



Beaverhill Bird Observatory
Summer Report 2023

By Ethan Denton

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Introduction

Summer operations in 2023 at the BBO included standard MAPS banding at our 3 stations, nestling banding for Tree Swallows, Purple Martins, Northern Saw-whet Owls, the seventh annual Young Ornithologists Workshop, and the continuation or initiation of numerous monitoring programs for birds, bats, butterflies, and botany. Overseeing these was Head Biologist Jana Teefy, supported by Assistant Biologists Jon van Arragon, Ethan Denton, Sierra Jamieson, and Cala Jorgensen as well as volunteer Braxton Igne and others. Education birds onsite were Tansi the Great Horned Owl, Nina the Burrowing Owl and Keith the Red-tailed Hawk. All three are acclimating well to visitors, and they will make great educational ambassadors in the winter during our BirdSmart program!

Heavy rain during the latter weeks of the summer caused Lister Lake to spill over into Beaverhill Lake, Sora Pond and the Lister Lake MAPS stations and trail systems, as well as blocking the access road for several days. The observatory was pleased to once again host the Geoff Holroyd Young Ornithologists' Workshop, with 10 youths from across the globe attending. The budding biologists got to stay onsite for a week, learning all about bird banding and the life of a field biologist.

In addition to MAPS banding, five monitoring projects took place over the summer season. These included the continuation of the Breeding Bird Census, Least Flycatcher nest monitoring, Shorebird Surveys, and the Wetland and Marsh Bird Surveys. For the first time, staff took an inventory of the local flora, and a protocol was developed for monitoring invasive plants in the area. Staff also worked on stewardship and maintenance activities like fence repair, maintaining trails, and the upkeep of the field facilities.



*Tansi the Great Horned Owl
(photo by J. Janelle)*

MAPS Banding

MAPS (Monitoring Avian Productivity and Survivorship) is a North American-wide standardized program that monitors nest productivity and survival rates of local species as well as detect trends in local and wide-scale species breeding populations. With more than 1,000 MAPS stations across North America, an impressive dataset has been collected. This has contributed to countless studies and conservation efforts, from universities, governmental operations, and non-profit organizations. The BBO has operated MAPS banding since the program's inception in 1989. The Observatory currently runs three MAPS stations - BLAB, SOPO, and LILA.

The three stations were operated within the MAPS parameters designed by the Institute for Bird Populations. Once per ten-day period, each station operated 10 mist nets for up to 60 net

hours, with a minimum of 30 net hours. As in previous years, LILA was only able to run 9 nets. Each net measures 12m long and 2.6m tall, with 30mm mesh, and is checked every 30 minutes. Nets were not operated in temperatures exceeding 27°C, wind over 20 km/h, or precipitation of any sort to guarantee the safety of the birds.

In total, 425 birds were caught in 722.5 net hours during the 2023 MAPS season, averaging 58.8 captures per 100 net hours. By far the most frequent species caught was the Least Flycatcher, with 118 occurrences for 27.8% of total captures! The runners-up for most caught were Yellow Warbler (52 for 12.2%), Red-winged Blackbird (31 for 7.3%), Tennessee Warbler (27 for 6.4%) and Baltimore Oriole (23 for 5.4%). An outbreak of Tennessee Warblers was particularly notable, as staff observed no breeding occurrences in the Natural Area, but the warblers arrived in force in mid-July, well before migration would typically begin. This may be a molt-migration, a phenomenon not previously observed in the species and maybe an effect of the widespread forest fires!

BBO Lab (BLAB)

The longest-running MAPS station at the BBO is the BBO Lab, or BLAB, station. 2023 was the 34th year of operation for the station, making it one of the longest-serving MAPS sites in the continent. Due to the ongoing forest succession, BLAB is surrounded by a young poplar forest with little undergrowth, and consequently, catches fewer birds than the other two BBO stations. This year, BLAB was operated on the 10th, 19th, and 30th of June, the 10th and 20th of July, and the 1st of August for a total of 316 net hours. With 75 birds caught during the summer, BLAB totalled 23.7 captures per 100 net hours. Least Flycatchers were by far the most common bird caught, with 38 birds making for 50.7% of captures at BLAB. The next most common bird was the Baltimore Oriole, with 7 captures for 9.3%. Of the 14 species caught, highlights were singles each of Hermit Thrush and Common Grackle.

