

Nothing is ever neatly divided into two categories. We can not begin to describe the many variations on the theme that evolution has come up with. Some sharks bear live young, seemingly like a mammal. Fertilization in sharks is internal like birds and mammals. A leathery shell forms around the egg. In some sharks, the shelled egg is laid and development continues like in birds, *sans* incubation. In other sharks, the shelled egg is retained, develops, and hatches inside the female. A young shark emerges from the female, giving the impression of live birth as in mammals. The difference is that there is no placental attachment. We call this phenomenon **ovoviviparous**.

The point is that birds have feathers, not fur or hairs. And baby birds hatch and are not born. I make these points and correct my students, always remembering a quote by Confucius, “The beginning of wisdom is to call things by their right name.”

Walter H. Sakai  
Thousand Oaks, CA



## *Eastern Regional News*

***Eastern Bird Banding Association***

***Founded 1923***

### **EBBA's Annual Meeting Summary for 2019**

Mist nets are an integral tool for capturing birds from almost every taxon including hummingbirds, passerines, raptors, shorebirds, and waterfowl. Whether delicate or robust, nets strung across the landscape afford researchers the opportunity to conduct investigations that can only be done in the hand. Working with mist nets is not the only net work that we do.

The 96<sup>th</sup> meeting of the Eastern Bird Banding Association was held in Rochester, NY, on 12 thru 14 April, with the theme of NetWork. Scientific sessions focused on the power of research networks to draw conclusions far surpassing the scope of a single bander working in isolation, the use of telemetry networks to understand bird movement, and the ability of individual banding stations to develop research, educational, and social collaborations.

The meeting opened Thursday evening with an Owl Banding demonstration at Braddock Bay Bird Observatory (BBBO), which was repeated on Friday and Saturday evenings. Forty Nine Northern Saw-whet Owls and one Barred Owl delighted attendees, several of whom banded their first owl.

Friday morning saw the Council meeting at the Braddock Bay Park, which also served as host for an open house at the Hawkwatch Platform. Just across the bay, BBBO held an open house and workshop for passerine banding, and Braddock Bay Raptor Research held an open house at its raptor banding station where attendees were thrilled to see a Northern Harrier trapped and banded.

On Friday afternoon, attendees convened at the Greece Canal Park for a series of informative workshops including *10 Gadgets You Never Knew*

*You Needed, Band Removal, Avian First Aid, Aging by Molt, Woodpecker Molt, and 101 Ways to Set Up a Mist Net.*

After a social hour and catered dinner, Sara Morris from Canisius College and the Appledore Island Migration Station delivered an opening address on *The Power of Partnerships: How a banding station can contribute to avian research*. Her topic perfectly captured the theme of the weekend, and she inspired us all to think more about how we can use our existing banding operations to extend our reach.

Saturday began with an early-morning bird walk through the Greece Canal Park. Despite marginal weather, eight attendees turned up 24 species before breakfast. Two additional field trips were held on Sunday morning. A visit to the Owl Woods turned up both Northern Saw-whet and Barred Owls, and a trek through the Braddock Bay Park yielded a variety of waterfowl.

Saturday morning and afternoon were devoted to our paper and poster sessions. Twelve presenters delivered oral papers on topics ranging from insights learned from the MAPS program, to the nocturnal behavior of Piping Plovers, to using telemetry to assess post-window collision survival. Seven presenters displayed posters on topics including refueling performance of songbirds, the breeding physiology of Ovenbirds, and assessing threats to Roseate Terns.

EBBA held its annual meeting of the membership on Saturday afternoon, electing a new slate of officers and councilors, and the traditional BBL update brought welcome news of a new data-submission portal in development.

Evening brought another social hour and dinner, and a captivating talk by our Keynote Speaker. Mike Lanzone of Cellular Tracking Technologies, who took us on a journey through *The Internet of Wildlife™ - Connecting technology and wildlife to answer the big conservation questions of today and tomorrow*. Mike grew up in the Rochester area, and he reminisced about his time on the lakeshore and how his early experiences with the local

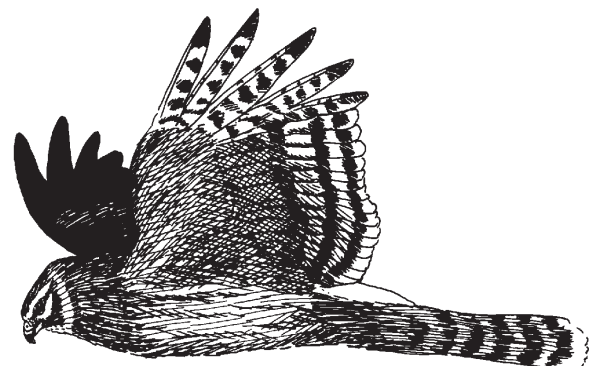
birders and banders led him to found a successful company that has revolutionized the way we track the movement of organisms both large and small.

