

2024 OHIO AVIAN RESEARCH CONFERENCE



Saturday, November 16, 2024

Grange Insurance Audubon Center, Columbus, Ohio



OHIO BIRD
CONSERVATION
INITIATIVE



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

Exhibitors



Association of Zoos & Aquariums

The Association of Zoos and Aquariums (AZA) is a 501(c)3 non-profit organization dedicated to the advancement of zoos and aquariums in the areas of conservation, education, science, and recreation. AZA represents more than 235 facilities in the United States and overseas, and dedicates millions of dollars annually to support scientific research, conservation, and education programs

<https://www.aza.org/>



Black Swamp Bird Observatory

Founded in 1992, Black Swamp Bird Observatory's mission is to inspire the appreciation, enjoyment, and conservation of birds and their habitats through research, education, and outreach.

<https://www.bsbo.org/>



Buckeye Trail Association

The Buckeye Trail Association (BTA) has been the leader in building, maintaining, protecting and promoting Ohio's 1,400-mile State Trail since 1959.

<https://www.buckeyetrail.org/>



Conservation Coffee

Committed to delivering premium, ethically sourced coffee, Conservation's mission extends to raising awareness about lesser-known issues within the coffee supply chain, while actively contributing to conservation efforts.

<https://www.conservation-coffee.org/>



Erie Bird Observatory

Erie Bird Observatory is a non-profit founded in 2018 dedicated to avian research, education, and conservation in northwest Pennsylvania.

<https://www.eriebirdobservatory.org/>



ODNR-Division of Wildlife

The Division of Wildlife's mission is to conserve and improve fish and wildlife resources and their habitats for sustainable use and appreciation by all.

<https://wildlife.ohiodnr.gov/>



Stromatolite Natural Science Studio

Founded by artist Maria Burke in 2021, her exhibit design and museum services studio now partners with many Ohio nature centers, the National Parks Service, and museums throughout the country.

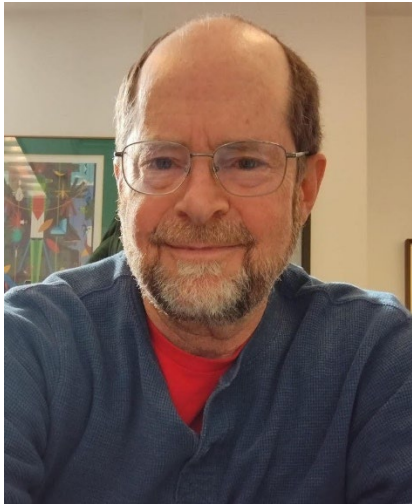
<https://www.mburke.art/>

Schedule

- 8:00 - 9:00 Registration, poster set up, exhibitors
- 9:00 - 9:15 Welcome & announcements
- 9:15 - 10:15 Keynote presentation
- Dr. Ronald L. Mumme**, *Professor Emeritus, Allegheny College*
How Hooded Warblers live, and thrive, with cowbird nest parasitism
- **15-minute break***
- 10:30 - 12:15 Presentation session 1
- Joseph Lautenbach**, *ODNR-Division of Wildlife*
Comparing Grassland Bird Use Among Grassland Management Types on a Reclaimed Surface Mine
- Carl Engstrom**, *The Ohio State University*
Investigating habitat and landscape associations for an imperiled Ohio songbird
- Ningzhu Bai**, *The Ohio State University*
Identifying Tick Infestation Patterns on Passerine Birds (Order: Passeriformes) in Ohio
- Nathan Byer**, *Cleveland Metroparks*
Occupancy models to inform scale, stressor, and need for breeding birds across Cleveland Metroparks
- Rebecca Ralston**, *The Ohio State University*
Nonbreeding and en route environmental conditions impact the spring phenology of a songbird in Ohio
- 12:15 - 1:15 Lunch
- 1:15 - 2:00 Poster session
- 2:00 - 3:45 Presentation session 2
- Kristina Slagle**, *The Ohio State University*
Ohio eBirders as partners in bird conservation
- Alia Dietsch**, *The Ohio State University*
Human-bird interactions in backyards and beyond: Who engages in bird-related activities?
- Laura Kearns**, *ODNR-Division of Wildlife*
Counting cranes: Using citizen science to track a recovering species
- Matthew Shumar**, *The Ohio State University*
The Ohio Bird Conservation Initiative: 20 years of collaborative bird conservation
- 3:45 - 4:00 Closing remarks

