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BIO-BLITZ 2007

RESULTS AND FINDINGS

*Watchung Reservation, Mountainside
Union County, N.J.*



A 24-hour intensive effort to measure biodiversity

MARK YOUR CALENDARS!
BIO-BLITZ 2008 * ELIZABETH RIVER PARKWAY * JUNE 13 & 14, 2008
5:00PM TO 5:00PM

BIO-BLITZ 2007

Why did we do it and what does it all mean?



On June 15 & 16, 2007, teams of scientists, naturalists and volunteers—totaling 96 people—descended upon the 2,060-acre Watchung Reservation in search of plant and animal life. The Union County park, located in Summit, Berkeley Heights, Scotch Plains, & Mountainside, offered participants a wonderful opportunity to sample and identify species in eight categories, including: Plants, Fungi, Insects, Aquatic Invertebrates, Fish, Reptiles & Amphibians, Birds, and Mammals.

A Bio-Blitz is an effort to identify the different forms of life that can be found in a given location over a 24-hour period, with specialists looking for whatever grows, crawls, swims, flies, or walks. The 2007 event, sponsored by Union County and the Rahway River Association, in cooperation with many other organizations, found a diverse collection of flora and fauna — **683 different species** — ranging from mushrooms to oak trees, from ants to coyote and deer, and from bees and butterflies to hawks.



To identify these species, teams of scientists, naturalists, volunteers and park visitors scoured field, forest, river, pond and wetlands, starting at 5:00 p.m. the evening of June 15th, and continuing until 5:00 p.m. on June 16th. Team members were graced with warm, sunny weather for most of the Blitz, but faced a downpour and thunderstorm at the end of the day on June 16th. Their goal was not only to identify as many living things as possible, but also to raise awareness of the incredible variety of life that can be found even in an urban park. To further accomplish these goals, the public participated in workshops and guided walks to observe firsthand what it takes to collect, catalogue and identify species in the outdoor laboratory, demonstration area, and exhibit facility known as the Bio-Blitz Central Tent.

RESULTS:

Plants: *Daniela Shebitz*, Assistant Professor of Ecology in the Biology Department of Kean University and the Chair of the IUES at Kean, led the plant team for the 2007 Bio-Blitz.



The team consisted of 27 fantastic volunteers to help document the flora of Watchung Reservation and manage the plant table at the Bio-Blitz Central tent. Three groups led by scientists and naturalists were formed and each was sent to a different section of the Reservation. The volunteers ranged from members of the public interested in being introduced to local plants to experts in the field of systematic botany, including Kean University students, the Institute of Urban Ecosystem Studies (IUES), and Brooklyn Botanical Garden. A total of **290 plant species** were identified, from a total of 90 families. Of the species identified, 167 were forbs/herbs, 17 were graminoids (grasses, sedges, rushes), 85 were trees and shrub species, and 19 of these species were vines.

Interestingly, the plant team found conifer species such as *Picea glauca* (white spruce), *Pinus resinosa* (red pine), and *Picea abies* (Norway spruce) which are outside of their native range. The planting of these tree species by the Civilian Conservation Corps in the 1930s transformed Watchung Reservation so that today, the plant communities are comprised of a unique assemblage of species for this area.



Fungi: *Marc Grobman* and *Dorothy Smullen*, of the New Jersey Mycological Association, led a small team of fungi experts - Gerry Breitenbach, of Watchung; Melanie Spock, of Martinsville; Michael Rubin, of Boonton; and Frank Marra, of Staten Island - also of the New Jersey Mycological Association. Although the event was held a bit early in the year for prolific fungi, the determined Fungi Team still found **58 fungi species**.

A familiar favorite was the brown wrinkly fungus that populates hot and sour soup, *Fuligo septica* (left), which bears the wonderfully descriptive common name of Scrambled Egg Slime, plus several fungi in typical mushroom shapes, as in illustrated versions of Alice in Wonderland, or the produce section of food markets. Visitors to the Fungi Team's table were impressed by the number and variety of the mushrooms on display, and enjoyed picking up a *Megacollybia platyphylla*, a mushroom with a five-inch diameter cap. Its heavy, flexible cap would droop down like a turned-out umbrella, and its large wavy gills would ripple, causing surprised cries of, "Wow! Look at this!"

