



Schlitz Audubon
Nature Center

2019 Citizen Science Summary | Birds

Cavity Nesting Songbird Monitoring

Lead Investigator | Corinne Palmer

Project Description

In 2019 there were nine cavity nesting songbird boxes monitored weekly from April through August by three volunteers and one Schlitz Audubon staff member. The goal of the study is to track Eastern Bluebird *Sialia sialis* and competing cavity nesting species, including Tree Swallows *Tachycineta bicolor*.

Summary of Results

Out of the nine bluebird boxes, four were utilized by Eastern Bluebirds during the 2019 breeding season. There were eighteen total eggs laid and eleven of those eggs fledged. Nest boxes for Eastern Bluebirds have been monitored at Schlitz Audubon since 2009. Over the eleven-year period from 2009 to 2019, Eastern Bluebird fledging has declined, primarily due to competing species.

Daily Bird Sightings

Lead Investigator | Corinne Palmer and Jean Strelka

Project Description

The Center has a passionate cadre of birders who visit year round to both enjoy and count the birds that visit the Center. Through the data they collect, this group of dedicated nature lovers helps to provide information about migratory cycles, species' populations, and the impact climate change is having on birds. Anyone who birds at Schlitz Audubon may enter their bird sightings on the Bird Chart in our Great Hall. This data is the backbone of our historic bird records, which began in 1974 and make up our longest running citizen science project.

*Information from the Christmas Bird Count is included in these records.

Summary of Results

So far this year volunteer birders spent almost 500 hours birding and recording their sightings. Based on e-Bird data, volunteer birders identified 181 species at Schlitz Audubon in 2019. 147 of those species were recorded during spring migration in the month of May, including Louisiana Waterthrush, Prothonotary, Cape May, and Canada Warbler. Some birds on our list of Greatest Conservation Need seen this year included Red-headed Woodpecker, Black-billed Cuckoo, Purple Martin, Eastern Meadowlark, and Golden-winged and Blue-winged Warblers.

Point Counts

Lead Investigator | Jean Strelka

Project Description

Two observers counted birds at nine preselected points for six weeks between the last week in May, 2019 and the first week in July, 2019. Counts began shortly after dawn and ended no later than 9:30am. The observers recorded all species seen or heard during a three-minute period followed by a two-minute period in which they noted any additional species. Observed nesting behavior was also noted. One observer's point locations were mainly on the south side of the property and the other's point locations were in the northeast quadrant of the property.

Summary of Results

The observer on the south side of the property detected 51 species and 719 individuals, while the observer in the northeast quadrant found 38 species and 565 individuals. Once again, Red-winged Blackbird was the most abundant species detected, with the observer near the south side finding 99 Red-winged Blackbirds and the northeast observer locating 78. Following in abundance were Northern Cardinals (62) and House Wrens (52), respectively. Five species of Birds of Greatest Conservation Need were also detected during the



Wood Thrush

surveys this year: Wood Thrush, Yellow-bellied Flycatcher, Willow Flycatcher, Canada Warbler and Wilson's Warbler. The warblers were likely late migrants while the others could breed here.



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2019 Citizen Science Summary | Birds

Project Feeder Watch

Lead Investigator | Jean Strelka

Project Description

The Cornell Laboratory of Ornithology's project to track backyard birds at feeders began in 1987. This is the second year Schlitz Audubon has participated. This winter-long survey counts birds that visit feeders at homes, nature centers, community centers, schools and other locales all over North America.

Feeder watchers periodically count the birds they see at their feeders from November through April and send their counts to Project Feeder Watch. Feeder Watch data helps scientists track broad scale movements of winter bird populations and long-term trends in bird distribution and abundance.

Summary of Results

Seven volunteers participated by observing the Center's bird feeders on Tuesdays and Wednesdays from the west windows of the Great Hall. One to three birders at a time observed the feeders for one-half to one hour, keeping track of temperature and snow depth as well as the birds.

Volunteers recorded 21 species last winter, from November 13, 2018 through April 10, 2019. The highest daily number of species visiting the feeders was 16 on March 19, 2019, while the highest number of individual birds visiting was 41 on January 8, 2019. Highlights included a Fox Sparrow on November 13, 2018 and two Pine Siskin on February 19, 2019.

West Meadows Weekly Bird Survey

Lead Investigator | Jean Strelka

Project Description

Intensive brush cutting and ash tree removal due to the Emerald Ash Borer has made it important to understand bird population data in the West Meadows. For this project, birders walked the trails in the West Meadows each week from April 15, 2019 to Oct. 15, 2019, recording all birds observed and heard. Breeding data was also noted. Counts began at 7:00am and lasted from 2-4 hours. The goal of this survey is to monitor the bird population in response to environmental changes.

