AUGUST 2025 VOL 38 | NUMBER 2

Beaverhill Bird Observatory

The WILLET

Editor: Julianne Hayes

NEWSLETTER

BBO Spring Summary

By: Jon Van Arragon, Assistant Biologist

Spring has come and gone at the BBO, and summer is sadly drawing to a close as well. BBO staff have been hard at work with banding, surveys, events, and all the other fun and busyness that comes with the field season. Spring migration monitoring was steady, with just over 900 birds being banded over the course of the season. The first bird of the banding season was quite the surprise – a feisty little Sharp-shinned Hawk! Other noteworthy captures included a Bay-breasted Warbler and an Eastern Phoebe.

In addition to the birds, we had lots of people come out to visit us at the BBO! We hosted over 650 visitors this spring, and we were delighted to connect people with nature through bird banding demonstrations and meeting Keith, the Red-tailed Hawk. We also had a very successful Big Birding Day fundraiser, with staff seeing 120 species of birds in just 24 hours!

One unique thing this field season is how many long-term volunteers we have had. We've had 3 volunteers stay with us for a month each, and they were incredible additions to the BBO crew!

This adorable Sharp-shinned Hawk was our first capture of spring migration monitoring this year!

Thanks so much to El Whitby, Jocelyn Pyne, and Anna Reichenbach for joining us this year! You are all awesome and helped make the start of this field season as unforgettable as it was.

Overall, it's been another successful spring at the BBO! We can't wait to see lots of awesome visitors for events this fall, and hopefully even more birds!

FALL 2025 EVENTS

AUGUST
23
Sat-Sun

Songbird Banding Events

Join the BBO biologists for a morning of bird banding and learn about our research

Ticketed events starting August 23, 2025

SEPT
13
Thu-Fri-Sat-Sun

Owl Banding Events

Join the BBO biologists for an evening of owl banding and learn about our research

Ticketed events starting September 13, 2025

SEPT
26 & 27
Fri-Sat

Supper and Saw-whets

Join the BBO biologists for a home-cooked vegetarian meal and owl banding

Ticketed events

We have a busy fall season planned, and hope to see you there! For our ticketed events, please register ahead of time through our website.

Click here for tickets!

Please note that to eliminate uncertainty, we do not cancel 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.

BBO in the News

By: Geoff Holroyd, BBO Chair

CBC radio and TV followed our research in July. Entranced by our article about changes in Least Flycatcher migration, CBC reporter Wallis Snowdon interviewed BBO chair Geoff Holroyd for an article that was posted on the CBC website on 2 July and broadcast on radio. **Click here** to see more.

Photo: Geoff Holroyd

Photo: CBC News

Wallis then followed up with a visit to BBO accompanied by a videographer and drone pilot. The resulting TV video shows off our facility, our staff, and our projects in full colour. To watch the video, click one of the links below:

CBC
YouTube

An earlier video from 16 May 2024 shows BBO in spring before leaf-out and features more BBO staff and stories.

This video was followed by a **feature in the CBC's Edmonton Green Spaces show** on 18 May 2024.

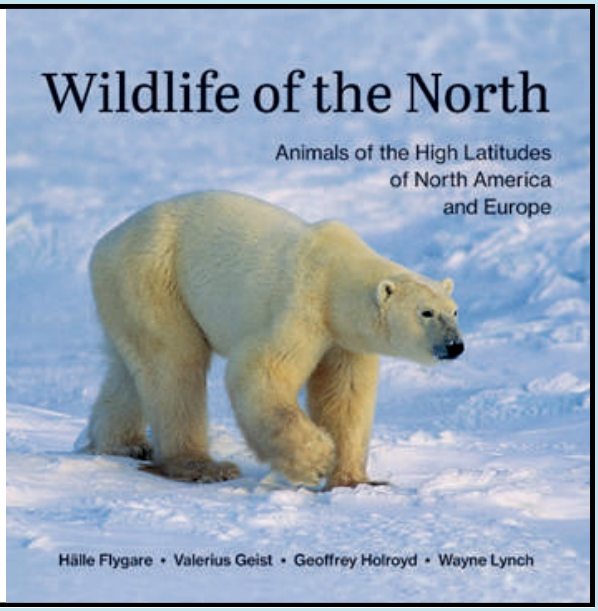
Most recently, Geoff was able to plug BBO in an article about the impact of cuts to US conservation programs on Canada's endangered species programs. This article was the result of the initiative by Liam Hodder who was put in touch with Geoff our staff member Emelie. This article was published in Maclean's Magazine. **Click here** to read. Another article about the Least Flycatcher's changing fall migration patterns can be found here.

