

## EXECUTIVE SUMMARY

Migration monitoring remains one of the core programs of LSLBO. The spring season had 57 days of coverage from Apr 18 - Jun 13 inclusive. A total of 2589 birds of 54 species and forms was banded for the busiest spring ever at LSLBO with a capture rate of 96.6 birds per 100 net-hours. The fall season was considerably longer with 91 days of coverage between Jul 7 - Oct 6 inclusive. With 2771 birds banded of 64 species and forms, the fall was the second busiest at LSLBO but the capture rate was substantially lower at 46.1 birds per 100 net-hours. One hundred and sixty species were recorded at the station with American Golden Plover and Townsend s Solitaire, new for the area.

Overall coverage during the migration monitoring season improved substantially in 2000 largely due to volunteer help and more experienced staff present. A greater effort was placed on doing a daily census and hourly Visible Migration watches (vis-migs). As a result, census was conducted on all but one day and an average of nearly eight visible migration watches were done daily.

Monitoring Avian Productivity and Survivorship (MAPS) was again conducted in 2000. Two of the original three stations were monitored and the third was dropped. A new site Residence approximately 3 km south of the banding station was established. Capture totals at the older sites were similar or lower to previous years while the new site had the greatest number of captures at 105. A thorough MAPS report has been prepared separately.

There were 476 retrap records from the 2000 Migration Monitoring and MAPS seasons. The vast majority of these were repeats (birds caught during the same season of banding). Fifty-eight birds were captured in 2000 which had been banded in previous years.

In 2000, LSLBO participated in a moult study designed by Dr. David Hussell of Kanata, Ontario. Several Canadian Migration Monitoring Network stations have joined in the project which involves collecting moult information on all adult and young warblers. A total of 68 moult records were collected from 12 species between July 25 through September 21.

LSLBO has updated its web site ([www.lslbo.org](http://www.lslbo.org)) in 2000. Since May, nearly 1300 visits to the site have been made from people in over 30 countries. New updates to the site include a page with banding totals and a sightings board, which was implemented in late fall, and summarizes the migration activity at LSLBO on a weekly basis.

Over 900 visitors, including 13 organized tours, came to the observatory in the spring and fall. This number is fairly substantial considering the poor weather which plagued the area for most of the spring and summer.

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## MIGRATION MONITORING

### Spring Migration Monitoring Summary

The spring migration season at LSLBO was certainly one to remember and unlike any other in the observatory's history. It seemed a very cool spring with winter not wanting to ease off its grip. Some snow did fly in early May but it was the cold temperatures that preoccupied our thoughts and slowed our fingers. Even into June, dawn temperatures were routinely hovering around the 0°C mark. More importantly, it will be remembered mostly for the tremendous passage of birds, which saw several species recorded and banded in record numbers.

Monitoring coverage began on April 18 with the first banding starting two days later. It was the earliest start ever for LSLBO. This combined with low lake levels made for some good waterfowl observations. Nearly 200 Canada Geese were seen on the 18<sup>th</sup> with several Mallard and American Wigeon also present. Apart from a small raptor passage, landbirds were pretty much restricted to resident species such as Ruffed Grouse, Pileated Woodpeckers, Common Ravens and Black-capped Chickadees. However, things soon quickly picked up in the following days. Large numbers of Robins (446), and winter finches including; Pine Siskins (216), Common Redpolls (348) and Evening Grosbeaks (43) were noted. Tundra Swan numbers peaked at 226 on April 22<sup>nd</sup> and Dark-eyed Juncos (28) and American Tree Sparrows (29) numbers started to increase as well.

The last week of April had more unstable weather with several days of strong ESE winds which slowed down migrant activity considerably. A few new birds did turn up despite the weather including the season's first Broad-winged Hawks, Black-and-white and Orange-crowned warblers. Winds shifted to NNW by the 29<sup>th</sup> but little appeared to move except a good number of Sandhill Cranes (240) and the first heavy flight of Yellow-rumped Warblers (360) occurred. A total of 71 birds were banded in April (Table 1).

The 1<sup>st</sup> week of May saw the arrival of several new species for the year including: Common Loon, Red-necked Grebe, and some waterfowl species not commonly observed at the observatory such as Canvasback, Redhead, and Gadwall. Several species of passerine birds were also new arrivals including Say's Phoebe, Least Flycatcher, Le Conte's and Vesper sparrows and a few warblers including Palm and a very early male Yellow Warbler looking out of place in a willow during a snow storm on May 4. Some species reached peak numbers during this period, such as Yellow-shafted Flicker (16), and White-crowned (56) sparrows. On the whole, however, the week was dominated by traditionally early arriving species such as American Robin and Yellow-rumped Warbler. On several days these species were moving through by the hundreds, even during heavy rain and snowfall. During this week 122 birds were banded.

The second week of May saw a very big push of waterfowl with peak daily totals for several species including White-fronted Goose (546), Oldsquaw-- now officially called Long-tailed Duck (240), White-winged Scoter (82) and American Wigeon (50). Several warbler species

made their first appearances including; Tennessee, Connecticut, Blackpoll, Ovenbird, Black-throated Green, and American Redstart. Some species reached their season peaks such as Orange-crowned Warbler (62), White-throated (46) and Savannah (17) sparrows. The passage of Myrtle Warblers and Chipping Sparrows was increasing dramatically with daily numbers building to the hundreds. Banding totals increased quite a bit during this week to 535 birds.

The third week of May was definitely the peak of the season with a steady passage of *thousands* of birds daily. Some days saw daily totals of over 70 species recorded. Numbers for most warblers were getting much higher and peaking and late arriving species such as Mourning Warbler, Western Tanager and Baltimore Oriole were being recorded. A high pressure system bringing clear skies and strong westerly winds on May 20<sup>th</sup> brought a bit more activity than normal at dawn but not overly so. Then, in a blink of an eye, the skies were filled with birds, warblers in particular. The huge wave descended into our area and in seconds our 12 mist-nets were filled with 40-50 birds each. We immediately called for reinforcements to help remove birds from the nets. As we kept track of each bird released we knew it was a day of migration like none before at LSLBO. Some species like Tennessee (200+) and Blackpoll (nearly 100) warblers were caught in record numbers. Over 500 birds were caught on this most impressive day of migration. Chipping Sparrows peaked on this day with 1600 counted. A single 5-minute visible migration watch yielded 140 Chippers moving through. The banding total for the week reached 732 birds and was the highest of the season, keeping our small team very busy.

The start of the fourth week of May was still quite busy. It rained quite a bit during the night of the 21<sup>st</sup> and strong westerly winds greeted us on the morning of May 22. The onslaught of birds last time we had these strong winds was still fresh in our minds so this time we were more prepared, opening up only a limited number of nets. We were not to be disappointed as thousands of songbirds started moving through the area. Over 1200 Chipping Sparrows, still the most common migrant in the spring of 2000, were counted along with high numbers of Myrtle (307) Tennessee (281), Yellow (54) and Blackpoll (28) warblers. Several other species had peak totals on this day including Tree Swallow (60), Brown-headed Cowbird (144). We had our highest banding total of the spring on this day with 240 birds banded. This total could have been much higher with more hands present to assist in the extraction. As it was, we were careful not to open too many nets. Waterbird activity on the lake was fairly quiet with a few rafts of Common Mergansers drifting by. There were still a few loons around and around 20-30 Common Terns were seen daily. More late arriving species made their first appearances during this week including Canada Warbler, as well as Alder, and Yellow-bellied flycatchers. The number of birds banded this week started to drop off with 674 banded. By the end of the week and end of the month, it was obvious that we were over the crest with numbers starting to drop. Perhaps this was most apparent with Chipping Sparrows, the most abundant bird of the spring. Less than 10 birds a day were being recorded by months end.

During early June, we witnessed a second passage of Canada Geese with 30 - 60 birds moving through on some days. These birds were most likely pre-moult migrants, non-breeders which still go north to replace their flight and body feathers. Presumably they find the arctic habitat a safe environment as they are incapable of flight while they replace their feathers. Most songbird

numbers were declining with the traditionally later arriving species now most common with steady numbers of Alder Flycatchers, Red-eyed Vireos and Canada Warblers. Cedar Waxwings, one of our latest migrants started showing up in good numbers with several small flocks seen daily and peaking at 237 on June 3<sup>rd</sup>, our Songbird Festival week-end. Birders on this day were also treated to the sighting of an American Golden Plover along the shore near the observatory banding station. This represented a first record for the area.

On June 13<sup>th</sup>, migration monitoring coverage ceased at the station. We were well satisfied that migration was over for most species and that the breeding season was underway. It was by far the most active spring on record with 168 species observed at the station and 2589 birds banded of 54 species and forms.

**Table 1. Spring 2000 daily captures at LSLBO.**

Date	Net-hours	Banded	Recaptured	Unbanded	Total Captured	Birds/100 Net-hours
20-Apr	32	5	2		7	21.88
21-Apr	45.67	1			1	2.19
22-Apr	66.08	10			10	15.13
23-Apr	82.67	2			2	2.42
24-Apr	81.75	5	1		6	7.34
25-Apr	88.33	1			1	1.13
26-Apr	99.47	12			12	12.06
27-Apr	71	3			3	4.23
28-Apr	84.78	22	1	1	24	28.31
29-Apr	84.42	4			4	4.74
30-Apr	103.02	4			4	3.88
01-May	102	28			28	27.45
02-May	96	8	2		10	10.42
03-May	96	5	2		7	7.29
04-May	0	0			0	N/A
05-May	0	0			0	N/A
06-May	73.33	35	1		36	49.09
07-May	40.67	46	1		47	115.56
08-May	24	27	1		28	116.67
09-May	56	79	3	2	84	150.00
10-May	77	212	1	9	222	288.31
11-May	49.67	24	1	2	27	54.36
12-May	47.92	67	3	2	72	150.25
13-May	41.83	57	1		58	138.66
14-May	46.52	51		2	53	113.93
15-May	55.18	41	2	1	44	79.74
16-May	41	128	3	1	132	321.95
17-May	24	37	2		39	162.50
18-May	84	110	2	2	114	135.71
19-May	84	140	3	5	148	176.19
20-May	40.58	73		424	497	1224.74
21-May	40.78	176	5	13	194	475.72

22-May	34.22	240			240	701.34
23-May	25	87	2	2	91	364.00
24-May	52.67	89	2	2	93	176.57
25-May	57.08	84			84	147.16
26-May	32.83	87	2	2	91	277.19
27-May	33.08	48	1	4	53	160.22
28-May	51.83	39	2	2	43	82.96
29-May	37.25	67	4	1	72	193.29
30-May	62	49	2	1	52	83.87
31-May	71.75	34	7	1	42	58.54
01-Jun	80.83	20	1		21	25.98
02-Jun	84	60	4	3	67	79.76
03-Jun	84	36	3		39	46.43
04-Jun	84	36	5	1	42	50.00
05-Jun	84	29	3	1	33	39.29
06-Jun	17.5	9	2		11	62.86
07-Jun	84	31	6		37	44.05
08-Jun	84	21	4		25	29.76
09-Jun	0				0	N/A
10-Jun	5.5	3			3	54.55
11-Jun	36	11	2		13	36.11
12-Jun	77	12	4		16	20.78
13-Jun	84	23	5	2	30	35.71
Totals	3222.21	2528	98	486	3112	96.58

### Fall Migration Monitoring Summary

Migration monitoring for the fall 2000 season began on July 7 and ended on October 6. There were 91 days of coverage with only one day lost due to the lack of a qualified Bander-in-Charge. Weather-wise, the season began pretty much where the spring left off with cool morning temperatures and frequent precipitation which often took the form of afternoon thundershowers.