Summary of Results

Ninety-two species were recorded overall with the highest number of species, 63, being recorded in May, 2019. The highest number of individuals, 651, was also recorded in May, 2019. Breeding birds were also noted in the West Meadows, including Hairy Woodpecker, Gray Catbird, Baltimore Oriole, and American Redstart.



Baltimore Oriole



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2019 Citizen Science Summary | Freshwater Mussels

Mussel Monitoring and Adopt-A-River Project

Lead Investigator | Aubrey Ellickson

Project Description

On August 25, 2019, one Schlitz Audubon staff member and 16 volunteers conducted a mussel monitoring survey with staff from the Wisconsin Department of Natural Resources and volunteers from Milwaukee Riverkeeper. After receiving training, the project was conducted in the Milwaukee River off the banks of Schlitz Audubon's Cleaver property. The survey consisted of one 15-minute timed search period working upstream to collect both living mussels and dead mussel relics. Mussels were searched for using bathyscopes and the naked eye while wading.

After the search and collection period, mussels were identified by staff from the Wisconsin Mussel Monitoring Program through the DNR. A twenty-minute trash collection period was then conducted for an Adopt-A-River survey. In total, four volunteer hours were spent on the mussel survey, and approximately 5.5 volunteer hours were spent on the Adopt-A-River survey. The goal of the surveys is to identify which native freshwater mussel species are located along our Cleaver property and to improve the river habitat by removing litter.

Summary of Results

Eleven species of native freshwater mussels were discovered, including 57 living mussels and 147 dead mussels. This is 92% of the overall species richness of freshwater mussel in the Milwaukee River. The most abundant species in this survey



was the White Heelsplitter (*Lasmigona complantata*) with 40 total specimens found: 12 alive, 28 dead, and zero juvenile. The next most recorded species was the Elktote (*Alasmidonta marginata*), which is a species listed as special concern in Wisconsin, with eight alive, 20 dead, and one juvenile (younger than the reproductive age). Another listed species, the Ellipse (*Venustaconcha ellipsiformis*), which is state threatened, was also discovered, but with zero alive, five dead, and zero juvenile. Other juvenile mussels found were Plain Pocketbook (*Lampsilis cardium*): eight alive, 16 dead, and one juvenile, and Fatmucket (*Lampsilis siliquoides*): four alive, three dead, and one juvenile.



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2019 Citizen Science Summary | Ponds and Wetlands

DNR Frog and Toad Survey

Lead investigator | Michelle Allison

Project Description

2019 is the third year that Schlitz Audubon participated in the Frog and Toad Survey with the Wisconsin DNR. The project, which started in 1981, has been tracking frog and toad populations' distribution and sizes in the state. Over the course of three survey runs in 2019, one staff member and eleven volunteers went to 10 sites along ponds and rivers in the northern part of Milwaukee County (Route 412) to identify frogs and toads by their call. The survey sites in their respective order are: Juneau Park Lagoon, Riverside Park, Estabrook Park, McGovern Park, Havenwoods State Forest North, Havenwoods State Forest South, Brown Deer Park, North River Road Bridge, and Schlitz Audubon's Bird Blind Pond and Boardwalk

Pond. The participants listened a total of five minutes at each site and the intensity of the calls was gauged with a call index ranging from one-three.

Summary of Results

During the course of the surveys, seven frog and toad species were identified: Wood frog, Spring Peeper, Gray Treefrog, Cope's Gray Treefrog, American Toad, American Bullfrog, and the Green Frog. In the previous year's survey, Northern Leopard Frogs were observed at three locations but none were observed this year. This was the first year that Cope's Gray Treefrogs were observed.

FrogWatch USA

Lead investigator | Michelle Allison

Project Description

2019 was the second year that Schlitz Audubon participated in FrogWatch USA, a Citizen Science program from the Association of Zoos and Aquariums (AZA) that has expanded to 151 chapters across the United States. As frogs and toads can serve as indicators for environmental health, the program gives volunteers an opportunity to gather important data on their local frog and toad species as well as to gain a better understanding of the state of their wetland ecosystems.