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

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Northern Saw-whet Owls on the Move

By: Geoff Holroyd, BBO Chair

As regular readers of the Willet know, to learn more 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 our field station in the Beaverhill Natural Area. Each tower can detect a nanotag within about 15km unless blocked by forest or other objects.

As time passes, we hear from our MOTUS tags less frequently. This spring we heard from 5 of our owl tags in March and April. Two were in the north-west corner of Montana, and one in central southern Montana. These are basically south and slightly east of BBO. Were they headed north after wintering further south? The most southern detection was at the North Platt National Wildlife Refuge in western Nebraska where the same owl was detected in October. We might assume that this owl wintered south of there and was returning north in March.

The fifth owl was detected on the west coast at Richmond BC in July. I don't know what it was doing there in mid-summer, or if it is a false detection. We did have other detections on the coast which adds to the mystery.

Photo by Sian Ford

What these records do confirm is that the owls are not in eastern North America. Earlier studies of our band recoveries show the banded owls were encountered in the Great Lakes region and east.

However, that is where most owl banders are located. There are many more MOTUS stations in the east and they did not pick up our tagged owls. I must conclude that the banded owls are in the minority and most of our owls are going south into the western US, where there are very few banders that could record this southward movement.

Our 2024 tags still have another year of predicted life. Hopefully we will learn more in the autumn when owls are moving past MOTUS stations. Stay tuned!

MOTUS Update – August 2025

By: Geoff Holroyd, BBO Chair

The BBO's MOTUS station and tower have been in place for three years. The first detection of a MOTUS tag was on a White-throated Sparrow on 26 September 2022. The sparrow had been tagged near Prince George, BC and was apparently travelling east before it headed south to winter. Since then, we have detected other White-throats, passing Swainson's Thrushes, and Bank Swallows. I have reported these in previous Willets.

The only detections this year were more Bank Swallows. In July, 2024, 25 Bank Swallows with MOTUS tags flew past our tower. This summer, 7 more passed by between 15 July and 4 August. These swallows were tagged at sites to the northwest as far away as Whitehorse, Yukon. Beaverhill Lake is clearly important to these migrating swallows where they can refuel before moving on into Saskatchewan.

The detection of other species is dependent on researchers attaching more tags. Once a researcher has established the movement patterns of a species, the need to put more tags is diminished. We will have to wait and see what other species fly past BBO this autumn.

Bird species detected with MOTUS tags. From top to bottom: White-throated Sparrow, Bank Swallow, and Swainson's Thrush.

Forest Breeding Bird Census 2025 Summary

By: Xavier Quantz, Field Biologist

To mark the FBBC points, trees are adorned with blue and orange flagging tape and a metal tag .

Since 2016, the biologists at the BBO have been using the Forest Breeding Bird Census (FBBC) to map the territories of the most common breeders in the Beaverhill Natural Area six to eight times during the breeding season from June 1st to July 10th. This census consists of a mapped-out grid of 10x10 equally spaced points placed 50 meters from each other over 25 hectares of forest habitat.

A biologist navigates between each point, noting where they detected birds and whether the detection was visual or auditory. Of these detections, the most important ones are when two or more individuals of a species are heard singing simultaneously, called countersinging. Those instances of countersinging allow the biologist to determine the bounds of an individual bird's territory especially when a bird is heard on multiple censuses. Finally, by counting the number of territories each species of bird has, we can compare that number to previous years to get an idea of the population trends.

The set of surveys completed this year faced some issues with scheduling and inclement weather like rain and wind. Therefore, most of the surveys were done towards the end of the breeding season. This posed a potential issue, as the breeding season progresses it seems that birds gradually get less aggressive about defending their territories and so sing less.

