



Beaverhill Bird Observatory Annual Report 2021

**By Sara Pearce-Meijerink
Shane Abernethy
Jon Van Arragon
and Jana Teefy**

April 2022

Thank You to Our Sponsors

BBO is only able to continue to do long term monitoring and public engagement programs thanks to the generosity and support of our sponsors. We sincerely thank the following organizations for helping to fund our research and education programs: Alberta Community Environment Action Fund, Alberta Conservation Association, Alberta Gaming Liquor & Cannabis Commission, Augustana Outdoor Club, B & M Plumbing and Heating Ltd, Beaver County, Bass Pro Shops and Cabella's Outdoor Fund, Birds Canada Birdathon, Canada Summer Jobs, Claystone Waste Ltd., Eco Canada Co-op, Edmonton Community Foundation Action Grant, Edmonton Nature Club, Employment and Social Development Canada, Engineering Link Incorporated, Environment and Climate Change Canada, Epp Memorial Signs, Hauser Home Hardware, NAIT BioSci Tech Club, Nature Canada's Charles Labatiuk Nature Endowment Fund, TD Friends of the Environment Fund, TELUS Benevity Fund, Claystone Waste Ltd, and Wild Bird General Store.

Without your support, BBO would not be able to continue to do the vital research and programing we offer the public. Thank You.

Notes from BBO Chair, Geoff Holroyd

Beaverhill Bird Observatory is an amazing organization. We may be a small non-profit, but we have a huge heart and great accomplishments. 2021 was no exception. In fact 2021 was exceptional. We funded and had built a fabulous, solar powered, two story, education and research center. We congratulate and thank Colin MacLellan Carpentry in Camrose for a remarkable building and superb workmanship. You, our donors not only provided the funding, you also responded when we asked for funds to build our Endowment Fund. This fund, which is held by Edmonton Community Foundation holds over \$300,000 to benefit BBO forever! ECF and Claystone Waste Ltd provided funds for a new outhouse; not as spectacular as the new center, but very necessary ☺. We also installed rainwater catchment barrels that feed directly into the kitchen sink, and a storage shed for gear and maintenance equipment. For many of these improvements we thank John and Rose Scott who took many hours to guide the developments. Another improvement was the reinstallation of our 'old' solar system on the new bunkhouse, Raven's Roost by Al DeGroot and Peter Silvius to provide lights and recharging cellphones. Behind the scenes Nancy O'Brien provide accounting assistance with all the year-end financial documents that we provide to the provincial and federal governments to maintain our non-profit status. Pat Fargey regularly checks our mailbox and forwards documents to our excellent treasurer Rose Scott, whom we could not function without. Rose processed hundreds for transactions both income and expenditures including salary and payroll. Phil and Helen Trefry house and care for our educational owl and falcon, feeding them every day and getting them ready for early morning trips to city schools throughout the winter. Others who have helped at BBO are documented in this report. We thank all of them and our board of directors for their assistance and tireless efforts to keep BBO operating smoothly. And my apologies if we missed your name; your efforts are equally appreciated.

Notes from BBO Head Biologist, Sara Pearce Meijerink

What a phenomenal year 2021 has been for the BBO! Even with the ongoing COVID-19 pandemic, we were able to complete construction on our new research and education centre, which provides a larger space for hosting the public, as well as a dedicated workshop/office area and such luxuries as internet and cell reception! BBO is definitely coming up in the world! A HUGE thank you to MacLellan Carpentry for continuing to work on our building throughout last winter so that we could move in and being using it this spring. BBO was very proud to be able to resume normal operations this year, with just slight alterations to how we host the public, and did so safely for all those who participated in our events and programs. Our Young Ornithologist Workshop resumed with all participants and staff being fully vaccinated and the youth had a wonderful week of learning and fun. Fall migration monitoring was fantastic this year with the establishment of some “experimental” nets out in the willows, which proved to be HUGELY productive! We will be incorporating these nets into our standard effort next year and retire some non-productive nets due to the every fluid challenges of dealing with forest succession. Owl migration monitoring was another good year with capture numbers being back up to normal and our first Barred Owl ever banded in our 20-year history of studying our nocturnal feathery friends! BBO would not be possible without the help and support of our board members, staff, volunteers and public. I sincerely thank each and everyone one of you for continuing to make the BBO a wonderful place to work and visit.



*Left: Hosting visitors outside our new education and research station
Right: Sara explaining bird skull development to visiting children*

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List of Executive and Contact Information

First Name	Last Name	Position	Year Joined the Board
Geoff	Holroyd	Chair	1984
Helen	Trefry	Vice-Chair	2014
Rose	Scott	Treasurer	2016
Thea	Carpenter	Recording/Membership Secretary	2013
Laurie	Hunt	Director at Large	2015
Darren	McGregor	Web Designer	2005
Steve	Andersen	Director at Large	2016
Alyssa	Bohart	Director at Large	2018
Amelie	Roberto-Charron	Director at Large	2019
Julianne	Hayes	Director at Large	2019
Glen	Hvenegaard	Director at Large	2020
Emily	McLellan	Director at Large	2020
Jac	Curry	Director at Large	2020
	STAFF		
Sara	Pearce Meijerink	Staff	
Shane	Abernethy	Staff	
Jon	Van Arragon	Staff – Spring, Summer & Fall	
Jana	Teefy	Staff – Spring & Summer	

