2023 MICHIGAN MOTUS ARRAY REPORT

The Kalamazoo Valley Bird Observatory (KVBO), a project of the Kalamazoo Nature Center, works with bird observatories around the globe to gather data on bird migration routes using the Motus Wildlife Tracking System. Led by Bird Studies Canada, this system uses networked receiving towers to detect specialized radio tracking devices on wildlife from up to 15 km away and shares these reports with researchers worldwide.

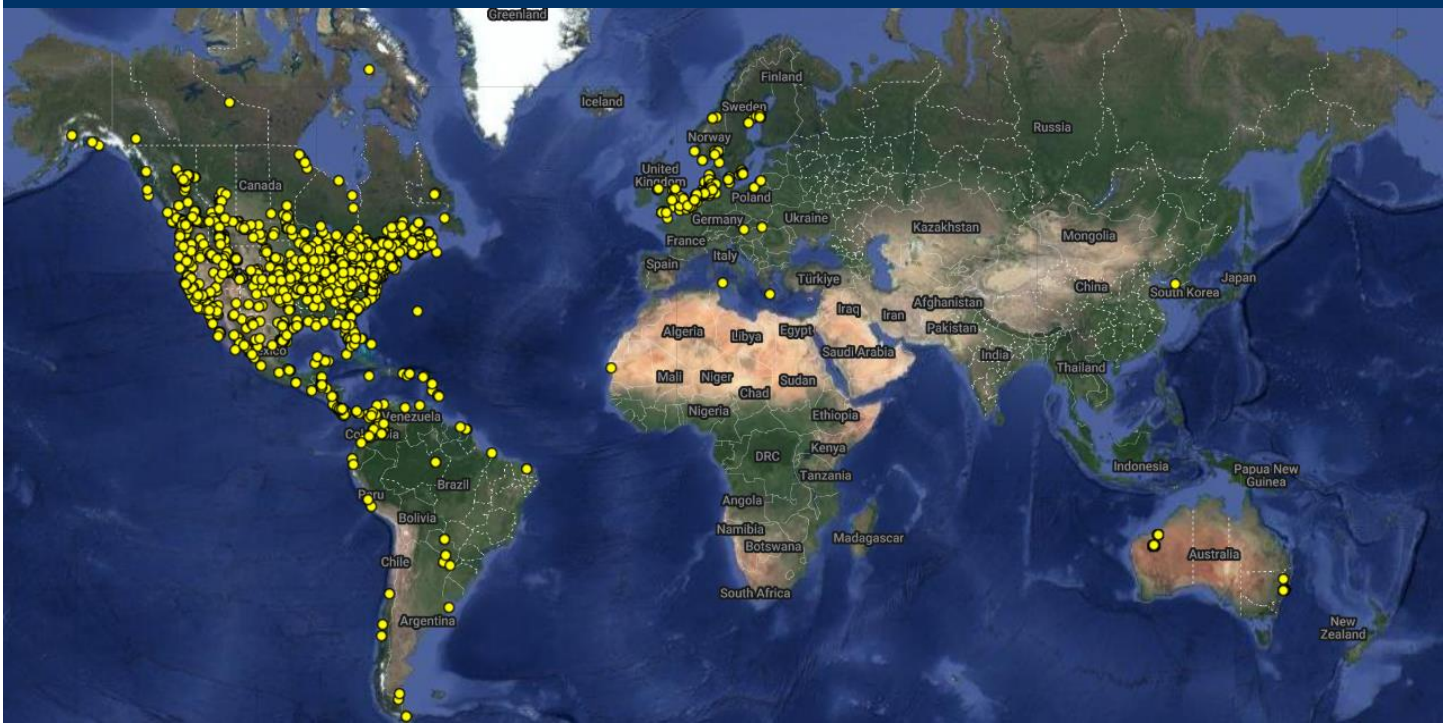
At this time, the KVBO is connected with 19 statewide Motus receivers that make up the Michigan Motus Array. Together with other international receivers, this network dramatically increases researchers' abilities to track bird migration across Michigan and beyond. This annual report provides a snapshot of the actual observations made by Michigan receivers in 2023 and identifies the associated research projects that tagged each detected bird. For more tools and reports from Motus worldwide, please visit motus.org.

ID #	MOTUS RECEIVER LOCATION	START DATE	2023 DETECTIONS	PAGE
4666	Kalamazoo Nature Center	5/18/2018	5	8
5114	Pitsfield Banding Station	3/22/2019	0	24
5742	Kensington	10/30/2019	17	10
7470	Lowe Foundation	12/3/2020	8	12
7669	Sarett Nature Center	3/27/2021	5	14
7671	Tomashefsky	3/27/2021	0	24
7734	Taylor Armory	5/13/2021	12	15
7735	Waterloo State Recreation Area	5/13/2021	5	17
8046	Ott Biological Preserve	8/3/2021	1	18
8047	Whitehouse Nature Center	7/27/2021	2	19
8048	Bay City Army National Guard	7/17/2021	5	20
8049	John Ball Zoo	5/24/2021	0	24
8062	Gladstone Army National Guard	8/17/2021	0	24
8063	Marquette National Guard Armory	8/18/2021	0	24
8070	Sault Ste. Marie Army National Guard	8/19/2021	0	24
8082	Camp Grayling	8/20/2021	0	24
8306	Jackson College	11/3/2021	43	21
10246	Ann Arbor	9/22/2023	5	23
10334	Fort Custer Training Center	10/31/2023	3	9

The Motus program at the Kalamazoo Valley Bird Observatory is led by Rich Keith, KVBO Director.
Compilation of the 2023 Michigan Motus Array Report was led by Lindsey Dolinski, Research Biologist.
Learn more about KVBO's year-round avian research at naturecenter.org/kvbo.

OVERVIEW

WORLDWIDE MOTUS COVERAGE



The Michigan Motus Array's current network of 19 receivers contributes to the growing number of Motus stations worldwide. The Motus project currently helps researchers collaborate and share data across the United States, Canada, Central and South America, the Caribbean, Africa, Europe, South Korea, and Australia.

