

## 2020 Annual Report

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## 2020 Executive Summary

The Lesser Slave Lake Bird Observatory (LSLBO) completed its $27^{\text {th }}$ year of avian population monitoring in the Lesser Slave Lake Provincial Park of northern Alberta ( $26^{\text {th }}$ year of standardized efforts). Dedicated to bird conservation through research and education, the LSLBO manages four core monitoring programs that contribute to national and international networks: spring migration monitoring, fall migration monitoring, Monitoring Avian Productivity and Survivorship (MAPS), and fall owl migration monitoring.

Spring migration monitoring ran April 21 to June 10 for 44 out of a possible 51 days. Overall, monitoring efforts for spring migration were less than previous years in response to the COVID-19 pandemic limiting staffing, lingering winter conditions, and poor weather. Effort was below average for all counting methods with record lows for average daily coverage codes and daily visual migration counts. No nonstandard mist-netting was attempted. Approximately 57,000 birds of 146 identified species were encountered. Only $59.4 \%$ of possible net-hours were attained, banding a total of 512 birds of 39 species - the third lowest spring banding total yet. There were an additional 78 recapture records, of which, the oldest known-aged bird was a $5+$ year old Black-and-white Warbler.

Fall migration monitoring occurred daily July 12 to September 30 . Since contracts for two experienced assistants started in June, overall monitoring efforts for fall migration were similar to past years. Over 53,000 birds of 127 identified species were counted across monitoring methods, including the first White-winged Dove in our monitoring history. Although poor weather resulted in below average mistnetting (only $65.7 \%$ of possible coverage), this was the busiest season for fall banding in the LSLBO's history with 3,966 birds of 60 species banded. Total capture rates were almost double the fall average with 91.3 birds per 100 net-hours. Many species beat their previous banding records. An additional 316 recaptures were collected with a Myrtle Warbler estimated to be 8+ years old as the oldest known-aged bird. A separate Myrtle Warbler banded during this program was recovered in Minnesota roughly 3 weeks later.

Four MAPS sites were operated June 11 to August 5, completing our $27^{\text {th }}$ year of MAPS contributions. Banding was a record high with 505 birds of 33 species across stations; double the MAPS average. Within an additional 213 recapture records, the oldest known-aged bird was a 10+ year old Whitethroated Sparrow. Of 65 detected species, 26 were confirmed to breed in at least one site.

Targeted fall owl migration monitoring was conducted for the $17^{\text {th }}$ year on 37 nights, September 1 to October 31. A Northern Saw-whet Owl net array and a smaller Boreal Owl net array captured a combined 82 Saw-whet Owls and 1 Boreal Owl; the fifth slowest year to date. An owl banded last year by the Beaverhill Bird Observatory was recaptured.

Additional collaborative projects included the second year of breeding bird surveys assessing species assemblages in harvested forests (Vanderwell Contractors), continued collaboration on a landscapelevel modeling project (University of Alberta), collecting water samples for eDNA analysis (University of Guelph), sharing a subset of monitoring data with eBird (Cornell Lab), and donating specimens to the Royal Alberta Museum. Four articles were published which the LSLBO collaborated with in various ways.

The COVID-19 pandemic had a major impact on education and outreach programs with the cancellation of school fieldtrips and community programs, as well as preventing public access to the station. New virtual and self-directed programs were developed for students, teachers, and the public to increase awareness of boreal bird ecology and LSLBO conservation programs. Weekly blogs from the banding lab continued on the LSLBO website, Facebook, and local newspaper.

## Migration Monitoring

Migration monitoring estimates population trends central to avian conservation efforts. Since much of northern Canada is remote with low human population densities, breeding bird surveys often cannot provide sufficient information on northern species. Similarly, South American nations often lack the resources required to study Neotropical migratory species on their wintering grounds. By considering numbers of observed and captured individuals migrating through more accessible locations, population trends of these species can be obtained.

Since 1994, the LSLBO has been conducting migration monitoring over both spring and fall migration periods with 2020 marking the $26^{\text {th }}$ year of standardized data collection (since 1995). We are a member station of the Canadian Migration Monitoring Network - Réseau canadien de surveillance des migrations (CMMN-RCSM) and contribute to the population trend analysis program. Established in 1998, the CMMN is a unique network including Birds Canada, Environment and Climate Change Canada, and approximately 25 member stations working collaboratively to monitor avian migration across Canada.

Migration monitoring follows a standardized approach outlined in the Lesser Slave Lake Bird Observatory Standard Operating Protocol (revised 2020). The approach is roughly the same in both the spring and the fall, with small differences to account for the opposite directions of migration. Priority species for monitoring include passerines and near-passerines, but all avian species encountered are recorded daily using four methods: census, visual migration counts, incidental observations, and banding. Census is performed once daily along a 700 m transect crossing the study site for 30 minutes during peak migration hours. Visual migration counts are 5 minute long observations from a fixed location of clearly migrating individuals. Other birds encountered in the study area not included in these standardized counts are recorded as incidental observations.

Banding is performed alongside observations to record species that migrate discretely and to gather morphometric measurements and demographic information from a subset of individuals that cannot be obtained otherwise. Mist-netting is accomplished using twelve standard nets (since 1995) and two nonstandard aerial nets (since fall 2010) for a period of seven hours beginning half an hour before sunrise (maximum 98 net-hours possible in a day). Mist-netting is not performed under adverse weather conditions or the persistent presence of predators.

To summarize the effort dedicated to observing migration, a daily coverage code is assigned (Table 1). Throughout migration monitoring, the LSLBO strives to obtain a daily coverage code of four. However, when the weather prevents mist-netting, the maximum coverage code that can be attained is three.

Table 1. Criteria for daily coverage codes. Obtaining field hours is mandatory; performance of census, visual migration counts, and standard mist-netting is required as described. Class 1 observers can reliably identify $>75 \%$ of bird species encountered, while class 2 observers can identify $50-75 \%$.

| Code | Coverage | Field <br> Hours | Census | \# Vis. <br> Migs. | Standard <br> Mist-Netting | Requirements <br> (Census, vis. migs., mist-netting, \# observers) |
| :---: | :---: | :---: | :---: | :---: | :---: | :--- |
| $\mathbf{0}$ | None | 0 | No | 0 | $0 \%$ | No Activity |
| $\mathbf{1}$ | Casual | 1 | Yes | 4 | $\geq 10 \%$ | One of the three counts (1+ class 2+ obs.) |
| $\mathbf{2}$ | Poor | 2 | Yes | 4 | $\geq 25 \%$ | Census, one of other counts (1+ class 2+ obs.) |
| $\mathbf{3}$ | Fair | 4 | Yes | 6 | $\geq 50 \%$ | Two counts (1+ class 2+ obs.) |
| $\mathbf{4}$ | Good | 6 | Yes | 7 | $\geq 50 \%$ | All (1+ class 1+ obs.) |
| $\mathbf{5}$ | Excellent | 10 | Yes | 8 | $\geq 90 \%$ | All (3+ class 1+ obs.) |

## Spring Migration Monitoring

Spring migration monitoring occurs for 7 weeks from April 16 to June 10, although yearly weather conditions can allow monitoring beyond the standard period or prevent early efforts. This period covers the migration window for most species encountered at the LSLBO as they move northward to their breeding grounds. However, some species that migrate early and irregularly (for example, American Tree Sparrow and Dark-eyed Junco) are frequently missed by our spring monitoring. Overall, the diversity of species observed increases quickly in May, with busy banding periods possible mid to late May. By June, local breeding birds are encountered often alongside small numbers of late migrants.

Due to lingering winter conditions, spring migration monitoring took place from April 21 to June 10. As a result of the COVID-19 pandemic, only the Bander-in-Charge and a member of her household were available for monitoring activities. Additional hygiene measures were implemented, visitors were prohibited, and no volunteer training was undertaken. Experienced personnel were unavailable on 7 days total, which received no coverage. Since only 44 days out of a possible 51 within the standard period were monitored, the number of days covered and those with census and visual migration counts (vis-migs) were below average (Table 2). Moreover, 5 days received a coverage code of one (casual), when only census and two vis-migs were performed after checking on the nets to confirm they remained closed when staff were unavailable for full monitoring efforts. Due to these 5 days of minimal coverage, both the daily average coverage code and the daily visual migration average were record lows, despite 31 days meeting our goal of 8 vis-migs per day. Without multiple experienced banders present, no aerial nets were operated to avoid a high capture event. Wind and rain prevented the nets from being opened on 9 days, while cold starts and late morning winds prevented full net-hours on an additional 22 days. Only 13 days saw full net-hours. Overall, monitoring efforts for spring migration this year were less than previous years due to the COVID-19 pandemic and mid-April snow conditions.

Table 2. Summary of effort during spring migration monitoring. Averages include 1995 to 2020 data, except visual migration effort, which includes 2000-2020 (standard observation time reduced from 10 to 5 minutes). Averages exclude codes from days where monitoring was not attempted.

|  | $\mathbf{2 0 2 0}$ | Average | Max (Year) | Min (Year) |
| :--- | :---: | :---: | :---: | :---: |
| Daily Coverage |  |  |  |  |
| First day (2020, Avg, Latest, Earliest) | April 21 | April 22 | May 4 (1996, 98) | April 15 (2016) |
| Last day (..., Latest, Earliest) | June 10 | June 9 | June 17 (1997) | May 15 (2011)* |
| Number of days (51 possible) | 44 | 47 | $57(2000,01,06)$ | $24(2011)^{*}$ |
| Person-days | 82 | 101 | $130(2001)$ | $55(2011)^{*}$ |
| Average daily coverage code | 3.43 | 3.75 | $3.95(2005)$ | $3.43(2020)$ |
| Banding |  |  |  |  |
| Number of days | 35 | 42 | $54(2001)$ | $23(2011)^{*}$ |
| Standard nets average daily <br> net-hours (84 max) | 49.9 | 63.7 | $75.8(2008)$ | 48.7 (2019) |
| Census |  |  |  |  |
| Number of days | 44 | 46 | $57(2001,16)$ | $24(2011)^{*}$ |
| Visual Migration Counts |  |  |  |  |
| Number of days | 44 | 49 | $57(2000,01,16)$ | $24(2011)^{*}$ |
| Average daily vis. migs. | 7.0 | 7.7 | $8.4(2002)$ | $7.0(2020)$ |

[^0]
## Spring Migration Daily Totals

A total of 56,738 birds from 146 identified species were recorded across counting methods. Census documented $17 \%$ of all birds encountered with a high diversity of 115 identified species including the only Yellow-headed Blackbird and Mountain Bluebird recorded during spring migration monitoring. Visual migration counts similarly documented $13 \%$ of birds encountered with 50 species identified including the only Olive-sided Flycatcher. Banding accounted for $0.9 \%$ of encounters from 39 species, all of which were counted through another method in addition to being captured. Incidental observations contributed the most individuals (69\% of records) from 141 species, 23 of which were only encountered incidentally, including: Northern Pintail, Mourning Dove, California Gull, Caspian Tern, Northern Goshawk, Horned Lark, Marsh Wren, Golden-crowned Kinglet, American Goldfinch, Lapland Longspur, Fox Sparrow, Vesper Sparrow, Baltimore Oriole, Rusty Blackbird, Brewer's Blackbird, Black-throated Green Warbler, and Wilson's Warbler.

Overall migration activity first peaked on April 29 with flocks of American Robin. Large flocks of Greater White-fronted Geese followed on April 30 (Figure 1). Waterfowl migration was busiest late April to early May with sizeable groups of geese, but died down as smaller flocks of ducks moved through. Songbird migration was more erratic with numerous flocks of Common Redpoll, Slate-coloured Junco, and American Robin early in the season. Warblers and sparrows trailed as songbird migration slowed with a few peaks during favourable weather. For a brief weekly review of observations see Spring Migration Weekly Summary (p. 7). For a more detailed break-down of each species' abundance, as well as arrival, peak, and departure timing, see Appendix I. Migration Occurrence Records, 2020 (p. 30).


Figure 1. Total number of individuals detected daily during spring migration across all methods, 2020. Codes: American Robin (AMRO), Greater White-fronted Goose (GWFG), Lesser Snow Goose (LSGO), Myrtle Warbler (MYWA), Unidentified Warbler (UNWA), Cliff Swallow (CLSW).

## Spring Migration Mist-netting Effort \& Productivity

The LSLBO typically operates 12 standard and 2 non-standard (aerial) nets during migration monitoring. Standard nets are labeled 1 to 12 and have operated since 1995, with 7 hour monitoring periods standardized in 2000. In 2011, two aerial nets (11X and 12X) were set-up alongside nets 11 and 12 for their first spring season, but were not operated in spring 2020 due to staffing constraints caused by the COVID-19 pandemic.

A total of $2,195.0$ net-hours were accumulated, representing only $59.4 \%$ of $3,696.0$ possible net-hours (excluding days with no coverage; Table 3). This is well below the spring average of $3,196.6$ standard net-hours (2000-20, 2011 excluded) in part because staffing limitations prevented mist-netting attempts on a total of 12 days ( 7 days of no monitoring, 5 days of census only). Although staff were otherwise present for full coverage, mist-netting was only partially attempted on 22 days and not attempted at all on 9 days due to cold temperatures, rain, and high winds precluding full net-hours. Furthermore, this season began with a large snow drift in net 11 which flooded the net-lane as it melted, delaying net 11's set-up until May 5. Being situated close to the shoreline, nets 6 and 11 accumulated the fewest nethours due to wind exposure.

Across all nets, the capture rate for spring migration monitoring was 28.5 birds per 100 net-hours, which is below the season average of 34.6 birds per 100 net-hours (Table 3). Indeed, most nets saw below average capture rates, except nets 4,5 , and 7 . Net 6 , located in relatively short willow, achieved the highest capture rate of 80.4 birds per 100 net-hours and the greatest species diversity ( 26 species). The net with the lowest capture rate was net 9 ( 7.9 birds/100 net-hours) and the net with the lowest species diversity was net 2 ( 8 species). Both nets are in mature deciduous forest with a thinning understory.

Table 3. Net-hours and capture rates per 100 net-hours for each net-lane during spring migration.

| Net-lane | Net-hours (Coverage \%) | New Capture | Recapture | Total Capture of Total Species | Capture Rate* (1995-2020 Average) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 199.5 (64.8\%) | 23 | 12 | 35 of 9 | 17.5 (26.2) |
| 2 | 199.5 (64.8\%) | 14 | 4 | 18 of 8 | 9.0 (18.6) |
| 3 | 202.5 (65.7\%) | 22 | 2 | 24 of 10 | 11.9 (22.0) |
| 4 | 188.5 (61.2\%) | 42 | 8 | 50 of 10 | 26.5 (24.0) |
| 5 | 181.5 (58.9\%) | 100 | 7 | 107 of 22 | 59.0 (35.8) |
| 6 | 153.0 (49.7\%) | 107 | 16 | 123 of 26 | 80.4 (88.3) |
| 7 | 186.5 (60.6\%) | 35 | 5 | 40 of 15 | 21.4 (20.9) |
| 8 | 188.0 (61.0\%) | 27 | 4 | 31 of 14 | 16.5 (19.0) |
| 9 | 191.0 (62.0\%) | 13 | 2 | 15 of 9 | 7.9 (16.1) |
| 10 | 190.0 (61.7\%) | 19 | 3 | 22 of 13 | 11.6 (17.0) |
| 11 | 128.0 (41.6\%) | 48 | 6 | 54 of 18 | 42.2 (63.0) |
| 12 | 187.0 (60.7\%) | 62 | 9 | 71 of 25 | 38.0 (38.4) |
| Total standard | 2,195.0 (59.4\%) | 512 | 78 | 590 of 39 | 28.5 (32.4) |
| Total non-standard | 0.0 (0\%) | 0 | 0 | 0 of 0 | 0.0 (47.2) |
| Grand total** | 2,195.0 (50.9\%) | 512 | 78 | 590 of 39 | 28.5 (34.6) |

[^1]
## Spring Migration Captures

A total of 512 birds were banded during spring migration monitoring with an additional 78 recapture records. The banding total is far below the season average of 935 birds (1995-2020, 2011 excluded) and was the third slowest spring on record. Banding was slow overall because staffing limitations eliminated the possibility for mist-netting on 12 days and temporarily removed the aerial nets (commonly the most productive nets) from the array that has been operated since 2011. On days with monitoring attempted, poor weather was frequent, which further reduced capture potentials.