Contact Information:

Geoff Holroyd, Chair of the Board of Directors - chair@beaverhillbirds.com

Sara Pearce Meijerink, Head Biologist – biologist@beaverhillbirds.com

Spring Report

Executive Summary

The Beaverhill Bird Observatory’s spring migration monitoring was conducted by Head Biologist Sara Pearce Meijerink, along with Assistant Biologist Shane Abernethy and Summer Students Jon Van Arragon and Jana Teefy. Spring migration monitoring occurred between May 1st and June 9th, with banding and a standardized census occurring through these dates. Staff operated thirteen mist nets and recorded 262 captures of 27 species, resulting in an overall capture rate of 13.6 birds per 100 net hours. Staff, board members, dedicated volunteers, and 8 student interns completed numerous other monitoring programs, on-site projects, and outreach activities.

Migration Monitoring

Thirteen mist nets (2, 2X, 8, 9, 9X, 50, 51, 52, 53, 54, 55, 56, and 57) were operated from May 1st to June 9th on days with temperatures above 0°C, wind below 20 km/h, and no precipitation. A total of 1929 net hours were accumulated, with nets frequently being opened late due to sub-zero morning temperatures and closed early due to high winds. A total of 262 birds were caught, of which 194 were newly banded. A total of 27 species were banded, making this year a sharp decline from previous years in terms of abundance and diversity of birds banded.

Table 1. Number of captures, mist-netting effort, capture rates, and number of species caught during spring migration at the Beaverhill Bird Observatory since 2005.

	2005	2006	2007	2008	2009	2010	2011	2012
Total Captures	272	242	408	382	500	497	412	459
Birds Banded	196	169	318	288	351	333	241	307
Net Hours (NH)	1570	1615	1813	1828	1608	2016	1884	1997
Capture Rate (birds/100 NH)	17.6	15.0	22.5	20.9	31.1	24.7	21.9	23.0
Species Captured	32	31	44	38	39	38	40	39
	2013	2014	2015	2016	2017	2018	2019	2021*
Total Captures	324	841	810	849	996	607	647	262
Birds Banded	211	561	641	663	802	443	491	194
Net Hours (NH)	1884	2615	2859	3432	2031	2594	2503	1929
Capture Rate (birds/100 NH)	17.2	32.2	28.3	24.7	49.0	23.4	25.8	13.6
Species Captured	39	36	43	45	54	51	44	27

*Due to the COVID-19 pandemic, banding did not occur during the 2020 season

The five most commonly caught species were Least Flycatcher (67 captures, representing 25.6% of all captures), Clay-colored Sparrow (23 captures, representing 8.8% of all captures), Swainson's Thrush (22 captures, representing 8.4% of all captures), Yellow Warbler (21 captures, representing 8.0% of all captures), and American Robin (21 captures, representing 8.0% of all captures).

May 29th to June 4th was our busiest week of spring migration with 92 captures, the highlights of which were Mourning Warblers, Baltimore Orioles, and a Gray Catbird. Other notable captures included several Yellow-headed Blackbirds, a Northern Saw-whet Owl, and a Yellow Warbler previously banded at the BBO that was at least 8 years old! Overall this spring was one of slow banding, having the lowest capture rate and second lowest number of captures in the last 15 years of spring migration monitoring at the Beaverhill Bird Observatory. Possible explanations for the dismal numbers this spring include frequent cold mornings forcing nets to stay closed during peak bird activity, habitat succession along the static net lanes, or a poor breeding year.



Some of the birds caught during spring migration monitoring (from top to bottom, left to right: a partially leucistic American Robin, a Yellow-headed Blackbird, a Baltimore Oriole, and a Mourning Warbler)



A Yellow Warbler that was originally banded at the BBO back in 2013, making this fellow at least 8 years

Staff surveyed birds along a standardized census route each day between May 1st and June 9th. On days where weather prohibited us from conducting normal migration banding, a second census was run along the same route to supplement the day's observations. Census results are combined with other incidental observations and daily banding totals to produce a Daily Estimated Total (DET) of the number, and type of species migrating through the Beaverhill Natural Area. While banding this year was slow, the continued return of Beaverhill Lake made for an exciting season of observations. White-fronted Geese, Snow Geese, and Sandhill Cranes were seen flying overhead in large flock. At the peak of their migration we were counting hundreds of geese each day from the clearing alone! The lake has also boasted massive flocks of Franklin's Gulls, forming undulating clouds with thousands of birds in them that remain just barely visible on the far side of the lake. We suspect that a

new Franklin's Gull colony may be forming on the lake, but only time will tell. The BBO's own mascot made frequent appearances as well, with the graceful call of the Willet being a common note in the morning soundscape. This year was also phenomenal for Baltimore Orioles, with at least 8 singing males being recorded on a single census in May! In early June we encountered another surprise, a flock of over 100 Yellow-headed Blackbirds roaming throughout the forest! We suspect they were feeding on leaf roller caterpillars, which have been very abundant so far this year.

On-site Improvements



Above: The humble abode that was the old BBO lab building.



Right: The brand new BBO Research and Education Centre!