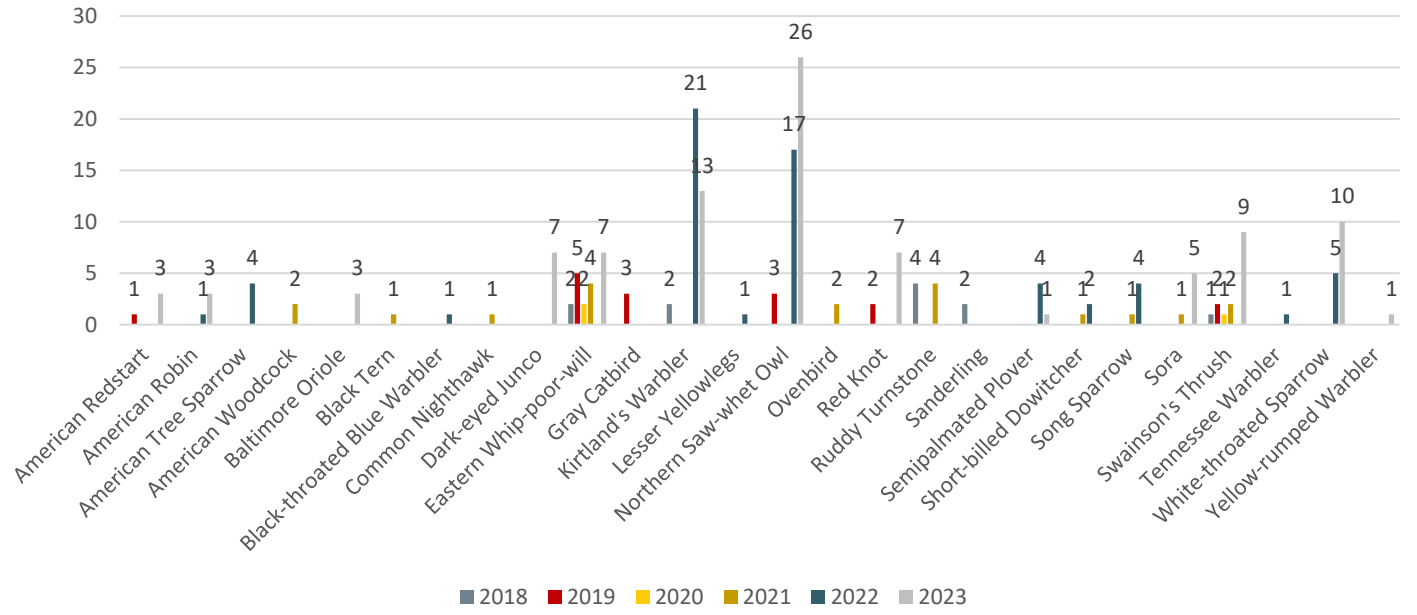
WORLDWIDE MOTUS METRICS

34	1,788	348	44,184	708	2,121	206
Countries with Motus receiver stations	Motus receiver stations	Species tagged	Animals tagged	Projects to date	Motus Partners and Collaborators	Publications based on Motus data

The sharing of Motus radio telemetry data has helped scientists to better understand migration timing, stopover sites, habitat use, breeding grounds, nesting locations, survival rates, etc., among a variety of species. While Michigan's work primarily focuses on birds, scientists are using Motus technology to track and understand movement of many different types of migratory wildlife, including bats, beetles, butterflies, moths, other insects, and reptiles.

OVERVIEW - *continued*

MICHIGAN MOTUS ARRAY OBSERVATIONS, 2018-2023



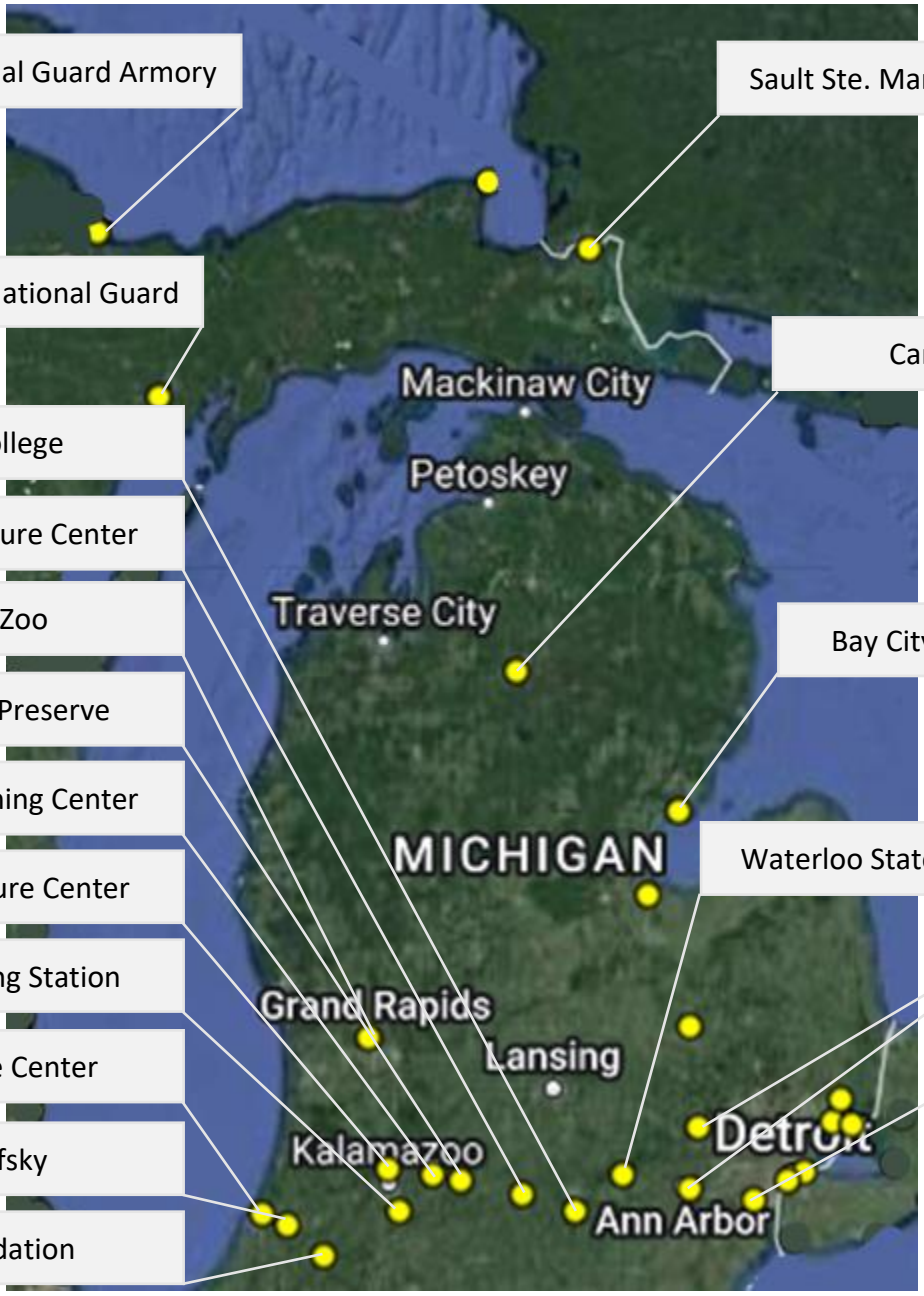
Since 2018, the data from Michigan Motus Array provided 205 confirmed bird observations, contributing to at least twenty-five different research projects. Last year's 2023 data provided the most signals received in one year yet, with 95 confirmed signals received. For a more in depth look at last year's observations, please find the 2022 Michigan Motus Array Report here.

MICHIGAN MOTUS ARRAY UPDATES

The most recent addition to the Michigan Motus Array was completed on September 22, 2023 with the launch of a new Motus tower in Ann Arbor. The Kalamazoo Nature Center, Ann Arbor Parks and Recreation, and the Kalamazoo Valley Bird Observatory installed the 19th receiver in the Michigan Motus Array at the Huron Hills Golf Course. The addition of this tower closes the final coverage gap of Motus detection connectivity spanning east to west in Michigan's lower peninsula. This now enables tracking of all tagged birds and other wildlife that travel north and south through the state. On a global scale, Motus data helps researchers better understand migratory paths and timing, stopover locations, habitat use, breeding, nesting, and overwintering locations, etc. On a local scale, this information helps land managers make species-informed decisions when working in wildlife habitat. Becky Hand, Stewardship Supervisor at the Natural Area Preservation of Ann Arbor Parks and Recreation, says "the data collected by our tower will help inform our management of Ann Arbor's natural areas, so that we may provide high quality habitat for all manner of local wildlife." With five bird detections since its launch in September, we are eager to see how subsequent detections from this tower may inform conservation efforts of tagged wildlife traveling through and residing in Michigan.