The evening closed with EBBA's famous bucket raffle and silent auction. Handmade jewelry, banding equipment, books, kites, and even a gigantic Easter basket all found happy homes. Mike Lanzone's generous donation of eight LifeTags™ to the silent auction led to a friendly bidding war, and four banders went home dreaming up new projects.

One of the PhD student presenters described the weekend this way: "Basically, it's a conference where you band birds all day long, do some workshops about banding birds, and listen to scientific presentations about bird research. It's literally the best conference I've ever been to."

Many thanks to the intrepid volunteers at the Braddock Bay Bird Observatory which ran a banding station all morning and half the night, staffed the registration table, set up coffee and snacks, and made the weekend run smoothly. Thanks also to Braddock Bay Raptor Research for hosting the hawkwatch and raptor banding, to Rochester Birding Association for leading field trips, to the NABC for hosting the afternoon workshops, and to Powdermill Nature Reserve for jumping in to help with the early morning banding workshop.

We hope to see everyone at the 2020 meeting, which will be held in or near Connecticut in the spring. (**Update:** The EBBA 2020 Annual Meeting will be held in Groton, CT.)



Northern Harrier by  
George West

**EASTERN BIRD BANDING ASSOCIATION  
ANNUAL MEETING MINUTES  
23 April 2019**

**Meeting Convened:**

The annual meeting of the Eastern Bird Banding Association held at the Millennium Lodge in Greece Canal Park, Rochester, New York. The meeting was called to order by President Adrienne Leppold at 1602.

The reading of the 2018 minutes was dispensed with.

**OFFICER'S REPORTS:**

**President's Report**

Adrienne Leppold thanked everyone for coming and gave special thanks to 1<sup>st</sup> VP Andrea Patterson for all her hard work organizing the meeting. She noted that the presentations and workshops had been wonderful.

**Second Vice President:**

Andy Thiede reported that the 2020 meeting would be held either the weekend of 27 March or 3 April. She was looking at locations in coastal Connecticut and also Massachusetts.

In her role as chair of the Website Committee, Andy encouraged members to follow EBBA's various social media accounts on Facebook, Instagram and Twitter.

[www.facebook.com/](http://www.facebook.com/)

[EasternBirdBandingAssociation](http://EasternBirdBandingAssociation)

[www.instagram.com/ebba\\_banding](http://www.instagram.com/ebba_banding)

[www.twitter.com/EBBA\\_banding](http://www.twitter.com/EBBA_banding)

**Third Vice President:**

Luke DeGroot reported that he intends to hold the 2021 meeting at Powdermill Nature Reserve in Rector, PA. It will be the 60<sup>th</sup> anniversary of the Reserve and they hope to have a new banding lab completed in time for the meeting.

**Treasurer:**

Don Mease reported that the organization's finances are in good shape and our investments continue to perform well. Last year's income included approximately \$6500 in dues, \$919 from the bucket raffle, \$24 in publication sales and about

\$11,000 in investments. Expenses included five Memorial Grants of \$750 each and about \$3800 in NABB production costs.

The 2019-2020 budget was presented with an expected revenue of \$12,000 and expenses of \$11,760.00 leaving a projected surplus of \$240. Alison Van Keuren made a motion, seconded by Ted Hicks to approve the proposed budget and accept the Treasurer's Report.

**Committee Reports:**

**Memorial Grant Committee:**

Andrea Patterson thanked her committee of Annie Lindsay and Emily Patterson. The committee received 18 applications and recommend the following awards totaling \$3725

- Chad Seewagen - \$575 (fully funded). Effects of non-native Japanese Barberry on food quality and the diet composition of breeding Ovenbirds.
- Sarah Bolinger - \$900 (near full funding). Using radio-telemetry to assess the breeding productivity of Common Nighthawks in coastal Louisiana.
- Kristina Cockle - \$1000 (fully funded). Winter site fidelity and migration patterns of a declining aerial insectivore: banding and tracking Common Nighthawks from Argentina.
- Mia Nahom - \$500 (fully funded). Effect of gut microbiota on developmental immunity and parasite load in Tree Swallows.
- Rindy Anderson - \$750 (partially funded). Integrating studies of behavior and habitat quality to conserve Bachman's Sparrow.

**Net Committee:**

Ted Hicks reported that EBBA continues to work toward liquidating our inventory. Prices are greatly reduced. Please contact Ted Hicks, committee chair, to purchase nets.

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**Nominating Committee:****Candidates for officers and councilors:**

President: Andrea Patterson  
First Vice President: Andy Thiede  
Second Vice President: Luke DeGroot  
Third Vice President Ken Heselton  
Secretary Maren Gimpel  
Treasurer Don Mease  
Councilors 2022 Scott Stoleson (second term)  
Aaron Given (first term)  
Laura-Marie Koitch (first term)  
Bruce Murphy (first term)

Nominations accepted as read. There were no nominations from the floor. A motion was made and seconded to approve the slate as presented. The motion was seconded and passed.

During the evening's program (after the conclusion of the business meeting) it was announced that Council had awarded Ken Heselton Honorary Membership in gratitude for his long service to the Council.

