



**Beaverhill Bird Observatory**

**Fall 2021**

**By Shane Abernethy**

**Biologist, BBO**

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## 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 31<sup>st</sup> 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 20<sup>th</sup> and October 20<sup>th</sup>, and owl monitoring from September 1<sup>st</sup> to November 12<sup>th</sup>. A daily census was conducted during the songbird migration monitoring period including to account for migrating species when weather prevented us from opening nets. After a disappointingly slow spring migration, we established four experimental net lanes further out in the lakebed, 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 5000<sup>th</sup> 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 in the standard nets 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, 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 38 year history!

**Table 1: Captures by species in standard migration monitoring nets**

Species	Banded	Repeat <sup>1</sup>	Return <sup>2</sup>	Foreign <sup>3</sup>	Other <sup>4</sup>	Total
Alder Flycatcher	1					1
American Goldfinch	1					1
American Redstart	7	1			1	9
American Tree Sparrow	19	1			1	21
Black-and-white Warbler	1					1
Bay-breasted Warbler	1	2				3
Black-capped Chickadee	62	113	11		5	191
Blue-headed Vireo	1					1
Blackpoll Warbler	9					9
Brown Creeper	4	1				5
Canada Warbler	1					1
Cedar Waxwing	1					1
Cape May Warbler	1					1
Clay-colored Sparrow					1	1
Common Yellowthroat	3					3
Downy Woodpecker	17	13			1	31
Eastern Phoebe	1					1
Grey Catbird	1					1
Hairy Woodpecker	3	4	1		1	9
Hermit Thrush	1					1
House Wren	2	1			2	5
Least Flycatcher	67	8			1	76
Magnolia Warbler	5					5
Mourning Warbler	3					3
Myrtle Warbler	462	13			9	484
Nashville Warbler	2					2
Northern Waterthrush	10					10
Orange-crowned Warbler	13	1				14

<b>Ovenbird</b>	<b>16</b>					<b>16</b>
<b>Philadelphia Vireo</b>	<b>2</b>					<b>2</b>
<b>Pileated Woodpecker</b>	<b>1</b>					<b>1</b>
<b>Ruby-crowned Kinglet</b>	<b>3</b>					<b>3</b>
<b>Red-eyed Vireo</b>	<b>8</b>					<b>8</b>
<b>Ruby-throated Hummingbird</b>					<b>1</b>	<b>1</b>
<b>Slate-colored Junco</b>	<b>29</b>	<b>8</b>			<b>3</b>	<b>40</b>
<b>Song Sparrow</b>	<b>1</b>					<b>1</b>
<b>Sharp-shinned Hawk</b>	<b>2</b>					<b>2</b>
<b>Swamp Sparrow</b>	<b>1</b>					<b>1</b>
<b>Swainson's Thrush</b>	<b>30</b>					<b>30</b>
<b>Tennessee Warbler</b>	<b>24</b>					<b>24</b>
<b>Traill's Flycatcher</b>	<b>29</b>					<b>29</b>
<b>Warbling Vireo</b>	<b>7</b>					<b>7</b>
<b>White-breasted Nuthatch</b>	<b>2</b>					<b>2</b>
<b>White-crowned Sparrow</b>	<b>3</b>					<b>3</b>
<b>Wilson's Warbler</b>	<b>5</b>					<b>5</b>
<b>Western Palm Warbler</b>	<b>3</b>					<b>3</b>
<b>White-throated Sparrow</b>	<b>8</b>	<b>1</b>				<b>9</b>
<b>Yellow-bellied Flycatcher</b>	<b>4</b>					<b>4</b>
<b>Yellow Warbler</b>	<b>33</b>		<b>1</b>		<b>1</b>	<b>35</b>
<b>TOTALS</b>	<b>910</b>	<b>167</b>	<b>13</b>	<b>0</b>	<b>27</b>	<b>1117</b>

4779 net-hours

23.37 captures/100 net-hours

1 Banded recently (within 90 days) at the BBO

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

3 Banded at a location other than the BBO

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

**Table 2: Captures by species in new experimental net lanes**

<b>Species</b>	<b>Banded</b>	<b>Repeat<sup>1</sup></b>	<b>Return<sup>2</sup></b>	<b>Foreign<sup>3</sup></b>	<b>Other<sup>4</sup></b>	<b>Total</b>
American Goldfinch	1					1
American Redstart	9					9
American Tree Sparrow	21	1				22
Black-and-white Warbler	3					3
Bay-breasted Warbler	2					2
Black-capped Chickadee	57	46	2	1	1	107
Blue-headed Vireo	1					1
Blackpoll Warbler	8					8
Canada Warbler	1					1
Clay-colored Sparrow	32					32
Cape May Warbler	1					1
Common Yellowthroat	16				1	17
Downy Woodpecker	2	1				3
Gray Catbird	1					1
House Wren	6	3			1	10
LeConte's Sparrow	2					2
Least Flycatcher	36				1	37
Magnolia Warbler	4					4
Myrtle Warbler	255	5			7	267
Northern Waterthrush	5					5
Orange-crowned Warbler	19					19
Ovenbird	5					5
Philadelphia Vireo	1					1
Purple Finch	1					1
Rose-breasted Grosbeak	1					1
Red-Eyed Vireo	6					6
Savannah Sparrow	2					2
Slate-colored Junco	13	2				15
Song Sparrow	3					3
Swainson's Thrush	1					1