MICHIGAN MOTUS ARRAY LOCATIONS

Key:
Yellow Dot = Receiver



Marquette National Guard Armory

Sault Ste. Marie National Guard

Gladstone Army National Guard

Camp Grayling

Jackson College

Whitehouse Nature Center

John Ball Zoo

Bay City National Guard

Ott Biological Preserve

Fort Custer Training Center

Waterloo State Recreation Area

Kalamazoo Nature Center

Kensington

Pitsfield Banding Station

Ann Arbor

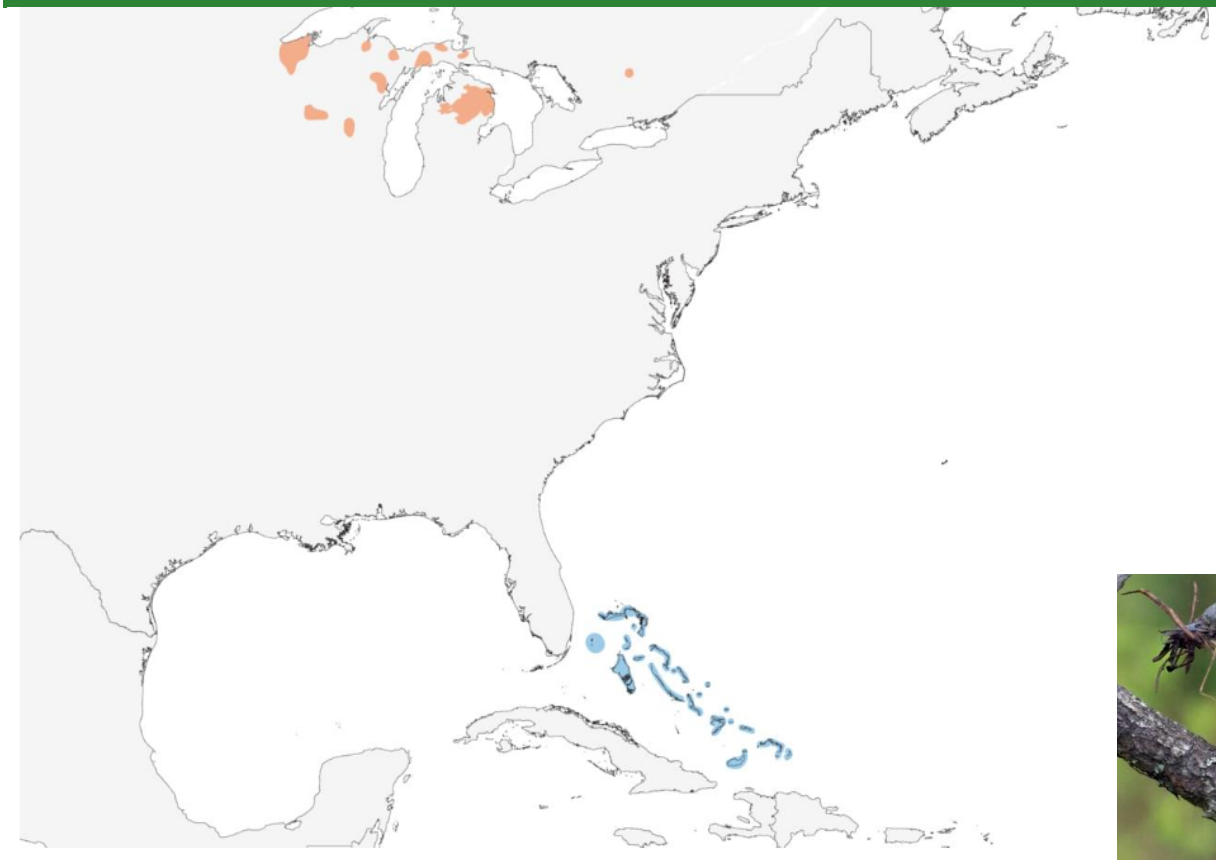
Sarett Nature Center

Taylor Armory

Tomashefsky

Lowe Foundation

FEATURED SPECIES: KIRTLAND'S WARBLER

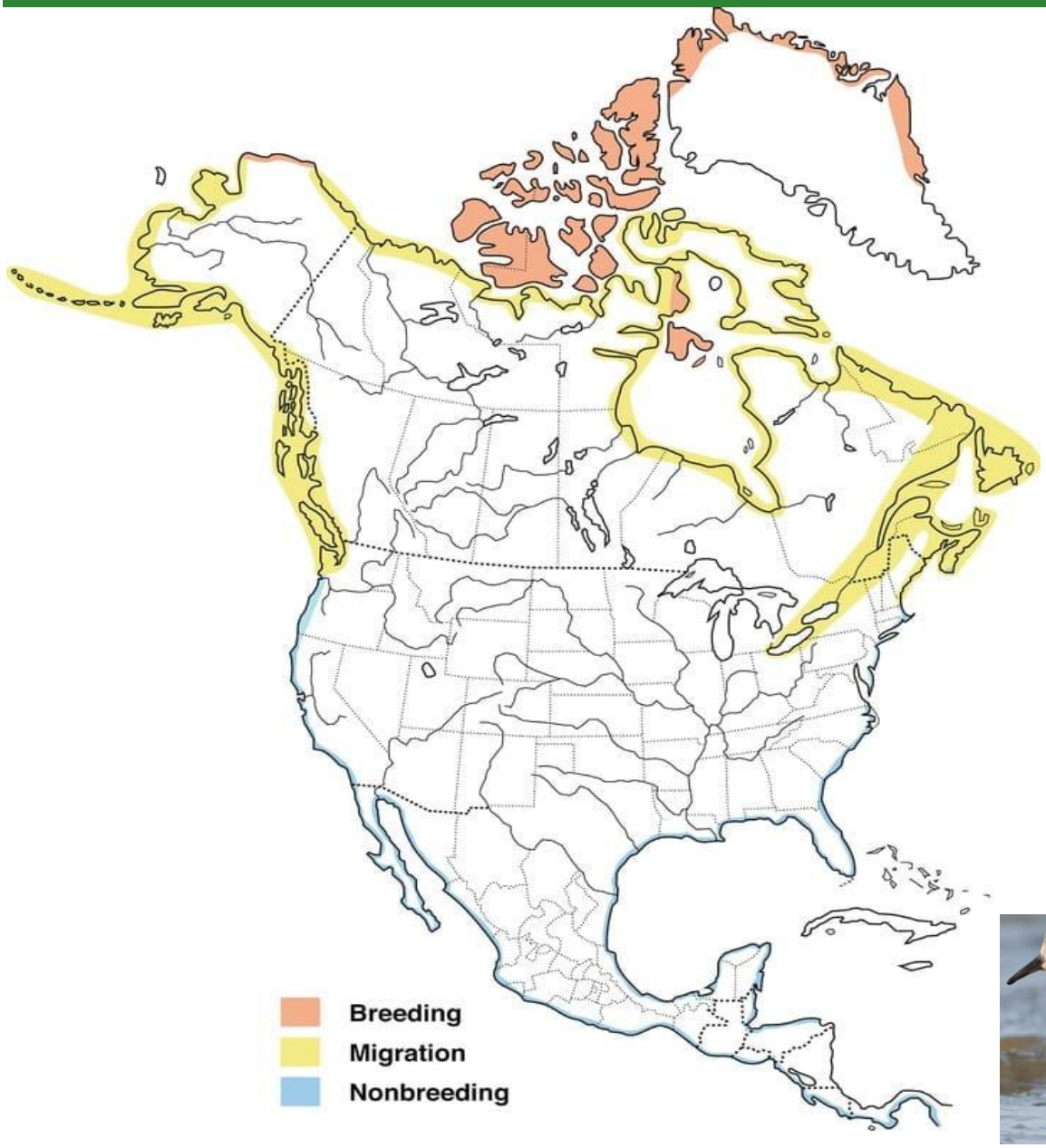


Kirtland's Warbler

- Motus Project #145
- Conservation Status = Endangered 1967-2019
- Delisted November 2019-Present

Once facing the brink of extinction, the rebound of the Kirtland's Warbler is considered to be a great success among conservationists and bird-lovers alike. When this species was first afforded protection by the Endangered Species Act nearly 50 years ago, it was estimated that there were only around 200 breeding pairs in existence. In 2020, reported breeding pairs were estimated to be around 300, almost double the conservation goal set for this species. Due to such great conservation success, the Kirtland's Warbler was removed from the endangered species list by the United States Fish and Wildlife Service in 2019. The Kirtland's Warbler faced such stress due to two factors, primarily; loss and fragmentation of their breeding habitat and Brown-headed Cowbird parasitism. Kirtland's Warblers nest in young jack pine forests and overwinter in the Bahamas. Within the last 50 years, land managers, agencies, scientists, and bird lovers have collaborated to create and maintain suitable jack pine habitat to promote healthy and sustainable Kirtland's Warbler populations. Efforts were concentrated on planting jack pine seedlings and reintroducing fire regimes into these habitat types. Cowbird parasitism continues to be addressed through monitoring and trapping programs. While jack pine forest and cowbird management in breeding habitats remain a priority, Motus Project #145 – *Kirtland's Warbler Tracking, Bahamas – Michigan* serves to determine what aspects of Bahamian wintering