**Publication & Membership:**

Elaine Mease reported that EBBA added 19 new members this year and had 12 that had not renewed as of this meeting (this is a low number). Elaine's report to Council stated that we have 260 members, but some renewals came in after the close of the fiscal year and so, as of today, we actually have 273.

The 19 new members are:

Ayala, Andrea – Athens, GA  
Braddock Bay Res. Ford – Honeoye Falls, NY  
Brown, Emmel (Tom) – Middletown, NJ  
Bruseo, Joseph – Palmer, MA  
Doss, Laurie – Kent, CT  
Dunbar, Amanda – Philadelphia, PA  
Fitch, Jada – Addison, ME  
Haywood, Benjamin – Meadville, PA  
Huie, Janet – Ithaca, NY  
Keenan, Patrick – South Portland, ME  
Kelly, Christine – Asheville, NC  
Kocek, Allison – Syracuse, NY  
Koitsch, Laura Marie – Erie, PA  
Mack, Sally – Dover, NH

Marsh, Laurie – Chattanooga, TN  
Mays, Herman – Huntington, WV  
Stewart, Ian – Avondale, PA  
Stumpf, Katie – Milledgeville, GA  
Swayser, Brandon – Pen Argyl, PA

Elaine noted that all of our publications for sale are on a table near the bucket raffle.

**NABC:**

Anthony Hill, EBBA delegate to NABC, began by recognizing other members of NABC that were present including Andrea Patterson, Luke DeGroot and Annie Lindsay. NABC's work was originally organized by task (certification, manuals, etc.), and they are in the process of re-organizing into being taxa based, so that the waterbird group would handle all aspects of waterbirds. NABC is also providing financial support in cooperation with Association of Field Ornithologists to assist with training and/or certification for folks from Latin American countries. Another need is to re-translate manuals in French, Spanish and Portuguese. No manuals exist for waterbirds and seabirds. Anthony closed by encouraging anyone with questions about NABC to seek him out.

**Old Business:****North American Bird Bander:**

Adrienne Leppold updated the membership on continuing concerns about the sustainability of the *North American Bird Bander*; the journal EBBA publishes jointly with IBBA and WBBA. Next year, Andrea Patterson will form a committee dedicated to investigating the challenges of running a printed journal in our modern era. EBBA will propose a committee comprised of members of all three banding associations.

**Succession Planning:**

Adrienne informed the membership of EBBA Council's efforts in succession planning and efforts to preserve institutional knowledge. The positions of greatest concern are Treasurer and the Bucket Raffle chair, as both of these have been run by the same people for years.

**New Business:**

Adrienne announced that starting with next year's



annual meeting, registrants who are not EBBA members will pay an additional registration fee. The new policy is being instituted to both create a perk for current members and to encourage non-members to join our organization.

In a similar vein, Council is considering that making EBBA Memorial Grants only to members of EBBA.

Lastly, Adrienne reminded the membership that as a volunteer organization we always need help. She encouraged anyone interested in joining Council or volunteering for a committee to make themselves known.

#### **Adjourn:**

It was moved and seconded to adjourn. Motion passed. The meeting was adjourned at 16:33.

### **Featured Speakers**

#### **The Internet of Wildlife™- connecting technology and wildlife to answer the big conservation questions of today and tomorrow**

Michael LANZONE - CEO and Chairman of Cellular Tracking Technologies

Connectivity in our everyday lives is something we all have gotten used to, both consciously and subconsciously. Whether it is the watch on your wrist uploading data to the web and then providing you analyses on your phone, or your phone triggering a connected device in your home when you cross an invisible geofence, we use connected networks every day. Until now wildlife tracking devices have been designed to work within a single platform (GSM, ARGOS, etc.), where every device communicates directly with a specific network. The Internet of Wildlife™ (IoW) leverages each organism in the network to intelligently collect and send information from one organism to the next allowing researchers to collect biological data never before possible. For example, with IoW small passerines transfer data to turtles, otters to gulls, whales to albatrosses; bigger animals can transmit to the internet and/or satellites so that the entire multi-species data stream ultimately reaches

the researcher. This kind of intelligent data mesh network enables remote tracking of the smallest organisms. The IoW mesh network leverages existing network infrastructure, thereby reducing the need to deploy costlier infrastructure specific to certain type of wildlife tag, e.g., ICARUS. The CTT IoW will revolutionize how animal movement data are collected and how researchers and wildlife work together to answer big questions and ultimately help conserve species world-wide.

#### **The Power of Partnerships: How a Banding Station Can Contribute to Avian Research**

Sara MORRIS - Canisius College and Appledore Island Migration Station

The Appledore Island Migration Station began operating in the 1970s. Initially, the AIMS banding station focused on documenting migration and stopover ecology of migrant landbirds. Although it began with a single purpose, the station has collaborated on a variety of projects that have increased its contributions to the study of avian migration. These projects have included large scale studies of bird movements, the role of migrant birds in zoonotic diseases, factors affecting stopover decisions by migrants, and flight, calling behavior. Additionally, by being open to other opportunities, the station has contributed to the study of wind turbines and the analyses of complex shapes. While banding and the study of basic life history continue to be the focus of the AIMS banding station, partnerships have increased the scope and value of the science from this single site and contributed to its long-term operation.

