



Message from the Research Team

Dear Friends,

We are thrilled to share with you the **2012 Research and Citizen Science Annual Review**. The Urban Ecology Center's Research and Citizen Science volunteers and staff have been busy monitoring bats, birds, frogs, invertebrates, mammals, snakes, and turtles at each of the three branches. The team continually strives to provide quality research experiences for volunteers of all ages whether they have a scientific background or simply an interest in doing science.

2011-2012 Highlights:

- Washington Park Young Scientists worked with Center staff and volunteers to carry out original research on avian habitat use of Washington Park as part of the University of Minnesota's Driven to Discover project. They presented their research at multiple conferences in Wisconsin and Minnesota (Page 23).

-In August 2012, Center staff and interns presented at the first large-scale Citizen Science conference in Portland, Oregon. Center staff continue to serve on advisory groups for a new association in Public Participation in Scientific Research and are planning the next big conference in 2014.

- The Citizen Science Volunteer Advisory Council was formed providing leadership opportunities for

volunteers to help steer the future course of the program (Pg 21).

-Advanced High School Outdoor Leaders Humzah Abdullah and Ethan Bott continued their leadership roles by coordinating training invertebrate monitoring opportunities. Both have attended Camp Snowball, a national conference on Systems Thinking, and work to integrate what they have learned into Center programming.

-In May 2012, the Second Annual Green Birding Challenge fundraiser involved a record number of participants and raised over \$3000 in support of Research and Citizen Science programming.

None of this would be possible without the continuing support of hundreds of dedicated Citizen Science Volunteers and student interns. Additionally, much of the work described in this review was made possible due to a Great Lakes Restoration Initiative (GLRI) grant from the Environmental Protection Agency (EPA).

Thank you! We hope you enjoy this glimpse into 2012 field season and we hope you will join us in 2013 and beyond!

Best,
Tim, Jenn, and Anne

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*Research
&
Citizen Science*

*Mission
Statement*

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.





**Outdoor Leader &
Young Scientist Mentoring**

Research Internships

Educator Training

Bat Acoustic Monitoring

**Snake Diode Tracking &
Coverboard Surveys**

Wildlife & Vegetation Mapping

Mammal Monitoring

Green Birding Challenge

Frog & Turtle Monitoring

**Bird Banding &
Weekly Bird Walks**

Invertebrate Monitoring

*What We
Do*

Programs



RESEARCH QUESTIONS

Volunteers often ask, “What are the research questions that we are trying to figure out?” To effectively answer this question, it’s important to distinguish between research and monitoring. **Monitoring** involves observing temporal changes in species abundance and distribution. Because of the complexities of ecological system, monitoring becomes most effective over long periods of time (a decade or longer). **Research** involves looking for ecological patterns and creating hypotheses and protocols to test those hypotheses. One of the major benefits of the Urban Ecology Center’s network of field stations is that it allows for long-term monitoring of many different types of organisms, which can then be used as a framework for research questions. Below is a sampling of some of the research questions that have come out of long-term monitoring projects. The Center’s goal is to increase the number of questions that come from community volunteers.

OVERALL QUESTIONS

How do animal and plant communities relate to each other? To what extent can wildlife monitoring inform our land stewardship practices?

BATS

Is bat activity influenced by the structure of the plant communities (open vs. forested land)?

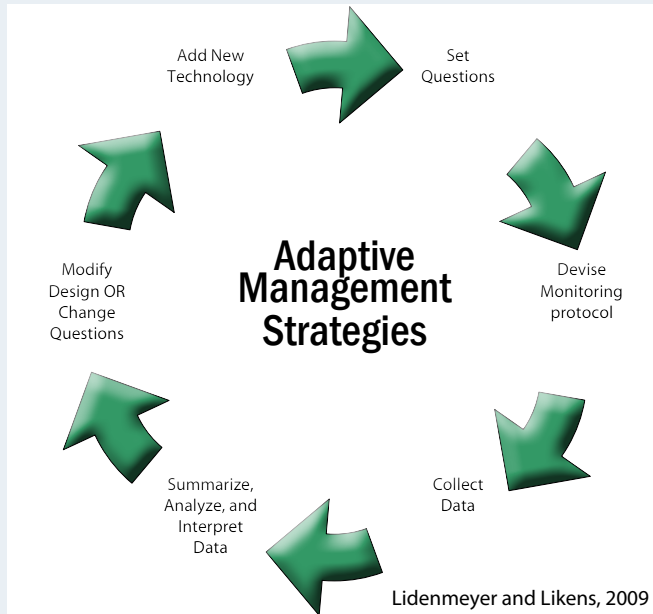
SNAKES

Are capture rates affected by time of day or substrate (wood vs. cloth boards)? Where are the winter hibernacula for the state threatened Butler’s gartersnake? What are the movement patterns, home range sites, and site fidelity of Butler’s gartersnakes in Riverside Park?

SMALL MAMMALS

Do enclosures reduce the tampering of traps by humans, dogs and raccoons in urban parks?

ADAPTIVE MANAGEMENT



Most restoration projects take place in large tracts of rural land, often influenced by agricultural practices. The Urban Ecology Center stewards its green spaces in a unique matrix of residential, commercial and industrial land uses. The Center is developing and constantly refining long-term management strategies based on a mix of educational goals and historical plant distributions.