grounds influence migration timing and reproductive success of the Kirtland's Warbler. Principle investigators Dr. Nathan Cooper, a behavioral ecologist and conservation biologist for the Smithsonian Institute, and Haley Hardon, a graduate student at the University of Illinois Urbana-Champaign, "know that arrival date on breeding grounds is a key determinant of reproductive success in Kirtland's Warblers." With reference to the Michigan Motus Array, Cooper and Hardon can make inferences about the reproductive success of tracked Kirtland's Warblers based on their arrival in Michigan.

FEATURED SPECIES: RED KNOT

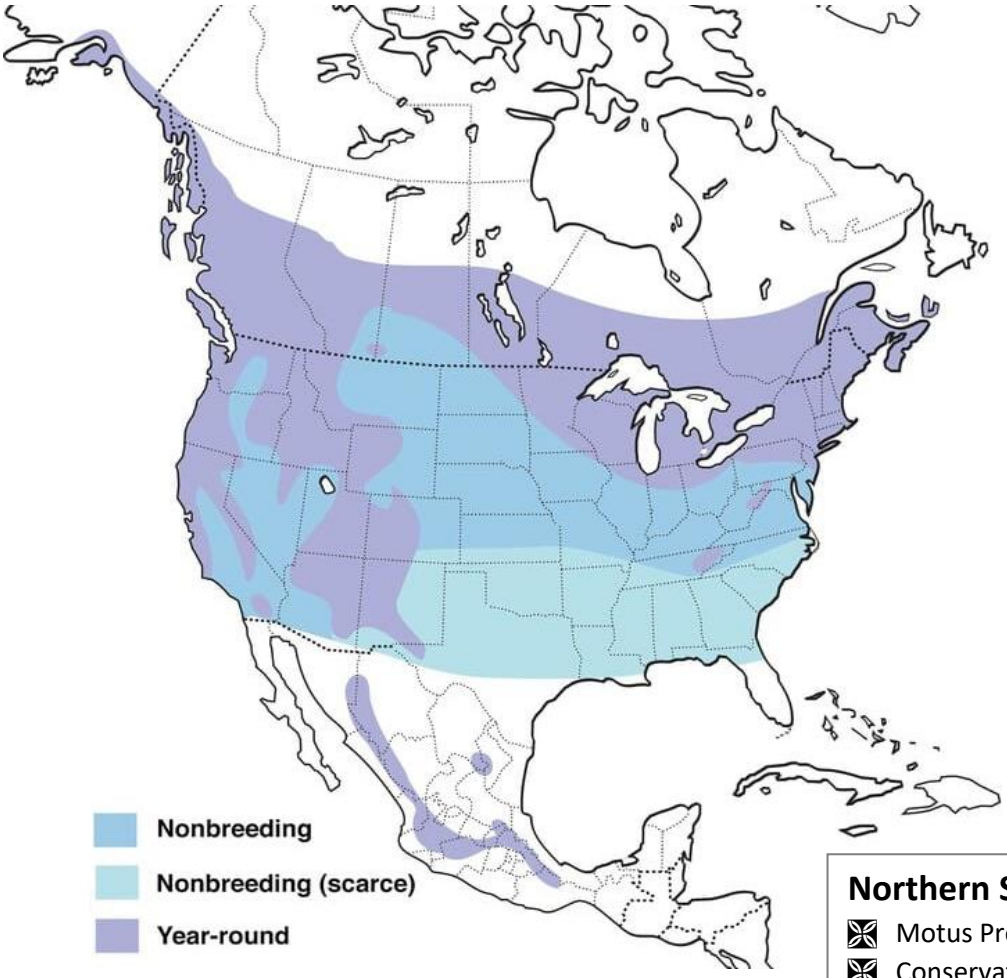


Red Knot

- Motus Project #140
- Conservation Status = Threatened

The Red Knot has experienced rapid decline within the last 40 years. These long-distance migratory shorebirds were added to the Federal Endangered Species List in 2014. Red knots in the Eastern United States have declined from nearly 82,000 individuals reported in the 1980's to around 30,000 in the 2010's. This is in large part due to a reduction in food availability; the commercialized, unsustainable harvest of horseshoe crab eggs, which are a major food source for Red Knots. Their rapid decline has made them a flagship species for shorebird conservation. Aiding in the study of these threatened shorebirds is Felicia Sanders, South Carolina Department of Natural Resources Coastal Bird Conservation Project Supervisor, and principle investigator of Motus Project #140 – *South Carolina Department of Natural Resources Shorebirds*. Her research uses Motus telemetry to track Red Knots in their northward migratory routes along the Atlantic Coast, a handful of which passed through the Michigan Motus Array in 2023. Sanders says, "most knots tracked in our study traveled north through the eastern Great Lakes Basin without stopping, thus making the Southeast United States the last terminal stopover for some knots before reaching boreal Arctic stopover sites." With reference to the Michigan Motus Array, researchers like Sanders can form a better understanding of where Red Knots stopover to feed during migration. Ultimately, capturing this data will help inform conservation efforts.

