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Beaverhill Bird Observatory

The WILLET

Editor: Julianne Hayes

NEWSLETTER

A Sneak Peak into the 2025 Field Season

By: Jana Teefy, Head Biologist

As the warmth of spring settles in, we can't help but feel the excitement building for the upcoming field season. There's always something about the fresh air and the promise of outdoor adventures that has us eager to get out to the station and catch some birds! This year, Jana and Jon are thrilled to be joined by Emelie and Xavier as they spend another season with us at the observatory and are eager to extend a warm welcome to our newest staff member, Willow, who's ready to bring her fresh energy and enthusiasm to the team!

We're also excited to have **four incredible long-term volunteers** who will each be spending a month or more with us this summer. Their dedication and passion for conservation are sure to make a huge impact.

As many of you may already know, BBO is currently blanketed in snow! We're eagerly watching to see how much will melt into the ground versus run off into the lake. We are hopeful that the snowmelt will help keep the lake levels rising, bringing new life and biodiversity to the landscape.

The staff- Xavier, Jon, Jana, Willow, and Emilie having fun at the Activate photo booth

We're counting down the days until we kick off our annual projects — including our Migration Monitoring and MAPS monitoring projects — to see which birds are passing through our natural area and which ones are staying to breed.

The team will also continue our important work on projects like monitoring Least Flycatchers, Marsh Monitoring, Shorebird Surveys, and the Forest Breeding Bird Census. But that's not all! We're excited to delve into a brand-new project, studying Purple Martins at the nest site to gain insights into their site fidelity and breeding behaviours.

On May 20, the BBO staff will be completing their Big Birding Day Fundraiser where they will be birding throughout the county finding as many species of birds as possible in a single day to raise money for bird conservation! This year's goal is to see over 100 species and raise $3000 by the day's end. Your generous donations go directly to the Beaverhill Bird Observatory to fund our long-term monitoring and education programs.

Click here to donate and follow along with our live Ebird on our day of bird-nerding fun!

The 2025 season will also feature some incredible events you won't want to miss! We'll be celebrating World Migratory Bird Day, hosting our Big Birding Breakfast, and offering up some up-close and personal fun with songbird banding. In addition, we're planning to introduce new group activities in the natural area — including a BioBlitz and nature journaling workshops — there's something for everyone!

Are you as excited as we are? Whether you want to join us for an event, become a member, or volunteer, there are plenty of ways you can get involved and help make this season truly unforgettable.

Upcoming Events

By: Jana Teefy, Head Biologist

The 2025 season will feature some incredible events you won't want to miss! We'll be celebrating **World Migratory Bird Day**, hosting our famous **Big Birding Breakfast**, and offering up some up-close and personal fun with **songbird banding**. In addition, we're planning to introduce new group activities in the natural area — from a thrilling **BioBlitz** to a **nature journaling workshop** — there's something for everyone!

We know everything is pricey these days, so we're making it easier for you to have fun without breaking the bank! **We've lowered our ticket prices**, introduced a discounted family pass and are offering seniors pricing for the spring banding events and big birding breakfasts— because great experiences should be affordable for everyone.

Please note that to eliminate uncertainty, **we will no longer be cancelling events due to weather.** If we are not able to open nets, we will invite you to join us on a guided hike, check out our new specimen display, watch a BirdSmart presentation, and offer various other activities.

Get your Songbird banding and Big Birding Breakfast tickets here!

Beaverhill Bird Observatory

SPRING UPCOMING Events

April 26-27
Ticketed event

Snow Goose Festival

bus tours and guided hike
trade show
banquet

MAY 10

World Migratory Bird Day

free family friendly event
at the observatory

MAY 17
Ticketed event

Spring Banding Events Begin

interpretive banding
demonstrations

MAY 20

Big Birding Day

all day birding fundraiser

MAY 25

AGM and Board Meeting

1 pm at the observatory

MAY 31 & JUNE 1
Ticketed event

Big Birding Breakfast

crepe breakfast
bird banding
family friendly activities

beaverhillbirds.com

Snow Goose Festival

By: Jana Teefy, Head Biologist

TRADE SHOW

In addition to the tours, the festival features a variety of fun and informative activities. Don't miss the trade show, where you can explore local vendors and wildlife products, and the inspiring guest speakers who will share their knowledge and passion for birds and conservation. The Tofield curling rink will also host a concession stand to keep you fueled throughout the day.

Click the links below to:

- Volunteer for **BBQ** tour guides
- Attend banquet
- Volunteer for **Goose Bus** tour guides
- Book tours

JOIN US APRIL 26 AND 27 IN TOFIELD!

The Town of Tofield is thrilled to invite you to the highly anticipated Snow Goose Festival, where you'll witness the spectacle of tens of thousands of Snow Geese as they move through the area. Beaverhill Lake and its surrounding waterbodies serve as a vital staging area for these incredible birds to rest and refuel as they prepare for their final push north to their tundra breeding grounds. It's a must-see event for nature lovers and birdwatchers alike!

TOURS

A variety of tour experiences are available throughout the festival. Hop on a comfortable bus for a **2-hour or 3-hour bus tour** that will take you around the county to get a closer look at the massive flocks of geese and other interesting bird sightings. For those looking for a more active experience, join us for a **3-hour field hike tour,** where you'll enjoy a scenic guided hike through the stunning Beaverhill Natural Area and experience live interpretive bird banding demonstrations. It's a unique opportunity to learn from experts and witness conservation efforts up close.

