Kemp's Point

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News from the University of Wisconsin-Madison's Kemp Natural Resources Station

Making an International Bird Connection

By Emily Filiberti, University of Maine

The return of songbirds en masse to northern forests marks the arrival of spring. However, we rarely know the exact location where these birds have spent their winter, or the routes that they navigated during migration. As a graduate student at the University of Maine, my small team of researchers made the long trek from the Northeast to the Midwest to study a rapidly declining songbird called the golden-winged warbler. I hoped to find returning warblers sporting NanoTags, a type of radio transmitter tag, that I deployed on individuals in the spring of 2021. My project relies on Motus Wildlife Tracking System (Motus) stations, a collaborative network of automated radio-tracking receivers, to assess annual survival rates of both male and female golden-winged warblers rangewide. As part of this research, we constructed two Motus stations near our field sites in order to detect our golden-winged warblers, as well as any additional species tagged by other researchers.

The American redstart that mirrored Filiberti's journey from Jamaica to Wisconsin settles into her nest. A white arrow points to a wire antenna from the bird's tracking tag that arches over its back and past its tail. Image credit: Ken Milender.

One of our Motus stations, located within the U.S. Forest Service's Rhinelander Experimental Forest, picked up several spring migratory detections, including a Virginia rail marked in Illinois, a blackpoll warbler marked in Colombia, and one of our returning male golden-winged warblers. In addition to these detections, an American redstart, marked just two months prior on its wintering grounds in Jamaica, was detected on May 28. With our Motus stations garnering little activity during fall migration in 2021, we were ecstatic to have picked up these birds, and humbled that our station had contributed to understanding the migratory pathways of these species.

On the morning of June 6, with rain streaming outside the window at Kemp Station, I made the call to delay our normal field activities. With rare and precious downtime now available, I decided to peruse the Motus interface again in hopes that our stations picked up more migratory detections. It was then that I noticed that the same American redstart was picked up again on June 4, eight days after it was initially detected. This no longer seemed like a detection during migration – this American redstart was sticking around the area.

Intrigued, I looked up the project contact and

(Continued on Page 2)

noticed that it was Dr. Bryant Dossman, my old crew leader when I interned on Dr. Peter Marra's (Georgetown University) long-term winter ecology project at the Font Hill Nature Preserve in southwest Jamaica. Since my departure as an intern, he was continuing to work with the same population of American redstarts as part of his postdoctoral work. I messaged him immediately and mentioned that I was fairly certain one of his redstarts had chosen to breed in the area. Bryant confirmed that this was a female tagged on April 5 at Logwood 1, a site that I was all too familiar with. Elated about the possibility of knowing this individual's exact wintering and breeding location, we decided that I would go out on foot to see if I could locate this bird using my hand-held tracking receiver.

My field technician, Lucas Campbell, and I drove immediately to where the Motus tower was stationed. Once we arrived, Lucas hooked up the hand-held antenna to the receiver and he positioned it outside of the car window. I slowly drove down the dirt road until Lucas picked up a faint beep – a signal confirming detection of a bird – that we were confident was not from one of our golden-winged warblers. After I looked up the tag's ID and confirmed it was in fact one of the American redstarts tagged by Bryant, we both looked at each other and grinned – we found her! With the rain calming to a fine mist, we exited the car and started to orient the antenna towards the strongest signal. It pointed us directly to a small swatch of forest that was privately owned, tucked away between agricultural fields and residential homes. I quickly looked up the plat information for this property in the Oneida County land records system and obtained the name of the landowner.

Once I began reaching out to my small community in Oneida County, I discovered that the landowners were well known in the ecological community, including being prior co-workers with my advisor, Dr. Amber Roth. I quickly found their contact information and called them to explain our exciting situation. They were thrilled to allow us access to their property. The next day, Lucas and I once again set out to find this infamous American redstart. After spending 30 minutes following the signal strength outputted on the receiver, we finally found her, sitting squarely on her nest woven inside the fork of a young black cherry tree. Her long, glistening tag antenna was resting outside of the nest, extending off the tip of her tail. Completely awestruck, we watched this marvel of a bird for close to an hour. Once she finally left her nest to get a snack, I walked up to the nest and studied its contents – two small, brown-speckled glistening eggs.