It is influenced heavily by factors such as climate change, invasive exotic species and development pressure and balances immediate actions (i.e., annual prescribed burning) with a plan for the future (i.e. encouraging biodiversity through spatial and temporal rotational prescribed burning).

As we employ techniques to restore native plant communities, we assess their effectiveness through monitoring. This is called adaptive management, in which our goals are informed and refined by the monitoring data. Essentially, management outcomes influence future management strategies (Westgate et al. 2013).





By Anne Reis, GIS Specialist

Project Overview and Protocol

In 2012, the Center lost two dear friends but continue to reap the benefits from their strong support over the years. Dave Redell, a bat biologist with the WDNR and his colleagues were instrumental in creating a strong program in bat research and monitoring that creates rich opportunities for Center staff, volunteers and interns. Verne Read, the late cofounder of Bat Conservation International, donated 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). The Center's bat monitoring protocols follow the Wisconsin Department of Natural Resources protocol and the Center provides the survey data to the WDNR bat program for analysis.

2012 Summary

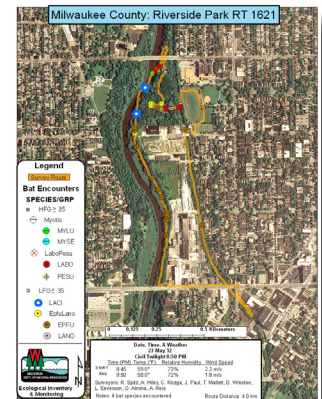
We conducted over 20 mobile acoustic bat surveys with the help of 64 volunteers (104 total volunteer hours) at the Center's three branches plus 5 additional Milwaukee County Parks, as part of the Center's involvement with the Milwaukee BIOME Project (Biodiversity, Monitoring and



Education). Of the seven species of bats found in Wisconsin, three were found at all three branches in 2012 (Big Brown, Eastern Red [at left], and Hoary) and an additional species (Little Brown) was found only at Riverside Park. With the addition of the BIOME sites, we added another species, the Silver-haired bat.

	Average Activity (passes/min)	Average Number of Species
Riverside Park	0.60	2.7
Menomonee Valley	0.22	1.7
Washington Park	0.59	1.3

Mobile bat survey data provide a measure of bat activity in number of passes per minute. The above table shows the results of three surveys (spring, summer and fall) at each branch. This year's data contributes to a longer-term data set that will allow the Center's data management volunteers to look for long-term trends. At right is an example of result map of a Riverside Park bat survey. The Anabat records the exact route walked and the individual bat calls along the route. Four species were found in this May 23rd survey, including Big Brown, Eastern Red, Hoary and Little Brown.





By Jennifer Callaghan, Research Assistant

Project Overview and Protocol

The Urban Ecology Center's field sites are important stopover habitats for migrating birds. Center volunteers have been studying the 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 we have banded since the project began in 2001.

Red-headed woodpecker



Bird banding line up

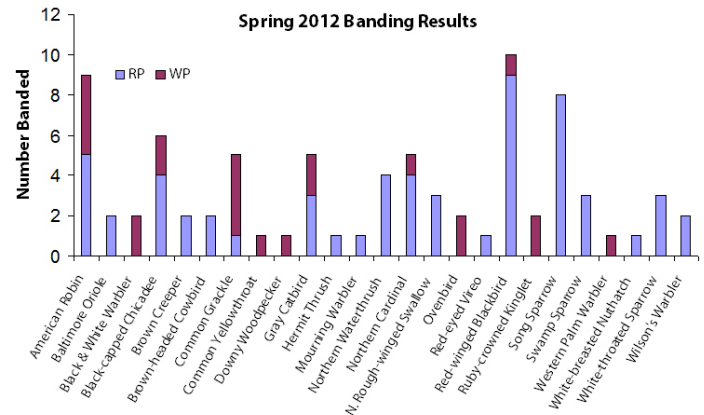


2012 Summary

The bird banding team conducted eight banding sessions at Riverside Park (RP), three banding sessions at Washington Park (WP), and two banding sessions in the Menomonee Valley (MV). Over 50 volunteers helped in these 13 sessions. The spring banding session ran April through May while the fall banding

session ran September through October. The banding effort included 327 net hours at RP, 58 net hours at WP, and 15 net hours at MV. The team banded a total of 280 birds representing 42 species. Washington Park banded 65 birds (22 species), Riverside Park banded 158 birds (31 species), and Menomonee Valley banded 57 birds (nine species). Nineteen of the birds were recaptures (17 from Riverside Park and two from Menomonee Valley). The graph below shows the most common species banded during the 2012 Spring season.

A highlight for the year came when we recaptured a White-breasted Nuthatch (WBNU) that was originally banded in Riverside Park in May 2005. When first captured seven years ago, this male bird was aged as an After Hatch Year (at least two years old), meaning that this bird was at least nine years old. It is amazing considering the average lifespan of this species is 2 years, and the longest-lived WBNU on record is 11 years!



2012

BIRD WALKS



By Tim Vargo,
Manager of Research and Citizen Science

Project Overview and Protocol

Since 2000, a group of dedicated volunteers have conducted weekly bird surveys (every Thursday) at Riverside Park, making this the longest-running

Citizen Science project at the Center. The Center added weekly surveys at Washington Park in 2006 and the Menomonee Valley in 2012, for a database that totals over 1,000 surveys and adds over 150 per year! All data are entered into the eBird website, and are accessible to anyone around the world.

