McGill Bird Observatory

Annual Report

2023

Migration Monitoring & MAPS Banding Station

Ste-Anne-de-Bellevue, Quebec, Canada

A project of The Migration Research Foundation Inc.

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2023 Season Overview

The 2023 banding season at McGill Bird Observatory was conducted from April through November, encompassing spring migration, the MAPS breeding bird monitoring program, and fall migration monitoring. This report summarizes the results of our standardized monitoring efforts.

6,528
Total Captures

100
Species Recorded

5,244
New Bands

176
Active Days

Capture Summary

Capture Type	Count	Percentage
New Bands	5,244	80.3%
Recaptures (same season)	1,032	15.8%
Returns (previous years)	241	3.7%

Seasonal Distribution

Season	Captures	Species	Days
Spring Migration (Apr–May)	1,352	70	43
MAPS Season (Jun–Jul)	1,264	57	29
Fall Migration (Aug–Nov)	3,583	86	97

Key Highlights

- Peak capture day: Sep with the highest daily totals
- Most abundant species: WTSP (716 captures)
- Species diversity: 100 species recorded across all seasons
- Return rate: 3.7% of captures were returning birds

Spring Migration (April–May)

Spring migration monitoring captured the northward movement of neotropical migrants and short-distance migrants returning to breeding grounds. The spring season recorded1,352 captures of 70 species over 43 monitoring days.

1,352
Spring Captures

70
Species

1,024
New Bands

Top Spring Migrants

Species	Count	% Total	New	Recap
TEWA	208	15.4%	200	8
RCKI	136	10.1%	124	12
YEWA	75	5.5%	43	26
WTSP	72	5.3%	66	6
RWBL	62	4.6%	38	15
MAWA	61	4.5%	49	12
BAOR	49	3.6%	15	27
NOWA	42	3.1%	27	15
AMRO	36	2.7%	29	6
SOSP	36	2.7%	17	10
AMGO	30	2.2%	21	3
CEDW	29	2.1%	29	0
MYWA	29	2.1%	28	1
AMRE	28	2.1%	17	8
COYE	26	1.9%	16	7

MAPS Breeding Season (June–July)

The Monitoring Avian Productivity and Survivorship (MAPS) program operates during the breeding season to assess local breeding bird populations, productivity (young:adult ratios), and survivorship through standardized mist-netting protocols.

1,264
MAPS Captures

57
Species

1,107
New Bands

Age Distribution (Breeding Season)

Age Class	Count	Percentage
0	1	0.1%
1	99	7.8%
2	300	23.7%
4	529	41.9%
5	176	13.9%
6	146	11.6%
7	6	0.5%
8	3	0.2%
Unknown	4	0.3%

Top Breeding Species

Species	Count	New	Returns
TRES	371	371	0
AMKE	106	106	0
SOSP	79	59	6
GRCA	68	55	4
CSWA	45	36	2

YEWA	44	37	3
BCCH	42	33	4
OVEN	41	34	5
EABL	40	40	0
SWSP	32	23	2
COYE	32	21	7
DOWO	27	19	1

Fall Migration (August–November)

Fall migration monitoring tracked the southward passage of breeding adults and hatching-year birds. The fall season is typically the busiest period, with larger numbers of young birds captured as they make their first migratory journey.