Emily Filiberti pauses amid tagging a male golden-winged warbler. Filiberti is working on a research project that tracks mortality and migration patterns of forest songbirds. Image credit: Emily Filiberti.

In addition to knowing where this female spent the majority of the year on her wintering grounds, we now had definitive coordinates for where this female decided to breed. After departing Jamaica on May 9, she traveled more than 2,000 miles in less than 20 days. Prior to the fruition of the Motus Wildlife Tracking System, knowing these two coordinates for a single individual was close to impossible, particularly for those that have an extensive range. Had our small Motus station not picked up this American redstart on two different days, we would never have known to go out and seek this small bird. It truly brings into perspective how fortunate we are to have access to the technology that we do today, and opens up a small glimpse of what's to come as we continue to expand the Motus network of automated receiver stations.

While the number of coincidences makes this story remarkably hard to grasp, what makes it even more difficult to comprehend is my personal connection to this small bird. Of all the Motus stations this American redstart could have nested in close proximity to, she selected a location that was right next

(Continued on Page 5)

Anticipating the Flush

By Karla Ortman,
UW-Madison Kemp Natural Resources Station

We trudged through the snow, slowly nearing a stand of balsam fir. The steady "beep" from the telemetry receiver grew louder. The anticipation was building. Jenna was in the lead, working the antenna and deciding which path to take. Behind her, Ellen passed updates from Jenna back to me – "We are really close now." (*Photo at right captures one of these moments.*) The receiver was set to the frequency of a radio collared ruffed grouse, "B0209." Without warning, a group of three ruffed grouse flushed from low in the trees ahead. The pursuit ended abruptly, but the goal had been achieved – one of 6 remaining radio collared grouse had been located.

In the last issue of *Kemp's Point*, you learned about Pairsa Belamaric's study of ruffed grouse and how they use habitat during the winter. Part one of this story was the trapping and collaring of the birds. This is part two of the story.

Ellen and Jenna are the field technicians working with Pairsa and are charged with monitoring the collared grouse in the study area near Kemp Station, known as Stone Lake. Pairsa also has collared birds at Sandhill Wildlife Area in Babcock, with another technician team there, leaving her to split her time and presence between the two sites and manage the project. At Sandhill, a total of 23 birds were successfully trapped and collared. The northern birds proved to be more challenging, with a total 9 birds collared when monitoring began.

Not only were the northern birds more challenging to trap and collar, they also have not fared as well, with just 6 remaining as of mid-January. At the same time, Sandhill still had 19 birds active in the study. As explained in part one of this story, ruffed grouse are not long-lived birds. According to the Ruffed Grouse Society, about 23% of the birds hatched in a given spring will still be around the following spring. Not the best odds.

On their website, the Ruffed Grouse Society

explains what happens to the birds: "Most Ruffed Grouse die a violent death to provide a meal for one of a number of meat-eating predators, for in the natural scheme of things, Ruffed Grouse are one of the first links in a complex food chain. Some also die from disease and parasites, or from exposure to severe weather, or accidentally by hitting trees or branches while in a panic flight after being frightened." Common predators include raptors and owls, both of which are very efficient at harvesting a grouse. There is, however, some hope for the collared birds that become "lost" – collar failure, usually due to battery life.

For the collared birds that live through the winter, how do they utilize the habitat in their effort to survive? That is what Pairsa is wanting to learn.