The new BBO Research and Education Centre is now completed! Staff have spent the spring settling into the new building, unpacking equipment and furniture to get the building ready for banding and visitors. While we were unable to host visitors inside the building this spring due to COVID restrictions, we are extremely excited to do so in the (hopefully near) future! We would like to extend a huge thank you to the folks at MacLellan Carpentry for the beautiful job they did on the new building, as well as John and Rose Scott for overseeing the project. The staff were extremely grateful to have a building with a wood stove and proper insulation during the cold spring mornings!

With the building all finished, we are still awaiting solar installation on the new building. Once the solar is fully operational, our Motus tower will be the 3rd to come online in Alberta! Motus is a new wildlife tracking system capable of detecting birds that fly within a 15 km radius of the tower provided they are fitted with a specialized tag. This will allow us to learn a lot more about the movements of our avian friends and we are excited to see what we can do with this technology in the future!

Other Activities

As usual, staff have been hard at work tackling a variety of other tasks around the natural area. Staff were able to install the last of the new Alberta Parks signs, which will help visitors to navigate around the natural area more easily while visiting. Staff also repaired and replaced some of our old owl nest boxes, and were delighted to find that one of them is occupied! We wish our little Northern Saw-whet Owls a successful breeding season, and look forward to potentially banding the chicks later in the summer.



Shane poses with a newly installed Alberta Parks sign.

Student Interns

The BBO is thrilled to once again be hosting student interns this year! We have 8 student interns, each paired with a volunteer or staff member who mentors and help them to ensure the project is successful. The internship program is organized by BBO board member Laurie Hunt.

This year's Tree Swallow interns are Sunny Guo and Dominic Wong mentored by Shane Abernethy; House Wren interns Claudia Cruz and Sam Bennet are mentored by Jana Teefy; Bat interns Kayley Burke and Celina Gerlich are mentored by Erin Low; Breeding Bird Grid intern Ryan Corp is mentored by Jon Van Arragon; and Butterfly intern Michelle Hoang is mentored by Dave Lawrie. We're thrilled to have all of them join us this year!

Great Canadian Birdathon

BBO staff had a wonderful Birdathon this year! After a full morning of banding with visitors, we headed off to bird around the Tofield area and find as many species as possible. We visited Amisk Creek, Yoder Slough, Tofield Llama pond, and Miquelon Lake before ending the day at Geoff's house. We saw a total of 103 species including a Bobolink, several Willets, Wilson's Phalaropes, and a Pileated Woodpecker. We were able to raise \$1665 and would like to extend a huge thank you to everyone who participated and contributed to our team! Geoff and Helen also ran their own Birdathon, seeing an incredible 123 species and raising around \$2500!



The 2021 Birdathon team relaxes on Geoff's dock after a long day of birding.

This is a shortened version of the spring report. The full version can be found [HERE](#).

Summer Report

Introduction

The Beaverhill Bird Observatory (BBO) staff have been settling into the luxury of the new research and education centre, and the amenities it provides. Installation of the solar panels was completed mid-July, which provides staff with power to operate internet and cell service, and luxuries like a coffee maker, toaster oven, and ceiling fans. More importantly, the solar panels will also power the Motus tower, which will provide invaluable data on songbird and owl migration as Motus technology becomes more widely dispersed in Western Canada.

Numerous programs were operated this summer under the leadership of the multi-talented Head Biologist Sara Pearce Meijerink, backed by the Assistant Biologist Shane Abernathy and Summer Students Jon Van Arragon and Jana Teefy. The summer season ran from June 10 – August 8, with MAPS banding, student internships, the Young Ornithologists workshop, Breeding Bird Census, Tree Swallow chick banding, and breeding colony searches taking place. Additionally, the staff participated in nestling banding at private Purple Martin colonies. On top of the regular programming, staff worked diligently on stewardship duties, including gravelling the access road, reporting inconsistent activities in the natural area, maintaining the walking trails in the natural area, fence repair, and various other maintenance tasks.

Monitoring Avian Productivity and Survivorship

MAPS is a North America-wide program established in 1989 by the Institute for Bird Populations and is used to monitor survivorship, breeding productivity, health, and dispersal in local breeding birds. The data collected is shared in collaboration with government and public agencies, other banding stations, and individuals to monitor breeding success and aid conservation efforts. The BBO operates three MAPS stations and is has one of the oldest MAPS stations in North America. Our BLAB station was established in 1989, the first year of the MAPS program. SOPO and LILA are additional stations that were established in 2016, after our WEIR and PARK stations were retired.

Each station, LILA being an exception, operated 10 mist nets that are 12m long x 2.6m tall with a 30mm mesh. The program ran from June 11 – Aug 5, with nets opened at sunrise, remaining open for 6 hours, weather permitting, and checked every 30 minutes. Each station ran once in each 10-day cycle for a total of 6 cycles. For bird safety, the nets only remain open when temperatures were below 27°C, there was no precipitation, and the wind speed was below 20 km/hr. A total of 478 birds were captured in 857 Net-hours, producing a capture rate of 55.8 captures/100 NH.

BLAB

At BLAB we captured a total of 49 birds and 8 species this year, accumulating 297 Net-Hours with a capture rate of 16.5 captures/100 NH. Banding occurred on June 11, June 20, July 2, July 11, July 21, and August 3. Least Flycatcher (23) were by far the most frequently caught, followed by Red-winged Blackbird (11) and American Robin (10). Highlight captures include a beautiful male Ruby-throated Hummingbird(1), Baltimore Oriole(1), and Hairy Woodpecker (1).

