CHICAGO PARK DISTRICT

SCIENCE IN THE PARKS: 2023 ANNUAL REPORT

White-footed mouse (*Peromyscus leucopus*) by Jing-Yi Lu (CC BY-NC) at Wooded Island, Jackson Park

Research and Monitoring in 2023

Scientific research and monitoring in the parks is conducted by Chicago Park District staff, local university staff and students, other research institutions, as well as many Chicago residents and visitors annually through platforms like iNaturalist and eBird. In 2023, researchers studied small mammal populations, the effects of brush pile burns on soil and plant communities, water quality at Chicago beaches, and much more.

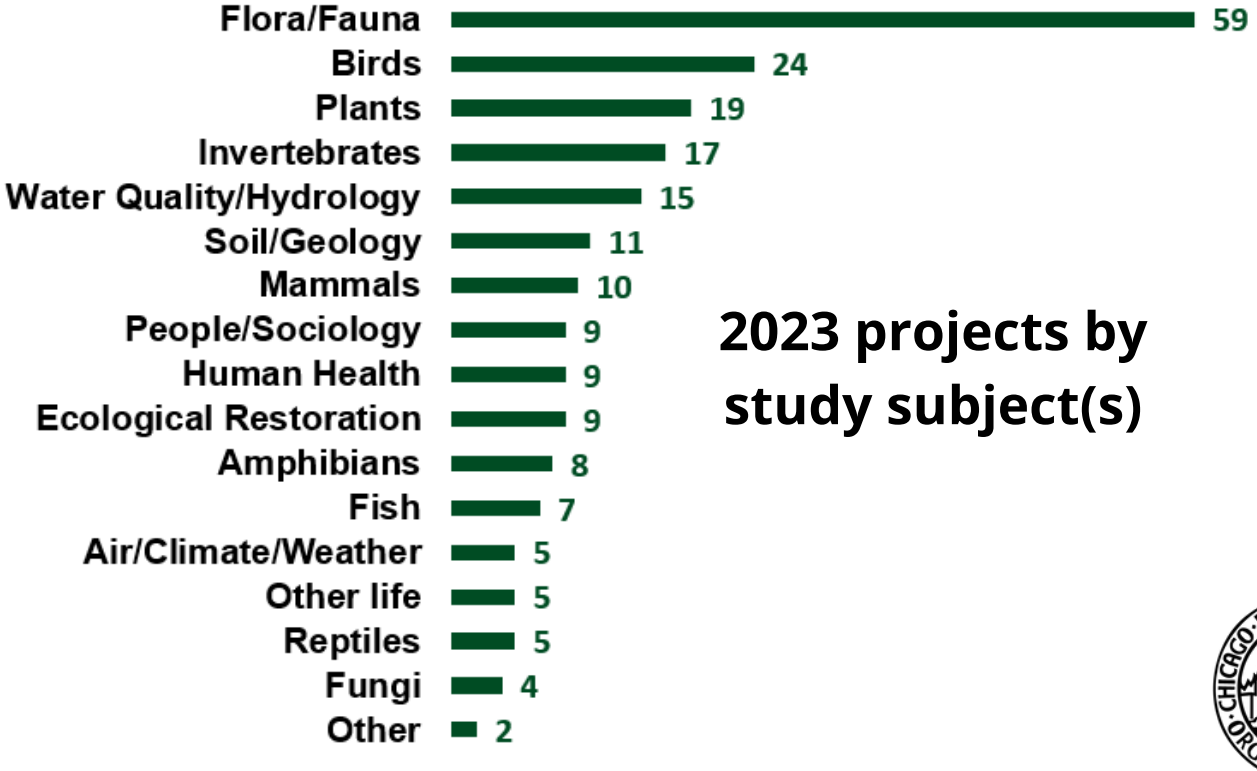
Researchers obtain permission to conduct research and monitoring in the parks through the Chicago Park District's Research Permit program. Apply at www.chicagoparkdistrict.com.

87
projects

With 87 active projects in 2023, the number of research and monitoring projects occurring throughout the parks has doubled since 2019.

40+
organizations

Hundreds of staff from over 40 organizations, plus thousands of community scientists, contribute to research and monitoring in Chicago parks each year.