The surveys were taken at six "stations" (ponds/lakes) on the Schlitz Audubon property, with the survey period ranging from April 3, 2019 to August 21, 2019. The participants remained quiet for the first two minutes so the surrounding frogs and toads could become accustomed to their presence; this was then followed by three minutes of listening for the calls, which are gauged by a call index of 1-3. The overall goal of the program is to compile expansive and long-term data on frog and toad species in the United States.

Summary of Results

A total of 112 observations were made during the survey period. Overall, eight frog and toad species were found in the designated wetlands on the Schlitz Audubon property: American Bullfrog, American Toad, Cope's Gray Treefrog, Gray Treefrog, Green Frog, Leopard Frog, Spring Peeper, and Wood Frog. The species that had more observed callings were the Green Frog (37) and the Spring Peeper (26). This was followed by the Gray Tree Frog (22), American Bullfrog (18), American Toad (5), Wood Frog (3), and Cope's Gray Treefrog (1) and a Leopard Frog (1). Mystery Lake was the only location where the Leopard Frog and Cope's Gray Treefrog were heard calling, and contained six out of the eight species identified. The Cope's Gray Treefrog was also observed calling on a separate night during a bat monitoring survey. There were 14 surveys in which no frogs or toads were heard calling.



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2019 Citizen Science Summary | Ponds and Wetlands

Wetland Monitoring

Lead investigator | Tess Stahler

Project Description

In March 2019, volunteers were trained using Milwaukee County Parks Wetland Monitoring protocol and methods. Aquatic funnel trapping, visual encounter surveys, and macroinvertebrate scoop sampling were the three types of surveys covered. The survey area included six ephemeral wetlands at Schlitz Audubon. Wetland selection was based on surrounding habitat being either lowland oak forest or grassy wet prairie. Monitoring began on April 6, 2019 and concluded on June 4, 2019.

Two Schlitz Audubon staff members and 26 volunteers participated in the survey, collectively clocking in over 200 volunteer hours. The goal of this project is to identify species of amphibians and macroinvertebrates utilizing our wetlands during the breeding season.

Summary of Results

A total of five amphibian species were observed in the six ponds surveyed. Blue-spotted Salamanders (*Ambystoma laterale*) were observed during funnel trap surveys and confirmed breeding by egg mass sightings in every wetland that was monitored. At Salamander Pond on April 9, the egg count was about 800 on three traps. Adult Blue-spotted Salamander counts were 168 individuals on the same day in those three traps. A pair of Spring Peepers were present in a funnel trap in Teal Pond on April 27, 2019. On April 8, 2019, in the first pond, a Wood Frog was caught in a funnel trap and three additional



Green Frog

Wood Frogs were heard calling near the pond. In addition, Green Frogs were seen at two ponds in the Reptile and Amphibian Conservation Area. There were 20 American Bullfrog Tadpoles seen at Teal Pond, as well as a total of 27 Green Frog Tadpoles at Boardwalk Pond (22) and Teal Pond (5). Prairie and Calico Crayfish (*Orconectes immunis*) were both observed in Peeper Pond and another pond, along with juveniles.

Overall, 26 species of macroinvertebrates were observed at all six survey sites.



Schlitz Audubon
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2019 Citizen Science Summary | Plants

Plant Phenology

Lead investigator | Tess Carr

Project Summary

Schlitz Audubon uses Budburst, through the Chicago Botanic Garden, to document when the plants at our Center go through significant phenological changes throughout the year. These plant changes include opening their leaves, flowers blooming, seeds ripening, dropping leaves, and going dormant. Phenology surveys are used to track changes in climate and plant life cycles over time. This data can contribute to regional, national, and even global studies on climate change and its effects. Plant monitoring began on April 11, 2019 with American Elderberry leaves unfolding, and concluded on October 29, 2019 with Sugar Maple leaves changing color and dropping. 10 volunteers submitted 30 observations in that time.



Summary of Results

Results will be compared to future findings and regional data over time.



Schlitz Audubon
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2019 Citizen Science Summary | Insects

Monarch Butterfly Monitoring Projects

Lead Investigator | Moya Mowbray

Project Description

Monarch Butterflies are making a slow recovery to optimal numbers from below average populations in recent years. Monitoring helps scientists understand the threats monarchs face during the breeding season, and helps to create strategies for implementing growth, habitat, health, and migration enhancement and support. Combined with habitat management records over time, these data will also be used to assess the effectiveness of our center's conservation projects for monarchs. In 2019, there were three separate Monarch-related citizen science initiatives at the Center.