The first two weeks of the season were fairly quiet for migration. Small numbers of loons were regularly present on the lake along with 30 or so Mallard and smaller numbers of Common Goldeneyes and Common Mergansers. The only raptor presence was from the local 4-5 Bald Eagles, and a pair of Ospreys and Merlins. Passerine numbers for the most part were low and steady with a good variety present but most appeared to be local breeders. Most of the birds caught were young birds still in juvenal plumage or adults undergoing post-breeding (adult basic moult), suggesting that dispersal, juvenal or post-breeding rather than migration was occurring. The origins of a young Fox Sparrow captured and banded on September 13 are unknown but it was no doubt dispersing from natal areas as the species is known as a late migrant. The higher rates of recapture in the first 2 weeks of the season (Table 2.) seem to also suggest that birds were not moving through but staying in the area. Very few birds were seen on Vis-Migs until

July 17 when the number of birds especially Yellow-rumped Warblers increased.

By the last week of July a sense of true migration was upon us and capture rates were finally increasing. The number of loons was increasing to as many as 19 and Franklin's Gulls were migrating in large numbers especially on windy days, peaking at 1839 on the 29<sup>th</sup>. Otherwise, there was little non-passerine migratory activity. More passerines were moving and a flight of about 60 Bank Swallows took place on the 27<sup>th</sup>. More and more warblers were also appearing with Black-throated Green warblers, not very abundant at the site peaking at 3 and the first Blackpoll of the fall was caught. Yellow Warblers steadily increased and peaked at 80 on July 27<sup>th</sup> and other warblers such as Canada, Black-and-white, Ovenbird and American Redstart were also numerous during this period.

The first week of August was the busiest of the fall in the banding lab. A half-dozen Least and Alder flycatchers were seen daily along with several Red-eyed Vireos but warblers were very numerous with 8 - 12 species seen daily, American Redstart and Yellow Warblers leading the way. Several species had peak numbers during the week including American Redstart (76), Canada Warbler (19), Mourning Warbler (5), and Common Yellowthroat (5). The first of only 2 Chestnut-sided and the only Cape May Warbler of the season were caught this week.

There were still 200 - 300 birds flying over during the second week of August but numbers were declining as was the capture rate. American Redstart numbers were still high but Yellow Warblers were decreasing. Tennessee Warblers increased and peaked at 49. Other such as Magnolia (11) and Ovenbirds (11) also peaked near the middle of the month. As rain eased off in the early morning of August 16<sup>th</sup> it was quite obviously going to be an active day for migration. Fifty-seven species were recorded at the station with several flycatchers including Olive-sided Flycatcher (2), Western Wood-Pewee (3), Say's Phoebe (1) and a season high of 9 Eastern Kingbirds. Yellow-rumped Warblers, while fairly common started to increase substantially around this time as 200 were seen flying over, along with another 100 high-flying unidentified warblers. Chipping Sparrows were most abundant and peaked at 515 on their southward migration.

Shorebirds were also increasing around this time as Greater and Lesser Yellowlegs, Spotted, Semipalmated, and Stilt sandpipers were common and most evident along the sandy beaches of the park. During the last week of August, Baird's Sandpipers and Semipalmated Plovers were becoming more abundant and this period seemed particularly busy for non-passerine migration with peak numbers of Common Loons (48), Common Terns (12), Blue-winged Teal (80), Sharp-shinned Hawks (28) and American Kestrels (17). As for passerines, flycatcher, vireo, and warbler numbers were decreasing except for Yellow-rumped Warblers. Yellow-rumped and Pine Siskins were seen flying overhead in large numbers sometimes in the 1000's. Unfortunately, they stayed high and banding totals during this week remained low.

The first week of September was mostly overcast with several days of misting and showers. Canada Geese Mallard and Blue-winged Teal were the most abundant waterfowl around. Small flocks of American Pipits were seen moving through along the beach and the number of Sharp-

shinned Hawks was steadily increasing along with a favoured prey item, Swainson's Thrushes (13 on Sep 4). As a high pressure system arrived towards the end of the week, skies cleared and winds increased. The first Dark-eyed Junco, and only Gray-cheeked Thrush of the year were caught on September 6. This day also produced the season's only Short-eared Owl and the only Parasitic Jaeger of the year was seen flying north just offshore. Good numbers of Common Terns (11) and American Pipits (60) were also present. Black-capped Chickadees, which had been experiencing a bit of an irruption—an irregular fall southward movement of a normally non-migratory species—had numbers peak at 400 on the seventh of September which also had a large number of Yellow-rumped Warblers (2146) moving through.

The second week of September was mostly clear with a few wet days and moderate to strong northwesterly winds that seemed to have the effect of decreasing migratory activity. There were some peak numbers for White-fronted Geese (35), Bald Eagles (9) and Sandhill Cranes (220). Chickadee numbers remained high but started to decrease by the end of the week along with warbler numbers. Hermit Thrush and sparrow numbers, including White-throated, White-crowned and Savannah were just starting to increase leaving a little gap in passerine activity and making for very slow banding.

The third week of September was similarly quiet with few birds captured despite a full netting effort on most days. The first arrival of American Tree Sparrows (2) occurred on the 18<sup>th</sup>. Temperatures dropped to 2°C at dawn on the 20<sup>th</sup> which was calm and heavily overcast. This seemed to trigger a heavy passage of Snow Geese which flew south in skeins by the hundreds. A nice flock of 36 Sandhill Cranes bugling overhead made it feel even more autumnal. Hermit Thrushes (5), Ruby-crowned Kinglets (7) Black-capped Chickadees (30), along with Yellow-rumped Warblers and Dark-eyed Juncos moved through in moderate numbers but the star of the day was a very late Alder Flycatcher which was scrupulously examined to ascertain the species identification.

The last week or so of September was mostly calm and similarly quiet but there were a few days of note. The lake was mostly quiet but there were a lot of Mallard (12 - 90) and Goldeneye (11 - 120) and smaller passages of Canada and White-fronted geese and diving duck such as scaup. About 20 Horned Grebes were seen offshore most of the week. As for passerines late species were dominant with peak numbers of Ruby-crowned Kinglets (13), Orange-crowned Warblers (23), American Tree (51), and White-crowned (18) sparrows as well as Dark-eyed Juncos (125). There were 3 Harris's Sparrows on the 26<sup>th</sup> and a couple of Fox Sparrows were also seen during this period. Several late warbler stragglers turned up on the 27<sup>th</sup> including Tennessee, Black-and-white, Northern Waterthrush, and Common Yellowthroat. The last day of September was very blustery and the nets had to be closed as they were filling with leaves. While nets were being closed, a young Gyrfalcon was seen floating into a head wind about 20 metres overhead.

By October migration was nearly done. There were still a few grebes being seen including two Western Grebes on 4 October. Small numbers of Northern Pintail appeared in early October and there were some lingering Mallards, Goldeneye and Bufflehead but otherwise the lake was pretty quiet. The resident Bald Eagles were still seen daily but apart from a Rough-legged Hawk on



October 1, raptors were getting pretty scarce. Dawn temperatures in October reached below zero, dipping to -11°C on the 5<sup>th</sup>. This cold and sunny day produced a late push of birds with 2 Northern Goshawks, Black-capped Chickadees (53) and Dark-eyed Juncos (33), as well as a few late Yellow-rumped and a Palm Warbler. The seasons only Northern Shrike was captured and banded on this day. The following day little was moving and it was decided to call it the end of a long and productive season.

A total of 160 species were encountered during the fall and 2771 birds of 64 species and forms were banded. Despite the second highest fall banding total in LSLBO history, the capture rate was one of the lowest in several years. Frequent slow days which left banding fingers all too often idle, were a testament to the low fall capture rate.

**Table 2. Fall daily captures in 2000.**

Date	Net-hours	Banded	Recaptured	Unbanded	Total Captured	Birds/100 net-hours	% Recaptures
07-Jul	56	7	2		9	16.1	22.2
08-Jul	71.33	10	4	1	15	21.0	26.7
09-Jul	84	30	7		37	44.0	18.9
10-Jul	27.75	4			4	14.4	0.0
11-Jul	72	9	4		13	18.1	30.8
12-Jul	84	5			5	6.0	0.0
13-Jul	72	11	4		15	20.8	26.7
14-Jul	84	33	4		37	44.0	10.8
15-Jul	66.75	22	7	1	30	44.9	23.3
16-Jul	84	44	14	2	60	71.4	23.3
17-Jul	78	15	6		21	26.9	28.6
18-Jul	84	46	2	1	49	58.3	4.1
19-Jul	84	29	8		37	44.0	21.6
20-Jul	84	25	2	1	28	33.3	7.1
21-Jul	84	34	7		41	48.8	17.1
22-Jul	84	38	3	1	42	50.0	7.1
23-Jul	84	59	4	2	65	77.4	6.2
24-Jul	84	8	4		12	14.3	33.3
25-Jul	84	69	7	1	77	91.7	9.1
26-Jul	72	50	3	1	54	75.0	5.6
27-Jul	84	60	7		67	79.8	10.4
28-Jul	84	84	6	3	93	110.7	6.5
29-Jul	84	15	6		21	25.0	28.6
30-Jul	84	26	4	2	32	38.1	12.5
31-Jul	75	74	4	6	84	112.0	4.8
01-Aug	82.8	69	10	1	80	96.6	12.5
02-Aug	84	44	10	1	55	65.5	18.2
03-Aug	66.8	44	12	3	59	88.3	20.3
04-Aug	84	108	18	6	132	157.1	13.6
05-Aug	84	65	12	5	82	97.6	14.6
06-Aug	84	66	5	3	74	88.1	6.8

07-Aug	84	95	11	1	107	127.4	10.3
08-Aug	72	11	6		17	23.6	35.3
09-Aug	84	67	5	4	76	90.5	6.6
10-Aug	84	34	6		40	47.6	15.0
11-Aug	70.5	80	6	2	88	124.8	6.8
12-Aug	84	45	7		52	61.9	13.5
13-Aug	84	14	1	1	16	19.0	6.3
14-Aug	84	39	5		44	52.4	11.4
15-Aug	84	12	1		13	15.5	7.7
16-Aug	79	35	4	1	40	50.6	10.0
17-Aug	84	12	1		13	15.5	7.7
18-Aug	84	36	5	1	42	50.0	11.9
19-Aug	83.65	9			9	10.8	0.0
20-Aug	77	14			14	18.2	0.0
21-Aug	77	6	1		7	9.1	14.3
22-Aug	84	35		2	37	44.0	0.0
23-Aug	84	12	2		14	16.7	14.3
24-Aug	78	9			9	11.5	0.0
25-Aug	84	8	1		9	10.7	11.1
26-Aug	35.05	5	1		6	17.1	16.7
27-Aug	9.33	1			1	10.7	0.0
28-Aug	80.35	22	1		23	28.6	4.3
29-Aug	66	60	3	2	65	98.5	4.6
30-Aug	74.05	20	3	1	24	32.4	12.5
31-Aug	84	13	1	1	15	17.9	6.7
01-Sep	82	27	2	1	30	36.6	6.7
02-Sep	60	7			7	11.7	0.0
03-Sep	84	34	2	1	37	44.0	5.4
04-Sep	84	24	3		27	32.1	11.1
05-Sep	84	41		1	42	50.0	0.0
06-Sep	84	22			22	26.2	0.0
07-Sep	84	69		2	71	84.5	0.0
08-Sep	84	41			41	48.8	0.0
09-Sep	76	23	1		24	31.6	4.2
10-Sep	81.08	41	1	2	44	54.3	2.3
11-Sep	72.9	15	1	1	17	23.3	5.9
12-Sep	27	16	4		20	74.1	20.0
13-Sep	82	7	1		8	9.8	12.5
14-Sep	78.17	25	2		27	34.5	7.4
15-Sep	84	2			2	2.4	0.0
16-Sep	84	14	3	1	18	21.4	16.7
17-Sep	78	5		1	6	7.7	0.0
18-Sep	70	6	1		7	10.0	14.3
19-Sep	68.18	5	3		8	11.7	37.5
20-Sep	84	20	2	1	23	27.4	8.7
21-Sep	84	42	5		47	56.0	10.6
22-Sep	84	19	3	1	23	27.4	13.0
23-Sep	0				0	N/A	0

24-Sep	77.33	40	3	2	45	58.2	6.7
25-Sep	84	15	3	2	20	23.8	15.0
26-Sep	37.43	76	5	4	85	227.1	5.9
27-Sep	84	36	5	1	42	50.0	11.9
28-Sep	84	23	4		27	32.1	14.8
29-Sep	78	16	2		18	23.1	11.1
30-Sep	15	1			1	6.7	0.0
01-Oct	48	13	1		14	29.2	7.1
02-Oct	59	18	1		19	32.2	5.3
03-Oct	0				0	N/A	0
04-Oct	10	5	3		8	80.0	37.5
05-Oct	51	24	4		28	54.9	14.3
06-Oct	18.67	2			2	10.7	0.0
Totals	6660.12	2671	322	78	3071	46.1	10.5

## MAPS

The Monitoring Avian Productivity and Survivorship (MAPS) program at LSLBO was continued in 2000. The Roadside and Far Away stations which have been in operation since 1994 were run again but the Fern Gulley site was dropped. It was deemed redundant, being too close and overlapping with the other stations. In its place a new station, Residence (RESI)--located about three kilometres south of the banding station-- was adopted in 2000. This site was quite productive with the highest capture rates of the three stations. Captures in 2000 and previous years are listed in the tables below. A much more detailed MAPS report has been prepared separately and can be obtained through our web site or by writing to LSLBO and requesting a copy.

