Beaverhill Bird Observatory

The WILLET

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Editor Richard Hedley

Volunteers Needed for the Casino Fundraiser

The BBO is hosting a casino on September 4 and 5, 2023 and needs your help! As a non-profit organization, this is an important fundraiser in supporting our research, conservation efforts, and BirdSmart Education program. Funds raised allow us to host public events and banding events for all to attend. Please volunteer.

A Canada Warbler captured during songbird banding.

When: September 5 & 6, 2023

Where: Pure Casino Edmonton on Argyll Road at 75 street

Positions available: Day and night shifts for banker, cashier, chip runner, and count room.

Contact Jana at biologist@beaverhillbirds.com to sign up!

Fall Ticketed Events

The BBO will once again be hosting Songbird and Owl Banding events as well as our annual Supper and Saw-whets event.

Young Northern Saw-whet Owl

Fall songbird banding events: beginning on August 19 on Saturdays and Sundays starting at sunrise. Tickets are available now!

Owl banding events: opening September 21 on Thursdays to Sundays starting at sunset. Tickets will be available in late August.

Supper and Saw-whets: September 23 and 24 starting at 5:00 pm. Tickets will be available in late August.

Get your tickets by clicking here!

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Territorial Acknowledgement: Beaverhill Bird Observatory is located within Treaty 6 territory, a traditional gathering place for diverse Indigenous Nations, including the Plains Cree, Metis, Blackfoot, Saulteaux and Nakoda Sioux People, who are the original stewards of the Beaverhill Lake area since time immemorial.
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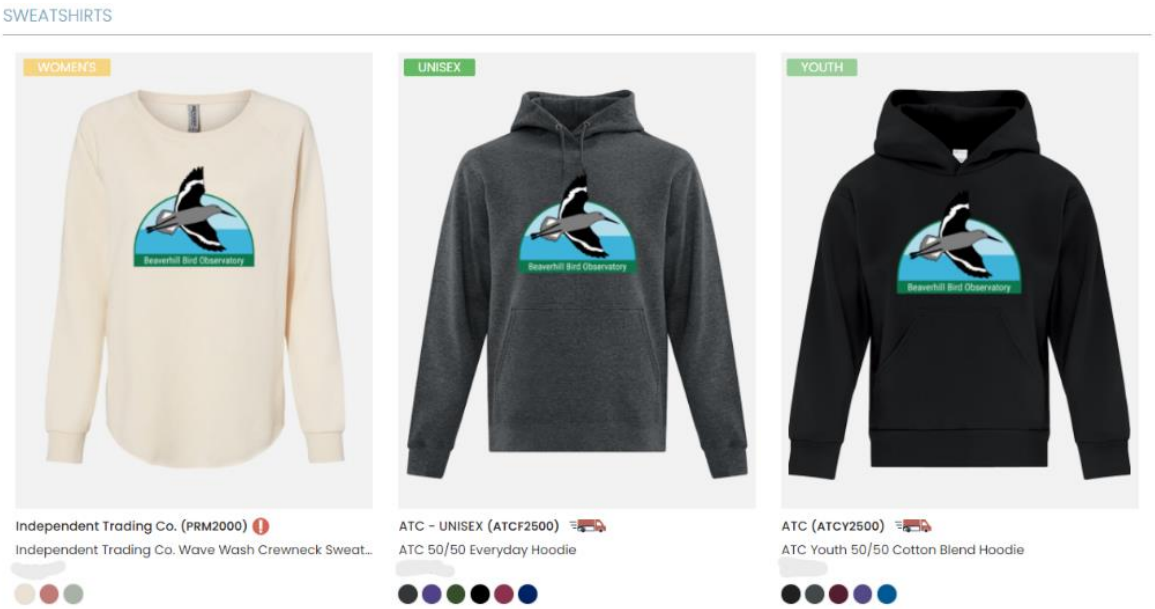
Online Store

The BBO now has an online merchandise store featuring our modern logo! Keep an eye out for new products launching in early September. Get your merch by clicking here!



Volunteer Schedule

Our songbird volunteer schedule is now open, and our owl volunteer schedule will open soon. Due to the popularity of our owl events and volunteer shifts, we are doing things a bit differently this year. You must first gain experience with scribing and bird handling with songbirds before being able to sign up for owl volunteer shifts. Want to sign up as a volunteer? Click here!