For most days, capture rates were below the historical average (Figure 2). The first peak in capture rates occurred on April 24 with 36 birds banded despite the nets opening late due to the cold. The busiest day of spring banding was May 25, when 38 birds of 13 species were banded, most of which were Whitethroated Sparrows. This peak occurred within the season average banding peak of May 21 to 25.

A total of 39 species were banded, which is also below the spring average of 45 species (1995-2020, 2011 excluded). The five most frequently banded species accounted for $54 \%$ of all birds banded. These species were: White-throated Sparrow (88 banded), Swainson's Thrush (88), Slate-coloured Junco (48), American Tree Sparrow (30), and Common Yellowthroat (25). All species' banding totals are listed in Appendix II. To-date \& 2020 Banding Totals (p. 67).

Highlights were few with no species breaking previous record highs. The LSLBO's second spring Cooper's Hawk and third spring Brown Creeper were banded. Gray Catbirds tied their previous record of two birds banded. However, four species did have records lows: Chipping Sparrow (with 3 banded; spring average 69), American Redstart (10 banded; average 61), Myrtle Warbler (9 banded; average 118), and Canada Warbler (14 banded; average 29). The oldest known-age bird recaptured during the spring was a Black-and-white Warbler estimated to be at least 5 years old (see Recaptures, p. 22).


Figure 2. Daily capture rates standardized to 100 net-hours during spring migration with a three-day moving average for capture rates from 2000-2020. Codes: species (sp), Slate-coloured Junco (SCJU), American Tree Sparrow (ATSP), White-throated Sparrow (WTSP).

## Spring Migration Weekly Summary

The following is a weekly summary of monitoring efforts, captures, and observations. Averages include only days with monitoring attempted. In capture summaries, the number of birds banded is followed by the week's top banded species, a return is a bird banded in a previous year and recaptured in 2020, while a repeat was previously banded or recaptured within 2020. For more detailed weekly totals, see Appendix I. Migration Occurrence Records (page 30).

## April 21 - April 27 (Week 1)

Spring migration monitoring started slightly late on April 21 since the arrival of warm weather was sluggish and deep snow required shovelling. In response to the COVID-19 pandemic, set-up included creating and deploying barricades and signage to prevent public access to the site. For staff hygiene, a hand washing station was placed with soap, water, extra hand sanitizer, and masks to use as directed in pandemic-specific safety procedures. Part of the lab building was sectioned off with plastic sheeting to separate scribes and banders, but scribes were rarely called in so this 'bubble' received little use.

For the first week, the weather was uncooperative with high winds on the first two days and cold mornings throughout. Warm, sunny afternoons melted the snow until only the largest drifts remained, but typically dry areas became increasingly waterlogged. Mist-netting was partially attempted on only three days, accumulating $25 \%$ of possible net-hours. On April 24, a wave of Slate-coloured Juncos and American Tree Sparrows were captured, providing $72 \%$ of this week's bands. Most captured birds carried ample fat reserves and must have refuelled somewhere to the south before rushing through the station. Despite the poor weather, this was the spring's second busiest week in terms of total observations recorded. Droves of Common Redpoll would be replaced by hundreds of Juncos, which in turn would be replaced by large flocks of American Robin by the week's end. The first scattered Myrtle Warbler and Purple Finch were also observed late week. Although the lake remained ice-covered, waterfowl migration steadily increased. Diversity was at its lowest for spring with 44 identified species.

Effort: 6 days monitored, Coverage code 3.0 average, 38 visual migration watches, 125.5 net-hours
Total captures: 50 of 5 sp; 50 band ( 23 Slate-coloured Junco), 0 return, 0 repeat

## April 28 - May 4 (Week 2)

Mist-netting was attempted on 5 days, but between high winds and cool temperatures, saw only $51 \%$ of possible net-hours. The LSLBO's fifth Cooper's Hawk was captured. This was the busiest period for overhead migration with approximately 25,000 birds of 75 species recorded. Songbird migration peaked on April 29, when over 4,000 American Robins were counted steadily moving in large flocks that stretched the length of the sky. This period also saw the busiest day of waterfowl migration (April 30) due to the movements of mixed flocks of geese, predominantly Greater White-fronted Geese. Migration slowed considerably late week, likely due to snow storms around the Edmonton area. High winds ground lake ice against the shore and opened up pockets of open water, contributing to increased waterfowl diversity. First season observations for 35 species were documented, including Franklin's Gull, Belted Kingfisher, Yellow-bellied Sapsucker, Tree Swallow, Winter Wren, Townsend's Solitaire, Whitethroated Sparrow, Orange-crowned Warbler, and Western Tanager. The migration monitoring program's first ever Great Gray Owl was detected. Although not uncommon locally, these owls typically stick to their preferred habitat of coniferous forests which is not well represented on-site. A pair of Merlins copulated on multiple occasions and were constant companions, but their nest was never found and they thankfully showed no interest in venturing beyond the canopy's highest reaches.

EfFORT: 6 DAYS MONITORED, COVERAGE CODE 3.3 AVERAGE, 40 VISUAL MIGRATION WATCHES, 256.0 NET-HOURS
Total Captures: 43 of 11 sp; 41 band ( 23 Slate-coloured Junco), 1 return, 1 repeat

## May 5 - May 11 (Week 3)

The weather warmed briefly, which allowed for the first two full days of netting this spring. However, otherwise cold mornings and windy afternoons reduced net-hours ( $68 \%$ of possible). Newly opened pockets of water continued to increase waterfowl diversity (Figure 3), while 5,000 migrating geese made May 6 the busiest day this period. Songbird observations were subdued overall with a trickle of Myrtle Warblers. Though movements were slow, diversity was high with 95 species identified ( 32 first season records), including the first Northern Pintail, Red-necked Grebe, Spotted Sandpiper, Blue-headed Vireo, Swainson's Thrush, Chipping Sparrow, Ovenbird, and Yellow Warbler. A Pine Marten was seen occasionally and seemed to reduce the local squirrel population considerably.


Figure 3. Common Mergansers rest on the ice May 7, 2020.

Effort: 6 DAYS MONITORED, COVERAGE CODE 3.5 AVERAGE, 42 VISUAL MIGRATION WATCHES, 343.0 NET-HOURS Total captures: 41 of 14 sp; 36 band ( 11 White-throated Sparrow), 2 return, 3 repeat

## May 12 - May 18 (Week 4)

The weather was cold overall with erratic precipitation best summarized on May 14, when it rained in the parking lot for half an hour while simultaneously snowing 200 m away at the lab. Despite such poor weather, $52 \%$ of net-hours were accumulated with $77 \%$ of birds being banded on May 18 - the only day to approach the historical average capture rate. Visual migration was particularly quiet with 85 species identified from only 1,800 encounters, $15 \%$ of which were local breeders as the Eastern Phoebes, Song Sparrows, White-throated Sparrows, and Black-and-white Warblers began establishing territories alongside year-round resident species. Relatively few first encounters occurred, but included Long-tailed Duck, Hooded Merganser, Forester's Tern, Alder Flycatcher, Least Flycatcher, and American Redstart.

Effort: 6 DAYS MONITORED, COVERAGE CODE 3.3 AVERAGE, 40 VISUAL MIGRATION WATCHES, 264.0 NET-HOURS Total captures: 53 of 16 SP; 43 band ( 11 White-Throated Sparrow/Swainson's Thrush), 3 return, 7 repeat

## May 19 - May 25 (Week 5)

A weather system mid-week brought more rain, snow, and high winds. Thanks to pleasant weather for the remainder of the week, $68 \%$ of net-hours were achieved. With 137 birds banded from 21 species, banding was both the busiest and most diverse for spring. Although the number of encounters was relatively low $(3,200)$, observed diversity was at its peak with 96 species identified, including sightings of Caspian Tern, Mountain Bluebird, and Gray Catbird (Figure 4) - all rare encounters for our boreal station. There were first encounters of 18 species, including White-winged Scoter, American White Pelican, Eastern Kingbird, Philadelphia Vireo, Red-eyed Vireo, Cliff Swallow, Tennessee Warbler, Common Yellowthroat, Magnolia Warbler, Wilson's Warbler, and Canada Warbler.


Figure 4. Migrating Gray Catbird banded on May 25. Prior to 2020, only 7 catbirds had been banded by the LSLBO; 3 were captured this year.

Effort: 6 days monitored, COVERAGE CODE 3.7 AVERAGE, 46 VISUAL MIGRATION WATCHES, 340.5 NET-hOURS
Total captures: 157 of 21 SP; 137 band ( 46 White-throated Sparrow), 6 return, 14 repeat

## May 26 - June 1 (Week 6)

The weather was cool and fairly calm with overnight storms. Mist-netting was accomplished for $76 \%$ of possible net-hours with capture rates around the historical average for this period. Overhead migration was again slow, except for May 26 when warblers and sparrows were on the move. Unfortunately dark clouds and high winds that created deafening waves frequently made positive identification impossible. Although most encounters were of migrants, signs of breeding became more common with a Song Sparrow captured carrying an egg in her oviduct and songs from many species filling the forest. Following last year's population boom, as the Tennessee Warblers began to sing, other species' songs were sometimes drowned out. Within the 83 identified species was the first Western Grebe, Olive-sided Flycatcher, Warbling Vireo, Canada Jay, Cedar Waxwing, and Mourning Warbler.

Effort: 6 days monitored, coverage code 3.7 AVERAGe, 44 VISUAL MIGration watches, 381.5 Net-hours
Total captures: 127 of 19 SP; 110 band (26 SWAINSON's THRUSH), 1 RETURN, 16 REPEAT

## June 2 - June 8 (Week 7)

Full net-hours were seen on three days of favourable weather, but the rest of the week was cold, windy, and rainy (63\% of net-hours). The netlanes that had yet to dry from the snowmelt collected puddles. These wet conditions seemed to push some species (for example, White-throated Sparrow) that typically breed around the lab further into the forest where the elevation created a drier forest floor, thus reducing the number of recaptures expected for this period. Overhead migration was slow with $36 \%$ of encounters being locally breeding birds. Captures similarly often showed breeding characteristics. A Gray Catbird joined the spring chorus, while Canada Geese brought their goslings to tour the lake. The first broods of American Robins fledged into a cold storm that many would succumb to. Records of Rubythroated Hummingbird (Figure 5) and California Gull were the only first encounters out of the 64 identified species.


Figure 5. Ruby-throated Hummingbird captured June 3. Due to their small size and high metabolism, special equipment is required to band hummingbirds.

EfFORT: 6 DAYS MONITORED, COVERAGE CODE 3.3 AVERAGE, 40 VISUAL MIGRATION WATCHES, 316.5 NET-HOURS Total Captures: 73 of 12 sp; 54 band ( 14 Mourning Warbler), 9 return, 10 repeat

## June 9 - June 10 (Week 8, 2 day period)

For the last two days of spring migration monitoring, the weather was pleasant. The nets saw full nethours and steadily captured Alder Flycatcher, Common Yellowthroat, and Mourning Warbler, which all appeared to be migrating. Overhead was a trickle of Cedar Waxwings and Pine Siskins. A Mallard somehow got caught in net 11 while net 3 tried (and failed) to catch a deer. Although no new bird species were encountered, the first dragonflies were spotted.

Effort: 2 days monitored, COVERAGE CODE 4.0 AVERAGE, 16 VISUAL MIGRATION WATCHES, 168.0 NET-HOURS TOTAL CAPTURES: 46 OF 12 sP; 41 bAND (11 Alder FLYCATCHER), 2 RETURN, 3 REPEAT

## Fall Migration Monitoring

Fall migration monitoring takes place over 12 weeks from July 12 to September 30 (although some years have monitored beyond the standard dates) - a period that covers the migration window for most songbird species anticipated at the LSLBO as they move south for the winter. Unfortunately, the same species that often receive poor coverage with spring migration monitoring also receive poor coverage in the fall as they tend to migrate through the area in October when it is normally too cold for mist-netting. Abundances of individuals increase through July as more migrants are observed alongside local breeders. Come August, most encounters are of migrants which continue to move in declining numbers into late September. Fall migration is erratic and busy banding days are remarkably difficult to predict.

Fall migration monitoring occurred daily from July 12 to September 30 (Table 4). Since the contracts for two experienced assistants began in June (after a precautionary COVID-19 quarantine period), overall monitoring efforts for fall migration were similar to past years. With no interruptions to coverage, the number of days monitored ( 81 days) was above average. Census was performed daily and 58 days achieved the desired 8 daily visual migration counts. Storms completely prevented the nets from opening on 8 days, while cold starts and late morning winds prevented full net-hours on 43 days. Only 30 days obtained full net-hours, and as a result, lower than average daily net-hours were accumulated. High winds frequently caused the early closure of the more exposed non-standard aerial nets, which collected the fewest daily net-hours since they were set-up in fall 2010. Although volunteer activity was largely absent, increased staff hours during early September allowed the number of person-days accumulated throughout the season to be slightly above average (see Staff and Volunteers, p. 26).

Table 4. Summary of effort during fall migration monitoring. Averages based on 1995 to 2020 data, except visual migration effort (2000-2020; standard observation time reduced from 10 to 5 minutes).

|  | 2020 | Average | Max (Year) | Min (Year) |
| :---: | :---: | :---: | :---: | :---: |
| Daily Coverage |  |  |  |  |
| First day (2020, Avg, Latest, Earliest) | July 12 | July 13 | Aug. 5 (1997) | July 7 (2000) |
| Last day (..., Latest, Earliest) | Sept. 30 | Sept. 29 | Oct. 6 (2000) | Sept. 22 (2001) |
| Number of days (81 possible) | 81 | 74 | 91 (2000) | 35 (1997) |
| Person-days | 145 | 143 | 207 (2000) | 45 (1997) |
| Average daily coverage code | 3.70 | 3.75 | 3.90 (2001) | 3.48 (2003) |
| Banding |  |  |  |  |
| Number of days | 73 | 70 | 89 (2000) | 33 (1997) |
| Standard nets average daily net-hours (84 max) | 57.7 | 64.8 | 76.3 (2008) | 34.3 (1996) |
| Aerial nets average daily net-hours (14 max) | 6.7 | 9.0 | 10.3 (2012) | 6.7 (2020) |
| Census |  |  |  |  |
| Number of days | 81 | 68 | 90 (2000) | 8 (1997) |
| Visual Migration Counts |  |  |  |  |
| Number of days | 81 | 79 | 91 (2000) | 69 (2001) |
| Average daily vis. migs. | 7.4 | 7.6 | 7.8 (2001) | 7.3 (2011) |

## Fall Migration Daily Totals

A total of 53,064 birds from 127 identified species were recorded during fall migration monitoring between counting methods. Census accounted for $19 \%$ of all encounters with 91 species identified, including the only Barn Swallow recorded during fall migration monitoring. Visual migration counts contributed a relatively low $6 \%$ of encounters, recording 41 identified species including the only Golden Eagle and Peregrine Falcon. Banding contributed the fewest encounters ( $7 \%$ ), but added more to total observations during fall than during spring migration monitoring ( $<1 \%$ ). There were 60 species banded, including the only Fox Sparrow, Le Conte's Sparrow, Nashville Warbler, Connecticut Warbler, and Blackpoll Warbler encountered. Incidental observations recorded the majority of birds (68\%) and the highest species diversity ( 119 species identified) with 20 species only recorded incidentally. These species included: Red-breasted Merganser, White-winged Dove (an LSLBO first), Semipalmated Sandpiper, Solitary Sandpiper, Cooper's Hawk, Broad-winged Hawk, Olive-sided Flycatcher, Say's Phoebe, White-breasted Nuthatch, European Starling, and Chestnut-sided Warbler.