**Table 3. Captures at the Far Away (FAWA) MAPS station.**

Species	2000 Captures			Previous Years Total Captures					
	Banded	Recap d	Unbanded	94	95	96	97	98	99
Downy Woodpecker			1 <sup>1</sup>						
Least Flycatcher				3	1				
Swainson's Thrush	1				4	1		1	
American Robin				3	1	1			1
Cedar Waxwing				1					
Phialdephia Vireo								1	
Red-eyed Vireo				2	2				
Tennessee Warbler					1		1		
Yellow-warbler				2			1		
Chestnut-sided Warbler				1					
Magnolia Warbler									1
Yellow-rumped Warbler	3			1			5	3	

Black-and-white Warbler									1
American Redstart	5	3 <sup>2</sup>		18	10		2	4	2
Ovenbird	3	2 <sup>3</sup>		1	1	1	10	1	4
Connecticut Warbler									1
Mourning Warbler	2	2 <sup>4</sup>		11	19	1	3	7	9
Common Yellowthroat					1				1
Canada Warbler	6	4 <sup>5</sup>		4	12	2	8	13	15
Western Tanager								1	
Rose-breasted Grosbeak	1								
White-throated Sparrow	6	3	1	16	26	12	10	8	10
<b>Total</b>	<b>27</b>	<b>15</b>	<b>1</b>	<b>63</b>	<b>78</b>	<b>18</b>	<b>40</b>	<b>39</b>	<b>45</b>

<sup>1</sup>- Banded at the migration monitoring station in Sep 1999

<sup>2</sup>- One AMRE banded at the migration monitoring station in Jul 1999

<sup>3</sup>- One OVEN banded at FAWA in Jul 1999

<sup>4</sup>- Banded at FAWA in Jul 1999

<sup>5</sup>- One banded at FEGU in Jun 1999, One banded at FAWA in 1995

**Table 4. Captures at the Road Side (ROAD) MAPS station.**

Species	2000 Captures			Previous Years Total Captures					
	Banded	Recap d	Unbanded	94	95	96	97	98	99
Ruffed-Grouse								2	
Yellow-bellied Sapsucker				1	3	2			
Yellow-bellied Flycatcher				1					
Alder Flycatcher				1		3		1	
Least Flycatcher				4				3	
Black-capped Chickadee				1					1
Red-breasted Nuthatch								1	
Winter Wren		1 <sup>1</sup>			1				
Swainson's Thrush	5	6 <sup>2</sup>	1	11	3	1	2	11	8
American Robin					1			1	
Cedar Waxwing				2				1	
Warbling Vireo								1	
Red-eyed Vireo				1	1				
Tennessee Warbler				22	2		2	10	5
Orange-crowned Warbler				1					
Yellow Warbler				6					
Chestnut-sided Warbler				4					
Magnolia Warbler	2	8 <sup>3</sup>		11	6	4	11	10	24
Cape May Warbler								2	
Yellow-rumped Warbler		1 <sup>4</sup>		16	5	4	1	22	2
Black-throated Green Warbler	1					1		4	
Palm Warbler				1					

Blackpoll Warbler								2	
Black-and-white Warbler	1	2 <sup>5</sup>		9			2	3	1
American Redstart	4	4		37	22	12	13	21	15
Ovenbird	5	3 <sup>6</sup>		6	1		3	22	9
Northern Waterthrush						1			
Mourning Warbler				5	2	1	5		2
Common Yellowthroat								2	
Canada Warbler	7	6 <sup>7</sup>		32	19	8	20	13	12
Western Tanager				1	1			1	
Rose-breasted Grosbeak				1				3	
Chipping Sparrow				2				4	1
Song Sparrow				2					
Lincoln's Sparrow						1			
White-throated Sparrow		3 <sup>8</sup>		22	16	9	18	16	5
Purple Finch								1	
Pine Siskin								1	
Total	25	34	1	200	83	47	77	158	85

<sup>1</sup>- Banded on the Canopy Project site in 2000

<sup>2</sup>- One thrush banded at FEGU in 1998

<sup>3</sup>- One MAWA banded at FEGU in 1999, 2 banded at migration monitoring station in 1999

<sup>4</sup>- Banded at migration monitoring station in May 1999

<sup>5</sup>- One banded at migration monitoring station in 1999

<sup>6</sup>- One OVEN banded at migration monitoring station in 1999, one banded at ROAD in 1999

<sup>7</sup>- One CAWA banded at migration monitoring station in 1999, one banded at ROAD in 1999

<sup>8</sup>- One WTSP banded at ROAD station in 1999

**Table 5. MAPS captures at Residence (RESI) station in 2000.**

Species	2000 Captures			Total
	Banded	Recaptured	Unbanded	
Sharp-shinned Hawk	1			1
Yellow-bellied Sapsucker	2			2
Western Wood-Pewee	1			1
Least Flycatcher	11			11
Black-capped Chickadee	1			1
Swainson's Thrush	6	2		8
Hermit Thrush	4			4
American Robin	2			2
Tennessee Warbler	8	1		9
Yellow Warbler	3	1		4
Magnolia Warbler	5	2		7
Yellow-rumped Warbler	6	1		7
Black-throated Green Warbler	1			1
Bay-breasted Warbler	2			2

Black-and-white Warbler	2	1		3
American Redstart	10			10
Ovenbird	3	2 <sup>1</sup>		5
Mourning Warbler	3	1		4
Canada Warbler	3			3
Western Tanager	1			1
Rose-breasted Grosbeak	1			1
Chipping Sparrow	2			2
Lincoln's Sparrow	1			1
White-throated Sparrow	11		3	14
Pine Siskin	1			1
<b>Total</b>	<b>91</b>	<b>11</b>	<b>3</b>	<b>105</b>

<sup>1</sup> - This bird was originally banded at the migration monitoring on Aug 8 1999.

## COVERAGE

Field coverage in 2000 was the best ever at LSLBO. The total number of days of coverage in both spring (57) and fall (91) were higher due to earlier spring and later fall dates of operation. Only one day received no coverage. This occurred on Sep 23 and was due to the unavailability of a qualified bander-in-charge. Along with the increase in days of migration monitoring, a greater effort was spent on improving the effort on components of the Daily Estimated Totals, in particular standardized banding, census, and visible migration watches (Tables 6 & 7). Changes to protocol, included the extension of the standard 6-hour banding period to 7 hours which had a potentially significant effect on the netting and banding effort. The change had little effect on the spring average daily net-hours of 62 (61.2 for 1994 - 99). Fewer than 40% of the days in spring had more than 76 net-hours (the previous standard of 12 nets operating for 6 hours). Several days of poor weather or heavy bird volume accounted for the lower than expected netting effort. However, the fall average daily net-hours jumped considerably to 74 (48.7 for 1994 - 99). Nearly 70% of the fall days had more than 76 net-hours. This was largely due to steady weather and lower bird numbers.

A greater emphasis was placed on conducting the census daily and as a result it was missed on only one day in which there was coverage. Similarly, Vis-Migs were conducted with greater regularity and frequency in 2000 with nearly 8 Vis-Migs done on a daily basis. It should be pointed out that prior to fall 1999, visible migration watches were 10 minutes long and since then were reduced to 5 minutes.

A total of 334 person-days were accumulated during the migration monitoring and MAPS seasons. The majority of volunteer-days were accrued in the fall with few volunteers present during the busiest part of the spring, which was unfortunately also the busiest part of the year. The assistance from volunteers made a tremendous difference in the quality of coverage in 2000 and their dedication was greatly appreciated. A heart felt thank-you is extended to all the volunteers listed below (Table 8).

**Table 6. Summary of effort during spring migration monitoring at LSLBO, 1994 - 2000.**

<b>SPRING</b>	1994	1995	1996	1997	1998	1999	2000
<b>Daily Estimated Totals</b>							
First day	15-May	28-Apr	04-May	30-Apr	04-May	26-Apr	18-Apr
Last day	09-Jun	09-Jun	07-Jun	17-Jun	09-Jun	12-Jun	13-Jun
Number of days	19	39	28	37	36	46	57
Number of person-days	40	92	62	67	72	N/A	126
<b>Banding<sup>1</sup></b>							
First day	22-May	30-Apr	06-May	01-May	04-May	29-Apr	20-Apr
Last day	08-Jun	09-Jun	07-Jun	17-Jun	09-Jun	12-Jun	13-Jun
Number of days	15	35	25	34	36	42	52
Average daily net-hours	37.2	65.5	62.1	58.6	74.5	69.1	62
<b>Census</b>							
First day	17-May	29-Apr	04-May	30-Apr	04-May	27-Apr	18-Apr
Last day	09-Jun	09-Jun	07-Jun	14-Jun	09-Jun	12-Jun	13-Jun
Number of days	13	35	27	34	32	34	55
<b>Vis-Migs<sup>2</sup></b>							
First day		04-May	06-May	30-Apr	05-May	27-Apr	18-Apr
Last day		08-Jun	07-Jun	14-Jun	21-May	25-May	13-Jun
Number of days		22	26	33	8	16	57
Average daily # Vis-Migs		2.8	3.7	4.5	3.8	N/A	8.2

<sup>1</sup> - Protocol changes in 2000 included increasing the six-hour standard banding period to seven hours

<sup>2</sup> - Starting in fall 1999 Vis-Migs were reduced from 10 minutes to five minutes

**Table 7. Summary of effort during fall migration monitoring at LSLBO, 1994 - 2000.**

<b>FALL</b>	1994	1995	1996	1997	1998	1999	2000
<b>Daily Estimated Totals</b>							
First day	27-Jul	17-Jul	27-Jul	05-Aug	14-Jul	10-Jul	07-Jul
Last day	11-Sep	24-Sep	29-Sep	26-Sep	24-Sep	25-Sep	06-Oct
Number of days	31	51	41	35	66	78	91
Number of person-days	62	116	76	45	126	N/A	207
<b>Banding<sup>1</sup></b>							
First day	27-Jul	17-Jul	27-Jul	06-Aug	14-Jul	10-Jul	07-Jul
Last day	11-Sep	24-Sep	29-Sep	26-Sep	24-Sep	25-Sep	06-Oct
Number of days	30	50	35	33	62	76	89
Average daily net-hours	35.7	50.5	40.1	60.9	48.5	56.7	74
<b>Census</b>							

First day	02-Aug	17-Jul	27-Jul	06-Aug	19-Jul	10-Jul	07-Jul
Last day	11-Sep	23-Sep	29-Sep	03-Sep	24-Aug	08-Aug	06-Oct
Number of days	18	43	39	8	10	15	90
<b>Vis-Mig<sup>2</sup></b>							
First day	16-Aug	28-Jul	30-Jul	06-Aug	25-Jul	13-Jul	07-Jul
Last day	28-Aug	31-Aug	29-Sep	26-Sep	02-Sep	25-Sep	06-Oct
Number of days	8	18	28	29	20	43	91
Average # daily Vis-Migs	N/A	2.7	3.3	1.7	2.8	3.9	7.7

<sup>1</sup> - Protocol changes in 2000 included increasing the six-hour standard banding period to seven hours

<sup>2</sup> - Starting in fall 1999 Vis-Migs were reduced from 10 minutes to five minutes

**Table 8. Person-days contributed to 2000 field operations at LSLBO.**

<b>Personnel</b>	<b>Spring Mig Mon</b>	<b>Fall Mig Mon</b>	<b>MAPS</b>	<b>Total</b>
<b>Staff</b>				
Jul Wojnowski	35	78	5	118
Carl Savignac	39	51	15	105
Mireille Lépine	20	20	12	52
Honey Pell		13		13
Michelle MacLean	3			3
Terri McKinnon	2			2
<b>Staff-days</b>	<b>99</b>	<b>162</b>		<b>261</b>
<b>Volunteers</b>				
Debra Belmonte		4		4
Wayne Bowles	2			2
Hanneke Brooymans	2	3		5
Jonathan DeMoore	17			17
Rainer Ebel	1			1
Mark Gardiner		15		15
Stefan Jungkind	1	4	1	6
Janos Kovacs		2		2
Stephen Lane		7		7
Steve Lane	2	2		4
Jim Lange		3		3
Aaron Lehman	3			3



Patricia Mitchell		5	5
<b>Volunteer-days</b>	<b>28</b>	<b>45</b>	<b>73</b>

## RECAPTURES

In total, there were 476 retrap records from the 2000 Migration Monitoring and MAPS seasons. The vast majority of these were repeats (birds caught during the same season of banding). Fifty-eight birds were captured in 2000 which had been banded in previous years. Of these, 43 were banded in 1999. The following recoveries were of birds banded prior to 1999, as well as foreign and other interesting recoveries.