2012 Summary

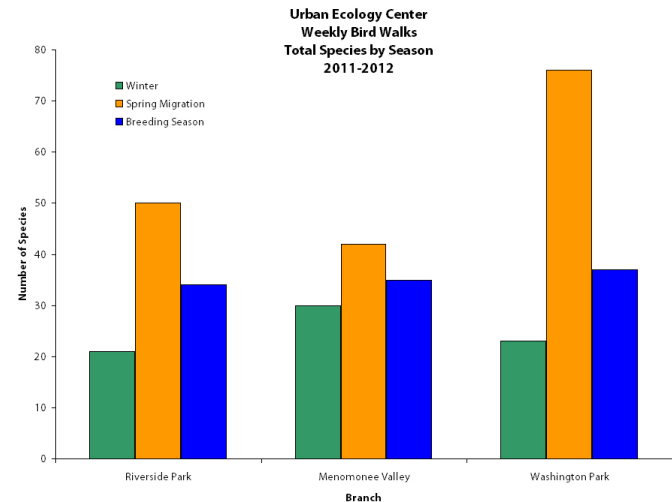
This is the first year the Center ran weekly bird walks at all three branches. Preliminary data show that we observed 125 species of birds, including 11 species of waterfowl, eight raptors, six flycatchers, 22 warblers and 10 sparrows.



Highlights included northern finches such as Common Redpoll in the new Menomonee Valley Park, and Pine Siskin at Riverside Park in the fall. An osprey was spotted fishing at the Washington Park lagoon and Peregrine Falcons were making their rounds at all three sites. A Ruby-throated Hummingbird nested in the same

location at Riverside Park for the 4th year in a row. We never get tired of seeing Black-billed Cuckoos, Connecticut Warblers and Olive-sided Flycatchers, but perhaps the biggest find of 2012 was a Northern Goshawk that lingered in the Menomonee Valley for a few days.

The chart below shows the number of species found during winter (Dec-Feb), spring migration (Mar-May), and summer breeding (Jun-Jul) seasons. Volunteers found the greatest number of species during spring migration at Washington Park, while species richness is fairly consistent across the parks for the 2012 summer breeding season.





By Katie Matulis, Wildlife Technician

Project Overview and Protocol

Frogs and other amphibians are important to the ecosystem and can be an indicator of its health, as they are sensitive to pollutants. The Center has been conducting frog monitoring for over a decade (visual and call index surveys), contributing to a larger WDNR database. In 2011, the Center additionally began monitoring for frogs (visual and auditory) along the Milwaukee River as a part of the GLRI grant for the Milwaukee Rotary Centennial Arboretum

The Center's turtle monitoring project began in 2008, using a protocol that combines hoop net and visual surveys.

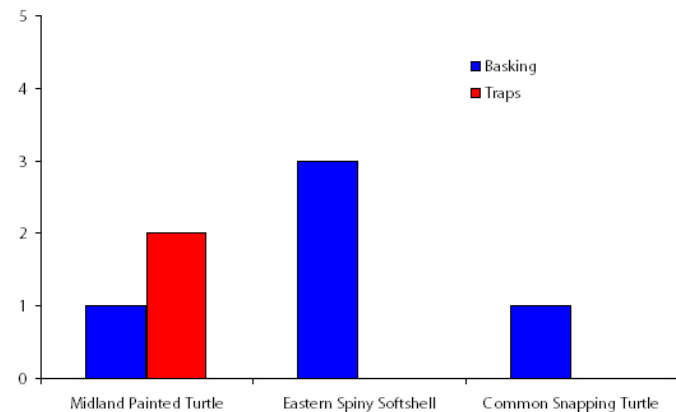
An example of a hoop net is shown at right. Turtle hoop net surveys run for 5 consecutive days using baited traps. We also conduct turtle basking surveys (visual) at points along the Milwaukee River.



2012 Summary

In 2012, a team of eight volunteers and interns conducted 40 turtle surveys, which turned up three species: *Chrysemys picta* (Midland Painted Turtle), *Chelydra serpentina* (Common Snapping Turtle), and *Apalone spinifera* (Spiny Softshell Turtle). All four turtles that were found in traps were juvenile *C. picta* – none of them recaptures from previous years. All of the frogs recorded on the auditory surveys were *Rana catesbeiana* (American Bullfrog). In 2013, we plan to increase the monitoring effort through additional basking and trapping surveys.

2012 Turtle Monitoring Summary





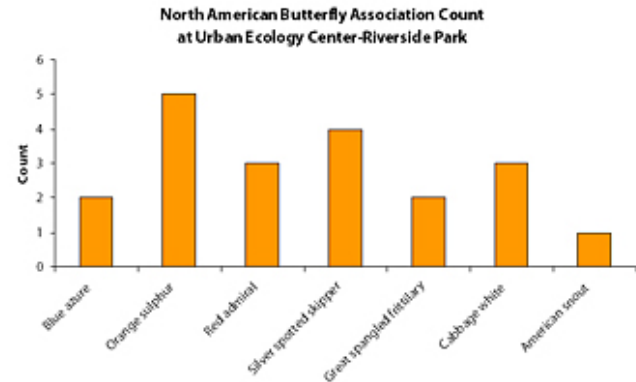
By Maggie Tarasewicz, Wildlife Technician

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.