Overall, songbird migration was erratic (Figure 6) possibly because of persistent heavy winds and poor overnight weather. In general, overhead migration was low while foraging activity was unusually high throughout the season. It is possible the large forest fires in 2019 to the northeast created an additional funnelling effect for southward migration (see Habitat Assessment \& Stewardship, p. 24). Songbird observations steadily increased in response to Myrtle Warblers that migrate in two waves: the first July 21 to August 1, the second August 17 to September 17. For a more detailed summary of each week see Fall Migration Weekly Summary (p. 14). For a break-down of each species' abundance, as well as arrival, peak, and departure timing, see Appendix I. 2020 Migration Occurrence Records (p. 30).


Figure 6. Total number of individuals detected each day during fall migration across all methods, 2020. Codes: Franklin's Gull (FRGU), Myrtle Warbler (MYWA), Lesser Snow Goose (LSGO).

## Fall Migration Mist-netting Effort \& Productivity

The same nets are used for fall migration monitoring as the spring with 12 standard nets (coded 1 to 12 , established 1994-95) and two non-standard aerial nets (11X and 12X, establish fall 2010). This fall accumulated a total of $5,218.0$ net-hours, achieving $65.7 \%$ of $6,804.0$ possible net-hours (Table 5). The twelve standard nets were set for 4,675.5 net-hours; below the fall average of 5,400.9 net-hours (20002020). With 542.5 net-hours, non-standard netting was also below average ( 719.3 net-hours; 20102020). The non-standard nets were occasionally closed to keep captures manageable during high capture events. Despite an above average number of days monitored, inclement weather and bear sightings often prevented mist-netting this fall. Due to their high exposure to wind along the less vegetated shoreline and canopy, nets $6,11,11 \mathrm{X}$, and 12 X accumulated the fewest net-hours again this year. Due to unusual and persistent wind directions, nets 1 and 2 were closed more frequently than normal. Slower days with multiple observers present were used to repair nets damaged during spring and MAPS monitoring. Repairs were performed near the banding lab where the demonstration net for visitors is generally set up; therefore incidental captures in these nets are included as "DEMO".

The total capture rate was almost four times higher than this spring's capture rate and nearly double the average fall capture rate with 91.3 birds per 100 net-hours (average 53.2 birds per 100 net-hours; Table 5). Most nets saw above average capture rates except for nets 1,2 , and 3 tucked away deep into mature mixed forest, which caught around half their average capture rate. Net 9 in a similar habitat was just below average. In contrast, nets 5, 6, and 12 doubled their average capture rates, while net 8 tripled its average. As usual, net 6 experienced the highest capture rate ( 444.5 birds per 100 net-hours) and caught the highest diversity ( 47 species). The aerials caught $13 \%$ of all birds captured, despite their record low net-hours in 2020.

Table 5. Net-hours and capture rates per 100 net-hours for each net-lane during fall migration.

| Net-lane | Net-hours (Coverage \%) | New Capture | Recapture | Total Capture of Total Species | Capture Rate (1995-2020 Average) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 396.0 (69.8\%) | 102 | 23 | 125 of 21 | 31.6 (60.0) |
| 2 | 396.0 (69.8\%) | 66 | 8 | 74 of 11 | 18.7 (33.2) |
| 3 | 414.0 (73.0\%) | 49 | 13 | 62 of 14 | 15.0 (30.5) |
| 4 | 406.5 (71.7\%) | 131 | 25 | 156 of 19 | 38.4 (25.3) |
| 5 | 400.0 (70.5\%) | 562 | 37 | 599 of 35 | 149.8 (59.7) |
| 6 | 287.5 (50.7\%) | 1234 | 44 | 1278 of 47 | 444.5 (167.2) |
| 7 | 403.5 (71.2\%) | 76 | 21 | 97 of 22 | 24.0 (21.7) |
| 8 | 414.0 (73.0\%) | 306 | 23 | 329 of 32 | 79.5 (25.0) |
| 9 | 429.5 (75.7\%) | 51 | 11 | 62 of 17 | 14.4 (16.6) |
| 10 | 429.5 (75.7\%) | 114 | 26 | 140 of 24 | 32.6 (22.2) |
| 11 | 286.5 (50.5\%) | 279 | 14 | 293 of 38 | 102.3 (70.3) |
| 12 | 412.5 (72.8\%) | 476 | 26 | 502 of 38 | 121.7 (51.7) |
| Total standard | 4,675.5 (68.7\%) | 3446 | 271 | 3717 of 60 | 89.4 (48.6) |
| 11X | 242.0 (42.7\%) | 240 | 8 | 248 of 32 | 102.5 (100.2) |
| 12X | 300.5 (53.0\%) | 273 | 37 | 310 of 31 | 103.2 (60.8) |
| DEMO * | 12.0 (2.1\%) | 7 | 0 | 7 of 4 | 58.3 (0.0) |
| Total non-standard | 542.5 (47.8\%) | 520 | 45 | 558 of 39 | 102.8 (80.5) |
| Grand total | 5,218.0 (65.7\%) | 3966 | 316 | 4275 of 60 | 91.3 (53.2) |

[^2]
## Fall Migration Captures

A total of 3,966 birds were banded during fall migration monitoring with an additional 316 recapture records. This was the busiest fall season since operations began due to most days experiencing a capture rate well above the historical average (average 2,161 bird banded per fall; 1995-2020). Banding was erratic overall, but began relatively steady in July and first peaked in capture rates on July 23 when 67 birds were banded in minimal net-hours (Figure 7). The busiest day of banding fell relatively late in the season on September 4, when 235 birds were banded - most of them Myrtle Warblers. Banding would steadily slow into late September.

With 60 species banded, species diversity was just above average ( 58 species; 1995-2020). The five most frequently banded species accounted for $60 \%$ of all birds banded. These species were: Myrtle Warbler (957 banded), Tennessee Warbler (478), American Redstart (360) Swainson's Thrush (310), and Yellow Warbler (291). All species banding totals are listed in Appendix II. To-date \& 2020 Banding Totals (p. 67).

Many species broke their previous banding records. These included: Red-eyed Vireo (with 67 banded; surpassing 58 banded in fall 2015), Winter Wren (4; 3 in 2018/19), Cedar Waxwing (30; 24 in 1995), Northern Waterthrush (36; 31 in 2004), Black-and-white Warbler (123; 117 in 2013), Mourning Warbler (131; 124 in 2018), Yellow Warbler (291; 235 in 1999), and Canada Warbler (188; 163 in 2018). The LSLBO's first Gray Catbird of fall monitoring was captured. Similarly, 5 Nashville Warblers were captured - a species that the LSLBO had banded a total of 7 prior to 2020. The oldest known-age bird recaptured during the early fall was a Myrtle Warbler estimated to be at least 8 years old (see Recaptures, p. 22).


Figure 7. Daily capture rates standardized to $\mathbf{1 0 0}$ net-hours during fall migration for standard and nonstandard captures with a three-day moving average for capture rates from 2000-2020. Codes: species (sp), Myrtle Warbler (MYWA).

## Fall Migration Weekly Summary

The following is a weekly summary of monitoring efforts, captures, and observations. Since coverage was uninterrupted, 7 days were monitored each period unless otherwise stated. Similarly, a census was performed daily. In capture summaries, birds banded is followed by the top banded species, a return was banded in a previous year and recaptured in 2020, while a repeat was banded or already recaptured within 2020. For more detailed weekly totals, see Appendix I. Migration Occurrence Records (page 30).

## July 12 - July 18 (Week 1)

As the COVID-19 pandemic continued, staff took personal hygiene seriously and frequently used the personal protective equipment and procedures set up during spring migration monitoring. Fall migration monitoring began windy with sporadic rainy periods. The wind created large waves that pushed debris to the tree line and wiped out willow and aspen saplings on the shore, leaving only rocks and fresh patches of sand. Mist-netting saw merely $48 \%$ of possible net-hours for a moderate start to fall of 77 birds banded. From the 52 identified species, final efforts of local breeders were plentiful with many species feeding fledglings and a Belted Kingfisher repeatedly seen carrying food. Delayed by the wind, migration began as a trickle by the end of the week with Myrtle Warbler and a few Black-and-white Warbler, Tennessee Warbler, American Redstart, Bay-breasted Warbler, and Yellow Warbler. Late week was dominated by Franklin's Gulls pacing the shore with over 3,000 recorded on July 17.

Effort: coverage code 3.6 average, 52 visual migration watches, 329.5 net-hours
Total captures: 102 of 14 sp; 77 band (19 Myrtle Warbler), 3 return, 22 repeat

## July 19 - July 25 (Week 2)

Aside from a few storms, the wind abated somewhat. Although the more exposed shoreline and aerial nets were often kept closed, $70 \%$ of net-hours were attained. Migration started to pick up with 68 identified species encountered and most warbler species on the move; particularly Tennessee Warbler, Yellow Warbler, and Myrtle Warbler. With birds foraging through the canopy as they migrated, capture rates were well above the historical average for this period. It was a time for moulting with most captures completing their formative moults and more adults beginning their basic moult. Singing became muted until only a solitary Winter Wren and a Canada Warbler (Figure 8) were heard on July 25.


Figure 8. Canada Warbler captured with a mosquito - possibly to feed fledglings, July 23.

Effort: COVERAGE CODe 3.7 average, 52 visual migration watches, 480.5 net-hours
Total captures: 500 of $30 \mathrm{sp} ; 470$ band ( 130 Tennessee Warbler), 2 return, 28 repeat

## July 26 - August 1 (Week 3)

The weather was hot and humid with brief winds and overnight storms allowing for improved net-hours ( $87 \%$ of possible). The continuation of unusually high foraging activity made this the second busiest week of banding this fall with 724 birds banded including 208 bands on July 30. With over 7,200 encounter records, counts were the highest for fall. Migration came in surges of mostly Myrtle Warbler, but also saw good numbers of Swainson's Thrush, Black-and-white Warbler, Tennessee Warbler, Yellow Warbler, Canada Warbler, and Rose-breasted Grosbeak. Meanwhile Franklin's Gull and Pine Siskin continued to circle overhead. Black bears started to move through with a sow and two cubs and another two bears encountered during monitoring efforts forcing precautionary closures of some nets.

EfFORT: COVERAGE CODE 4.0 AVERAGE, 56 VISUAL MIGRATION WATCHES, 595.0 NET-HOURS
Total Captures: 772 of 33 sp; 724 band ( 144 American Redstart), 3 RETURN, 45 REPEAT

## August 2 - August 8 (Week 4)

Since the days were warm, but windy, migration was stifled as birds continued to take to foraging and confusing observers with unrecognizable subsongs. Although most songbird records were of American Redstart (Figure 9), diversity increased with a total of 62 identified species. The Franklin's Gulls and Bald Eagles enjoyed coasting along the shore in the winds, especially on August 4 ( 3,500 gulls recorded). Captures similarly lulled with 344 bands ( $51 \%$ of possible net-hours), but recaptures were high suggesting that many birds were stopping over. It was a hard week on our nets as deer focused in on net 3 , hitting it first on August 2. On August 6 , a doe was seen gracefully sliding under net 3 while her partner face planted into the bottom


Figure 9. Adult female American Redstart banded August 4. Only males entering their second year of life have the highly recognizable black and orange plumage. panel to get it caught in his small, velvety antlers. While a replacement net was being collected, the pair would strike again, dragging the net the other way through the bush entangling plenty of debris. Furthermore, a black bear vandalized several nets over the night of August 2 in the MAPS site ROAD, but the damage was mostly minimal and we were spared from any errant captures. These events reduced spare net availability and forced premature replacements of nets which capture more birds, but fewer large mammals to replenish our stock of spares for 'high risk' net lanes.

Effort: coverage code 3.6 average, 50 visual migration watches, 349.0 net-hours
Total captures: 413 of 30 sp ; 344 band (77 American Redstart), 0 return, 69 repeat

## August 9 - August 15 (Week 5)

This week was windy with relatively little bird activity and hints of high stopover rates. Banding was remarkably slow with 138 birds banded from 20 species in part because the nets were frequently closed due to either high winds or rain, accumulating an abysmal $32 \%$ of net-hours. August 11 and 15 were the only days with pleasant weather. However, the mother bear and her two cubs made another appearance on August 11 and the nets were shut as a result early in the morning. Foraging activity again dwarfed overhead migration with only a brief burst of migration on August 15. Breeding activity concluded with the Cedar Waxwings fledging and gorging on the berries around the station. Among the 62 species identified were the first Sharp-shinned Hawk and Wilson's Warbler.

Effort: COVERAGE CODE 3.4 AVERAGE, 48 VISUAL MIGRATION WATCHES, 220.5 NET-HOURS
TOTAL CAPTURES: 153 of 20 sP; 138 band ( 32 AMERICAN REDSTART), 1 RETURN, 14 REPEAT

## August 16 - August 22 (Week 6)

Amid calm, hot, and humid conditions, migration activity swelled in the cool early mornings tapering off as the day progressed and became hotter. With generally favourable conditions, the nets were open for $85 \%$ of possible net-hours and were productive, banding a season high in terms of both numbers and diversity of 782 birds from 43 species. The busiest day for banding this week was August 20, which banded 224 birds from 27 species. While Tennessee Warblers were still plentiful, the second push of Myrtle Warblers began and accounted for $29 \%$ of all encounters. Migration peaked for several species, including Philadelphia Vireo, Red-eyed Vireo, Song Sparrow, Common Grackle, Ovenbird, Magnolia Warbler, and Bay-breasted Warbler. Among the 87 identified species was the first Orange-crowned Warbler. Moreover, a Gray Catbird was observed and a Nashville Warbler banded - both of which are unusual encounters locally. Although the lake had been remarkably empty of waterfowl this fall, pods of Red-necked Grebes and Common Loons were seen with a few other species.

Effort: COVERAGE CODE 3.9 AVERAGE, 54 VISUAL MIGRATION WATCHES, 584.0 NET-HOURS
TOTAL CAPTURES: 805 OF 43 SP; 782 band ( 176 Myrtle WARbler), 0 RETURN, 23 REPEAT

## August 23 - August 29 (Week 7)

Mornings became cooler and the wind often interfered with operations. Banding was relatively slow with reduced net-hours ( $69 \%$ of possible). Similarly, migration was quiet in general, except for the last big day of Franklin's Gulls (August 23) and a brief rush of Myrtle Warblers and Pine Siskin (August 28). Amid the 83 identified species were the first Sandhill Crane, Slatecoloured Junco, and White-crowned Sparrow and the last observations of Tree Swallow, European Starling, and Blackpoll Warbler. Peaks in migration passed for Sharp-shinned Hawk, Eastern Kingbird, Hermit Thrush, Cedar Waxwing, and Purple Finch. Highlights included banding this fall's second Nashville Warbler (Figure 10), and observations of a Barn Swallow and the LSLBO's first record of a White-winged Dove (the $240^{\text {th }}$


Figure 10. Nashville Warbler banded August 27. All Nashvilles captured in 2020 exhibited heavy body moult. species to be recorded during migration monitoring at the LSLBO; regional checklist species \#259).