**Alder Flycatcher** 1990-60111 Banded at the migration monitoring station on July 27 1996. Recaptured 3 times in 1997, once in 1998, 3 times in 1999. Recaptured in 2000 on June 11 and July 9. At least 6 years old.

**Black-capped Chickadee** 2160-63552 Banded at the migration monitoring station on July 30 1998. Recaptured on May 3 1999 and April 20 and May 17 2000. At least 2 years old.

... 2031-61702 Banded at the migration monitoring station on Aug 23 1997. Recaptured 4 times in 1998, once in 1999 and on May 12 2000. Three years old.

**Winter Wren** 2110-13026 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on July 15 and at the ROAD MAPS station on July 25.

**Swainson s Thrush** 1451-87937 Banded at the FEGU MAPS station on June 26 1998. Recaptured at ROAD on July 4 1999, at the migration monitoring station on May 23 2000 and at ROAD on July 7 2000. At least 4 years old.

... 1451-90683 Banded at the migration monitoring station on July 27 1998. Recaptured there on July 16 2000. Two years old.

... 1591-96023 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on July 7 2000.

**Red-eyed Vireo** 2191-44381 Banded at FEGU on June 12 1998. Recaptured at the migration monitoring station on Aug 11 2000. At least 4 years old.

... 1551-49015 Banded at the Canopy Project site in 2000. Original data unavailable.

Recaptured at the migration monitoring station on July 16 2000.

**Magnolia Warbler** 2100-08004 Banded at the migration monitoring site on May 19 1998. Recaptured 5 times in 1999 and 5 times in 2000 including twice at ROAD. At least 4 years old.

**Myrtle Warbler** 2120-51721 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on July 23 2000.

... 2120-51740 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on July 13 2000.

... 2120-51745 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on July 13 2000.

... 2120-51771 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on Aug 2 2000.

... 2120-51794 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on Aug 4 2000.

**American Redstart** 1990-46844 Banded at the migration monitoring station on July 18 1995. Recaptured there on Jun 7 '96, Jul 19 1998 and Jul 14 2000. Six years old.

... 1990-47321 Banded at the migration monitoring station on Aug 10 1995. Recaptured there on Jul 23 2000. Five years old.

... 2100-07502 Banded at FEGU on Jun 12 1998. Recaptured at the migration monitoring site on May 26 2000. At least 3 years old.

... 2100-07557 Banded at ROAD on Jul 24 1998. Recaptured at the migration monitoring station on Aug 5 2000. At least 3 years old.

... 2100-08146 Banded at the migration monitoring station on May 31 1998. Recaptured at the migration monitoring station on May 28 2000. Three years old.

... 2110-13027 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on Aug 21 2000.

**Ovenbird** 2151-45482 Banded at FAWA on Jul 7 1997. Recaptured twice in 1998 at FAWA and FEGU, once on Jun 18 1999 at FAWA, and on Jun 26 & Jul 3 2000 at FAWA. At least 4 years old.

... 2191-44385 Banded at ROAD on June 27 1998. Recaptured at the migration monitoring

site on Jul 19 1998. At least 4 years old.

... 1551-49012 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on Jul 15,17 & 20 2000.

... 1551-49017 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on Jul 31 & Aug 1 2000.

... 1551 49053 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on Aug 26 & 29 2000.

... 1551-49077 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on Jul 25 2000.

... 1671-46120 Banded at the migration monitoring station on Aug 8 1999. Recaptured on Jun 18 & Jul 4 at a new MAPS station, RESI --approximately 3 km south of the migration monitoring station.

**Mourning Warbler** 2120-51759 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on Jul 23 2000.

**Common Yellowthroat** 2120-51758 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on Jul 24 2000.

**Canada Warbler** 2100-07532 Banded at FEGU on Jul 2 1998. Recaptured at the migration monitoring station on Jul 17 2000.

... 2110-13045 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on Aug 3 2000.

... 2110-13090 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on Aug 12 2000.

**Western Tanager** 1591-96038 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on Aug 8 2000.

**White-throated Sparrow** 1591-96007 Banded at the Canopy Project site in 2000. Original data unavailable. Recaptured at the migration monitoring station on Jun 13 2000.

## OTHER PROJECTS UNDERTAKEN IN 2000

### *Moult Study*

In 2000, LSLBO participated in a moult study designed by Dr. David Hussell of Kanata, Ontario. The purpose of the study is to document the timing and feather replacement patterns in warblers. Although not a CMMN or CMMN-supported project, several CMMN stations have joined in the project. Dr. Hussell provided participants with a protocol and data forms. The data forms were used to record moult information on species other than warblers as well. A total of 68 moult records were collected from July 25 through September 21.

**Table 9. Moult data collection at LSLBO in 2000.**

Species	Number of Birds	Dates
American Redstart	28	Jul 25 - Sep 21
Yellow Warbler	4	Jul 27 - Aug 28
Tennessee Warbler	4	Aug 12 - Aug 20
Black-and-white Warbler	3	Jul 25 - Aug 12
Yellow-rumped Warbler	3	Sep 6 - Sep 21
Canada Warbler	2	Aug 9 - Aug 12
Magnolia Warbler	2	Jul 29 - Aug 28
Alder Flycatcher	1	Jul 26
Least Flycatcher	1	Jul 26 - Aug 1
Bay-breasted Warbler	1	Aug 7
Common Yellowthroat	1	Aug 2 - Aug 7
Chipping Sparrow	1	Aug 1

### *Nest Searches*

Considerable time was spent during the summer months looking for nests both on the MAPS sites and elsewhere in the Provincial Park. Forty-one nest of 17 species were found, including Bay-breasted Warbler (4) and Black-throated Green Warbler (1), both listed as vulnerable in Alberta. Nest data will be submitted to the Provincial Museum.

**Table 10. Results of nest searches at Lesser Slave Lake Provincial Park in 2000.**

Species	Number of Nests	Dominant nest substrate and	Mean nest height	Mean Nest- tree height
---------	-----------------	--------------------------------	---------------------	---------------------------

		(%) occurrence	(M)	(M)
American Redstart	9	Willow (100)	3	8
Least Flycatcher	7	Aspen (72)	2.4	8.4
Bay-breasted Warbler	4	White Spruce (100)	10.3	19.3
Yellow-bellied Sapsucker	4	Aspen (100)	6.8	17.5
Eastern Phoebe	4	Buildings (100)	5.3	-
Black-throated Green Warbler	1	White Spruce (100)	8	15
American Robin	1	Willow (100)	2	4
Blue-headed Vireo	1	White Birch (100)	5.5	10
Cedar Waxwing	1	Willow (100)	2.3	6
Chipping Sparrow	1	White Spruce (100)	12	26
Downy Woodpecker	1	Aspen (100)	4	22
Rose-breasted Grosbeak	1	White Spruce (100)	2.5	3.3
Ruby-crowned Kinglet	1	White Spruce (100)	20	26
Swainson s Thrush	1	White Spruce (100)	4.5	16
Warbling Vireo	1	White Birch (100)	2	3
Western Tanager	1	White Spruce (100)	12	24
White-throated Sparrow	1	Ground	-	-
Red-breasted Nuthatch	1	Aspen (100)	8	8
TOTAL	41			

### ***Web site***

LSLBO has invested considerable resources in updating and improving its web site ([www.lslbo.org](http://www.lslbo.org)) in 2000. Since May, nearly 1300 visits to the site have been made from people in over 30 countries. New updates to the site include a page with banding totals and a sightings board, which was implemented in late fall, summarized the migration activity at LSLBO on a weekly basis. This page should be updated twice weekly during the spring season and at least weekly for the fall season. Similar pages have been set up for other stations and have proven very popular in the birding community, generating a lot of hits for the web site.

### ***Protocol Video***

Over the years, there has been a steady turnover in field staff at LSLBO with a new Bander-In-Charge almost every year. This has at times lead to some confusion on methodology at the station. A protocol revision in 2000 was made in order to clarify current migration monitoring field procedures at LSLBO. In conjunction with this protocol revision, production of a video, for use as a visual aid began in 2000. This video should be completed in 2001 and will illustrate all aspects of the field operations from how to open and set mist-nets, recording of banding data and where, when and how the census and visible migration watches are conducted. It will be an invaluable aid for new BICs, assistants and volunteers.

## VISITORS

Nearly 1000 visitors came to the field station in 2000, most of which received a banding demonstration. This is the highest number of visitors to the station recorded since 1994 and would no doubt have been considerably higher if not for the poor weather recorded throughout most of the spring and early fall. About 260 people visited the station during the Songbird Festival (June 3) and Park Hike Day (July 15). Several of the groups included and school classes and organised tours.

**Table 11. Number of visitors to the LSLBO banding station in 2000.**

Season	Adults	Children	Age not recorded	# of groups	Total Visitors
Spring (Apr 18 - Jun 13)	110	102	280	5	392
Fall (Jul 7 - Oct 6)	347	130	58	8	535
<b>Total</b>	<b>457</b>	<b>232</b>	<b>338</b>	<b>13</b>	<b>927</b>

## RECOMMENDATIONS FOR THE FUTURE

### *Migration Monitoring Seasonal Coverage*

Beginning the spring migration monitoring coverage on the April 18<sup>th</sup> in 2000 allowed the observatory to better document migration of traditionally early arriving species such as American Tree Sparrows, Dark-eyed Juncos and American Robins as well as several waterfowl and raptor species. Migration of these species has not been well covered in the past and therefore it is recommended that spring coverage begin around April 15<sup>th</sup> in the future.

Conversely, banding, census, and Vis-Mig data suggests that fall 2000 migration monitoring coverage started a bit too early. It was the earliest fall start ever at LSLBO, four days ahead of the previous year. Little migration activity was noted for the first week or so in July. It is recommended that fall migration monitoring not commence until mid-July, when true migration would be commencing. The extra time could be used for other projects such as bander training workshops or the writing of reports.

### *Increasing volunteer support*

Volunteer help in 2000 was greatly appreciated by on site staff and helped provide very good coverage, however, this help was at times sporadic. A greater effort should be made during the winter months to secure quality volunteers for the 2001 field season. Advertising at Canadian universities and placing a notice online through our web site and others such as the Ornithological Newsletter of North America will bring applications from across North America. The board will have to determine what number of volunteers to seek during the field seasons. Two volunteers during the peak seasons (May 15 - early June and July 20 - Aug 15) and one volunteer during other times should be adequate. Other issues for the board will be securing funds to provide food and accommodation for volunteers.

