



# *Inland Regional News*

***Inland Bird Banding Association***

***Founded 1922***

## **Inland Bird Banding Association 2023 Annual Meeting**

The Inland Bird Banding Association met 10-12 November at the Warner Park Nature Center in Nashville, Tennessee. Eighty-four people attended. Friday evening featured a social and poster session complete with food, beverages, live music, and a warm fire. Saturday morning we were welcomed to the Warner Parks by Vera Roberts and given an overview of the parks' BIRD Program by Laura Cook. The remaining morning and afternoon was occupied by a program of seven presentations, a general membership meeting, and an update from the Bird Banding Lab by Dr. Tony Celis. Saturday evening included a social, raffle, and banquet dinner. The keynote speaker for the banquet was Sarah Kendrick, Migratory Bird Biologist for the U.S. Fish and Wildlife Service Midwest Region, who gave an energetic and inspiring talk entitled, "Motus in the Midwest and beyond: project considerations and international partnerships."

Sunday morning attendees could choose to attend either a birding field trip or a Motus workshop. The Motus workshop was well attended. On hand to answer questions were representatives of the two major manufacturers of Motus transmitters and receiver equipment, Lotek and Cellular Tracking Technology, as well as several other people with considerable Motus experience. A highlight of the workshop was the chance to use hand-held receivers and antennas to track tags placed around the nature center grounds and a Hermit Thrush on the adjacent forested hillside.

We thank the staff and volunteers of the Warner Parks Nature Center for hosting this informative and enjoyable meeting. Their exceptional organization and thoughtful attention to details showed throughout the weekend and made this a most memorable meeting.

### **Abstracts of Saturday Presentations**

#### **Warner Park Nature Center BIRD Program.**

Laura Landon Cook and Sandy Bivens

Warner Parks is a 1255 ha urban, Metro Park, located 9 km from downtown Nashville, Tennessee. For 50 years the Warner Park Nature Center has welcomed park visitors, students, and families with their environmental education programs. The Warner Parks BIRD Program, funded by Friends of Warner Parks, is an integral part of the nature center and helps to foster respect and stewardship for birds, wildlife, and their habitats. We will highlight the BIRD Program's public, year-round, 42-year bird banding station; species specific research on Eastern Bluebirds, Barn Swallows, Purple Martins, Ruby-throated Hummingbirds, and Northern Saw-whet Owls; and Motus research on Purple Martins and five species

#### **Surveillance of West Nile virus in migratory warblers in Central Illinois.**

Delaney G. Haubner, Jacques T. Nuzzo, and Travis E. Wilcoxon

West Nile virus (WNV) is a zoonotic pathogen that utilizes a mosquito-bird-mosquito transmission pathway. *Culex* mosquitoes act as the primary bridge vector and birds act as reservoir hosts and

amplification hosts. Many factors can increase a bird's likelihood of exposure to WNV such as age, climate and preferred habitat type. Through the surveillance of WNV in local bird populations, transmission patterns within an area can be observed. Blood samples were collected from migratory warblers from spring and fall seasons to observe patterns in migration and from various habitat types to observe differences in exposure rates and the relationship to the bird's proximity to a water source. An indirect IgY ELISA was used to analyze samples from warbler species and to detect WNV antibodies in the samples. There was no significant difference in the prevalence of WNV antibodies between spring and fall among the warblers but there are differences in WNV among warblers that use different habitat types. Warblers that inhabit areas near standing water were more likely to test positive for IgY antibodies for WNV. These results further the current understanding of WNV dynamics in small, migratory birds.