<b>Tennessee Warbler</b>	<b>56</b>	<b>2</b>			<b>6</b>	<b>64</b>
<b>Traill's Flycatcher</b>	<b>21</b>				<b>1</b>	<b>22</b>
<b>Warbling Vireo</b>	<b>9</b>		<b>1</b>			<b>10</b>
<b>White-crowned Sparrow</b>	<b>1</b>					<b>1</b>
<b>Wilson's Warbler</b>	<b>11</b>					<b>11</b>
<b>White-throated Sparrow</b>	<b>1</b>					<b>1</b>
<b>Yellow Warbler</b>	<b>122</b>	<b>4</b>			<b>4</b>	<b>130</b>
<b>Unidentified Sparrow</b>					<b>1</b>	<b>1</b>
<b>TOTALS</b>	<b>736</b>	<b>64</b>	<b>3</b>	<b>1</b>	<b>23</b>	<b>827</b>

386 net-hours

214.25 captures/100 net-hours

1 Banded recently (within 90 days) at the BBO

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

3 Banded at a location other than the BBO

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

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 inhabited 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.

### **Owl Migration Monitoring**

Owl monitoring occurred between September 1<sup>st</sup> and November 12<sup>th</sup>. 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 15<sup>th</sup> we began running two additional mist nets with a Boreal Owl audio lure. The female Saw-whet Owl nets were moved to a new location this year, before the beginning of the monitoring period to account for increased light disturbance from the newly constructed lab 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 several very special ones, including the 5000<sup>th</sup> 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!



While not directly related to owls, staff were also treated to two spectacular showings of aurora borealis, which is one of the perks of staying up for owls.

**Table 3: Captures by species during owl migration monitoring**

Species	Banded	Repeat <sup>1</sup>	Return <sup>2</sup>	Foreign <sup>3</sup>	Other <sup>4</sup>	Total
Northern Saw- whet Owl	322	11	1	3		337
Long-Eared Owl	7					7
Barred Owl	1					1
<b>Total</b>	<b>330</b>	<b>11</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>345</b>

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).



**Table 4: Captures by Call Playback type**

Playback Type	Playback-hours	# Target Captures	Captures/100 hours
Male NSWO	406	251 NSWO	61.8
Female NSWO	401	68 NSWO	16.9
LEOW	195	6 LEOW	3.1
BOOW	108	0	0

## **Education, Outreach and Other Activities**

After deciding not to run any of our typical large fundraising events this year due to the continuing COVID-19 pandemic, we expanded our ticketed visitor system to all migration monitoring programs to great success. Both our daytime and owl monitoring programs were nearly sold out, allowing us to host 470 visitors over the course of the autumn season across both monitoring programs, 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 it was 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 Wild Trax 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.

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.



## **Acknowledgements**

As always, our tireless work at BBO would not be possible without the equally tireless work of our staff, board members, volunteers and interns.

Thank you first and foremost to our chair, Geoff Holroyd, who worked tirelessly to keep things running smoothly behind the scenes, to our treasurer Rose Scott and facility manager John Scott for helping to get the building up and running. A large thank you to Emily MacLellan and Rose Scott for launching our new membership management system and leading our fundraising initiatives. Thank you to the rest of the board members for all their behind the scenes work! Everything the BBO does wouldn't be possible



without you. And a special thank you to Al DeGroot and Peter Silvius for installing our 'old' solar system on our Raven's Roost to provide lights in that bunkhouse, to Colin MacLellan for constructing our new outhouse, and Emily and Graeme MacLellan for installing the holding tank.

Thanks you to Head Biologist Sara Pearce Meijerink, Assistant Biologist Shane Abernethy, and summer students Jon Van Arragon and Jana Teefy for their tireless efforts starting before dawn and ending in the middle of the nights.

Thank you also to all of the volunteers that came out for songbird and owl banding this fall; Marie-Eve Bedard, Dan Belland, Melissa Chishom, Irene Crosland, Natasha and Brett Crosland, Jac Curry, Martine Dumont, Dave Ealey, Alisa Echeverria, Hazel Flesher, Emma Glinny, Laura Hay, Meghan Jacklin, Emily Jamieson, Camile Jodouin, Maud Laurent, Isabelle Lebeuf-Taylor, Art Lepatsky, Erin and Kelsey Low, Lucia MacQuarrie, Emma Micalizzi, Christal Myner, Megan O'Neil, Tyson Shank, Molly Sharp, Charles Silverstone, Michiko Tsuyuki, and Phil Walker. From providing extra hands, to scribing, to assisting with data entry, your help was invaluable!

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Thank you all so much!