### ***Northern Saw-whet Owl migration monitoring***

Owl banding was attempted on three nights in late September (21, 22, & 23) . Up to 6 of the standard mist nets were open just after dusk for about two to three hours. A portable stereo broadcasting the typical call of the Northern Saw-whet Owl was placed near an opened net. A total of 4 birds were caught, all were young of the year. Despite this small effort, the results were nonetheless encouraging and suggests that a possible migratory corridor exists at LSLBO. A large network of owl banding stations exists in the east but none currently exists in the west. Several stations in the west including Delta Marsh Bird Observatory, Inglewood Bird Sanctuary, and Beaverhill Bird Observatory have done some owl banding in 2000 with moderate to good success. Nearly 250 saw-whets were banded at Delta Marsh, a site that has some similarities to the LSLBO station, being located along the shoreline of a large lake. As Canada's northern most bird observatory. LSLBO can play an active role in the addition to the knowledge of owl migration in the boreal forest. With a modest investment for nets and proper broadcasting equipment, 2001 could be a pilot year to establish a protocol for an owl migration monitoring program.

### ***Wing Photo-catalogue***

The use of Pyle's *Identification Guide to North American Birds* (1997) as the standard ageing and sexing key is widespread yet still relatively new to bird banders, as are some of the criteria frequently referred to within the volume. It is an extremely useful book however, it does suffer from the lack of photographs, making it difficult to understand at times, especially for new banders. The substantial number of returns (birds banded at the observatory in previous years 58 in 2000) provides the observatory with an excellent opportunity to create an electronic catalogue of wing photographs illustrating key aging features such as moult limits and relative age and wear of feathers from known-aged birds. LSLBO already has most of the technical equipment in its possession including an excellent camera and macro lens, as well as a scanner. A page dedicated to the photo catalogue on the LSLBO website would be extremely useful and popular with banders across North America. The opportunity would also be available for LSLBO to take a leading role in developing this as a CMMN or CMMN-supported project.

## ***Habitat Maintenance***

It is quite obvious that the habitat around the observatory field station has changed considerably since 1994 when operations began at the site. The habitat in which most of the nets are located is dominated by fast-growing Willow (*Salix* sp.) and Alder (*Alnus* sp.) shrubs along with young Trembling Aspen (*Populus tremuloides*). The vegetation is now 1 - 2 metres higher than the nets, in some places higher. If left unchecked this could result in lower catch rates as birds will be flying over the nets. Permission should be sought from the park to do some trimming of vegetation in the netting area.

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## APPENDIX I. LSLBO Migration Monitoring Field Protocol

### MIGRATION MONITORING METHODS

#### 1. *Count Area*

A map of the site is shown in Figure 1. The boundary of the Count Area is shown by a broken line. Any birds seen or heard by observers who are within the count area during the count period (see below) may be included in observations contributing to the daily total (DT), regardless of whether or not the birds themselves are within the Count Area. All birds on or over the lake, seen by naked or aided eye, are countable if the observer is within the boundaries of the count area.

#### 2. *Count Period*

Approximate dates for seasonal migration monitoring coverage are April 15 - June 15 and July 8 - October 7 for spring and fall respectively. The Count Period for the daily total starts a half hour before sunrise, but no earlier than 4:00 a.m., and ends at 2:00 p.m. All times are taken as daylight savings time. Time periods for conducting the census, visible migration counts, netting and banding are specified in the sections describing those activities.

#### 3. *Census*

A daily census should be conducted each morning during the first two hours after sunrise and no later than 8:00 a.m., unless there is inclement weather. In this case, the census start can be delayed until 9:00 a.m., at which point it should be done regardless of conditions. The census route is about 700 m along the Freighter Lakeshore Trail, from the turnoff to the Far Away (FAWA) MAPS site to the T junction at the turnoff from the Lily Creek road to the oil well (figure 1). The census start and end points are dependent on the season. In spring, the census route is to be walked from northwest to southeast and during the fall, from southeast to northwest. Five minutes should be spent counting and recording all birds at each of three spots: the start and end points, and at the picnic table set along the Trail in front of the Fraser House. The distance between these points should be walked at a slow steady pace with occasional brief stops to look and listen for birds. All birds seen or heard along the census route should be recorded. The census should be completed in 30 minutes give or take 10 minutes, but should not take more than 40 minutes. The use of a spotting scope during the census is permitted, but should be restricted to viewing the lake from the area in front of the Fraser House.

Census results are to be entered into the *Cen.* column of the daily log. Probable or known stopovers (see below section) encountered on the census should be recorded as such in the *PKS* column of the daily log associated with the census. The census is an important component of the station's activities and should be conducted daily. However, it may be omitted occasionally if staffing is insufficient during very busy days.

##### 3.1 *Census Coverage Code*

A coverage code of 1 is given in the census coverage code box if a census was conducted, if not the code is 0.

#### 4. *Visible Migration Watch*

A 5-minute visible migration ( Vis Mig ) watch is to be conducted during each hour block of the count period. Presently, the Vis Migs are done at the T junction (see Figure 1). The watch can be done anytime during each hour block but consecutive Vis Migs should be at least 30 minutes apart. The first Vis Mig should be done just after net opening if only 1 person is staffing the station. If two or more people are present, or weather does not allow for net opening, it can be started upon arrival at the site (i.e. roughly ½ an hour before sunrise). A minimum of 7 hourly Vis Migs should be conducted between the hours of 4:00 and 14:00. but preferred coverage should include 8 -10 hourly Vis Migs depending on sunrise times. Only birds deemed to be visibly migrating, that is to say flying through the area without stopping or pausing only briefly and not significantly changing course should be recorded for the watch. Birds seen during the watch which are not deemed to be visibly migrating can be recorded as casual observations. Judgement is required to avoid double or multiple counts of flocks or individuals milling around the area. The observer should always be one of the most highly skilled birders present at the station (preferably a code 1 observer). Observers may take turns conducting vis migs throughout the period or one observer can be designated as the official observer and recorder each day.

The number of birds of each species in each hour block should be recorded on the Visible Migration Data Sheet. Combined totals for each species are then entered into the Vis. column of the Daily Log.

##### 4.1 *Visible Migration Watch Coverage Code*

The coverage code for the Visible Migration Watches is dependent on the number conducted and rated in tenths. For example, a day with 8 watches conducted during the count period would earn a 0.8 for the Vis Mig coverage code.

#### 5. *Netting and Banding*

One experienced person (generally the most experienced staff member on site) shall be designated as the bander-in-charge (BIC) at all times. The BIC is responsible for ensuring that netting and banding is conducted safely and in accordance with this protocol. The standard banding period extends for 7 hours, starting ½ hour before sunrise to 6½ hours after sunrise. Opening and closing of nets will always be at the discretion of the BIC. Such discretion will be exercised with regard to weather conditions and/or excessive numbers of birds. Nets which are "blown out" during windy conditions are to be closed. Ideally, all nets should be opened during the 7-hour period. However, at times this may not be possible. During the peak of migration in spring (2<sup>nd</sup> half of May) and fall (last week of July - 1<sup>st</sup> half of August), caution should be exercised when first opening nets, especially if only one or two people are staffing the station. It is very easy to become quickly overwhelmed with the numbers of birds in the nets and the potential risks to bird safety may be high. For this reason, it is recommended that only one group of three nets should be opened a half hour before sunrise during these periods.

This will allow personnel to gauge activity levels and conditions before the remaining nets are opened. The three nets will have priority over other nets and should remain open for the entire 7 hours if weather conditions permit. If conditions allow for more than the grouped three nets to be opened, the next group of three nets can be opened, and so on until all of the nets are opened. If netting needs to be scaled back due to a large backlog of unprocessed birds or too many birds are hitting the nets, the nets should be closed in reverse order of opening so that the original three nets are the last to be closed.

The net grouping is as follows:

Group 1: 1,2 & 11

Group 2: 7,8 & 6

Group 3: 9,10 & 5

Group 4: 3,4 & 12

During the busy periods of the season, the groups of nets to be opened first should be rotated daily with the goal being each net is opened for a similar duration weekly.

If only one person is present and there is a lot of bird activity in the area, nets should be closed during the census. However, if activity is low, nets need not be closed during the census provided it can be completed in about a half hour. If more than one staff person is present, the census should not affect banding operations unless it is extremely busy. Closing some or all of the nets under these conditions is recommended.

If netting time was lost during the standard period, and conditions permit, nets should stay open to make up some or all of the time lost until no later than 2:00 p.m. Extra mist-netting after the normal closure time may be done at the discretion of the BIC. Banding beyond 2:00 p.m. may be done for banding demonstrations or to provide useful training time for new volunteers in a less stressful setting. However, **none** of the twelve standard nets (figure 1) should be used for banding after 2:00 p.m. or outside the migration monitoring season. The use of additional nets during the standard banding period is permissible, but only if all of standard nets are running (weather permitting). **Please Note: The use of extra nets will not impede or take precedence over use of any standard nets.**

Twelve 1¼" (3 cm) mesh tethered mist-nets shall be operated at standard locations (Fig. 1). Nets should be 2.75 m (9 ft) high on 3 m (10 ft) high poles. Mesh should be 75d/2 ply.

### *5.1 Netting Coverage Code*

The coverage code for mist-netting is the actual number of net-hours/84. To determine net-hours, a 12M 4-panel net in operation for 1 hour = 1 standard net-hour. All standard nets in use at LSLBO are 12M 4-panel nets. The standard set up, operated for 7 hours, accumulates 84 net-hours and has a coverage of 1.

#### *5.2.1 Recording captures*

With the exception of birds caught in nets other than the 12 standard nets, all new bandings are to be listed in the Band column of the daily log for each species. Retraps--birds which are already banded--are divided into two categories: Repeats-- birds banded at the station earlier in the same season; and other retraps which may include Returns-- birds that were banded at the station in previous seasons or Foreign Recoveries--birds originally banded elsewhere. These birds should be entered in the Rep or Oth. Ret. columns respectively. Since repeats can be resident birds or migrants stopping over, they are treated as Probable or Known Stopovers (PKS) and can be entered in the PKS column in the captures category of the daily log. For more discussion on PKS birds see below sections. Occasionally, birds caught in the nets will not be brought into the lab for processing. This may include: birds unintentionally released at the net (i.e. birds escaping before, during or after extraction but not birds escaping without human assistance), and intentionally released birds such as hummingbirds (bands not available), heavily stressed birds due to a particularly difficult extraction, or a large volume of birds in nets which cannot be safely brought in for processing in a timely manner, and dead birds found unbanded. All the above birds are recorded as Unbanded in the banding data sheets. Species, date, net lane, and time are the minimum data to be recorded. The unbanded birds are to be entered in the Other Capture Oth. Cap. column of the daily log. The total number of birds caught for each species, which includes bandings, repeats, returns and recoveries and other captures are entered in the Total Captures Tot. Cap column of the daily log.

### 5.2.2 *Data collected from captured birds*

There are several levels of priority for collecting data from captured birds. They are listed as follows:

1) For any captured bird (whether it is newly banded, retrapped or left unbanded) the following information must be recorded:

- a) date
- b) species
- c) time of capture
- d) net lane #

2) Any bird brought into the lab for processing (new bandings or retraps) must have the following recorded in addition to the above:

- e) full band number
- f) age
- g) how aged
- h) sex
- i) how sexed
- j) initials of the person processing the bird

3) During normal operations, the following additional data are to be collected from banded (and retrapped) birds:

- k) wing chord length
- l) tail length
- m) flight feather wear (separate column for primaries and rectrices)
- n) CP/BP (separate column for each)
- o) fat
- p) Skull ossification - where time permits, it is desirable to attempt skulling on all birds captured, but at least skulling should be attempted on all birds where it is crucial for age determination or corroboration).
- q) weight
- r) any additional information that is used for species, age or sex determination (e.g. wing formula, bill length, length of crown patch, etc.) or comments on the bird's condition, unusual characteristics, can be put in the additional comments field

4) Where time permits please also attempt the following:

- s) record of moult in progress (using moult cards or the moult form on the data managing program)
- t) for unusual species or plumages, photos should be taken (and indication of that should be recorded on the banding form (whether on paper or data file)

## 6. *Other Observations*

Other observations include birds seen incidentally to the banding and other standardized counts during the count period (i.e. not before 4:00 a.m. and not after 2:00 p.m.). They can include birds seen on net rounds, and birds seen during Vis Migs which were not deemed to be visibly migrating, as well as casual observations in the area throughout the period. These observations should be entered in the Oth. Obs. column of the daily log regardless of if there is known double counting (i.e. the calling loon on the lake heard before census should still be recorded as an other observation even if the observer knows the census taker has recorded the same bird.