SOPO

The SOPO station proved to be BBO's highest capture station this season, totalling 280 captures and 25 species. Banding occurred on June 12, June 21, July 3, July 12, July 26, and Aug 4, with a total of 300 Net-hours producing 93.3 captures/100 NH. Yellow Warbler (78) were the most frequently caught, with Black-capped Chickadee (40), Red-winged Blackbird (38), and Least Flycatchers (36) not far behind. Notable captures included a Western Wood-Pewee (1), Red-breasted Nuthatch (1), Northern Waterthrush (1), Downy Woodpecker (1), Tennessee Warbler (4), Common Yellowthroat (2), and Swamp Sparrow (10).

LILA

This season, LILA net 2 was permanently retired due to heavy beaver activity through the net lane last year, resulting in a large trenches across the net lane and alterations to the trail system. With the decommissioning of net lane 2, which was historically a high capture net, the volume of captures was lower than in previous years, with a total of 149 captures and 23 species. Banding occurred on June 14, June 22, July 5, July 13, July 28, and Aug 5 with 260 Net-Hours and a capture rate of 57.3 captures/100 NH. Black-capped Chickadee and Least Flycatcher shared the title of most captured species at this station with 28 captures each. Other notable captures were Yellow-Bellied Sapsucker (2), Cedar Waxwing (1), Rose-Breasted Grosbeak (1), Common Yellowthroat (1), Gray Catbird (3), and Baltimore Oriole (5).

Additional Banding

The BBO Tree Swallow grid continues to be incredibly productive, with staff once again banding nearly 300 chicks and a handful of adults, two of which were recaptures – one local, one foreign. The staff also got the pleasure of banding a family of Mountain Bluebirds that took up residence in a Tree Swallow nesting box along the gravel road.

Summer staff Jon Van Arragon and Jana Teefy jumped at the opportunity to band Purple Martin nestlings on a private property near Devon, as well as a few colonies owned by local board members. Together they banded over 300 chicks!



*Purple Martin chick.
Photo Credit: Jana Teefy*

Young Ornithologists Workshop

The 5th annual Geoff Holroyd Young Ornithologists Workshop was a resounding success. BBO hosted a delightful group of 10 youth from Alberta and British Columbia, who were keen birders, fast learners, and absolute troopers. They camped in tents in the clearing, woke up before dawn daily, assisted with banding, participated in afternoon activities, and then shared cooking and dishwashing duties, all with enthusiasm and eagerness. During their week-long stay, the youth practiced songbird handling techniques, extracting birds from the mist nets, and learned the banding process - including applying the bands, ageing and sexing, taking various

measurements, and ageing feather tracts. Throughout the program, 166 birds were captured, banded, and processed.



*Group photo from the Young Ornithologists Workshop.
Photo credit: Sarah Trefry*

In the afternoons, the YO's participated in various activities, including hands-on workshops on butterflies, moths and other insects with Dave Lowrie, as well as performing a CABIN (Canadian Aquatic Biomonitoring Network) benthic invertebrate survey and ecosystem assessment with Matt Turnbull. They also spent an afternoon at UpsanDowns falconry farm owned by Helen and Phil Trefry and an afternoon with wing specimens studying molt patterns. Their final day was a Big Birding Day, where they visited many birding hot spots with local birder Irene

Crossland and BBO Chair, Geoff Holroyd, spotting a total of 110 species! Their species total for the week was an impressive 123 species!!

Thank you for being a terrific group of youths; it was a pleasure to host you!

- Henry Mingay
- James Tedder
- Evan Larson
- Evan Edwards
- Xavier Quantz
- Hazel Flesher
- Silas Fuellbrandt
- Aiden Flewelling
- Reagan Giesbrecht
- Cameron Montgomery

And thank you to Helen Trefry, the YOW organizer extraordinaire, with assistance from Geoff Holroyd, Jac Curry, Irene Crossland, Stephanie Thunberg, Brenda Dale, Diane Anderson, Inger Paulson, Alina Schneider, Linda Kershaw and everyone working behind the scenes to ensure the Young Ornithologists Workshop was a success

Nest Searches

Although the staff did not complete formal nest sweeps, 12 nests were found incidentally throughout the forest, grassland, and wetland habitats. Highlight nests include; three American Robin nests - one on Ravens Roost, one on the outhouse trail, and one in a willow beside the LILA banding station; a Least Flycatcher nest along the SOPO net lane trail; a House Wren and

a Yellow Warbler nest near the banding lab; a Hairy Woodpecker nest cavity was found along Flicker Freeway; and a Common Goldeneye took up residence in a nest box at the weir.

During the daily spring migration census, thousands of Franklin's Gulls were seen over Beaverhill Lake each day. The staff attempted two times to find a breeding colony on the lake, but the high water levels in the lake prevented them from the discovery. However, the staff were delighted with the water levels continuing to return to the lake.

Visitors and Volunteers

Due to Covid-19 restrictions, the BBO was unable to host volunteers and visitors in their usual capacity this summer. Instead, the BBO hosted visitors via ticketed events to stay within AHS guidelines while engaging the public. This helped keep the volume of visitors and staff within recommendations for outdoor gatherings and provided a more intimate experience. The BBO was pleased with how it went and will be hosting similar events for fall songbird migration monitoring and owl banding.