Sora Pond (SOPO)

The Sora Pond, or SOPO, MAPS station is situated on the southwest side of Sora Pond, between the pond and Lister Lake. It's comprised of both young poplar forest and wetland habitat full of thick willow shrubs, a combination which gives SOPO a good diversity of birds as well as consistently high capture rates compared to the other two stations. SOPO was run on the 11th and 22nd of June, and the 4th and 11th of July, before flooding made running the station impossible for the rest of the season. During these 4 days, SOPO accumulated 216.5 net hours, catching 202 birds for a rate of 93.3 captures per 100 net hours. Least Flycatchers were the most common catch, with 38 birds making up 18.8% of total captures. Close behind were Yellow Warbler (32 for 15.8%), Tennessee Warbler (18 for 8.9%), and Cedar Waxwing (14 for 6.9%). Birds of note included two Black-and-white Warblers and unusually high numbers of Grey Catbirds.

Lister Lake (LILA)

The Lister Lake, or LILA, station is located on the northwest shore of Lister Lake on the border of a young poplar forest and the dense willows and cattails on the lakeshore. LILA was the first of the three MAPS stations to flood this year, becoming inaccessible in mid-July. Consequently, the station was only run on 4 occasions, these being the 12th and 23rd of June, and the 5th and 12th of July. In 2023, LILA saw 148 birds caught in 190 net hours, for 77.9 captures per 100 net hours. Once again, Least Flycatchers were the most regular find in the nets, with 42 captures making up 28.4% of total catches. Yellow Warblers (18) and Red-winged Blackbirds (15) were the next most common, with 12.2% and 10.1% respectively. Interesting species caught included, Red-eyed Vireo (3), Black-and-white Warbler (1), and Rose-breasted Grosbeak (1).



*Cedar Waxwings were a common catch on MAPS!
(photo by J. Janelle)*

Migration Monitoring

Standard Migration Monitoring (MM), having concluded for the spring season on June 9th, started up again on July 20th for the fall. Like MAPS, this program features the use of 12m long, 2.6m high nets with 30mm holes. Migration banding occurs on every day possible, under the same weather restrictions as MAPS. Between two sets of nets, MM runs 20 net lanes, with 13 considered "standard," and 7 considered "experimental".

The standard net lanes are situated in young deciduous forest with little underbrush, and the experimental nets are found along the forest edge, in an area dominated primarily by willow shrubs and bordered by grassland. Results for the full fall Migration Monitoring season will be posted in the fall report, but early signs have been positive for a good season.

Nestling Banding

In addition to mist-netting efforts, staff banded nestlings at some of our 200+ Tree Swallow boxes. The BBO supports three Tree Swallow grids totalling over 200 nest boxes. With University of Alberta researcher Dr. Ivy Schoepf banding at the Road and New Grids, BBO staff focused on the Spiral Grid, banding 148 nestlings.

Ivy banded both adult and young Tree Swallows at the nest as she conducted research on heamosporidian infections and their effect on the nestlings as well as investigating a possible correlation between parasites carrying avian malaria and nest site selection. Overall, she banded 29 adult Swallows and 179 young.

For the second year, the BBO hosted a successful Purple Martin colony. The colony increased to 19 attempted nests, an increase of 8 over last year - an exciting indication that the Martins are thriving here! Staff banded some of the nestlings but were thwarted at the second nest box by a House Wren who laid five eggs in the winch mechanism. Despite this unexpected complication, 39 nestlings were banded.

Table 1: Purple Martin active nests

Box	# of Nests	# of Young	Nestlings Banded
PA	11	39	34
PB	8*	11*	5

**Box PB was not checked after July 6th so these numbers likely do not fully represent the outcome of the box.*

Finally, one of the BBO's Owl nest boxes was occupied by a pair of Northern Saw-whet Owls, who successfully raised 4 young. All 4 were banded, and we hope to recatch them during future owl banding seasons.