Keynote Presentation

How Hooded Warblers live, and thrive, with cowbird nest parasitism



Dr. Ronald L. Mumme

Professor Emeritus
Department of Biology
Allegheny College

Dr. Mumme is a Professor Emeritus in the Department of Biology at Allegheny College. His major research interests are animal behavior and avian behavioral ecology, and since 2010, his research has focused on the the relationship between plumage pattern and foraging performance in the Hooded Warbler, a species that uses displays of its conspicuous white tail spots to startle potential insect prey and enhance foraging success. Ron's field work on this species has been conducted at Hemlock Hill Field Station located near Cambridge Springs, Pennsylvania.

Dr. Mumme's research on Hooded Warblers has received a modest amount of media coverage, including pieces in [BirdwatchingDaily](#), [Phys.org](#), [EurekAlert!](#), [The Wildlife Society](#), and [elsewhere](#).

Morning Session – Oral Presentations

Comparing Grassland Bird Use Among Grassland Management Types on a Reclaimed Surface Mine

Joseph Lautenbach¹, Stanleigh Penhorwood¹, Mike Ervin¹, Ryan Harris¹, Nathan Stricker¹

¹ ODNR-Division of Wildlife

Appalachian Hills Wildlife Area, in southeastern Ohio, was historically mined for coal and was later reclaimed in 1995, resulting in large grassland areas. Many reclaimed areas were primarily planted to cool-season grasses. Grazing and haying contracts were established on the property prior to purchase by the Ohio Division of Wildlife. In 2023, we surveyed grasslands to compare grassland bird abundance among three different management types: grazing, haying, and idle fields. In total, we completed 120 point-count surveys, with 40 locations in each management type. We used distance sampling to estimate abundance of grassland birds. Species responses varied by management type. Densities of male Bobolinks (*Dolichonyx oryzivorus*) were similar between grazed (2.28 males/ha, SE=0.50) and hayed (2.44 males/ha, SE=0.30) fields and were both greater than idle fields (0.10 males/ha, SE=0.06). Henslow's Sparrow (*Centronyx henslowii*) achieved their greatest densities in hayed (1.85 males/ha, SE=0.45) and idle (1.46 males/ha, SE=0.40) fields, with lower abundance in grazed fields (0.29 males/ha, SE=0.13). Eastern Meadowlark (*Sturnella magna*) abundance peaked in grazed fields (0.88 males/ha, SE=0.17); abundance was decreased in hayed fields (0.47 males/ha) and idle fields (0.38 males/ha, SE=0.12). Similarly, Grasshopper Sparrows (*Ammodramus savannarum*) achieved their greatest abundance in grazed pastures (1.50 males/ha, SE=0.39), with fewer birds in hay fields (0.33 males/ha, SE=0.13), and no birds were detected in idle fields. Our work builds on previous research with grassland birds, highlighting the importance of creating and maintaining structural heterogeneity in grasslands to support diverse grassland bird communities. Continued monitoring of grassland bird responses to management activities will help to ensure management is not impacting abundance or reproduction.