Although the BBO was unable to accept volunteers during songbird banding, they received enormous help from a number of volunteers this summer. Bob “Bobcat” Schwartz, Christie Campbell, Peter Maguire, Frankie NcNorchuck, Matt Turnbull, and BBO board members Geoff Holroyd and Thea Carpenter stepped up with staff to shovel and rake gravel for a morning to repair part of the access road. Additionally, volunteers Drenda Clyne, Wes Johnson, Jill and Scott Tansowny, Hudson King, Dmitri conducted bat emergence surveys on some of our active multi-chambered maternity roosts this year! An average of 55 bats were occupying three multichambered boxes at a time. Thank you to everyone for your hard work and help this year!

This is a shortened version of the summer report. The full version can be found [HERE](#).



*Least Flycatcher on her nest.
Photo credit: Jana Teefy*



Volunteers and staff working to gravel the road access to the Natural Area that crosses the cattle pasture.

Photo credit: Geoff Holroyd

Fall Report

Executive Summary

The 2021 fall migration monitoring program was conducted by Head Biologist Sara Pearce Meijerink and Assistant Biologist Shane Abernethy, with summer students Jon Van Arragon and Jana Teefy. Jana took on a part-time administrative role after returning to school in September, and Jon stayed on until October 31st to assist with songbird and owl monitoring. This year, we were able to run all programming as usual, including hosting visitors for fall migration monitoring and owl monitoring. We continued last year's ticketed visitor model, and hosted over a thousand visitors from August to November without incident, 470 of which attended our ticketed events. Songbird migration monitoring was conducted between July 20th and October 20th, and owl monitoring from September 1st to November 12th. A daily census was conducted during the songbird migration monitoring period to account for migrating species that we were not able to document through banding alone. After a disappointingly slow spring migration, we established four experimental net lanes further out in the willows, and observed considerably increased capture rates compared to our other nets. Across both sets of nets (standardized and experimental), we logged 1,944 captures, 827 of which were in the four experimental net lanes. Owl monitoring also saw a significant boost in captures from the previous year; we captured 337 Northern Saw-whet Owls, 6 Long-eared Owls and the first Barred Owl in our history. We also reached an important milestone in our owl monitoring program by capturing the 5000th Saw-whet Owl in our program's 20-year history.

Songbird Migration Monitoring

We monitored migrating songbirds by capturing them in thirteen standardized mist nets, and added four more experimental nets in the willows at the north edge of the forest, after capture counts continued to be low in our other nets. The productivity of the experimental nets was pleasantly surprising, and those four nets nearly equaled the seasonal capture count of the thirteen standard ones. The capture rate per net hour in the experimental nets exceeded that of the standard nets by nearly ten times, including several species of boreal migrant that had been conspicuously absent in the standard nets up to that point. Due to being more in a more exposed location and because of their tendency to suddenly capture high volumes of birds, the experimental nets were opened cautiously, on days where we had enough staff to manage sudden influxes of birds.

Throughout the season, we accumulated 4,779 net hours in the standard nets and 386 in the experimental nets, and captured 1,117 and 827 birds in the standard and experimental nets, for a capture rate of 23.4 birds /100 net hours and 214.2 birds/100 net hours, respectively. Across both programs, we captured 53 species, 49 of which were in the standard nets. The most common capture in both sets of nets by far were Myrtle Warblers,



BBO's 3rd Pileated Woodpecker banded in 37 years of research!

accounting for 38.5% of all captures. Other common species were Black-capped Chickadees (15.3%), Yellow Warblers (8.5%), Least Flycatchers (5.8%) and Tennessee Warblers (4.5%).

Notable captures this season included several Bay-breasted Warblers, a pair of out-of-range Nashville Warblers, several Yellow-bellied Flycatchers and the third Pileated Woodpecker captured in our 37 year history!

	2005	2006	2007	2008	2009	2010	2011	2012
Total Captures	1256	1969	1079	892	875	880	701	978
Birds Banded	1089	1525	952	723	718	708	589	776
Net Hours (NH)	2787	3476	3534	3400	3671	3190	3678	3683
Capture Rate (birds/100 NH)	45.1	56.6	30.5	26.2	23.8	27.6	19.1	26.6
Species Captured	59	63	52	58	51	60	53	57

	2013	2014	2015	2016	2017	2018	2019	2021*
Total Captures	631	738	1641	1721	1918	2029	1261	1944
Birds Banded	628	618	1393	1390	1620	1692	1040	1646
Net Hours (NH)	3144	2565	4478	4174	4202	4128	4555	5165
Capture Rate (birds/100 NH)	20.1	28.8	36.6	41.2	45.6	49.2	27.7	37.6
Species Captured	45	46	58	53	52	62	58	49

*Due to the COVID-19 pandemic, banding did not occur during the 2020 season. 2021 numbers include experimental net captures.

During migration monitoring hours, we conducted a daily 40 minute census survey to visually account for species that were not captured, and supplemented that with a second variable-length census on days where weather prevented net opening. We combined these sightings with banding data and additional incidental observations to form more accurate estimates of the birds moving through and utilizing the natural area.

The return of open water to Beaverhill Lake attracted thousands of Greater White-fronted Geese and Snow Geese, and hundreds of Sandhill Cranes were heard overhead in September. A number of Tundra Swans occupied Lister Lake into early November, and a Western Tanager was reliably spotted near the lab for over a week before it moved on. Woodpeckers also appeared to have experienced a particularly productive breeding season; Downy and Hairy Woodpeckers were very common throughout the fall and were captured with surprising frequency.