YOUNG ORNITHOLOGISTS' WORKSHOP

The 7th edition of the Geoff Holroyd's Young Ornithologists Workshop went swimmingly, with a wonderful group of 10 youths from as far afield as BC, Massachusetts and Japan attending. Over the course of the week, the young birders learned how to age, sex, and identify many of our local passerines, and subsequently were trained in banding and extraction. As well as banding, the youths got to experience the joys of the field life - camping in the clearing, waking up at 4:30 am, assisting with food prep and handwashing dishes. The afternoons were filled with various activities and guest speakers, as Geoff Holroyd, Matt Turnbull and Dave Lawrie presented on Tree Swallows, Peregrine Falcons, aquatic invertebrates, and butterflies. Ethan, Matt and Dave took the youths to look for shorebirds, pond dipping, and butterfly catching respectively. The two final days were spent at Upsand Downs Falconry and on a birding big day, where the team agonizingly totalled 99 species.



The 2023 YO team, left to right: (top:) Cala Jorgensen, Toby Ye, Heather Trocher, Helen Trefry, Ethan Denton (middle:) Jon van Arragon, Jana Teefy, Sierra Jamieson, Alex Zbylut, Paul Jacques, Quinn Desilets, Geoff Holroyd (bottom:) Braxton Igne, Dave Lawrie, Jay Froese, Jewels (dog), Mianna Popik, William Buswell, Gwendolyn Bateman-Dungey, Karin Higuchi

Field Projects

Several field projects took place at the BBO this summer. Cala Jorgensen continued the Least Flycatcher (LEFL) nest survey study from 2022, Sierra Jamieson took on the Marsh Monitoring Protocol (MMP) Surveys at Lister Lake as well as creating a plant inventory and an invasive plant survey protocol, Jon Van Arragon completed the Forest Breeding Bird Census grid, and Ethan Denton initiated and created a protocol for Shorebird Surveys.

Least Flycatcher Nest Monitoring

The second iteration of the LEFL monitoring project was headed by Cala Jorgensen, who found 18 of the 32 nests tagged last year, of which 8 were reused in 2023. These nests along with 24 newly discovered nests were monitored for brood size and development, predation, and overall outcome. A complete report will be published on the BBO website this fall, including nest outcomes, average clutch size and a comparison to last year's results.

Marsh Monitoring Protocol

Marsh Monitoring involves 4 surveys during the month of June. Each survey includes several standardized point counts along the shore of Lister Lake, where specialized wetland species are targeted using audio playback. During the standard surveys, 6 of the target species were found. Tentative numbers for the surveys include at least 3 American Bitterns, 15 Sora, and 2 Virginia Rails. Sierra and Ethan, along with volunteer David G., attempted an additional survey on the southern shore, finding 7 Soras, 5 Nelson's Sparrows, a Virginia Rail, and an American Bittern at two points. A full report on the survey, including results, will be posted on our website.

Forest Breeding Bird Survey Grid

Jon completed the Forest Grid of the Breeding Bird Census, which totals 50 point counts over 25ha. Of note, a rush of Tennessee Warblers appeared in mid-late July, which were not present during the breeding season. Least Flycatcher numbers also appear to be down from previous years, though not significantly. The Grassland Grid was completed by one of the BBO's student interns. A full report on both surveys will be published on the BBO website this autumn.



Black-bellied Plover

Shorebird Surveys

The shorebird surveys, ongoing since May 7th of this year, will continue until the end of September. During the summer period, 9 surveys were conducted at 7-10 day intervals. Each survey involves an intensive count of shorebirds across the southern end of Beaverhill Lake. Of note, thousands of Long-billed Dowitchers began congregating in early July but vanished along with most other shorebirds when the flooding buried any form of mudflats on the lake. A full report for these surveys will be published on the BBO website following the conclusion of shorebird migration this fall.

Invasive Plant Survey

A new effort for the BBO this summer was to inventory the local plants and create a repeatable invasive plant survey protocol. Sierra identified just over 100 species of plants and pressed more than 25 specimens for future reference. The new protocol, intended to be completed every five years, requires plant surveys at twelve 5x2 metre plots based around Lister Lake - four forest plots, four graminoid plots, and four wetland plots.

Summer Internships

The BBO was pleased to provide 8 students once again with summer internships. These students monitored and maintained the Tree Swallow and House Wren nest box grids, surveyed local butterfly and insect populations, monitored bat populations through box checking and acoustic detection, and completed the Grassland Breeding Bird Survey Grid. Reports on all these efforts will be published on the BBO website this fall. The Observatory would like to thank the interns, as well as their expert mentors, for their dedication and hard work this summer!