After the collared bird flew off with its three friends, Jenna and Ellen got busy examining the spot from where the birds flushed. Foot and wing marks could be seen in the snow, indicating a bird left the ground from that spot, where it had been roosting. Because there were multiple birds, the chosen roost spot is a best guess, thus giving "medium confidence" that it was the collared bird. I could see why a grouse would select this particular spot – it was between a large rock and a balsam fir. A low branch of the tree rested on the rock, creating a cave-like effect. It seemed like a reasonable place to hunker down, out of sight and out of the wind.

Ellen took the lead on the site data collection while Jenna logged information including GPS location, temperature, cloud cover and precipitation. First Ellen determined snow depth and density at and

(Continued on Page 4)

Above: The telemetry unit leads us to a more dense stand of trees. Center: Wing marks and tracks in the snow suggest the bird flushed from the ground. Right: Ellen and Jenna gathering data.

surrounding the roost site, in each cardinal direction, using two simple tools – depth with a ruler and density with a penetrometer. Snow depth was also measured at the center of the plot.

Next, habitat concealment was assessed. This provides information on how well the grouse was hidden from sight where it was roosting. A pole bearing two tennis balls, one low on the pole, the other at the top, was poked in the snow at the roost site. Jenna logged the simple "yes" or "no" from Ellen, which meant either she could see each tennis ball or not from the two distances (one near, one far) in each cardinal direction.

Lastly, information about the vegetation around the roost site was recorded, specifically tree types, stand density and canopy density. To determine stand and canopy density, two special tools were used. The first was a 10-factor prism. Holding it at chest height, Ellen peered through it and counted the number of trees that met a particular criterion to provide the basal area of the roost site. The other tool was a crown densiometer which is a small spherically curved mirror marked with gridlines. The overhead tree canopy reflects in the mirror. Standing at the roost site, Ellen counted the number of intersections where tree cover existed, providing a value for canopy density.

With all required data collected, the equipment was efficiently loaded into the backpack and we went in search of bird "B0207." The signal was close, and Jenna and Ellen wondered if it may have been one of the birds that flushed with our first bird. Ellen was in the lead this time, running the telemetry antenna and determining the route. It was not long before she slowed and indicated that our target bird was close. I was bringing up the rear, and before pushing through the last conifer branches, I heard the flush. But Ellen had gotten eyes on the bird this time, as the grouse had been perched on a branch about 3 feet above her head. The same information was gathered at this location before we made our way back to the truck.

On our way out of the dense conifers, Ellen pointed out what proved to be my "gold nugget" of the trip – grouse droppings! To me the droppings looked a bit like wood fuel pellets in a mild state of breakdown. During the winter, ruffed grouse eat buds from male aspen trees, which are preferred over the nutrient deficient buds of the female aspen tree. So it makes sense that the droppings are dry and wood-like in appearance. Keep your eyes open as they are common where grouse roost.

Ellen and Jenna continued chasing down the birds through the month of March. At the end of the month I checked in on the status of the two birds we had tracked. Bird B0207 was still out there, doing its thing. Jenna told me this on March 28; she and Ellen had observed all of the birds having made habitat shifts in the previous couple days – from dense conifers to dense aspen stands. We wondered if this had something to do with the arrival of spring. Unfortunately, bird B0209 experienced an end of life

(Continued on Page 5)

Anticipating the Flush *(Continued from Page 4)*

event. Jenna said they found the collar and, as dictated by study protocol, examined the area for evidence of what happened to the bird. The stomach and crop were found, but there were no tracks in the snow, or signs of a struggle. The report will show death by an unknown predator.

And so, the winter tracking of the collared grouse is done for now and the collected data will be analyzed. In the fall, Pairsa will return to the study sites and check for signals from previously collared birds. Traps will be deployed and more birds will be brought into the study, collared and then tracked next winter. But for now, the male grouse are focused on drumming logs, territory and attracting a mate.