FEATURED SPECIES: NORTHERN SAW-WHET OWL



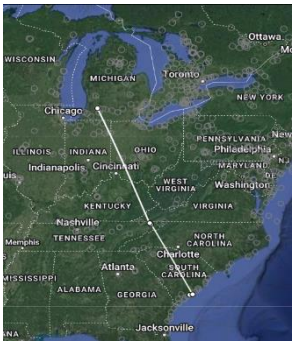
Northern Saw-whet Owl

- Motus Project #454
- Conservation Status = Least Concern

Although elusive and highly nocturnal, the Northern Saw-whet Owl is one of the most common owl species found in forests across northern North America. While it is difficult to see Northern Saw-whet Owls due to their elusive nature, one may hear their "too-too-too" call on a quiet winter's evening. Contrastingly, one may be alerted to the presence of a Northern Saw-whet Owl from songbirds in the area; they may chatter loudly and frequently to warn each other of an owl's proximity. One may have the good fortune of hearing or seeing a Northern Saw-whet at Jackson College. Resident Northern Saw-whet Owl #59371 has captured the Michigan Motus Array's attention by triggering detections at Jackson College's receiver on nearly 30 days over the recent winter season. In 2022, this same owl had triggered detections at Jackson College's receiver on nearly 40 days. This bird was tagged by Motus Project #454 – *Caesar Creek Banding Station Motus Saw-whet Owl Migration and Habitat Use* which aims to understand both the local use of habitat at Caesar Creek Lake and similar sites in the Midwest region by migration and winter resident Saw-whet Owls. Migration in Northern Saw-whets has historically been misunderstood. Principle investigator, Steven Lee from Friends of Caesar Creek is hoping that tracking information collected by Motus will allow land managers to be better able to conserve and protect bird species like the Northern Saw-whet Owl. Friends of Caesar Creek, the Ohio Department of Natural Resources, Ohio State University, and the U.S. Army Corps of Engineers are working in collaboration to conserve cedar and evergreen thickets, which will aid in the conservation and protection of Northern Saw-whet Owls like #59371.

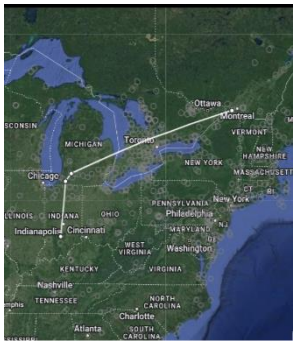
MOTUS OBSERVATIONS: KALAMAZOO NATURE CENTER

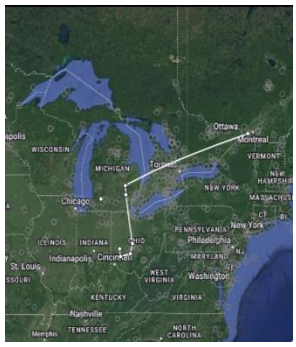
Summary: 18 readings, 5 individuals, 3 species. Key: E = Endangered, T = Threatened, SC = Special Concern



Red Knot (T) Project #140, Felicia Sanders, Carolina Department of Natural Resources

Researching spring migration deployments on shorebirds in coastal South Carolina, primarily Red Knots and Ruddy Turnstones.





Dark-eyed Junco Project #550, Alex Jahn, Indiana University

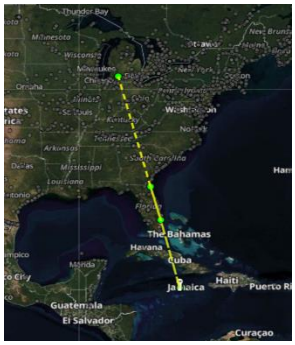
Researchers expose Dark-eyed Juncos to artificial light at night to determine if the exposure affects their departure date.

American Robin Project #308, Jamie Cornelius

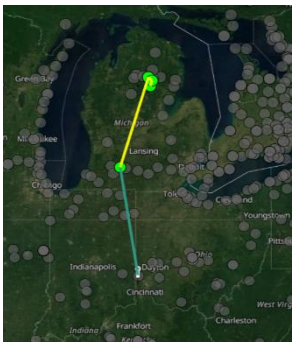
Researching migratory movements and behavior following high lead levels during the juvenile stage in American Robins.

MOTUS OBSERVATIONS: FORT CUSTER TRAINING CENTER

Summary: 15 readings, 2 individuals, 2 species. Key: E = Endangered, T = Threatened, SC = Special Concern



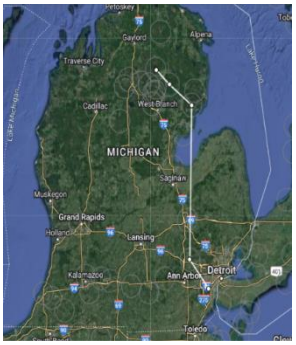
American Redstart Project #463, Bryant Dossman, Georgetown University
Investigating the connection between nonbreeding conditions, spring departure timing, and migration.

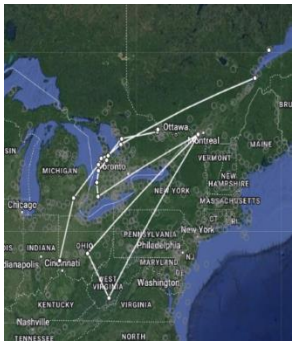


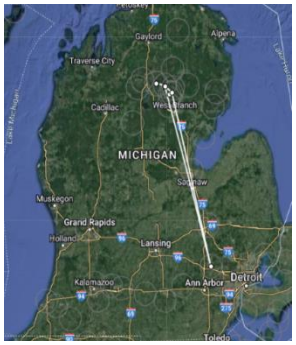
White-throated Sparrow Project #64, Christopher Tonra, Ohio State University Conducting Lake Erie Migratory Bird Research at Ottawa National Wildlife Refuge, Detroit River International Wildlife Refuge, and on state lands in both Michigan and Ohio.

MOTUS OBSERVATIONS: KENSINGTON

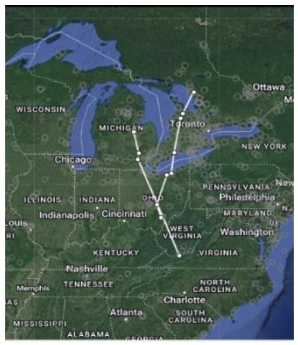
Summary: 33 readings, 15 individuals, 7 species. Key: E = Endangered, T = Threatened, SC = Special Concern







Kirtland's Warbler Project #145, Nathan Cooper
Studying a population of endangered Kirtland's Warblers to determine the influence of winter conditions of migration departure date.