#### **A role for bird banding in zoonotic disease surveillance.**

Travis E. Wilcoxen and Jacques T. Nuzzo

Zoonotic diseases, or diseases that can spillover from non-human animals into humans, are increasing in prevalence globally. One of the commonly cited limitations in monitoring these pathogens is the lack of access to data from populations of wild animals. Bird banding provides access to very large numbers of animals, and more importantly, animals that travel long distances. This provides an important opportunity to use samples from bird banding activities to gain insight into prevalence of disease in bird populations, potential geographic origins of pathogen spillovers, and seasonal fluctuations in disease prevalence. We have been monitoring avian hosts in central Illinois for pathogens for several years, but recently expanded our bird banding, and sampling, activities significantly. Data from this work may inform disease patterns well beyond bird populations.

#### **Development of a standardized fat-classing scheme for landbird migration for multiple level uses.**

Mark Shieldcastle.

Only through long-term comparisons will real change and avian response to climate change be documented. Every survey technique has strong and weak points in design. Due to a variety of reasons, different methods do not always align well in data results. To strengthen conclusions for as many species as possible it is advantageous to try and reduce confounding variables to help methods be more informative and comparable. A specific hindrance to point count data is the changes in visibility that occur throughout the migration season. Here we offer the development of a visibility correction component that will improve migration counts and models using multiple methodologies. With the many ramifications of climate change a method to systematically document vegetative response to annual migration weather and correlate with avian migration timing will provide a standalone leaf out metric that will be useful in monitoring climate change and both annually and for long-term questions.

#### **John Henry was a steel-drivin' man - Merlin vs human doing point counts.**

Allan J. Mueller and Kathleen K. Mueller

Merlin Sound is designed to help birders at all levels identify birds. Merlin has several important characteristics – Merlin does not get tired, distracted, or have to watch out for traffic. Merlin can not hear – it creates a Spectrogram from the sounds it detects and compares it to a database of Spectrograms. Merlin can not see, so it does not record silent birds. Merlin can not count, so the number of birds is not part of the output. In May 2023 we turned on Merlin Sound when starting 60 five-minute point counts in central Arkansas. We compare and contrast the results of the human observer and Merlin. The results are complicated, confusing, and not unexpected. For half of the observations Merlin and Human agreed (both recorded the same species at the same point count stop). In one-fourth of the stops Merlin recorded a species not found by Human, and in

one-fourth of the stops Human found a species not on Merlin's list. Merlin made many mistakes in bird identification, but even when these obvious mistakes are eliminated, Merlin still found more species than Human (75 vs 64). Merlin Sound was not designed to record point count data, and it is not ready to do that task. However, improvements on this technology are certain, and we should look for ways to blend the human observer and the "electronic ear" to benefit from the best of both.

### **Updates from the Bird Banding Lab.**

Tony Celis

The U.S.G.S. Bird Banding Laboratory (BBL) is an integrated scientific program established in 1920 for the collection, archiving, management, and dissemination of information from banded and marked birds in North America. Since then, we have been facilitating successful and effective bird management and conservation science. This presentation will provide an update of the BBL's recent accomplishments and current direction to ensure the BBL remains the premier national resource for bird banding and marking data in North America. I will highlight our vision and the steps we are taking to ensure the BBL is recognized as a robust, integrated, scientific national resource that rapidly adapts to new science needs and technologies to facilitate successful and effective bird management and conservation science.

### **Overwinter survival and resight probabilities of White-throated Sparrows in central Tennessee.**

Nate Selleck and Stefan Woltmann

Survivorship patterns -- particularly when not equal across age and sex classes, or across different parts of an annual cycle -- can have important consequences for the demographics of populations. Understanding survival rates during the non-breeding season is important because conditions during the winter can have important carry-over effects to the breeding season. White-throated Sparrows are a common migrant species that overwinter throughout much of the eastern United States. During the winter of 2021-2022 we used capture-mark-resight methods and Cormack-Jolly-Seber models to estimate the overall Oct. - Dec. 2023

apparent survival and detection (recapture/resight) probabilities of sparrows at two sites in Clarksville, Tennessee. Apparent survival estimates from November through April were similar between the two sites (0.86 – 0.92). Detection probabilities varied by morph between the two sites despite morphs being present in roughly equal proportions. At site 1 tan-stripes had higher detection probability than white-stripes (0.92 vs 0.73), whereas at site 2 white-stripes appeared to have higher detection probability than tan-stripes (0.60 vs 0.40).