Insects: *Dr. Sylvio Codella* and his students at Kean University have been sampling Hymenoptera (wasps, ants, bees) in the pine forests of Watchung for over seven years and have documented the presence of hundreds of species.



For Bio-Blitz 2008, the Insect Team concentrated on the County's newest addition to the Reservation, the pine stand in the New Jersey-American Water Company tract at the north boundary of the park. They collected 52 species of hymenopterans, including several not found in their previously sampled areas. In addition, *Fred Virrazzi* of National Biodiversity Parks used nocturnal light traps and other techniques to collect 128 species of beetles (Coleoptera), moths (Lepidoptera), grasshoppers (Orthoptera) and other groups from the Scout Camping Area. In total, the Insect Team collected **180 species**.

Aquatic Invertebrates: Kevin Hannon, NJDEP/NJWAP Watershed Ambassador, sampled the waterways for small aquatic organisms that are oftentimes used to indicate water quality. Kevin and his team of aquatic invertebrate experts sampled the Blue Brook using D-frame and kick seine nets and were able to find a total of **15 species of aquatic invertebrates**. These species included arthropods, such as crawfish (right), scuds, and sowbugs; aquatic insects, such as dragonfly, damselfly, black fly, and caddisfly larva; and also some snails and leeches. Most of the aquatic invertebrates found are considered sensitive to pollution, so finding them in the Blue Brook was an indication that the pollution in the waterway is relatively low.



Kevin also gave a stream sampling talk and demonstration to the public which was a favorite and attracted families to the stream banks. Children and adults alike were able to use nets and waders to catch and examine aquatic invertebrates up close.



Fish: Shawn Crouse, from the New Jersey Department of Environmental Protection, Division of Fish and Wildlife, and his team sampled Lake Surprise, Blue Brook, Green Brook, Moxon Pond, and Seeley's Pond using a variety of sampling methods including electro-shocking (using mild electrical currents to temporarily stun the fish for easy capture and identification), and seining. The **16 fish species** encountered are typical for the geographic region and habitat types surveyed. Most species are common, ubiquitous, and tolerant of degradation. Lake Surprise offers an attractive warmwater fishery with sizable chain pickerel (New Jersey's largest native piscivorous fish), largemouth bass, yellow perch (left), and a variety of sunfish species. The common carp, western mosquitofish, bluegill, black crappie, and largemouth bass are nonnative species that have been introduced to New Jersey, whereas the other fish species found are native to the state.

Amphibians and Reptiles: Back by popular demand, the *Frog Slog* took place at Surprise Lake where Cathy Eser of the Staten Island Zoo and Karen Inzillo of Trailside Nature and Science Center guided Bio-Blitzers to sample the lake and surrounding areas for amphibians. Using nets, kids and adults found lots of bullfrog, *Rana catesbiana*, and greenfrog, *Rana clamantans*, tadpoles while others tested their reflexes to catch adult Fowler's toads, *Bufo woodhousei*, pickerel frogs, *Rana palustris*, spring peepers, *Hyla crucifer*, greenfrogs and bullfrogs.



Two Mini-Beasts Programs instructed by the Trailside Nature and Science Center staff allowed for amateur herpers to survey for reptiles and amphibians by flipping over rocks and fallen wood in the upland forest areas. Red-backed salamanders, *Plethodon cinereus*, were the most common species found. In addition, an Introduction to Herptiles Program and the Reptile Information Table were a big hit and showed many of the species that may be found throughout the reservation.

Meanwhile, a group of scientists searched the park throughout the day and identified **19 reptile and amphibian species**. Four native species of turtles such as the snapping turtle, *Chelydra serpentina*, eastern box turtle, *Terrapene carolina*, painted turtle, *Chrysemys picta*, and red-bellied turtle, *Pseudemys rubriventris* were found along with a non-native cooter, *Pseudemys suwanniensis*.



