



Research and Community Science: Harbor District



2019
Annual Review



A MESSAGE FROM THE TEAM

Welcome to the Harbor District 2019 Research and Community Science Annual Review! The Urban Ecology Center and Harbor District Inc. have teamed up to study the ecology of Milwaukee's inner harbor. Much of this area was once a wetland full of abundance for local communities (wild rice, fish, waterfowl) before it was dramatically altered and developed for industrial and shipping purposes. However, even in this highly impacted urban area, life persists and can once again thrive. UEC and HDI have begun monitoring wildlife in the District in order to better understand patterns and trends that can inform and evaluate efforts to redevelop and restore the area.



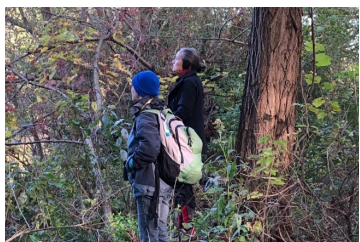
Summer interns and Urban Ecology Center staff checking mammal traps in July of 2019.



The 2019 Research and Community Science team (top to bottom): GIS & Field Data Coordinator, Ethan Bott, Manager of Research and Community Science, Tim Vargo, and Research and Community Science Coordinator, Maggie Steinhauer.

The Center's research community has become a national leader in the field of Community Science, particularly in the unique way that we support collaborative research among professional and community scientists. We study ecological connections in busy urban green spaces with a community focus, allowing for numerous opportunities for public engagement. Intentional management of our green spaces has led to a substantial increase in biotic diversity. If you are currently part of the team we express our immense gratitude for your efforts. If you're curious about what we do, come join us for a wildlife survey and see first-hand how magical this community is!

—Ethan, Maggie, and Tim

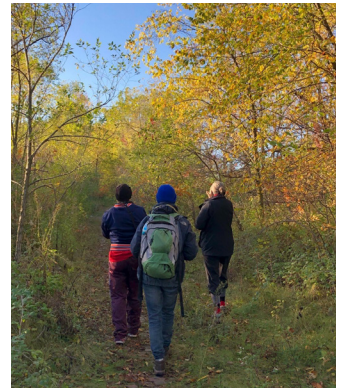


Community scientists on a fall bird walk.

Cover photos (clockwise from bottom): Local students bird watching in the Harbor District in May 2019 (Photo by Dan Adams), Community scientists bird watching in October 2019 (Photo by Maggie Steinhauer), and our summer intern Russell Mason holding the mighty bat detectors (Photo by summer intern, Vanessa Komada).

BIRDS

We conducted two bird walks along the southern portion of the Kinnickinnic River Trail in the late fall, documenting 35 different species. Because fall migrants are only a subset of birds that likely find this area important, we look forward to future walks in the summer (breeding birds), winter (overwintering birds) and spring (spring migrants).



Both the Ruby-Crowned Kinglet and the Swainson's Thrush are Species of Special Concern in the state of Wisconsin and were spotted on the bird walks.



In the fall of 2019 we conducted a bird banding session along the Southern portion of the Kinnickinnic River Trail. Banding is ideally conducted during migratory seasons within urban greenspaces in the Harbor District. A team of trained banders (UEC staff and community scientists)

set up mist-nets to capture, process, and release birds. Banding is a useful research tool to increase understanding of bird migration and dispersal, behavior and social structure, toxicology and disease, lifespan, population dynamics, and survival and productivity. Banding also allows for educational opportunities for school groups and community members to learn more about birds by directly observing and participating in the research process.

[Learn more from community scientists in this video.](#)



Birds Banded

- Nashville Warbler
- Swainson's Thrush
- Tennessee Warbler
- White-Throated Sparrow

Photos (top to bottom): Community scientists on a bird walk along the Kinnickinnic River trail in 2019 (Photo by Maggie Steinhauer), Community scientist, Brittany Peters, checking a bird for the amount of fat (Photo by Ethan Bott), The Research team analyzing a bird as it is being banded (Photo by Aaron Zeleske).

BATS

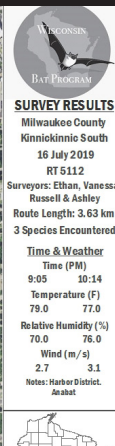
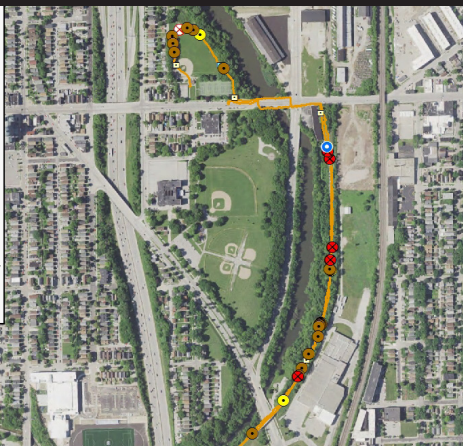
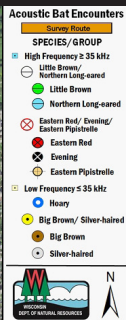
We conducted four bat surveys during the summer of 2019. Two were run on land and two were run on the water (Kinnickinnic River and the inner harbor). Specialized detecting equipment can record the high frequencies that bats emit to feed and communicate. We documented three of Wisconsin's seven different bat species over the four surveys:

- Eastern Red Bat
- Hoary Bat
- Big Brown Bat



Urban Ecology Center's 2019 summer interns (left to right: Vanessa Komada, Russell Mason, and Ashley Wallace) on a bat walk in the Harbor District.