2012 Summary

The overall format of the invertebrate monitoring surveys focused on hand-collecting of smaller specimens and visual observation of larger specimens. We started with checklists of species that have already been documented in the area. For larger species, like butterflies and moths, this was fairly easy to do. Smaller species, particularly ones that cannot be specifically identified without the aid of a microscope, were collected for later identification. Collected specimens were sent to Kerry Katovich, an entomologist at UW-Whitewater and advisor to the project, for species identification. These specimens will be added to the invertebrate catalog collection from the 2011 field season. The highlight of the field season was participation in the North American Butterfly Association's July 4th butterfly count. We observed 20 individuals representing 7 different butterfly species (upper right graph).



The Citizen Science Program also participates in the Monarch Larva Monitoring Project (MLMP), a University of Minnesota project. The goal of this nationwide project is to determine how and why monarch populations vary spatially and temporally.



Beth Poulter, an intern from Alverno College, led the MLMP at all three branches during 2012. She conducted over 20 surveys where she counted the number of eggs and/or instars on designated milkweed plants in the parks at the Centers.

2012

MAMMALS



By Jennifer Callaghan, Research Assistant

Project Overview and Protocol

The Center's mammal monitoring program was piloted in 2006 and uses visual surveys, live trapping and camera surveillance to create an inclusive species list. 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.

2012 Summary

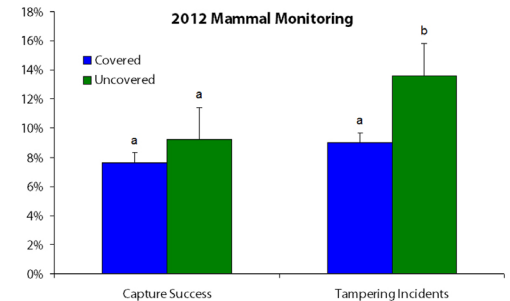
The mammal monitoring team conducted a total of 26 Sherman trap surveys starting June 27th and ending September 14th. Surveys were conducted by setting eight hexagonal transects containing five points with two live Sherman folding traps at each point. Five of the eight transects (50 traps total) were surveyed per each monitoring session. A wandering transect design was used in locations where the terrain would not support this design. Due to heavy trap disturbance during previous years' surveys, it was determined to continue the trap enclosure study. The study involves placing a simple enclosure



designed from Tupperware around one of the paired traps at each location. Three species of small mammals were identified through live-trapping in the project area: *Peromyscus leucopus* (White-footed Mouse), *Microtus pennsylvanicus* (Meadow Vole) and *Tamias striatus* (Eastern Chipmunk). The most commonly caught mammal was *P. leucopus* (168), followed by *M. pennsylvanicus*, (38) and *T. striatus* (10).

There was a total of 29 recaptures or 13% for the season. 40% of traps with enclosures were tampered with, compared with 60% for traps without enclosures. Based on a 2012 sample of

26 nights of trapping, a paired t-test indicates that trap enclosures do not affect capture success ($p=0.1424$), but do affect tampering incidence (shown in graph above; different letters indicate a statistically significant difference). Based on 6 field seasons of visual surveys, live trapping and camera surveillance at Riverside Park, 23 species of mammals have been identified, including: Coyote, Gray Fox, Red Fox, North American Beaver, White-tailed Deer, Virginia Opossum, Eastern Cottontail, Striped Skunk, Northern Raccoon, White-footed Mouse, House Mouse, Norway Rat, Meadow Vole, Muskrat, American Badger, Eastern Gray Squirrel, Eastern Chipmunk, and Woodchuck. Bat surveys and the Long Term Bat Monitoring Station found 5 species of bats (pg 8).





By Julia Robson, Wildlife Technician

Project Overview and Protocol

The natural areas at Urban Ecology Center's three branches are home to three species of snakes, including the State-threatened Butler's Gartersnake. Because very little is known about

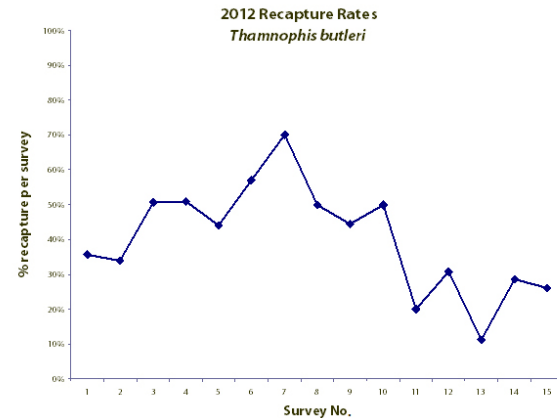
the Butler's Gartersnake, our research can help determine population size, demographics, and habitat preferences. This information will help inform future conservation plans. Our volunteers capture, measure, mark, and release snakes using plywood boards as a survey tool.

2012 Summary

A total of 15 surveys were conducted from May through September with the help of 19 dedicated volunteers and one project intern. An individual survey consists of checking 75 cover boards and collecting mark-recapture data on garter snakes. Three species of snakes were found within the study area: *Thamnophis butleri* (Butler's Gartersnake), *Thamnophis sirtalis* (Common Gartersnake), and *Storeria dekayi* (Northern Brown Snake).