### **Paper Abstracts**

*Sorted alphabetically by first author's last name*

*For multiple authors, asterisk (\*) indicates presenter.*

#### **Long-term banding data are providing insights and surprises into bird population trends**

Steven ALBERT - *The Institute for Bird Populations*

Since 1989, the Monitoring Avian Productivity and Survivorship (MAPS) program has been a source of information on the long-term trends in avian health and full annual cycle dynamics. This

public-private partnership – one of the largest citizen science programs in North America, encompassing nearly every State and Canadian province-produces data that are frequently used by land managers striving to make the best decisions for birds and their habitat. In the past year, IBP scientists and our colleagues have published numerous studies generated by the MAPS program. This presentation will describe recent studies that examined long-term trends in montane bird community in response to climate change; how MAPS data are being used to examine trends in a threatened songbird, Canada Warbler; and how the network of stations provided surprising insights into post-breeding movements by numerous species.

### **Motus wildlife tracking system expands in Mid-Atlantic States**

David F. BRINKER\*<sup>1</sup>, Lisa A. Kiziuk\*<sup>2</sup>, Lucas W. DeGroot<sup>3</sup>, C. Scott Weidensaul<sup>4</sup>, Daniel W. Brauning<sup>5</sup>, and Stuart Mackenzie<sup>6</sup>

<sup>1</sup> Maryland Department of Natural Resources

<sup>2</sup> Willistown Conservation Trust

<sup>3</sup> Powdermill Nature Reserve, Carnegie Museum of Natural History

<sup>4</sup> Ned Smith Center for Nature and Art

<sup>5</sup> Pennsylvania Game Commission

<sup>6</sup> Bird Studies Canada

Expanding technology is providing new tools for monitoring a wider range of wildlife species than ever before to address critical conservation issues involving animal movement. One of these mechanisms involves a collaborative network of radio receiver stations tuned to detect very small radio tags deployed on a wide range of animals, from dragonflies to bats and birds. That network, the Motus Wildlife Tracking System (Motus), was established in 2013 by Bird Studies Canada and currently maintains 600 monitoring stations across 27 countries supporting more than 230 projects that tagged more than 16,000 animals of 180+ species (birds, bats, and insects). This presentation will describe the growth of those monitoring stations across the Mid-Atlantic States with recent grants from the Pennsylvania Wildlife

Resource Conservation Program and the USFWS Competitive State Wildlife Grants. We will also summarize the research questions being addressed through Motus projects and highlight a sample of projects being deployed this year.

### **Estimating the functional role and quality of stopover sites around the Gulf of Mexico to inform conservation: integrating knowledge from banding and telemetry data**

Antonio CELIS-MURILLO - *Bird Banding Lab, Patuxent Wildlife Research Center*

The en-route period of a migratory songbird's annual cycle plays an important role in population dynamics. Stopover sites where birds can refuel, rest and/or find shelter from unfavorable weather or predation are essential for successful migration, especially along the edges of large geographic features, like the Gulf of Mexico, that may represent high risks to birds' immediate survival or future fitness. Effective conservation of migratory bird species requires the protection and management of stopover sites and habitat. This task, however, requires an accurate assessment of migratory bird distributions and abundances during migration to identify "hotspots", but also an understanding of the quality of key stopover areas. Factors such as resource availability, physiological condition, atmospheric conditions, and position of sites in relation to mortality risks interact to determine the function of a particular stopover site and consequently its quality. I will discuss the fall migration studies that I, along with my collaborators, have been doing to understand the functional role of sites in relation to birds' ability to successfully negotiate the Gulf of Mexico. In Fort Morgan, Alabama, a stopover site used by birds prior to crossing the Gulf, to the Yucatan Peninsula in Mexico, used by birds following passage across the Gulf. I will specifically discuss how estimates of stopover duration, hourly activity patterns, and departure direction derived from automated radio-telemetry can be combined with temporal estimates of site use via capture rates, mass gains, and atmospheric conditions to infer site function and quality to inform conservation priorities.

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## **What's new at the BBL? Preparing for the next century of bird banding**

Antonio CELIS-MURILLO - *Bird Banding Lab, Patuxent Wildlife Research Center*

The USGS Bird Banding Lab (BBL) has been a leader of the North American Bird Banding Program since the inception of the Migratory Bird Treaty Act in 1918. BBL operations have adapted over the past century to address changes in bird banding practices and availability of new data management processes. Today the BBL is initiating major revisions to better serve the needs of contemporary bird banders and users of bird banding data. For instance, the BBL, through the Banders Portal has available a variety of self-serve features that were previously only available by contacting staff directly. In addition, the BBL is redesigning Reportband.gov, the website where members of the public can report encounters of banded birds. The BBL is also preparing to transition its banding data submission software (BANDIT) to a web-based platform that will allow banders to directly connect with the BBL database and is exploring the development of mobile data entry programs to allow bird banders to submit data from the field. These projects offer rewarding opportunities to leverage expertise from local universities and others through novel collaborations, streamline operations to reduce staff workload, and modernize practices to facilitate the next century of bird banding.