Investigating habitat and landscape associations for an imperiled Ohio songbird

Carl Engstrom¹, Stephen N. Matthews¹, Christopher Tonra¹, Laura J. Kearns², Roger Williams¹

¹ The Ohio State University, ² ODNR-Division of Wildlife

Recent and ongoing population declines have been experienced by many avian species in Ohio and across the United States. The Cerulean Warbler (*Setophaga cerulea*) is one such species that has undergone alarming range-wide population declines over the past several decades and is listed as a species of conservation concern in Ohio. One of the main drivers in their decline stems from changes to historic forest conditions in the state. Widespread clearcutting from European settlers has resulted in regenerated, even-aged forests that do not provide the conditions preferred by this species. Continued changes to the forest conditions as well as fragmentation of existing forests on the landscape could accentuate declines in this species. We collected data by completing point count surveys at 207 locations in Shawnee, Vinton Furnace, and Zaleski State Forests in southeastern Ohio during the spring and summer of 2023 and 2024 to examine the influence of topography and forest structure on the occurrence of Cerulean Warblers. Using our point count and corresponding vegetation data, we built a candidate model set and assessed them using AIC selection to identify the models with the most support in quantifying Cerulean Warbler occurrence. Our results show that Cerulean Warblers are occurring in forests with denser understories and more open canopies on steep, mesic slopes. Understanding these key relationships is vital to improving our ability to understand the current amount of habitat on the landscape and to protect and manage forests to support populations of Cerulean Warblers and other species of conservation concern.

Identifying Tick Infestation Patterns on Passerine Birds (Order: Passeriformes) in Ohio

Ningzhu Bai¹, Christopher Tonra¹, H. Thomas Bartlett², Risa Presapane¹

¹ *The Ohio State University*, ² *Department of Ornithology, Cleveland Museum of Natural History*

The geographical ranges for ticks and tick-borne diseases are actively expanding with migratory passerines considered as one of the drivers. Wild birds also play an important role in maintaining and transmitting ticks and associated pathogens within endemic regions. However, it is uncertain how the roles would vary among individuals of different species of avian hosts at different times of the year. We conducted year-round active surveillance of tick infestation on passerines at banding stations and tick abundance in the environment in Ohio. We found patterns of intra-annual variations of tick infestation and heterogeneity among individual birds. Our goal for this study is to identify individual characteristics and life history traits that affect tick infestation prevalence and intensity. This study will contribute to the body of literature on bird-tick interaction and will help elucidate the roles of birds in the ecology and epidemiology of tick-borne diseases.

Occupancy models to inform scale, stressor, and need for breeding birds across Cleveland Metroparks

Nathan Byer¹, Remington J. Moll², Timothy J. Krynak, Erik E. Shaffer¹, Jen L. Brumfield¹, John E. Reinier¹, Sarah R. Eysenbach¹, Jonathon D. Cepek¹, Constance E. Hausman¹

¹ *Cleveland Metroparks*, ² *University of New Hampshire*

Urban greenspaces often serve critical roles in protecting natural systems in fragmented landscapes. However, their efficacy can be stymied by the inherent complexity of biological communities, which may respond in unpredictable and nonlinear ways to disturbance and land management. While migratory bird communities are easy-to-study and particularly responsive to anthropogenic habitat alterations, prior studies have documented substantial variation in habitat sensitivity across species and migratory groups. This may make modelling approaches that account for the hierarchical nature of ecological organization useful for planning and decision-making, particularly in developed landscapes. Herein, we leverage regional vegetation and breeding bird monitoring efforts to investigate the influences of spatial scale, urbanization, and migratory habit on breeding bird occupancy across Cleveland Metroparks, a large urban park system in Ohio. Using multispecies occupancy models, we found that fine-scale vegetation covariates were more predictive of breeding bird occupancy than landscape-level covariates, suggesting positive benefits of local vegetation management for breeding bird communities. We also documented divergent habitat associations between migratory groups; short-distance migrants were often positively associated with generalist plant communities, whereas tropical migrants were often negatively associated with human development. Since many tropical migrants require intact forests with low human development, our results indicate that targeted habitat management may be required for continued tropical migrant breeding season occupancy in our region. In the future, we hope to leverage these occupancy models to guide land management, acquisition, and planning across Cleveland Metroparks, providing novel opportunities to integrate ecological forecasting into adaptive management.