Summary of Results

1. Monarch Larva Monitoring Project

A dedicated group of 12 citizen scientists monitored stand 99 for monarch eggs, larvae and Milkweed from June 7, 2019 - September 6, 2019. This is twice the number of volunteers as last year. We counted an average of 117 Milkweed stems each week, locating 448 eggs, and 288 larvae! (136 first, 78 second, 46 third, 13 fourth, and 15 fifth instars). For the first time ever, we found two pupae.

2. Journey North - Migration Patterns

Journey North provides an easy entry point to Citizen Science, with simple protocols, strong online support, and immediate results. Reported sightings are mapped in real-time as waves

of migrations move across the continent. Citizen Scientists report sightings from the field, view maps, take pictures, and leave comments. Schlitz Audubon has been submitting data about Monarch migrations both north and south for the last eight years. The peak dates for spring arrivals takes place within a 2-week time-frame every year, as does the timing of peak fall migrations. In 2019, peak spring arrival date was May, 30, and peak fall migration was on September 14. Differences can be attributed to weather factors, such as wind and temperature, which traditionally alter the progress of migration.

3. Monarch Tagging

The purpose of the tagging is to associate the location of a Monarch Butterfly capture on its migratory pathway with its point of recovery. The data from these recaptures are used to determine the pathways taken by migrating Monarchs, the influence of weather on the migration, and various other factors in the migration process. Each butterfly is labeled with a sticker that has a unique tag code. Information about the point of capture is logged in the field, and sent electronically to Monarch Watch, which is housed within the University of Kansas. This year, we involved six groups in the tagging process, totaling 50 citizen scientists. One hundred Monarchs were tagged at Schlitz Audubon, almost twice the number tagged last year.

Butterfly Count with North American Butterfly Association

Lead Investigator | Brooke Gilley

Project Description

The North American Butterfly Association has run the Butterfly Count Program in the United States, Canada, and Mexico since 1993. Each of the approximately 450 counts consist of a compilation of all butterflies observed at sites within a 15-mile diameter count circle in a one-day period. The annually published reports provide a tremendous amount of information about the geographical distribution and relative population sizes of the species counted. Comparisons of the results across years can be used to monitor changes in butterfly populations and study the effects of weather and habitat change on North American butterflies. Counts are open to public participation and new participants are encouraged. Depending on the count, one or more count parties will survey sites within the 15-mile diameter count circle on a given day. The one-day survey was conducted on June 22, 2019 with a group of three volunteers.

Project Summary

Nine species and 43 individual butterflies were observed, including: Spring Azure (3), E. Tailed-Blue (1), Pearl Crescent (16), Lady Species (1), Red Admiral (10), Red-Spotted Purple (1), Monarch (2), Silver-spotted Skipper (8), Least Skipper (1). This is the third year the butterfly count was done at Schlitz Audubon. We stopped at noon because of rain on the day of the survey.

We had a very wet and cold late spring and early summer which was very hard on our flying insects (including butterflies and bumble bees), hence the lower numbers. Insects are cold blooded and can't fly when temps are lower. Also, if the floral resources are not there for them to nectar from this can also hinder populations.



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2019 Citizen Science Summary | Insects

Discovering Milwaukee's Fireflies

Lead Investigator | Moya Mowbray

Project Description

National research regarding fireflies indicates that species diversity and overall populations are declining. Very little is known about firefly species in Wisconsin. We collaborated with a regional project organized by the Milwaukee Public Museum to determine what species of fireflies inhabit our grounds, and also to estimate the population size of these luminescent beetles. We also hope to contribute information about the geographic distribution of fireflies in Milwaukee county. In addition, we want to analyze the effects of light, pesticides, mowing, fertilizers, proximity to water, climate, and weather on firefly populations at the Center, as well as in this region.

Summary of Results

Using a protocol established by the Milwaukee Public Museum, we monitored on July 10, 2019 and on August 7, 2019. Monitoring took place on the Terrace near the Milner Deck, north of the building, and in the Western Meadows. A total of 42 volunteers assisted in firefly monitoring.

The following species were confirmed by Milwaukee Public

Museum through voucher species and photographs: Dot-dash *Photuris pensylvanica*; Big Dipper *Photinus pyralis*; *Photinus Species*; Marsh Imp *Practomena lucifera*.

We surmised that the following species use our center as habitat through their distinct flash patterns and flash colors: Murky Flash-train *Photinus obscurellus*; Northern Ablaze Flash-train *Photinus ardens*; Little Grays *Photinus marginellus*; Cattail flash-train *Photinus consimilis*; Candle firefly *Pyractomena angulata*; Treetop flasher *Pyractomena borealis*; Marsh gray *Pyractomena linearis*.