The Big Brown Bat is Threatened in Wisconsin, largely because cave-roosting bats in Wisconsin have suffered dramatic losses from white-nose syndrome, the result of a fungus that spreads easily in confined environments. The fungus often wakes up hibernating bats, causing them to burn up valuable fat reserves. Because the Eastern Red and Hoary Bats do not hibernate in large colonies, they are less affected by white-nose syndrome, but still are listed as Species of Special Concern in Wisconsin.



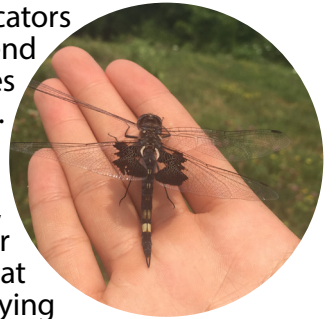
The most successful bat survey in the Harbor District of 2019. Three species of bats were recorded!

Recording bats on all four of our surveys indicates this is likely an important area to them. Habitat restoration is a great way to ensure a steady food source (native plants lead to native insects). We can also add bat houses to the landscape to provide these important species with an alternative place to roost as they raise their pups.



ODONATES

Odonates are excellent indicators of water quality as they spend the vast majority of their lives in the water as aquatic larvae. They can spend anywhere from a month to several years in the water scavenging river, stream, and pond-bottoms for food and it is only after this that they emerge as the familiar flying dragonfly and damselfly adults. Only healthy waterways support diverse adult populations so monitoring these amazing creatures is a great way to evaluate the health of the Harbor District water bodies.

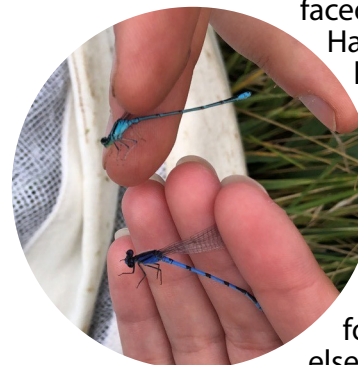


Odonate Species List for 2019

- Black Saddlebags
- Halloween Pennant
- Cherry-faced Meadowhawk
- Stream Bluet
- Familiar Bluet
- White-faced Meadowhawk
- Common Green Darner

Clean Water Equals Healthy Insect Populations

The Harbor District's initial Odonate species list includes an interesting mix of species. There are common species like Common Green Darners and species that are more tolerant of degraded habitat, such as the Familiar Bluet. Black Saddlebags require fish-free ephemeral ponds, indicating that these specific wetlands exist in the area. Although no threatened species were found, both the Cherry-faced Meadowhawk and Halloween Pennant are facing localized threats elsewhere in the state. As water quality in the area improves through the efforts of Harbor District Inc. and their partners, we expect to find a greater diversity of all insects and refugia for species that are declining elsewhere in Wisconsin.



Photos (top to bottom): Black Saddlebags caught during an Odonate survey (Photo by Ethan Bott), Students from Allen-Field Elementary learn how to catch Odonates (Photo by Dan Adams), A Familiar Bluet and a Stream Bluet are caught near the inner harbor.

MAMMALS



Terrestrial mammal monitoring by the Urban Ecology Center includes live-trapping small mammals to determine species presence-absence as well as population trends within species. Larger mammals are documented through wildlife trail cameras and incidental reports.

Live-trapping involves baiting a series of traps with a mix of birdseed, oats, and mealworms at dusk and checking them the following morning. The baseline survey consisted only of White-Footed Mice. As the green spaces and surrounding habitat improve we expect to see the appearance of new species such as Meadow Voles.



In addition to live traps, camera traps were set up along the Kinnickinnic river. Evidence of rabbits, squirrels, chipmunks and White-Tailed Deer were documented.

Photos (top to bottom): Summer intern handling a White-Footed Mouse caught during a small mammal survey (Photo by Ethan Bott), Summer intern Ashley Wallace handles a White-Footed Mouse during a small mammal survey (Photo by Ethan Bott), A White-Tailed Deer strolls by one of our wildlife cameras!

FUTURE THOUGHTS

Recommendations

The 2019 surveys served as a baseline to be compared with future surveys. We recommend the following next steps:

- Expand monitoring to include all four seasons to capture migratory, breeding and overwintering bird species.



- Increase the effort and locations of Odonate monitoring, because they are good indicators of habitat quality.

- Continue to engage local community scientists (volunteers, students) to help better understand the changing ecology of the area.

- Plant emergent and shoreline vegetation along the river to provide habitat for Odonates and plant successional native plants, including native milkweeds, to attract a broad range of insects and pollinators.

It's not very often that ecologists get to document major changes in a high-profile, urban redevelopment area. This is a great time to get involved in part because there is a high probability you'll find a species that hasn't been documented here for maybe 100 years or more. To get involved in wildlife monitoring, contact the Harbor District Inc. or the Urban Ecology Center.

2019 HDI/UEC COMMUNITY SCIENTISTS

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