EfFORT: COVERAGE CODE 3.7 AVERAGE, 52 VISUAL MIGRATION WATCHES, 474.5 NET-HOURS
Total Captures: 284 of 36 sp; 269 band ( 51 Tennessee Warbler), 0 return, 15 repeat

## August 30 - September 5 (Week 8)

Overall windy with sporadic rain, the poor weather hampered songbird migration until letting up late week. With improved conditions, a steady stream of Myrtle Warblers flew overhead as the peak of their second wave of migration passed with the last push of Tennessee Warblers. Of all birds encountered, 48\% were Myrtle Warblers. This surge of Myrtles contributed to September 4 becoming the busiest day of the fall with 235 birds banded. September 5 was shaping up to be another busy day ( 186 birds banded), but rain shut the nets early. These two days accounted for the majority of birds banded this period (49\% of possible net-hours). The last of our summer breeders departed and only $2 \%$ of encounters were not actively migrating or dispersing. Diversity declined to 73 identified species with the last American Kestrel, Blue-headed Vireo, Warbling Vireo, Yellow Warbler, Canada Warbler, and Rosebreasted Grosbeak. The first Solitary Sandpiper, Say's Phoebe, Lapland's Longspur, and Savannah Sparrow were recorded. The highlight was capturing yet another two Nashville Warblers.

Effort: COVERAGE CODE 3.6 AVERAGE, 49 vISUAL MIGRATION WATCHES, 335.0 NET-HOURS
Total Captures: 481 of 29 sp; 476 band ( 325 Myrtle Warbler), 0 return, 5 repeat

## September 6 - September 12 (Week 9)

Although early morning temperatures slipped closer to freezing, it was generally warm, delaying the first hard frost. Aspen, sarsaparilla, and wild rose slowly yellowed while the poplars turned a sickly brown. Due to poor weather to the south and west, reverse migration was common early in the week. Myrtle Warblers continued to dominate observations, but Greater White-fronted Goose, Ruby-crowned Kinglet, Gray-cheecked Thrush, Slate-coloured Junco, White-throated Sparrow, Orange-crowned Warbler (Figure 11), and Western Palm Warbler began to make moderate pushes. Among the 76 identified species were the last Great Blue Heron, Cliff Swallow, House Wren,


Figure 11. Orange-crowned Warbler banded September 12. and Western Tanager. Mist-netting was attempted on all days producing good coverage (88\% of possible) and foraging rushes around census contributed the most to captures.

Effort: Coverage code 3.9 average, 56 visual migration watches, 603.0 net-hours
Total Captures: 381 of 33 sp; 361 band ( 190 Myrtle Warbler), 1 return, 19 repeat

## September 13 - September 19 (Week 10)

The station's weather was generally pleasant, but storms and a thick haze frequently obscured surrounding shorelines. The first frost delayed opening the nets on one day, but otherwise full net-hours were achieved (95\% of possible). Captures were steady with Myrtle Warblers being replaced by Orange-crowned Warblers and included the first Gray Catbird banded during fall migration monitoring and this season's fifth Nashville Warbler and only Fox Sparrow. Counts steadily declined and a relatively high number of stop-overs were encountered with heavy fat reserves. However, diversity was high with 85 species identified - an uptick due to increased waterfowl diversity on the lake and sightings of the last Yellow-bellied Sapsucker, Yellow-shafted Flicker, Alder Flycatcher, Least Flycatcher, Red-eyed Vireo,


Figure 12. September 16, this Magnolia Warbler broke the previous LSLBO fall record for most birds banded in a season. Waterthrush, Black-and-white Warbler, Tennessee Warbler, Mourning Warbler, American Redstart, and Magnolia Warbler (Figure 12).

Effort: COVERAGE CODE 4.0 AVERAGE, 56 VISUAL MIGRATION WATCHES, 651.0 NET-HOURS
Total captures: 344 of 37 sp; 280 band ( 87 Orange-Crowned Warbler), 1 RETURN, 63 REPEAT

## September 20 - September 26 (Week 11)

Haze from forest fires burning in the western United States lingered. On most days the wind was consistently strong, preventing mist-netting and thwarting bird activity. Although all days saw partial net-hours (58\% of possible), the nets caught more leaves than birds. Migration slowed considerably compared to the last period (6,500 encounters) with only 1,000 encounters recorded. Songbird migration was a trickle of Myrtle Warbler, Slate-coloured Junco, and American Tree Sparrow. Within the 56 identified species were the last Common Tern, Belted Kingfisher, Hermit Thrush, Clay-coloured Sparrow, Swamp Sparrow, Common Yellowthroat, Western Palm Warbler, and Wilson's Warbler. The highlight was a Golden Eagle gliding over on September 21 - the first since 2001 and only the sixth recorded at the LSLBO.

EfFORT: COVERAGE CODE 3.6 AVERAGE, 50 VISUAL MIGRATION WATCHES, 394.5 NET-HOURS
Total captures: 39 of 14 Sp; 38 band ( 7 Ruby-crowned Kinglet/White-throated Sparrow), 0 return, 1 repeat

September 27 - September 30 (Week 12, 4 day period)
The weather did not cooperate for the last four days of monitoring with persistent high winds. Despite the nets attaining $51 \%$ of possible net-hours, only 7 birds were banded (Figure 13). There were an abysmal 225 encounters from 36 species. Since this September was quite warm, it is possible some late migrants that would normally be observed in this period had not yet moved in earnest. The only highlight was watching the chipmunk busy gathering winter stores.

Effort: 4 days monitored, coverage code 3.5 average, 28 visual MIGRATION WATCHES, 201.5 NET-HOURS
TOtal CAPtures: 8 of 6 sp; 7 band (2 Black-CAPPED Chickadee), 0 RETURN, 1 REPEAT


Figure 13. The last bird of fall 2020, a Brown Creeper banded Sept. 30.

## Monitoring Avian Productivity and Survivorship (MAPS)

Coordinated by the Institute for Bird Populations (IBP), Monitoring Avian Productivity and Survivorship (MAPS) is a continent-wide program that aims to understand population changes in order to conserve birds and their habitats. By banding during the breeding season, population parameters such as productivity (young produced), recruitment (young returning to breed), and survival (adults returning to breed) may be estimated. Conservation efforts can then better address factors causing populations declines, for example, poor breeding success or poor habitat quality.

The LSLBO has contributed to MAPS since 1994, with this year marking the $27^{\text {th }}$ year of participation. Four MAPS stations are operated: Far and Away (FAWA), Fern Gully (FEGU), Residential (RESI), and Roadside (ROAD). FAWA, FEGU, and ROAD are located in the mature deciduous forest near the migration station, while RESI is in a more diverse set of habitats near the Boreal Centre for Bird Conservation. FAWA and ROAD have operated yearly since 1994 ( 27 years). FEGU has operated from 1994 to 2000, then 2003 to 2020 ( 24 years), while RESI has operated since 2000 ( 21 years).

Each station is visited six times, once in each 10-day period (Table 6). Standardized mist-netting and observations are combined to determine species breeding statuses. The LSLBO follows protocols for station activities outlined in the MAPS Manual (IBP, 2020).

Table 6. Dates of operation and net-hours completed within the intended periods for each MAPS site.

|  | Station (Net-hours operated in 2020) |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| MAPS Period (Dates) | FAWA (360.0) | FEGU (354.0) | ROAD (359.0) | RESI (324.0) |
| 5 (June 10-19) | June 14 (60.0) | June 12 (54.0) | June 11 (60.0) | June 16 (54.0) |
| 6 (June 20-29) | June 20 (60.0) | June 21 (60.0) | June 21 (60.0) | June 23 (54.0) |
| 7 (June 30 - July 9) | July 4 (60.0) | June 30 (60.0) | June 30 (60.0) | July 3 (54.0) |
| 8 (July 10-19) | July 10 (60.0) | July 11 (60.0) | July 11 (59.0) | July 10 (54.0) |
| 9 (July 20-29) | July 21 (60.0) | July 22 (60.0) | July 24/25 (60.0) | July 20 (54.0) |
| 10 (July 30 - Aug. 8) | August 2 (60.0) | July 30 (60.0) | August 5 (60.0) | July 31 (54.0) |

Each station operates 10 nets within a six hour period for a maximum of 60 net-hours in a period and 360 possible net-hours in a summer. FAWA again achieved full net-hours this year (Table 6). ROAD lost an hour while a net was repaired after a broken trammel in period 8, but otherwise achieved full nethours. After a wet spring, net 7 in FEGU could not be safely operated in period 5 . Similarly, due to severe flooding, net 7 could not be operated in RESI for the entire season as the surrounding muskeg failed to drain and travel through the area was avoided when possible.

It was a record-breaking year for MAPS captures with 505 birds banded - more than double the average of 236.5 birds per MAPS season (Table 7). Due to steady captures of migrants in the last two periods, all four stations saw an above average number of bands. FAWA banded more birds this year than it has in any previous year with 142 individuals of 18 species (average 46.3 bands/year). FEGU banded 118 birds of 17 species (average 77.5 bands/year) and ROAD banded 92 birds of 12 species (average 54.7 bands/year). RESI banded the highest diversity with 27 species amid 153 individuals (average 98.7 bands/year). Record numbers of Red-eyed Vireo (11 banded), Pine Siskin (2), White-throated Sparrow (100), Black-and-white Warbler (15), American Redstart (90), and Canada Warbler (46) were banded. Diversity of species banded during MAPS was above average with 33 species (average 25.4 species/year). Unusual captures included two White-breasted Nuthatches in FAWA and an American Three-toed Woodpecker in FEGU.

There were an additional 213 recapture records from 19 species in the MAPS program with FAWA recording the most recaptures ( 73 records; Table 7). From these recapture records, the oldest known age bird from the MAPS program was a White-throated Sparrow recaptured in FAWA estimated to be 10 years old or older (see Recaptures, p. 22).

Table 7. Number of birds banded and recaptured at four MAPS stations (taxonomic order).


## MAPS Breeding Status

To assess the summer residency status of species observed during MAPS, each of the 65 species detected was given a breeding status code (Table 8). Observations were recorded within the station's boundaries during banding operations (Table 6). Confirmed breeding species (B) are those with at least one individual observed with an active nest, young fledglings, carrying food or nesting material, performing a distraction display, or by persistent territorial singing across periods. If a species is heard singing infrequently, then it is often coded a likely breeder (L). Transient species ( T ) breed in the wider area, but are not likely breeding within the site.

Table 8. Breeding status of species detected during MAPS, 2020. "B" indicates a breeding species, " $L$ " a likely breeding species, and "T" a transient species for each site (taxonomic order).

| Species | FAWA | FEGU | ROAD | RESI | Species | FAWA | FEGU | ROAD | RESI |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mallard |  | T |  |  | Swainson's Thrush | B | L | B | B |
| Spotted Sandpiper | T |  |  |  | Hermit Thrush |  |  |  | T |
| Common Goldeneye | T |  | T |  | American Robin | L | T | L | B |
| Common Loon | T | T | T | T | Ovenbird | B | B | B | B |
| Northern Harrier | T |  | T |  | Cedar Waxwing | L | L | L | L |
| Franklin's Gull |  |  | T |  | White-winged Crossbill |  | T | T | T |
| Ring-billed Gull |  |  | T |  | Pine Siskin | T | T | L | L |
| Ruffed Grouse |  | B | T | B | American Goldfinch |  | T | T |  |
| American White Pelican |  |  | T |  | Evening Grosbeak | T | T | T | T |
| Bald Eagle |  |  | T |  | Clay-colored Sparrow |  |  | T |  |
| Broad-winged Hawk |  |  |  | T | Western Tanager | L | L | L | B |
| Belted Kingfisher | T | T |  |  | Song Sparrow | L | L | L |  |
| Yellow-bellied Sapsucker | T | L | B | B | Lincoln's Sparrow |  | T | T | B |
| American Three-toed Wood. |  | T | T |  | Swamp Sparrow |  |  |  | T |
| Downy Woodpecker | L | T | L | L | White-throated Sparrow | B | B | B | B |
| Hairy Woodpecker | L | L | T | T | Purple Finch | T |  |  | T |
| Yellow-shafted Flicker | T | T |  | T | Northern Waterthrush | T |  |  | T |
| Pileated Woodpecker | T | T | T | T | Black-and-white Warbler | B | B | B | B |
| Merlin | T | T | L |  | Tennessee Warbler | B | B | B | B |
| Alder Flycatcher | B | L | L | B | Mourning Warbler | B | B | B | B |
| Least Flycatcher | B | B | T | L | Common Yellowthroat |  | T | T | B |
| Eastern Phoebe |  | B | B |  | American Redstart | B | B | B | B |
| Blue-headed Vireo |  |  |  | L | Magnolia Warbler | B | B | B | B |
| Red-eyed Vireo | B | B | B | B | Bay-breasted Warbler |  | T |  |  |
| Philadelphia Vireo | L | T | T | T | Yellow Warbler | B | B | L | T |
| Blue Jay |  | T | T | T | Myrtle Warbler | B | B | B | B |
| American Crow | L | L | L | T | Black-throated Green W. |  |  |  | L |
| Common Raven | T | T | T | T | Canada Warbler | B | B | B | B |
| Tree Swallow | T |  |  |  | Chipping Sparrow | T |  |  | T |
| Black-capped Chickadee | B | L | L | B | Rose-breasted Grosbeak | B | L | L | B |
| Red-breasted Nuthatch | L | B | B | B | TOTALS | FAWA | FEGU | ROAD | RESI |
| White-breasted Nuthatch | B |  |  |  | Breeding species (B) | 18 | 16 | 15 | 22 |
| Brown Creeper |  |  |  | L | Likely breeding sp. (L) | 9 | 10 | 12 | 7 |
| Winter Wren | B | B | B | B | Transient species (T) | 16 | 19 | 21 | 18 |
| Ruby-crowned Kinglet |  |  |  | T | Total species detected | 43 | 45 | 48 | 47 |

# Northern Saw-whet Owl \& Boreal Owl Monitoring 

The LSLBO contributes to Project Owlnet, a continent-wide network of Northern Saw-whet Owl banding stations. Along with understanding these owl's population trends, habitat quality of mature forests and population trends of small mammal species may be inferred. Targeted owl banding was performed when possible September 1 to October 31 to monitor the populations of migratory Northern Saw-whet Owls and potentially migratory Boreal Owls.

Two net arrays were operated during favourable weather conditions. The Saw-whet Owl net array consists of a line of four nets near the Boreal Centre for Bird Conservation in mature deciduous forest (since 2004, moved in 2013). Another two nets in a nearby stand of conifers makes up the Boreal Owl net array (since 2016). Nets are opened one hour after sunset with standardized call playbacks specific to each species used to attract owls. This year was the $17^{\text {th }}$ year of fall owl migration monitoring.

Owl banding was carried out on 37 out of 61 possible nights, below the average of 40 nights per season due to frequent stormy conditions. With additional non-standard hours on several nights, the Saw-whet array accumulated 622.0 net-hours (average 610.5 net-hours, 566 standard net-hours in 2020), while the Boreal array accumulated 302.0 net-hours (average 298.6 net-hours) to an average of 15.4 net-hours per night of monitoring between the two arrays. Despite the additional hours and Boreal nets, this was the fifth slowest year for Northern Saw-whet Owl banding with 82 Northern Saw-whet Owls and 1 Boreal Owl banded. Of these owls, 74 were captured in the Saw-whet Owl array and 9 Saw-whets and 1 Boreal were captured in the Boreal Owl array. The capture rate was well below average with 8.0 owls per 100 net-hours (average 15.1 owls/100 net-hours, 2004-2020). The busiest nights of owl banding each captured 8 owls: September 21, 27, 29, and October 1 (Figure 14), all of which accumulated additional non-standard net-hours such that September 27 saw the highest capture rate.

One Saw-whet Owl was recaptured this year (Figure 14). This owl was originally banded last year at the Beaverhill Bird Observatory as a hatch-year bird (Figure 15).