If this is true, then censuses done later in the season should have fewer detections and fewer instances of countersinging, which would make determining territories more difficult. To test this hypothesis, the FBBC report this year will include a section comparing how the detections of some of our most common breeding birds change throughout the breeding season by using data from previous years of the FBBC.

Many species of birds were detected on the 2025 FBBC, and the most common ones will not surprise anyone who has spent time in the Beaverhill Natural Area. They are, in descending order, Least Flycatcher, Yellow Warbler, and House Wren. Some other common species detected on the census were Franklin's Gull, Purple Martin, and Red-winged Blackbird; however, none of these species breed within the Census grid and were all flying overhead to and from the habitats they prefer to use.

In addition to these common species, a few notable birds found this year include Sprague's Pipit, Western Wood-pewee, and a Ruby-throated Hummingbird nest. Despite all this excitement, one species that stands above the rest is the Black-billed Cuckoos, which was heard multiple times with one survey even having two individuals singing, though not simultaneously.

The FBBC wasn't completed as early as is ideal; however, the census findings still contributed to ever-growing knowledge about the population trends of birds, uncovered some rare species, and being a rewarding project for BBO biologists!

The three stars of the FBBC (from top to bottom): Least Flycatcher, Yellow Warbler, and House Wren

Franklin's Gull - another common species in the survey

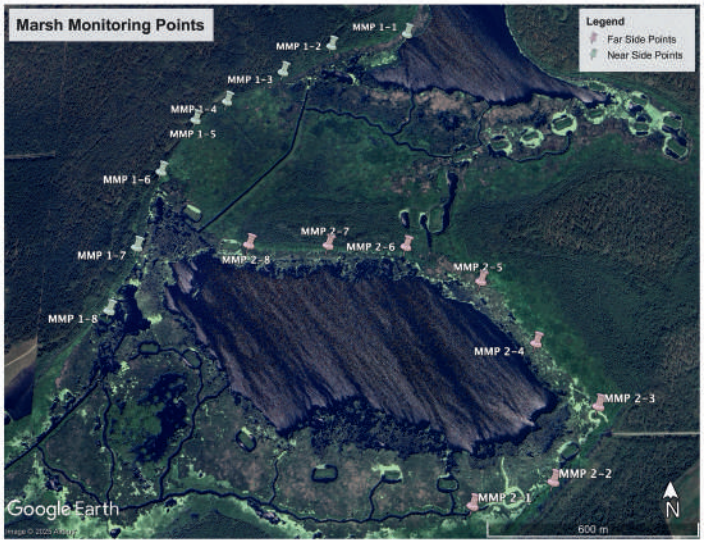
The Best of Both Worlds – Marsh Monitoring Program 2025

By: Willow Zilliox, Field Biologist

In this year's installment of the Marsh Monitoring Program at the Beaverhill Bird Observatory, eight new monitoring sites were created. Historically, these call-and-response surveys have occurred on the western shores of Lister Lake (referred to here as the "near side" of the lake). This year, chair Geoff Holroyd proposed that the eastern side of the lake (referred to here as the "far side") be included in this study, resulting in the establishment of a new survey route that hugs the cattail-lined shores of the lake's northeastern quadrant.

Between May 27 and June 27, 2025, field biologist Willow Zilliox surveyed the near and far sides of Lister Lake and their feathered inhabitants. These surveys focussed on ten "Primary Species": Nelson's Sparrow, American Bittern, Least Bittern, Sora, Yellow Rail, Virginia Rail, Pied-billed Grebe, Eared Grebe, Horned Grebe, and Red-necked Grebe. All but the Least Bittern and Red-necked Grebe were observed. In total, 284 individuals from the primary species were detected by sight or sound, with 133 of them being detected during surveys on the near side and 151 detected during surveys on the far side. By far the most commonly encountered species was the mighty Sora, a finding consistent with previous years. Excitingly, Yellow Rails were once again observed this year, their characteristic clicking calls emanating from the sedges on both sides of the lake.

Broadening the spatial scope of the Marsh Monitoring Program will help generate a more holistic understanding of the happenings in and around Lister Lake, the collected data certainly underscoring the importance of wetland habitats for bird populations.