Nonbreeding and en route environmental conditions impact the spring phenology of a songbird in Ohio

Rebecca Ralston¹, Elizabeth Ames, Brian Tsuru², Christopher Tonra¹

¹ *The Ohio State University*, ² *University of Maryland Center for Environmental Science*

We are living in a period of rapid global climate change, and the ability of species to shift their phenology in response to environmental change is a vital component of resiliency. Among bird species, flexibility in migration timing is common and is a mechanism through which individuals can advance their migration timing. However, environmental cues can also delay migration timing or can fail to accurately reflect conditions on the breeding grounds. In this study, we examined how nonbreeding and en route environmental conditions influence the spring arrival phenology of a marked population of Prothonotary Warblers (*Protonotaria citrea*) breeding in central Ohio from 2016-2024 (n = 205). As prior studies have found that migration timing of Prothonotary Warblers is poorly explained by environmental factors, we aimed to identify the degree of flexibility in individual timing as well as identify how environmental conditions across stages of the annual cycle influence arrival timing in central Ohio. We found that arrival timing of individuals is repeatable (0.29), suggesting endogenous factors play a role in individual migration timing. However, we also found that Prothonotary Warblers arrive earlier in years with higher daily maximum temperatures and higher streamflow, whereas within-individual differences in arrival timing increased in years with higher amounts of January rainfall on the nonbreeding grounds. Our results suggest that while Prothonotary Warblers have shown little phenological response to climate change, individuals still alter their migration timing in response to environmental conditions experienced on the nonbreeding grounds and during migration.

Afternoon Session – Oral Presentations

Ohio eBirders as partners in bird conservation

Kristina Slagle¹, Alia M. Dietsch¹, Jennie Duberstein²

¹ *The Ohio State University*, ² *U.S. Fish & Wildlife Service*

As land managers and other bird conservation partners move toward implementation of the Ohio All-Bird Conservation Plan, birdwatchers involved in participatory science may be a critical group of people to engage in such conservation efforts. To inform a variety of wildlife policy objectives and public engagement strategies, the Human Dimensions Working Group of the National Flyway Council, in cooperation with several partners, conducted comprehensive surveys of stakeholders and the general public during 2017. These efforts included eBird members, who were contacted via email to participate in an online survey. Of the 134,111 eBird members, 5,380 had an Ohio address on file, and of these, 1,278 responded for a 23.8% response rate. Among respondents, 20% reported moderate to high involvement with birdwatching groups, and 25.1% with local naturalist organizations, similar to the percent reported for the Mississippi Flyway overall (20.4% and 23.5%, respectively). Additionally, in the previous 12 months, 69.3% reported often or very often making their property more desirable to wildlife, slightly fewer than the flyway overall (77.5%), while only 18.5% reported often or very often volunteering to improve wildlife habitat in their community, similar to the flyway overall (18.9%). Members rated their ability to observe and identify birds on a scale of 1 (Novice) to 7 (Expert) and reported an average rating of 4.4, identical to the flyway average. Results suggest an eBird community in Ohio engaged in conservation on their own properties, but who could be better engaged by organizations critical to bird conservation to help reach objectives.

Human-bird interactions in backyards and beyond: Who engages in bird-related activities?

