



Research  
&  
Citizen Science



# 2013 Annual Review





# A Message from the Research & Citizen Science Team!

## **Hello and Welcome to the 3rd Annual edition of the Urban Ecology Center's Citizen Science and Research Annual Review!**

The 2013 field season was marked by major transitions.

First of all, it was the final year of a three-year project to kick-start the Rotary Centennial Arboretum. Funding from Milwaukee Rotary had been used to secure support from the Environmental Protection Agency's Great Lakes Restoration Initiative to transform barren industrial land and unmanaged areas along the Milwaukee River and Oak Leak Bike Trail into a 40-acre oasis of urban restoration. If you haven't experienced the transformation, please check it out – and if you like it, you may want to volunteer as a land steward or citizen scientist, or contribute to the Center's arboretum endowment.

This project allowed the Center to expand our research and stewardship teams, including hiring talented field technicians that helped us to start collecting baseline data that will allow us to track how changes to the vegetation affect wildlife over time. To that effect we now have robust measures in place for monitoring birds, bats, snakes, turtles and frogs. Next we aim to track the primary beneficiaries of the restoration activities – invertebrates, supported by a grant from the Wisconsin DNR Citizen-based

Monitoring Partnership Program. We look forward to launching a community-driven invertebrate monitoring plan in 2014!

Another highly visible transition was the creation of the beautiful Three Bridges Park in the Menomonee Valley out of Wisconsin's largest brownfield. This was the result of hard work and dedication by many stakeholders including the Menomonee Valley Partners, Inc, who partnered with our team to monitor ecological progress in a way that will inform all stakeholders on adaptive management practices.

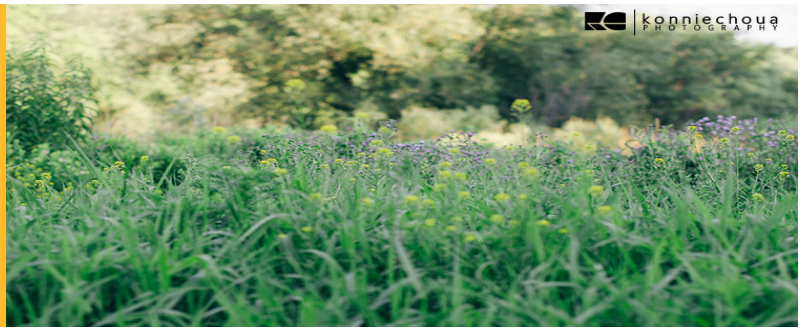
At Washington Park, the Young Scientists who did such an amazing job presenting their work all around the country last year made the transition from student to mentor as these veteran researchers took on a new role of teaching the incoming students about performing quality research.

We hope you enjoy this glimpse of what our community of volunteers and staff accomplished in 2013 and we look forward to seeing you in 2014!

**Sincerely,  
Tim, Jennifer and Anne**



# ABOUT US



*The Urban Ecology Center's Citizen Science Program serves as a meaningful bridge between academic research and the community-at-large....*

*....enabling collaboration, and creating a more engaged, knowledgeable, and ecologically literate citizenry.*

*With careful training, volunteers conduct cutting edge research, from studying the physiology of migrating bats to discovering the winter quarters of hibernating snakes.*





# WHAT WE DO

The Urban Ecology Center has been a major player in an international movement to facilitate community-led research and monitoring. In this regard, the Citizen Science Program focuses as much on the process of engaging community volunteers as it does on the products that are outlined in the sections that follow.

## Monitoring

Citizen Science programming engages community volunteers in monitoring changes in plant and wildlife communities over space and time. This is important for many reasons, including:

- Measuring impacts of land stewardship and education activities (increased biodiversity, adaptive land management, park attendance, minimizing park use impacts and urban remediation).
- Identifying population changes due to internal / external circumstances. This can alert stakeholders to potential causes, including natural fluctuations or human impacts.

## Research

Monitoring serves as a framework that involves volunteers and community members in original research, and most importantly, in all aspects of the research process. Many Citizen Science programs around the country use volunteers to help in data collection, and while that is important, it limits learning to only one aspect of scientific process.

This program expands beyond data collection to facilitate opportunities for volunteers to be a part of data analysis, visualization and reporting as well as in research advisory and leadership roles (e.g. pioneering unique research projects.) For example, middle and grade-school students in our Young Scientists Club have been carrying out and presenting their research to audiences across the country, including at professional conferences.

## Our Programs

We have a variety of volunteer opportunities for everyone no matter the individual's background. Some of our programming includes:

- Wildlife and Vegetation Monitoring
- Adaptive Land Management
- Research Projects and Internships
- Outdoor Leader and Young Scientist Mentoring
- Green Birding Challenge and other fundraisers
- Citizen Science Volunteer Experience
- Research Lecture Series (including Intern Presentations)
- Contract work with community partners in Best Management Practices for engagement and collaboration with community members.
- Rapid Biodiversity Assessments of properties (Bioblitzes)







# Research & Citizen Science Volunteer & Sampling Effort

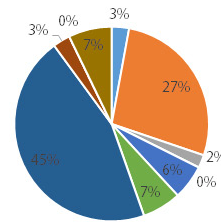
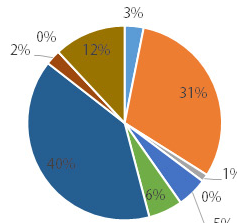
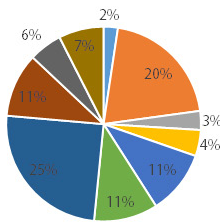
The research programs vary at each of our branches. Below we show the sampling effort, species observed, number of volunteers, and volunteer efforts by project by park. For example, bird banding and weekly bird walks make up a great deal of our volunteer profile and volunteer effort at all three parks.

Riverside Park

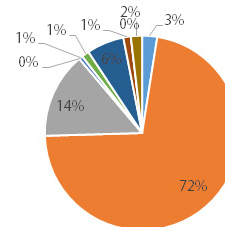
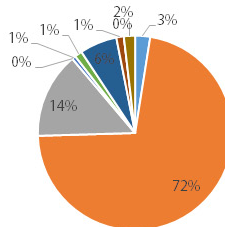
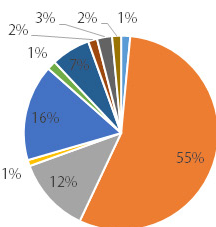
Menomonee Valley

Washington Park

Surveys

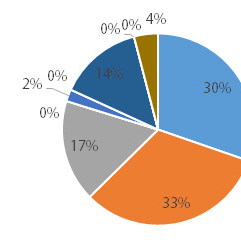
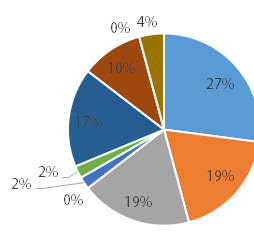
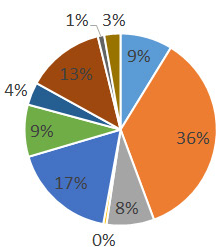


Species/  
Activities/  
Measures

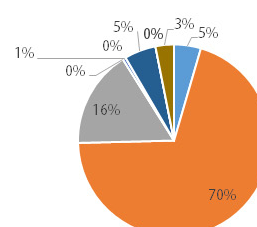
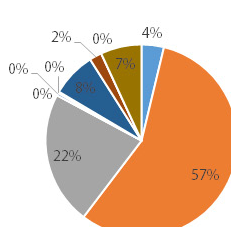
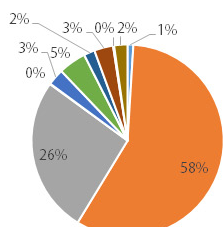


- Bats
- Bird Walks
- Bird Banding
- Frogs
- Invertebrates
- Mammals
- Park Use
- Snakes
- Turtles
- Water Quality

