



2018 Upper Delaware BioBlitz

Final Report

Presented by Steven Schwartz, Upper Delaware BioBlitz Coordinator

December 11, 2018

The 2018 Upper Delaware BioBlitz took place on June 29th and 30th at the “Gales Property” owned by the Norcross Wildlife Foundation in Starlight, Wayne County, PA. The 63.5 acre property is bordered by Shehawken Creek, the West Branch and Main Stems of the Delaware River and PA State Rt. 191.

Over 55 scientists and amateur naturalists from across Pennsylvania and New York and beyond took part in the collection, identification and cataloguing of the living things visible to the naked eye on the property during the 24 hour event. Collections began at 12 noon on June 29th and concluded at noon on June 30th. On Saturday, June 30th from 9 AM to 3 PM the public was invited to come and see what had been collected, talk to the scientists, and take tours and attend programs on site.



Sam Marshall in 2013 (l) and 2018 (r). Photos by Roy Morsch.

Over 45 volunteers helped run the event with the BioBlitz steering committee. Thirteen organizations funded the event.

There were well over 250 visitors to the site during the public portion of the event. Photos from the event and press can be found on the event website at www.upperdelawarebioblitz.com

The weather turned very hot and sticky during the BioBlitz after previous days of rain and, while uncomfortable, good site preparation and the provision of adequate shade and hydration helped us bring off the event successfully.

881 unique species were identified during the event. Of these, the teams identified 42 first occurrences for Wayne County, adding considerable publicly accessible biological data and field research for this area of the Upper Delaware watershed. As we revisited a site the BioBlitz was held once before in 2013 when 1,022 species were identified we also asked the teams to identify which species ids were new for 2018 and which had also been found in 2013. Of the teams reporting on this stat, 265 species were new site ids for 2018 bringing the cumulative site total to 1,287.

The number of species, first occurrences and new 2018 ids by team summary is:

Team	2018 Species Count	First Wayne County Occurrences	New to the site for 2018	Also found on the site in 2013
Aquatic Macroinvertebrates (Aquatic Insects, Mussels, Snails)	111		76	35
Birds	61		15	46
Botany (Plants)	209		61	148
Bryology (Mosses, Lichens and Worts)	119	41	54	51
Fish	29		8	21
Fungi (Mushrooms and Molds)	61	1	40	21
Herps (Reptiles and Amphibians)	15		1	14
Invertebrates (Terrestrial Insects, Worms, Snails)	258		NA	NA
Mammals	18		10	8
Total	881	42	265	344

Following are some of the highlights reported by the teams.

The **Aquatic Macroinvertebrates Team** easily surpassed their 2013 total with good surveying weather and post-event lab aids led by Erik Silldorff of Delaware Riverkeeper Network and Stef Kroll of the Academy of Natural Sciences at Drexel University. Their collections were a family affair as Jeff Cole of USGS and family were in the water more often than out. Photo by Dave Soete.



The **Bird Team** was delighted to be able to identify 61 bird species in this year's BioBlitz. Matt Marshall of the NPS Eastern Rivers and Mountains Network led the team from the NEPA Audubon Society who also conducted birding walks for visitors during the public portion of the event.

The **Botany Team**, was led by Kelley Stewart of the Wayne County Conservation District with assistance from East Stroudsburg University and the University of Scranton. They documented 209 botanical species of which 61 were newly identified for 2018 bringing the cumulative total for the two BioBlitzes to 329 plants.

Kelley performed a Floristic Quality Assessment Index of the site based on the survey results and found an FQAI of 55.5 which indicates high diversity and a healthy population of native species.



Floristic Quality Assessment Indexes indicate the ecological value of the habitat with high FQAI scores indicating occurrences of plants that require very specific natural habitat conditions to flourish and low scores indicating occurrences of plants that thrive in a variety of conditions including disturbed and poor soils.

The Botany table at the 2018 BioBlitz. Photo by Dave Soete

A brief description of FQAI is available at:

<http://www.fws.gov/midwest/Endangered/section7/s7process/plants/FQA.html>

Led once again by Keith Bowman, an independent Bryologist who got his degree from ESF in Syracuse, NY, the **Bryology Team** identified an impressive total of 119 species of mosses, lichens and liverworts. This almost doubles the number reported in 2013 at the same site. The team also reported a total of 41 Wayne County first occurrences. This represents more the limited bryological research that has occurred here in the past than

the rareness of the species. In all, the team found 54 new species in 2018 bringing the cumulative BioBlitz Bryology total for the site to 121 species.