A NIGHT TO REMEMBER

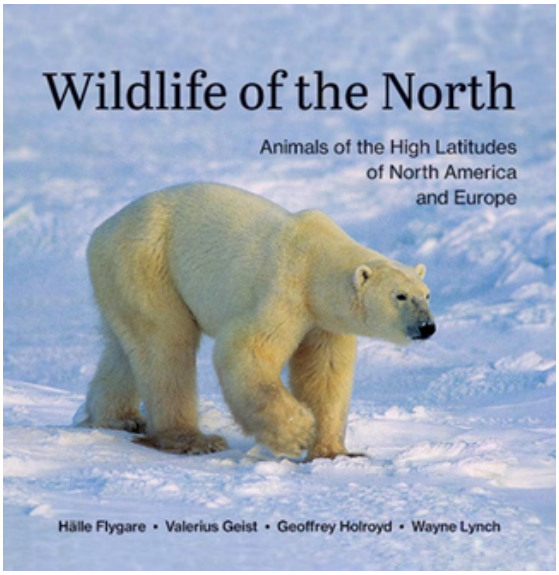
Wrap up your festival experience by joining us at the Tofield Community Hall for the Snow Goose Festival Banquet Saturday night featuring delicious food, live music, and a keynote speaker who will share fascinating insights into the world of migratory Snow Geese. It's the perfect way to relax and reflect on the day's adventures.

Wildlife of the North

Read about the polar mammals, birds, plants, icecaps and glaciers of North America and Europe with stunning photos. Co-authored by BBO Chair and ornithology expert with over 36 years experience in the Canadian Wildlife Service, Geoff Holroyd.

Signed copies available through Geoff Holroyd and at the observatory. Unsigned copies available through Amazon.

Get your copy now!



BBO Merchandise

The BBO now has an online merchandise store! Purchase t-shirts, hoodies, crew necks, and more with the BBO logo or an adorable Northern Saw-whet Owl on it.

Check it out today!

Tru Earth Detergent Fundraiser

Please consider supporting the environment and BBO by ordering through our fundraiser link or scan the QR code to place an order

Help Beaverhill Bird Observatory
Earn Money Sustainably
by purchasing
Environmentally Friendly Products
from
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Place your orders through our Fundraising link

https://fundraising.tru.earth/BBO

Northern Saw-whet Owls on the Move

By: Geoff Holroyd, BBO Chair

One sure sign of spring in the forests of central Alberta is the call of the Northern Saw-whet Owl. By the time the Snow Geese are passing through, many saw-whets are on eggs or even feeding young. Large numbers pass through the Beaverhill Natural Area in the autumn. Where are they headed?

To learn more, the researchers at the Beaverhill Bird Observatory attached nanotags to 97 owls in the autumn of 2023 and 2024. The nanotags are part of the MOTUS global wildlife tracking system. All the tags transmit on the same frequency and imbedded in the 'pings' are the individual serial numbers. When a bird with a tag flies past a MOTUS tower the antennae detect the pings and the serial numbers are sent to a central computer at Birds Canada. BBO has a MOTUS tower at their field station in the Beaverhill Natural Area.

As regular readers of the Willet know, to learn more the Beaverhill Bird Observatory attach nanotags to 97 owls in the autumn of 2023 and 2024. The nanotags are part of the MOTUS global wildlife tracking system. All the tags transmit on the same frequency and imbedded in the 'pings' are the individual serial numbers. When a bird with a tag flies past a MOTUS tower the antennae detect the pings and the serial numbers are sent to a central computer at Birds Canada. BBO has a MOTUS tower at their field station in the Beaverhill Natural Area. Each tower can detect a nanotag within about 15km unless blocked by forest or other objects.