Volunteers



Volunteer  
Hours





# BATS

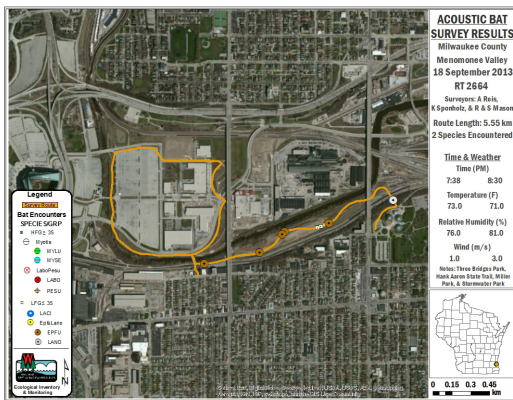
## Project Overview and Protocol

Bats serve an extremely important function in ecosystem services as pollinators, predators and prey (i.e., a Little Brown Bat can eat half its weight in mosquitoes a night). The Center's bat monitoring protocols were developed by the Wisconsin Department of Natural Resources. We use a mobile acoustic bat detector (Anabat) for walking and watercraft surveys. It's a powerful but easy-to-use data collection tool that is enjoyed regularly by volunteers. Bats provide important ecosystem services including insect control (i.e., a little brown bat can eat half its weight in mosquitoes a night).

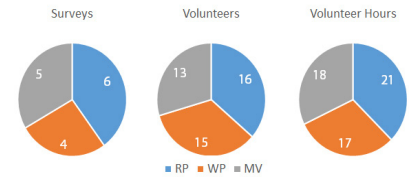
## 2013 Summary

43 volunteers conducted or assisted staff with 15 surveys at the three branches of the Center (five at Riverside Park, six at the Menomonee Valley and four at Washington Park). We encountered five of Wisconsin's seven bat species during the surveys, including Big Brown Bat (EPFU), Little Brown Bat (MYLU), Eastern Red Bat (LABO), Hoary Bat (LACI), and Silver-haired Bat (LANO).

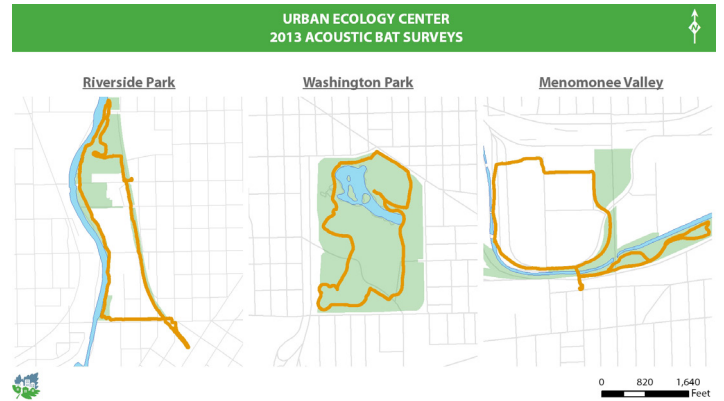
Results of the surveys are provided in map form, showing the routes and the bats encountered. Sometimes identification cannot be made to species level, and when this happens we group them as high frequency (HFG) or low frequency (LFG) group level. HFG includes Eastern Red Bat, Eastern Pipistrelle, Northern Long-eared Bat and Little Brown Bat. LFG includes Big Brown Bat, Silver-haired Bat and Hoary Bat. A results map example is



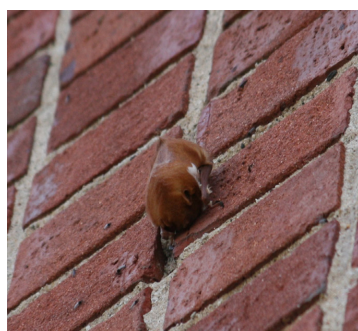
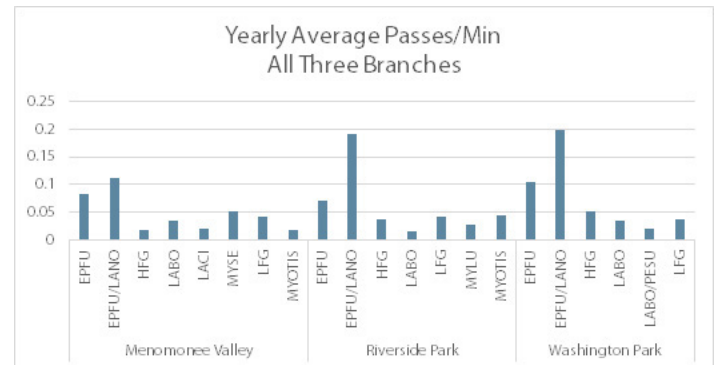
Anne Reis is the GIS & Field Data Coordinator and has been working at the Center since November 2010. She has a B.S. and M.S. in Horticulture from UW-Madison and a M.S. in Biological Sciences and a GIS Certificate from UW-Milwaukee.



shown below. Survey length is 2.3 miles at Washington Park, 2.7 miles at Menomonee Valley and 3.0 miles at Riverside Park.



Surveys last about an hour and data are sent to the WDNR Bat Program for analysis. The Menomonee Valley routes recorded the most species (4) and the most common bat in all of our surveys was the Big Brown bat (EPFU) and the Big Brown/Silver-haired (EPFU/LANO) grouping. This is not surprising as Big Brown bats are common in urban areas. Average bat passes per minute of survey over all surveys are shown in the chart below. These data are extremely important with the threat of White-nosed Syndrome growing ever closer.

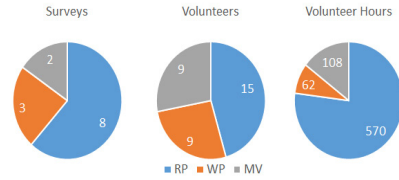




# BIRD BANDING



Jennifer Callaghan is the Research and Citizen Science Coordinator and has been working at the Center since October 2010. She has a B.S. in Conservation and Environmental Science from UW-Milwaukee.



## Project Overview and Protocol

The Urban Ecology Center's field sites are important stopover habitats for migrating birds. Center volunteers have been studying avian use of our parks during migration through weekly walks and seasonal bird banding. The Center's banding data are submitted to the Bird Banding Laboratory of the US Geological Survey. Bandit software allows us to track the number of individual birds and species banded since the project began in 2001.

Bird banding data provide additional information that regular bird walks and point counts cannot provide. For example, the banding and subsequent recapture of an individual bird can provide valuable information about migration patterns. Another impactful way the Urban Ecology Center uses bird banding is as an educational tool, allowing volunteers an up close and personal encounter with a bird. Many people have expressed this as a powerful, life-changing experience.

## 2013 Summary

Center staff and 33 volunteers who contributed 740 volunteer hours banded 45 species at all three parks. Net hours (the number of hours a net is set multiplied by the number of nets) were somewhat reduced from previous years due to weather. We banded 62 birds and 24 species at Riverside Park (195 net hours), 95 birds and 23 species at the Menomonee Valley (38 net hours) and 37 birds and 14 species at Washington Park (20 net hours). Additionally, 13 birds at Riverside Park were recaptures and one bird at the Menomonee Valley was recaptured.

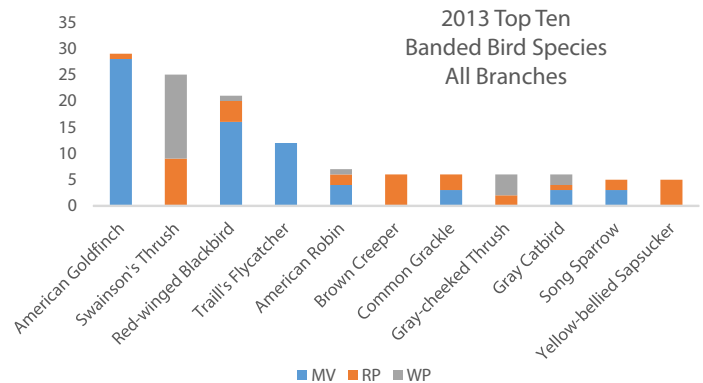
2013 marked the first time a Spotted Sandpiper (*Actitis macularius*) had been banded at any of the three Center branches and provided an opportunity to view a species in hand that is rarely seen up close. We caught and banded two spotted sandpipers in one day at the Menomonee Valley and recaptured one of the same birds the following week in the same location.