Figure 14. Capture rates standardized to 100 net-hours during owl monitoring sessions including both owl net arrays and non-standard banding Sept. 1 to Oct. 31, 2020. Nightly average capture rates from 2004-2020 shown with a moving average of three day periods. Codes: Northern Saw-whet Owl (NSWO)

## Recaptures

Adult birds often cannot be given an exact age when banded. However, when the same bird is recaptured years later, we can better estimate its age. The LSLBO recorded 608 recaptures: 78 during spring migration, 316 during fall migration, 213 during MAPS, and 1 during owl banding. Local breeders are often recaptured multiple times in a year; thus, these 608 records represent 379 individuals of 26 species. Of these 379 individuals, 281 birds were originally banded this year and 54 were banded last year. There were 44 birds banded prior to 2019 (Table 9). The oldest bird, a White-throated Sparrow recaptured at our MAPS site, FAWA, was banded in 2012 and is estimated to be 10 years old or older. International longevity records may have been set for Myrtle Warbler and Canada Warbler (both LSLBO recaptures estimated to be $8+$ years old). See Appendix III. Banding Age Codes (p. 70) for help understanding assigned ages.

Although exceptionally rare, recoveries of banded birds at other locations can suggest migration routes or rates of travel. Two recoveries happened in 2020. Traveling over 1,600 km, a Myrtle Warbler banded September 4 was encountered on September 28 in Minnesota (Figure 15). Presumably it hit a window and died on its southward journey only months after hatching. Additionally, a Northern Saw-whet Owl originally banded at the Beaverhill Bird Observatory in 2019 was recaptured on the night of September 30 (Figure 15), but it is unknown how far and where the owl went between last fall and this fall. This is the sixth owl originally banded elsewhere to be encountered during the LSLBO's owl migration monitoring program.


Figure 15. Location of banding and band recovery for [1] a Myrtle Warbler banded at the LSLBO and found roughly 3 weeks later in Minnesota and [2] a Northern Saw-whet Owl banded last year at the Beaverhill Bird Observatory and recaptured at the LSLBO; Google Earth imagery.

RECAPTURES

Table 9. Location (migration monitoring [MM], MAPS sites [FAWA, FEGU, ROAD, RESI], owl monitoring [OWL]) and approximate age of recaptured birds originally banded before 2019.

| Species | Band Number | Original Banding |  |  | Recapture |  | Age (Years) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Date | Site | Age | Date (2020) | Site |  |
| White-throated Sparrow | 2741-70975 | July 31, 2018 | FAWA | HY | July 21 | FAWA | 2 |
| Canada Warbler | 2460-13723 | July 12, 2018 | MM | SY | July 11 | FEGU | 3 |
| Swainson's Thrush | 2471-66529 | July 12, 2018 | MM | SY | Aug. 11 | MM | 3 |
| Lincoln's Sparrow | 2621-61073 | July 11, 2018 | RESI | SY | July 3 | RESI | 3 |
| American Redstart | 2570-15884 | June 30, 2018 | FAWA | SY | July 4 | FAWA | 3 |
| White-throated Sparrow | 2741-70942 | June 30, 2018 | RESI | SY | July 3 | RESI | 3 |
| Ovenbird | 2621-61061 | June 22, 2018 | ROAD | SY | June 30 | ROAD | 3 |
| White-throated Sparrow | 2741-70932 | June 21, 2018 | FEGU | SY | June 21 | FEGU | 3 |
| Black-and-white Warbler | 2460-13651 | May 30, 2018 | MM | SY | July 12 | MM | 3 |
| Lincoln's Sparrow | 2621-61649 | May 15, 2018 | MM | SY | May 18 | MM | 3 |
| Myrtle Warbler | 2820-92629 | Sept. 17, 2018 | MM | AHY | June 21 | FEGU | 3+ |
| American Redstart | 2570-15181 | July 21, 2018 | FEGU | AHY | June 12 | FEGU | 3+ |
| Swainson's Thrush | 2471-66551 | July 17, 2018 | MM | AHY | Sept. 9 | MM | 3+ |
| White-throated Sparrow | 2741-70951 | July 13, 2018 | FAWA | AHY | July 10 | FAWA | 3+ |
| Canada Warbler | 2810-12941 | July 12, 2018 | FEGU | AHY | June 6 | MM | 3+ |
| Canada Warbler | 2740-83941 | June 30, 2017 | FAWA | SY | June 14 | FAWA | 4 |
| Mourning Warbler | 2740-83933 | June 25, 2017 | FAWA | SY | June 10 | MM | 4 |
| Canada Warbler | 2740-83920 | June 12, 2017 | ROAD | SY | Aug. 20 | MM | 4 |
| Magnolia Warbler | 2570-15514 | June 9, 2017 | MM | SY | July 22 | FEGU | 4 |
| Black-and-white Warbler | 2740-83511 | July 28, 2016 | MM | HY | Aug. 17 | MM | 4 |
| American Redstart | 2570-15193 | July 30, 2018 | RESI | ASY | July 10 | RESI | 4+ |
| American Redstart | 2570-15883 | June 30, 2018 | FAWA | ASY | June 20 | FAWA | 4+ |
| White-throated Sparrow | 2741-70742 | Sept. 7, 2017 | MM | AHY | May 13 | MM | 4+ |
| Mourning Warbler | 2740-83974 | July 13, 2017 | FAWA | AHY | June 14 | FAWA | 4+ |
| Canada Warbler | 2740-83970 | July 12, 2017 | FEGU | AHY | June 21 | FEGU | 4+ |
| American Redstart | 2550-83190 | July 3, 2016 | FEGU | SY | July 10 | FAWA | 5 |
| American Redstart | 2570-15109 | June 13, 2017 | RESI | ASY | June 16 | RESI | 5+ |
| Black-and-white Warbler | 2810-12428 | June 4, 2017 | MM | ASY | May 11 | MM | $5+$ |
| Red-eyed Vireo | 2621-61160 | July 28, 2016 | MM | AHY | July 30 | MM | 5+ |
| Swainson's Thrush | 2661-72844 | July 24, 2016 | ROAD | AHY | Sept. 17 | MM | 5+ |
| Mourning Warbler | 2710-92953 | July 1, 2015 | FAWA | SY | June 20 | FAWA | 6 |
| American Redstart | 2550-83183 | July 3, 2016 | FEGU | ASY | June 12 | FEGU | 6+ |
| Swainson's Thrush | 2661-72801 | June 22, 2016 | RESI | ASY | July 3 | RESI | $6+$ |
| Mourning Warbler | 2710-93936 | June 12, 2016 | FAWA | ASY | June 14 | FAWA | $6+$ |
| Ovenbird | 2351-35069 | July 2, 2014 | FEGU | SY | July 22 | FEGU | 7 |
| Canada Warbler | 2920-33900 | July 2, 2014 | FEGU | SY | July 21 | FAWA | 7 |
| Mourning Warbler | 2710-92952 | July 1, 2015 | FAWA | ASY | July 4 | FAWA | 7+ |
| Red-eyed Vireo | 2511-95198 | June 7, 2015 | MM | ASY | July 30 | FEGU | 7+ |
| White-throated Sparrow | 2341-93936 | May 9, 2015 | MM | ASY | June 30 | FEGU | 7+ |
| White-throated Sparrow | 2431-87780 | June 22, 2014 | RESI | ASY | July 3 | RESI | 8+ |
| Canada Warbler | 2920-33897 | June 22, 2014 | RESI | ASY | July 21 | FAWA | $8+$ |
| American Redstart | 2550-82407 | June 2, 2014 | MM | ASY | July 11 | FEGU | 8+ |
| Myrtle Warbler | 2570-16153 | May 7, 2014 | MM | ASY | July 12 | MM | 8+ |
| White-throated Sparrow | 2431-87581 | June 10, 2012 | MM | ASY | July 4 | FAWA | 10+ |

## Habitat Assessment \& Stewardship

There were several small habitat disturbances. All sites were waterlogged and the ground did not dry out until the late fall monitoring period. Although this likely impacted where ground nesters bred this year, it is unlikely to alter the habitat into the future because most vegetation appeared to remain healthy. High water levels combined with frequent intense winds to remove all vegetation from the shoreline. A storm in RESI blew down several large trees between nets 2 and 3, completely blocking the trail. None of these disturbances were of a large enough scale to warrant detailed habitat assessments. Performed every five years, the next assessments for all sites are scheduled for 2022.

Landscape-level disturbances may be affecting fall migration. The migration station is strategically placed along the shoreline because birds perceive flying through the corridor created between the lake and the Marten Hills as the safest route. On May 18, 2019 a forest fire that would join other fires to become the McMillan Complex started northeast of the station, eventually burning 273,045 hectares (Figure 16). This landscape disturbance may have made the affected area inadequate for migration by destroying cover and foraging habitat, thus creating an additional funnel. If this is the cause of 2019's and 2020's consecutive record-breaking falls, then busy falls will continue until regrowth allows birds to reach the east side of the Marten Hills. Spring migration and local breeding activity should remain stable.
Figure 16: [Right] Topographic map of the McMillan Complex (red) in relation to the LSLBO. Yellow arrows represent the directions birds are funneled.


# Collaborative Projects 

## Vanderwell Breeding Bird Surveys

In 2018, the LSLBO was approached by Vanderwell Contractors (1971) Ltd. for a three year collaborative research project performing breeding bird surveys in post-harvest forests of various ages and cover types to determine associated avian species diversity and distributions. Following 2019's forest fires that cancelled data collection and destroyed several sample sites, new sites were generated. Data was collected at 125 sites in 2020. The last year for data collection anticipated is 2021.

## Boreal Avian Modelling (BAM) NSERC Alliance Project

This project is a multi-sectoral research partnership involving scientists across Canada, private-sector forestry companies, federal and provincial governments, and not for profit organizations. The goal of the project is to synthesize avian count data into a standardized modelling system across Canada in order to improve conservation. As part of this large-scale collaborative research project, the LSLBO will be contributing avian data and assisting with development of outreach education materials.

## Bird Detection Using Environmental DNA (eDNA)

Living organisms shed DNA into their environment which can be detected with cutting edge methods. Using eDNA as a proxy to physical observations can allow for estimates of species assemblages at remote locations which are otherwise unmonitored. Coordinated by the University of Guelph, volunteers at Important Bird Areas across Canada collected water samples to assess the efficacy of eDNA analysis. The LSLBO collected 9 water samples adjacent to the migration monitoring station from July 27 to September 30. Results have not been released.

## Standardized eBird Checklists

Managed by the Cornell Lab of Ornithology, eBird is an online tool to compile global bird observations. Similar to other methods that rely on human population densities, the eBird database underrepresents remote areas. Similarly, eBird is often limited by observer skillsets and motivations. Prior to 2020, eBird contributions at the LSLBO were from visitors, creating a situation where most common species were absent from local datasets, yet rarities were generally well reported. By submitting census data every Wednesday of migration monitoring ( 22 checklists submitted), staff are not overburdened by managing contributions, but the local dataset is improved, which in turn benefits researchers and visitors alike.

## Royal Alberta Museum (RAM) Specimen Donations

Although bird safety is our top priority, some injuries and even death are unavoidable. Staff take every precaution, but 5-10 deaths occur yearly in $<0.1 \%$ of captures. Since northern regions are often under sampled in specimen collections, as of 2020 these birds are donated to the RAM to advance research goals, including parasite and long-term isotope studies. A backlog of 64 birds collected from window strikes or the public since 2007 was donated in March 2020 (accessioned Z20.3). A further 17 birds were collected from various causes of mortality within MD 124 to be donated when possible.

## Publications

Four articles were published from projects that the LSLBO collaborated with in various ways:

1. Covino, K. M., Morris, S. R., Shieldcastle, M., \& Taylor, P. D. (2020). Spring migration of Blackpoll Warblers across North America. Avian Conservation and Ecology, 15(1), 17.
$\rightarrow$ Used Blackpoll Warbler banding data collected during spring migration monitoring 1995-2012.
2. Ma, Y., Hobson, K. A., Kardynal, K. J., Guglielmo, C. G., \& Branfireun, B. A. (2020). Inferring spatial patterns of mercury exposure in migratory boreal songbirds: Combining feather mercury and stable isotope measurements. Science of the Total Environment, 116544.
$\rightarrow$ Used feather samples collected during fall migration monitoring in 2007.
3. Oliver, R., Mahoney, P., Gurarie, E., Krikun, N., Weeks, B., Hebblewhite, M., ... Boelman, N. (2020). Behavioral responses to spring snow conditions contribute to long-term shift in migration phenology in American Robins. Environmental Research Letters, 15(4), 045003.
$\rightarrow$ Used American Robin daily totals collected through mist-netting, visual migration counts, and census during spring migration monitoring 1994-2019 and collaborative GPS deployment 2016-2018.
4. Roberto-Charron, A., Kennedy, J., Reitsma, L., Tremblay, J. A., Krikun, R., Hobson, K. A., ... Fraser, K. C. (2020). Widely distributed breeding populations of Canada Warbler (Cardellina canadensis) converge on migration through Central America. BMC Zoology, 5(10), 1-14.
$\rightarrow$ Collaborated in light-level geolocator deployment and recovery 2014-2016.

## Staff and Volunteers

Throughout all monitoring and maintenance projects, the LSLBO accumulated 333 person-days between staff and volunteers (Table 10). Robyn Perkins returned for her fifth season overall and second season as Bander-in-Charge. During spring migration monitoring, she managed efforts with the support of her spouse, Cory Cardinal. In the early days of the COVID-19 pandemic, it was decided that operations are safest if performed with a minimum number of individuals from different households. This meant that the LSLBO was unable to immediately start contracts with persons outside of established cohorts. After completing a quarantine period in early June, two full-time assistants (one fully-permitted) began to support MAPS, breeding bird surveys, and fall migration monitoring while Cardinal resumed employment as a tradesman. Sachiko Schott joined us from Ontario as the Assistant Bander with prior experience from several avian research projects across the Americas. Returning from Ontario for a second field season, Bronwyn Robinson was our Field Assistant.

An additional response to COVID-19 prohibited inexperienced volunteers from participating in monitoring programs resulting in record low volunteer contributions. Nicole Krikun (ex-Assistant Bander of many years) managed operations solo for two days of spring migration monitoring. Dedicated LSLBO member Wayne Bowles joined the team in an unorthodox Great Canadian Birdathon. Cory Cardinal volunteered periodically for fall migration monitoring and owl banding. Most volunteer maintenance days were from Shawn Kearney doing chainsaw work in RESI and the Fox Creek Junior Forest Rangers improving trails and the boardwalk around the migration station in response to the wet conditions.

With no public access to the station due to COVID-19, education and school programs were delivered virtually or off-site with help from Patti Campsall (LSLBO Executive Director) and staff shared with other organizations, including Laura Brandon (Boreal Educator), Braidi Locke (Information Officer), Donna Arseneau (Contract Educator), Gabby Higney (Interpreter), Ceiridwen Robbins (LSLPP Visitor Services Coordinator), and Katelynn Cook (LSLPP Seasonal Interpreter).

Table 10. Staff and volunteer person-days during operation of the LSLBO's core monitoring projects.

|  | Spring | MAPS | Fall | Owls | Total |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Monitoring |  |  |  |  |  |
| Total person-days (T) | 82 | 41 | 145 | 39 | 307 |
| Staff person-days (\%T) | 79 (96.3\%) | 41 (100.0\%) | 144 (99.3\%) | 38 (97.4\%) | 302 (98.4\%) |
| Volunteer person-days (\%T) | 3 (3.7\%) | 0 (0.0\%) | 1 (0.7\%) | 1 (2.6\%) | 5 (1.6\%) |
| Days operated | 44 | 24 | 81 | 38 | 187 |
| Maintenance |  |  |  |  |  |
| Total person-days (M) | 5 | 7 | 12 | 2 | 26 |
| Staff person-days (\%M) | 5 (100.0\%) | 5 (71.4\%) | 5 (41.7\%) | 2 (100.0\%) | 17 (65.4\%) |
| Volunteer person-days (\%M) | 0 (0.0\%) | 2 (28.6\%) | 7 (58.3\%) | 0 (0.0\%) | 9 (34.6\%) |
| Grand total person-days (T+M) | 87 | 48 | 157 | 41 | 333 |

## Visitors and Education

The COVID-19 pandemic had a major impact on 2020 education and outreach programs with the cancellation of all school fieldtrips, spring closure of the Boreal Centre for Bird Conservation (BCBC), cancellation of the Annual Songbird Festival, and no public programs or visitors to the station.