Alia M. Dietsch¹

¹ *The Ohio State University*

Evidence suggests that millions of U.S. residents engage in bird-related activities each year, including providing food/water to birds and modifying landscaping around the home as intended 'bird-friendly' conservation action. Additionally, people travel to see or hear birds on lands that are publicly accessible for outdoor recreation. Meanwhile, evidence shows that people experience mental health boosts when seeing or hearing birds. But who are these people? Given the possible social, economic, ecological, and personal benefits of engaging in bird-related activities, we explored the demographics of who participates in birding, bird feeding, and participatory science related to birds across multiple studies. First, a study conducted on United States (U.S.) public lands, specifically wildlife refuges, indicated that recreationists who engaged in birding as a primary activity more often identified as female, white, living without children at home, and with higher educational attainment than other recreationists. A second study of U.S. birders (registered as eBird members) demonstrated similar demographic results. A third study of Washington state residents across 39 counties indicated that people who fed birds were also more likely to identify as white, female, and without children living at home than residents who did not feed birds. Finally, results from Project FeederWatch, a participatory science effort related to observing and collecting data on birds, reinforced such findings. The cumulative findings of these studies demonstrate that the benefits of bird-related engagement are concentrated among, and potentially driven by, some types of people, unveiling a need to better engage all groups of people.

Counting cranes: Using citizen science to track a recovering species

Laura J. Kearns¹

¹ *ODNR-Division of Wildlife*

Sandhill Cranes (*Antigone canadensis*) are one of North America's largest birds and their populations have been recovering with better legal protections and more conservation and protection of their wetland habitat. Recovery of the breeding population in Ohio, where they are listed as a state threatened species, has been slower than other parts of their range, most likely due to limited wetland habitat in the state. Due to their secretive nature during the breeding season and expansion throughout the state into private wetlands, tracking their population presents a challenge. In 2021, 3 organizations, the Ohio Division of Wildlife (ODW), Ohio Bird Conservation Initiative (OBCI), and International Crane Foundation (ICF) joined forces to use citizen science, an existing survey - the Midwest Crane Count, and the power of eBird to improve tracking of the sandhill crane population in Ohio. Since the pilot season in 2021 that included 5 counties, the count has expanded to cover 32 counties. In 2024, 412 cranes in 26 counties were documented. In addition, the use of eBird enables capture of additional wetland bird species, many of which are listed on the state endangered and threatened list and recruits additional participants in using this platform to report bird sightings.

The Ohio Bird Conservation Initiative: 20 years of collaborative bird conservation

Matthew B. Shumar¹

¹ *The Ohio State University*

Following the creation of the North American Waterfowl Management plan in the mid-1980s, Migratory Bird Joint Ventures were formed to implement conservation strategies. The successes of these efforts expanded to other bird groups, and the development of the North American Bird Conservation Initiative and expansion of Partners in Flight were instrumental in creating strategies and partnerships for the full spectrum of bird conservation. Statewide BCIs were created in the early 2000s to step-down regional efforts to state and local levels. Spearheaded by the ODNR-Division of Wildlife, The Ohio State University, and Black Swamp Bird Observatory, the Ohio Bird Conservation Initiative was created in 2004 and included representatives from 65 organizations throughout the state. Only a few states have active BCIs, and in the last 20 years, Ohio has been a leader among these efforts, producing two All-bird Conservation Plans, informing research and conservation needs, and producing a number of programs and resources to conserve bird species across their full annual cycle. OBCI's network has grown to include over 120 organizations, and as we look to the future, we are seeking new ways to engage this important community in avian conservation efforts.

Poster Presentations

Song location preference in Bobolinks (*Dolichonyx oryzivorus*)

Christina Stump¹

¹ *Greater Mohican Audubon Society*

Populations of Bobolinks (*Dolichonyx oryzivorus*) in Northeast Ohio often occur on artificial habitats such as hayfields and reclaimed landfills. These locations are attractive sites for solar energy production, yet there is insufficient information regarding the impact of these projects on grasslands birds in the Midwest. The purpose of this study is to understand how Bobolinks currently use artificial habitats in Ohio, and better understand the potential impact of solar projects. Studies of similar species suggest that perch preference varies between species, with some species generally preferring taller perches and others preferring more intermediate perches (Castrale 1983). While artificial perches do not seem to increase or decrease populations significantly (Vickery and Hunter 1995), habitat openness is frequently mentioned as an area of concern for the Bobolink (Kayel, et al 1992). Furthermore, the importance of flight displays for the species, as suggested by Mather and Raleigh (1992), also suggests that artificial structures within the habitat would interfere with breeding birds. In 2024, I observed the population of Bobolinks at Byers Woods Park, a retired landfill. The sample population suggests that flight song is most important at the beginning of the nesting season, and that taller perches are preferred over shorter perches, such as fences. The birds regularly use artificial perches over natural perches, such as grass and trees. The study also suggests that flight song has a primarily male-male territorial function, with flight song behavior increasing during an influx of foreign males from neighboring mown fields.