For all three species, mass, sex, gravidity, snout-to-vent length, number of scars, and number of half-ventrals were recorded. Only *T. butleri* and *T. sirtalis* were marked with individual codes. Of the 429 *T. butleri* that were captured, 74 were recaptures from the 2011 season. This is a stark contrast to the 2011 field season in which none of the snakes were recaptures from prior years (see graph below).



Another interesting observation is that the total number of snake captures in May and June of 2012 were down drastically from the 2011 field season. This could be a result of drought conditions in 2012, which may cause snakes to take cover in cooler, moister, areas rather than under the cover boards.

2012

SNAKE DIODE PROJECT



By Julia Robson and Alyssa Wiener, Wildlife Technicians

Project Overview and Protocol

The Center is part of a novel research study that employs surgical implementation of diodes under the skin of *Thamnophis butleri* (Butler's Gartersnakes) to track seasonal movements. The goals of the Urban Ecology Center Diode Project are as follows: 1) to determine the movement patterns, home range sites, and site fidelity of *T. butleri* in Riverside Park; 2) to determine the feasibility of the natural re-colonization of "restored" habitats within the study area; 3) to determine the specific habitat features such as hibernaculum dens; and, 4) to monitor the effects of diode implants on snake behavior and survivorship. The original plan was to implant diodes in 50 healthy, robust snakes measuring over 35 cm in length. Likely due to the intense drought in June, however, we were only able to collect 43 individuals large enough to be considered for implantation. The diode protocols were reviewed and supported by the Urban Ecology Center's Institutional Animal Care and Use Committee. The diodes were implanted by Dr. Ramard Wright, DVM, from the Brown Deer Animal Hospital.

2012 Summary

For each *T. butleri* tracking survey we recorded the same general microhabitat information and GPS location of recovered diode snakes. When a signal was detected and a diode snake was found, we took snout-to-vent length and mass measurements

and checked for any physical complications with the diode. A small flag displaying that snake's ID number was placed at the signal location. Tracking began June 2nd and continued until October 22nd. Fifteen of the 43 snakes were captured continuously over the course of the remaining active season. We found that, on average, diode snakes moved 3 times, covering a distance of 187 feet over 54 days. See the table below for information on the 7 snakes that moved more than one time.



Snake ID	No. times traveled	Total Distance (ft)	Total Days followed
4300	4	164.14	62
4383	3	335.87	48
4186	3	135.65	64
4144	3	123.77	53
4110	3	456.98	92
4088	2	1.45	35
1229	1	91	27



By Joel Springsteen, Land Steward

VEGETATION SURVEY

Between September 2011 and July 2012, we surveyed 40 vegetation plots with the help of nine dedicated volunteers. Some pleasant surprises included natural populations of

Smilax sp. (Carrion- Flower), *Taenidia integrifolium* (Yellow Pimpernel), *Arabis laevigata* (Smooth Rock-cress), *Aster macrophyllus* (Big leaved Aster), *Trillium grandiflorum* (White Trillium), *Pedicularis canadensis* (Wood Betony), and *Lysimachia thysiflora* (Tufted Loosestrife) as well as 14 sedge species (and counting). We were aware of these species occurring north of the Center in Cambridge Woods but had not yet documented remnants of them in the Milwaukee Rotary Centennial Arboretum. For the 2013 field season, we will survey half of the 111 vegetation plots and continue analyze frequency and abundance for all species present.



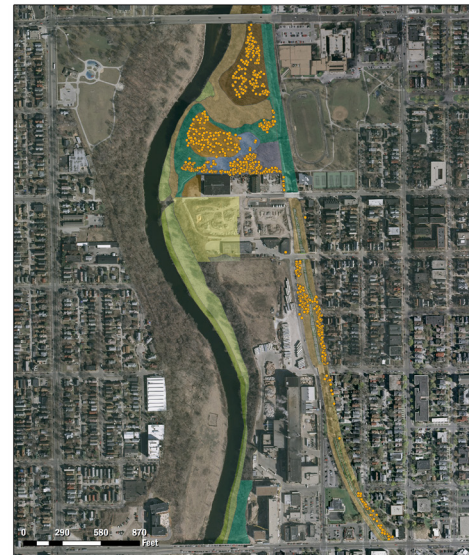
By Caitlin Reinartz, Forestry Specialist

TREE TALLY

With the help of a handful of dedicated volunteers, we have been attaching inventory tags to all trees over 10 cm in diameter in the Rotary Centennial Arboretum and recording

essential information such as species name, diameter at breast height (dbh), crown size, and tree health. Over 1000 trees have been tagged and tallied since the beginning of the project

in Spring 2011. Preliminary data indicate a high frequency of *Fraxinus* spp (Ash), *Acer negundo* (Boxelder Maple), and *Quercus rubra* (Red Oak). *Quercus macrocarpa* (Bur Oak), *Q. rubra*, and *Q. alba* (White Oak) have the highest average dbh. *Q. rubra* is dominant in many areas with both high frequency and high average dbh. Below is a map of the tagged trees in the Milwaukee Rotary Centennial Arboretum. We expect to finish the project in Fall 2013.