Whoever said all sparrows are drab, brown and dull?
This White-crowned Sparrow thinks otherwise.

Highlights From an Exciting Spring Migration Season

With the arrival of August, the birdsong of spring fades as the birds cease breeding and prepare for their southward migrations. This month always marks a turning point for the BBO, as the focus shifts from spring migration monitoring and the summer MAPS program to the autumn songbird and owl migration monitoring. The spring/summer season was both busy and successful. A report on the season's activities can be found in the Spring Report, here. Some highlights are summarized below.

1. Spring Migration Monitoring: The Beaverhill Bird Observatory and its dedicated team of biologists and volunteers, conducted spring migration monitoring during May and June. They recorded 408 captures in standard nets, and 664 captures in experimental nets.

BBO staff hard at work banding birds.

2. Community Engagement: The observatory chaired and participated in the Snow Goose Festival organizing committee, and hosted the Big Birding Breakfast, providing opportunities for the community to connect with migratory species and engage in bird-related activities. The morning of the Big Birding Breakfast coincided with the busiest day for bird banding, making for an exciting morning! Volunteers played a pivotal role in making these events successful.

A male Rose-breasted Grosbeak.

3. New Additions: Notable additions to the observatory's team included a young Great Horned Owl named Tansi and a young Burrowing Owl named Nina, who will be part of our educational program. Welcome to the team, Tansi and Nina!

Tansi, the Great Horned Owl, and Nina, the Burrowing Owl

Successful June work-bee in the summer sun

BBO Hosts the Young Ornithologists Workshop

The 7th annual Geoff Holroyd's Young Ornithologists Workshop was another success, due to the enthusiasm and level of effort from the ten attendees and the many volunteers involved. From July 31st-August 6th, the participants from Alberta, British Columbia, USA, and Japan camped in the clearing and spent their mornings learning the intricacies of bird banding, and their afternoons learning various wildlife monitoring techniques. Their week was jam packed: they joined BBO biologists on a shorebird survey; learned about the importance of wetlands while pond dipping for aquatic invertebrates; participated in a butterfly and moth workshop; completed a big birding day at local hotspots (including Elk Island National Park), observing a total of 99 species; helped to release young ducks from WildNorth; studied bird specimens to refine their knowledge of moult; heard about BBO's 40 year study of nesting Tree Swallows and about the conservation efforts to keep Burrowing Owls in Canada; and toured the local falcon breeding facility where they got to experience raptors up close. With a schedule like that, sleep was sometimes lacking, but enthusiasm was not.

Thank you to Helen and Phil Trefry, Geoff Holroyd, Matt Turnbull, Dave Lawrie, Irene Crossland, Kim Blomme, the BBO staff and everyone else who contributed to the success of this program. Thanks to all that helped by donating or preparing food.

Back Row: *Cala Jorgensen (staff), Jon Van Arragon (staff), Toby Ye (BC), Jana Teefy (staff), Heather Tocher (BC), Sierra Jamieson (staff), Helen Trefry (YO co-ordinator), Alexander Zbylut (AB), Paul Jacques (BC), Ethan Denton (staff), Quinn Desilets (AB), Geoff Holroyd (BBO Chair).* ***Front Row:*** *Braxton Inge (volunteer, Hawaii), David Lawrie (Lepidopteran volunteer), Julia Froese (AB), Mianna Popik (AB) , William Bushwell (Massachusetts), Gwendolyn Bateman-Dungey (AB), and Karin Higuchi (Japan)*

A Myrtle Warbler Recovery – good news and bad news

A Myrtle Warbler at BBO.

Rarely do we hear about one of our banded birds from afar. When we do, the distances traveled amaze us. The report of a Myrtle Warbler banded at BBO by Jon on 4 September 2021, encountered in Sibley, Webster Parish Louisiana in 23 November 2022 was exciting. Sibley is about 2,800km southeast of BBO, in the northwest corner of the state. The hatch year male had flown south in 2021, returned to breed in the boreal forest, then flown south again in autumn 2022, an estimated distance of over 9,000 km. Thank you to Matthew Seales for reporting the dead warbler's band number to the banding office.