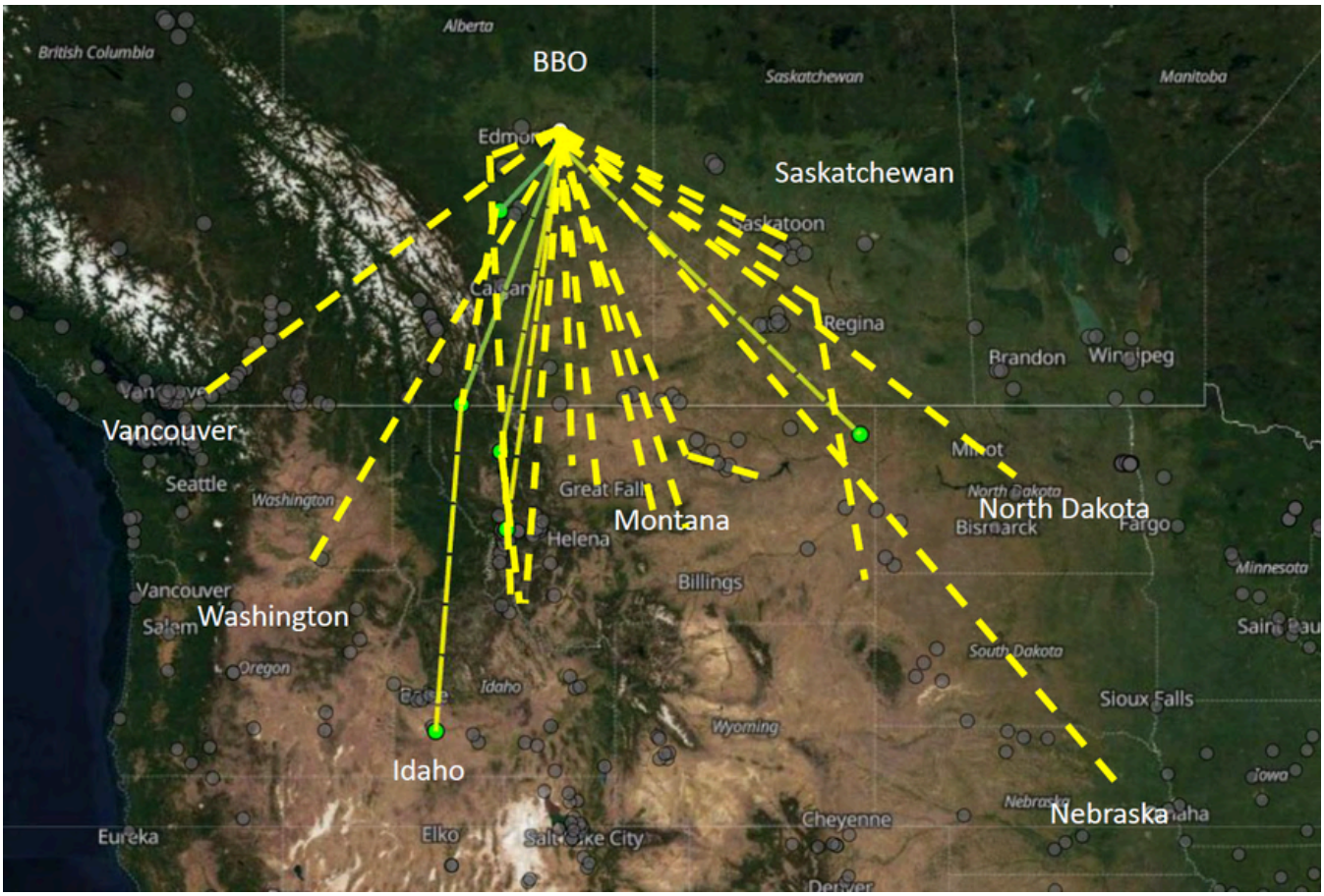
Photo by Sian Ford

What did our tags tell us about the owls? First, half of the owls kept moving within 2 days of being caught. A few of those were detected again within 15km up to a month later, but most kept away.

However, the other half stuck around the natural area (within 15km) for a while. A quarter of them (23) stayed for up to ten days, 6 stayed up to three weeks and 6 stayed for a month. The record was 166 days, and that record ended when our solar power lost power in cold snowy weather and the MOTUS station ceased to function. Some migrated quickly and some stayed!

We know from the local Christmas Bird Counts, especially Edmonton's that some Saw-whets stay all winter. Some are on eggs in March, and even February in central Alberta, while others are far away.

2025 SAW-WHET OWL MOVEMENTS



Where did the owls go? From the map you can see that many went south into the northwest states. But not a long way south. None reached Oregon nor Wyoming, except the one that went to Nebraska! Two were detected by a MOTUS station on the Richmond, BC, seawall just south of Vancouver, and three went to Saskatchewan. Curiously none were detected in eastern North America where we have had banded owls caught, even though there are numerous MOTUS towers in the east.

A couple of flights are noteworthy. One owl went to central Montana and passed 4 MOTUS stations in one night. The owl covered 120 km in 2 hours! A check of the local weather showed a chinook wind was blowing, and the clever owl was making full use of it. The second record is an owl that went from Beaverhill to Vancouver in 39 hours and 14 minutes, a steady 22 kph over two nights. Likely the owl took a break in the daytime and flew even faster in the dark nights.

The tags should last for 2 years, so stand by for more exciting news from this Beaverhill Bird Observatory project.