MILWAUKEE ROTARY CENTENNIAL ARBORETUM TREE TALLY LOCATIONS

• Tree Tally Locations	Enhancement Pond	Oak Woodland (Crescote)	Southern Mesic Forest
Plant Communities Proposed	Pinelake Forest	Pine Barrens	Wet Prairie
• Northern Mesic Forest	Marsh Prairie	Black Oak	
• Cedar-Grass	Oak Opening (Savanna)	Southern Dry-Mesic Forest	

2012

PARK USE SURVEY



By Beth Heller, Director of Education and Strategic Planning and John Schneider, Intern



The Urban Ecology Center is currently collecting data to help us understand the impact of our work to make parks safe, accessible and ecologically vibrant for people living near the parks. John Schneider, a UWM undergraduate student, worked with the Center's research team to create a protocol to monitor park use that was implemented at Riverside Park, Washington Park, and the Menomonee Valley in the Fall of 2012.

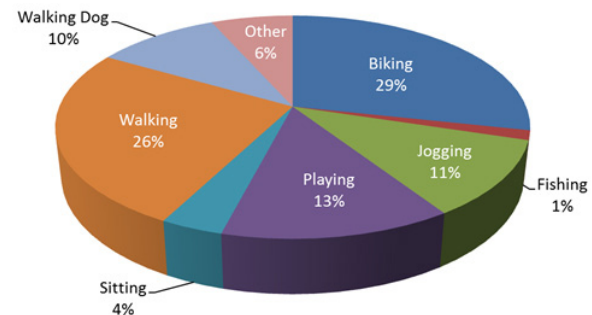
The objective is to track seasonal changes in park use as well as year-to-year trends. This information will benefit the Center by giving an accurate estimate on the number of children, youth, and adults that use the Center's green spaces and what types of activities they engage in.

During the Fall 2012 pilot session, data were collected throughout a 13 week period. A survey consisted of three 1-hour sampling sessions, or one for each branch. Surveys were divided into three, time periods; morning (sunrise-10am), afternoon (10am-2pm), and evening (2pm-sunset). At the end of the pilot period there was a set of data for each day of the week for three different times of the day for all three parks. The day of the week and time of the day being sampled was put through a random generator to prevent observer bias and preserve data independence.

Each survey includes a mix of traveling and stationary counts at four predetermined assessment locations for a total of one hour of observations. This study will be used to estimate overall park attendance, specific park use, and age demographics of park users (children vs. adults).

Our 2012 pilot study produced an estimate of 107,500 park users (79,800 adults and 27,700 children) from September 2012 through February 2013. Estimated values will improve as we collect more data, as will the ability to detect trends in useage. The current sample is 4% of total available sampling sessions, or 21 survey sessions per park. We have a foundation to analyze factors such as recreational activities (see pie chart), and proportional park use broken down by day of the week, and time of day.

Recreational Activities throughout the Urban Ecology Center



2012

HEALTHIER WI PARTNERSHIP PROGRAM



By Erin Shwago, Evaluation & Volunteer Coordinator

A growing body of evidence illuminates the broad benefits of access to and engagement with green space and nature. Environmental education is a promising approach to

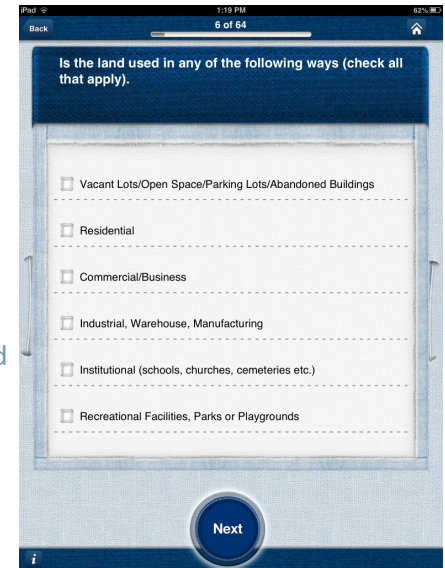
connecting children with nature to improve their social, emotional, physical and intellectual health. This last academic year the Urban Ecology Center, in partnership with the Medical College of Wisconsin (MCW), Menomonee Valley Partners (MVP) and the Center for Urban Initiatives and Research (CUIR), has been engaged in an innovative, community health-related, evaluation project. The project is called “More than a Pretty Place” and is designed to understand and improve childrens’ engagement with nature through environmental education.

“More than a Pretty Place” is funded through the Healthier Wisconsin Partnership Program (HWPP) of the Medical College of Wisconsin, which supports Wisconsin-based community-academic partnership projects to implement public health improvement initiatives that align with the aims of the State Health Plan.

We worked with six of the Center’s partnering Neighborhood Environmental Education Project (NEEP) schools at the new Menomonee Valley location to administer surveys in 5th and 6th grade classrooms. Schools provided both intervention groups that attended field trips throughout the school year, and control

groups that did not attend field trips for comparison. Students completed surveys on iPads before attending their first field trips to the Urban Ecology Center and at the end of the school year after their final field trip. Initial feedback from students indicates that iPads are an effective tool in engaging youth in the research process.

Complementing the school assessment was a neighborhood mapping and assessment activity which took place prior to the opening of the Menomonee Valley branch on September 8th, 2012. Community residents and volunteers walked segments of the neighborhood in the two-mile radius surrounding the Center and collected information on neighborhood features, using survey software on iPads (see example of iPad form at right). This project helped us better understand which green spaces were already present in the neighborhood surrounding the Menomonee Valley location as well as potential barriers to access them.