The small town of Sibley, population 1,200, looks to be surrounded by forest on Google Earth; a great place to spend the winter. But our warbler made the mistake of wandering into town rather than staying in the forest. Sadly, a cat caught and killed the warbler. A reminder to keep our cats indoors! Cats kill more birds than any other human caused activity.

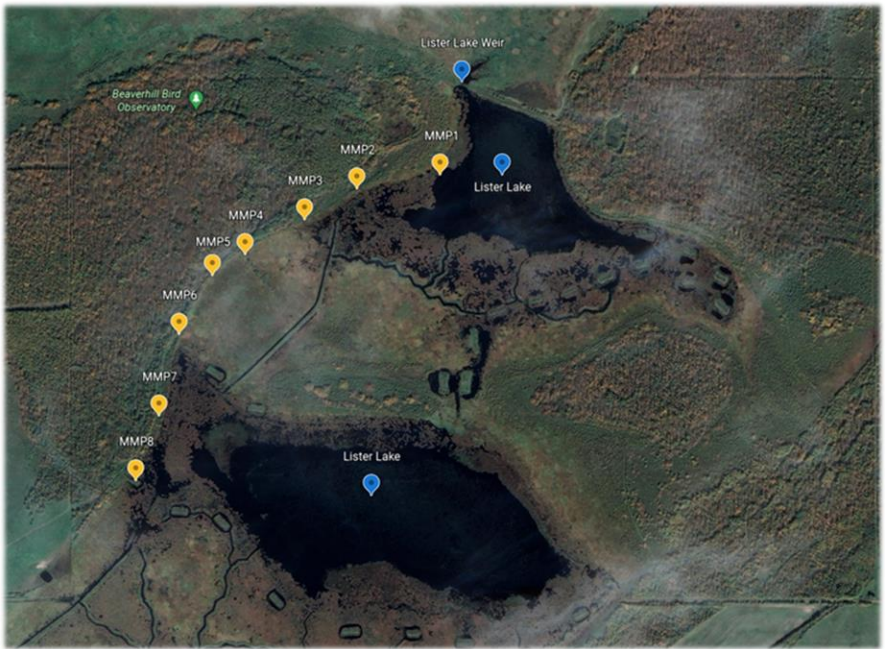
The red arrow shows the impressive distance traveled by the Myrtle Warbler, originating at the BBO and ending up near Sibley, Louisiana (yellow markers).

Highlights from the BBO's Marsh Monitoring Program

By Sierra Jamieson, BBO Staff Member

2023 was the third year of a Marsh Monitoring Program at Beaverhill Bird Observatory focusing on birds breeding in Lister Lake. The program targets Virginia Rails, Yellow Rails, Soras, Pied-billed Grebes, Eared Grebes, Red-necked Grebes, Horned Grebes, American Bitterns, Least Bitterns, and Nelson's Sparrow. This summer, surveyor Sierra Jamieson reported five of the ten target species (Virginia Rail, Sora, Pied-billed Grebe, American Bittern and Nelson's Sparrow), with an estimated minimum of 3 American Bitterns, 5 Nelson's Sparrows, 7 Pied-billed Grebes, 15 Soras and 2 Virginia Rails likely to be using Lister Lake over the summer. Habitat structure was also recorded, and the detections were overlaid on the habitat maps.

This project's target species were selected for multiple reasons. These particular birds are understudied, highly sensitive and elusive, so the data collected will be especially valuable for filling knowledge gaps to help with conservation efforts. Even habitat requirements are relatively understudied for these secretive birds, especially over their breeding season, so we hope the contribution of this project will help understand and protect essential habitat for these and similar species!



Satellite imagery showing locations monitored for the Marsh Monitoring Program (yellow points).

BBO featured on Edmonton Community Foundation podcast

BBO was recently featured on the Well Endowed Podcast – a local Edmonton based podcast produced by the Edmonton Community Foundation. The podcast includes interviews with BBO Chair Geoff Holroyd, Head Biologist Jana Teefy, and Assistant Biologist Jon Van Arragon. Click here to have a listen. BBO is incredibly grateful for all the support the Edmonton Community Foundation has provided over the years.

BBO Forest Breeding Bird Census Highlights

By Jon Van Arragon, BBO Assistant Biologist

Each year, one lucky person at the BBO gets to survey a 25-hectare grid in the natural area for forest songbirds to determine where their territories are. For the second year in a row, that lucky person was me!