Photinus pyralis is our most common firefly. The *Practomena* and *Photurus* fireflies appear initially in the West Meadows in June and July, and the *Photinus* are prevalent on the Lake Terrace and North of the building from July through to August. *Practomena borealis* are present in the terrace tree-tops only during the latter part of the summer. An incidental observation of fireflies flashing on September 12 is three days later than the previous Wisconsin observation record of September 9.

Moth Watch

Lead Investigator | Brooke Gilley

Project Description

Moth Watch at Schlitz Audubon is run in conjunction with National Moth Week in the last week of July. National Moth Week was started in 2012, and celebrates the beauty, life cycles, and habitats of moths. "Moth-ers" of all ages and abilities are encouraged to learn about, observe, and document moths in their backyards, parks, and neighborhoods. What began as a plan for a statewide moth night evolved into a national week and quickly became an international citizen science project that invited organizations and individuals to register their events for free.

For 2019, participants downloaded the iNaturalist app, and took photos to share with the iNaturalist community. The lead

investigator could then look online to see what species had been documented at Schlitz Audubon via iNaturalist.

Summary of Results

Species sightings confirmed at Moth Watch, 2019 included Confused Eusarca Moth, Straight-lined Argyria Moth, Ailanthus Webworm Moth, American Idia Moth, Elegant Grass-Vaneer, Creamed-Edged Dichomeris, Single-dotted Wave. Still awaiting confirmation through iNaturalist are Zigzag Herpetogramma and Banded Olethreutes.



Schlitz Audubon
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2019 Citizen Science Summary | Mammals

Acoustic Bat Monitoring

Lead Investigators | Cassie Rincon, Aubrey Ellickson

Project Description

From June 4 to July 9, 2019, two Schlitz Audubon staff and 34 volunteers performed acoustic bat monitoring surveys on the Center property with the use of the Echo Meter Touch app and device and the Anabat device. In total, the staff members spent seven hours monitoring the property and the volunteers spent 40 hours. All acoustic data is sent to Paul White and his team from the Wisconsin DNR for analysis. Maps with the GPS route as well as the locations of the echolocation calls were recorded and then sent back to the Center. The goal of the monitoring surveys is to identify which bat species are located on the property as well as the frequency of their echolocation calls.

Summary of Results

The survey spanned five different nights, but due to technological issues, only data from four of the nights were captured. There were a total of 44 echolocation calls from the Big Brown bat *Eptesicus fuscus*, 9 echolocation calls from the Eastern Red bat *Lasiurus borealis*, 5 echolocation calls from the Hoary bat *Lasiurus cinereus*, and 2 echolocation calls from the Little Brown bat *Myotis lucifugus*. According to the maps generated by the Wisconsin DNR, the location with the most activity is near Mystery Lake.

2019 Citizen Science Summary | Lake Michigan

Alliance for the Great Lakes "Adopt-a-Beach"

Lead Investigator | Jessy Knox and Joyce Michelstetter

Project Summary

Adopt-a-Beach is a program through the Alliance for the Great Lakes working to protect all of the Great Lakes through clean-ups and community projects. For more than 25 years the Adopt-a-Beach program has worked to keep the Great Lakes shorelines healthy, safe, and beautiful. Schlitz Audubon incorporated the Adopt-a-Beach program into our elementary All Day Great Lakes class in the spring of 2012 with a grant from the Wisconsin Coastal Management Program.

This year we also added the clean-up portion of the project to some of our middle and high school Lake Michigan programs. Students come to learn about Lake Michigan and work to protect it. Together students and naturalists fill out a Routine Visit Form, gathering information such as air and water temperature, pH and turbidity, wind speed, wave height and bather load. We also take a water sample and report our results to The Alliance for the Great Lakes through their website.

After this data is collected, all students participate in litter monitoring. With a gloved hand and a plastic bag for trash, everyone collects as much litter as we can find. Back in the classroom we weigh our bag of total trash removed and then dissect our garbage bags! We group the litter into categories such as Plastic, Smoking, Metal, Glass, Paper and Other. A final count of each category is submitted on the Alliance's website.

Summary of Results

In 2019 Schlitz Audubon hosted 13 beach clean ups through our programming. Students and volunteers collected over 186 pounds of litter that had washed up from Lake Michigan, including thousands of pieces of styrofoam and hundreds of pieces of plastic. We are proud to continue serving our freshwater resources and educating students as a partner of Alliance for the Great Lakes.