Birds, Bugs, & Bushes: Quantifying the role of invasive shrubs in native food webs

Douglas McClure¹, Timothy Swartz¹

¹ *Wittenberg University*

Invasive species negatively affect biological communities by excluding native species, disrupting food webs, and altering species interactions. While the negative impacts of Amur honeysuckle (*Lonicera maackii*) and autumn olive (*Elaeagnus umbellata*) on plant communities in Ohio are well-documented, there are still gaps in our understanding of their effects on other taxa. We used a field experiment to investigate the impacts of these species on birds and arthropods. We sampled communities in invaded shrubland and woodland habitats. We then deployed clay model caterpillars on different shrub species to quantify rates of predation across habitats. We found that bird communities in invaded shrublands were dominated by common shrub-foraging species, including Gray Catbird (*Dumetella carolinensis*) and American Goldfinch (*Spinus tristis*). Invasive shrubs and native woody plants supported similar communities of spiders (Araneae), but natives supported a higher abundance of Hemiptera. Our model caterpillar experiment indicated that predation rates were about twice as high in shrublands than in woodlands. We documented six bird species preying on the caterpillar models. However, logistic regression models indicated that only the abundance of Gray Catbirds and Northern Cardinals (*Cardinalis cardinalis*) affected the probability of predation. Predation rates did not vary with the composition or structure of surrounding vegetation. Our results suggest that invasive shrubs can be central to food webs in heavily invaded ecosystems, but they largely support common, generalist bird and arthropod taxa. Removal of invasive shrubs should be accompanied by replacement with natives to ensure persistence of shrubland wildlife communities and food webs.

Overwinter habitat use, survival, and movement ecology of two sparrow species in southeastern Ohio

Jacob Morgan¹, Kelly Williams¹

¹ *Ohio University*

Anthropogenic development has resulted in habitat loss, fragmentation, and degradation, and contributed to the decline of 55.2% of North American birds since 1970. There is an urgent need to study how birds use current landscapes throughout the full annual cycle. However, knowledge gaps still exist among the migratory and overwintering periods in the full annual cycle. We delineated the landscape at three field sites in southeastern Ohio into eight habitat classes: Forest, Edge, Shrubland, Tall Field, Short Field, Residential/Urban, Road and Burnt Fields. We used automated and manual radiotelemetry to quantify overwinter habitat use and monitor movement and migration of 61 Slate-colored Juncos (*Junco hyemalis hyemalis*) and 22 American Tree Sparrows (*Spizelloides arborea*) during winter 2023 and 2024. During the time of our study, Juncos and Tree Sparrows selected Tall Fields, Edges, and Shrublands, used Forests, and avoided Short Fields. Overwinter survival rates for both sparrow species were greater than 90% at all three sites, where male Juncos had a higher survival rate than females during both winters. Our findings suggest that converting short field habitats to usable habitats, such as tall fields, in winter may increase the amount of habitat available for overwintering sparrows. Our work will provide public and private landowners information needed to enhance available habitat and support bird conservation throughout the full annual cycle.