### **Extrapair fertilizations in the Louisiana Waterthrush.**

Jenna Atma

Extrapair fertilization in socially monogamous birds is a widespread phenomenon, although the mechanisms and consequences of this behavior are not always well understood. Although many bird species combine social monogamy with genetic polygamy, the occurrence and frequency of extrapair fertilization in the socially monogamous Louisiana Waterthrush have not yet been studied. The Louisiana Waterthrush is a stream-obligate species with relatively large territories and a potentially restricted number of extrapair mating opportunities, providing us an opportunity to investigate the effect of population density on the frequency of extrapair fertilizations. We used microsatellite DNA genotypes from 20 nests (77 nestlings) and 100 adults to ask: (1) to what extent is extrapair fertilization present in the Louisiana Waterthrush and (2) does population density or number of immediately adjacent territories influence the frequency of extrapair offspring. We found that 20% of all sampled offspring were sired by an extrapair male, and 50% of nests within our population included at least one extrapair offspring. We found no evidence to suggest that the number of neighbors had an impact on the frequency of extrapair paternity.

### **A quick vegetation survey for migration banding and point count stations to provide visibility corrections and a climate change index.** Mark Shieldcastle

Adequate lipid deposits are essential for a successful migration for birds. Stopover habitat

can play an important role in delivering migrating passerines to their breeding grounds with sufficient energy reserves to successfully nest. An attempt to identify the role of enroute habitats, migration cost, and energetic needs on the life-cycle success of any species needs to be quantified. A robust, replicable, and easy-to-use method to quantify lipid reserves is important to implement across the range of migrating landbirds. The method suggested here builds off that concept and develops an easy-to-follow fat-scoring graph that is replicable, quick to use in the field and allows for varied analysis.

**KEYNOTE PRESENTATION: Motus in the Midwest and beyond: project considerations and international partnerships.**

Sarah Kendrick

The Motus Wildlife Tracking System assists in tracking migratory birds within and across the Midwest to learn more about survival, phenology of movements such as departure dates and stopover duration, and spatially explicit sites of these movements, all which help us identify threats to declining migratory birds of concern and then target appropriate conservation actions. Multiple factors must be considered before Motus tagging begins, the most important of which is “will Motus tracking answer my research question?” Other considerations like sample size, bird and tag weight, and station placement are key to gathering the most useful data at local and hemispheric scales. The Midwest Region is a thoroughfare for millions of migrants moving from breeding grounds to stopover sites to wintering grounds, twice each year, and provides essential habitat for migratory birds through their full annual cycles. Come learn about a few tagging efforts led by USFWS’ Midwest Region with international partner SELVA to fill key knowledge gaps on declining species in the region and beyond. Motus tracking of Golden-winged Warblers and a range-wide Wood Thrush Motus-tagging project across the breeding and wintering grounds are helping us learn more about demographic parameters and associated timing of seasonal movements that aim to inform habitat conservation efforts at meaningful geographic scales.

## Abstracts of Posters

**Nesting behavior of the Wood Thrush.** Amelia Browning, Laura Cook, and John Lewis

Wood Thrushes are a species of concern in Tennessee due to many factors. Historically, their nests have been found in low-hanging branches within areas of dense forest (Evans et al. 2020). In 2021, a Wood Thrush nest was found in Warner Parks, a 1250-ha urban park 16 km south of Nashville, nesting 18 m off the ground and 30 m from an active trail. I wanted to learn if this unusual nest height was a common occurrence in an active area of Warner Parks or an anomaly. From May through July of 2023, I searched a 56 ha area of Warner Parks for Wood Thrush nests using binoculars and listening for vocalizations. I located six potential nesting areas and one active Wood Thrush nest. Contrary to what previous research has stated, the nest was located 20 m above the ground. The nest was found in a Chestnut Oak 25 m from a heavily trafficked paved trail. Preliminary evidence suggests nest height may be affected by human presence in urban parks. My intention is to continue this study with a larger sample size during the 2024 season.