For 6 mornings, I got up at the crack of dawn and walked up and down the entire grid of points, carefully noting the position and behaviour of songbirds in the survey area. Based on the positions of singing birds and other territorial displays, the relative location of a bird's territory can be determined. After all, if a Yellow Warbler is seen singing in the exact same bush for 6 surveys in a row…chances are that bird's territory is in that area!

This year over 130 territories were identified for 7 common species in the survey area. Almost half of these were Least Flycatcher territories, which is no surprise given the deafening morning chorus of "cheBEK" that can be heard during the spring. For the full results, keep an eye out for the forest breeding bird census report on the BBO website!

Tennessee Warbler Invasion!

By Jon Van Arragon, BBO Assistant Biologist

Tennessee Warblers are a common breeder throughout the boreal forest and are regularly captured on fall migration at the BBO. This year, however, we experienced an invasion of these little olive-green warblers in early July. What exactly caused these birds to show up in large numbers at such an odd time of year?

The attraction, naturally, is food! In late June, BBO staff began noticing that the balsam poplar trees in the natural area were being defoliated by an outbreak of the larvae of an insect known as the Jumping Leaf Beetle or Flea Beetle. Some areas were hit so hard that it started to look like fall! Shortly after we noticed this insect outbreak, the Tennessee Warblers began showing up en masse. They might have left their breeding grounds early due to the many forest fires.

This invasion was likely a molt migration, where adult birds migrate away from their breeding grounds to replace their flight feathers in an area with abundant food. Once the Tennessee Warblers have had their fill of larva and replaced their feathers, they will continue on their journeys south to their wintering grounds in Central America. Hopefully some of them will get caught at other banding stations along the way and help us learn more about their journeys!

One of many Tennessee Warblers captured this summer.

Investigating one of BBO's most abundant breeders: the Least Flycatcher

By Cala Jorgensen, BBO Staff Member

A close-up of our favorite mosquito-eating feathered friend, the Least Flycatcher.

The Least Flycatcher (*Empidomax minimus*) is one of the most abundant breeding birds at the Beaverhill Bird Observatory (BBO). However, globally, its population has declined by 53% over the past 50 years. As with many other aerial insectivores, the leading cause of these declines is likely a reduced abundance of prey resulting from widespread pesticide use, though habitat degradation and loss may also play a role. In 2022, the BBO launched a Least Flycatcher Nest Monitoring Program to better understand the ecological factors contributing to the success of our local populations, which can inform worldwide conservation efforts. Last year we discovered that nests built higher up in live Aspen trees, located under dense forest canopies and in close proximity to one another, were more likely to be successful. In 2023, we continued to collect Least Flycatcher nest site selection and development data to confirm these findings and identify any other trends that might explain the Least Flycatcher's high levels of breeding success at the BBO.

This year, we located 33 Least Flycatcher nests and determined 25 to be active and suitable for long-term monitoring. Of these 25 nests, twelve successfully produced fledglings, eight failed, and five had indeterminable outcomes. Due to resource and time constraints, we were unable to monitor the nests as frequently as in 2022, which limited data available for analysis. The overall success rate (48%) and average clutch size (2.8) of nests observed in 2023 were lower than in 2022 (78%, 3.9, respectively). Interestingly, four nest cups that were successful in 2022 and still intact were reused in 2023 and continued to produce either partially or entirely successful broods. While year-to-year nest reuse has been observed in swallows and some Brazilian flycatchers, it has yet to be documented in any North American flycatcher species. As a result, minor adjustments have been made to our monitoring protocol so we can continue investigating LEFL nest reuse in future years.

Flycatcher nests can be difficult to spot, but usually have a priceless treasure inside of them.

How This Year's Fires Are Affecting Alberta's Birds

By Cala Jorgensen, BBO staff member

Fire is a natural process in Alberta's forested ecosystems, offering a chance to regenerate and restructure the vegetative communities on which a diversity of life depends. However, an unprecedented number and severity of wildfires early this spring led the Government of Alberta to declare a State of Emergency on May 6. While the number of fires was approximately double the average for the early spring period over the past five years, the total area burned was nearly 100 times larger. Roughly 30,000 Albertans were placed under evacuation orders and, upon return, many found that the places and lives they once knew had perished. The landscape had evolved without them.