Forest Bird Population Trends and Habitat Use in the Beaverhill Natural Area

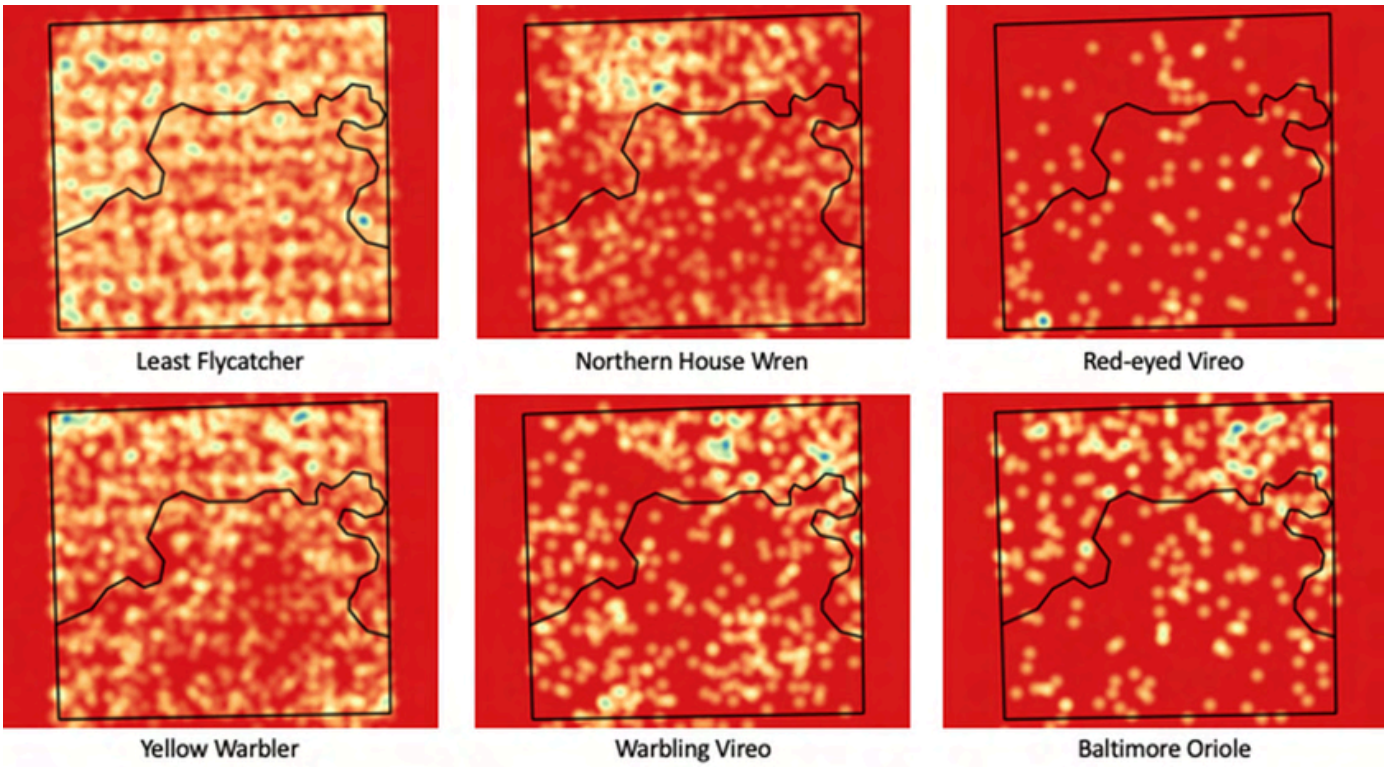
By: Jon Van Arragon, Assistant Biologist

In the last 50 years, populations of migratory forest birds in Canada have declined by roughly 17%. Using historical data collected during BBO's forest breeding bird census program, I have analysed how populations of forest songbirds are changing in the Beaverhill Natural Area, as well as what kind of habitat the birds seem to prefer.

The forest breeding bird census involves surveying the same area at least 6 times throughout the summer breeding season, and designating areas where a bird is consistently seen or calls on multiple surveys as breeding territories. I took this a step further and added some mathematical modelling to the process: using a technique called nearest neighbour spatial hierarchical modelling, clusters of bird sightings can be identified mathematically instead of relying on human interpretation. I also used this sightings data to create heat maps of the study area so I could evaluate which areas of the forest were most commonly used by breeding birds.

The 6 species studied in this project. From left to right, top to bottom – Least Flycatcher, Baltmore Oriole, Northern House Wren, Warbling Vireo, Red-eyed Vireo, Yellow Warbler.

HEAT MAPS



Heat maps showing distribution of species within the study area over the last 8 years. Yellow areas have higher densities of nesting birds than red areas. The black line dividing the square represents the approximate boundary between areas of Trembling Aspen (top half) and areas of Balsam Poplar (bottom half). Note that most of the species seem to prefer areas with more Trembling Aspen, except Red-eyed Vireo which is common in the Balsam forest!

FINDINGS

Over the past 8 years, the populations of forest birds like Warbling Vireo, House Wren, and Red-eyed Vireo seem to be relatively stable within the natural area. Another encouraging observation was that populations of Yellow Warbler and Baltimore Oriole seem to have increased locally in the natural area.

The only species that seems to be declining is one of the most common species in the natural area: the Least Flycatcher. If you've ever visited BBO during the spring, the Least Flycatcher's 'cheBEK' song is one of the most plentiful ones all throughout the forest.

This study and others have found that Least Flycatchers are more plentiful in the natural area than other sites, but the local population declines seem to be similar to those observed across the province. By continuing research on this species and others, we hope to aid the conservation of this species and the preservation of its critical habitats.

Status of bat box occupancy at the Beaverhill Natural Area and temporal variations in relation to roost characteristics and weather conditions in 2024

By BBO Intern Francesca Uy and Internship Mentor: Dr. Doris Audet

Abstract: Our analysis of Myotis lucifugus (little brown bat) roosting preferences in bat boxes and of the factors that may influence occupancy including roost type, habitat and weather was completed in the Beaverhill Natural Area (BNA) from May-September of 2024 as part of the long-term monitoring of artificial roosts (bat boxes).

We surveyed the 38 bat houses weekly from May 17- September 04, 2024, following the methods established in previous years (Low, 2023). To perform the bat occupancy counts, a flashlight was pointed below the house to get a view of the interior (Figure 3a). For houses with multiple chambers, the chambers in which bats were present were noted. During the maternity season, several bats were layered atop each other during some of the occupancy counts, obstructing the full view (Figure 3b), thus these counts underestimate the number of bats present, and these situations were noted during data collection.