Images of the captured sandpiper are shown below. Banding volunteers use a grip that allows for safe handling and release of the birds. You can see the band on the right leg in



the larger image.

The top ten species over all three branches are shown in the chart below. The most commonly banded species is the American Goldfinch (*Spinus tristis*).

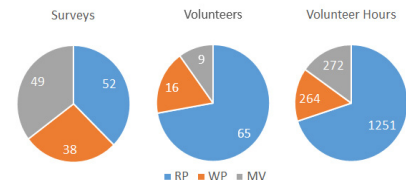




# BIRD WALKS



Tim Vargo is the Manager of Research and Citizen Science and has been working at the Center since 2002. He has a B.S. in Biological Sciences from Macalaster College and a M.S. in Biological Sciences from Purdue University.



## Project Overview and Protocol

Weekly bird surveys occur at all three branches and the Riverside Park survey is the longest-running Citizen Science project at the Center. All data are entered into the eBird website, and are accessible to anyone around the world.

### 2013 Summary

In 2013, 90 volunteers contributed over 1787 volunteer hours to record a total of 131 species at the Center's three branches (109 at Washington Park, 109 at Riverside park and 101 at the Menomonee Valley).

Seventy-nine of the 131 species were common to all parks. The Menomonee Valley volunteers recorded 9 unique species (Blue-winged Teal, Bufflehead, Great Egret, Yellow-billed Cuckoo, Common Nighthawk, Cliff Swallow, Carolina Wren, Bay-breasted Warbler, and Clay-colored Sparrow). Riverside Park volunteers observed 6 unique species (Greater Scaup, Wild Turkey, Sandhill Crane, Black-billed Cuckoo, Black-throated Blue Warbler and Eastern Meadowlark). Washington Park volunteers recorded 7 unique species (Caspian Tern, Yellow-throated Vireo, Northern Mockingbird, Blue-winged Warbler, Golden-winged Warbler, Connecticut Warbler, and Pine Siskin).

A regression analysis of 85 species from Riverside Park during 2001-2013 indicate significant increases in relative abundance for 11 species, including:

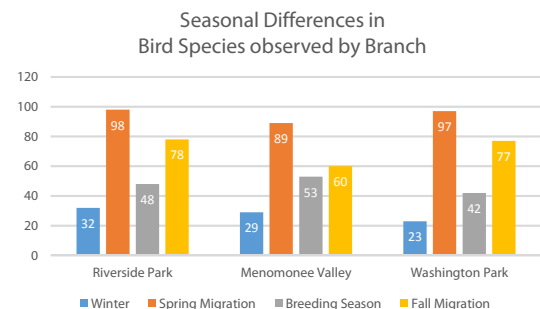
- White-crowned Sparrow (Insect ground forager)
- Indigo Bunting (Insect foliage gleaner)
- Brown Creeper (Insect bark forager)
- Black-capped Chickadee (Insect foliage gleaner)
- American Goldfinch (Seed foliage gleaner)
- Chimney Swift (Insect aerial forager)
- White-breasted Nuthatch (Insect bark forager)
- Downy Woodpecker (Insect bark forager)
- Mallard (Seed aquatic dabbler)
- Northern Waterthrush (Insect ground forager)
- House Sparrow (Seed ground forager)

We suspect the newly created parcel in the Milwaukee Rotary Centennial Arboretum, which was planted with rye grass, has influenced the increase in House Sparrow abundance during the last few years. This rye grass has since died back which will no longer provide a good food source for this invasive species in the years to come.

Weekly bird walks last about 1.5 hours and travel a distance of 1.25 to 1.5 miles. The routes are shown in the map below.



Seasonal differences among the three branches show similar trends, though there were nine fewer species found at Menomonee Valley during migration. This may be due to the newly created Three Bridges Park. Though prairie seeds were sown, the habitat is new and may not provide a full complement of food sources for some bird species.

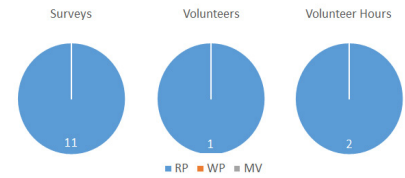




# FROGS



Alyssa Wiener worked as a volunteer during the 2012 field season and officially as a Wildlife Technician during the 2013 Field Season. She has a B.S. in Conservation and Environmental Sciences from UW-Milwaukee.



## Project Overview and Protocol

Frogs and other amphibians are important as indicators of ecosystem health, as they are sensitive to pollutants. The Center has been conducting frog monitoring (visual and call index surveys) for over a decade, contributing to a larger WDNR database. In 2011, the Center began additional monitoring for frogs (visual and auditory) along the Milwaukee River as a part of a Great Lakes Restoration Initiative grant for the Milwaukee Rotary Centennial Arboretum.

## 2013 Summary

In 2013, 13 volunteers assisted Center staff in conducting 11 auditory frog call surveys at four sites along the Milwaukee River in Riverside Park. Frogs were calling during six of the eleven surveys.

A total of two species of frogs were recorded, the American Toad (*Bufo americanus*) and the American Bullfrog (*Rana catesbeiana*). *B. americanus* was recorded twice during the month of May, twice during June, and not at all during July. *R. catesbeiana* on the other hand was heard once during May, not at all during June, and twice in July.

Each call was recorded on a call index scale of 1-3 to help determine how many individuals were actually present. A call index of 1 indicated that individuals could be counted and there were no overlapping calls. A call index of 2 indicated that individuals could be distinguished from one another but there was some overlapping of calls. A call index of 3 indicated a full chorus where calls are constant, continuous, and overlapping.

Every call of *R. catesbeiana* was scored as a 1, while *B. americanus* was split between 1 and 2.

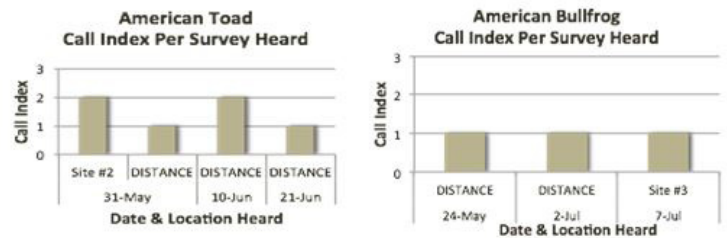
The most challenging aspect of this project was auditory distraction caused by the surrounding urban environment. This included vehicular traffic, rapids and dams throughout the river corridor, and the persistent hum of the industrial plant adjacent to Riverside Park. These noises were loud and prevalent both at and between every listening site. In fact, noise pollution caused

us to move the southernmost point about 100 meters north to a more suitable location.

American Bullfrog and American Toad tend to be more tolerant of pollution and degraded habitat than other frogs. Species like Spring Peeper, Western Chorus Frog and Eastern Gray Treefrog, often heard farther from downtown or farther upstream (i.e. at Schlitz Audubon Nature Center), have not been heard in the Riverside Park area.

It is our hope that as landscape changes continue to occur to the Milwaukee Rotary Centennial Arboretum and other stretches of the Milwaukee River that more species of frogs will re-colonize this area. Hopefully citizen-based monitoring projects such as this will document these changes.

A chart of call indices per species is shown below.



The photo at right shows a bullfrog spotted during one of the day-time turtle surveys. Bullfrogs are one of the most common species found in the frog surveys along the Milwaukee River.

