HURON MOUNTAIN WILDLIFE
FOUNDATION

Winter 2025
Newsletter

A Comparative Study of Thrush Migration Cycles

By Declan Spring

Max Witynski, a PhD student at the University of Michigan, studies the migration cycles of birds. He uses tracking devices to assess how long particular species devote during the summer months to reproducing versus how long they spend migrating and wintering in southern climes. "Tracking the amount of time birds spend in a particular location," he says, "can illustrate a bird species' life history trade-off." This key phrase—"life-history trade-off—gets to the heart of Witynski's research. Those birds with a "fast" life history produce more offspring in the spring and summer, but they are less optimally adapted for survival and don't tend to live as long. Those birds with a "slow" life history produce fewer offspring, migrate farther, and tend to live longer. Few studies, Max says, have done a direct comparison between these two types, especially in closely related species.

The birds Witynski has chosen to compare for his dissertation both appear abundantly in the Huron Mountains. They are Hermit thrushes (*Catharus guttatus*) and Swainson's thrushes (*Catharus ustulatus*). These musical birds, often seen hopping in the woods, tend to forage for berries and insects near the ground. The Hermit thrushes, which are chunkier and look a bit like robins, but with white, spotted breasts, spend more time—from mid-April to as late as October—on their breeding grounds. Sometimes, they may have two nesting periods. The Hermit thrushes then head to the southern United States and winter there. The Swainson's thrushes—which unsurprisingly have longer wings—are much longer-distance migrants, and travel as far as the highlands of South America for the winter (they like lush, tropical cloud forests). They leave sometimes as early as midsummer, and return by late May.

The relative distances of these birds' migrations are well understood, but much remains to be learned about the specific dates and locations of individual birds. By looking closer and comparatively at their departure and arrival times as well as their exact locations, we can learn a lot about how these birds breed and survive, and more generally achieve a fuller sense of how their evolutionary success developed. How often and for how long do they breed during the spring and summer? And where do these thrushes go exactly? What is the quality of their habitats?

Witynski got interested in birds in high school, participating in Audubon field trips as a high schooler, and ended up studying ornithology at Cornell University as an undergrad. Following a bird through its migration has always captured his imagination. He says that Catharus thrushes are ideal for this kind of study, because closely related species have adopted different migration strategies, and they are an adequate size to carry high-precision tracking equipment. The thrushes typically weigh about 30 grams, and the tags weigh less than 3% of their body weight. Also, since other populations of these thrushes have been studied previously, it's easier to combine new data with pre-existing data to home in on the details of their migratory patterns. "Tracking the amount of time these birds spend in a particular location," Witynski says, "can really illustrate the trade-off between survival and reproduction."

The Hermit and Swainson's thrushes in the woods at HMC are identified by their songs while hiking or driving around. Individuals that will be tagged are caught in "mist nets," vertical-panel fine-mesh

From top: Hermit thrush. Photo by Matt MacGillivray. Swainson's thrush. Photo by Tony Castro.



From left: A partially furled mist net. Max Witynski, Amelia Meares-Parcher, and Libby Brennan (right) at Canyon Lake, just after tagging and releasing a Swainson's Thrush. A Swainson's Thrush wearing a pressure-light tag. Photos by Winger Lab.

nets about 6 meters long with four 2-ft-wide panels, with clothesline-like "trammels" strung through them. Recordings of thrushes are often played around the nets, the birds hit the mesh, and land safely in a pouch. (Though Witynski relates with a laugh that once two empty nets had to be abandoned temporarily when a bear arrived.)

Thrushes are tagged with leg-loop harnesses, then fitted with USGS metal bands that have a unique nine-digit code. Afterwards, they are released, to be found and identified the following year. By the time the thrushes have returned for the spring/summer, the way to find them is usually by perseverance and luck. There are two types of tags: one called a Pinpoint 10 GPS, which uses satellite fixes and offers the greatest precision. The technology doesn't allow for tracking during the entire journey, however, because of its short battery life. The Pinpoint 10 GPS tags tend to record about 50 location points during a migration cycle. The other type of tag is a "pressure-light" type, where location is inferred from atmospheric pressure and ambient light levels.

Upon their return, about 15-30% of birds are usually refound. Last year, 32 were tagged and 5 returned. This year, 93 were tagged, and Witynski expects about 12-20 to be refound in 2026. Once they are found and the birds are captured, the tags are removed and recharged to retrieve the data. "Luckily," he says, "thrushes are faithful to their breeding sites, and we can feel pretty confident they will be found in the same place if they return to our sites."

