017 to help teachers develop Meaningful Watershed Education Experiences (MWEE) for their students. As part of the workshop, teachers participated in a seminar about Pennsylvania iMapInvasives, a tool which can be used for classrooms engaging in citizen science. Teachers learned about invasive species and the applications of the iMapInvasives database for scientific research with their classes. Teachers also learned to integrate information about invasive species identification, impacts on natural resources, and iMapInvasives features for upcoming school programs.

Photo credit: CA Association of Professional Scientists

Each spring and fall, numerous schools participate in stream studies with Advancing Science, completing chemical water testing and macroinvertebrate investigation. In Spring 2017, Advancing Science will add invasive species identification to the stream study protocols. Students will be given photo and information packets of invasive species found in Pennsylvania and will be encouraged to observe a stream's surrounding area for the presence of invasive species. Students will record and map the locations for historical reference to be used in monitoring the sites each year. Data collected by the students from participating classes will be reported to the *i*MapInvasives database.

To learn more about Advancing Science, check out this YouTube video which provides an overview of the program.

IMPORTANT FINDING IN PENNSYLVANIA!

Bog Bulrush Found in New Region of PA

Bog bulrush
Photo credit: Mark Simonis

In September 2016, a retiree of the U.S. Army Corps of Engineers discovered bog bulrush (*Schoenoplectiella mucronata*) in Tioga County, a region of Pennsylvania where this species had not previously been reported. Once the finding was reported to Pennsylvania *i*MapInvasives, database administrators quickly noted that this was an important discovery due to its location within the state. According to the Pennsylvania Flora Project at the Morris Arboretum, bog bulrush has only been reported in Chester County to date. This new finding in north central Pennsylvania indicates the species' spread to a different region as well as its status as a high priority species (i.e., an invasive species found in Pennsylvania but not yet widespread within the state).

According to the National Park Service, bog bulrush invades habitats that have been degraded in some way and it is not currently known to invade high quality natural wetlands. However, bog bulrush has been found to be spreading in Pennsylvania's neighboring state of Ohio and may be a more aggressive invader than previously thought.

The occurrence of bog bulrush at the U.S. Department of Energy's Federal Preserve in Ohio began raising concern back in 2008. That year, bug bulrush was first noted at the site (located northwest of Cincinnati) in one particular wetland on the property. Then in 2009, it was found in 8 of 23 wetlands and two additional locations on the property. This increase in the Preserve's bog bulrush population raised several questions including: Is this a species that could pose harmful impacts to regional ecosystems? Could it be detrimental to biodiversity in wetlands? Would it change the native species composition in natural areas?

As these questions do not yet have answers, botanists and land managers are encouraged to be on the lookout for bog bulrush in both natural and man-made wetlands to aide in research being done to better understand the potential invasive threats posed by this species.

To report this and other invasive species found in Pennsylvania, please submit request a free login account from Pennsylvania iMapInvasives and watch our online training video to learn how to begin using the database.

UPCOMING EVENTS IN 2017 >>>

Get Ready to Bioblitz!

Are you interested in helping to inventory native and invasive species in various parts of Pennsylvania? If so, the following BioBlitz events are the perfect way to help out! Note: Both volunteers and experts are encouraged to participate.
Location , date, and registration information for each event is provided below.

- **A Botanist's Treasure Hunt at The Nelson Falls Oxbow**
  When: June 2-3 & August 25-26, 2017
  Where: Cowanesque River Nelson Falls Oxbow (near Nelson, PA in Tioga County)
  Registration: Contact Mark Simonis at swm1@ptd.net