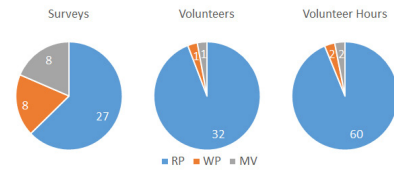




# INVERTEBRATES



Alyssa Wiener worked as a volunteer during the 2012 field season and officially as a Wildlife Technician during the 2013 Field Season. She has a B.S. in Conservation and Environmental Sciences from UW-Milwaukee.



## Project Overview and Protocol

Invertebrates (animals without backbones) are often good indicators of environmental health, which is especially important as the Center makes large-scale changes to the native plant communities at its branches. Because invertebrates are likely most directly impacted by management, the Center has long identified invertebrate monitoring as a priority, even though logistical issues make this one of the more difficult groups to study.

## 2013 Summary

The 2013 invertebrate monitoring project consisted of bi-weekly collection efforts throughout Riverside Park. There were a total of four volunteers that participated throughout the season. Collections were taken primarily from the woodland section of the park and focused mainly on soil dwellers (species found in decaying wood and leaf matter) and pollinating insects. The majority of the collection was comprised of insects such as mites, millipedes, centipedes, beetles, midges and arthropods with hard exoskeletons. The majority of specimens were preserved in jars with alcohol and labeled with the date and location from which they were found.

During the summer, we moved collection efforts into an oak savanna and riparian area. Specimens here were primarily comprised of pollinating and winged insects, with a somewhat softer exoskeleton. Several varieties of bees were present and may help identify the status of native vegetation in the area. Specimens here were primarily pinned, mounted, and labeled with the date and location from which they were found.

The entire collection was sent to the University of Whitewater lab where it is currently being identified and analyzed. The most challenging part about this project was learning the proper techniques for capturing multiple invertebrates without letting the individuals escape. The highlight was seeing the result of the effort in the final invertebrate collection before it was sent to the lab (above right). The invertebrate monitoring research project in Riverside Park will be an ongoing study with efforts to

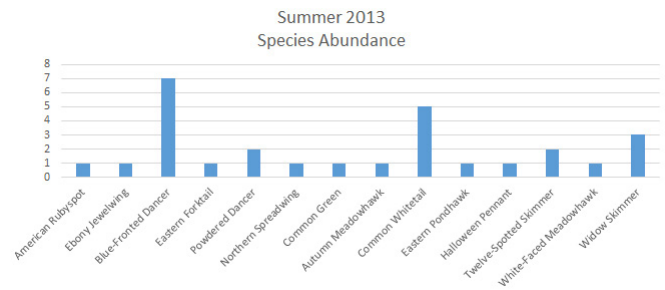
determine the impacts that environmental restoration has on wildlife populations.

## Odonates

In February of 2013, we met with Joanne Kline from the Wisconsin Dragonfly Society (WDS) to discuss piloting an odonate monitoring program at the Urban Ecology Center. The idea was met with a great deal of enthusiasm from both sides and a public odonate workshop was planned for June 2013. The workshop was led by the Urban Ecology Center, Joanne Kline and other WDS members. It was well attended (18 people) by the public and generated a great deal of enthusiasm. Building upon that enthusiasm, dragonfly surveys were scheduled for the rest of the summer and an odonate program was born!



Two dedicated high school interns (Ethan Bott and Humzah Abdullah) took charge and led weekly surveys in Riverside Park from early-July through early-September. Species were captured, identified, photographed and released in the field. 14 odonate species (below) were identified in the pilot year at Riverside Park and a volunteer database of over 20 people was created. Surveys were scheduled for the year 2014 and planned for all three branches.

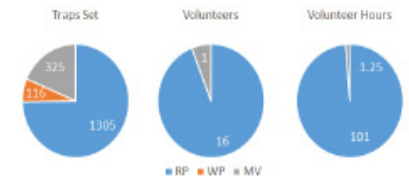




# MAMMALS



Jennifer Callaghan is the Research and Citizen Science Coordinator and has been working at the Center since October 2010. She has a B.S. in Conservation and Environmental Science from UW-Milwaukee.



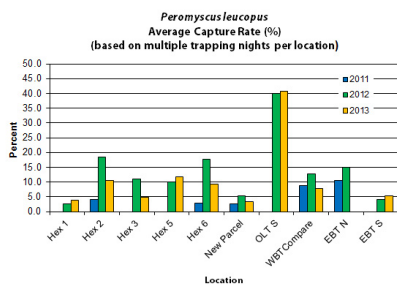
## Project Overview and Protocol

The Center’s mammal monitoring program was piloted in 2006 and uses a combination of visual surveys, live trapping and camera surveillance. Small mammals are an important prey base for larger avian and mammalian predators, are primary and secondary consumers of vegetation and invertebrates, and play a crucial role as seed dispersers, thus serving an important ecological role in natural communities (Stephens and Anderson, 2014). Visual surveys allow for documentation of mammals that are active in the day, while field cameras and Sherman folding traps help to document nocturnal and elusive species.

## 2013 Summary

**Small mammal Live Trapping :** Seventeen volunteers contributed over 100 volunteer hours on 33 live-trapping surveys, consisting of 1746 trapping nights (number of traps multiplied by the number of nights). Sherman Folding Traps documented three species: White-footed mouse, Meadow vole, and Eastern chipmunk.

During the course of the three-year EPA Great Lakes Restoration Initiative grant, capture rates for White-footed Mouse varied by location. Between 2012 and 2013, major landscaping work occurred in the Milwaukee Rotary Centennial Arboretum, as 6 acres of Oak Savanna were created (New Parcel) and this massive disturbance likely had an impact on the low capture rates in this area. Interestingly, the adjacent Oak Leaf Bike Trail yielded the highest capture rates as seen in the chart below.



Hex 2 and Hex 6 cover 3 different habitats, and experienced the second highest capture rates among the different sampling

locations.

Capture rates at Washington Park were also comparatively low (2% of traps). Seven White-footed mice (one recapture) and 1 Eastern Chipmunk were captured in three locations over 352 trapping nights. The Menomonee Valley experienced a comparatively higher capture rate (30%) over the course of 325 trapping nights. 96 White-footed Mice (29 recaptures) and 5 Meadow voles were captured in three different locations in Three Bridges Park.

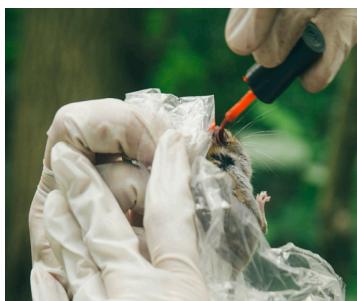
## Trap Exclosure Study

The Milwaukee urban river environment poses challenges for small mammal trapping due to a high degree of trap-tampering by humans and mesopredators such as raccoons, feral dogs and cats. For the past three years (2011-2013), we incorporated a protocol that allows us to investigate the effectiveness of covering traps with exclosures. We found that while capture rates was unaffected by trap exclosures based on a non-parametric Wilcoxon Signed-Rank test, tampering rates were significantly lower in traps with mesopredator exclosures for all three years. Significant p-values are shown in the table below.

	Tamper Rate (%) (M only)	Tamper Rate (%) (CNB +M)	Capture Rate (%)
All	<b>0.036</b>	<b>0.000</b>	0.120
2011	0.943	<b>0.012</b>	0.176
2012	0.610	<b>0.000</b>	0.244
2013	<b>0.001</b>	<b>0.000</b>	0.831

## Wildlife Cameras

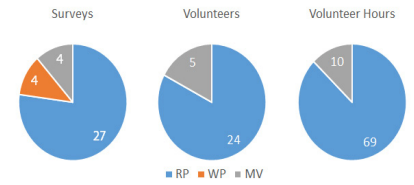
A UWM undergraduate student, Matt Moore, helped us manage the wildlife camera project. Wildlife camera sessions in 2013 added Eastern Gray Squirrel, Eastern Cottontail, Raccoon, Opossum, Striped Skunk and feral domestic dogs and cats to the species list after placing the cameras in fourteen locations throughout the Arboretum.