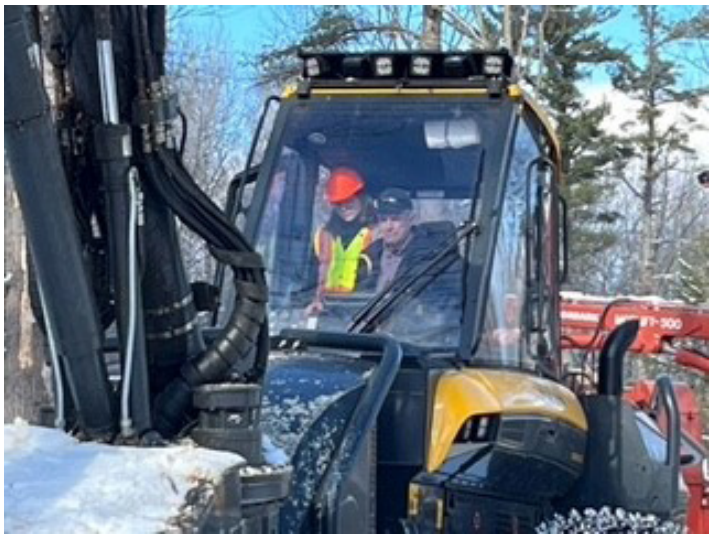
International Bird Connection *(Continued from Page 2)*

to a station I run – someone who once traveled the same paths that she flew over, touched the same trees that she perched on, and overwintered at the Font Hill Nature Preserve. I feel a sense of kinship with this redstart, as in some small way, I also migrated from my temporary home in Jamaica, traveling long, perilous distances until I finally reached Rhinelander, Wisconsin, where I was dutifully tasked with elevated responsibilities and a small chance to create something huge. This bird is a subtle reminder of how connected we are as a community, both with one another and with the organisms that surround us. As I jokingly pointed out to Bryant, I didn't find this bird, she found me.

This article was posted in the University of Maine, College of Natural Sciences, Forestry, and Agriculture News; Reprinted with permission of the author.

Students from the Milwaukee Institute of Art & Design explore Kemp Station's forest during their January visit.

The search for insects was challenging with the cool temperatures during the April 28-30 visit by UW-Madison entomology students enrolled in ENT 432: Taxonomy and Bionomics of Immature Insects. The students woke to several inches of fresh snow on Sunday.



UW-Madison's Forest Operations course included visits to timber harvests and paper mills in March. (Left & Above)

"Chasing Ghosts"

UW-Madison graduate student, Janelle Taylor, is said to be "chasing ghosts" by her advisor, Dr. Ben Zuckerberg, who studies climate change ecology. Since February Janelle has been searching previously surveyed sites for Canada jay, Boreal chickadee, Spruce grouse and Black backed woodpecker. The southern most edge of the birds home range historically included lowland conifer swamps of northern Wisconsin but these birds have declined in their presence.. Canada jays breed over winter and cache perishable foods in advance for their young. Warmer winter temperatures cause the foods to rot, thus affecting breeding success. Janelle's surveys turned up one woodpecker, two spruce grouse, several jays, and no chickadees. By gathering microclimate data on the habitats where the birds are found, the study will help inform habitat management decisions.

FUNGI FEST 2023

Friday, August 25 - Saturday, August 26

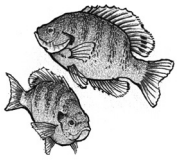
Whether you are new to the fabulous world of fungi, or have been studying it for years, this event will have something for you! On Friday evening, join us for a demonstration of cooking with fungi -- there may even be some samples! Stay for presentations on fungi basics, common northwoods fungi, and the important role fungi plays in the forest. Saturday morning will begin with a foray, followed by extensive discussion about the morning's collections. When available, details will be at kemp.wisc.edu/outreach. Limited lodging is available for visitors coming a distance at a rate of $18 per person, per night. Contact Karla for details, kemp@cals.wisc.edu or 715-358-5667.

OUTDOOR LEARNING

No registration required unless indicated.