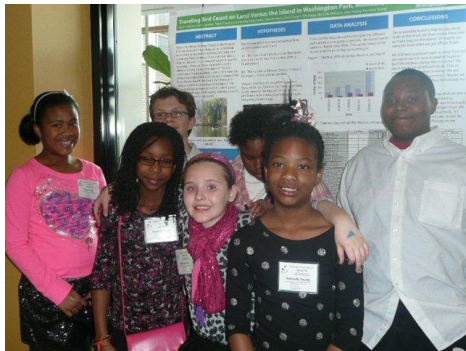
2012

WP YOUNG SCIENTISTS



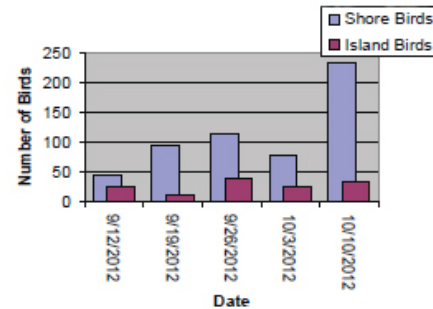
By Erick Anderson, Community Program Coordinator and WP Young Scientists

In 2010, the Urban Ecology Center was invited to participate in an advisory capacity in a new initiative from the University of Minnesota called Driven To Discover (D2D). The project enables youth to design, carry out, and present their research to their peers and professional scientists under the mentorship of trained adult leaders, science advisors and volunteers. In 2012, the Center was able to send Erick Anderson, Community Program Coordinator from Washington Park, to Minnesota for training so that he could bring this initiative to a dynamic group of Young Scientists from the Washington Park branch. Center staff and volunteers acted as mentors, and the Young Scientists ended up presenting their original research to at three different forums. The Young Scientists explain the project in their own words:



"Here at the Urban Ecology Center at Washington Park we have lots of fun doing all sorts of things such as fun environmental games, field trips, and canoeing. Our research question was the following: where are there more birds, on the island or on the shore of the lagoon? For four

weeks we did traveling bird counts of the same distance on our island and on land, and compared the birds that we found. We found that



there were more birds on the shore than on the island [see graph at left]. We also made a good record of which birds migrated through Washington Park during migration season. We predicted that the number of birds on the island would be superior to the amount on land.

We spend a lot of time on the island and there always seems to be birds there. It's hard to get to so maybe there's more because they're not getting scared away. According to these data the hypothesis supported in our study was... drum roll please... the amount of birds on the island was less than the shoreline. Not only did we find more birds on the shore overall, but it was a trend we observed every single week. Also we saw a larger number of species on the shore than on the island. Some possible reasons that we saw more birds on the shore are that maybe there aren't as many bugs on the island. Or maybe we were too loud when we got to our boats."

In 2013, The Urban Ecology Center will be increasing its role, sending three additional staff to be trained with a goal of sending three research teams of Young Scientists (one from each branch) to the Minnesota Conference in the winter of 2013.

Volunteers were asked about their experience participating in Research and Citizen Science programs and/or why they participate. Some of their comments are below:

The experiences [participating in citizen science programs] enriches my life, adding both knowledge and the pleasing sense of "making a difference."

-Robin Squier



"I have learned a great deal about birds and about other aspects of the environment. I continue to be both humbled and delighted by the engaging, dedicated work of the staff who lead these projects."

-Suzy Holstein



"I find the projects very interesting. I believe in the great value of gathering the information about the creatures into whose habitats we enter. Humans are the guests in the habitats we move around in (for better and worse)."

-Vivian Corres

"I've had an interest in understanding the natural world, including its wildlife, for some time; however, my vocation left me little time to pursue that interest. The citizen science program provides the opportunity to both learn and meet new and interesting individuals who share similar goals."



-Anonymous Volunteer

"...anything I can do to foster and promote the great work being done at the UEC to make the community shine brighter, well I'm in!!!!"

-Anonymous Volunteer



"The concept that everyday folks who aren't scientists can contribute to the big picture is compelling. Plus the citizen science team at UEC rocks."

-Anonymous Volunteer

The **Research and Citizen Science Advisory Council** is a group of scientists from Universities, Colleges, State and County Agencies, and private businesses. The Council meets one to two times a year to discuss monitoring and research projects and higher level questions about the direction of research. Current members include:

- Else Ankel, UWM Chemistry, Emeritus
- Robert Anderson, Wisconsin Lutheran College, Biology
- Craig Berg, Milwaukee County Zoo, Curator Reptiles and Aquarium
- Jill Birren, Marquette University, College of Education
- Owen Boyle, Wisconsin DNR, Natural Heritage Conservation
- Rebecca Burton, Alverno College, Biology
- Gary Casper, Great Lakes Ecological Services, LLC
- Noel Cutright, Western Great Lakes Bird and Bat Observatory
- Peter Dunn, UWM Biological Sciences
- Tim Ehlinger, UWM Biological Sciences
- Glen Fredlund, UWM Geography
- Maureen Leonard, Mount Mary College Health Sciences
- Susan Lewis, Carroll University Biology
- Sandra McLellan, UWM Great Lakes Water Institute
- Gretchen Meyer, UWM Field Station
- Mai Phillips, UWM Conservation and Environmental Science
- Maria Terres, Milwaukee Institute of Art and Design
- Linda Whittingham, UWM Biological Sciences
- Will Wawrzyn, Wisconsin DNR Fisheries Management

The **Institutional Animal Care and Use Committee (IACUC)** is a self-regulating entity that, according to U.S. federal law, must be established by institutions that use laboratory animals for research or instructional purposes to oversee and evaluate all aspects of the institution's animal care and use program. The Urban Ecology Center initiated an IACUC in 2011 to oversee wildlife monitoring programs where animals are handled for research. The committee must have at least one veterinarian, one scientist, and one member of the community.