With the loss of those programs, staff focused on developing new online programs for students and the public. Three new virtual curriculum-based education programs were developed for local students and teachers including: The Case of the Missing Egg, How to be a Bird Scientist, and All About Owls. Community outreach programs also went online including 2 webinars (Birdwatching Basics, Seasons of the Boreal Forest) and 2 new seniors conference call programs (adapted versions of the webinar programs). A new family Winter Bird interactive online program was also developed. Furthermore, a video presentation was provided to local forest industry on migratory bird ecology and the Bander-inCharge participated in the Outland Youth Employment Program "Day in the Life" video and webinar series for indigenous students across Canada. These resources are available on the LSLBO website.

Lastly, the LSLBO publishes weekly blogs describing the progression and notable events of our monitoring programs contextualized through facts about bird conservation and ecology. These blogs are simultaneously published in the local newspaper, The Lakeside Leader and shared to the LSLBO and BCBC Facebook pages. A total of 23 articles were written describing operations from April 21 to September 30 . To view all of our past weekly blogs, visit our website at www.Islbo.org and look under the "From the Lab" tab.

## Change-log

The following were notable changes to operations and equipment:

1. Recorded body moult through fall migration using the scale described in the MAPS Manual.
2. Replaced wood at the base of migration net poles since they were sinking into the mud, added a washer above the wood for additional durability.
3. Made $\sim 50$ new bird bags with French seams to prevent birds legs from being caught in frayed edges common in other seams.
4. Updated migration monitoring Top 10 Banded Species posters.
5. Created chart emphasizing cat's role in human-caused bird mortality for visitor education.
6. Updated Station Protocols to reflect feedback from CMMN advisors.
7. See Standard Operating Procedures Under COVID-19, internal document for additional changes as a result of the COVID-19 pandemic.

## Acknowledgements

The LSLBO would like to thank the following people for their continued dedication and support, which made 2020 another successful year, despite unprecedented times.

```
LSLBO Board of Directors:
    Bob Deacon (Chair)
    Terry Kristoff (Vice-chair)
    Ronda Groom (Fund Raising Director)
    Brandy Walters (Treasurer)
    Tyler Flockhart (Director of Field Research)
    Nelson Lutz (Director at Large)
    Neal Knoot (Director at Large)
    Allan Bell (Director at Large)
    Todd Bailey (Director at Large)
    Tracey Courser (Director at Large)
```


## LSLBO Executive Director: Patti Campsall

LSLBO Field Staff: Robyn Perkins (Bander-in-Charge), Sachiko Schott (Banding Assistant), Bronwyn Robinson (Field Assistant), and Cory Cardinal (Field Assistant)

Boreal Centre Staff and Educators: Laura Brandon (Boreal Educator), Braidi Locke (Information Officer), Gabby Higney (Interpreter), and Donna Arseneau (Contract Educator)

Alberta Parks Staff: Reg Arbuckle, Ceiridwen Robbins, Katelynn Cook, and Shawn Kearney
Banding Lab Volunteers: Nicole Krikun, Cory Cardinal, Kimberly Johnston, and John Errington
Site Cleaning Crews: Fox Creek Junior Forest Rangers
Our Good Friend: Wayne Bowles for inspiring an unorthodox Great Canadian Birdathon
Information about Migration Monitoring, MAPS, and Project OwInet can be found at:
Canadian Migration Monitoring Network (Spring \& fall monitoring) www.birdscanada.org/bird-science
Nature Counts (CMMN migration monitoring trend analysis) - www.naturecounts.ca
Institute for Bird Populations (MAPS) - www.birdpop.org
Project OwInet (Northern Saw-whet Owl banding) - www.projectowInet.org

Financial and in-kind support was provided by:


Шest Fraser

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## Appendix I. Migration Occurrence Records, 2020

The following summarizes (in taxonomic order) the weekly occurrences of 162 species and the weekly totals of 20 family groups identified throughout spring (S) and fall (F) migration monitoring in 2020. Dates are listed below each month with the associated week number in brackets. Average numbers of individuals recorded daily over each week are followed by the number of days with at least one encounter (days observed). "Processed" summarizes captures in the format band-return-repeat. Band indicates an individual banded, return indicates an individual banded in a previous year and recaptured this year, while repeat indicates an individual previously banded or recaptured within 2020. The first, last, and peak encounter dates are included with the number of individuals recorded for each in brackets. The peak is often the date with the maximum number of individuals recorded and may represent a dispersal event for resident species. Finally, the total number of encounters recorded is shown in black. Family accounts are the summation of birds identified to species with those that could only be identified to each family.


## Lesser Snow Goose

Anser caerulescens



## Canada Goose

Branta canadensis

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 232.8 | 41.5 | 85.5 | 6.8 | 4.7 | 5.0 | 14.5 | 19.5 | 51.3 |
| Days observed | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 2 | 42 |
|  | First date: April 21 (76) |  | Peak date: April 23 (587) |  | Last date: June 10 (28) |  |  |  | 2384 |

## Canada Goose

Branta canadensis

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.3 | 1.4 | 1.7 | 0.1 | 0.3 | 12.4 | 31.7 | 16.0 | 34.0 | 28.6 | 7.1 | 0.0 | 11.1 |
| Days observed | 1 | 3 | 3 | 1 | 1 | 4 | 6 | 4 | 4 | 5 | 2 | 0 | 34 |
|  | First date: July 16 (2) |  |  |  | Peak date: September 14 (158) |  |  | Last date: September 24 (47) |  |  |  |  | 936 |

Swan (genus total including unidentified)


## Trumpeter Swan

Cygnus buccinator


## Tundra Swan

Cygnus columbianus


## Duck (subfamily total including unidentified)

Anatinae sp./Aythyinae sp.


Blue-winged Teal

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 4.0 | 0.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.6 |
| Days observed | 0 | 0 | 3 | 3 | 1 | 0 | 0 | 0 | 7 |
|  | First date: May 6 (2) |  | Peak date: May 7 (16) |  | Last date: May 24 (2) |  |  |  | 31 |

## Northern Shoveler

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 15.2 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 |
| Days observed | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 5 |
|  | First date: May 5 (2) |  | Peak date: May 7 (62) |  | Last date: May 13 (9) |  |  |  | 100 |



## American Wigeon

Mareca americana

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 11.7 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 |
| Days observed | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 5 |
|  | First date: May 6 (24) |  | Peak date: May 6 (24) |  | Last date: May 18 (2) |  |  |  | 72 |



## Northern Pintail

Anasacuta

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 2.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 |
| Days observed | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 3 |
|  | First date: May 7 (3) |  | Peak date: May 8 (12) |  | Last date: May 12 (1) |  |  |  | 16 |

Green-winged Teal
Anascrecca

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 2.2 | 0.0 | 0.3 | 0.2 | 0.0 | 0.0 | 0.3 |
| Days observed | 0 | 0 | 3 | 0 | 1 | 1 | 0 | 0 | 5 |
|  | First date: May 5 (7) |  | Peak date: May 5 (7) |  | Last date: May 29 (1) |  |  |  | 16 |

Ring-necked Duck
Aythya collaris

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 |
| Days observed | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
|  | First date: May 7 (12) |  | Peak date: May 7 (12) |  | Last date: May 8 (1) |  |  |  | 13 |

Scaup (genus total including Lesser, Greater, unidentified Scaup)
Aythya marila/affinis


## Lesser Scaup

Aythya affinis


Surf Scoter

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 1.2 | 15.0 | 4.8 | 1.8 | 0.0 | 0.0 | 2.9 |
| Days observed | 0 | 0 | 2 | 4 | 2 | 2 | 0 | 0 | 10 |
|  | First date: May 6 (4) |  | Peak date: May 14 (60) |  | Last date: May 28 (7) |  |  |  | 137 |

White-winged Scoter
Melanitta deglandi

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.1 |
| Days observed | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
|  | First date: May 21 (4) |  | Peak date: May 21 (4) |  | Last date: May 21 (4) |  |  |  | 4 |

Long-tailed Duck
Clangula hyemalis

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 14.7 | 18.7 | 1.3 | 0.0 | 0.0 | 4.3 |
| Days observed | 0 | 0 | 0 | 1 | 4 | 1 | 0 | 0 | 6 |
|  | First date: May 13 (88) |  | Peak date: May 13 (88) |  | Last date: May 28 (8) |  |  |  | 208 |

Bufflehead
Bucephala albeola


## Common Goldeneye

Bucephala clangula


| Hooded Merganser |  |  |  |  |  |  | Lophodytes cucullatus |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| 5 | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 3.5 | 1.5 | 0.0 | 0.0 | 0.0 | 0.6 |
| Days observed | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 5 |
|  | First date: May 15 |  | Peak d | 15 (10) |  | : May 20 |  |  | 30 |

## Common Merganser

Mergus merganser

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  |  | TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) |  | 5-11 (3) | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  |  | 2-8 (7) | 9-10 (8) |  |
| Avg. per day | 4.7 |  | 12.7 | 34.0 |  | 23.7 |  | 32.3 | 17.8 |  |  | 66.8 | 4.0 | 24.5 |
| Days observed | 4 |  | 5 | 6 |  | 5 |  | 6 | 5 |  |  | 5 | 2 | 38 |
|  | First date: April 21 (8) |  |  |  | Peak date: June 3 (147) |  |  |  | Last date: June 10 (4) |  |  |  |  | 1160 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 | 9 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 5.9 | 7.4 | 3.9 | 3.1 | 1.4 | 3.3 | 5.3 | 2.9 | 5.1 |  | . 1 | 4.4 | 1.5 | 4.1 |
| Days observed | 6 | 6 | 7 | 4 | 4 | 6 | 7 | 6 | 6 |  | 6 | 7 | 3 | 68 |
|  | First date: July 12 (6) |  |  |  | Peak date: July 22 (18) |  |  | Last date: September 30 (2) |  |  |  |  |  | 341 |

## Red-breasted Merganser

Mergus serrator

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 2.3 | 1.5 | 2.2 | 0.2 | 0.0 | 0.0 | 0.8 |
| Days observed | 0 | 0 | 3 | 3 | 3 | 1 | 0 | 0 | 10 |
|  | First date: May 6 (2) |  | Peak date: May 8 (6) |  | Last date: May 30 (1) |  |  |  | 37 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.1 |
| Days observed | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
|  | First date: August 6 (2) |  |  |  | Peak date: September 6 (4) |  |  | Last date: September 6 (4) |  |  |  |  | 6 |

## Ruffed Grouse

Bonasa umbellus


## Grebe (family total including unidentified)

Podicipedidae sp.


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.4 | 2.1 | 4.4 | 1.7 | 0.3 | 10.4 | 5.0 | 3.7 | 6.9 | 5.6 | 5.4 | 1.5 | 4.0 |
| Days observed | 3 | 2 | 6 | 4 | 2 | 7 | 7 | 4 | 7 | 7 | 4 | 2 | 55 |
|  | First date: July 16 (1) |  |  |  | Peak date: August 20 (28) |  |  | Last date: September 30 (4) |  |  |  |  | 328 |

## Horned Grebe

Podiceps auritus

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.6 | 0.1 | 0.0 | 0.1 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 1 | 0 | 8 |
|  | First date: September 6 (1) |  |  |  | Peak date: September 11 (2) |  |  |  | Last date: September 22 (1) |  |  |  | 10 |

## Red-necked Grebe

Podiceps grisegena


## Western Grebe

Aechmophorus occidentalis

|  | APRIL |  |  | MAY |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.5 | 0.0 | 0.1 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 |
|  | First date: May 29 (2) |  | Peak date: June 4 (3) |  | Last date: June 4 (3) |  |  |  | 5 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.4 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.7 | 1.1 | 1.3 | 1.0 | 1.0 | 0.3 | 0.5 |
| Days observed | 3 | 0 | 2 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | 4 | 1 | 26 |
|  | First date: July 16 (1) |  |  |  | Peak date: September 4 (5) |  |  | Last date: September 30 (1) |  |  |  |  | 44 |

White-winged Dove
Zenaida asiatica

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
|  | First date: August 28 (1) |  |  |  | Peak date: August 28 (1) |  |  | st date: August 28 (1) |  |  |  |  | 1 |

## Mourning Dove

Zenaida macroura


## Ruby-throated Hummingbird

Archilochus colubris

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5 | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.5 | 0.1 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 3 |
|  | First date: June 3 (1) |  | Peak date: June 4 (1) |  | Last date: June 9 (1) |  |  |  | 3 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
|  | First date: July 17 (1) |  |  |  | Peak date: July 22 (1) |  |  |  | Last date: August 1 (1) |  |  |  | 3 |

## Sandhill Crane

Antigone canadensis


## Sandhill Crane

Antigone canadensis

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.9 | 16.4 | 0.6 | 0.0 | 1.5 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 1 | 0 | 5 |
|  | First date: August 28 (3) |  |  |  | Peak date: September 14 (113) |  |  | Last date: September 26 (4) |  |  |  |  | 128 |

Shorebird (suborder total including Plover, Sandpiper, Snipe, unidentified)

## Scolopacidae sp./Charadriidae sp.



Killdeer
Charadrius vociferus

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 1.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 |
| Days observed | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 4 |
|  | First date: April 29 (5) |  | Peak date: April 29 (5) |  | Last date: May 5 (1) |  |  |  | 9 |

Semipalmated Sandpiper

## Calidris pusilla

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
|  | First date: August 22 (3) |  |  |  | Peak date: August 22 (3) |  |  |  | Last date: August 22 (3) |  |  |  | 3 |

Dowitcher (genus total including Short-billed, Long-billed, unidentified)
Limnodromus griseus/scolopaceus

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5 | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Days observed | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
|  | First date: April 30 (7) |  | Peak date: April 30 (7) |  | Last date: April 30 (7) |  |  |  | 7 |

Wilson's Snipe

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.5 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.1 |
| Days observed | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 3 |
|  | First date: April 28 (1) |  | Peak date: April 28 (1) |  | Last date: May 21 (1) |  |  |  | 4 |

## Spotted Sandpiper

Actitis macularius


## Solitary Sandpiper

Tringa solitaria

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
|  | First date: August 31 (2) |  |  |  | Peak date: August 31 (2) |  |  |  | Last date: August 31 (2) |  |  |  | 2 |

## Yellowlegs (genus total including Lesser, Greater, unidentified)

Tringa flavipes/melanoleuca


Lesser Yellowlegs

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.2 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.1 |
| Days observed | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 4 |
|  | First date: May 11 (1) |  | Peak date: May 13 (1) |  | Last date: May 25 (1) |  |  |  | 4 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 3 |
|  | First date: September 2 (1) |  |  |  | Peak date: September 5 (1) |  |  | date: September 13 (1) |  |  |  |  | 3 |

## Greater Yellowlegs

Tringa melanoleuca

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  |  | TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) |  | 5-11 (3) | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  |  | 2-8 (7) | 9-10 (8) |  |
| Avg. per day | 0.2 |  | 0.5 |  | 0.7 | 0.5 |  | 0.0 | 0.0 |  |  | 0.0 | 0.0 | 0.2 |
| Days observed | 1 |  | 2 |  | 3 | 2 |  | 0 | 0 |  |  | 0 | 0 | 8 |
|  | First date: April 22 (1) |  |  |  | Peak date: May 5 (2) |  |  |  | ast date: May 18 (1) |  |  |  |  | 11 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-1 | 9 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |  | 0 | 0 | 0 | 1 |
|  | First date: August 15 (3) |  |  |  | Peak date: August 15 (3) |  |  |  | Last date: August 15 (3) |  |  |  |  | 3 |

Phalarope (genus total including unidentified)
Phalaropus sp.