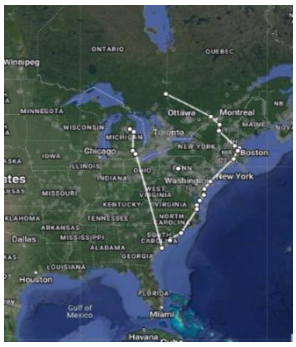


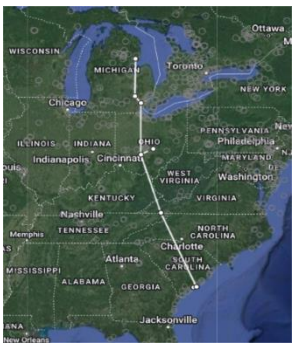
Swainson's Thrush Project #64, Christopher Tonra, Ohio State University
Conducting Lake Erie Migratory Bird Research at Ottawa National Wildlife Refuge, Detroit River International Wildlife Refuge, and on state lands in both Michigan and Ohio.

Baltimore Oriole Project #569, Amy Tegeler
Tracking migratory movements of Baltimore Orioles wintering in South Carolina.

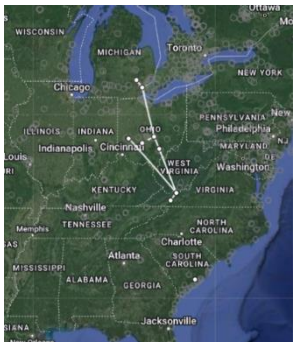
MOTUS OBSERVATIONS: KENSINGTON - *continued*

Summary: 33 readings, 15 individuals, 7 species. Key: E = Endangered, T = Threatened, SC = Special Concern



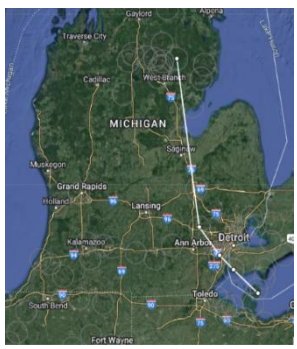


American Redstart Project #619, Yolanda Morbey, Western University
Studying the migratory movements of songbirds captured on Pelee Island, Ontario.



Red Knot (T) Project #140, Felicia Sanders, Carolina Department of Natural Resources
Researching spring migration deployments on shorebirds in coastal South Carolina, primarily Red Knots and Ruddy Turnstones.

Yellow-rumped Warbler Project #64, Christopher Tonra, Ohio State University
Conducting Lake Erie Migratory Bird Research at Ottawa National Wildlife Refuge, Detroit River International Wildlife Refuge, and on state lands in both Michigan and Ohio.

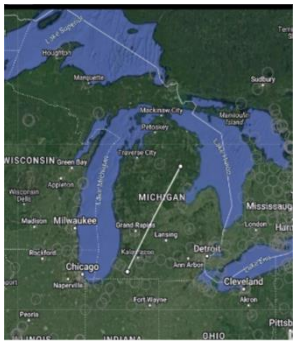


American Robin Project #308, Jamie Cornelius
Researching migratory movements and behavior following high lead levels during the juvenile stage in American Robins.

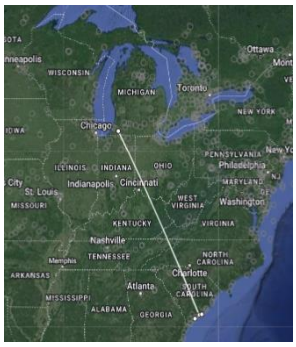
MOTUS OBSERVATIONS: LOWE FOUNDATION

Summary: 14 readings, 8 individuals, 5 species. Key: E = Endangered, T = Threatened, SC = Special Concern

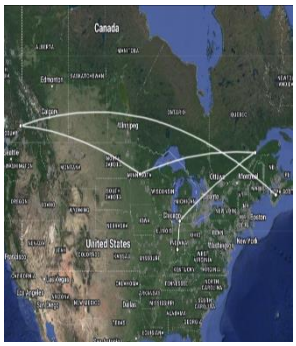
Kirtland's Warbler Project #145, Nathan Cooper
Studying a population of endangered Kirtland's Warblers to determine the influence of winter conditions of migration departure date.

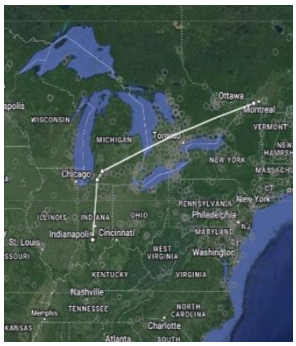


Mourning Dove Project #558, Nathan Cooper
Tagging of various wintering migrants to investigate coffee landscapes.



Red Knot (T) Project #140, Felicia Sanders, Carolina Department of Natural Resources
Researching spring migration deployments on shorebirds in coastal South Carolina, primarily Red Knots and Ruddy Turnstones.

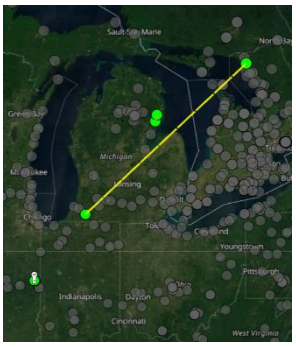




Dark-eyed Junco Project #550, Alex Jahn, Indiana University
Researchers expose Dark-eyed Juncos to artificial light at night to determine if the exposure affects their departure date.

MOTUS OBSERVATIONS: LOWE FOUNDATION - *continued*

Summary: 14 readings, 8 individuals, 5 species. Key: E = Endangered, T = Threatened, SC = Special Concern

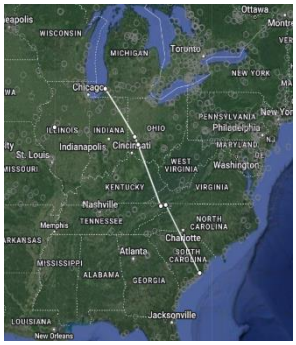


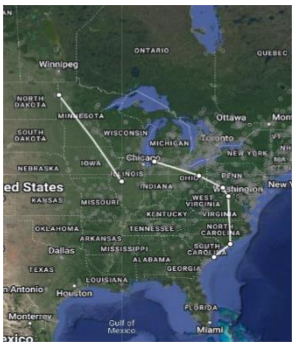
Northern Saw-whet Owl Project #354, Mike Avara, University of Illinois

Building Motus receiver infrastructure in a latitudinal array across Illinois.

MOTUS OBSERVATIONS: SARETT NATURE CENTER

Summary: 12 readings, 5 individuals, 2 species. Key: E = Endangered, T = Threatened, SC = Special Concern



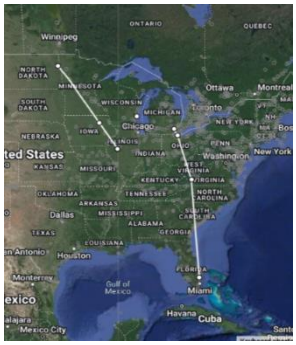


Sora Project #314 Auriel Fournier, University of Illinois Tracking breeding and migrating marsh birds.

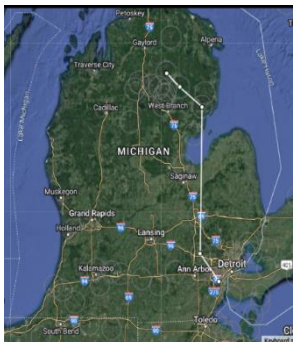
Swainson's Thrush Project #280 Hannah Justen, Texas A&M University Investigating migratory tendencies of Swainson's Thrush in a sub-species hybrid zone in the interior of British Columbia.