3,583
Fall Captures

86
Species

2,956
New Bands

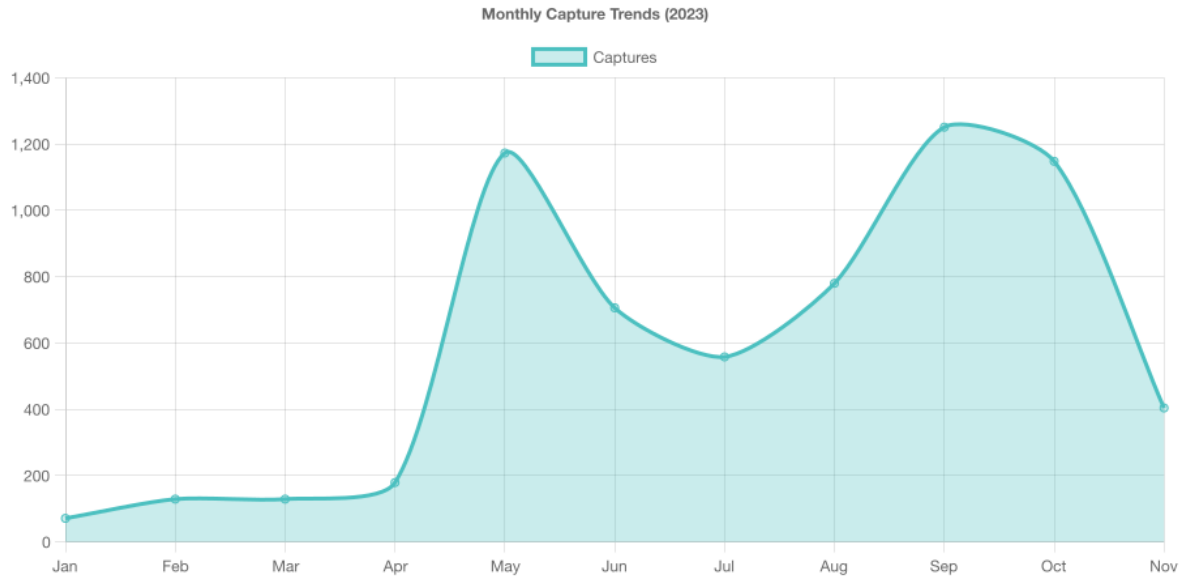


Figure 1. Monthly capture totals for 2023

Top Fall Migrants

Species	Count	% Total	New
WTSP	625	17.4%	529
SCJU	296	8.3%	261
MAWA	226	6.3%	196
RCKI	222	6.2%	196
SWTH	179	5.0%	143
AMRE	158	4.4%	139
AMGO	144	4.0%	128

BCCH	136	3.8%	21
NSWO	128	3.6%	121
SOSP	120	3.3%	99
REVI	102	2.8%	78
GCKI	89	2.5%	88

Notable Species Accounts

The following accounts highlight species of particular interest based on capture numbers, population trends, or conservation significance.

WTSP

Total: 716 | New bands: 609 | Recaptures: 103 | 11.0% of total

WTSP was the most abundant species during the 2023 season, representing 11.0% of all captures. The recapture rate of 14.4% indicates site fidelity during the monitoring period.

TRES

Total: 382 | New bands: 382 | Recaptures: 0 | 5.9% of total

TRES was the #2 most captured species during the 2023 season, representing 5.9% of all captures.

RCKI

Total: 358 | New bands: 320 | Recaptures: 38 | 5.5% of total

RCKI was the #3 most captured species during the 2023 season, representing 5.5% of all captures. The recapture rate of 10.6% indicates site fidelity during the monitoring period.

SCJU

Total: 345 | New bands: 290 | Recaptures: 49 | 5.3% of total

SCJU was the #4 most captured species during the 2023 season, representing 5.3% of all captures. The recapture rate of 14.2% indicates site fidelity during the monitoring period.

BCCH

Total: 316 | New bands: 81 | Recaptures: 194 | 4.8% of total

BCCH was the #5 most captured species during the 2023 season, representing 4.8% of all captures. The recapture rate of 61.4% indicates site fidelity during the monitoring period.

MAWA

Total: 289 | New bands: 247 | Recaptures: 42 | 4.4% of total

MAWA was the #6 most captured species during the 2023 season, representing 4.4% of all captures. The recapture rate of 14.5% indicates site fidelity during the monitoring period.