The effects of tree density near building fronts and foraging strategies on window collisions

Holly Erickson¹, Matthew B. Shumar¹, Emma Robinson¹

¹ *The Ohio State University*

Killing up to one billion birds annually in the United States of America alone, glass poses a significant problem towards declining bird populations, which reaches its height during migration. Glass reflections of trees and the sky have been shown to result in higher rates of collision. The collision data used in this study provide a larger picture to compare tree density, foraging strategy, building facade, and taxonomic variables with window collision concentration. As part of a long-term citizen science program, trained students from the Ohio State University have monitored window collisions since 2018. Pre-selected survey routes began thirty minutes prior to sunrise and lasted roughly an hour and a half. The date, time, building, building side, longitude, and latitude were gathered on site, then each collected bird was aged and sexed. Volunteers surveyed 152 buildings, resulting in 985 salvaged window collisions. Approximately 50% of salvaged birds were considered primarily ground foragers, while primarily subcanopy foraging birds accounted for under 20%. We acquired the locations of campus trees from The Ohio State University Tree & Plant App and aligned them with simplified building fronts facing the cardinal directions. We hypothesized that ground foragers would have higher collision rates than species foraging primarily in trees and shrubs, and that these rates would be focused around building fronts with high tree density. This hypothesis was refuted through a statistical analysis for all groups excepting new world sparrows. The limitations surrounding tree location data and vegetation reflections in window facades may have affected these results.

Changes in migrant behavior in Song Sparrows along the Olentangy River

Leah Kloboves¹, Christopher Tonra¹, Avani Bipin Salunkhe²

¹ *The Ohio State University*, ² *Pennsylvania State University*

For over a century, Song Sparrows (*Melospiza melodia*) have been observed migrating and using the Olentangy River as a touchpoint during these periods, dating back to the earlier studies of Margaret Morse Nice. Over this time, large scale urban development and climate change behavior has since altered this ecosystem potentially causing changes in bird ecology and behavior. Song sparrows on the river can follow several different migratory strategies, including winter residents, breeding season residents, and year-round residents. For the last two years, the Song Sparrows at the park have been color banded and observed to obtain data on percentages of individuals these migrant categories, and how they have changed over the last century. Observation periods consisted of collection time in winter, spring and summer lasting roughly eight weeks in duration. Over the course of 2 years, we collected seasonal presence/absence data, using passive observation supplemented with audio playbacks in winter. Compared to previous estimates by Nice, we observed an increase in the percentage of year-round residents, and a decrease in both breeding season and winter residents. One potential contributor to the increase in year-round residents is urban development allowing an increased food supply and warmer temperatures over the years, coincident with climate change. These mild winters combined with a stable food supply increase urbanization and remove the complex challenges associated with migration, contributing to increased resident numbers (Moller, et al., 2014).

Acoustic monitoring for wetland birds in the Great Lakes Region

Rachel Mansfield¹, Volker Bahn¹, Brendan Shirkey², Nate Stott

¹ *Wright State University*, ² *Winous Point Marsh Conservancy*, ³ *The Ohio State University*

Wetland loss across North America resulted in an alarming decline of many wetland birds. Secretive marsh birds, named for their cryptic behavior, are undersampled so population trends and habitat associations are poorly understood. We can expand sampling for this vulnerable group using Autonomous Recording Units (ARUs) to monitor sites remotely over long periods of time and they can be deployed over many locations simultaneously. To enable determination of relative abundance, we will first establish the detection range for ARUs compared to human-conducted point counts. Then we will deploy them at 60 northern Ohio wetlands during the breeding season at the same points where human-conducted point count surveys will take place. We will integrate the ARU-collected data with human-conducted point count data to obtain an estimate of relative abundance for species with sufficient detection rates and then use these estimates of relative abundance to evaluate associations with habitat-level wetland characteristics.

Window pains: A survey of avian window collisions on Ohio University's Athens Campus

Hanna Mielcarek¹, Biz Salitski¹, Kelly Williams¹, Jacob Morgan¹

¹ *Ohio University*

It is estimated that 253 million birds die each year due to collisions with windows. Transparent glass is seen as open space or a continuation of habitat when glass reflects green spaces. At Ohio University we observed birds flying into large glass windows across campus. We hypothesized that birds were colliding with buildings on campus causing mortality. Beginning fall 2023, we monitored 17 buildings on campus each day of the week during fall and spring semester, by walking the perimeter of the buildings searching for deceased birds. We also received help from students at Ohio University informing our lab about any deceased birds they might have come across. During the 2023-2024 school year we recovered 27 deceased birds, presumably caused by window strikes. During the fall 2024 to date, we found 18 deceased birds. The Ping Recreation Center had the most collisions (10 carcasses). Our surveys can raise awareness of this preventable conservation issue and data can be used to recommend implementation of a bird safe action plan at Ohio University buildings with high mortality rates.