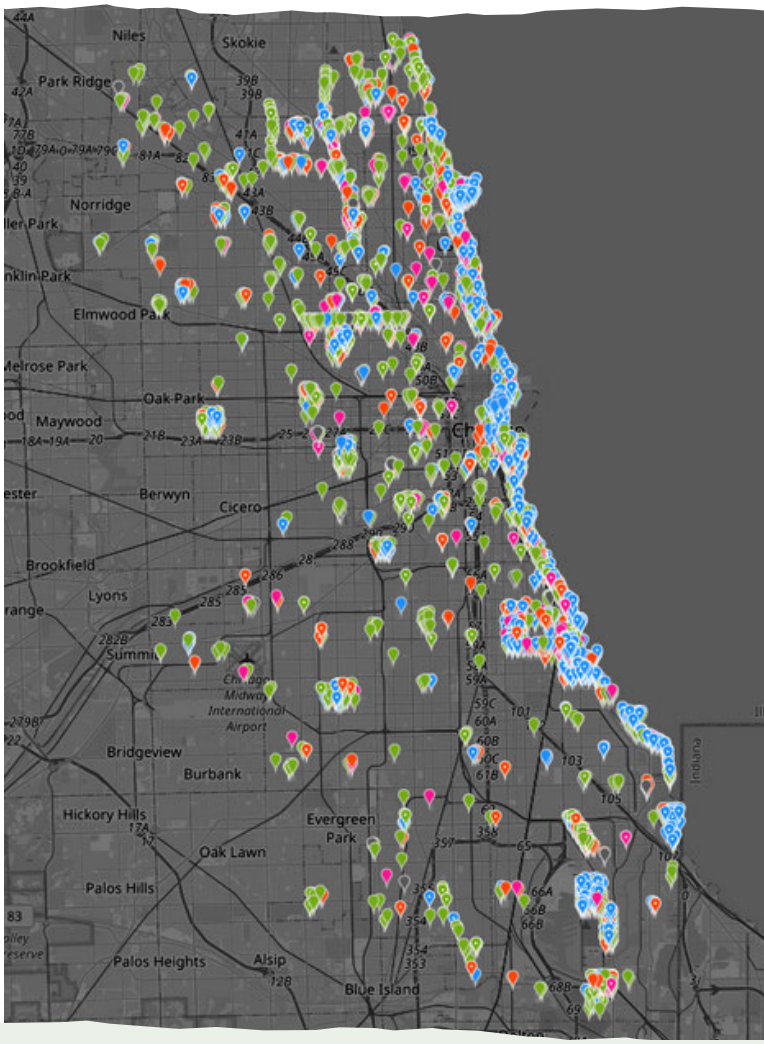
2023 projects by study subject(s)

iNaturalist in the parks

iNaturalist is an app and website that helps people identify plants, animals, and other organisms while also generating data for science and conservation, including in Chicago parks. Through iNaturalist, Chicago residents and visitors can connect with a community of scientists and naturalists who help each other learn about nature!

I**n 2023, over 2,000 people submitted over 37,000 nature observations within Chicago parks, representing at least 1,500 different species of wild organisms.** The most frequently observed animal, plant, and fungus in the parks in 2023 were, respectively, mallard duck (*Anas platyrhynchos*), common milkweed (*Asclepias syriaca*), and dryad's saddle (*Cerioporus squamosus*).

Right: Nature observations in Chicago parks shared to iNaturalist.org



IN 2023

2,231 community scientists

37,049 observations

1,579 species

(community-identified/"Research Grade")

Many photos iNaturalist community members captured in the parks in 2023 are included in this report. Explore everything the community has found in the parks at: https://www.inaturalist.org/observations?place_id=153032

Black-crowned night heron (*Nycticorax nycticorax*)
by KF at Lincoln Park

Common watersnake (*Nerodia sipedon*)
by cameron_arseneau at a southeast side park

Coyote (*Canis latrans*)
by Heather Russell at Maggie Daley Park

Sphinx ladies' tresses (*Spiranthes incurva*)
by cassi saari at Lincoln Park

Leaf-rolling weevil (Attelabidae)
by joylkmus at Humboldt Park

Common mudpuppy (*Necturus maculosus*)
by ahappel along the lakefront

CAPTUREing Small Mammals

Researchers from the Field Museum of Natural History and Chicago State University wrapped up their second year of the CAPTURE (Calumet Animal and Pathogen Training and Urban Research Experience) project in 2023. **The CAPTURE team uses live-trapping grids to study small mammals, their ectoparasites, and associated zoonotic pathogens** across three sites in Chicago's South Side, including Big Marsh Park and Marian Byrnes Park.