MOTUS OBSERVATIONS: TAYLOR ARMORY

Summary: 12 readings, 12 individuals, 8 species. Key: E = Endangered, T = Threatened, SC = Special Concern

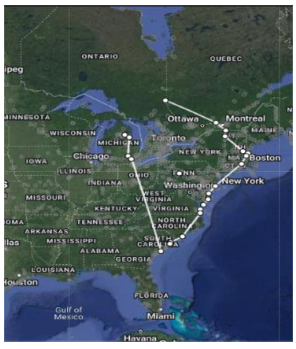


Sora Project #314 Auriel Fournier, University of Illinois
Tracking breeding and migrating marsh birds.



Kirtland's Warbler Project #145, Nathan Cooper
Studying a population of endangered Kirtland's Warblers to determine the influence of winter conditions of migration departure date.

American Redstart Project #619, Yolanda Morbey, Western University
Studying the migratory movements of songbirds captured on Pelee Island, Ontario.



Red Knot (T) Project #140, Felicia Sanders, Carolina Department of Natural Resources Researching spring migration deployments on shorebirds in coastal South Carolina, primarily Red Knots and Ruddy Turnstones.

MOTUS OBSERVATIONS: TAYLOR ARMORY - *continued*

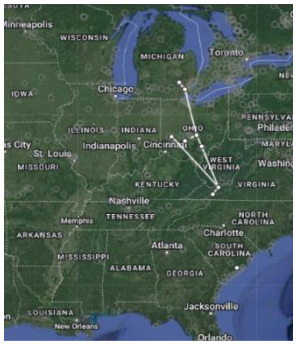
Summary: 12 readings, 12 individuals, 8 species. Key: E = Endangered, T = Threatened, SC = Special Concern

Swainson's Thrush Project #619, Yolanda Morbey, Western University

Studying the migratory movements of songbirds captured on Pelee Island, Ontario.

White-throated Sparrow Project #64, Christopher Tonra, Ohio State University

Conducting Lake Erie Migratory Bird Research at Ottawa National Wildlife Refuge, Detroit River International Wildlife Refuge, and on state lands in both Michigan and Ohio.



Baltimore Oriole Project #569, Amy Tegeler

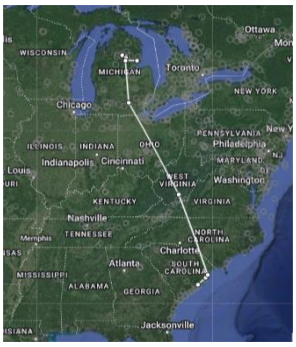
Tracking migratory movements of Baltimore Orioles wintering in South Carolina.

Northern Saw-whet Owl Project #354, Mike Avara, University of Illinois

Building Motus receiver infrastructure in a latitudinal array across Illinois.

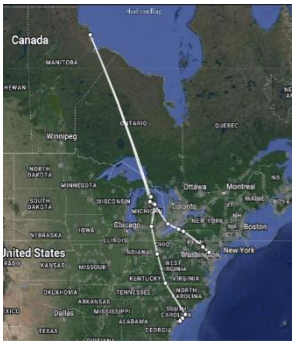
MOTUS OBSERVATIONS: WATERLOO STATE RECREATION AREA

Summary: 16 readings, 5 individuals, 4 species. Key: E = Endangered, T = Threatened, SC = Special Concern



Kirtland's Warbler Project #145, Nathan Cooper

Studying a population of endangered Kirtland's Warblers to determine the influence of winter conditions of migration departure date.



Eastern Whip-poor-will (T) Project #608 Natasha Barlow, Birds Canada

Determining critical knowledge gaps regarding habitat selection, prey availability, migratory paths, and overwintering sites of Eastern Whip-poor-will.

Red Knot (T) Project #140, Felicia Sanders, Carolina Department of Natural Resources

Researching spring migration deployments on shorebirds in coastal South Carolina, primarily Red Knots and Ruddy Turnstones.

White-throated Sparrow Project #64, Christopher Tonra, Ohio State University

Conducting Lake Erie Migratory Bird Research at Ottawa National Wildlife Refuge, Detroit River International Wildlife Refuge, and on state lands in both Michigan and Ohio.

MOTUS OBSERVATIONS: OTT BIOLOGICAL PRESERVE

Summary: 3 readings, 1 individual, 1 species. Key: E = Endangered, T = Threatened, SC = Special Concern

White-throated Sparrow Project #64, Christopher Tonra, Ohio State University

Conducting Lake Erie Migratory Bird Research at Ottawa National Wildlife Refuge, Detroit River International Wildlife Refuge, and on state lands in both Michigan and Ohio.

MOTUS OBSERVATIONS: WHITEHOUSE NATURE CENTER

Summary: 5 readings, 2 individuals, 2 species. Key: E = Endangered, T = Threatened, SC = Special Concern

White-throated Sparrow Project #64, Christopher Tonra, Ohio State University

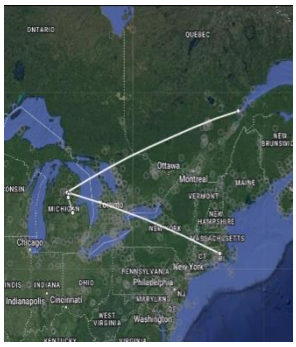
Conducting Lake Erie Migratory Bird Research at Ottawa National Wildlife Refuge, Detroit River International Wildlife Refuge, and on state lands in both Michigan and Ohio.

Dark-eyed Junco Project #550, Alex Jahn, Indiana University

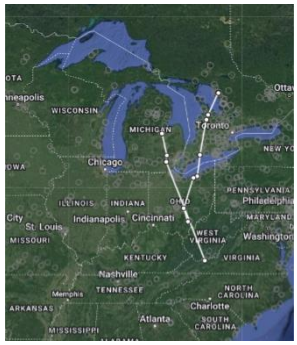
Researchers expose Dark-eyed Juncos to artificial light at night to determine if the exposure affects their departure date.

MOTUS OBSERVATIONS: BAY CITY ARMY NATIONAL GUARD

Summary: 13 readings, 5 individuals, 2 species. Key: E = Endangered, T = Threatened, SC = Special Concern



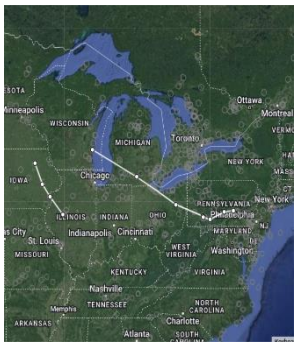
Kirtland's Warbler Project #145, Nathan Cooper
Studying a population of endangered Kirtland's Warblers to determine the influence of winter conditions of migration departure date.



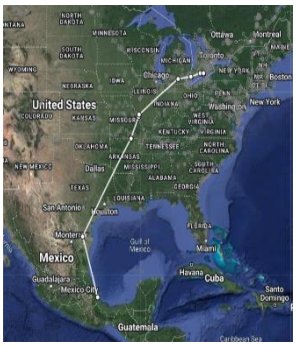
Swainson's Thrush Project #64, Christopher Tonra, Ohio State University
Conducting Lake Erie Migratory Bird Research at Ottawa National Wildlife Refuge, Detroit River International Wildlife Refuge, and on state lands in both Michigan and Ohio.