Wildfires are a natural, regenerative process across Alberta's landscape, but their increased frequency and severity across a longer fire season is forcing all of us to adapt - humans and birds alike! (Image courtesy of Alberta Wildfire)

Humans aren't the only ones who need to adapt. In the background of one of this year's wildfire news briefings, Beaverhill Bird Observatory (BBO) Board Member, Helen Trefry, noted the song of a White-throated Sparrow echoing amidst scorched ruins. The lone bird was calling out for any potential mates who had also survived and laying claim to whatever suitable habitat remained. This year's wildfires have forced many of the province's wildlife to leave their homes and seek new ways of living in less-than-favorable conditions. For some, this means finding a new home in high-conflict areas closer to hostile, predatory, and competitive neighbors. For others, it means hiding and rationing resources until the immediate danger passes, then scavenging what is left over. Though many species are better equipped to deal with uncertainty than humans, the scale, rate, and frequency of

major ecological changes occurring under a shifting climate, combined with pressures from habitat loss, disease, and resource scarcity, threaten their natural resilience.

The Blackpoll Warbler doesn't typically leave its breeding grounds in Alaska and the Yukon until late August and had already appeared at the BBO by August 8. (Image courtesy of Wikimedia Commons)

Alberta's State of Emergency coincided with the beginning of spring migration. Luckily, many migrating bird species had yet to arrive at their breeding grounds and, apart from those who reuse their nests year after year, had not yet invested significant resources into nest and brood development. Still, a high prevalence of wildfires and the resulting smoke can impact birds along their migratory routes. Significant fires in the breeding grounds have been shown to trigger early migration and, like severe storms along migratory routes, can cause birds to deviate from their typical paths, remain grounded, or skip over regular rest spots. These seemingly innocuous itinerary changes can increase stress on migratory birds, especially when the timing and location of rest stops result in a lower availability of food resources. A larger total area burned on breeding grounds has also been found to corresponded with reduced body mass and overall condition of banded birds. These findings may explain mass die-off events occurring along fall migration routes and on non-breeding grounds later in the year. Aerial insectivores, such as swallows, warblers, flycatchers, and some seed-eating sparrows, seem to be the most heavily impacted.

The Beaverhill Bird Observatory (BBO) is situated in a critical insectivore habitat with abundant food, water, and shelter. As a result, our tree swallow population is the most productive in western Canada. We also experienced relatively minor wildfire impacts this year compared to the rest of the province. Throughout spring, our staff speculated that the Beaverhill Natural Area may provide a more important habitat refuge and climate corridor for our beloved songbirds than ever before. While we did not observe a significantly higher volume or diversity of birds during the spring migration, many of our fall migrants, such as the Blackpoll Warbler, Wilson's Warbler, Tennessee Warbler and Northern Waterthrush have arrived nearly a month earlier than expected. BBO staff fear this may be the result of widespread breeding failure due to smoky conditions.

With the prevalence, timing, and severity of early-season wildfires potentially increasing, it is crucial that we maintain abundant bird habitat throughout the major flyways. Intact habitat corridors are especially important when considering the long-term and large-scale ecosystem shifts that will result from wildfires and the other effects of climate change. Many birds that have survived this season will now have to navigate through the nearly 2 million hectares of newly barren forest and may have to deviate from their typical paths. It will surely be an exciting fall migration season, and we invite you to come join us at the Beaverhill Bird Observatory to see who else turns up. Sign up for our upcoming bird banding events at http://beaverhillbirds.com/programs/migration-monitoring/

Another early arrival, the Wilson's Warbler is one of many insectivores that are significantly impacted by wildfire. Without sufficient food and habitat, these birds are much less likey to make it to their overwintering grounds. (Image courtesy of Wikimedia Commons)

Brown-headed Cowbirds and Nest Parasitism

By Jana Teefy, BBO Head Biologist

Go for a walk in the nearby Beaverhill Natural Area's trail system, and you can't help but notice the abundance of blackbirds on the reeds and cattails in the wetlands, foraging throughout the forest, and even frequenting the feeder at the banding station. You will hear the Red-winged Blackbird's distinctive conk-la-ree, the Yellow-headed Blackbird's raspy screeching, and the glug-ah-whee of the Brown-headed Cowbird. Distinctive in appearance, the male cowbirds are handsome with their iridescent black bodies and chocolate-brown heads.