In one season (Apr-Sep) researchers captured more than 1,000 small mammals, including mice, voles, and shrews, with methods such as Sherman traps (right), metal boxes designed for the live capture of small mammals.

In addition, CAPTURE uses passive acoustic monitoring, in collaboration with Lincoln Park Zoo, to monitor bats on multiple CPD sites and camera trapping to document medium to large mammals across four parks.

The project has supported six summer interns and 36 volunteers who clocked a total of 831.5 volunteer hours! The CAPTURE project is funded through a Walder Foundation Biota Award.

Photos provided by Field Museum

Beach Water Quality Monitoring

The year 2023 marked the ninth consecutive year of beach water quality monitoring at Chicago Beaches. This work is conducted in partnership with School of Public Health staff at University of Illinois Chicago. Samples from 17 beaches were tested using a rapid, DNA-based method (qPCR).

This process generates same-day results about waterborne bacteria, allowing public health information to be communicated the day of sampling. If results exceed the US Environmental Protection Agency's Beach Action Value (BAV), a swim advisory for that area is posted at the beach and on the park district website. **Over 1,700 pairs of samples were analyzed in 2023.**

A BAV was exceeded by at least one of 17 beaches on 26% of sampling days, though some beaches exceeded more frequently than others. **Across all beaches, the overall BAV rate was exceeded only 2.3% of the time in 2023, a decrease from previous years.**

Percent of beach days without swim advisories based on water quality

2021	2022	2023
90.7%	95.9%	97.7%

Data from samples during 1,734 beach days (17 beaches x 102 days)

Snapshots

Chicago Nighthawk Project
(Chicago Ornithological Society)

Phragmites Adaptive Management Framework Monitoring
(Chicago Park District)

Fish Behavior in the Chicago Area Waterways System
(Shedd Aquarium)

Updating Geological Maps for Cook County
(Illinois State Geological Survey)

Winter Chloride Watchers
(National Great Rivers Research and Education Center)

Floristic Evaluation of Novel Slag Ecosystems
(Midwest Biological Survey with Chicago Park District, University of Chicago)

Ecology and Behavior of Urban Black-crowned Night Herons
(Lincoln Park Zoo, University of Illinois, Illinois Department of Natural Resources)

Quantifying Jump Performance in Jumping Spiders
(University of Chicago)