Complete Banding Totals by Species

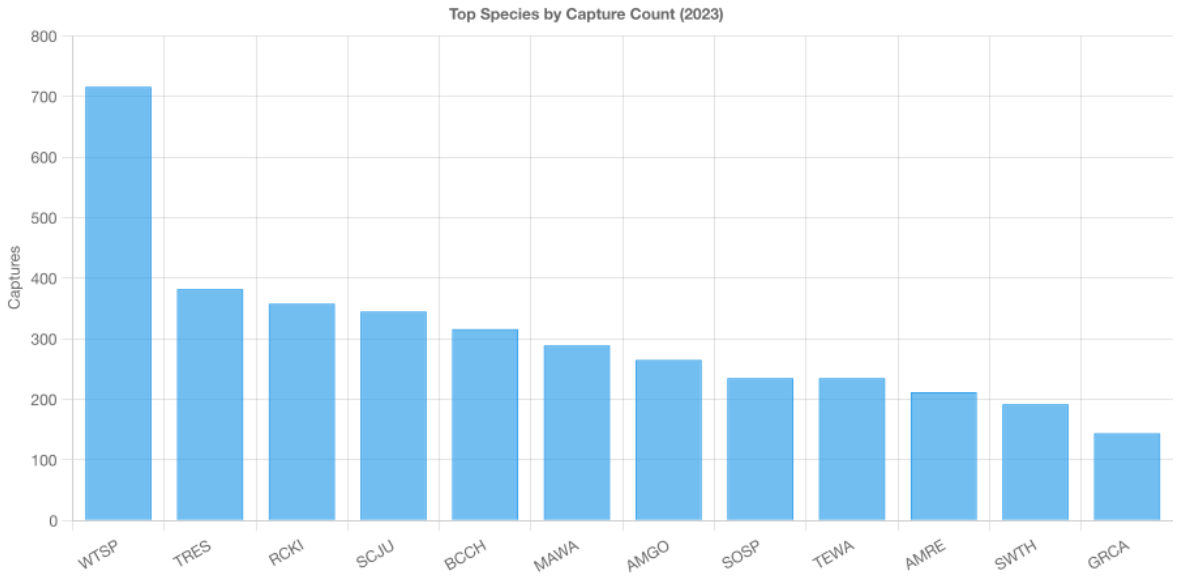


Figure 2. Top species by capture count in 2023

Species	Total	New	Recap	Return
WTSP	**716**	609	103	4
TRES	**382**	382	0	0
RCKI	**358**	320	38	0
SCJU	**345**	290	49	6
BCCH	**316**	81	194	41
MAWA	**289**	247	42	0
AMGO	**265**	219	25	21
SOSP	**235**	175	42	18
TEWA	**235**	226	9	0
AMRE	**212**	182	25	5
SWTH	**192**	154	38	0
GRCA	**144**	109	29	6
YEWA	**133**	89	35	9
REVI	**132**	104	18	10
NSWO	**128**	121	7	0

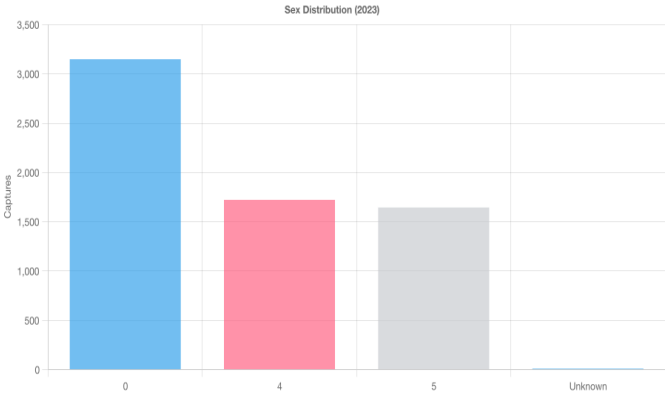
AMRO	**117**	108	8	1
AMKE	**106**	106	0	0
NOCA	**101**	74	17	10
COYE	**100**	69	21	10
OVEN	**96**	76	15	5
CSWA	**95**	68	18	9
NOWA	**91**	65	26	0
GCKI	**91**	90	1	0
HETH	**88**	64	24	0
DOWO	**87**	34	36	17

Age and Sex Demographics

Age Distribution

Age	Count	%
0	30	0.5%
1	873	13.4%
2	3129	47.9%
4	537	8.2%
5	1249	19.1%
6	648	9.9%
7	23	0.4%
8	28	0.4%
Unknown	11	0.2%

Sex Distribution



Sex	Count	%
0	3149	48.2%
4	1723	26.4%
5	1645	25.2%
Unknown	11	0.2%

Age Ratios by Species (ne10)

Species	Young	Adult	Y:A Ratio	n

Recaptures and Returns

Recapture data provides valuable information on site fidelity, local movements, and minimum longevity. Returns represent birds banded in previous years and recaptured in 2023.

Longevity Records

Species	Recaps	Avg Days	Max Years
BCCH	4501	266	9.26
SOSP	1888	238	7.70
WTSP	1668	16	2.07
GRCA	1284	132	7.21
SNBU	1202	140	5.98
RCKI	1068	3	0.12
YEWA	920	426	7.84
COYE	840	293	8.92
HETH	702	8	1.00
SCJU	702	115	6.93
MYWA	683	7	1.97
AMGO	661	248	7.61
MAWA	590	7	2.97
DOWO	543	327	8.36
BAOR	522	383	8.90

Net Location Efficiency

Net	Captures	Species	New	Recap Rate
E2	430	52	377	10.9%
C1	398	56	326	15.1%
H2	394	50	336	13.7%
E1	393	52	331	13.0%

B3	366	50	279	19.9%
H1	339	49	287	13.3%
C2	335	54	263	17.0%
N1	316	51	238	21.5%
A2	316	49	258	15.8%
B2	314	49	230	23.9%
N3	246	45	208	12.6%
V4	209	12	111	35.9%

Long-term Population Trends

Multi-year data allows assessment of population trends and changes in species composition over time. The following tables summarize key metrics across recent years of monitoring.