Male Brown-headed Cowbird in the hand after banding. Photo by Jana Teefy

Range map of Brown-headed Cowbirds from allaboutbirds.org

These common birds are short-range migrants; they winter in the southern US. Known for their affinity with cattle and bison, they are often found foraging on and around cattle feeding on insects stirred up by grazing livestock. Cowbirds evolved with the vast herds of bison, feeding at the feet of these large mammals. Since the bison herds moved continuously the cowbirds couldn't build a nest, incubate eggs and raise young. So instead, they evolved to lay their eggs in other birds' nests and move on with the bison. Preferring edge habitats, they unsurprisingly benefit from landscape fragmentation, with agricultural practices and deforestation facilitating their habitat and range expansion.

Cowbird egg in a nest with smaller songbird eggs. Photo from Dickson County Conservation Board

The Beaverhill Natural Area on the south shore of Beaverhill Lake is surrounded by agricultural farmland, native grassland, and aspen forest. This combination of habitats supports a high diversity of breeding birds, including Brown-headed Cowbirds, and allows the cowbirds to employ their unique parasitic nesting breeding strategy (also called brood parasitism) on a variety of host species. Cowbirds do not build a nest; instead, they lay eggs in the nests of other, usually much smaller birds, leaving their young to be raised by the host species. They target over 220 species with a variety of nest types, including species as small as kinglets, warblers and flycatchers. Researchers believe cowbirds target or even specialize in parasitizing the nests of the species that raised them. They can lay as many as 40 eggs in a season but usually only lay 1 egg per nest. However, one nest can be targeted by multiple female cowbirds.

A Yellow Warbler feeding a cowbird chick. Photo from Sue Barth macaulaylibrary.org

An adult cowbird weighs 40-50 g, whereas their target species can weigh as little as 6 g. Additionally, the cowbird chicks hatch earlier, develop faster, and are much bigger than the host species, giving the cowbird chick a clear advantage as the parents are conned into prioritizing their feeding efforts on the bigger, stronger chick. Furthering their advantage, the cowbird chicks often nudge the other chicks or eggs out of the nest to limit their food competition.

Due to their nesting habits, Brown-headed Cowbirds are considered a pest species and have been associated with the decline of many songbird species. However, songbird species in western Canada have evolved alongside cowbirds, and their populations seem to be less affected by cowbirds than the eastern species, with some songbird species showing evidence of recognizing when their nest has been parasitized. These birds will puncture or expel the foreign egg from the nest, re-build a new nest over the old one, or abandon the nest entirely and start a new one.

What do you do if you find a nest with a cowbird egg or chick? First, check if there are any restrictions in your area. Although cowbirds are not protected under the Migratory Birds Convention Act, tampering with the nest of the host species is problematic. The Beaverhill Natural Area is within a Provincial Crown Land, and the nests, eggs, and young of all species are protected. Apart from the legal standpoint, there are ethical and conservation stances against nest tampering. Songbird populations have depleted by 30% in the last 20 years. Shouldn't we do everything we can to aid these birds to ensure nesting success by removing cowbird eggs and chicks? Unfortunately, it isn't that simple. Evidence shows that tampering with the nest and removing cowbird eggs or chicks may cause that nest to fail, as the host parents sometimes abandon those nests. Considering that less than 5% of cowbird chicks make it to maturity, removing the eggs might be more of a detriment than letting nature take its course. Perhaps our conservation efforts should be focused on preserving native habitats and food sources instead of tampering with the eggs and young of a native bird that has evolved alongside its songbird neighbours. How can you help? Consider becoming a member or donating to the Beaverhill Bird Observatory so they can continue their research on our migratory and locally breeding birds. More information can be found at www.beaverhillbirds.com.