Four species of snakes were found, such as the northern water snake, *Natrix sipedon*, ringneck snake, *Diadophis punctatus*, common garter snake (left), *Thamnophis sirtalis*, along with some hatched milksnake, *Lampropeltis getulus*, eggs.

Probably the most numerous and interesting group found were the salamanders. These animals were found both in the adult and larval form and were a good indication of the health of the reservation's ecosystem. The most common species found was the red-backed salamander, *Plethodon cinereus*, which was to be expected.

Some of the other species found were the northern red salamander, *Pseudotriton ruber*, slimy salamander, *Plethodon glutinosus*, northern two-lined salamander, *Eurycea bislineata*, northern dusky salamander, *Desmognathus ochrophaeus*, and long-tailed salamander, *Eurycea longicauda*. The long-tailed salamander is a species that is considered as State Threatened in New Jersey so it was nice to confirm its presence in the Watchung Reservation.



Birds: Holly Hoffman, with assistance from Frank Budney, of Friends of Lenape Park, led the Bird Team, and were able to find **92 species of birds**. In order to survey the breeding birds in the Watchung Reservation the area was divided into ten units.

As birders arrived, they were put into groups, given a map, a checklist, and were sent off. Finally, one area was left and it appeared no other birders were coming to the Bio-Blitz. Luckily, some last minute bird watchers arrived at the Bio-Blitz Central Tent and were given an area that gets very little traffic, considered "uncharted bird wilderness" for this reason. Of course, these fortunate birders came back with the best sighting of the day: nesting hooded warblers!



Results were posted on an enlarged bird check list by area. This enabled the bird team to visualize which birds live in all areas of the Reservation and which have restricted habitats.



The bird spotting teams were composed of individuals from age 8 to 68. It turned out some of the best birders were the youngsters who have wonderful eyes for spotting birds and great retention of field marks for identification. This is a great opportunity for families to get involved in a scientific project and have fun at the same time.

Mammals: *Lori Kuo*, Team Leader and Park Naturalist at Trailside Nature & Science Center, and her team identified **13 species of mammals** in the Watchung Reservation. These included: chipmunk, eastern gray squirrel, white tailed deer (right), eastern cottontail, coyote, red fox, woodchuck, raccoon, short-tailed shrew, and striped skunk. Sand traps were baited with tuna fish scented cotton balls prior to the event and tracks left in the sand were then identified on the days of the event. Additionally, ceramic tiles were placed around the Reservation beforehand and checked during the event for animal scat. Furthermore, some species were identified visually.



Woodchuck were identified by their burrows, while red fox were identified by their scat or droppings. Opossum, coyote, and striped skunk were identified by their tracks. The best sampling spots were by the stream and around Lake Surprise. Sand traps indicated the best variety of tracks in these areas.

The Watchung Reservation is a large area of land, extending approximately 2,060 acres over a variety of terrain and habitat. The solitary nature of mammals, and habits of others, make it difficult to accurately gather data on all known mammal residents. Over population of white tailed deer and the resulting destruction of the understory and herbaceous layers in the Reservation, due to over-browsing and rubbing, may also contribute to a lack of diversity in small herbivorous mammals such as rodents.

For a complete species list for Bio-Blitz 2007 and past Blitzes, visit:

www.Kean.edu/~bioblitz

Special THANKS to all of our volunteers and participants!



Photographers:

Linda M. Brazaitis, Betty Ann Kelly, Gary Szelc, Irene Grottano, and Mario Michael Vincent Photography

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**Union County Board of Chosen Freeholders
Union County Department of Parks, Recreation & Facilities
The Rahway River Association**

Bio-Blitz 2007 Committee & Team Leaders:

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Aquatic Invertebrates: Kevin Hannon (NJDEP/NJWAP)**

Birds: Holly Hoffman

Chair: Betty Ann Kelly (UCPCR)

Displays: Linda M. Brazaitis (UCPCR)

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