# SNAKES



Julia Robson is a Wildlife Technician and has worked at the Center since 2011. Julia has a B.S. in Biological Sciences and Conservation and Environmental Sciences. The 2013 field season is her last season at the Center. She is now the Assistant Natural Areas Coordinator at Milwaukee County.



## Project Overview and Protocol

The natural areas at Urban Ecology Center's three branches are home to three species of snakes, including the formerly State-threatened Butler's Gartersnake. Because very little is known about the Butler's Gartersnake, our research can help determine population size, demographics, and habitat preferences. This information will help inform future conservation plans. Our volunteers capture, measure, mark, and release snakes using plywood boards as a survey tool.

## 2013 Summary

During the 2013 snake monitoring field season a total of 13 cover object surveys were conducted starting May 7th and ending August 13th with the help of 24 volunteers. Each individual survey consisted of checking 31 cover objects and collecting mark-recapture data on garter snakes.

The number of cover objects surveyed decreased from approximately 75 in 2011-2012 to 31 in 2013 due to habitat restoration activities occurring within an area that had contained 48 of the 75 cover objects surveyed in previous years. This change likely impacted the capture probabilities of marked individuals within the study area; therefore the majority of the 2013 data is only reflective of individuals caught at the study area not undergoing major habitat restoration activities.

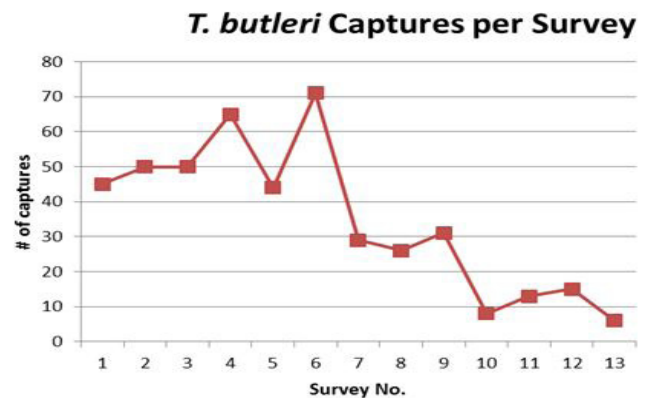
A total of three different species of snakes were found within the study area, *Thamnophis butleri*, *Thamnophis sirtalis*, and *Storeria dekayi dekayi*. For all three species mass, sex, gravidity, snout-to-vent length, scars, and half-ventrals were recorded. Only *T. butleri* and *T. sirtalis* were marked with individual codes. After 13 surveys, a total of 245 first-capture *T. butleri* had been recorded. There were 30 recaptures of *T. butleri* that were initially marked from 2011-2012. The total number of individuals captured during the 2013 season was 275. Roughly 50% of the individuals captured were female with an average SVL of 307mm. The average SVL for males was 275mm.

During the 2013 field season we were unsuccessful in tracking and/or relocating diode implanted snakes from 2012. One snake was relocated and identified in May near the cover object grid using the RECCO tracking unit, however, this individual was not relocated after the initial capture. Survey efforts were consistent with efforts in 2012 so the probability of relocation based on sampling effort should have been the same. Potential factors may include, but are not limited to, effects of last year's severe drought, mortality during the overwintering period, and that the age of the snakes implanted was unknown and many could have been older females based on their SVL.

This year the prolonged cold, wet spring made for somewhat difficult survey conditions and slightly lower capture numbers during the first set of surveys. Cover objects were consistently tampered with towards the season, decreasing capture rates during the last 3-4 surveys.

Highlights from the season included the recaptures of individuals from 2011-2012 and the wonderful volunteers who dedicated their time to working on this project.

The chart below displays the number of *T. butleri* captures per survey. After young snakes are born, the mothers tend not to use the coverboards as much which explains the drop off in captures later in the season (week 7 and after below).





# TURTLES

## Project Overview and Protocol

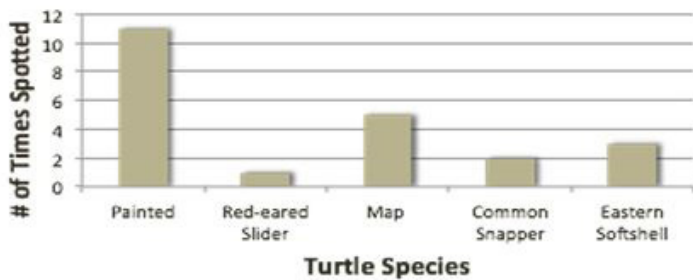
The Center's turtle monitoring project began in 2008, using a protocol developed with the help of the WDNR's Citizen-based Monitoring Program. We combined baited hoop net live-trapping surveys for 5 consecutive days with visual basking surveys at points along the Milwaukee River.

## 2013 Summary

### Basking Surveys

Three volunteers supported Center staff to perform 15 basking surveys. Five species were recorded: Painted Turtle (*Chrysemys picta*), Red-eared Slider (*Trachemys scripta elegans*), Common Map Turtle (*Graptemys geographica*), Snapping Turtle (*Chelydra serpentina*), and Spiny Softshell Turtle (*Apalone spinifera*).

The most challenging aspect of this project was the physical difficulty of walking the riverbank terrain to get a good vantage point, particularly in the spring months when temperatures began to rise and riverbank vegetation started its thick, rapid growth. For this reason it was often necessary to conduct basking surveys by canoe. The graph below shows the number of times each species was spotted throughout the season.

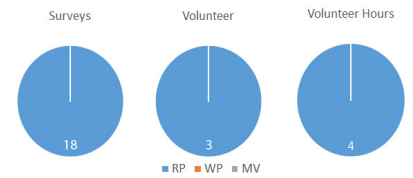


### Hoop Net Surveys

For the 2013 turtle trapping research project, three, week-long surveys were conducted with the help of three volunteers. The last day of the third week yielded one juvenile male *C. picta* and one adult female *C. scripta elegans* in the same net. The *C. picta*



Alyssa Wiener worked as a volunteer during the 2012 field season and officially as a Wildlife Technician during the 2013 Field Season. She has a B.S. in Conservation and Environmental Sciences from UW-Milwaukee.



was 6.5 inches in maximum carapace length and 5.5 inches in maximum carapace width. The *C. scripta elegans* was 8.5 inches in length and 6.5 inches in width. Neither individual was a recapture.

The most challenging aspect of this monitoring project was the unfavorable weather conditions. Spring months were particularly cold and rainy which caused river water levels to become exceptionally high. This made it difficult to find appropriate locations in which to set the traps and dangerous to set them.

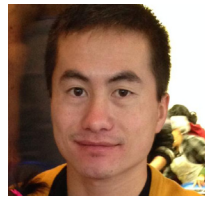
The extreme weather likely impacted the surveys, both through changes in turtle behavior and logistical difficulties.

At right, Alyssa holds a large red-eared slider turtle captured in the one of the hoop net sessions. Red-eared sliders are not native to Wisconsin. If found in the wild, they are often cast-off house pets. Non-native turtles compete with native species for food, space and nesting areas. This species is also aggressive, displacing other non-native turtles.

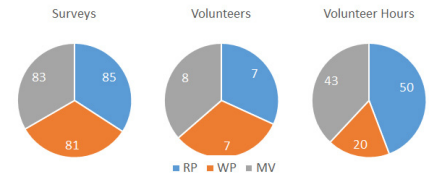


At left, Alyssa sets up a hoop net in the Milwaukee River as a part of the Center's turtle live trapping protocol. Hoop nets are baited with either catfood or sardines to entice the turtles into the net.

# PARK USE



Yue Pheng Lee is the Park Use Survey Assistant and is pursuing a B.S. in Conservation & Environmental Sciences from UW-Milwaukee.