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
|  | First date: August 30 (2) |  |  |  | Peak date: August 30 (2) |  |  |  | Last date: August 30 (2) |  |  |  | 2 |

Gull (family total including unidentified)
Laridaesp.

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 15.2 | 82.3 | 27.5 | 7.0 | 12.2 | 5.0 | 2.0 | 1.0 | 19.0 |
| Days observed | 6 | 6 | 6 | 5 | 6 | 4 | 3 | 1 | 37 |
|  | First date: April 21 (5) |  | Peak date: April 30 (144) |  | Last date: June 9 (2) |  |  |  | 909 |

## Gull (family total including unidentified)

Laridaesp.

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 538.4 | 240.9 | 374.7 | 554.7 | 227.4 | 48.6 | 241.0 | 28.9 | 9.0 | 1.7 | 2.0 | 4.3 | 189.3 |
| Days observed | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 6 | 5 | 4 | 5 | 4 | 72 |
|  | First date: July 12 (77) |  |  |  | Peak date: August 4 (3466) |  |  |  | Last date: September 30 (3) |  |  |  | 15888 |

## Bonaparte's Gull

Chroicocephalus philadelphia

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 22.8 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 |
| Days observed | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 4 |
|  | First date: April 28 (9) |  | Peak date: April 29 (70) |  | Last date: May 12 (3) |  |  |  | 140 |

## Franklin's Gull

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 28.7 | 15.8 | 2.3 | 5.7 | 0.2 | 0.3 | 0.0 | 6.6 |
| Days observed | 0 | 3 | 5 | 2 | 4 | 1 | 1 | 0 | 16 |
|  | First date: April 30 (28) |  | Peak date: May 4 (76) |  | Last date: June 4 (2) |  |  |  | 318 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 508.3 | 203.1 | 326.0 | 502.1 | 205.9 | 12.7 | 201.4 | 15.6 | 2.4 | 0.0 | 0.0 | 0.0 | 164.8 |
| Days observed | 6 | 4 | 5 | 3 | 7 | 3 | 5 | 5 | 1 | 0 | 0 | 0 | 39 |
|  | First date: July 12 (52) |  |  |  | Peak date: August 4 (3267) |  |  | Last date: September 6 (17) |  |  |  |  | 13843 |

## Ring-billed Gull

## Larus delawarensis

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  | TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5 | 21-27 (Week 1) |  | 28-4 (2) | 5-11 (3) |  | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8 (7) | 9-10 (8) |  |
| Avg. per day | 11.2 |  | 6.0 | 3.2 |  | 2.5 |  | 2.7 | 3.8 |  | 0.7 | 0.0 | 3.8 |
| Days observed | 4 |  | 5 | 5 |  | 5 |  | 3 | 3 |  | 1 | 0 | 26 |
|  | First date: April 21 (1) |  |  |  | Peak date: April 23 (51) |  |  |  | ast date: June 3 (4) |  |  |  | 180 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 23.9 | 29.3 | 28.4 | 29.6 | 15.6 | 2.1 | 9.9 | 9.6 | 3.3 | 0.7 | 1.4 | 2.8 | 13.0 |
| Days observed | 6 | 6 | 7 | 6 | 7 | 5 | 7 | 6 | 4 | 4 | 4 | 4 | 66 |
|  | First date: July 12 (22) |  |  |  | Peak date: July 28 (129) |  |  | Last date: September 30 (2) |  |  |  |  | 1087 |

## California Gull

Larus californicus

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
|  | First date: June 4 (1) |  | Peak date: June 4 (1) |  | Last date: June 4 (1) |  |  |  | 1 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
|  | First date: September 2 (3) |  |  |  | Peak date: September 2 (3) |  |  | Last date: September 2 (3) |  |  |  |  | 3 |

## Herring Gull

## Larus argentatus

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.2 | 0.2 | 0.5 | 0.2 | 1.5 | 0.3 | 0.5 | 0.0 | 0.4 |
| Days observed | 1 | 1 | 3 | 1 | 3 | 2 | 2 | 0 | 13 |
|  | First date: April 27 (1) |  | Peak date: May 24 (5) |  | Last date: June 8 (1) |  |  |  | 20 |

## Herring Gull

Larus argentatus

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.4 | 0.4 | 0.3 | 0.4 | 2.4 | 0.1 | 1.4 | 1.0 | 1.0 | 0.1 | 0.4 | 0.8 | 0.7 |
| Days observed | 1 | 3 | 2 | 2 | 3 | 1 | 4 | 3 | 1 | 1 | 2 | 2 | 25 |
|  | First date: July 13 (3) |  |  |  | Peak date: August 9 (9) |  |  |  | Last date: September 29 (1) |  |  |  | 60 |

## Tern (subfamily total including unidentified)



|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.3 | 0.3 | 4.8 | 6.7 | 1.3 | 2.2 | 0.0 | 2.0 |
| Days observed | 0 | 1 | 1 | 4 | 6 | 3 | 4 | 0 | 19 |
|  | First date: April 30 (2) |  | Peak date: May 15 (19) |  | Last date: June 5 (3) |  |  |  | 94 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 2.6 | 0.7 | 0.3 | 0.0 | 0.0 | 7.3 | 3.4 | 3.4 | 0.7 | 1.4 | 0.1 | 0.0 | 1.7 |
| Days observed | 5 | 3 | 2 | 0 | 0 | 3 | 4 | 5 | 2 | 3 | 1 | 0 | 28 |
|  | First date: July 12 (3) |  |  |  | Peak date: August 21 (32) |  |  |  | Last date: September 22 (1) |  |  |  | 140 |

## Caspian Tern

|  | APRIL |  |  | MAY |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.2 | 0.0 | 0.0 | 0.1 |
| Days observed | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 |
|  | First date: May 23 (2) |  | Peak date: May 23 (2) |  | Last date: May 26 (1) |  |  |  | 3 |

## Common Tern

## Sterna hirundo



Forster's Tern
Sterna forsteri

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 3.5 | 1.2 | 0.3 | 0.5 | 0.0 | 0.7 |
| Days observed | 0 | 0 | 0 | 2 | 4 | 1 | 2 | 0 | 9 |
|  | First date: May 12 (7) |  | Peak date: May 15 (14) |  | Last date: June 5 (1) |  |  |  | 33 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 0.1 | 0.6 | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 |
| Days observed | 3 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 0 | 8 |
|  | First date: July 12 (2) |  |  |  | Peak date: August 21 (11) |  |  |  | Last date: September 16 (1) |  |  |  | 25 |

## Common Loon

Gavia immer

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.2 | 0.7 | 1.8 | 4.3 | 6.7 | 5.0 | 3.0 | 5.0 | 3.3 |
| Days observed | 1 | 2 | 6 | 6 | 6 | 6 | 6 | 2 | 35 |
|  | First date: April 27 (1) |  | Peak date: May 24 (21) |  | Last date: June 10 (6) |  |  |  | 140 |

## Common Loon

Gavia immer

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 2.4 | 5.6 | 4.4 | 2.6 | 1.6 | 12.6 | 3.0 | 2.4 | 8.1 | 4.1 | 3.3 | 1.3 | 4.3 |
| Days observed | 6 | 7 | 7 | 6 | 5 | 7 | 5 | 5 | 7 | 7 | 3 | 3 | 68 |
|  | First date: July 12 (5) |  |  |  | Peak date: August 16 (31) |  |  |  | Last date: September 30 (3) |  |  |  | 356 |

## Double-crested Cormorant

Phalacrocorax auritus

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 5.8 | 0.0 | 6.3 | 0.0 | 0.0 | 0.0 | 1.5 |
| Days observed | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 5 |
|  | First date: May 10 (14) |  | Peak date: May 11 (21) |  | Last date: May 24 (8) |  |  |  | 73 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
|  | First date: August 4 (1) |  |  |  | Peak date: August 14 (1) $\quad$ Last date: August 14 (1) |  |  |  |  |  |  |  | 2 |

## American White Pelican

Pelecanus erythrorhynchos

|  | APRIL |  |  | MAY |  |  |  |  | JUNE |  |  |  | TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) | 5-11 (3) |  | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8(7) | 9-10 (8) |  |
| Avg. per day | 0.0 |  | 0.0 | 0.0 |  | 0.0 |  | 3.0 | 0.8 |  | 1.0 | 0.5 | 0.7 |
| Days observed | 0 |  | 0 | 0 |  | 0 |  | 1 | 2 |  | 3 | 1 | 7 |
|  | First date: May 23 (18) |  |  |  | Peak date: May 23 (18) |  |  |  | Last date: June 9 (1) |  |  |  | 30 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 ( | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.6 | 0.6 | 0.4 | 0.1 | 0.0 | 0.3 | 1.6 | 0.1 | 0.4 | 1.7 | 0.0 | 0.0 | 0.5 |
| Days observed | 4 | 1 | 3 | 1 | 0 | 2 | 4 | 1 | 2 | 1 | 0 | 0 | 19 |
|  | First date: July 12 (1) |  |  |  | Peak date: September 16 (12) |  |  |  | Last date: September 16 (12) |  |  |  | 41 |

Great Blue Heron
Ardea herodias

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
|  | First date: May 4 (2) |  | Peak date: May 4 (2) |  | Last date: May 4 (2) |  |  |  | 2 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 3 |
|  | First date: August 12 (1) |  |  |  | Peak date: August 20 (1) |  |  |  | Last date: September 6 (2) |  |  |  | 4 |

## Osprey

Pandion haliaetus

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.5 | 0.2 |
| Days observed | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 6 |
|  | First date: May 10 (1) |  | Peak date: May 29 (1) |  | Last date: June 10 (1) |  |  |  | 6 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.4 | 0.1 | 0.1 | 0.1 | 0.4 | 0.1 | 0.6 | 0.0 | 0.3 | 0.3 | 0.0 | 0.0 | 0.2 |
| Days observed | 3 | 1 | 1 | 1 | 3 | 1 | 3 | 0 | 2 | 2 | 0 | 0 | 17 |
|  | First date: July 12 (1) |  |  |  | Peak date: August 27 (2) |  |  |  | Last date: September 19 (1) |  |  |  | 18 |

## Golden Eagle

Aquila chrysaetos

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
|  | First date: September 21 (1) |  |  |  | Peak date: September 21 (1) |  |  |  | Last date: September 21 (1) |  |  |  | 1 |

## Northern Harrier

Circus hudsonius


Sharp-shinned Hawk

## Accipiter striatus



## Cooper's Hawk

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5 | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Processed | 0 | 1-0-0 | 0 | 0 | 0 | 0 | 0 | 0 | 1-0-0 |
|  | First date: April 27 (1) |  | Peak date: April 28 (1) |  | Last date: April 28 (1) |  |  |  | 2 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
|  | First date: August 24 (1) |  |  |  | Peak date: August 24 (1) |  |  |  | ast date: August 24 (1) |  |  |  | 1 |

## Northern Goshawk

## Accipiter gentilis

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
|  | First date: April 22 (1) |  | Peak date: April 28 (1) |  | Last date: April 28 (1) |  |  |  | 2 |

## Bald Eagle

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5 | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 2.3 | 1.7 | 2.0 | 1.5 | 2.0 | 1.2 | 2.0 | 1.0 | 1.7 |
| Days observed | 5 | 5 | 5 | 4 | 6 | 5 | 5 | 2 | 37 |
|  | First date: April 21 (2) |  | Peak date: April 27 (4) |  | Last date: June 10 (1) |  |  |  | 78 |

## Bald Eagle

Haliaeetus leucocephalus

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 3.0 | 1.3 | 0.4 | 1.4 | 2.0 | 0.7 | 3.0 | 3.6 | 0.7 | 1.4 | 1.9 | 3.0 | 1.9 |
| Days observed | 7 | 6 | 2 | 5 | 7 | 4 | 7 | 7 | 4 | 5 | 4 | 4 | 62 |
|  | First date: July 12 (2) |  |  |  | Peak date: September 3 (6) |  |  |  | Last date: September 30 (3) |  |  |  | 148 |

Broad-winged Hawk
Buteo platypterus

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
|  | First date: April 29 (1) |  | Peak date: May 8 (1) |  | Last date: May 8 (1) |  |  |  | 2 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 3 |
|  | First date: August 18 (1) |  |  |  | Peak date: August 21 (1) |  |  |  | Last date: August 24 (1) |  |  |  | 3 |

## Red-tailed Hawk

## Buteo jamaicensis

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.7 | 0.3 | 0.2 | 0.0 | 0.0 | 0.2 | 0.0 | 0.5 | 0.2 |
| Days observed | 2 | 2 | 1 | 0 | 0 | 1 | 0 | 1 | 7 |
|  | First date: April 25 (1) |  | Peak date: April 27 (3) |  | Last date: June 9 (1) |  |  |  | 9 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.3 | 0.1 |
| Days observed | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 7 |
|  | First date: July 31 (1) |  |  |  | Peak date: August 25 (1) |  |  |  | Last date: September 27 (1) |  |  |  | 7 |


| Rough-legged Hawk |  |  |  |  |  |  |  | Buteo lagopus |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11(3) | 12-18 (4) | 19-25 (5) | 26-1(6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
|  | First date: April 29 |  | Peak da | 30 (1) |  | e: April 30 |  |  | 2 |

## Barred Owl



## Great Gray Owl

## Strix nebulosa

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
|  | First date: April 29 (1) |  | Peak date: May 10 (1) |  | Last date: May 10 (1) |  |  |  | 2 |



Woodpecker (family total including unidentified)
Picidaesp.


Yellow-bellied Sapsucker
Sphyrapicus varius


Downy Woodpecker
Dryobates pubescens


Dryobates villosus


Yellow-shafted Flicker

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) |  | 5-11 (3) | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 |  | 11.2 |  | 5.2 | 0.5 |  | 0.3 | 0.0 |  | 0.2 | 0.0 | 2.2 |
| Days observed | 0 |  | 6 |  | 6 | 3 |  | 1 | 0 |  | 1 | 0 | 17 |
|  | First date: April 28 (2) |  |  |  | Peak date: April 30 (36) |  |  |  | ast date: June 2 (1) |  |  |  | 104 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.1 | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 |
| Days observed | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 7 |
|  | First date: July 12 (1) |  |  |  | Peak date: September 8 (1) |  |  |  | Last date: September 13 (1) |  |  |  | 7 |

## Pileated Woodpecker

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  | TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5 | 21-27 (Week 1) |  | 28-4 (2) | 5-11 (3) |  | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8 (7) | 9-10 (8) |  |
| Avg. per day | 0.3 |  | 0.7 | 0.3 |  | 0.5 |  | 0.0 | 0.5 |  | 0.2 | 0.0 | 0.3 |
| Days observed | 2 |  | 4 | 2 |  | 3 |  | 0 | 2 |  | 1 | 0 | 14 |
|  | First date: April 21 (1) |  |  |  | Peak date: May 29 (2) |  |  |  | ast date: June 4 (1) |  |  |  | 15 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.3 | 0.0 |
| Days observed | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 3 |
|  | First date: July 16 (1) |  |  |  | Peak date: September 13 (1) |  |  | Last date: September 29 (1) |  |  |  |  | 3 |

## American Kestrel

Falco sparverius

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 3 |
|  | First date: August 17 (1) |  |  |  | Peak date: August 28 (1) |  |  |  | Last date: September 4 (1) |  |  |  | 3 |

## Merlin

Falco columbarius


## Peregrine Falcon

Falco peregrinus


Passerine sp. (order total including unidentified)
Passeriformes sp.


Flycatcher (family total including Empidonax sp., unidentified)
Tyrannidae sp.