Tree Swallow Nest Box Surveys

Jinxuan Cui & Lucille Wang
Mentor: Ivy Schoepf

House Wren Nest Box Surveys:

Willow Zilliox & Adrienne Bailey
Mentor: Zach Antoniw

Grassland Breeding Bird Surveys

Janine Herber
Mentor: Karin Snyder

Butterfly Surveys

Laura Azzolini Correa
Mentor: John Acorn

Bat Surveys

Maria Mejia & Jasper O'Driscoll
Mentors: Lizelle Odendaal & Erin Low

Volunteers

As always, the BBO relies on the time, effort, and skill of our many incredible volunteers. We'd like to extend special thanks to everyone who signed up for the work bee on July 23rd - even though it was unfortunately cancelled due to the flooding, your willing spirits do not go unappreciated. We would also like to extend our thanks to the BBO board members, particularly our treasurer Rose Scott, who have been working tirelessly behind the scenes to keep the organization running as seamlessly as possible. Thanks especially to Geoff Holroyd and Phil and Helen Trefry for their work on the Young Ornithologists' Workshop, as well as much more essential work both on-site and off it.

Special thanks also to banding volunteers Charlotte and Irene, who helped with both MAPS and Migration Monitoring over the summer. Long-term volunteer Braxton Igne has been invaluable - her help with running the lab, banding, and everything else, was greatly appreciated.

Appendix: MAPS Capture Summaries By Station

Table 2: BLAB capture summaries

SPECIES	BANDED	REPEAT	RETURN	OTHER	TOTAL
Hairy Woodpecker			1		1
Least Flycatcher	25	6	6	1	38
Black-capped Chickadee	1		3		4
Warbling Vireo	5		1		6
Cedar Waxwing	1				1
Hermit Thrush	1				1
American Robin	1				1
Tennessee Warbler	1			1	2
Yellow Warbler	2				2
Brown-headed Cowbird	2			1	3
Baltimore Oriole	5		2		7
Red-winged Blackbird	2		1		3
Common Grackle	1				1
Rose-breasted Grosbeak	5				5
TOTALS:	52	6	14	3	75

Table 3: SOPO capture summaries

SPECIES	BANDED	REPEAT	RETURN	OTHER	TOTAL
Yellow-bellied Sapsucker	2	1	3		6
Trail's Flycatcher	2	2			4
Least Flycatcher	30	3	4	1	38
Warbling Vireo	3				3
Black-capped Chickadee	5		2	1	8
Tree Swallow	2		1		3
House Wren	3				3
Grey Catbird	5	4			9
Cedar Waxwing	14				14
Swainson's Thrush	1				1
American Robin	2				2
Ovenbird	2				2
Tennessee Warbler	14			4	18
Yellow Warbler	15	7	8	2	32
Black-and-white Warbler	2				2
Myrtle Warbler	1				1
Common Yellowthroat	3				3
Clay-coloured Sparrow	4				4
Song Sparrow	5	3	1	1	10
Lincoln's Sparrow	3			1	4
White-throated Sparrow	3				3
American Goldfinch	2				2
Brown-headed Cowbird	6			1	7
Baltimore Oriole	10				10
Red-winged Blackbird	10		1	2	13
TOTALS:	149	20	20	13	202

Table 4: LILA capture summaries

SPECIES	BANDED	REPEAT	RETURN	OTHER	TOTAL
Yellow-bellied Sapsucker	4	2	2		8
Downy Woodpecker			1		1
Trail's Flycatcher	1				1
Least Flycatcher	27	8	7		42
Warbling Vireo	4		1		5
Red-eyed Vireo	3				3
Black-capped Chickadee	5	1			6
House Wren	5	4			9
Grey Catbird	2				2
Cedar Waxwing	4				4
American Robin	1	1			2
Tennessee Warbler	6			1	7
Black-and-white Warbler	1				1
Yellow Warbler	11	2	5		18
Song Sparrow	7	1			8
White-throated Sparrow	4	1	2		7
Brown-headed Cowbird	2				2
Baltimore Oriole	5		1		6
Red-winged Blackbird	13		1	1	15
Rose-breasted Grosbeak	1				1
TOTALS:	106	20	20	2	148