**Does capture and banding of songbirds have long-term implications for stress responses?**

Sophie Dorgan and Travis E. Wilcoxon

Birds secrete a hormone called corticosterone in response to stressful stimuli. Stressful stimuli activate the HPA axis, and one effect of this is that the adrenal cortex releases corticosterone. Acute stress responses are known to increase the rigidity and consolidation of memories; however, very severe, acute stressors, or traumatic stress, may alter, or dysregulate future stress responses or memory pathways. This study examined songbirds in Decatur, Illinois, and whether the memory formed from a stress response during the initial capture altered the stress level during the recapture. A baseline sample was taken at 5 min after capture, when the stress-induced release of the hormone corticosterone (CORT) had yet to enter the system, and another sample was taken at 30 min when the corticosterone had reached its



peak in the bloodstream. Samples were collected from birds twice, with at least a two-week window of time in between captures. The blood was spun down into plasma and analyzed using the DetectXCorticosterone Enzyme Immunoassay Kit. We found no significant difference ( $p = 0.334$ ) in CORT levels between the initial capture and the recapture. This indicates that the birds' stress response is the same regardless of previous interaction with the stressor of capture and banding.

### **A comparison of Osprey fall migration strategies using telemetry data.** Lewis Hakam and Tih-Fen Ting

Comparing variation of migratory behaviors and strategies between individuals is critical for understanding the evolutionary potential of a species or population in the face of environmental change. Satellite telemetry is one of the most effective tools for studying migration. However, data collected at relatively coarse temporal scales are often excluded, leading to reduced sample sizes that are insufficient for robust statistical analysis. In addition, few studies attempt to assess population-level behavioral variation by scaling up from a Lagrangian (i.e., individual-level) perspective. Instead, most research uses a traditional Eulerian (i.e., group-level) approach that makes assumptions of individual behavior from a sample or population mean. We will adopt the Movement Ecology Framework (MEF) to guide an inquiry into the differences in migratory strategies between individual Ospreys and the effects of varying temporal sampling frequencies on the findings. A hierarchical clustering analysis and permutational multivariate analysis of variance at four different sampling frequencies (one hour, three hours, one day, and three days) will be conducted on data from Illinois Osprey Hacking Program to assess the similarity of individual migratory strategies and determine if changing the sampling frequency impacts the results. Our goal is to further the application of common analytical methods in a new context under the MEF, to study and interpret migration movement that can be used to inform its evolution and conservation efforts, and to add to the existing literature on osprey migration.

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### **Movement ecology of male and female Golden-cheeked Warblers.** Michael D. Gamble and Ashley M. Long

Over 400 migratory bird species that occur in North America are experiencing population declines due to habitat loss and degradation. Identifying movement patterns and habitat associations is necessary to inform management and conservation decisions for these species. The Golden-cheeked Warbler is a small, endangered, Neotropical migrant that breeds in oak-juniper woodlands in central Texas. The species is well-studied on the breeding grounds, but we still lack accurate, fine-scale movement data throughout the breeding season that could provide important information on habitat use for both males and females. Due to recent improvements in tracking technology (e.g., increased battery life, smaller size) we have enhanced our ability to study movements of smaller migratory songbirds. We will present home range (95% minimum convex polygons and 50%, 70%, and 95% autocorrelated kernel densities) and home range overlap results from our 2022 and 2023 field seasons using an automated radio-telemetry network and transmitters to investigate movement patterns and fine-scale habitat associations of male and female Golden-cheeked Warblers. Our research will fill a knowledge gap for Golden-cheeked Warblers and demonstrate the use of automated telemetry for research on small birds (<10 g) that occur in forested systems.