Witynski says his whole team has become enchanted with the Huron Mountain area, where they tag and retrieve the birds; they often enjoying hearing wolves and seeing other wildlife like otters and bobcats. "It's a privilege and a pleasure being up here," he told me. And, Witynski hopes, by studying the migratory behavior of these thrushes, observing the differences in the distances and the lengths of their stays and time away, he and his team can also learn about whether longer migrations to the warm, wet tropics translate to higher survival rates for adult Swainson's thrushes, at the expense of lower reproductive output, while the opposite may be true for Hermit thrushes.


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The Second Ives Lake Research Conference

Around 25 invited researchers gathered for the Second Ives Lake Research Conference over the October 3-6 weekend. Participants traveled from institutions as distant as Arizona and Pennsylvania and presented a wide range of HMWF-sponsored studies — on lichen distributions, bird and fish migration, forest dynamics, and more. Semi-formal presentations were mixed with outings to research sites around the Huron Mountains. The conference, like the first Ives Lake Conference in 2022, had the main objectives of enhancing mutual awareness among research groups that may never have crossed paths at Ives Lake and planting the seeds for potential new projects and collaborations. We'll bring you a more complete report in a subsequent issue of the newsletter.

Dr. Emily Sessa's Visit to the 2025 Annual Meeting

By Kerry Woods

The lands of the Huron Mountain Club are blessed with an unusual richness of ferns and "fern allies" (horsetails and clubmosses)—collectively, "pteridophytes"— with about 65 distinct varieties documented. Dr. Emily Sessa, keynote speaker last August at the 2025 Annual Meeting of the Huron Mountain Wildlife Foundation, is a world authority on the evolution and ecology of ferns and originally came to the Huron Mt. Club, 15 years ago, because of that diversity.

Dr. Sessa is, since 2022, Patricia K. Holmgren Director of the William & Lynda Steere Herbarium at the New York Botanical Garden (NYBG), one of the largest herbaria in the world, with around eight million specimens from all groups of plants and fungi (including 300,000 ferns). In addition to a long list of research publications, her 2024 book *Ferns, Spikemosses, Clubmosses, and Quillworts of Eastern North America* (Princeton Univ. Press) is the first comprehensive guide focused on these groups (five copies of the book were awarded to enthusiastic raffle participants and signed at the meeting).

This visit wasn't Sessa's first time at the Huron Mountains. I first met her during visits to Huron Mt. in 2009 and 2010, when she was conducting her Ph.D. research at the University of Wisconsin. Her project was a study of the evolutionary relationships within the fern genus *Dryopteris* (the "wood-ferns"). *Dryopteris* is a very large and taxonomically complex group, and the Huron Mountains host an unusual number of species (and several hybrids) for a single area.

I had been casually watching Emily's career since she completed her Ph.D. in 2012. When I read of her appointment at the New York Botanical Garden, I contacted her to ask if she'd be interested in renewing her acquaintance with the Huron Mountains, and received an enthusiastically positive response.

Emily spoke about some of the challenges she has confronted at the Steere Herbarium. For example, no one actually knows precisely how many specimens are preserved there; while the process of simultaneously imaging and cataloging specimens is ongoing, it is only about 60% complete. Until the initiative is complete, it's not clear if the Herbarium is the second, third, or fourth largest in the world.

But the main focus of her talk was on the stories, both scientific and human, that reside behind these collections. Herbaria are critical repositories for studying plant evolution, taxonomy, and biogeography, but they are historically complex. Emily discovered one of the "stories" used in her talk just the day before, during a visit to the HMC Museum herbarium. In the herbarium catalog, she noticed a number of specimens attributed to Dr. Elzada Clover. Clover was an important mid-twentieth-century botanist and faculty member at University of Michigan, where she rose to full Professor in 1960, at a time when women were rarely accorded such rank. However, she's perhaps better known as the subject of *Brave the Wild River* (W. W. Norton, 2023), a well-received recent book about her 1938 botanical explorations of the Grand Canyon. Her connection with the Huron Mountain herbarium? In the early 1960s, she visited the area with an advanced botany class, and conducted one of the first systematic surveys of the area's flora. A good and locally relevant example of the stories that lurk behind the pressed plants in an herbarium.

The excitement around Sessa's visit continued the next morning when she led a well-attended walk in the woods between Pine Lake and Mummy Mountain and introduced participants to a substantial selection of the pteridophytes of the Huron Mountains.

When I asked Emily for thoughts following her return to the Huron Mountains, her response was enthusiastic: "the diversity of ferns at the Huron Mountain Club made it invaluable in my graduate research, and it was a great joy to revisit these plants and the beautiful and important habitats that the HMC so wonderfully preserves."

Photo by Pamela McClelland.