MOTUS OBSERVATIONS: JACKSON COLLEGE

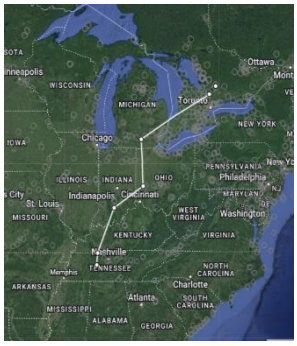
Summary: 43 readings, 15 individuals, 8 species. Key: E = Endangered, T = Threatened, SC = Special Concern



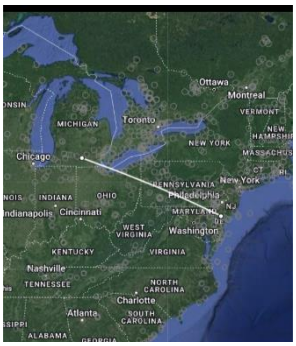
Sora Project #314 Auriel Fournier, University of Illinois
Tracking breeding and migrating marsh birds.



Eastern Whip-poor-will (T) Project #608 Natasha Barlow, Birds Canada
Determining critical knowledge gaps regarding habitat selection, prey availability, migratory paths, and overwintering sites of Eastern Whip-poor-will.



Eastern Whip-poor-will (T) Project #672, Richard Feldman, Ontario Ministry of Natural Resources and Forestry Monitoring individual, spatial, and temporal variation in movement and activity as seasons change from breeding to post-breeding to migration.



Kirtland's Warbler Project #145, Nathan Cooper
Studying a population of endangered Kirtland's Warblers to determine the influence of winter conditions of migration departure date.

Semipalmated Sandpiper Project #59 David Mizrahi, New Jersey Audubon
Tracking Semipalmated Sandpipers staging in Delaware Bay during spring migrations to document habitat use, movement patterns, and length of stay.

MOTUS OBSERVATIONS: JACKSON COLLEGE - *continued*

Summary: 43 readings, 15 individuals, 8 species. Key: E = Endangered, T = Threatened, SC = Special Concern

Swainson's Thrush Project #64, Christopher Tonra, Ohio State University

Conducting Lake Erie Migratory Bird Research at Ottawa National Wildlife Refuge, Detroit River International Wildlife Refuge, and on state lands in both Michigan and Ohio.

White-throated Sparrow Project #64, Christopher Tonra, Ohio State University Conducting Lake Erie Migratory Bird Research at Ottawa National Wildlife Refuge, Detroit River International Wildlife Refuge, and on state lands in both Michigan and Ohio.

White-throated Sparrow Project #515, Emily Weigel, Georgia Institute of Technology

Aims to determine what birds are migrating over the Atlanta area.

Northern Saw-whet Owl Project #454 Steven Lee, Friends of Caesar Creek

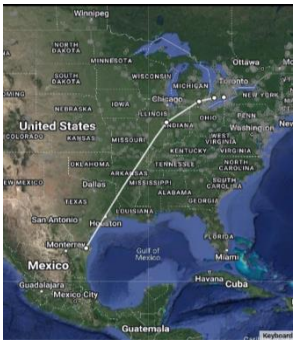
Using Motus technology to better understand the use of habitat at Caesar Creek Lake by migrating and winter resident Saw-whet Owls.

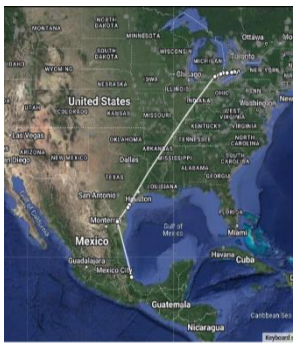
American Robin Project #308, Jamie Cornelius

Researching migratory movements and behavior following high lead levels during the juvenile stage in American Robins.

MOTUS OBSERVATIONS: ANN ARBOR

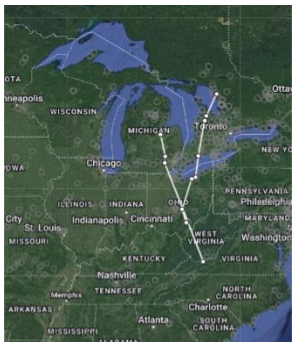
Summary: 5 readings, 5 individuals, 3 species. Key: E = Endangered, T = Threatened, SC = Special Concern





Eastern Whip-poor-will (T) Project #608 Natasha Barlow, Birds Canada
Determining critical knowledge gaps regarding habitat selection, prey availability, migratory paths, and overwintering sites of Eastern Whip-poor-will.

Kirtland's Warbler Project #145, Nathan Cooper
Studying a population of endangered Kirtland's Warblers to determine the influence of winter conditions of migration departure date.



Swainson's Thrush Project #64, Christopher Tonra, Ohio State University
Conducting Lake Erie Migratory Bird Research at Ottawa National Wildlife Refuge, Detroit River International Wildlife Refuge, and on state lands in both Michigan and Ohio.

AWAITING DATA: NO OBSERVATIONS YET RECORDED

The following receiver stations of the Michigan Motus Array did not record any observations in 2023:

1) John Ball Zoo
2) Gladstone Army National Guard
3) Sault Ste. Marie Army National Guard
4) Camp Grayling (1 null detection)
5) Pitsfield Banding Station
6) Tomashefsky
7) Marquette National Guard Armory

REFERENCES

PRIMARY INFORMATION, DATA, & IMAGE SOURCES

Motus program overviews, detection data, research project details, and individual migration maps are courtesy of:
Motus Wildlife Tracking System. 2023. Birds Canada, Port Rowan, Ontario. Available: https://motus.org.
Accessed: January 2024.

Featured species range maps and individual bird photos were obtained from:
All About Birds. 2024. Online Bird Guide, Cornell University. Available: https://www.allaboutbirds.org/news/
Accessed: January 2024.

FEATURED SPECIES AND RESEARCH PROJECT INFORMATION

Additional information for species profiles was sourced from:
Michigan's Rare Animals. 2009. Michigan Natural Features Inventory, Michigan State University. Available: https://mnfi.anr.msu.edu/species/animals. Accessed: January 2024.

Species of Greatest Conservation Need List & Rationales (Appendix 1). 2015. Michigan Wildlife Action Plan, United States Geological Survey. Available: https://www.michigan.gov/-/media/Project/Websites/dnr/Documents/WLD/WAP/17_appendix1_sgcn_rationales.pdf?rev=82ff03dddb064bd28f03d1b3bf2210d3. Accessed: January 2024.

New Motus Tower at Huron Hills Golf Course Tracks Wildlife in Ann Arbor. 2023. City of Ann Arbor. Quotes from Becky Hand, Ann Arbor Parks and Recreation Stewardship Supervisor – Natural Area Preservation (NAP). Available: https://www.a2gov.org/news/Pages/article.aspx?i=1002. Accessed: January 2024.

Recent research shows importance of SC island in migration of threatened red knots. 2023. South Carolina Department of Natural Resources. Quotes from Felicia Sanders, SCDNR Coastal Bird Conservation Project Supervisor. Available: https://www.dnr.sc.gov/news/2023/May/may10-migration.php. Accessed: January 2024.