Female Brown-headed Cowbird. Photo from Matt Mason macaulaylibrary.org

MOTUS: The New Evolution of Migration Tracking

By Ethan Denton, BBO Staff Member

From early experiments in the 1800's to the plethora of modern-day research, ornithologists have been using leg bands to study birds and the great migrations that they undertake each year. Banding has also revealed a lot about other aspects of the avian world, from nestling survivorship and population dynamics to habitat usage and site fidelity. Discoveries have accumulated over the past 200 years as methodologies have improved and the scale of the research has increased, but the fundamentals have remained more or less the same. Now, finally, a new way to track small birds is emerging.

Previously, biologists trying to use modern technology for these purposes have been thwarted by the light weight and tiny size of their subjects – many of the birds we band at the BBO weigh less than 15 grams, nowhere near enough to support the satellite backpacks that can be carried by larger birds and mammals. Instead, researchers are turning to automatic radio telemetry. Rather than a heavy backpack, each bird is fitted with a tiny nanotag, which contains a unique electronic code - much like a metal band! The nanotags are so lightweight they are even being used on bats and insects like dragonflies and butterflies without impeding flight.

Nanotags send out consistent "pings" that are picked up by a receiver called a MOTUS station whenever the bird comes within 15 kilometres, relaying the bird's unique code to the MOTUS server at Birds Canada. The MOTUS initiative has taken wing, and towers are being installed throughout the Americas from northern Canada all the way to Tierra del Fuego. The beauty of MOTUS is that it is a collaborative project: everyone who tags a bird, bat or insect benefits from the towers deployed by anyone else. Therefore, each new tower generates a greater return on investment for researchers deploying tags, since tags, on average, become more and more likely to be detected one or more times along a migration route. Many of the towers are connected to WiFi, which enables them to instantly upload the information received to the Motus website (motus.org) – giving the ability to see live updates on the migrations of hundreds of birds.

The recently installed MOTUS tower at the BBO

There are drawbacks, as with anything. MOTUS tags last anywhere from a day to a few years, depending on the size of the tag and the frequency of pings. They also don't always give a precise track of where the bird has travelled as they only record the bird's movements when it's within range of a tower. Furthermore, the tags and towers are significantly more expensive than traditional metal leg bands. However, with passive monitoring, the rate of recoveries – and the richness of the resultant data – is notably higher than from bird bands. The pros far outweigh the cons.

A Northern Saw-whet Owl banded in 2022 at the BBO

The Beaverhill Bird Observatory hosts one of six MOTUS stations operating in Alberta at the time of writing. Three White-throated Sparrows that were tagged in British Columbia have been detected at BBO. Starting in the fall of 2023, the BBO will begin fitting Northern Saw-whet Owls with MOTUS tags. The station bands 300-500 of these small owls every fall. In the spring we are unable to run migration monitoring for owls since their spring migrations occur when conditions are far too cold (and often snowy!) to safely operate our banding station. Because they migrate so early, very little is known about the spring movements of western Northern Saw-whet Owls. With MOTUS, that's all about to change. The towers will pick up tagged Owls without having to worry about the cold, snowy conditions of March and April in Alberta. Ongoing efforts to install a string of towers across southern Alberta will help ensure that as many as possible of these owls – or any other species – are pinged when they enter the province.

Anyone interested in becoming involved with MOTUS in Alberta can start by sponsoring an owl's tag at the BBO. The tags cost $300 each. Sponsors get to name their owl and receive updates on where and when it pings throughout the bird's lifetime. An even better way of furthering the cause is to install a MOTUS tower at your home, recreational property, or elsewhere, especially in areas with less coverage. Anyone interested in supporting MOTUS research in Alberta is encouraged to contact biologist@beaverhill.com or visit the motus.org website.

The more tags deployed the better, as every new bird tagged vastly increases the odds of having BBO-tagged subjects pass by a tower. Whether it's a local bird pinging off the same tower year after year, or a migrant registering a 3000-km migration and ending up in an entirely different breeding ground, each and every data point collected by MOTUS helps create a mosaic of scientifically invaluable maps. Already, tagged birds are bringing to light new areas of focus for crucial migration stopovers, threatened wintering grounds, and some of the many hazards posed by the birds' biannual trek across the continent – and beyond.

The Beaverhill Bird Observatory is a proud member of the Beaver County and Tofield communities. We thank our many supporters and funders that are shown below personal donations including in memory of Mary Hughes Weir. Visit www.beaverhillbirds.com for more information.

Beaverhill Bird Observatory

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