A handsome White-crowned Sparrow

Owl Migration Monitoring

Owl monitoring occurred between September 1st and November 12th. At the start of the season, we began operating; four mist nets with a male Saw-whet Owl audio lure, two mist nets with a female Saw-whet Owl audio lure, and one mist net with a Long-eared Owl audio lure. Starting October 15th we began running two additional mist nets with a Boreal Owl audio lure. This year, the female Saw-whet Owl nets were moved to a new location, before the beginning of the monitoring period to account for increased light disturbance from the newly constructed building. This new location is more sheltered and has less disturbances from human activities, creating a significant improvement on the previous location.

Over the course of the fall season, we accumulated 1,123 playback hours across our four targeted programs (418.5 from the male Saw-whet Owl lure, 401.75 from the female Saw-whet Owl lure, 194.75 from the Long-eared Owl lure and 108 from the Boreal Owl lure). We captured 345 owls in total: 252 in the nets with the male lure, and 68 in nets with a female lure, yielding capture rates of 62.1 captures/100 playback hours and 16.9 captures/100 playback hours respectively. A more detailed breakdown of capture rates can be found below in Table 3. These are considerably higher than last year! Among these owls were a couple of very special ones, including the 5000th Northern Saw-whet Owl capture in our monitoring program’s history and the first Barred Owl ever captured within the Beaverhill Natural Area! Another notable capture was a foreign recapture that had originally been banded in Pennsylvania, nearly 3000 km away. To complete the circle, an owl banded by us this fall was then recaptured in the same state 25 days later!

Table 3: Captures by species during owl migration monitoring

Species	Banded	Repeat1	Return2	Foreign3	Other4	Total
Northern Saw- whet Owl	322	11	1	3		337
Long-Eared Owl	7					7
Barred Owl	1					1
Total	330	11	1	3	0	345

1 Banded recently (within 90 days) at the BBO

2 Banded at the BBO >90 days prior to recapture (i.e. in a previous year).

3 Banded or recovered at a location other than the BBO

4 Caught in a mist-net but not banded (e.g. escaped net).



Left: Two Adorable Northern Saw-whet Owls.

Right: BBO’s first ever captured and banded Barred Owl!



Education, Outreach and Other Activities

After deciding not to run any of our typical large public events this year due to the continuing COVID-19 pandemic, we expanded our ticketed visitor programs to all migration monitoring programs with great success. Both our daytime songbird monitoring programs and evening owl monitoring programs were nearly sold out, allowing us to host 470 visitors over the course of the autumn season, in addition to several hundred more incidental visitors that visited the site! We enforced strict pandemic protocols for the whole season for staff and visitor safety, and were able to host that volume of visitors without incident. Visitors joined our biologists for a close-up look at the banding process and were treated to discussions about bird conservation, biology and climate change between checks or when captures were slow. Structuring our visitor experiences allowed us to be more prepared for them and give higher quality interpretation, which benefited both visitors and staff. In early November we hosted two field trips from Tofield School, during which approximately 90 students in Grades 7-9 joined us on site to learn about the local area's history and the importance of bird banding. After a guided walk through the natural area, the students were treated to a close up look of the bird banding process as we opened our feeder net to band resident chickadees and woodpeckers. We also hosted a Girl Guides group for a night of owl monitoring, where they spent 2 hours volunteering with us to help move wood and repair bird bags before we caught owls.



Visitors (and staff) just love the Saw-whet Owls!

To make the natural area more hospitable to visitors, thanks to funding from the Edmonton Community Foundation, we arranged the construction of a new outhouse near the lab clearing to help accommodate the increased amount of visitors passing through. It has been lovingly nicknamed “The Palace” and features such amenities as four solid walls and a locking door, making it a considerable upgrade over the now-decommissioned Throne.

The new lab building, with its reliable solar electricity and wifi, also raised some additional exciting possibilities, and we were able to do our first ever livestreaming! After a couple days of setup and logistic coordinating, we were able to host two multi-hour livestreams of songbird and owl monitoring. Despite technical issues and delays, the livestreams were a moderate success, pulling in several hundred unique viewers and peaking at almost 50 concurrent viewers.

This is a shortened version of the fall report. The full version can be found [HERE](#).

Weekly Updates

As staff adapted to pandemic conditions, we were able to resume normal banding operations this year and completed weekly banding updates on the usual schedule. If you missed them, check them out on our website for a more in-depth look at our day to day activities, highlights, and migration progress! We also post regular updates during the field season on Facebook, Twitter and Instagram; give us a follow and we'll post pictures of birds!

Weekly Banding updates can be found [HERE](#).



2021 BBO Staff from top to bottom, left to right; Sara Pearce Meijerink, Shane Abernethy, Jana Teefy and Jon Van Arragon

Intern Reports

This year, in addition to resuming normal banding operations, we also resumed hosting interns for our various long-term monitoring projects. Eight interns joined our operations this year: 2 interns each monitored the tree swallow grids, house wren grids and bat boxes, one ran the Grassland Breeding Bird Census, and another monitored butterflies within the natural area. The intern funding was made possible this year by Carole and Gary Dodd and the Alberta Conservation Association. Thank you to all parties involved!