Canada milkvetch (*Astragalus canadensis*)
by Emma Fetterly at Legion Park

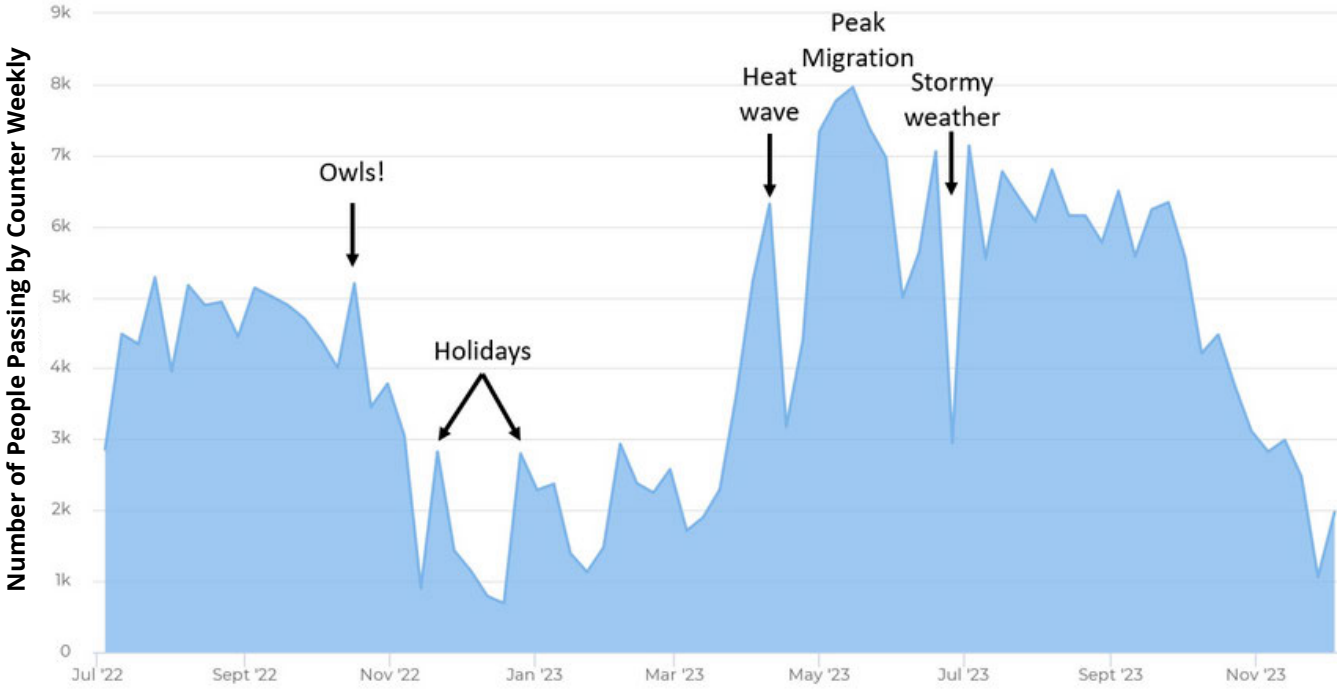
Eastern chipmunk (*Tamias striatus*)
by M Elliott at Lincoln Park

Bonestem (*Ossicaulis lignatilis*)
by Zach Geurin at Jackson Park

Hoary rosette lichen (*Physcia aipolia*)
by breanddave (CC BY-NC) at Jackson Park

Red-breasted merganser (*Mergus serrator*)
by Armand Oliveros (CC BY-NC) at Lincoln Park

Bird(er) Watching at Montrose



How many people visit Chicago parks annually? Monthly? Daily? These numbers can be surprisingly difficult to estimate. To better understand park usage and communicate the value of parks and natural areas, **the Chicago Park District has installed "people counters" along the Bloomingdale Trail (The 606), at Montrose Point Bird Sanctuary in Lincoln Park, and at Big Marsh Park.**

The graph above depicts the number of people that traveled past one of these counters at Montrose Point between July 2022 and December 2023. **Montrose Point is a popular place to observe birds, so high numbers of people visit the park at the height of spring bird migration. A peak in October 2022 coincided with the observation of rare long-eared owls on site.** Other peaks included holidays such as Thanksgiving, Christmas, and New Year's Day. Spikes and dips occured based on weather, such as on unusually warm spring day or during summer thunderstorms. On weekends, excluding winter months, an average of over 1,000 people visit Montrose Point Bird Sanctuary per day!

On May 7th, 2023, over 2,300 people traveled in/out of Montrose Point Bird Sanctuary

Brush Pile Burning Effects

Photos provided by The Morton Arboretum

Scientists from The Morton Arboretum are studying how brush pile fires, used to burn invasive and weedy trees and shrubs in natural areas, may affect soil and plant communities over time.

In 2023 they conducted vegetation surveys and collected soil samples at 171 burn scars throughout the Chicago region including 15 in Chicago parks. Preliminary analyses show significant changes in burned areas compared to unburned plots, with **differences in soil pH and microbial biomass persisting for eight years following burning.**

Burn scars across the region were found to host **265 different plant species**. Fungi in the family Pyronemataceae were found almost exclusively in the center of burn scars!

The Morton Arboretum®

City Nature Challenge 2023

The **City Nature Challenge** is an annual event where city residents and visitors document local nature and to help all of us better understand urban biodiversity. **In the Chicagloand Region, 700 participants documented 8,400 nature observations during the four-day challenge in late April.** Globally there were over 66,000 participants in hundreds of cities!