The **Fish Team** collected 29 species on the site. They actively seined, netted and electroshocked all of the flowing and still water bodies on the property and their electroshocking demonstrations were a hit, as always, with the public. Photo credit Dave Soete.



The **Fungi Team** surpassed their species count over 2013 thanks to well-timed rains. Team Leader Jack Barnett reports that the team, including members of the Delaware Highlands Mushroom Society, The New York Mycological Society and the Wyoming Valley Mushroom Club, had a great time on a bountiful site. They added 40 new species to the cumulative site total bringing the count to 91 with one new Wayne County first occurrence.

Dr. Thomas LaDuke's **Herps Team** brought in 15 species of salamanders, newts, frogs, toads and turtles including six different species of salamander. A few collected specimens were displayed at the Team's table in the Base Camp Tent and visitors, young and old alike, were fascinated to get up close and personal with the live animals who were returned to their exact habitat location after the event was over. Photo at right of Scott Rando, member of the Herps team and contributor to the Pennsylvania Amphibian and Reptile Survey (PARS). <https://paherpsurvey.org> Photo by Dave Soete.



Isabelle Betancourt of the Entomology Department at the Academy of Natural Sciences was this year's **Terrestrial Invertebrates Team** leader. In addition to others from ANS she included team members from the University of Pennsylvania and EPA. With diligent post-event lab analysis the team recorded 258 unique species including 14 species of Diptera (crane flies) analyzed by Jon Gelhaus of ANS.

The **Mammal Team**, led by Howard Whidden of East Stroudsburg University, recorded 18 species, which included 5 bat species acoustically identified, surpassing the 2013 total. Added together the cumulative site total is 22 species for the two events.

The detailed collection inventory including individual team logs are available online at: <http://www.upperdelawarebioblitz.com/science/default.html>

In addition to the work of the science teams in collecting, identifying and cataloguing the diversity of life found on the site the BioBlitz offers visitors the opportunity to meet the scientists, see what they have collected and take part in workshops, walks, talks and other demonstrations. In 2018 there were 17 scheduled programs for public participation ranging from nighttime bat acoustic ID to learning to draw and photograph nature. A listing of 2018 events is available at

<http://www.upperdelawarebioblitz.com/event/default.html>

One highlight of the 2018 Upper Delaware BioBlitz was the premier of a new theater piece by the NACL Streets company entitled TREES. This piece explores the important functions trees provide in our ecosystem and how they communicate among each other to protect and nurture the habitat. Photo of TREES at right by Dave Soete.



Photos from the event by 7 different photographers and videos of the 2018 BioBlitz produced by Ed Rogers of the Delaware River Network are available online at:

http://upperdelawarebioblitz.com/photo_gallery/default.html

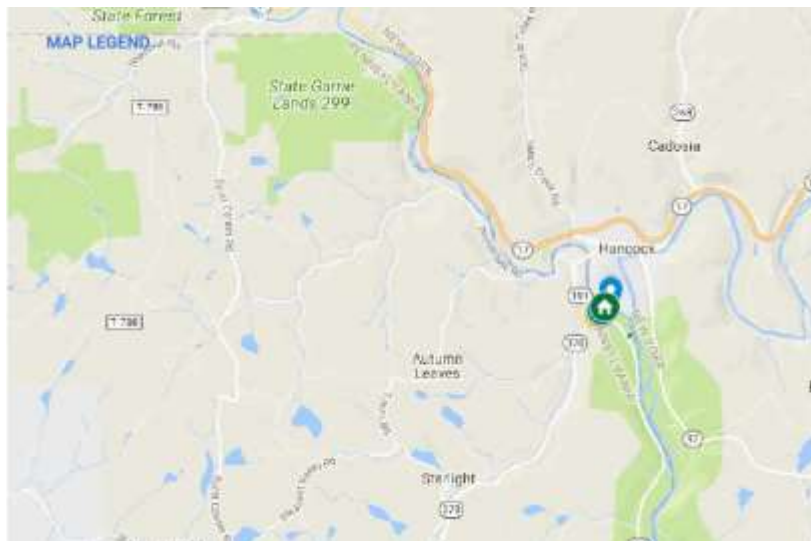
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- **Delaware Highlands Mushroom Society**
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- **Wayne County Conservation District**
- **Willow Wisp Organic Farm**
- **and many other volunteers and team member**



Same site plan for 2018



Site location