Intern Project Reports can be found on our website [HERE](#).

BirdSmart Education Program and Outreach

The 2020/2021 BirdSmart season officially began on November 1st, after completing owl migration monitoring and closing the lab for the winter. This year's program looked quite a bit different from the previous year's, as most schools were not allowing outside personnel in the classroom, necessitating a full-bore conversion to digital presentations. While not without its limitations, this new format presented some exciting possibilities, as vehicle mileage was no longer a concern or a limiting factor. As a result, we were able to deliver our first paid presentations to classrooms in Ontario, as well as our first presentation in Fort McMurray.

However, schools were still faced with funding uncertainties after provincial budget cuts and repeated disruptions from much-needed public health measures, which impacted BirdSmart substantially. During the winter, we delivered a total of 63 presentations, reaching 1,230 students and 299 adults. The majority of these presentations (67%) reached classrooms, and most of the remainder reached after-school groups, mainly Girl Guides. Reception to our presentations, including outside Alberta, was overwhelmingly positive, as evidenced by surveys sent to teachers after presentations. A staggering 97% of teachers would recommend our program, and nearly all of them believed climate change was introduced and addressed in an age-appropriate manner that broadened and improved their knowledge on the subject.

Despite the temporary reduction in school outreach, we have branched out into other avenues of outreach: since April 2021, Assistant Biologist Shane Abernethy has been producing short educational videos about birds and their biology, called [BirdBytes](#). They are routinely posted to YouTube and Instagram, and are beginning to be uploaded to TikTok as well. Between all platforms, these videos have accrued approximately 75,000 views and are continuing to be produced. Additionally, BBO staff hosted two experimental livestreams during the banding season as mentioned in the Fall Report, which were successful enough that they will be continued going forward.



Above: Rickie the Saw-whet Owl preparing for her first digital presentation

Below: Sara and Shane giving the first of many virtual presentations to schools from a remote location! Aka Sara's living room



Willet Newsletters

The Willet is the official newsletter of the Beaverhill Bird Observatory. Three editions are produced annually, containing information about upcoming events, stories from the field and more. In 2021, these 3 issues were produced by BBO Vice-chair of the Board, Helen Trefry, and sent out to our membership. Helen Trefry has been writing and editing our Willet Newsletters for the last 6 years, and has done a wonderful job at that! If you have enjoyed reading our Newsletter, you have her to thank! If you would like to read editions of past Willets from 2021 or earlier, please visit our website [HERE](#).



*Helen Trefry with Mable the Peregrine Falcon,
a BBO Education Ambassador Bird (2018)*



Beaverhill Bird Observatory Society
Financial Statements
December 31, 2021

Beaverhill Bird Observatory Society
Statement of Operations
For the year ended December 31, 2021

	<u>2021</u>	<u>2020</u>
Revenues		
Grants	137,129	110,763
Casino	35,812	40,435
Donations	209,222	104,164
Subsidy Income	13,674	21,722
Endowment Income		5,690
Presentations and talks	5,100	12,630
Events	13,230	11,171
Memberships	1,861	610
Miscellaneous	1,125	2,634
Conference Income	-	-
Casino interest income	537	272
Promotional Item Sales	1,333	3,238
Total Revenues	<u>419,023</u>	<u>313,329</u>
 Cost of Goods Sold		
Cost of Promotional Items for Sale	753	2,073
Net Revenue	<u>418,270</u>	<u>311,256</u>
 Expenditures		
Salaries	134,263	113,664
Presentation Expenses		2,820
Depreciation	10,062	7,749
Travel	5,678	4,927
Small equipment	9,260	6,637
Young Ornithologists' Workshop	192	-
Office expenses	7,636	7,717
Conference expenses	504	471
Bursaries	2,200	600
Events	1,761	2,150
Laboratory supplies	2,661	816
Occupancy costs	1,426	1,243
Bank charges	2,513	1,139
Repairs and maintenance	757	5,920
Licenses, dues and memberships	40	55
Advertising	550	
Gain/Loss on Disposal of Assets	6,528	
Total Expenditures	<u>186,031</u>	<u>155,908</u>
 Net income (loss)	<u>232,239</u>	<u>155,348</u>
 Net assets, January 1	527,065	371,717
 Net assets, December 31	<u>759,304</u>	<u>527,065</u>

Beaverhill Bird Observatory Society
Statement of Financial Position

As at December 31, 2021

	2021	2020
Assets		
<i>Current assets:</i>		
Cash	143,778	152,736
Restricted cash - casino	17,397	11,549
GICs	-	25,000
Restricted GIC - casino	-	55,000
Accounts receivable	47,913	3,011
Prepaid expenses	2,164	584
Undeposited Funds	-	-
Inventory	42	272
Goods and services tax receivable	1,258	4,533
Total Current Assets	212,552	252,686
<i>Non-Current Assets:</i>		
Property and equipment	281,519	200,877
Beneficial Interest in Assets Held in Endowment	329,784	168,978
Grants Receivable - Long term	65,000	-
Total Non-Current Assets	676,303	369,855
Total Assets	888,855	622,541
Liabilities and Net Assets		
<i>Current Liabilities:</i>		
Accounts payable	2,882	-
Prepaid Revenue	-	-
Deferred grant income	5,530	26,479
Current portion of deferred casino income	27,655	35,812
Total Current Liabilities	36,068	62,291
<i>Long Term Liabilities:</i>		
Deferred Casino Income	-	27,655
Deferred Grant Income	65,000	5,530
Total Long Term Liabilities	65,000	33,185
Total Liabilities	101,068	95,476
<i>Net assets:</i>		
Unrestricted net assets	410,003	286,088
Net Assets - Board Restricted	40,000	60,000
Net Assets - Donor Restricted	8,000	12,000
Net Assets Restricted for Endowment	329,784	168,978
Total Net Assets	787,787	527,065
Total Liabilities and Net Assets	888,855	622,541