Annual Summary (Last 10 Years)

Year	Total	Species	New	Returns	Y:A
2016	9,268	109	7,541	264	0.00
2017	7,945	94	6,613	206	0.00
2018	8,417	112	6,850	266	0.00
2019	9,203	117	7,696	222	0.00
2020	7,262	100	6,101	188	0.00
2021	10,521	105	8,848	252	0.00
2022	9,070	106	7,703	277	0.00
2023	6,528	100	5,244	241	0.00
2024	2,088	77	1,553	128	0.00
NaN	91	2	0	0	0.00

Capture Effort Analysis

Year	Days	Total	Per Day	Spp/Day
2016	238	9,268	38.94	0.46
2017	210	7,945	37.83	0.45
2018	226	8,417	37.24	0.5
2019	228	9,203	40.36	0.51
2020	197	7,262	36.86	0.51
2021	254	10,521	41.42	0.41
2022	242	9,070	37.48	0.44
2023	176	6,528	37.09	0.57
2024	63	2,088	33.14	1.22

NaN	1	91	91	2

Species Diversity Analysis

Species diversity indices provide quantitative measures of community structure. The Shannon diversity index (H') accounts for both species richness and evenness, with higher values indicating more diverse and stable communities.

Diversity Indices Over Time

Year	Richness	Shannon H'	Evenness	Captures
2016	109	3.407	0.726	9,268
2017	94	3.259	0.717	7,945
2018	112	3.637	0.771	8,417
2019	117	3.626	0.761	9,203
2020	100	3.326	0.722	7,262
2021	105	3.419	0.735	10,521
2022	106	3.325	0.713	9,070
2023	100	3.731	0.81	6,528
2024	77	3.062	0.705	2,088
NaN	2	0.641	0.925	91

Top Species Trends

1. SNBU

2018	2019	2020	2021	2022	2023	2024	NaN
1417	1876	1766	2620	2452	0	0	0

2. WTSP

2018	2019	2020	2021	2022	2023	2024	NaN
491	461	356	706	700	716	150	0

3. RCKI

2018	2019	2020	2021	2022	2023	2024	NaN
422	423	339	602	392	358	600	0

Complete Species List (2023)

A total of 100 species were recorded during the 2023 monitoring season. The following table lists all species in order of abundance.

Species	n	Species	n
WTSP	716	LISP	20
TRES	382	CHSP	19
RCKI	358	COGR	18
SCJU	345	HAWO	18
BCCH	316	WIWA	18
MAWA	289	ATSP	18
AMGO	265	BLPW	18
SOSP	235	CAWA	18
TEWA	235	WOTH	17
AMRE	212	RTHU	17
SWTH	192	EAPH	16
GRCA	144	BTBW	13
YEWA	133	YBSA	11
REVI	132	CHSW	11
NSWO	128	BHVI	10
AMRO	117	EWCS	10
AMKE	106	YSFL	9
NOCA	101	MOWA	8
COYE	100	INBU	7
OVEN	96	GCFL	7
CSWA	95	BALO	6
NOWA	91	SSHA	5
GCKI	91	BADE	5
HETH	88	WIWR	5
DOWO	87	RUBL	4
SWSP	86	BRTH	4

BAWW	72	PISI	4
RWBL	69	EAKI	4
BAOR	67	BITH	4
CEDW	64	MODO	3
VEER	61	CLSW	3
RBGR	58	FISP	3
MYWA	53	BTNW	3
EABL	51	BHCO	3
NAWA	45	SCTA	3
CMWA	43	CONI	2
YBFL	43	BLBW	2
HOWR	40	YPWA	2
WAVI	38	EATO	2
FOSP	38	BDOW	1
TRFL	37	PIWO	1
LEFL	33	RBWO	1
HOFI	33	EUST	1
BLJA	32	KILL	1
BBWA	29	BBCU	1
PUMA	26	NOPA	1
WBNU	26	GWWA	1
BRCR	25	CORE	1
GCTH	23	BANS	1
PUFI	21	PHVI	1

Acknowledgements

The McGill Bird Observatory's 2023 banding operations were made possible through the dedication of our staff, volunteers, and supporters. We extend our sincere gratitude to everyone who contributed to this season's success.

Banding Staff

Bander	Captures	Days	Species
SLS	3300	122	87
CIB	692	27	67
LAT	564	35	58
SID	365	15	58
KML	322	19	46
PAB	257	17	3
ACM	248	19	21
LNA	201	18	43
ALH	130	10	42
MPB	94	10	31

About the Observatory

The McGill Bird Observatory is a project of The Migration Research Foundation Inc., a registered charitable organization dedicated to the study and conservation of migratory birds. Located at the western tip of the Island of Montreal, the observatory has been conducting standardized migration monitoring since 2004.

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Registered Charity: 899163505RR0001

Permits and Protocols

Bird banding activities were conducted under federal and provincial scientific collection permits. All operations followed standardized protocols established by the Canadian Wildlife Service and The Institute for Bird Populations (MAPS program).

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