- **Chartiers Creek 4-Part Bioblitz**
  When: March, 25, April 29, July 8, & September 30 (all in 2017)
  Where: Wingfield Pines Conservation Area, Pittsburgh, PA
  Registration: Contact Caitlin Seiler at cseiler@alleghenylandtrust.org
  Note: Each day of this BioBlitz specifies a list of target species to search for.
  March: Amphibians, mosses, and mushrooms
  April: Birds, wildflowers, and aquatic invertebrates
  July: Bats, birds, grasses, sedges, lichens, mosses, mushrooms, Odonates, and Lepidoptera
  September: Aquatic bacteria, mushrooms, and wildflowers

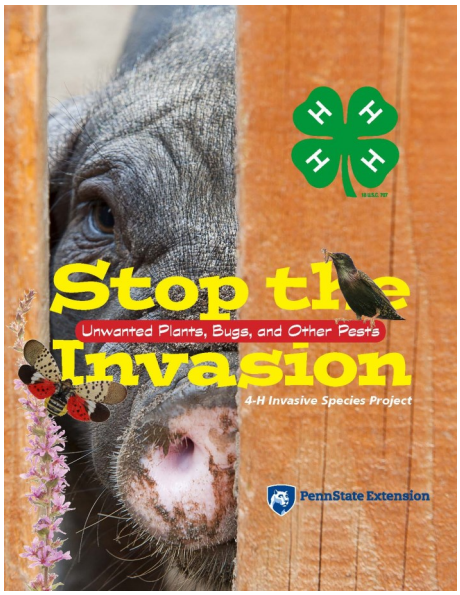
Photo credit: Rhode Island Natural History Survey

Photo credit: Rocky Mountain Blitz

Penn State Extension Creates New Invasive Species Curriculum

Users of this new and exciting curriculum are encouraged to report their findings of invasive species to aide in an increased understanding of species distributions across Pennsylvania.

Story adapted from PSU Extension News Release



In 2016, Penn State Extension created a brand new curriculum for middle-grade students to better understand the issues caused by invasive species with a focus on a "learn by doing" approach. Funding assistance for the new curriculum was provided by a grant from the Pennsylvania Department of Agriculture.

Entitled "*Stop the Invasion: Unwanted Plants, Bugs and Other Pests, 4-H Invasive Species Project*", this new curriculum provides case studies and hands-on activities through which youth develop an understanding of invasive species and their effect on ecological systems. Written for middle-grade students, each lesson is also adaptable for younger and older audiences as well.

The curriculum includes information about participation in citizen science, finding invasive species, and reporting their locations, among other topics. One of the reporting options mentioned is the use of Pennsylvania *i*MapInvasives, an online database used to track findings of invasive species in the Commonwealth.

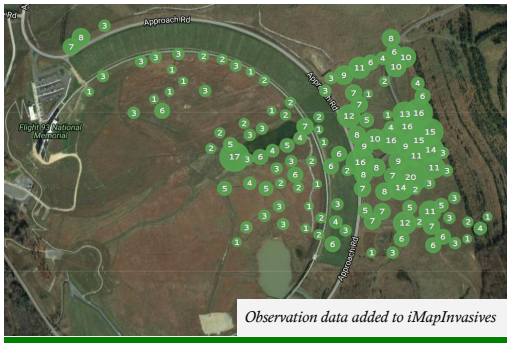
To submit an invasive species finding to *i*MapInvasives, users can request a free login account and watch an online training video to learn how to submit an observation record. If a user does not wish to sign up for an iMapInvasives account, he or she can still submit an invasive species finding by submitting a Public Report.

To obtain a copy of the curriculum, please contact your local Penn State Extension office.

ENCOURAGING WORDS >>>

Brian Crooks, Community Forester at the Western Pennsylvania Conservancy

"iMapInvasives is comprehensive, yet easy to use. A user can quickly get a complete picture of what is threatening a given area and then make management decisions."



Observation data added to iMapInvasives

DATA RECENTLY ADDED>>>

The Flight 93 National Memorial in Stoystown, Pennsylvania is a site people come to remember the victims of 9/11. However, even a place of somber significance to U.S. history is susceptible to unwanted invasive plants. The land managers at the National Park Service (NPS) are continually challenged by invasive species which threaten the aesthetic and ecological integrity of the protected lands and waters they so diligently care for.