### 6.1 *Observer Hours & Codes*

Each observer present at the station and contributing to the compilation of daily totals needs to record their hours spent in the count area recording birds during the count period (to a maximum of 10 hours). Time spent off-site or in the banding lab should not be included.

Each observer will be assigned an observer code by the BIC, according to their level of field identification skills. The codes are as follows:

- 1 - able to identify >75% of birds routinely encountered in the area
- 2 - able to identify 50 -75% of birds routinely encountered in the area
- 3 - able to identify <50% of the birds routinely encountered in the area

## 7. *Probable and Known Stopovers (PKS)*

The study site has several species breeding locally which are also target species for monitoring. There are also occasions when genuine migrants have resided in the area for several days or more, generally due to inclement weather. These birds are considered probable or known stopovers or "PKS" in short. In an effort to "clean" the DT data, so as to reflect new migrants only, several PKS columns have been provided in the Daily Log Sheets. Because capture, census, and other observation data could be used independently for analysis, PKS columns are provided for each category as well as an overall PKS column. As the Vis Mig watches should not include residents or stopovers, there is no associated PKS column. Birds that meet the criteria below should be entered into the appropriate PKS column. It is quite possible that a bird can be counted in each PKS column. For example, a locally banded Black-capped Chickadee could still be present a few days later and seen on census, retrapped, and seen on net rounds. This bird should be recorded as PKS in each appropriate column, but the overall PKS will be 1 bird and not 3. **Please Note: PKS birds are still included in the total for the associated categories, including the Daily Total.**

PKS Criteria:

1. Individuals recognized by plumage, behavioral characteristics or rarity as having been present on a previous day.
2. Birds recaptured from previous days banding within the same season. This should be extended to estimate numbers in stopover flocks even when only part of the flock was trapped previously.
3. Birds that were not trapped, but are seen daily and are almost certainly breeding nearby (e.g. Song Sparrow, Common Raven, Black-capped Chickadee).

## 8. *Daily Total (DT)*

The DT is the number of individuals of each species detected in the Count Area during the Count Period (no earlier than 4:00 a.m. to no later than 2:00 p.m.) and is based on four components: 1) captures; 2) visible migration watches; 3) census and; 4) incidental or other observations. The numbers entered in the Tot. Cap, "Vis", "Cen." and "Oth Obs" columns in the log are the **totals** for the activities concerned, and as such they are largely independent, since they are arrived at independently. However, there may well be some overlap. For example, birds heard singing before census would be noted as Other Observations. These same birds may be encountered during the census. The bird records should be entered in both columns since they relate to results from two separate activities and may be used in future analyses. As a consequence, at LSLBO, numbers in the "DT" column are never more than the sum of the DT components but they can be and often are less than this sum.

## 9. *Overall Coverage Codes*

The coding system for overall coverage applies only to the standard Count Period (½ hour before sunrise to 6 ½ hours after sunrise but no earlier than 4:00 and no later than 14:00). For the code to be accepted, all the listed minimum criteria must be met. The aim should be to attain a code 4 coverage, which can be achieved by a single qualified observer on most but the busiest days during the season peaks.

Coverage Code	Description	Minimum Criteria
<b>0</b>	<b>No coverage</b>	
<b>1</b>	<b>Casual</b>	1 field-hour by a class 2 or better observer; or netting code >.1.
<b>2</b>	<b>Poor</b>	2 field-hours accumulated by <b>1 or more</b> class 2 or better observer during the Count Period; <b>and either</b> 2 Visible Migration watches <b>or</b> 0.25 netting code.
<b>3</b>	<b>Fair</b>	4 field-hours accumulated by <b>1 or more</b> class 2 or better observers during the Count Period; 7 Visible Migration watches; and either the census <b>or</b> 0.5 netting coverage code.
<b>4</b>	<b>Good</b>	6 field-hours accumulated by <b>1 or more</b> class 1 observers during the Count Period; 7 Visible Migration watches; census and netting (0.5 coverage code).
<b>5</b>	<b>Excellent</b>	10 field-hours accumulated by <b>3 or more</b> class 1 observers during the Count Period; 8 Visible Migration watches; census; netting coverage of 1.

***Use of baits and bird attractants***

At LSLBO the use of bird attractants such as feeders or water drips is prohibited. As is the practice of baiting with food the areas around mist nets. Pishing or squeeking to lure out a shy bird under cover for identification purposes is acceptable, however, this should not be done habitually. Birds, rare or otherwise, should not be purposefully flushed, pushed or scared into any of the standard nets.

***What to do when it rains***

In the event of steady rain at dawn, delaying arrival at the site is excusable. A well deserved sleep-in can be quite satisfying! **However**, personnel should endeavor to arrive on site within an hour of sunrise or earlier if the rain has stopped. Unless a torrential downpour lasts all day, fair coverage is entirely possible and expected. A census, visible migration watches and casual observations can be



very productive, especially during the peak of the migration season. There have been some remarkably busy days with heavy migration activity occurring on quite foul weather days. Not wanting to get wet is simply not a valid excuse to miss a day of coverage. Remember, the birds have to deal with the weather too and for longer than you.

**APPENDIX II. Birds banded in 2000 at LSLBO.**

<b>Species</b>	<b>Spring</b>	<b>MAPS</b>	<b>Fall</b>	<b>Other</b>	<b>Total</b>
Yellow-rumped Warbler	559	9	457		1025
Chipping Sparrow	615	2	58		675
American Redstart	103	19	493		615
Yellow Warbler	147	3	215		365
Tennessee Warbler	167	8	130		305
Clay-colored Sparrow	174		6		180
Canada Warbler	51	16	111		178
Least Flycatcher	94	11	63		168
Black-capped Chickadee	9	1	142		152
Alder Flycatcher	83		65	1	149
Swainson's Thrush	54	12	75		141
Dark-eyed Junco	17		121		138
Orange-crowned Warbler	66		60		126
Black-and-white Warbler	32	3	86		121
Ovenbird	8	11	99		118
White-throated Sparrow	50	17	28		95
Magnolia Warbler	16	7	61		84
American Tree Sparrow	24		46		70
Blackpoll Warbler	49		19		68
Red-eyed Vireo	21		39		60
Mourning Warbler	17	5	31		53
Northern Waterthrush	29		24		53
Wilson's Warbler	23		27		50
Ruby-crowned Kinglet	5		38		43
Common Yellowthroat	21		20		41
Sharp-shinned Hawk	9	1	27		37
Western Palm Warbler	26		8		34
Hermit Thrush	2	4	27		33
Pine Siskin	4	1	28		33
Lincoln's Sparrow	12	1	18		31
White-crowned Sparrow	11		19		30
American Robin	20	2	7		29
Black-throated Green Warbler		2	19		21
Savannah Sparrow	15		6		21
Philadelphia Vireo			6		6
Blue-headed Vireo	4		7		11
Song Sparrow	8		3		11
Cedar Waxwing	1		9		10
Eastern Phoebe	8		2		10
Rose-breasted Grosbeak	1	2	6		9
Cape May Warbler	7		1		8
Bay-breasted Warbler		2	5		7
Downy Woodpecker			7		7
Warbling Vireo	2		5		7

Yellow-bellied Flycatcher	4		3		7
Purple Finch			6		6
Red-breasted Nuthatch	4		2		6
Swamp Sparrow	2		4		6
Western Tanager	1	1	4		6
Western Wood-Pewee	1	1	4		6
Fox Sparrow	2		3		5
Northern Saw-whet Owl				4	4
Boreal Chickadee			4		4
Golden-crowned Kinglet			4		4
Yellow-bellied Sapsucker	2	2			4
Hairy Woodpecker	1		2		3
Baltimore Oriole	2				2
Chestnut-sided Warbler			2		2
House Wren	1		1		2
Northern Flicker	2				2
Northern Shrike			1		1
American Goldfinch			1		1
Blue Jay			1		1
Brown Creeper			1		1
Brown-headed Cowbird			1		1
Gray-cheeked Thrush			1		1
Harris's Sparrow			1		1
Red-winged Blackbird	1				1
Unidentified Dark-eyed Junco	1				1
Veery	1				1
White-winged Crossbill			1		1
Number of birds banded	2589	143	2771	5	5514
Number of species banded	54	26	64	2	71

### **APPENDIX III. Species Arrival and departure dates and maxima at LSLBO in 2000.**

The following list includes seasonal first and last dates and maximum total (in bold) for each species in Spring and Fall encountered in the area.

**Common Loon:** S: May 1 - 1; June 13 - 5; **14** - May 16; F: Jul 7 - 4; Oct 1 - 1; **48** - Aug 24

**Horned Grebe:** S: May 13 - 4; May 21 - 2; **4** - May 13; F: Aug 14 - 2; Oct 6 - 11; **25** - Sep 29

**Red-necked Grebe:** S: Apr 28 - 6; Jun 3 - 1; **14** - May 8; F: Jul 7 - 2; Oct 1 - 4; **8** - Sep 16

**Eared Grebe:** S: May 8 - **10**; May 9 - 8; F: Sep 17 - **1**; only record of the fall

**Western Grebe:** F: Jul 28 - **5**; Oct 4 - 2

**American White Pelican:** S: May 18 - 3; June 13 - 5; **16** - June 10; F: Jul 7 - 3; Sep 18 - 2; **20** - Jul 9

**Double-crested Cormorant:** F: Aug 13 - 1; Aug 22 - 8; **12** - Aug 18 & 20

**Great Blue Heron:** S: Apr 19 - 1; May 18 - 1; **2** - Apr 22; F: Jul 11 - **1**; Sep 22 - **1**; **1** - six records between Jul 11 - Sep 22

**Tundra Swan:** S: Apr 19 - 31; May 18 - 1; **226** - Apr 22; F: Sep 29 - 61; Oct 1 - 16; **61** - Sep 29

**Greater White-fronted Goose:** S: Apr 22 - 110; May 13 - 10; **576** - May 8; F: Aug 24 - 2; Sep 24 - 10; **35** - Sep 10

**Snow Goose:** F: Sep 20 - **1000**; Sep 30 - 45

**Canada Goose:** S: Apr 18 - **193**; June 13 - 1; F: Aug 13 - 7; Oct 1 - 86; **86** - Oct 1

**American Green-winged Teal:** S: Apr 18 - 2; Jun 13 - 1; **80** - May 10; F: Aug 20 - 1; Sep 10 - 3; **5** - Aug 26, Sep 2 & 9