### **Detection range, height, and cloud cover effects on signal strength of HybridTag radio transmitters on birds.** Anna Sawyer, Karl Hackenbrack, Laura Cook, and John Lewis

Automated radio telemetry is a technique that uses electromagnetic waves that emit uniquely identifiable signals to track the habitats and population dynamics of animals across large geographical areas. Recent studies over the usage of automated radio telemetry demonstrate a more efficient way in tracking birds' migration patterns and survivorship. To contribute to this research, Cellular Tracking Technologies (CTT) manufactures digitally coded radio products including handheld locators and HybridTag

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radio transmitters. Locators receive radio signals transmitted by the HybridTags, which are lightweight solar-powered radio transmitters with a rechargeable battery that can, in theory, last for the entire life of a bird. However, the use of these radio transmitters in wildlife tracking research is new, and using a handheld locator to understand the detection range and signal strength is important for ensuring appropriate interpretation of data. Testing factors of height, ambient light, and relative charge of the transmitter battery allowed us to test a HybridTag placed on the back of a plush bird to determine if it only requires several hours of sunlight to remain fully charged. We placed the bird at fixed locations: ground level, 1.5 m above ground, and 3 m above ground, in both sunny and cloudy weather conditions. Our results show signal strength detection varies with the level of the battery charge on a HybridTag. With continued research of these transmitters, we can provide better understanding of automated radio telemetry, appropriate sampling coverage, and accurate wildlife tracking technology.

### **How to make holding bags for birds.**

Diana McLusky

At the 42-year Warner Parks Bird Banding Station, we have tried a myriad of holding bags for birds. I will offer what we believe to be the simplest and quickest method to produce a bag that cleans well, is not too costly, and will last for years. A detailed list of materials and instructions for construction, along with examples will be provided for songbird and hummingbird holding

### **Prairie restoration impacts on a songbird community in central Arkansas.**

Luke Simpson and Maureen McClung

In 2017, the Arkansas Game and Fish Commission acquired a 400-ha property in central Arkansas called Stone Prairie, which consists of oak-hickory forest, oak woodland, and open grassland. Their primary management goal for this area is to create more habitat for Northern Bobwhite, which they accomplish through targeted herbicide application and prescription burning. Our research goal was to determine how the breeding songbird community

is responding to this management. Using banding data collected during the 2020-2023 seasons of a Monitoring Avian Productivity and Survivorship (MAPS) station, we calculated the annual number of new bands (N) and recaptures (R), total encounter rates (N+R), and total species banded. To assess changes in habitat, we compared habitat structure assessment data collected under the MAPS protocol outlined by the Institute for Bird Populations.

From 2020 to 2022, forest cover decreased from 60% to 15% while woodland cover increased from 25% to 70%. Grassland remained consistent around 15%. From 2020 to 2023, banding results per net hour increased for total encounters from 35.8 to 46, new bands from 28.7 to 34.4, and recaptures from 5.1 to 7.5. New species accumulated at a mean rate of 4.3 per year. These results suggest that the transition of forest to woodland via the management at Stone Prairie has had a positive impact on the songbird community at Stone Prairie in terms of numbers of breeding songbirds, though future work should examine species turnover across the years to determine the impacts on certain species.

### **Banding and MOTUS: early results and lessons learned - Northern Saw-Whet Owls.**

Steven Lee, Kyle Briggs, Rebecca Palmer, Vinnie Ewing-Gibbins, and Sylvia Hadley

The Caesar Creek Lake Banding Station is in the 14th year of Banding and 3rd year of MOTUS tagging migrating Northern Saw-Whet Owls in southwest Ohio. We will share some early results and differences by comparing data from 13 years of banding and 20 months of MOTUS tagging. Additionally, we will share lessons learned, information about weighing options and choices, as well as start-up issues to consider that may arise when launching a MOTUS operation.