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A Letter from the President

Dear Fellow Huron Mountain Wildlife Foundation Supporters:

I am privileged every year to report on the exciting happenings of the Huron Mountain Wildlife Foundation. Our 2025 season was a season of exceptional research and infrastructure improvement made possible by your generosity. The HMWF hosted 25 investigations including six new projects. From new geological research to a study on the evolutionary relationships of the Amanita fungi, the HMWF continues to attract projects that wouldn't be possible anywhere else due to our relatively pristine property. One exceptional study will be creating baseline documentation of the ecosystem status of the main Huron Mountain lakes. This multi-year study will collect chemical, physical, and biological information that will build a critical baseline for future lake monitoring. This project and, indeed, all the other important research conducted at our facility at Ives Lake could not happen without your continued financial support.

Chris and Wendy Sutter and their two sons Clayton and Rowan worked tirelessly this season making it through our never-ending list of necessary improvement projects and critical "fix-its," as well as the usual cleaning and scheduling. They discovered a decade-old sewer leak that had slowly "eaten" away a structural wall and were able to make the repairs themselves. The Stone House, Thorpe House, and grounds have never looked better, and I invite you to stop by and see all the improvements. Thanks to a very generous donation, we have begun planning for a new and expanded Solar-PV system that will allow for increased electric loads such as a dishwasher. Like the research, these ongoing repairs and improvements would not be possible without your support.

The HMWF hosted our second scientific conference this year and by all accounts it was a huge success. These conferences create the opportunity for our research community to gather and exchange overlapping elements of their research, which can promote collaboration and expanded understanding of our unique and important ecosystem.

The Huron Mountain Wildlife Foundation, thanks to your support, has become established as a critical laboratory offering the natural science community an opportunity to study natural ecosystem processes otherwise unavailable to them due to the overly "managed" state of most other natural areas. Thank you for continuing to make all this happen.

With ongoing appreciation,
Henry Dykema

HMWF Stats (A Comparison of the Last Two Decades)

	Early 2000's	Now
Researcher Days	~350	~800
Beds	11	20
Research projects (Institutions involved) (States Involved)	8-10 per year 5-8 per year 2-3 per year	25-29 per year 30-35 per year ~15 per year
Publications (Citations)	1-2 per year ~55 per year	~8-9 per year ~500 per year
Research Budget	~$12,000 per year	~$40,000 per year

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Anne Manierre with Manierre Award winner David Costello.

Manierre Award 2025

By Kerry Woods

One critical end product of HMWF-supported research is publication in peer-reviewed journals; this is the point where research findings become part of the permanent record and discourse of science. Since 2000, HMWF has offered the William and Anne Manierre Award to recognize a recent publication of Foundation-sponsored research that is likely of particular significance. The 2025 Manierre Award, announced at the Foundation's annual meeting on August 5, went to Andrea Fitzgibbon and David Costello for their paper "Response of Stream Ecosystem Function and Structure to Sediment Metal: Context Dependency and Variation among Endpoints," published in the journal *Freshwater Science* in 2023.

Algal "biofilms" on stream beds are a critical part of the energetic foundation for stream ecosystems – the base of the system's food chain. Scientists have long recognized that the productivity of these algal communities responds to inputs of "macronutrients" —nitrogen and phophorus. The research reported by Fitzgibbon and Costello shows convincingly that this is not the whole story. Metallic "micronutrients," even in extremely low concentrations, can significantly influence algal ability to exploit macronutrients, especially when nitrogen and phosphorus are scarce. Pristine Huron Mt. streams, where macronutrient availability is comparatively quite low, provided an essential comparison with streams in more developed areas.

Costello has a 15-year history of research on Huron Mt. stream ecosystems and, in his early work, he pioneered field techniques that were critical in enabling this study. The paper derives from Fitzgibbon's Ph.D. research, conducted in the Costello lab at Kent State University in Ohio.

The Manierre Award carries an honorarium that was originally funded using a gift from the Manierre family. Over the last 25 years, the Foundation has received many further donations dedicated to maintaining the award, and these have allowed appropriate increases in the honorarium. It is one of the greatest pleasures of my work as Director of Research to honor HMWF researchers' contributions with this award, particularly in that it carries a tangible benefit to the scientists.

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About the Huron Mountain Wildlife Foundation: Since 1955, the Huron Mountain Wildlife Foundation has supported original research in a wide variety of scientific fields. The research takes place in the Upper Peninsula of Michigan. More information on the Foundation can be found at: **www.hmwf.org**

We welcome comments and suggestions on this newsletter. Please send them to:

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Editor's Note: Apologies for not crediting Ned Houston as the author of "Aldo Leopold, A Man of His Time and Ours" in the last issue.

Photo by Pamela McClelland.