Overall, 92% of the 38 houses were occupied at least once. Total weekly counts followed a bimodal pattern, with the largest count (n=344 bats) in mid-June followed by a sudden decline in numbers (to n=176 bats) and rising again weekly until mid-July (n=322 bats) after the young were born. Between years, the number of roosting bats, expressed as highest weekly counts and cumulative counts by year, substantially increased (doubled) from 2020 to 2023.

“The number of roosting bats, expressed as highest weekly counts & cumulative counts by year, doubled from 2020 to 2023"

In 2024, the population resembled that of 2023 and there were no significant differences in colony sizes between the two years. In 2024, largest colonies were observed in multi-chambered houses, but patterns of roost occupancy, i.e. the consistency with which roosts are used, varied through the summer.

Multi-chambered houses were most consistently used in early to mid-summer, while occupancy rates of single chambered houses increased in mid to late summer. Across habitats, more bats occupied roosts in edges, where most multi-chambered boxes were also located. Under the range of weather conditions encountered, short-term house occupancy did not seem affected by weather, but this merits further investigation.

Trends in bat echolocation activity in the Beaverhill Natural Area in relation to bat box occupancy

By BBO Intern Francesca Uy and Internship Mentor: Dr. Doris Audet

Abstract: This report presents the results of the 2024 acoustic surveys of bats in four habitat types to compare them with those of previous years as an indicator of long-term population trends. It also examines the possible association between levels of foraging activity at different recording stations and their proximity to occupied bat houses. Weekly surveys were conducted between May 25- September 24, 2024 in the Beaverhill Natural Area (BNA) in association with the Beaverhill Bird Observatory's (BBO) long term bat monitoring program following procedures previously established.

Surveys began at least forty-five minutes after sunset, after bats had left their roosts to forage, following procedures described in Low (2024). Recordings were collected with the EchoMeter Touch 2 (Wildlife Acoustics) UltraSonic Module and saved onto an Amazon Fire HD 8 (8 generation) tablet.

"The forest interior, including the BBO station's location, held the most activity throughout the season, with a peak at the end of July"

Monitoring occurred at 16 previously established stations (Low, 2024), including four stations in each of the following habitats: grassland, treed interior, edge (habitat transitionary zone), and riparian (water edge) (Figures 1 and 2). Additionally, we recorded echolocation calls outside the BBO Station building.

Seasonally, bat foraging activity (all habitats) followed a unimodal pattern, with most activity between June 16 and July 28 and peaking on July 5 (n=106 recorded call sequences). Among habitats however, the timing of peak activity varied. The forest interior, including the BBO station's location, held the most activity throughout the season, with a peak at the end of July. The edge and riparian habitats reached their peak earlier in the season, with a rapid decline in activity by the end of July.

Bat house counts followed similar temporal trends by habitat. The area in the forest interior where the three most active acoustic recording stations were located also included the highest roosting bat counts, suggesting an association between bat roost choice and bat foraging activity. Overall, areas where bat houses had high occupancy also record high foraging activity. Acoustic activity between 2021-2024 fluctuated annually but does not appear to follow a particular directional trend, indicating that overall the bat population may have remained relatively stable.