American avocets (by Jing-Yi Lu, CC-BY-NC)

City Nature Challenge: Chicago Region was organized by

Chicago Wilderness Alliance

LINCOLN PARK ZOO. FOR WILDLIFE. FOR ALL.

Shedd AQUARIUM

FOREST PRESERVE DISTRICT WILL COUNTY

The Nature Conservancy

isc ILLINOIS Science Council

CITY NATURE CHALLENGE IS ORGANIZED BY

CALIFORNIA ACADEMY OF SCIENCES

NATURAL HISTORY MUSEUM LOS ANGELES COUNTY

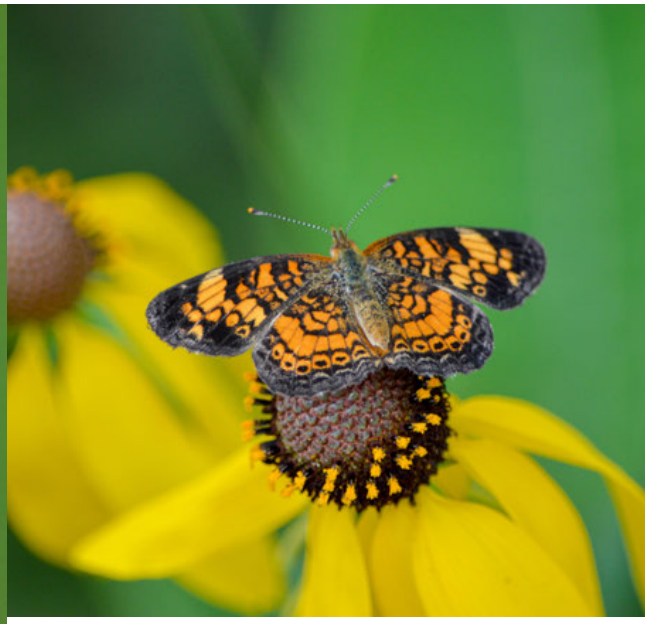
The 2024 City Nature Challenge takes place April 28th–May 1st

Learn more at https://bit.ly/cncchi2024

White-banded crab spider (*Misumenoides formosipes*)
by Diane Schirf at Park 565

Smallmouth bass (*Micropterus dolomieu*)
by Cameron Chambers at Northerly Island Park

Red milkweed beetle (*Tetraopes tetrophthalmus*)
by Ben Zerante at Columbus Park



Pearl crescent (*Phyciodes tharos*)
by zjpacanowski at Burnham Park

Long-horned bee (*Melissodes* sp.)
by mothsperhour at West Ridge Nature Park

2023 Research Organizations in Chicago Parks

American Geophysical Union
Argonne National Laboratory
Audubon Great Lakes
California Academy of Sciences
Chicago Botanic Garden
Chicago Ornithological Society
Chicago Park District
Chicago State University
City of Chicago
Cornell University
DePaul University
Field Museum of Natural History
Forest Preserves of Cook County
Great Lakes Observing System
Great Lakes Phragmites Collaborative
Heat Watch by CAPA
Illinois Department of Natural Resources
iNaturalist
Lincoln Park Zoo - Urban Wildlife Institute
Loyola University
Michigan State University
Midwest Biological Survey
Morton Arboretum
National Great Rivers Research and Education Center
National Integrated Heat Health Information System
National Oceanic and Atmospheric Administration
Natural History Museum of Los Angeles County
Northwestern University
Ohio University
Openlands
Peggy Notebaert Nature Museum
Purple Martin Conservation Association
Shedd Aquarium
The School of the Art Institute of Chicago
The Wetlands Initiative
Thriving Earth Exchange
U.S. Geological Survey
University of Chicago
University of Illinois
University of Michigan-Flint
University of Wisconsin-Madison
USDA-APHIS-Wildlife Services
US Fish and Wildlife Service
Wheaton College

+ thousands of Chicago residents and visitors annually who contribute to community science projects and platforms

Thank you!

City of Chicago Mayor, Brandon Johnson
Chicago Park District Board of Commissioners
Rosa Escareño, General Superintendent & CEO

For more information about your Chicago Park District, visit www.chicagoparkdistrict.com or call 312.742.7529