## **Opening the black box of post bird-window collision survival**

Lucas W. DEGROOTE - *Powdermill Nature Reserve*

It is often asserted that “half” or “many” birds that hit windows and live to fly away will later die of internal injuries. Yet our knowledge of these injuries is limited to a small number of birds that were sacrificed to compare their injuries to birds that did not survive a window collision. I utilized Lotek nanotags and the Motus Wildlife Tracking System to study the long-term effects of bird-window collision on 29 migrant landbirds found by citizen science volunteers in Pittsburgh

and Cleveland the spring of 2017. Of the 3,272 birds found by Lights Out Cleveland volunteers in 2018, 28% were found alive; however, 13% of these birds did not survive to be released. Rehabilitated birds were less likely to be detected by Motus stations during migration (65%) than 21 wild birds (83%) captured via mist nets at Presque Isle Bird Observatory (NW PA) and Powdermill Avian Research Center (SW PA). These results indicate that collisions can have long-term effects on individual birds. In addition, these effects may have population level consequences that are not captured by traditional citizen science-based collision monitoring programs.

## **A comparison of flight calling responsiveness in American Redstarts and Magnolia Warblers**

Michelle GIANVECCHIO, *State University of New York – Brockport*

Passerine songbirds often use flight calls during nocturnal migration. Many hypotheses exist about the function of this behavior, but it remains poorly understood. I am conducting a study that explores the flight calling behavior and responsiveness of select species of migratory songbirds at two different times, since time of day is an important factor that influences flight calling behavior. I used a mobile avian recording studio (MARS) trailer, which provides an acoustically isolated environment, to study the responses of American Redstarts (*Setophaga ruticilla*) and Magnolia Warblers (*Setophaga magnolia*) to specific sound cues. I collected flight call responsiveness recordings from migratory individuals during their fall and spring stopover at Braddock Bay Bird Observatory on the south shore of Lake Ontario. My preliminary results show that American Redstarts and Magnolia Warblers are significantly less responsive to intraspecific flight calls at dusk than during the day. These results support the hypothesis that flight calls can be used to communicate foraging information.

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**The importance of collaboration: How the Foreman's Branch Bird Observatory contributes to avian research (and how you can too)**

Maren GIMPEL - *Foreman's Branch Bird Observatory, Washington College*

Some bird banders may feel they do not have the capacity to contribute to collaborative projects, that only bigger stations or more established banders can be useful. This is not true. With little to no training almost everyone can provide valuable data to other researchers. The Foreman's Branch Bird Observatory, part of the Center for Environment & Society at Washington College in Chestertown, MD, has been conducting both spring and fall migration banding since 1998. Our main focus beyond migration banding is providing educational opportunities for Washington College students through season-long internships and class visits. Though there are no PhDs on staff, we have contributed to multiple external research projects of varying degrees of complexity. Contributions ranged from sharing already collected data to collecting fecal samples and cloacal swabs, and were as complex as installing artificial lighting for research on how light pollution affects migration. If you already have the permits and expertise to run a banding station, you can make significant contributions to bird study by assisting in cooperators' projects whenever possible.

**A novel means to passively identify individual birds attending nests**

Alison R. KOCEK\* and Jonathan B. Cohen  
*State University of New York, College of Environmental Science and Forestry*

Identification of individuals attending nests is often important in avian field work. For secretive species such as tidal marsh sparrows that cannot be easily identified by individual color bands in the field, capture of adults on nests is the primary method for identification. However, for a multi-year research project such as the Saltmarsh Habitat and Avian Research Program (SHARP), repeated recaptures of birds at the nest within and between seasons are required and have been found to lead

to trap avoidance. Additionally, it is feared that this may also lead to occasional nest abandonment. To reduce both of these costs, we attached a Passive Integrated Transponder (PIT) tag to a band on Saltmarsh Sparrows and Seaside Sparrows in New York in 2014 and 2015. When a sparrow nest was found, we concealed an RFID reader antenna near the nest and if an attending adult had a PIT Tag band, the identity of that individual was successfully recorded every time. Use of PIT Tags reduced physical capture of adults at the nest by 79.2% in 2015, increased apparent detection of individuals by 50%, and five individuals were identified at the nest by use of RFID technology that were never physically captured that season. RFID technology has great potential to increase detection rates while reducing the cost of researcher induced nest abandonment for difficult to observe species.