Beaverhill Lake Shorebird Surveys – Lots of Bird, Not Much Shore

By: Jon Van Arragon, Assistant Biologist

One of the Red Knots seen during the June 2nd shorebird survey!

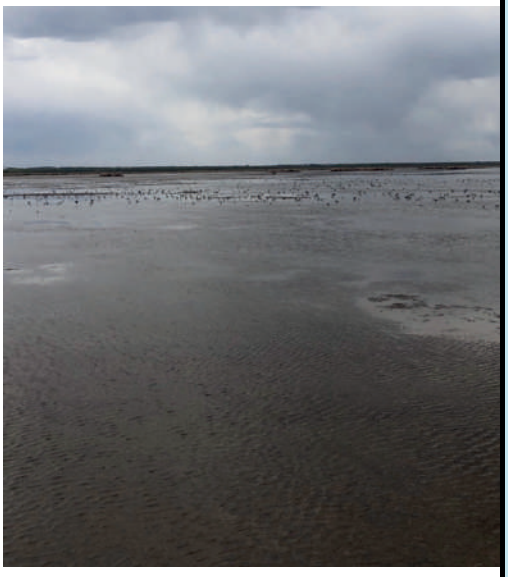
When Beaverhill Lake was at its fullest, it was one of the most renowned shorebird watching spots in the entire province. The lake was shallow and bordered by expansive mudflats, making it the perfect stopover location for tens of thousands of shorebirds each year. When the lake dried up in the early 2000s, the massive shorebird flocks disappeared. With the lake returning in 2016 and bringing shorebirds back to the area, the BBO began a shorebird survey program to determine the abundance and diversity of wading birds using Beaverhill Lake during their migrations.

This year's surveys are the third year of the program, and there have been some very high counts of shorebirds and a few noteworthy species seen this year! Small Calidris sandpipers (also known as "peeps") have frequently numbered in the thousands, and one survey included the sighting of 2 Red Knots! Red Knots used to be a common sight at Beaverhill Lake, but have only been seen 2 other times at Beaverhill Lake since water returned in 2016.

The surveys this year have had one consistent challenge however… the lake keeps disappearing! After a very dry fall last year and a poor spring runoff this year, the water's edge has receded by about 4 kilometers over the course of this summer. In one instance, it receded over a kilometer in just over a week! As more of the lakebed has become grassland, some new species have started moving in. Species like Sprague's Pipits and Short-eared Owls have made themselves at home in the expanded grasslands.

Another surprise grassland visitor made its appearance on July 24 – an Upland Sandpiper! These shorebirds have short bills and long, gangly necks, and they don't inhabit marshes or mudflats like most of their relatives. Instead, Upland Sandpipers prefer dry shortgrass prairie, frequently perching on wires and fenceposts to keep watch for predators. This species is almost never seen at Beaverhill Lake - the last time one was seen here was 1984!

It remains to be seen what the future holds for Beaverhill Lake, but we at the observatory are hoping for some extended periods of rain this fall to replenish the drying lakebed. Even with the landscape changing, Beaverhill Lake remains a haven for birds and it has been a treat to survey it this summer!



A large flock of shorebirds congregating in the lake on May 9th.

CASINO

VOLUNTEERS NEEDED

SEPT 8-9 2025

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PURE CASINO EDMONTON

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Unhatched and Unsolved: Purple Martin Egg Report

By: Anna Reichenbach, BBO Volunteer

While volunteering at the Beaverhill Bird Observatory this summer, we banded Purple Martin (PUMA) nestlings. These little chicks captured my heart, and so did their unhatched siblings. It is normal for some eggs to fail, but I wanted to know what happened to these eggs. Maybe their death was preventable.

The biologists hypothesized that the deaths could be linked to heat surges, then gave me the thumbs up to dissect some eggs. I dissected ten eggs from four boxes with nestlings, leaving the eggs without hatched nestlings in case they were still being incubated. To my surprise, every egg was fertile and at different stages of development. I could not find specific information on the embryonic development of PUMAs, so I created an aging chart based on the embryonic stages of barn swallows and chickens. After aging the birds, I used the hatch date of the chicks to estimate when the embryos stopped developing. Once I had the data, I was left with more questions than answers.