Jyme Lake Bog Adventure
Wednesday, June 14, 9:00 am
REGISTRATION REQUIRED
Susan Knight from UW Trout Lake Station will lead this bog adventure, starting with an introduction to the plants common in our bogs but unusual elsewhere in the Northwoods. We will see carnivorous plants, such as sundew and pitcher plants, as well as bladderworts in the pond. We will see many of the common bog shrubs including leatherleaf, bog laurel and bog rosemary. If we are lucky, we may see some orchids, pod grass and cranberries. We will talk about the lowly sphagnum moss and how it truly rules the bog, and finish with a discussion of peat and its amazing ability to preserve the past. Our bog walk will be an oozy affair, so be sure to wear boots or shoes you don't mind getting wet or just go barefoot. Register with Karla at kemp@cals.wisc.edu or 715-358-5667.

Plant ID Workshop
Wednesday, July 5, 9:00 am - 11:30 am
Location: Connor Forestry Center
Join Alex Graeff, botanist for the National Ecological Observatory Network's Great Lakes Domain, for an outdoor-based plant identification workshop. The session will emphasize recognition of common vascular plant species found in typical north woods plant communities, and terminology and morphological features important for plant identification. While exploring the forests and bog at Kemp Station, we will apply identification techniques to the plants we encounter while discussing tidbits of north woods ecology. The hike will be about 1 mile, but with plenty of time stopped to discuss plants! It will include some moderately strenuous rolling terrain and some time at the bog mat.



Fish Up Close!
Wednesday, July 12, 10:00 am - Noon
Location: Outdoor Pavilion
Hey kids! Bring an adult or two and come for a close up look at fish! Members of the Wisconsin Cooperative Fisheries Research Unit of UW-Stevens Point will be on hand to teach you about the life history, unique characteristics, anatomy and the environment in which fish live. Learn how scientists determine the age of a fish. Various specimens will be available to view and touch, along with special equipment used to study fish. You may come anytime during the event and visit the different displays.

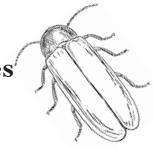
INDOOR PRESENTATIONS

No registration required. Location: Connor Forestry Center

Future Artists & Designers Out of Their Comfort Zone: Ecology of Lakes & Forests of the Northwoods

Saturday, June 3, 1:00 pm

Eight, brave students of the Milwaukee Institute of Art & Design, are doing a series of short term research studies on the ecology of the forests and/or lakes in the area. Stepping out of their academic comfort zone and stepping into the natural sciences field are students majoring in fine arts, illustration, or communication design. You are invited to hear short summary presentations of their findings from the week-long field research, exploring a variety of ecological aspects. Topics can range from 'what drives biodiversity' to 'management strategies' and everything in between, depending on each student's personal interest. Come to see the aftermath of their endeavors!



Fire beetles, fireflies, and everything beetles

Monday, June 26, 6:30-8:00 pm

Session Leader: Dr. Dan Young, UW-Madison

It is estimated that insects account for more than 70% of all animal species on the planet (yes, they are animals). Beetles – the Order Coleoptera – make up around 40% of all known insect species. Doing the math, more than one of every four animal species on Earth is some kind of beetle – and countless more species remain to be discovered and formally named. So, what is the difference between a fire beetle and a firefly (not a fly) – and, for that matter, a glowworm (not a worm)? Come find out as we explore some of the Wisconsin beetle natural history and biodiversity, examine a reference collection of common beetle families, and dive into some of the common literature, books and on-line resources. Oh, and by all means – bring your beetle questions (including specimens you are wondering about), as well!