**Help, there's a lake in my way! Now what?: Investigating the spring stopover ecology of three passerine species along the Pennsylvania shoreline of Lake Erie**

Laura-Marie KOITSCH\* and Sarah Sargent -  
*Erie Bird Observatory*

During spring migration in 2016 and 2017 we deployed a total of 27 Lotek nanotags on three species of northward migrating passerines at Presque Isle State Park (PISP), in Erie Pennsylvania. Individuals were relocated daily using a hand-held receiver and antenna during the remainder of their stopover in the area. After leaving, they were also detected by fixed recording stations that are part of the Motus network. Individuals of the three species, Swainson's Thrushes, Blackpoll Warblers, and Magnolia Warblers, varied in stopover durations, mobility during stopover, and likelihood of crossing Lake Erie when they departed. In 2016, the Swainson's Thrushes crossed quickly and were detected at a sequence of stations across the lake in Ontario on the night that they departed from Presque Isle. Only two of the five Magnolia Warblers were detected after leaving PISP, and these were at stations to the east of us on the southern shore of Lake Erie, suggesting that this species is unlikely to cross the Lake. In both years, the Blackpoll Warblers spent



a considerable amount of time in the area, some upwards of two weeks, before departing northward for their breeding grounds. They also appeared to favor interesting and slightly unexpected habitats during their stopover such as the area near the Erie sewage treatment plant and high-end lakefront homes with well-manicured lawns.

### **The birth of a next-generation banding station in Cape May, New Jersey**

David LA PUMA<sup>1</sup> and Michael Lanzone\*<sup>2</sup>

<sup>1</sup> *New Jersey Audubon's Cape May Bird Observatory*

<sup>2</sup> *Cellular Tracking Technologies*

Cape May Bird Observatory has been successfully monitoring bird and butterfly migration for over four decades in Cape May, New Jersey. Following great inspirational presentations at the 2014 IBOC in Falsterbo, Sweden, CMBO staff began laying the foundation for a longterm banding station with a twist. Four years of planning and the development of a public/private partnership with The Nature Conservancy, CMBO, and Cellular Tracking Technologies, culminated in the inaugural season in autumn of 2018. Together we have designed a station with wildlife tracking baked into the DNA, which can answer short-term questions such as animal movement, habitat usage, and site fidelity. To that end we deployed our first 10 LifeTag transmitters (434mHz UHF) on a combination of resident and migratory birds. In addition, we banded over 8,000 individuals of 101 species, and captured two foreign recoveries and one rarity. This presentation will discuss the process of launching a new station, some of the intriguing data collected during the first season, and plans for the next season, and the next 100 years.

### **Banding in the boreal**

Bruce MURPHY - *Hilliardton Marsh Research and Education Center*

The Hilliardton Marsh Research and Education Center is located on the southern edge of the boreal forest. Because of the diverse suite of birds and modern facilities, Hilliardton Marsh is uniquely

poised to attract collaborating researchers. In addition to serving as an interesting field station for research, Hilliardton Marsh also embraces educating school groups and the public.

### **Owl Banding at Hilliardton Marsh**

Bruce MURPHY - *Hilliardton Marsh Research and Education Center*

Charismatic and catchable, Northern Saw-whet Owls certainly lead the pack for numbers of owls banded and recaptured across the United States and Canada. With nearly 250,000 Northern Saw-whet Owls banded in Canada and the US since 2000, these diminutive owls completely dwarf the banding numbers of their larger cousins. By comparison, only about 8,200 Long-eared Owls and 5,200 Boreal Owls have been banded in that same time. Researchers at Hilliardton Marsh are lucky enough to band large numbers of these more elusive owls, and here they present some of the findings.

### **Automated telemetry for monitoring nocturnal behavior of breeding Piping Plovers on the Atlantic coast**

Michelle L. STANTIAL\* and Jonathan B. Cohen  
*State University of New York, College of Environmental Science and Forestry*

As the focus on clean energy continues, collisions of birds with wind turbines in coastal areas poses a potential threat that could affect populations of imperiled species. Assessing flight behaviors of beach-nesting birds during times of poor visibility can help to evaluate the potential threat of turbine construction at or near breeding areas because birds may be most susceptible to collision with turbines during daily commutes to foraging areas. We placed automated telemetry receivers near the nests of radio-tagged female Piping plovers, a federally-threatened species, at six study sites in Massachusetts and New Jersey and determined the number of detections of each individual and the time spent out of range. Female Piping Plovers transitioned out of range an average of  $35.91 \pm 15.61$  (SE) times during the day and  $18.28 \pm 2.59$  times at night. Female Piping Plovers with a nest

spent  $63.7\% \pm 4.5\%$  of the time out of detection range at night (20:00-06:00) and  $31.5\% \pm 6.2\%$  of the time out of range during the day (06:00 – 20:00) (MRBP, Test statistic = -3.261, P = 0.011). Transitions to locations out of detection range would likely have been made by flying. Our results suggest that, as has been found in other breeding populations, Atlantic Coast Piping Plovers make frequent nocturnal movements out of their known diurnal territories. These movements may place them at risk of encounter with anthropogenic structures such as wind turbines at a time when visibility, and thus the ability to avoid collision, is low.