Left: Dissected purple martin embryos at various stages of development. Right: Adult purple martins at a nesting box.

The embryo deaths ranged from June 18 to July 10, with little overlap even within the same box. There was no clear correlation between death dates and extreme weather events. The ages of the embryos at the time of death range from day 1, the first day of embryonic development, to day 16, right before hatching, with an average of 7.7 days. It doesn't appear that there is a link between mortality and stages of development. I ruled out the possibility that the boxes were down for too long during checks and that young parents were not incubating all the eggs properly. Genetic abnormalities, developmental issues, or infections may have caused the deaths, but I was unable to test for this.

Since my sample size is small and limited to nests with hatched young, the data could be skewed. Dissecting other unhatched eggs may give a better insight into what is causing the deaths. I could only estimate embryo deaths within 2-4 days because of the lack of information on aging unhatched PUMAs. A day-by-day embryonic aging chart would allow for more accurate analysis. With better tools and more research, we can uncover the answer to this mystery. Can you help us solve it?

Least Flycatcher Breeding in the Beaverhill Natural Area 2025

By: Emelie Dykstra, Field Biologist

This year's nest monitoring of the breeding population of Least Flycatchers (*Empidonax minimus*) revealed some nest reuse, although less than the 2024 breeding season, and a drop in overall nest success compared to last year.

The nest monitoring was completed over approximately 15 hectares of the Beaverhill Natural Area, using an endoscopic camera on a telescopic pole. The study area was selected by identifying an area around 43 nests from previous years. There were twenty new nests found through nest searching this year, twelve newly constructed, and eight old nests reused from previous years. We included 42 nests in total in regular surveys, which were completed every three to five days, starting three weeks after the first Least Flycatcher was caught at the BBO during Spring Migration Monitoring. All nests were empty by July 15th, when surveys ended.

In total, there were fourteen nests active this year (33.3% of surveyed nests). Five were reused: two from 2024, one from 2023, and two from before 2022. Of the fourteen, eight failed due to predation. Two failed nests were destroyed before any eggs were laid, which could indicate that other birds (or even other Least Flycatchers) pulled the nesting material out of it to build their own nests. One nest was successfully parasitized by a common brood parasite of the Least Flycatcher, the Brown-headed Cowbird (*Molothrus ater*). The other nests were destroyed when there were eggs or young nestlings in the nest.

Left: Least Flycatcher nest with Brown-headed Cowbird egg. Right: Adult Least Flycatcher.

Despite the high number of nests that did not succeed (57.1%), the rate of failure was 62.5% in reused nests and 60% in new nests, which agrees with results from last year's study that showed that nest reuse does not increase nest failure, or risk of predation. In all of the nests, no differences in predation risk were found between new and reused nests or initial structural condition of reused nests. No difference was found between initial egg laying dates between new and reused nests either.

The 2025 breeding season revealed patterns similar to last year, with nest reuse that is uncommon in open-cup nesting passerines. However, the overall breeding success and rate of nest reuse dropped in our study area. It's important to note that the sample size is small, which reduces the power of this result.

Habitat quality and early reproductive investment predict fitness in a population of declining tree swallows (*Tachycineta bicolor*) in Alberta

By: Ivana Schoepf and Jinxuan Cui, University of Alberta

Global environmental change is pushing species to the limits of their adaptability. Some of the most dramatic landscape changes are occurring in places where natural habitats are converted to agriculture and many species occupying these ecosystems are decreasing worldwide.

Avian aerial insectivores, a guild of birds that forage predominantly on flying insects, are the most rapidly declining birds in North America, with some of these species having experienced as much as a 90% decrease in their numbers over the last three decades. The reasons for avian aerial insectivores' decline are not well understood, but several factors, including the loss of quality habitat on their breeding grounds, have been proposed as drivers of their continued decrease.

Tree swallows are cavity nesting aerial insectivores with a breeding range across North America. During the spring and summer, tree swallows migrate from their overwintering grounds in the southern parts of the United States and Central America to breed in the northern parts of the United States and Canada. And it is here, across their breeding ranges where tree swallows are experiencing their steepest declines.