The scope of the invasive species infestation at the Flight 93 Memorial site was documented in 2013 by three Penn State Dubois students conducting a noxious and invasive species survey. The students mapped sectors of the memorial to survey, developed a survey protocol, identified species of concern, and provided GPS coordinates of the noxious and invasive species found. Field work for this project was completed in July 2013. Two of those same students were also charged with providing a noxious and invasive species management plan for the NPS, which was completed that same year in December. Data resulting from this plan were later provided to the Pennsylvania *i*MapInvasives program, totaling 701 observation records that were entered into the online database.

Species found during the survey included spotted starthistle (*Centaura stoebe ssp. micranthos*), Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), autumn olive (*Elaeagnus umbellata*), bush honeysuckle (*Lonicera spp.*), reed canary grass (*Phalaris arundinacea*), and multiflora rose (*Rosa multiflora*). Of the species found, over half of the observations were for autumn olive and about twenty percent were for spotted starthistle, with the remaining species being found in lower quantities.

To view this data in *i*MapInvasives, please register for a free Pennsylvania user account and request to view data in the project entitled "NPS Flight 93 Memorial Invasive Species Survey".

INVASIVE SPECIES PROFILE

Flowering Rush

(*Butomus umbellatus*)

Species at a Glance

Flowering rush is a perennial aquatic herb that can grow both as an emergent plant along shorelines and a submersed plant in lakes and rivers. It often goes fairly unnoticed among other wetland plants until it blooms a distinctive spray of attractive flowers in late summer and early fall.

Identification

Leaves: Emergent leaves are stiff, narrow, green, and can grow up to 0.9 m (3 ft) above the water's surface. Leaf tips may be spirally twisted. Submersed leaves are limp under water and do not flower.

Flowers: Grow in umbrella-shaped clusters on a long stalk, with each flower made up of three petals, three sepals, and red anthers. Flowers are approximately 2.5 cm (1 in) across and are typically white, pink, or purple in color. Flowering occurs in late summer to early fall, and only occurs on emergent plants.

Fruits/Seeds: Pistils ripen into a dark brown fruit filled with tiny seeds.

Stems/Roots: Green stems are triangular in cross section. The extensive root system is a thick, creeping rhizome. Bulblets that form on the rhizome can easily break off when disturbed and form a new plant.

Similar Species

Leaves of flowering rush resemble bur-reed (*Sparganium spp.*), another shallow water plant; however, the leaves of the bur-reed are V-shaped, and its female flowers appear as small spiked balls. Bur-reed grows 0.3-1.2 m (1-4 ft) tall.

Habitat

Flowering rush prefers shallow and slow moving waters but will inhabit deeper waters. It grows well in riparian zones, watercourses, and wetlands such as ditches, marshes, lakes, or streams. It cannot grow in shade and requires wet soil.

Spread

Once in a watershed, flowering rush spreads locally by underground rhizomes, root pieces, and seeds. Wildlife, water movement (water or ice), anglers, and boaters can carry this plant to new areas. Its use as a water garden plant could have also contributed to its spread over long distances.

Distribution

Native to Europe and Asia, flowering rush was brought to North America as a garden plant. It is present in states along the U.S./Canadian border, extending north to the tip of Quebec, and south to Illinois. In Pennsylvania, the flowering rush is present in Erie and Venango counties.

Environmental Impacts

Flowering rush can easily crowd out native species. The large amount of underground rhizomes can harm fish and other wildlife by destroying food sources and habitats. It can also interfere with recreational activities such as swimming and boating.

**Note*

Content for this invasive species profile originates from Pennsylvania's Field Guide to Aquatic Invasive Species (Second Edition 2015), a publication by The Pennsylvania State University and Pennsylvania Sea Grant.