Exploring Resilience Dynamics in Hooded Warblers: A Prototype Inquiry Model for Brood Parasitism

Lisa Christen Gajary, John Silas Gajary

Our study uses computational simulation modeling methods to explore the putative dynamics of how populations of Hooded Warblers (*Setophaga citrina*) persist despite pronounced brood parasitism activity by Brown-headed Cowbirds (*Molothrus ater*). Brood parasitism perpetrated by Brown-headed Cowbirds exacerbates population declines and complicates conservation challenges for a wide variety of passerine hosts. However, recent findings have provided evidence that at least some populations of Hooded Warblers can persist, relatively unscathed in measures of their fecundity, despite pronounced brood parasitism by Brown-headed Cowbirds. Although understanding the precise causal mechanisms Hooded Warblers employ to avoid the most deleterious consequences of brood parasitism may require extensive longitudinal empirical studies, generative computational simulation modeling may be used to produce credible insights and hypotheses about the resilience mechanisms for Hooded Warbler populations more broadly as well as other passerine hosts. System dynamics (SD) and agent-based modeling (ABM) are two computer simulation approaches that can be deployed, individually or in combination, to represent the nonlinear dynamics and emergent properties of complex ecosystems and evolutionary landscapes. Our research provides a description of a generative SD-ABM approach to exploring causal dynamics in ecosystems. Furthermore, we present a model prototype illustrating this approach. The prototype mathematically formalizes insights from peer-reviewed, published evidence and provides a representation of the putative resilience dynamics of Hooded Warblers facing Brown-Headed Cowbird brood parasitism. Finally, by analyzing system leverage points and the data generated through the prototype's implementation, we present several hypotheses for extending and broadening evidence-based empirical inquiry to other Hooded Warbler and vulnerable passerine populations.

Tick infestation consequences for Ohio Appalachian breeding bird species

Anna Rose¹, Stephen N. Matthews¹, Christopher Tonra¹, Risa Presapane¹, Matthew B. Shumar¹

¹ *The Ohio State University*

Tick populations and species diversity are on the rise in Ohio Appalachia resulting in now five medically relevant tick species as well as an increase in human tick-borne disease cases. In addition to other wildlife, birds have been identified as weak reservoirs and important transport vehicles for tick-borne infectious bacteria. Bird species that forage and nest close to the ground (particularly in low shrubs, vegetation, and in leaf litter), such as Ovenbird (*Seiurus aurocapilla*), Kentucky Warbler (*Geothlypis formosa*), and Blue-winged Warbler (*Vermivora cyanoptera*), are especially vulnerable to tick infestation. To dive into the mechanisms driving this pattern, my central research question explores how tick load varies between a ground nesting species, Ovenbird, and a mid-story nesting species, Wood Thrush (*Hylocichla mustelina*), at several southern Ohio field sites. Tick loads will be determined through nest searching, nest monitoring, and tick surveillance to observe tick abundance, species diversity, and life stage that are present in breeding adults and nestlings in the summer of 2024. I will identify how tick loads vary by nesting bird species, nest height (ground vs. mid-story nesting species), age (nestling vs. adult), and temporally throughout the breeding season. Higher levels of tick infestation have been shown to reduce nesting success and offspring quality in other passerine families, but not yet in warbler species. My research will aid in filling a significant knowledge gap on how tick burdens impact nestlings and adults and the role that birds play in spreading pathogens that perpetuate zoonotic diseases.