**Mallard:** S: Apr 18 - 18; Jun 13 - 13; **99** - Apr 19; F: Jul 7 - 35; Oct 6 - 11; **62** - Sep 7

**Northern Pintail:** S: Apr 19 - 2; Jun 1 - 2; **6** - Apr 25; F: Oct 2 - **8**; Oct 4 - 3

**Blue-winged Teal:** S: May 3 - 11; Jun 13 - 3; **72** - May 10; F: Aug 24 - 28; Sep 9 - 8; **80** - Aug 31

**Northern Shoveler:** S: Apr 24 - 4; Jun 5 - 2; **45** - May 6; F: Sep 17 - **2**; only fall record

**Gadwall:** S: May 3 - 1; May 4 - **3**; F: Jul 19 - **1**; only fall record

**American Wigeon:** S: Apr 18 - 16; Jun 13 - 6; **60** - Apr 19; F: Jul 14 - 1; Oct 1 - 2; **63** - Sep 17

**Canvasback:** S: May 3 - **5**; only record of the year

**Redhead:** S: May 3 - **3**; only record of the year

**Ring-necked Duck:** S: May 6 - 4; Jun 6 - 1

**Greater Scaup:** S: May 3 - 2; May 8 - 12

**Lesser Scaup:** S: May 5 - 1; May 12 - 5

**Long-tailed Duck:** S: May 8 - 22; May 19 - 22; **280** - May 15

**Surf Scoter:** S: May 8 - 63; May 29 - 1; **194** - May 16

**White-winged Scoter:** S: May 8 - 4; Jun 13 - 2; **100** - May 5; **F:** Sep 20 - 2; Sep 25 - 3

**Common Goldeneye:** S: Apr 19 - 12; Jun 13 - 8; **93** - Apr 24; **F:** Jul 7 - 11; Oct 6 - 31; **120** - Sep 27

**Bufflehead:** S: May 6 - 2; Jun 12 - 1; **10** - Jun 3; **F:** Jul 14 - 1; Oct 6 - 8; **35** - Sep 27

**Common Merganser:** S: Apr 19 - 3; Jun 13 - 20; **132** - Jun 11; **F:** Jul 7 - 6; Oct 6 - 3; **40** - Jul 28

**Red-breasted Merganser:** S: May 2 - 6; Jun 13 - 1; **38** - May 8

**Ruddy Duck:** S: May 8 - 3; only record of the year

**Osprey:** S: May 17 - 2; Jun 13 - 1; **2** - May 17 & 18, Jun 3, 8, & 10; **F:** Jul 7 - 1; Sep 22 - 1; **6** - Sep 4

**Bald Eagle:** S: Apr 18 - 1; Jun 13 - 2; **4** - Apr 21; **F:** Jul 8 - 1; Oct 6 - 3; **9** - Sep 11

**Northern Harrier:** S: Apr 18 - 1; Jun 13 - 1; **38** - Apr 19; **F:** Jul 23 - 1; Oct 2 - 1; **5** - Aug 8 & 16, Sep 7

**Sharp-shinned Hawk:** S: Apr - 4; Jun 7 - 1; **4** - Apr 20 & 29; **F:** Jul 14 - 1; Oct 5 - 1; **28** - Aug 24

**Cooper's Hawk:** S: Apr 19 - 1; May 13 - 1; **2** - Apr 21; **F:** Aug 26 - 1; Sep 5 - 1

**Northern Goshawk:** S: May 3 - 1; only spring record; **F:** Aug 1 - 1; Oct 5 - 2

**Broad-winged Hawk:** S: Apr 27 - 2; May 6 - 1; **F:** Aug 12 - 1; Aug 24 - 1

**Red-tailed Hawk:** S: Apr 19 - 2; Jun 12 - 1; **9** - Apr 21; **F:** Aug 9 - 1; Sep 30 - 1; **1** - seven records between 1<sup>st</sup> and last dates

**Harlan's Red-tailed Hawk:** **F:** Sep 15 - 1; only record of the year

**Rough-legged Hawk:** S: Apr 21 - 3; Apr 22 - 1; **F:** Oct 1 - 1; only record of the fall

**American Kestrel:** S: Apr 19 - 1; May 31 - 1; **4** - Apr 29; **F:** Aug 2 - 1; Aug 25 - 17

**Merlin:** S: May 1 - 1; Jun 13 - 1; **3** - May 10; **F:** Jul 22 - 1; Sep 28 - 1; **4** - Aug 16

**Peregrine Falcon:** S: May 7 - 1; May 22 - 1; **1** - May 7, 12, & 22; **F:** Aug 31 - 1; Sep 22 - 1

**Gyr Falcon:** **F:** Sep 30 - 1; a dark immature bird

**Ruffed Grouse:** S: Apr 18 - 2; Jun 13 - 1; **3** - Apr 25; **F:** Jul 29 - 1; Oct 6 - 1; **2** - Sep 22

**Sandhill Crane:** S: Apr 21 - 4; Apr 30 - 60; **240** - Apr 29; **F:** Sep 5 - 2; Sep 20 - 36; **220** - Sep 12

**American Golden Plover:** S: Jun 3 - 1; 1<sup>st</sup> record of species at LSLBO; F: Sep 22 - 7; Sep 29 - 1; recorded on 4 different days

**Black-bellied Plover:** F: Sep 22 - 7; Oct 6 - 2; 7 Sep 22 & 24

**Semipalmated Plover:** S: May 1 - 3; May 17 - 3; F: Jul 17 - 1; Aug 30 - 1; 1 - Jul 17, Aug 29 & 30

**Killdeer:** S: Apr 19 - 1; Jun 13 - 2; 7 - Apr 24; F: Jul 7 - 1; Aug 22 - 1; 2 - Jul 16

**Greater Yellowlegs:** S: May 5 - 1; Jun 4 - 1; 5 - May 13; F: Jul 11 - 1; Oct 5 - 2; 5 - Aug 16

**Lesser Yellowlegs:** S: Apr 18 - 1; May 25 - 2; 33 - May 11; F: Aug 16 - 2; Aug 22 - 2

**Solitary Sandpiper:** S: May 1 - 1; May 25 - 1; 4 - May 10; F: Aug 24 - 1; Aug 25 - 1

**Spotted Sandpiper:** S: May 1 - 1; Jun 1 - 3; 4 May 28 & 29; F: Jul 7 - 4; Sep 7 - 1; 6 - Jul 16 & 26

**Sanderling:** S: Jun 8 - 4; F: Aug 29 - 32; Aug 31 - 1

**Semipalmated Sandpiper:** S: May 15 - 10; May 17 - 7; F: Aug 13 - 12; Aug 14 - 1  
Least Sandpiper:

**Baird's Sandpiper:** S: Jun 2 - 1; Jun 6 - 1; 17 - Jun 5; F: Aug 23 - 2; Sep 3 - 15; 15 - Sep 1, 2, & 3

**Pectoral Sandpiper:** F: Sep 29 - 2

**Common Snipe:** S: Apr 25 - 1; May 1 - 1

**Parasitic Jaeger:** F: Sep 6 - 1; only record of the year

**Franklin's Gull:** S: Apr 23 - 3; Jun 10 - 1; 200 - Jun 5; F: Jul 16 - 130; Sep 8 - 70; 1839 - Jul 29

**Bonaparte's Gull:** S: May 20 - 1; only record of the spring

**Mew Gull:** S: May 7 - 17; May 28 - 5; 50 - May 13

**Ring-billed Gull:** S: Apr 28 - 10; Jun 13 - 6; 48 - Jun 8; F: Jul 7 - 7; Oct 5 - 1; 85 - Jul 14

**California Gull:** S: May 23 - 2; May 24 - 2; F: Aug 21 - 4

**Herring Gull:** S: Apr 18 - 1; Jun 11 - 4; 25 - May 6; F: Jul 12 - 1; Oct 3 - 1; 5 - Jul 17

**Caspian Tern:** S: May 16 - 2; only spring record

**Common Tern:** S: May 13 - 7; Jun 13 - 8; 25 - May 29 & 30; F: Jul 11 - 1; Sep 19 - 9; 12 - Aug 30

**Forster's Tern:** S: May 16 - 11; May 21 - 1; 11 - May 16 & 18

**Black Tern:** S: Jun 5 - 3; only record of the spring

**Mourning Dove:** S: May 9 - 2; only record of the year

**Northern Saw-whet Owl:** F: Sep 21 - 2; Sep 23 - 1

**Barred Owl:** S: Apr 21 - 1; 1 bird heard near staff residence throughout spring

**Short-eared Owl:** S: Apr 26 - 1; only spring record; F: Sep 6 - 1; only record of the fall

**Common Nighthawk:** S: Jun 7 - 1; Jun 12 - 1

**Ruby-throated Hummingbird:** F: Jul 7 -1; Aug 5 - 1; 1 - seven sightings between 1<sup>st</sup> and last dates

**Belted Kingfisher:** S: May 3 - 1; Jun 12 - 1; 3 - May 12; F: Jul 7 - 1; Sep 22 - 1; 2 - Aug 22

**Yellow-bellied Sapsucker:** S: May 1 - 1; Jun 12 - 1; 4 - May 17 & 21; F: Jul 9 - 1; Jul 17 - 1

**Downy Woodpecker:** S: May 5 - 1; only spring record; F: Jul 9 - 1; Oct 6 - 1; 3 - Sep 7

**Hairy Woodpecker:** S: Apr 18 -1; Jun 10 - 1; 2 - Apr 19, 21, 24, & 26, May 14 & 27; F: Jul 7 - 1; Oct 6 - 1; 3 - Sep 24

**Three-toed Woodpecker:** F: Oct 4 - 1; a female seen by staff residence in LSLPP

**Northern Flicker:** S: Apr 22 - 2; Jun 13 - 1; 16 - May 1; F: Jul 9 - 1; Sep 20 - 1; 1 - nine records between 1<sup>st</sup> and last dates

**Pileated Woodpecker:** S: Apr 18 - 2; Jun 13 - 1; 2 - 8 dates between Apr 18 - Jun 3; F: Jul 10 - 1, Sep 29 - 1; 2 - Jul 25

**Olive-sided Flycatcher:** F: Aug 14 - 1; Aug 30 - 1; 2 - Aug 16

**Western Wood-Pewee:** S: May 5 - 1; Jun 2 - 1; 1 - 4 records between 1<sup>st</sup> and last dates; F: Jul 13 - 1; Aug 22 - 1; 3 - Aug 16

**Yellow-bellied Flycatcher:** S: May 27 - 1; Jun 13 - 1; 1 - 6 records between 1<sup>st</sup> and last dates; F: Jul 18 - 1; Sep 7 - 1; 1 - four records between 1<sup>st</sup> and last dates

**Alder Flycatcher:** S: May 12 - 1; Jun 13 - 9; 13 - Jun 2; F: Jul 7 - 2; Sep 21 - 1; 8 - Jul 9, Aug 1, & 16

**Least Flycatcher:** S: May 7 - 1; Jun 13 - 1; 19 - May 26; F: Jul 7 - 1; Sep 12 - 1; 7 - Aug 9 & 16

**Eastern Phoebe:** S: Apr 28 - 1; Jun 13 - 4; 7 - May 2; F: Jul 7 - 2; Sep 5 - 1; 4 - Jul 15

**Say's Phoebe:** S: Apr 28 - 1; May 20 - 1; 4 - May 15; F: Aug 16 - 1; Aug 24 - 1; 1 - 4 records between 1<sup>st</sup> and last dates

**Eastern Kingbird:** S: Jun 1 - 1; Jun 2 - 1; F: Aug 12 - 1; Aug 30 - 1; 9 - Aug 16 & 25

**Horned Lark:** F: Sep 28 - 1; only 1 fall record

**Tree Swallow:** S: Apr 26 - 2; Jun 12 - 2; 60 - May 22; F: Jul 15 - 1; Aug 6 - 5; 12 - Aug 1

**Bank Swallow:** S: May 19 - 26; May 26 - 7; F: Jul 27 - 60; Aug 17 - 4

**Cliff Swallow:** F: Jul 29 - 2; only record of the fall

**Barn Swallow:** S: May 17 - 5; Jun 12 - 3; F: Jul 8 - 3; Sep 10 - 2; 7 - Sep 5

**Blue Jay:** S: Apr 18 - 1; Jun 13 -1; 8 - May 27; F: Jul 17 - 1; Oct 5 - 1; 3 - Jul 27, Aug 22 & 31, Sep 1

**American (Black-billed) Magpie:** S: Apr 18 - 1; Jun 11 - 2; 6 - May 6; F: Jul 8 - 1; Oct 6 - 1; 9 Aug 24

**American Crow:** S: Apr 18 - 3; Jun 13 - 2; 12 - Apr 22; F: Jul 9 - 1; Sep 22 - 4; 45 - Aug 13

**Common Raven:** S: Apr 18 - 2; Jun 13 - 2; 12 - Apr 26; F: Jul 8 - 3; Oct 6 - 4; 10 - Jul 19

**Black-capped Chickadee:** S: Apr 18 - 5; Jun 13 -1; 8 - Apr 20; F: Jul 7 - 3; Oct 6 - 7; 400 - Sep 7

**Boreal Chickadee:** F: Jul 9 - 1; Oct 6 - 1; 35 - Sep 14

**Red-breasted Nuthatch:** S: Apr 18 - 2; Jun 9 - 1; 4 - Apr 20; F: Jul 9 - 1; Oct 6 - 1; 2 - Sep 5 & 16

**White-breasted Nuthatch:** S: Apr 22 - 1; May 16 - 1; F: Jul 7 - 1; Sep 9 - 1; 1 - 5 records between 1<sup>st</sup> and last dates