Beaverhill Bird Observatory Society
Statement of Cash Flows
For the year ended December 31, 2021

	<u>2021</u>	<u>2020</u>
OPERATING ACTIVITIES		
Net Income	260,722	155,350
<i>Adjustments to reconcile Net Income to Net Cash provided by operations:</i>		
120 Accounts Receivable	(44,902)	5,548
130 Prepaid Expenses	(1,500)	264
140 Inventory Asset	231	211
300 Accounts Payable	2,882	(4,003)
331 GST Payable	3,275	(3,098)
350 Deferred Casino Income - Current	(8,157)	7,962
352 Deferred Grant Income - Current	(20,949)	(18,161)
351 Deferred Casino Income - Long-Term	(27,655)	27,655
353 Deferred Grant Income - Long Term	59,470	(22,502)
Total Adjustments to reconcile Net Income to Net Cash provided by operations:	<u>(37,385)</u>	<u>(7,224)</u>
Net cash provided by operating activities	<u>223,337</u>	<u>148,126</u>
INVESTING ACTIVITIES		
200 Buildings	7,916	2,751
201 Computers	48	120
204 Solar Panels	(19,794)	400
205 Education/Lab Building Construction Costs	(54,347)	(13,614)
206 Land Improvements	(1,667)	
207 Sign	(1,485)	
230 Tower	330	(148,908)
231 Water Tank Tower	(133)	(6,607)
240 SeaCan	428	(4,282)
241 Outhouse	(11,938)	-
180 Beneficial Interest in Assets Held by Edmonton Community Foundation	(160,806)	(26,869)
190 Grants Receivable - Long Term	(65,000)	-
Net cash provided by investing activities	<u>(306,448)</u>	<u>(197,009)</u>
 Net cash increase for period	 (83,111)	 (48,883)
Cash, January 1	244,285	293,169
 Cash, December 31	 <u>161,174</u>	 <u>244,285</u>
 Cash is composed of:		
Unrestricted Cash	95,778	
Restricted cash - casino	17,397	
Board restricted cash	40,000	
Donor Restricted Cash	8,000	
	<u>161,175</u>	

Acknowledgement of Donors

None of our work would be possible without the generous support of our donors. All those who donated \$50 or more in 2021 are listed here; all others nonetheless receive our sincere thanks.

<p>Donors >\$1000 In memory of Mary Hughes Weir Dave Ealey Ron & Laverna Epp Geoff Holroyd Robert and Lynn Holroyd Russ and Johann Mann Joanne McDonald John & Rosemary Scott Helen & Phil Trefry</p> <p>Donors \$500-\$999 Andra Bismanis Mark Boyce Catherine Chan Lynne & Loney Dickson Christina Larson Joan Morrison Rolly & Sonia Perrott Kate Reed</p> <p>Donors \$50-\$499 In memory of Dr. Philip Browne Peter Balagus Mary and Bob Besley Gerry & Robin Beyersbergen Sue Borland Gregory Bounds Richard Burndred Lu Carbyn Dawne Colwell Medea Curteanu</p>	<p>Donors \$50-\$499 (continued) Vivek Dabral Kathleen Dainith Anna Daku James Dennet Lynne Dickson Leslie Duncan Michael Edwards Burkhard Elbich Jeremy Fuellbrandt Stella Gillespie Kristen Goa John & Janice Holroyd Sarah & James Hudson Glen Hvenegaard Sherrilyn Job Adrian Jones Linda & Peter Kershaw Andrew Ketel Tibor Kokai Patricia Laffin Michael Marvan Lynn Maslen Gerald & Pat McKeating William McMullen Kevin Methuen Philip Mingay Joan Morrison Gordon Naylor Alora Nelson Francoise Noel Marek Orszulik Stan Nordstrom Olga Yanishewski</p>	<p>Companies and Organizations >\$1000 Alberta Community Environment Action Fund Alberta Conservation Association Alberta Gaming Liquor & Cannabis Commission B & M Plumbing and Heating Ltd Beaver County Birds Canada Birdathon Canada Summer Jobs Bass Pro Shops and Cabella's Outdoor Fund Birds Canada's Birdathon Claystone Waste Ltd. Eco Canada Co-op Edmonton Community Foundation Action Grant Edmonton Community Foundation EMPEO Edmonton Nature Club Employment and Social Development Canada Engineering Link Incorporated Environment and Climate Change Canada Epp Memorial Signs Hauser Home Hardware NAIT BioSci Tech Club Nature Canada's Charles Labatiuk Nature Endowment Fund TD Friends of the Environment Fund Wild Bird General Store</p> <p>Companies and Organizations \$50-\$499 Benevity – TELUS Augustana Outdoor Club</p>
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