ACOUSTIC STATION HABITAT TYPES

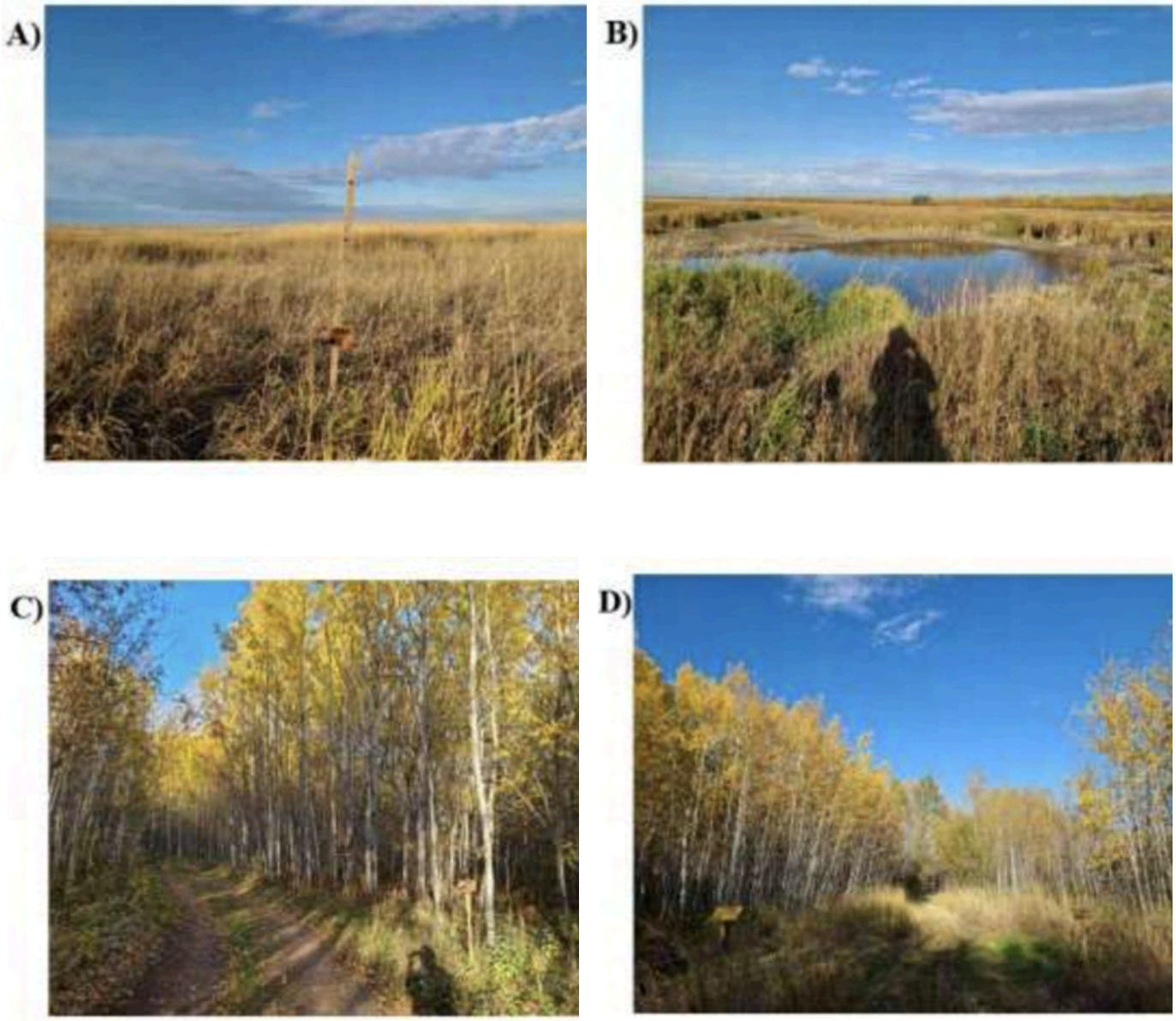
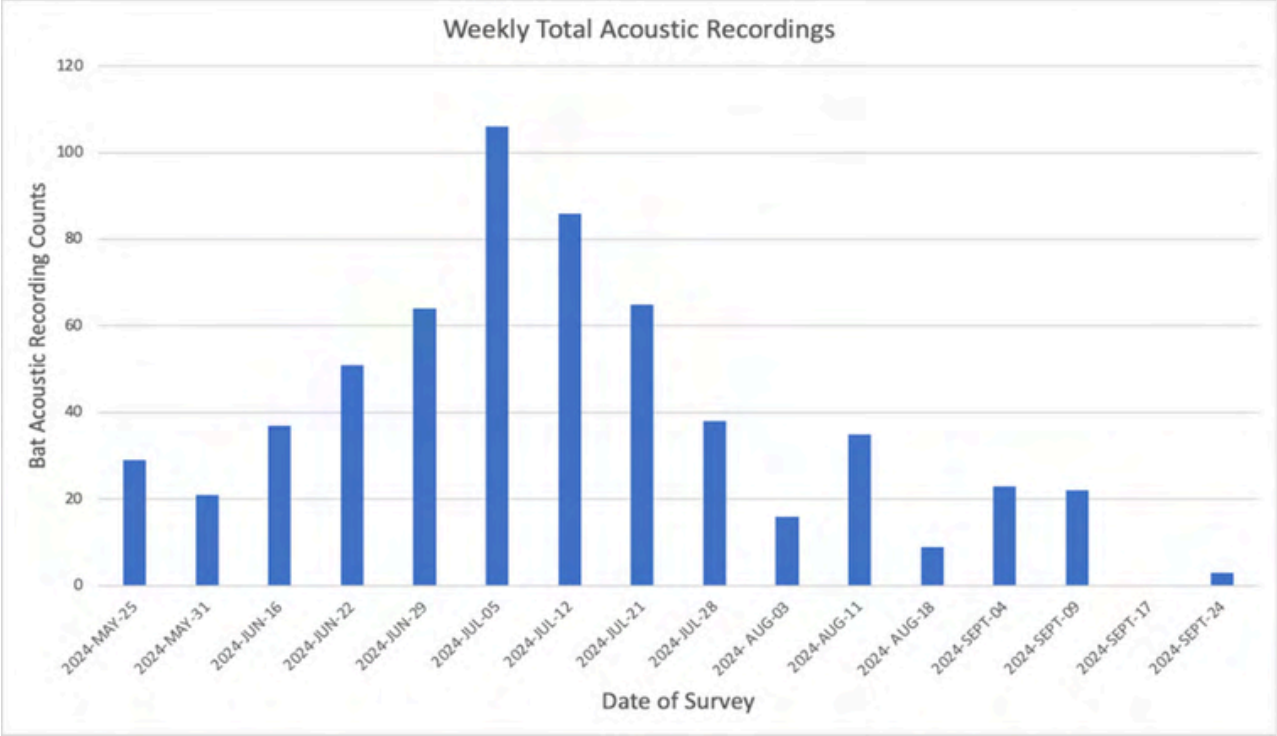


Figure 1. Examples of the habitat types for acoustic stations are as listed: A) Grasslands, B) Water, C) Interior Forest, D) Edge.