## Project Overview and Protocol

The Urban Ecology Center collects data to help us understand the impact of our work to make parks safe, accessible and ecologically vibrant for people living near the parks. The objective is to track seasonal changes in park use as well as year-to-year trends. This information will benefit the Center by giving an accurate estimate of the number of children and adults that use the Center's green spaces and what types of activities they engage in.

Trained volunteer field data collectors record park use observations at four locations in each of the parks that the Urban Ecology Center manages. 21 dates per season are selected using a random number generator so that every day of the week at three time periods are covered once during the season. This results in 63 prescheduled surveys per season. The data are collected while walking and while standing at 4 pre-determined assessment locations for 10 minutes each. The other 20 minutes of the hour long survey are used for travel time to and from the assessment locations.

## 2013 Summary

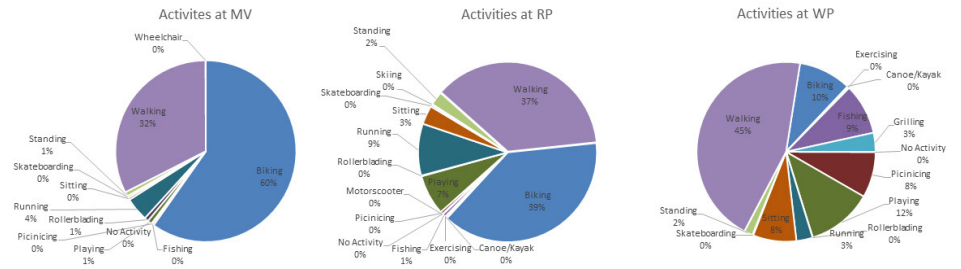
The first year of park use survey data were analyzed from Spring 2013 through Winter 2013-2014. Out of a total 252 surveys scheduled during the year, 249 surveys were conducted (RP =85 surveys; MV = 83 surveys; WP = 81 surveys).

## Park Use Attendance Estimates

We estimate that over 100,000 people visited our parks during the time period from March 21st, 2013 through March 20th, 2014. These estimates are based on 249 surveys out of a possible 3258 survey periods for the entire year and all three branches. Breakdowns by branch and adults and kids are shown below.

## Park Use Activities

Trends in park use at each park are emerging. While MV and RP have a high degree of bikers, WP does not, likely because it is not situated along a county or state bike trail. Washington Park generally has more people engaging in different types of activities, including picnicking, grilling, exercising, playing and fishing.



## Regression Analysis

Results from a multiple linear regression indicate 5 out of 10 significant variables for explaining attendance at the Center's parks. Adjusted R-square value for this model is 0.471, meaning the model explains about 47% of the variation in the dataset (p-value = 0.000). Significant variables in order of importance are the following: 1) Temperature (<=50 F); 2) Time of Day (Evening); 3) Day of Week (Weekend Day); 4) Temperature (51-69 F); and, 5) Branch (Menomonee Valley).

Year 1	All	Adults	Kids
All Branches (249)	104,060	73,769	30,290
Menomonee Valley (83)	26,954	22,348	4,606
Riverside Park (85)	40,476	30,676	9,800
Washington Park (81)	36,535	20,500	16,035

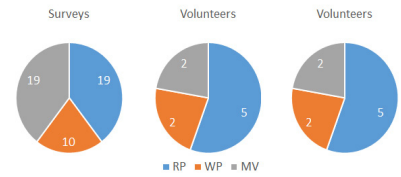




# WATER QUALITY



Calan Hess was an Alverno Intern before she was hired as the Center's IT Specialist. She has a B.S. in Biology with a minor in Computer Science from Alverno College.



## Project Overview and Protocol

The Urban Ecology Center is making a strategic effort to collect water quality data on a regular basis, measuring dissolved oxygen, pH, temperature, turbidity, and bacterial levels. We currently use the Water Action Volunteer (WAV) protocols.

### 2013 Summary

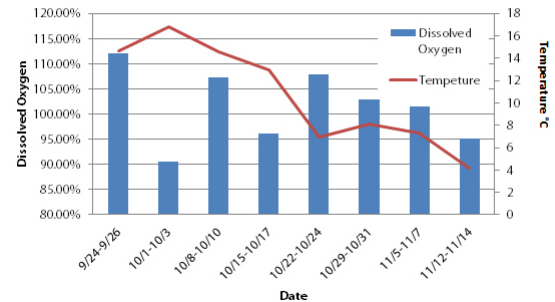
During the Fall of 2013, a water quality monitoring program was initiated, in which data were collected every Tuesday and Thursday for the Milwaukee and Menomonee rivers and every Tuesday for the Washington Park Lagoon over a 12-week period.

Project objectives included:

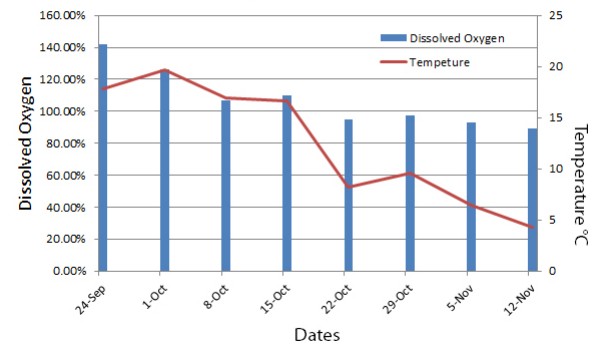
- Utilize meters to record pH, Temperature and Dissolved Oxygen
- Map crucial points of interest for collecting data
- Work with volunteers

Results are shown in the charts below by branch. In general, dissolved oxygen increases in colder waters, which is a trend upheld in the Milwaukee and Menomonee Rivers, as well as Washington Park.

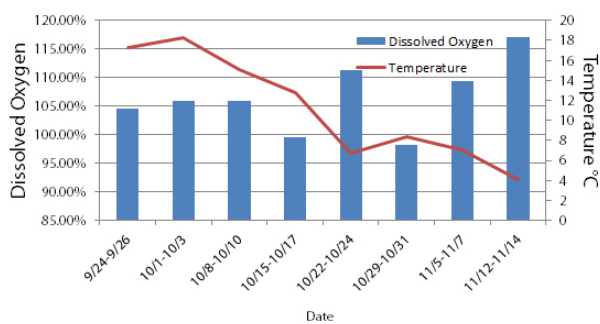
**Average Dissolved Oxygen and Temperature in the Menomonee River near the UEC**



**Average Dissolved Oxygen and Temperature in the Washington Park Lagoon**



**Average Dissolved Oxygen and Temperature in the Milwaukee River**



In the future, Calan suggests measuring air temperature and including nitrogen/ ammonia and bacterial testing.



# YOUNG SCIENTISTS



Lesley Sheridan is the Community Program Coordinator at Riverside Park. She has a B.S. in Agriculture and a B.A. in Biology from Truman State University and a MS in Environmental Education from UW-Stevens Point. Lesley works with Young Scientists at RP.



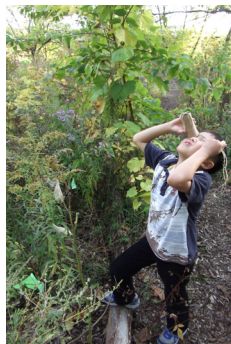
Erick Anderson is the Community Program Coordinator at Washington Park. He has a B.S. in Chemistry and Secondary Education from Carroll University. Erick works with a dedicated group of Young Scientists at WP.

For the last two years, some of our Young Scientists have been involved in the University of Minnesota's Driven to Discover Program. Driven to Discover (D2D) is an inquiry-based education program that uses original research projects to facilitate learning in late elementary to middle school aged children. Research projects culminate in a trip to Minnesota for the Insect Fair in December, where youth participate in fun and educational sessions, and also present the research project they worked on during the summer.