- Craig Berg
- Rebecca Burton, PhD
- Gary Casper, PhD
- Robin Squier
- Maggie Tarasewicz
- Nicole Waliszewski, DVM

The **Research and Citizen Science Volunteer Advisory Council** is comprised of long-term, currently active, and dedicated volunteers who provide feedback on volunteer experience and help shape the future of our the monitoring projects in the Research and Citizen Science Program.

- Ethan Bott
- Dennis Casper
- Alicia Hanson
- Dennis Mack
- Corinne Palmer
- Robin Squier
- Maria Terres

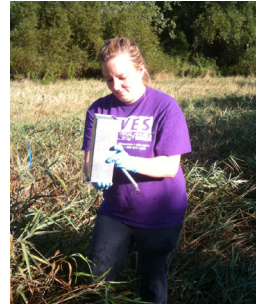
2012

CITIZEN SCIENCE VOLUNTEERS

THANK YOU TO OUR 2012 VOLUNTEERS!

	Bette DeWitt	Dianne Halligan	Jesse Hill	Lilia Banrevy	Ona Alminas	Stephen Gaza
	Bill Mueller	Dolores	Jessica Wirth	Linda Laev	Owen Boyle	Steve Marshall
	Bill Rumpf	Knopfmacher	Jessie Sevenser	Linda Lewis	Pam Goldner	Steve Schuknecht
Adam Yellen	Brianne Johnson	Ed Ray	Jing Bao	Lizzie Severson	Pat Mundt	Susan Apthorp
Al Sherkow	Brittini Raygo	Eleanor Owen	Joan Herriges	Lydia Hartlaub	Patrick Martin	Suzanne Benford
Alex Siebers	Carol Hayes	Elizabeth Bott	JoAnn Bachar	Margaret Mogck	Patty Ahrens	Suzy Holstein
Alicia Hanson	Carolyn Washburne	Emily Braker	Joanna Boyland	Maria Terres	Paula Vielmetti	Tim Allen
Allysa Hallet	Catherine Hill	Eric Beaumont	Joe Paul	Marvell Fair	Peg Noonan	Tim Christianson
Alyssa Wiener	Chad Bruss	Erika Lee	Jon Bales	Mary Jo McDonald	Rachel Utzinger	Tom Fosse
Amanda Eigner	Charley Rozga	Evan Banach	Jon Park	Mary Liner	Rebecca Dreyer	Tom Nelson
Amanda Houle	Chris Robson	Evan Barrientos	Josh Nelson	Mary Schley	Richard Toth	Tricia Mallett
Amanda Kucker	Chuck Ritzenthaler	Gabby Champagne	Joyce Boyland	MaryAnne Niesen	Robert Odoi	Vic Vargo
Amy Hiley	Cindy Clairy	George Owen	Juanita Malloy	Matt Groshek	Robin Squier	Vickie Strattnr
Andrea Velic	CJ Rowe	Gordon Zion	Judi Kistler	Matt Kettner	Ron Gutschow	Vivian Corres
Andrew White	Claire Kennedy	Greta Lowry	Judith Lindquist	Maureen Vanderhoof	Rose Spitz	Wei Han
Angela Jackson	Corinne Palmer	Heather Bott	Kai Loberg	Maxwell Jitney	Roz James	William Bott
Anne Bales	Dale Snider	Heather Nelson	Karyn Clemons	Megan Henson	Ryan Hoffman	Won Cho
Anne Guadagnino	Dana Bott	Howard Aprill	Kathleen Beaver	Meghan O'Brien	Sara Bobinski	
Anne Lamb	Danelle Scaffidi	Jacklyn	Kathy Gallick	Melissa Lempe	Sara Klemm	
Audrey Tarasewicz	Daniel Cho	Schapekahn	Katie Nauth	Michael Anderson	Sarah Braker	
Ava Allen	Dave Tarasewicz	Jake Hennig	Katie Rakowski	Michael Fischer	Sarah Neilsen	
Barb Eisenberg	Dave Winston	Jana Viel	Katie Ranney	Mitch Levenhagen	Sarah Zahner	
Barb Kellermann	David Fenner	Janet Fleege	Kevin Whaley	Mitch Ost	Scott Lehmann	
Barb Todd	David Lueczek	Janie Morris	Kimberly Fein	Monica Bennett	Seth Farvour	
Benjamin Siemers	David Snell	Jason Sevener	Kyle Weise	Nancy Spransy	Shane Rose	
Beth Kaplan	Demetra Toniolo	Jason Tilidetzke	Lara Ghislenti	Neil Franzen	Shaun Sacho	
Beth Park	Dennis Casper	Jean Casper	Laura Herzog	Nick Bruckner	Sid Hamm	
Beth Poulter	Dennis Mack	Jeanne Prochnow	Lenore Lee	Nolan Bade	Sonny Ost	
Bethany Vanderhoof	Diane Vistig	Jennifer Johnson	Leslie Winkelman	Norm Gunder	Stacey Bast	

IMAGES FROM THE FIELD AND BEYOND



Find this document online at:

<http://urbanecologycenter.org/what-we-do/citizen-science.html>