BAT ECHOLOCATION ACTIVITY



BAT BOX OCCUPANCY

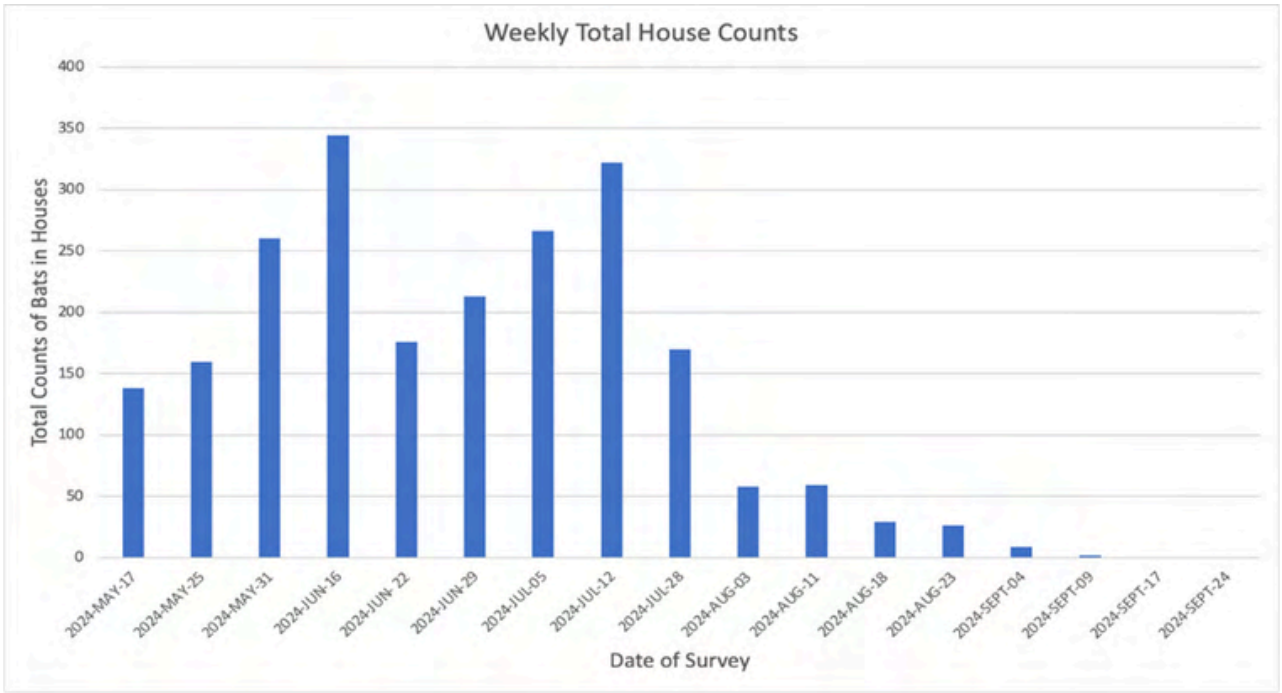


Figure 2. Bat echolocation activity (top) and bat boxes (bottom) occupancy at BBO through the sampling season.

Least Flycatchers have changed the timing of their autumn migration at Beaverhill Lake

By: Myrthe Van Brempt, Geoff Holroyd, and Glen Hvenegaard

The news regularly reports how climate change affects wildlife species. Climate change particularly affects migratory birds, because they depend on predictable temperature patterns in various locations to which they can time their migration, feeding, and raising of young. Phenology is the study of the timing of such recurrent natural events. Bird migration phenology has changed over the past few decades, with warming due to climate change. Many bird species show asynchronous timing of migration between sexes and/or age classes, known as differential migration, but only a few studies have investigated whether differential migration is reflected in a change in migration phenology over time.

With a long-term data set available from the Beaverhill Natural Area, in Alberta, Canada, we wanted to determine if differential migrations for age and sex among Least Flycatchers (Empidonax minimus) has changed. The Beaverhill Bird Observatory bands birds each year (from July 20 to October 20) on their fall migration. From 1991-2022 (31 years, excluding 2020, the pandemic year), BBO staff banded 7,034 Least Flycatchers, one of the most common species banded. We could determine age for most of these banded birds, but could determine sex for only 1130 birds.

We found that adult flycatchers migrated, on average, 13 days ahead of hatch-year birds (Figure 1; median dates of August 1 versus August 14), a trend that is consistent with research on Least Flycatchers and related species elsewhere. One explanation for this difference is that adults migrate south as soon as their breeding activities are finished in order to start moult on the wintering grounds, while hatch-year birds moult on the breeding grounds before migrating south. Another explanation is that hatch-year birds can avoid competition with adult birds by leaving later or by travelling slower to their non-breeding areas.

In addition, adult females migrated 5 days ahead of adult males (median dates of August 5 versus August 10), when all ages were combined. A possible explanation for this difference is that females can secure winter territories first, thus avoiding competition. Another explanation is that males might stay longer at the breeding grounds to defend their territories and to prospect new potential breeding sites for future nesting attempts.

We then drilled down further, by comparing the 4 age-sex groups. Adult females migrated 4 days before adult males. Adult females migrated an average of 14 days earlier than hatch-year females, and adult males migrated an average of 8 days earlier than hatch-year males. However, the departure dates between hatch-year females and hatch-year males did not differ.