## *Riverside Park by Lesley Sheridan*

In 2013 we had a group of 4 children under the age of 10 that met for our Driven to Discover Program.

The program ran for about 12 weeks, from July through September. During the program, kids learned about science inquiry, citizen science, and Monarch butterflies in particular. The title of their research project was "Milkweed Sunlight Preference in Riverside Park, Milwaukee, WI".



The group hypothesized that milkweed plants grew more often in open sunlight than in shade. They conducted field work in the savanna and prairie in Riverside Park and quantified the amount of

sunlight each milkweed plant received using a "shadometer". The shadometer is a toilet paper tube divided into a quadrant grid on one end. A higher shadometer reading indicates a shadier location. The Young Scientists found that their data supported their original hypothesis.

## *Washington Park by Erick Anderson*

In 2013, two groups of middle school aged Young Scientists devised original research projects in Washington Park, focusing on bird behavior and habitats. After a successful pilot year in



2012, some of the older Young Scientists decided to lead projects of their own with the help of younger scientists.

One group compared bird species presence between Riverside Park and Washington Park, hypothesizing about availability of habitats. Their project was titled "Comparison of bird species on land and water at Washington Park versus Riverside Park, Milwaukee, WI". They devised four alternative hypotheses. Their null hypotheses was that there was no difference between habitats or parks. For three weeks, the Young Scientists walked a set route at both branches, observing birds in the water and on land. Their results indicated that Washington Park had more birds in the water and on land than Riverside park. In general, there were more birds observed at Washington Park. These results supported two of their original alternative hypotheses.



The other group investigated bird behavior, in a project entitled



"The movement and behavior of birds in Washington Park, Milwaukee, WI". This group created four alternative hypotheses that birds would spend different amounts of time in four different environments: trees and poles, sky, ground, or on the lagoon. For six

weeks, group members split into two groups and recorded the birds they encountered along a set route for 30 minutes. Results indicate that birds spend more time on the ground at Washington Park. This may be impacted by the large population of resident Canada goose.

The success of D2D at both Urban Ecology Center branches has been recognized by UMN program coordinators. In 2014, Menomonee Valley will be included in the program.





# OTHER RESEARCH



Each academic year, the Research & Citizen Science Team mentors Research Interns, generally college and university students--sometimes high school students--who conduct original research for credit. Student majors range from Geography & GIS to Biology to Conservation & Environmental Sciences to Anthropology. We also have volunteers who are interested in conducting research projects through the Center. We ask all of our research interns to present their work at the December Research & Citizen Science Intern Presentations event and to make their work accessible to community volunteers. Below is a list of research projects conducted by interns in 2013.

*Phenological Change overtime in Migrating Birds* by Emily Bernstein (Volunteer)

*Small Mammal Population Survey at Riverside Park* by Jessica Fouliard (UW-Milwaukee)

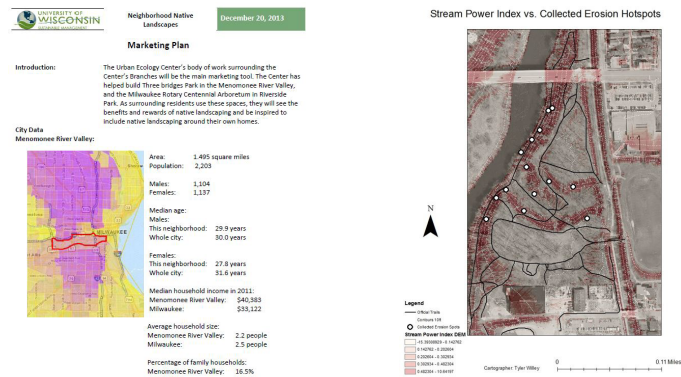
*Erosion Hot Spots & Unofficial Trails* by Tyler Wiley (UW-Milwaukee)

*Odonate Surveying* by Humzah Abdullah & Ethan Bott (High school Outdoor Leader)

*Wildlife Camera Surveys* by Matt Moore (UW-Milwaukee)

*Mothing Research* by Allysya Hallett (UW-Milwaukee Graduate Student & Volunteer)

*Neighborhood Native Landscapes* by Jacob Schoenung (UW-Parkside)



**KEY**

- UEC Branch Locations
- Water Quality Sampling Locations



# NOTES FROM THE FIELD

## Quotable

### Please describe why you continue to volunteer your time on our citizen science monitoring projects.

I seek and appreciate the knowledge and skill that I gain from the experience. I also enjoy the community of volunteers

I have become addicted to bird watching, and I truly enjoy the people who work and volunteer at the UEC.

I enjoy the association with the other volunteers and the science aspects of the duties.

Learning opportunities, fellowship, commitment to the goals of UEC. Love of nature & Milwaukee.

### Describe your experience volunteering for a wildlife monitoring project at the Center?

Very satisfying. Well Run. Nicely organized. Multiple opportunities (mammals, bats, moths, etc) to suit your interest and/or time.

I am helping with the monitoring as well as learning something that is fun.

Well organized, efficient, and fun, especially if multiple people are working together. Rewarding to find out the overarching results of the study.

It was such a joy for me when Jennifer placed the little chickadee into my hand to hold until its release. I've learned a lot about the bird banding process, and how important it is to monitor birds' movements. The bird banders are very knowledgeable, and have a fun way of sharing the information.

Priscilla Lietz

"It has been a rewarding experience to participate in the Urban Ecology Center's bird banding project. The banding provides important information on the bird species using these habitats during migration and offers opportunities to train citizen scientists in research techniques. Students visiting the site see firsthand how research is done and then have the unique, exciting opportunity to see a migratory bird being banded and learn about the wonders of bird migration."

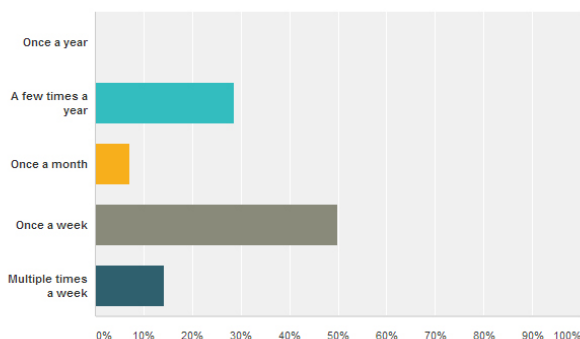
Vicki Piaskowski  
Ornithologist

Working with a diverse group of citizen scientists is a real joy. Everyone brings their own perspectives and strengths. Everyone is there because they are enthusiastic about the project. I also get to work outside my specialty and learn along with other community members.

Becky Burton, Professor, Alverno College

### How often do you volunteer on citizen science projects?

Answered: 14 Skipped: 0







## Advisory Council

### **Alverno College**

Rebecca Burton

### **Carroll University**

Susan Lewis

### **Great Lakes Ecological Services LLC**

Gary Casper

### **UWM-Milwaukee**

Else Ankel, Emeritus

Peter Dunn

Tim Ehlinger

Glen Fredlund

Sandra McLellan

Gretchen Meyer

Mai Phillips

Linda Whittingham

### **Marquette University**

Jill Birren

### **Milwaukee County Zoo**

Craig Berg

### **Milwaukee Institute of Art and Design**

Maria Terres

### **Mount Mary College**

Maureen Leonard

### **Wisconsin DNR**

Owen Boyle

Will Wawrzyn

### **Wisconsin Lutheran College**

Robert Anderson

The Research and Citizen Science Team is advised by three very important groups, including the Advisory Council, the Volunteer Steering Committee, and the Institutional Animal Care and Use Committee (IACUC). The Advisory Council helps direct monitoring and research projects while the Steering Committee helps us coordinate and shape citizen science volunteer opportunities. The IACUC is an entity that oversees and evaluates all aspects of the Center's animal care and use (monitoring and research). The committee must have at least one veterinarian, a scientist, and a community member.