Here, we present the result of a study we conducted in a population of tree swallows breeding across a natural-agricultural area at the Beaverhill Natural Area in central Alberta.

While several studies have looked at the link between habitat quality and reproductive success in species breeding in agricultural environments, including tree swallows, most work have focused on reproductive success and not investment. Yet, investment, particularly during the early stages of reproduction, is well-known for having important effects on survival. Specifically, we were interested in finding out whether the link between early maternal investment, measured here as incubation behaviour, and habitat quality would predict fledging success in our tree swallow population.

To do so, we collected data on incubation behaviour and fledging success of tree swallows nesting at two sites differing in their habitat quality: one site located in the natural area and a second site located in a nearby agricultural area.

Adult male (left) and female (right) tree swallows.

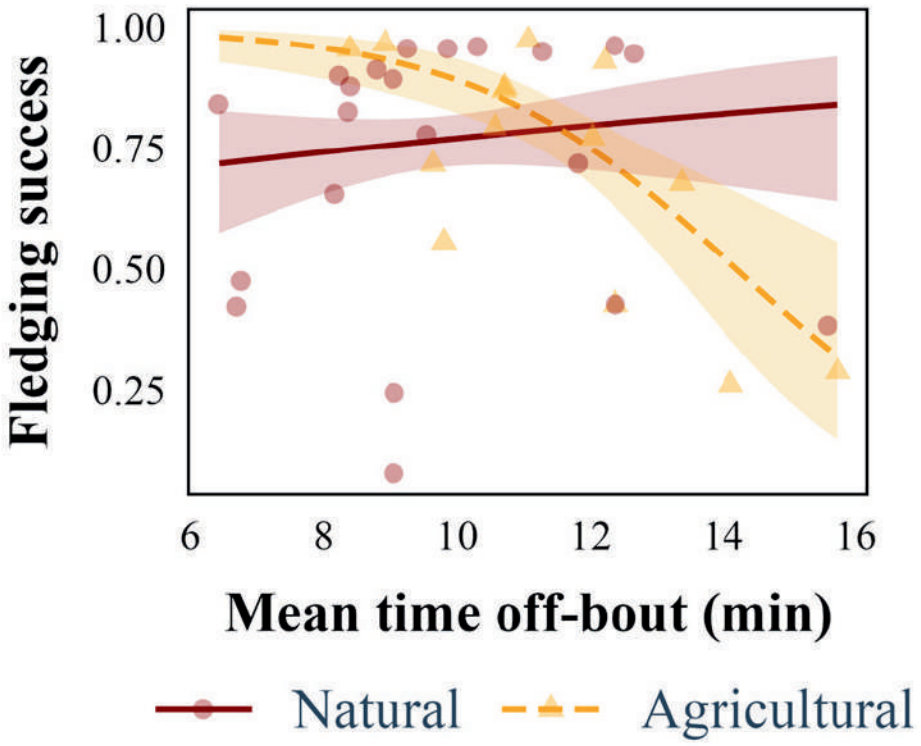

Figure 1: Tree swallows fledged fewer nestlings in agricultural areas when mums spent more time away from their nests, measured here as mean time off-bout.

We found that tree swallows fledged fewer nestlings when mums spent longer away from their nests between incubation bouts, but only when nesting in agricultural habitats (Fig 1.).

Overall, our study shows that habitat quality and early reproductive investment significantly interact to impact fitness in our tree swallows leading to potential long-term effects for the whole population.

Acknowledgements

We are thankful to all the Beaverhill Bird Observatory (BBO) staff and volunteers for their support and help with banding activities. This study was funded by the University of Alberta and the BBO's internship program which was supported by the Alberta Conservation Association. The results of this study have been presented at the Alberta Chapter of the Wildlife Society Conference in Jasper by J. Cui in 2024 and at the Ecological Society of America Conference in Long Beach, California by I. Schoepf in 2024.

2026 WESTERN CANADA BIRD BANDING CONFERENCE

with
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Hosted by the Beaverhill Bird Observatory

August 27th to September 1st, 2026

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More details to come

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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.
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