Surviving the winter: a porcupine & ruffed grouse perspective

Monday, July 24, 7:00 pm

Session Leader: Pairsa Belamaric, UW-Madison

Across North America, winter imposes harsh conditions on wildlife. The severity of these conditions varies across the country and species display amazing adaptations to survive this unique set of environmental challenges. UW–Madison PhD student Pairsa Belamaric has investigated animal responses and adaptations to winter conditions--from the seasonal scouting behavior of porcupines in rainy Northern California to Ruffed Grouse surviving the winter weather here in snowy Wisconsin. Pairsa will walk through each of these case studies to illustrate how species learn to thrive in dynamic winter environments.

Common Loon Survival

*Monday, July 31, 7:00 pm***

Session Leader: Walter Piper, Chapman University

Dr. Walter Piper has studied the Common Loon since 1993, focusing on territory defense, habitat selection, and breeding behavior. In 2019, recognizing a decline in survival rates for chicks and young adults, his study emphasis has shifted to investigating what factors impact survival rates. Learn how water clarity affects loon breeding success and about the impact of male and female age on loon breeding success. (**Note: The date of this presentation may be changed based on the timing of the loons and its affect on Dr. Piper's availability. Please check the Kemp website for updates.)

A Fungi Triple Header:

- Pollutants can influence the effectiveness of anti-fungal compounds.
- Using fungi to remove "forever chemicals" from polluted environments
- Fungi, Zombies, and the Apocalypse

Monday, August 7, 6:30 pm

Session Leaders: Dr. Jessica Hua, Dr. George Meindl, and Dr. Charles Czuprynski, UW-Madison

Three talks, one night. Learn about recent research on the potential of microbes protecting wildlife from fungal diseases and how chemical pollutants impact the effectiveness of anti-fungals. Discover the findings of a study on whether fungi may serve as a low-impact and cost-effective capturing system to mitigate widespread environmental PFOA (a PFAS) contamination. Finally, gain insight into how and why some fungi cause human disease, and what we can do to treat fungal infections when they do occur, including fungal infections (e.g. Blastomycosis, Ringworm) that affect people, and animals, in Wisconsin.

Colorful and Fun Mushroom and Lichen Dyeing

Monday, August 21, 7:00 pm

Session Leader: Mary Burns

You might enjoy harvesting and eating mushrooms, but did you know they also contain dyes? We can use these dyes to color fabrics and yarns! This presentation will give an overview of natural dyeing with mushrooms (and maybe a few lichens!). We will discuss various mushrooms that we can use in dyeing and different processes for extracting the dyes. Mushroom dyed samples will be displayed. This is a basic beginner introduction to mushroom dyeing, a peek into this colorful world. *Mary Burns is a fiber artist specializing in jacquard weaving and loves to explore and play with natural dyes.*

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Serviceberry (*Amelanchier spp.*)

For a few days in the spring forest edges are dabbled with the white blossoms of serviceberry trees. The tree is also known as juneberry, shadbush, or saskatoon, depending where you are in the country. Found throughout Wisconsin, the serviceberry is typically multi stemmed from its base giving it more of a shrublike appearance. The stems are usually less than 4 inches in diameter, and the plant height reaches a maximum 20-30 feet. Several species of serviceberry exist in the wild. Despite the name, the plant does not actually produce a berry, but a pome, like an apple, but very small, with fleshy seeds. If you are lucky enough to sample the fruit before the birds gobble them down, you will be delighted to find they taste a bit like blueberries. We planted a couple serviceberry cultivars in our yard a few years ago. Coming from a nursery, they had been pruned when young to be more tree shaped. Last summer they produced fruit for the first time and I tasted my first serviceberry! We have a couple wild plants at the edges of our yard but I have never gotten to the fruit before the birds. While researching this plant I came upon some interesting factoids: the wood from this plant is the fifth hardest wood of that grown in the U.S. The first of these plants were brought to America from England in the 1600's. Finally, fossils of leaves from serviceberry species have been aged at 50 million years old. One spring I had the extreme pleasure of seeing a scarlet tanager perched in a serviceberry tree that was in full flower – what a sight that was! Make it a new spring ritual to truly appreciate these beautiful blooms!

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