## Volunteer Steering Committee

Kelsey Cartwright

Dennis Casper

Alicia Hanson

Konnie Her

Judi Kistler

Dennis Mack

Marty Pfeiffer

Robin Squier

Maria Terres

## Institutional Animal Care and Use Committee

Craig Berg

Rebecca Burton, PhD

Gary Casper, PhD

Robin Squier

Maggie Tarasewicz

Nicole Mueller, DVM



# Our Amazing Volunteers

Thank you to our supportive, collaborative, hard-working, enthusiastic volunteers. Without your help we would not be able to conduct the multitude of research and citizen science projects each field season and year. We've especially enjoyed working with many of you one-on-one for projects beyond data collection, including map making, data entry, and analysis. Over 250 volunteers helped during throughout 2013. We hope you value your contributions as much as we do. Many of you also donate much needed funds to the program via fundraisers and other equipment donations. We thank you! Please contact us if you would like to engage deeper into the research and citizen science process or have suggestions for the future.

With gratitude,  
Tim, Jennifer and Anne

Adam Spoerri	Carolyn Vargo	Gordon Zion	Kaitlyn Anne	Meghan Davies	Seth Favour
Adam Yellen	Carolyn	Grant Gill	O'Keefe	Meghan O'Brien	Shane Rose
Al Sherkow	Washbourne	Halley Pucker	Kalli Bergevain	Melinda Vernon	Shawn Kiebzak
Alex Gould	Carson Cartwright	Henry Vargo	Karen Bergevain	Mercedes Falk	Sheyenne
Alexa Hollywood	Cassie Sponholz	Holly Poland	Karen Haley	Mike Sadowski	Gonzales
Alicia Schultz	Celina Burbach	Ian Abrams	Karen Johnson	Mitch Ost	Simon Dellemann
Allison Dolnik	Charlie Stull	Jaclyn Sanchez	Kathy Beaver	Monica Bennett	Simon
Allix Baxter	Charlotte	Jacob Were	Kathy Gallick	Nate Sponholz	Engelbrecht
Allysa Hallett	Catalano	Jacqueline Beck	Katie Kassander	Ndeye Drame	Sonny Ost
Alyssa Gambucci	Chris Saunders	Jane Peterson	Katie Rakowski	Neil Houtler	Souleyman Drame
Amanda Houle	Christine	Jane Somers	Kelsey Cartwright	Nikki Her	Stacy Grefkes
Amber Eisan	Wilkinson	Janine Putzer	Kelsey Palm	Ona Alminas	Steve Marshall
Ambi Henschen	Chrysta Beyer	Jean Casper	Kerstin Mandel	Owen Boyle	Sue Blaustein
Amee Lapke	Chuck Hays	Jeanette Alred	Kevin Sponholz	Pat Geiger	Sue Haug
Amy Kistler	Cindy Eagon	Jeanne Neevel	Kim Luedke	Pat Mueller	Suki Yoon
Andrew Haug	Cindy Rosin	Jeanne Prochnow	Kirsten Maier	Patty Ahrens	Susanne Montiero
Andrew Kashou	Claire Kennedy	Jeff Orgon	Konnie Her	Paul Klotz	Suzy Holstein
Andrew Maule	Clay Bergevain	Jeffrey Gardner	Krista Zurawski	Paul Sloth	Tiago Slomgo
Angie Kopf	Crystal Sharlow-	Jen Norris	Lara Ghisleni	Peg Noonan	Tirzah Jibson
Ann Maciver	Schaefer	Jennifer Ambrose	Laura Meine	Peter Boyland	Tom Eagon
Anna Scott	Dale Snider	Jeremy Ault	Laura Vargo	Peter Reichmann	Tom Nelson
Anne Bales	Dan Buckler	Jessica Fouliard	Lenore Lee	Philip Creighton	Travis Nissen
Anne Larsen	Dan Tutino	Jessie Tobin	Lily Morby	Priscilla Lietz	Trevor Lang
Anne Lowrey	Daniel Kaiser	Jill Peiffer	Liz Nelson	Rachel Beem	Tyler Ehlers
Annika Roberts	Dave Herrewig	Jim Toth	Lucas Benson	Rachel Topf	Tyler Harris
Anthony Mason	David Meinecke	Jo Ann Bachar	Mackenzie Norton	Randy Eide	Vicki Paskowski
Aryel Beck	David Snell	Joann Early	Madeline Burke	Reese Cluck	Victor Vargo
Barb Todd	Debbie Hartmann	Macken	Marcus Wendricks	Schneider	Virginia Brennan
Barbara Eisenberg	Demetra Toniolo	Joanna Boyland	Maria Terres	Richard Cayo	Vivian Corres
Barbara	Dennis Casper	Joanne Turk	Marissa Lundin	Richard Toth	Walter Sams
Kellermann	Dennis Mack	Joanne Turk	Marty Pfeifer	Robert Ardowskie	Wei Zhong
Becky Bell	Devon Cupery	John McCaw	Mary Jo	Robert Schneider	Maggie Zhong
Ben Cockwood	Dirk Janssen	John Mendenhall	McDonald	Robin Squier	Zola Sloth
Ben Hammelman	Dolores	John Reddig	Mary Kremer	Ron Adams	
Beth Huwiler	Knopfelmacher	John Swanson	Mary Lou Lanorka	Ron Gutschow	
Beth Kaplan	Donelle Scaffidi	John Wiedenhoeft	Mary Schley	Russell Mason	
Beth Poulter	Doug Wiese	Jon Bales	Mary Stetson	Sam Lehnert	
Bill Mueller	Elaine Vokoun	Joseph Jibson	Maryanne Niesen	Samuel Schultz	
Bill Rumpf	Eleanor	Josh Morby	Mateo Sanchez	Sandra Van	
Bob Stetson	Edmondson	Josh Nelson	Mateus Slomgo	Koningsveld	
Bonnie Enlo	Elizabeth Drame	Joshua	Matt Ebel	Sarah Aumann	
Brady Wolchansky	Elizabeth Penn	Zimmerman	Matt Peters	Sarah Braker	
Brian Dudley	Emily Bernstein	Josie Roberts	Matthew Kettner	Sarah Fischer	
Brielle Poland	Eric Beaumont	Joyce Boyland	Matti Poland	Scott Hitler	
Brook Domenec	Eric Simon	Joyce Poland	Max Jitney	Scott Mason	
Bryn Webber	Erick Brock	Juanita Malloy	Maxime Peeters	Scott Schaefer	
Carlos Chavarria	Erika Noble	Judi Kistler	McNeal Stepien	Sean Kelly	
Carol Hayes	Eva Rumpf	Judy Squire	Megan Henson	Seth DeLeon	



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[www.urbanecologycenter.org/annualreport](http://www.urbanecologycenter.org/annualreport)



### Riverside Park

1500 E. Park Place  
Milwaukee, WI 53211  
P (414) 964-8505  
F (414) 964-1084  
[jferschinger@urbanecologycenter.org](mailto:jferschinger@urbanecologycenter.org)

Hours:

**Mon - Thurs** | 9am - 7pm  
**Fri & Sat** | 9am - 5pm  
**Sun** | Noon - 5pm

### Washington Park

1859 N. 40th Street  
Milwaukee, WI 53208  
P (414) 344-5460  
F (414) 344-5462  
[wkaridis@urbanecologycenter.org](mailto:wkaridis@urbanecologycenter.org)

Hours:

**Tues - Fri** | 12 - 6pm  
**Sat** | 9am - 5pm

### Menomonee Valley

3700 W. Pierce Street  
Milwaukee, WI 53215  
P (414) 431-2040  
F (414) 308-1858  
[gholstein@urbanecologycenter.org](mailto:gholstein@urbanecologycenter.org)

Hours:

**Tues - Fri** | Noon - 7 pm  
**Sat** | 9 am - 5 pm

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Community Shares of Greater Milwaukee