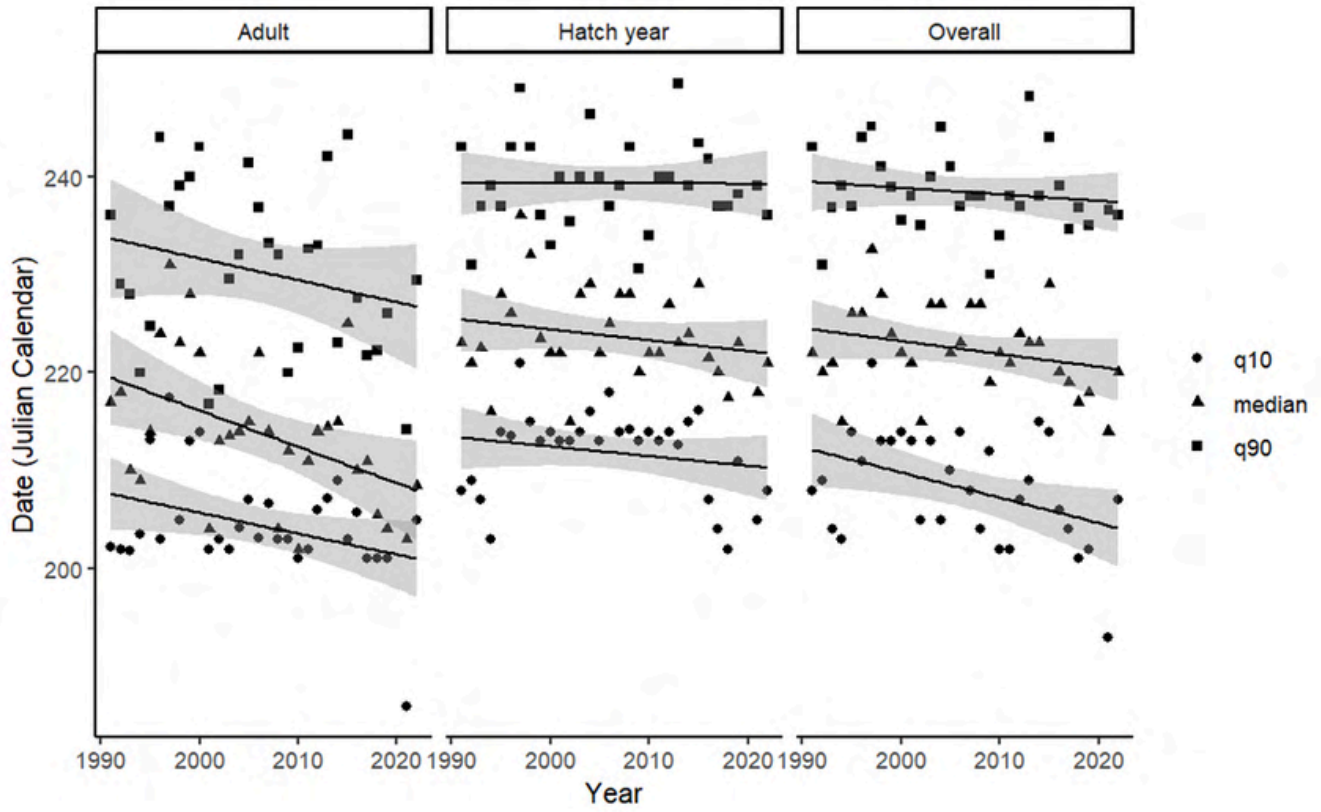


Figure 1: Quantile regressions of migration timing from 1991 to 2022 by age groups.

We saw a drastic change in migration phenology over the 32-year time period. Adult Least Flycatchers advanced their median migration date by 14 days, or 4.5 days per decade. Less dramatically, hatch-year birds advanced their median migration date by 2 days, or 0.7 days per decade). Both adult sexes contributed to this change, although the size of change was greater for females than males. Climate change is a likely explanation for the advanced autumn migration over time. At Beaverhill Lake and throughout Alberta, temperatures have increased significantly during our study period, allowing Least Flycatchers to breed earlier (as was found at Long Point, Ontario), and consequently, migrate earlier to their wintering grounds. However, we do not have long term information of breeding dates at Beaverhill Lake.

Overall, these results suggest different phenological responses of age groups and/or sex to a changing climate with likely effects on the species' demography. Long-distance migrants and single-brooded species, such as our Least Flycatchers, commonly advance autumn migration, as we found, whereas short-distance migrants and multiple-brooded species tend to delay it.

Note: We thank all BBO staff and volunteers involved with banding activities during our study period. Special thanks to S. Abernethy for organizing the data and W. Langereart for help with statistical analysis. This project of the Beaverhill Bird Observatory was co-funded by the European Union's Erasmus+ program. We also thank major ongoing funders, including the Alberta Conservation Association, Edmonton Community Foundation, TD Friends of the Environment, Canada Summer Jobs, Cabela's Outdoor Fund, and private donors.

These results were published on 10 March 2025 in The Wilson Journal of Ornithology. The full article can be found here: https://doi.org/10.1080/15594491.2024.2444030

Thanks to our Sponsors

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 plus donations made in memory of Mary Hughes Weir, John Honsaker, and from the Wainwright Wildlife Society.
Visit www.beaverhillbirds.com for more information.

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