### Poster Abstracts

*Sorted alphabetically by first author's last name  
For multiple authors, asterisk (\*) indicates presenter.*

#### **Does Japanese Barberry affect the breeding physiology of male Ovenbirds?**

Molly BORDER\*<sup>1</sup>, Katherine Hensel<sup>1</sup>, Chad Seewagen<sup>2</sup>, Susan Smith Pagano<sup>1</sup>

<sup>1</sup> *Rochester Institute of Technology*

<sup>2</sup> *Great Hollow Nature Preserve and Ecological Research Center*

Japanese barberry (*Berberis thunbergii*) is a widespread invasive plant that has become prevalent in Northeastern forests. However, little is known about the impacts of this invasive shrub on breeding habitat quality for forest breeding songbirds. We studied Ovenbirds (*Seiurus aurocapilla*) at the Great Hollow Nature Preserve and Ecological Research Center in New Fairfield, CT, in order to investigate physiological indicators of breeding habitat. Male ovenbirds were captured using mist nets on their breeding territories in May 2017 and 2018. Blood was sampled to assess chronic physiological stress via heterophil:lymphocyte ratios, and plasma was assayed for total protein, triglyceride, and uric acid concentrations. Both chronic stress and plasma metabolite levels were used to evaluate the overall physiological condition of each individual in relation to the presence or absence of barberry in their breeding territory. In addition, samples of barberry fruits were analyzed for energy, fat, and total phenol content.

#### **Invasive honeysuckle's impact on avian frugivores: Insights from feather reflectance and nutritional biochemistry**

Gretchen HORST\*<sup>1</sup>, Katherine Hensel<sup>1</sup>, Erica Delles<sup>1</sup>, Andrea Patterson<sup>2</sup>, and Susan Smith Pagano<sup>1</sup>

<sup>1</sup> *Rochester Institute of Technology*

<sup>2</sup> *Braddock Bay Bird Observatory*

This study seeks to determine the nutritional and physiological impact of invasive bush honeysuckle (*Lonicera spp.*) on migratory birds at the Braddock Bay Bird Observatory (BBBO). Bush honeysuckle fruit is generally considered of low nutritional value, but it also has two color morphs, red and orange, that may be consumed by birds during breeding or early fall migration. Samples of each fruit color were collected at peak ripeness and then analyzed for differences in nutritional composition, namely fat, sugar, fiber, total carotenoids, and caloric content. Fruit enclosure experiments were conducted in the field to determine if birds are eating the fruit and assess preference by birds for berry color morphs. The fruits were found to be similarly low in caloric and fat content and the two color morphologies showed little difference in nutritional composition, except red fruits were higher in total carotenoid content. The field enclosure experiments showed that birds are eating the fruits mainly later in the summer. Honeysuckle fruit (*L. morrowii* and *L. tatarica*) contains the carotenoid rhodoxanthin, which has been linked to aberrant plumage coloration of birds. Twelve Baltimore Orioles (*Icterus galbula*) with aberrant red plumage captured at BBBO were sampled for feathers and blood. Since their aberrant coloration confounded plumage sexing methods, birds were sexed molecularly. The reflectance of the oriole feathers was measured to characterize the color profile, and reflectance values of aberrant plumage fell within a range consistent with rhodoxanthin deposition. The data suggest that invasive bush honeysuckle is not an adequate food source for birds and can have adverse effects on their health.

## Refueling performance in migratory songbirds at two long-term bird banding sites

Andrea M. LINDSAY\*<sup>1,2,3</sup>, Lucas W. DeGroot<sup>2</sup>, Mark C. Shieldcastle<sup>3</sup>, Henry M. Streby<sup>1</sup>

<sup>1</sup> *University of Toledo*

<sup>2</sup> *Powdermill Nature Reserve, Carnegie Museum of Natural History*

<sup>3</sup> *Black Swamp Bird Observatory*

In migratory songbirds, subcutaneous fat “fuels” migration, and birds increase fat accumulation prior to migration to fuel their long-distance flights. During stopover events, birds refill fat stores before continuing or completing migration, and food availability affects refueling performance. Some birds may be forced to adjust the rate at which they refuel in response to advanced or delayed migratory behavior, changes in stopover habitat quality, or other environmental factors related to climate change. We used data from two long-term bird banding operations, Powdermill Avian Research Center, southwestern Pennsylvania (1961-2017) and Black Swamp Bird Observatory, northwestern Ohio (1992-2015), to investigate the interrelatedness of refueling performance, morning condition, and weather variables, and whether refueling performance has changed over time at these two banding stations. We used linear models to estimate hourly mass gain (i.e., refueling performance) by regressing size-corrected mass by capture time. Estimates of hourly mass gain varied among years and species, with few species exhibiting significant long-term patterns at either station, but some species exhibited temperature-related changes in refueling performance during both seasons. Many species experienced changes in morning condition (i.e., size-adjusted mass of birds caught during the first to hours of daylight), although the directionality of this relationship was variable among species and seasons. Morning condition was negatively related to temperature in spring and positively related to temperature in fall at both stations, and was negatively related to refueling performance at both stations during both seasons. Our results indicate that food availability at these sites is apparently sufficient for stopover

refueling, and highlights the importance of managing high-quality habitat in all landcover types.