**Brown Creeper:** F: Sep 27 - 1; only record of the year

**House Wren:** S: May 28 - 1; Jun 1 - 1; 1 - May 28 & 30 , Jun 1; F: Aug 29 - 1; Sep 8 - 1

**Winter Wren:** S: May 11 - 1; Jun 2 - 1; 1 - 14 records between 1<sup>st</sup> and last dates; F: Jul 7 - 1; Sep 21 - 1; 1- 10 records between 1<sup>st</sup> and last dates

**Golden-crowned Kinglet:** S: Apr 22 - 1; only record of spring; F: Sep 3 - 1; Oct 3 - 1; 2 - Sep 5 & 11, Oct 2

**Ruby-crowned Kinglet:** S: Apr 21 -1; Jun 6 - 1; 4 - May 7; F: Jul 7 - 1; Oct 6 - 1; 13 - Sep 21

**Mountain Bluebird:** S: Apr 26 - 1; May 1 - 1

**Townsend s Solitaire:** S: May 2 - 1; 1<sup>st</sup> record at LSLBO

**Veery:** S: Jun 8 - 1; only record of the year

**Gray-cheeked Thrush:** Sep 6 - 1; only record of the year

**Swainson s Thrush:** S: May 8 - 3; Jun 12 - 3; 9 - Jun 4; F: Jul 7 - 1; Sep 24 - 1; 13 - Sep 4

**Hermit Thrush:** S: Apr 24 - 1; Jun 3 - 1; 2 - May 1, 10, & 14; F: Jul 8 - 2; Oct 5 - 5; 6 - Sep 27

**America n Robin:** S: Apr 19 - 446; Jun 13 - 2; 906 - May 1; F: Jul 7 - 1; Oct 6 - 2; 16 - Sep 22

**Varied Thrush:** S: Apr 20 - 1; only record of the year

**American Pipit:** S: Apr 19 - 2; May 23 - 1; 88 - Apr 20; F: Aug 30 - 1; Oct 4 - 1; 89 - Sep 22

**Cedar Waxwing:** S: Jun 1 - 21; Jun 13 - 24; 237 - Jun 3; F: Jul 7 - 1; Oct 5 - 2; 141 - Sep 7

**Northern Shrike:** S: Apr 18 - 1; only 1 spring record; F: Oct 5 - 1; only 1 fall record



**European Starling:** S: Apr 19 - 2; May 12 - 12

**Blue-headed Vireo:** S: May 6 - 1; May 28 - 1; 1 - 11 records between 1<sup>st</sup> and last records; F: Jul 15 - 1; Aug 25 - 1; 2 - Jul 22

**Warbling Vireo:** S: May 8 - 1; Jun 5 - 1; 2 - May 19; F: Jul 14 - 3; Sep 11 - 1; 3 - Jul 14

**Philadelphia Vireo:** S: May 18 - 1; May 27 - 1; 1 - six records between 1<sup>st</sup> and last dates; F: Jul 11 - 1; Sep 12 - 1; 5 - Aug 1

**Red-eyed Vireo:** S: May 27 - 1; Jun 13 - 6; 14 - Jun 5; F: Jul 7 - 6; Sep 10 - 1; 14 - Jul 18

**Tennessee Warbler:** S: May 9 - 1; Jun 13 - 1; 281 - May 22; F: Jul 9 - 1; Sep 27 - 1; 49 - Aug 11

**Orange-crowned Warbler:** S: Apr 28 - 1; May 24 - 1; 62 - May 10; F: Aug 21 - 1; Sep 29 - 1; 23 - Sep 21

**Yellow Warbler:** S: May 4 - 1; Jun 13 - 6; 70 - May 20; F: Jul 7 - 3; Sep 1 - 2; 80 - Jul 27

**Chestnut-sided Warbler:** F: Aug 5 - 1; Aug 23 - 1

**Magnolia Warbler:** S: May 14 - 2; Jun 13 - 1; 8 - May 30; F: Jul 7 - 2; Sep 21 - 1; 6 - Aug 15

**Cape May Warbler:** S: May 24 - 3; May 30 - 2; F: Aug 7 - 1; only fall record

**Yellow-rumped Warbler:** S: Apr 19 - 1; Jun 8 - 12; 1187 - May 8; F: Jul 7 - 2; Oct 6 - 2; 2146 - Sep 7

**Black-throated Green Warbler:** S: May 14 - 1; Jun 5 - 1; 1 - 13 records between 1<sup>st</sup> and last dates; F: Jul 14 - 1; Aug 24 - 2; 3 - Jul 25 & Aug 1

**Palm Warbler:** S: May 1 - 1; May 26 - 1; 22 - May 7; F: Aug 16 - 1; Oct 6 - 1; 3 - Sep 25

**Bay-breasted Warbler:** F: Jul 14 - 1; Aug 23 - 1; 1 - five records between 1<sup>st</sup> and last dates

**Blackpoll Warbler:** S: May 10 - 1; Jun 4 - 2; 107 - May 20; F: Jul 23 - 1; Sep 18 - 1; 4 - Sep 5 & 10

**Black-and-white Warbler:** S: Apr 28 - 1; Jun 13 - 2; 10 - May 21; F: Jul 7 - 3; Sep 27 - 1; 11 - Aug 15

**American Redstart:** S: Apr - 1; Jun 13 - 11; 33 - May 25; F: Jul 7 - 4; Sep 21 - 2; 76 - Aug 4

**Ovenbird:** S: May 14 - 1; Jun 13 - 2; 5 - May 28; F: Jul 7 - 4; Sep 12 - 1; 11 - Aug 15

**Northern Waterthrush:** S: May 6 - 1; Jun 13 - 1; 20 - May 22; F: Jul 8 - 1; Sep 17 - 1; 6 - Jul 21

**Connecticut Warbler:** S: May 10 - 1; Jun 6 - 1; F: Jul 10 - 1; only fall record

**Mourning Warbler:** S: May 21 - 2; Jun 13 - 1; 6 - Jun 5; F: Jul 9 - 3; Sep 7 - 1; 5 - Aug 7 & 13

**Common Yellowthroat:** S: May 26 - 4; Jun 13 - 2; 6 - May 30; F: Jul 7 - 1; Sep 27 - 1; 5 - Aug 7

**Wilson's Warbler:** S: May 25 - 3; Jun 7 - 1; 11 - May 30; F: Aug 11 - 1; Sep 27 - 1; 5 - Sep 3

**Canada Warbler:** S: May 23 - ; Jun 13 - 6; 12 - May 30 & 31; F: Jul 8 - 2; Aug 30 - 2; 19 - Aug 4

**Western Tanager:** S: May 16 - 2; Jun 13 - 1; 2 - May 16, 25, & 27, Jun 8; F: Jul 7 - 1; Sep 10 - 1; 10 - Aug 25

**Rose-breasted Grosbeak:** S: May 11 - 1; Jun 6 - 1; 6 - May 19 & 27; F: Jul 7 - 1; Aug 27 - 1; 5 - Aug 22

**American Tree Sparrow:** S: Apr 18 - 1; May 4 - 1; 29 - Apr 22; F: Sep 18 - 2; Oct 5 - 1; 51 - Sep 24

**Chipping Sparrow:** May 3 - 1; Jun 13 - 2; 1660 - May 20; F: Jul 7 - 2; Sep 16 - 1; 515 - Aug 16

**Clay-colored Sparrow:** S: May 10 - 2; Jun 13 - 5; 158 - May 21; F: Jul 7 - 4; Sep 13 - 1; 5 - Jul 8

**Vesper Sparrow:** S: May 1 - 2; May 10 - 1

**Savannah Sparrow:** S: Apr 26 - 1; May 14 - 1; 1 - four records between 1<sup>st</sup> and last record; F: Sep 3 - 2; Sep 10 - 1; 2 - Sep 3, 4, & 9

**Le Conte s Sparrow:** S: May 1 - 2; Jun 11 - 1; F: Aug 25 - 1

**Fox Sparrow:** S: Apr 22 - 1; May 3 - 1; 1 - Apr 22, & 24, May 3; F: Jul 13 - 1; Sep 28 - 1; 1 - Jul 13, Sep 21 & 28

**Song Sparrow:** S: Apr 24 - 3; Jun 13 - 1; 6 - May 6 & 15; F: Jul 7 - 1; Aug 29 - 3; 3 - Jul 23 & Aug 29

**Lincoln s Sparrow:** S: May 7 - 2; Jun 12 - 2; 4 - May 8 & 15; F: Jul 7 - 2; Sep 28 - 2; 3 - Jul 14

**Swamp Sparrow:** S: Apr 26 - 1; May 14 - 1; 1 - four records between 1<sup>st</sup> and last dates; F: Jul 15 - 2; Oct 7 - 1; 2 - Jul 15

**White-throated Sparrow:** S: Apr 26 - 2; Jun 13 - 4; 46 - May 10; F: Jul 7 - 4; Oct 1 - 2; 9 - Sep 3

**White-crowned Sparrow:** S: May 3 - 3; Jun 1 - 3; 56 - May 5; F: Sep 8 - 3; Oct 5 - 1; 18 - Sep 25

**Harris s Sparrow:** S: Apr 19 - 1; F: Sep 26 - 3; Sep 27 - 1

**Dark-eyed Junco:** S: Apr 18 - 2; May 6 - 2; 28 - Apr 22; F: Aug 23 - 1; Oct 6 - 5; 125 - Sep 26

**Red-winged Blackbird:** S: Apr 26 - 3; Jun 12 - 1; 166 - May 6; F: Jul 7 - 2; Sep 14 - 25; 35 - Aug 9

**Western Meadowlark:** S: May 10 - 1; only record of the year

**Yellow-headed Blackbird:** S: Jun 4 - 2; F: Sep 6 - 1

**Rusty Blackbird:** S: Apr 24 - 48; Apr 27 - 7; F: Oct 6 - 25

**Common Grackle:** S: Apr 24 - 14; Jun 4 - 1; 20 - May 6; F: Aug 4 - 3; Sep 29 - 1; 52 - Aug 25

**Brown-headed Cowbird:** S: Apr 22 - 1; Jun 6 - 8; 144 - May 22; F: Aug 1 - 1; Aug 21 - 1; 4 - Aug 18

**Baltimore Oriole:** S: May 19 - 3; Jun 13 - 1; 5 - May 22

**Purple Finch:** S: Apr 18 - 1; May 19 - 2; 9 - Apr 28; F: Jul 18 - 1; Sep 19 - 1; 25 - Jul 27

**White-winged Crossbill:** F: Jul 7 - 3; Oct 1 - 2; **20** - Aug 18

**Red Crossbill:** F: Aug 16 - 1; Sep 1 - 1

**Common Redpoll:** S: Apr 18 - 4; Apr 24 - 32; **348** - Apr 21

**Pine Siskin:** S: Apr 20 - **216**; Jun 13 - 2; F: Jul 7 - 5; Oct 6 - 2; **2073** - Aug 25

**American Goldfinch:** S: Jun 1 - 1; Jun 7 - 1; **4** - Jun 3; F: Jul 9 - 1; Sep 12 - 1; **2** - Aug 6

**Evening Grosbeak:** S: Apr 18 - 3; May 27 - 2; **49** - Apr 27; F: Jul 9 - 2; Sep 29 - 5; **40** - Jul 23