## A molecular sexing protocol optimized for migratory passerines

Carter MOLESKI\*, Gretchen Horst, Susan Smith Pagano – *Rochester Institute of Technology*

In sexually monomorphic bird species and in some juveniles, it can be difficult to accurately determine the sex using physical characteristics. This can prove to be an issue in some conservation and research efforts. Molecular sexing using polymerase chain reaction (PCR) can distinguish between males, who are homogametic (ZZ) and females, who are heterogametic (ZW). DNA was extracted from blood samples from a variety of sexually monomorphic birds, such as thrush species, which were captured at the Braddock Bay Bird Observatory. The highly conserved chromohelicase-DNA (CDH) binding region, which is found on both the Z and W chromosomes, was amplified using 2550F/2718R primers during PCR. The resulting PCR product was analyzed using an agarose electrophoresis gel. Due to the difference in length between the CDH binding region on the Z and W chromosome, the sex of the bird could be determined by the presence of one or two bands on the resulting gel. This method proved to be successful in thrush species, White-throated Sparrows, Baltimore Orioles, and Gray Catbirds experimentally, but due to the highly conserved nature of the CDH binding region this method could work for a majority of passerines.

## Age-specific variation between migration patterns of the Common Yellowthroat (*Geothlypis trichas*)

Veronica SCHABERT\*<sup>1</sup>, Kristen Covino<sup>2</sup>, Andrea Patterson<sup>3</sup>

<sup>1</sup> *Canisius College*

<sup>2</sup> *Loyola Marymount University*

<sup>3</sup> *Braddock Bay Bird Observatory*

Migratory patterns can be investigated through studies of stable isotope ratios of hydrogen atoms found in the feathers of birds. We are studying age-specific differences in migration

of Common Yellowthroats (*Geothlypis trichas*) through analyses of feather hydrogen isotopes. We predicted: (1) greater variation in feather isotope ratios of young birds compared to adults regardless of migratory season, (2) little variation in the feather isotope ratios of adults between the spring and fall migratory seasons, (3) greater variation in feather isotope ratios in fall compared to spring for young birds do due more migrants. Feather samples were collected at Braddock Bay Bird Observatory in Greece, New York, during spring and fall migration, 2016 and 2017. The right and left fifth rectrices were pulled from 61 birds. Samples were cleaned before feather vanes were cut, weighed, and packed into 3.5 mm x 5 mm silver capsules. There were no significant differences in the isotopic variation between feathers collected during Spring and Fall migrations ( $p=0.182$ ), no significant differences in the isotopic variation between feathers collected from adult and young migrants during Fall migration ( $p=0.1189$ ), and no significant differences in the isotopic variation between feathers collected from adult and young migrants during Spring migration ( $p=0.5729$ ). The framework established by this study will be applied to investigations of migratory movement of other species in future studies.

### **Evaluating current limiting factors and future threats to recovery of endangered**

#### **Roseate Terns**

Jeffrey SPENDELOW - *Patuxent Wildlife Research Center*

The endangered NW Atlantic breeding population of Roseate Terns (*Sterna dougallii*) dropped by >25% from a high of about 4,300 “peak period” breeding pairs in 2000 to about 3,000 “peak period” pairs in 2008. The most important factors that caused the decline have not been determined, but the relatively slow rate of population growth from 2008-2013 compared to the greater rate of growth from 1992-2000 indicated that there had been a major change in one or more aspects of the population dynamics of this species. PWRC’s Cooperative Roseate Tern Metapopulation Project (CRTMP) is integrating results of several research studies to evaluate the relative importance of

current factors operating in the Massachusetts-New York area and future threats that may limit population recovery.

### **Leveraging technology and field experiences to further conservation education - A pilot project**

Caitlin WELSH - *University of Pennsylvania*

Changing trends in education and availability of engaging, standards-aligned teaching materials present challenges to K-12 educators in the United States. This presents an opportunity for conservation organizations to connect with educators and provide the resources and experience necessary to meet educators’ needs while also achieving conservation goals. Bird Studies Canada’s Migration Education Program (MEP) provides materials that teach about the continued decline in migratory bird populations, how automated radio telemetry and the Motus Wildlife Tracking System are improving understanding of migration patterns, and how that knowledge can be used to inform conservation efforts. Precipitated by community interest in installation of an automated radio telemetry receiving station on the school’s campus, this project involved using the current materials available combined with a field trip to a banding station to run a pilot in a secondary classroom in the United States. Feedback from students and educators provided insight into opportunities for revision and expansion of the MEP prior to its anticipated Spring 2019 release. This project serves as an example of how this package can be adapted to foster community-wide conservation learning and engagement, benefiting educators from a variety of organizations and institutions.