Eastern Kingbird


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 | 3.6 | 3.1 | 0.7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.7 |
| Days observed | 0 | 1 | 0 | 0 | 1 | 5 | 2 | 5 | 1 | 0 | 0 | 0 | 15 |
|  | First date: July 20 (1) |  |  |  | Peak date: July 29 (0) |  |  |  | Last date: September 10 (1) |  |  |  | 56 |

Olive-sided Flycatcher
Contopus cooperi

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
|  | First date: May 26 (1) |  | Peak date: May 26 (1) |  | Last date: May 26 (1) |  |  |  | 1 |

Olive-sided Flycatcher
Contopus cooperi

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8(4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
|  | First date: August 17 (1) |  |  |  | Peak date: August 17 (1) |  |  |  | Last date: August 17 (1) |  |  |  | 1 |

## Western Wood-Pewee

Contopus sordidulus


Empidonax Flycatcher (genus total including unidentified)
Empidonax sp.


## Alder Flycatcher

## Empidonax alnorum



## Least Flycatcher

## Empidonax minimus

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) |  | 5-11 (3) | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 |  | 0.0 |  | 0.0 | 0.8 |  | 7.0 | 7.0 |  | 1.0 | 1.0 | 2.1 |
| Days observed | 0 |  | 0 |  | 0 | 3 |  | 5 | 6 |  | 3 | 1 | 18 |
| Processed | 0 |  | 0 |  | 0 | 1-0-0 |  | 6-0-0 | 10-0-0 |  | 0 | 0 | 17-0-0 |
|  | First date: May 13 (1) |  |  |  | Peak date: May 25 (16) |  |  |  | ast date: June 9 (2) |  |  |  | 97 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.4 | 0.7 | 8.3 | 3.1 | 0.9 | 5.6 | 2.6 | 1.1 | 1.7 | 0.4 | 0.0 | 0.0 | 2.1 |
| Days observed | 2 | 5 | 5 | 5 | 3 | 6 | 3 | 3 | 6 | 2 | 0 | 0 | 40 |
| Processed | 0 | 4-0-0 | 16-0-0 | 4-0-0 | 1-0-0 | 9-0-0 | 5-0-1 | 0 | 2-0-0 | 3-0-0 | 0 | 0 | 44-0-1 |
|  | First date: July 16 (2) |  |  |  | Peak date: July 29 (19) |  |  | Last date: September 15 (1) |  |  |  |  | 174 |

## Eastern Phoebe

Sayornis phoebe

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) | 5-11 (3) |  | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.2 |  | 1.3 | 1.5 |  | 1.8 |  | 1.7 | 2.0 |  | 1.7 | 2.0 | 1.5 |
| Days observed | 1 |  | 4 | 6 |  | 5 |  | 6 | 6 |  | 6 | 2 | 36 |
|  | First date: April 27 (1) |  |  |  | Peak date: May 13 (4) |  |  |  | ast date: June 10 (2) |  |  |  | 65 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 2.9 | 3.1 | 1.4 | 1.4 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 |
| Days observed | 7 | 6 | 6 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| Processed | 1-0-0 | 2-0-0 | 1-0-0 | 1-0-0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5-0-0 |
|  | First date: July 12 (4) |  |  |  | Peak date: July 21 (6) |  |  | Last date: August 21 (1) |  |  |  |  | 64 |

Say's Phoebe
Sayornis saya


## Vireo (family total including unidentified)

Vireonidae sp.


Blue-headed Vireo
Vireo solitarius


## Philadelphia Vireo

Vireo philadelphicus

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.8 | 0.5 | 0.2 |
| Days observed | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 1 | 7 |
|  | First date: May 20 (1) |  | Peak date: June 4 (1) |  | Last date: June 9 (1) |  |  |  | 7 |

## Philadelphia Vireo

Vireo philadelphicus

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.1 | 0.3 | 1.3 | 1.4 | 0.3 | 2.1 | 0.4 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.5 |
| Days observed | 1 | 2 | 5 | 3 | 2 | 4 | 2 | 1 | 1 | 1 | 0 | 0 | 22 |
| Processed | 0 | 0 | 2-0-0 | 3-0-0 | 0 | 7-0-0 | 1-0-0 | 1-0-0 | 1-0-0 | 1-0-0 | 0 | 0 | 16-0-0 |
|  | First date: July 16 (1) |  |  |  | Peak date: August 20 (6) |  |  |  | Last date: September 14 (1) |  |  |  | 45 |

Warbling Vireo
Vireogilvus


## Red-eyed Vireo

Vireo olivaceus

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 3.8 | 4.8 | 6.5 | 2.0 |
| Days observed | 0 | 0 | 0 | 0 | 2 | 6 | 6 | 2 | 16 |
| Processed | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1-1-0 | 1-1-0 |
|  | First date: May 24 (3) |  | Peak date: June 6 (7) |  | Last date: June 10 (6) |  |  |  | 70 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 3.0 | 5.3 | 11.4 | 6.7 | 3.9 | 10.1 | 3.4 | 1.0 | 0.9 | 0.6 | 0.0 | 0.0 | 3.9 |
| Days observed | 6 | 7 | 7 | 7 | 6 | 7 | 5 | 5 | 3 | 2 | 0 | 0 | 55 |
| Processed | 2-0-0 | 4-0-0 | 13-1-2 | 8-0-1 | 4-0-0 | 23-0-0 | 8-0-0 | 2-0-0 | 3-0-0 | 0 | 0 | 0 | 67-1-3 |
|  | First date: July 12 (5) |  |  |  | Peak date: August 20 (20) |  |  | Last date: September 17 (1) |  |  |  |  | 324 |

## Canada (Gray) Jay

## Perisoreus canadensis

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.2 | 0.0 | 0.1 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 4 |
|  | First date: May 28 |  | Peak d | 29 (1) |  | : June 3 |  |  | 4 |

Blue Jay
Cyanocitta cristata

|  | APRIL |  |  | MAY |  |  |  |  |  |  | JUNE |  | TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) | 5-11 (3) |  | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8(7) | 9-10 (8) |  |
| Avg. per day | 0.2 |  | 1.2 | 1.5 |  | 1.2 |  | 1.3 | 1.3 |  | 0.0 | 0.0 | 0.8 |
| Days observed | 1 |  | 5 |  | 5 | 5 |  | 4 | 4 |  | 0 | 0 | 24 |
| Processed | 0 |  | 0 |  | 0 | 0 |  | 0 | 1-0-0 |  | 0 | 0 | 1-0-0 |
|  | First date: April 23 (1) |  |  |  | Peak date: May 26 (3) |  |  |  | Last date: May 30 (2) |  |  |  | 40 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | 12-18 (1) | 19-25 | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 4.0 | 1.0 | 0.0 | 0.0 | 0.3 | 2.3 | 1.9 | 3.1 | 4.4 | 3.9 | 1.7 | 2.8 | 2.1 |
| Days observed | 7 | 3 | 0 | 0 | 1 | 7 | 4 | 7 | 7 | 7 | 6 | 4 | 53 |
| Processed | 0 | 0 | 0 | 0 | 0 | 0 | 3-0-0 | 2-0-0 | 0-0-1 | 0 | 0 | 0 | 5-0-1 |
|  | First date: July 12 (4) |  |  |  | Peak date: September 12 (9) |  |  |  | Last date: September 30 (2) |  |  |  | 169 |

## Black-billed Magpie

Pica hudsonia


## American Crow

Corvus brachyrhynchos

|  | APRIL |  |  | MAY |  |  |  |  |  |  | JUNE |  |  | TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) | 5-11 (3) |  | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  |  | 2-8(7) | 9-10 (8) |  |
| Avg. per day | 8.5 |  | 6.8 | 3.7 |  | 5.7 |  | 5.5 | 3.8 |  |  | 3.8 | 5.5 | 5.4 |
| Days observed | 6 |  | 6 |  | 6 | 6 |  | 6 | 6 |  |  | 6 | 2 | 44 |
|  | First date: April 21 (9) |  |  |  | Peak date: April 23 (12) |  |  |  | Last date: June 10 (4) |  |  |  |  | 238 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |  |
| F | 12-18 (1) | 19-25 | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-1 | 9 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 11.0 | 4.0 | 4.0 | 2.0 | 4.6 | 7.4 | 15.7 | 12.7 | 8.6 |  | 3.1 | 1.9 | 0.8 | 6.3 |
| Days observed | 7 | 6 | 7 | 5 | 7 | 6 | 7 | 7 | 6 |  | 7 | 6 | 2 | 73 |
|  | First date: July 12 (6) |  |  |  | Peak date: August 31 (31) |  |  |  | Last date: September 30 (1) |  |  |  |  | 528 |

## Common Raven

## Corvuscorax

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  |  | TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) |  | 5-11 (3) | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  |  | 2-8 (7) | 9-10 (8) |  |
| Avg. per day | 2.3 |  | 3.3 | 2.2 |  | 2.5 |  | 2.2 | 1.5 |  |  | 1.2 | 0.0 | 1.9 |
| Days observed | 6 |  | 6 | 6 |  | 5 |  | 6 | 5 |  |  | 4 | 0 | 38 |
|  | First date: April 21 (6) |  |  |  | Peak date: May 1 (11) |  |  |  | Last date: June 5 (2) |  |  |  |  | 91 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-1 | (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 2.1 | 1.6 | 1.4 | 2.1 | 2.7 | 2.9 | 3.7 | 3.3 | 3.6 |  | 4 | 6.0 | 3.3 | 2.8 |
| Days observed | 5 | 7 | 6 | 5 | 7 | 7 | 7 | 7 | 6 |  | 7 | 7 | 4 | 75 |
|  | First date: July 13 (3) |  |  |  | Peak date: September 25 (12) |  |  |  | Last date: September 30 (4) |  |  |  |  | 229 |

## Horned Lark

Eremophila alpestris

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Days observed | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
|  | First date: April 25 (2) |  | Peak date: April 25 (2) |  | Last date: April 28 (2) |  |  |  | 4 |

## Swallow (family total including unidentified)

Hirundinidae sp.

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 16.0 | 6.8 | 0.3 | 37.8 | 57.5 | 0.0 | 0.0 | 14.8 |
| Days observed | 0 | 6 | 3 | 1 | 5 | 4 | 0 | 0 | 19 |
|  | First date: April 28 (28) |  | Peak date: May 26 (339) |  | Last date: May 29 (4) |  |  |  | 711 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.1 | 1.0 | 5.0 | 1.1 | 0.1 | 2.4 | 1.3 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 1.0 |
| Days observed | 1 | 2 | 5 | 3 | 1 | 5 | 2 | 0 | 2 | 0 | 0 | 0 | 21 |
|  | First date: J | y 18 (1) |  |  | Peak date: | gust 1 (16) |  |  | date: | mber 9 (3) |  |  | 84 |

## Bank Swallow

Riparia riparia


## Tree Swallow

Tachycineta bicolor

|  | APRIL |  |  | MAY |  |  |  |  |  |  | JUNE |  |  | TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) | 5-11 (3) |  | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  |  | 2-8(7) | 9-10 (8) |  |
| Avg. per day | 0.0 |  | 7.2 | 5.5 |  | 0.3 |  | 7.2 | 0.0 |  |  | 0.0 | 0.0 | 2.5 |
| Days observed | 0 |  | 4 | 2 |  | 1 |  | 2 | 0 |  |  | 0 | 0 | 9 |
|  | First date: April 28 (26) |  |  |  | Peak date: May 5 (32) |  |  |  | Last date: May 25 (11) |  |  |  |  | 121 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |  |
| F | 12-18 (1) | 19-25 | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-1 | (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.1 | 1.0 | 4.3 | 1.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 |  | 0.0 | 0.0 | 0.0 | 0.6 |
| Days observed | 1 | 2 | 5 | 3 | 0 | 1 | 1 | 0 | 0 |  | 0 | 0 | 0 | 13 |
|  | First date: July 18 (1) |  |  |  | Peak date: August 1 (16) |  |  |  | Last date: August 24 (1) |  |  |  |  | 47 |

## Barn Swallow

Hirundo rustica

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
|  | First date: August 28 (1) |  |  |  | Peak date: August 28 (1) |  |  |  | Last date: August 28 (1) |  |  |  | 1 |

## Cliff Swallow

Petrochelidon pyrrhonota


## Black-capped Chickadee

Poecile atricapillus


## Red-breasted Nuthatch

Sitta canadensis


## White-breasted Nuthatch

## Sitta carolinensis

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.1 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.5 | 0.1 |
| Days observed | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 8 |
|  | First date: July 24 (1) |  |  |  | Peak date: September 28 (1) |  |  |  | Last date: September 29 (1) |  |  |  | 9 |

## Brown Creeper

Certhia americana

|  | APRIL |  |  | MAY |  |  |  |  | JUNE |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) | 5-11 (3) |  | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 |  | 0.0 | 0.3 |  | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 | 0.0 |
| Days observed | 0 |  | 0 | 2 |  | 0 |  | 0 | 0 |  | 0 | 0 | 2 |
| Processed | 0 |  | 0 | 1-0-0 |  | 0 |  | 0 | 0 |  | 0 | 0 | 1-0-0 |
|  | First date: May 5 (1) |  |  | Peak date: May 5 (1) |  |  |  | Last date: May 6 (1) |  |  |  |  | 2 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.1 | 0.3 | 0.0 | 0.3 | 0.1 | 0.0 | 0.3 | 0.4 | 0.1 | 0.3 | 0.2 |
| Days observed | 0 | 0 | 1 | 2 | 0 | 2 | 1 | 0 | 2 | 3 | 1 | 1 | 13 |
| Processed | 0 | 0 | 0 | 0 | 0 | 1-0-0 | 1-0-0 | 0 | 0 | 1-0-0 | 0 | 1-0-0 | 4-0-0 |
|  | First date: July 30 (1) |  |  |  | Peak date: September 14 (1) |  |  |  | Last date: September 30 (1) |  |  |  | 13 |

## Wren (family total including unidentified)

Troglodytidae sp.

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  | TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) | 5-11 (3) |  | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8(7) | 9-10 (8) |  |
| Avg. per day | 0.0 |  | 1.0 | 2.2 |  | 0.3 |  | 1.7 | 0.5 |  | 0.7 | 0.0 | 0.8 |
| Days observed | 0 |  | 3 | 6 |  | 1 |  | 5 | 2 |  | 4 | 0 | 21 |
| Processed | 0 |  | 0 | 0 |  | 0 |  | 1-0-0 | 2-0-0 |  | 1-0-0 | 0 | 4-0-0 |
|  | First date: April 29 (1) |  |  |  | Peak date: May 7 (3) |  |  |  | Last date: June 5 (1) |  |  |  | 38 |
|  |  |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | JULY  <br> $12-18$ (1) $19-25(2)$ |  | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.3 1.1 |  | 1.4 | 0.6 | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 | 0.7 | 0.0 | 0.3 | 0.4 |
| Days observed | 2 7 |  | 7 | 4 | 0 | 1 | 0 | 0 | 2 | 3 | 0 | 1 | 27 |
| Processed | 0 | 0 | 1-0-0 | 0 | 0 | 0 | 0 | 0 | 0 | 2-0-0 | 0 | 1-0-0 | 4-0-0 |
|  | First date: July 12 (1) |  |  |  | Peak date: July 27 (3) L |  |  |  | Last date: September 28 (1) |  |  |  | 33 |

## House Wren

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) |  | 5-11 (3) | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 |  | 0.0 |  | 0.2 | 0.0 |  | 0.2 | 0.3 |  | 0.2 | 0.0 | 0.1 |
| Days observed | 0 |  | 0 |  | 1 | 0 |  | 1 | 2 |  | 1 | 0 | 5 |
| Processed | 0 |  | 0 |  | 0 | 0 |  | 0 | 2-0 |  | 1-0-0 | 0 | 3-0-0 |
|  | First date: May 7 (1) |  |  |  | Peak date: May 27 (1) |  |  |  | last date: June 3 (1) |  |  |  | 5 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| $\begin{array}{\|l} \hline \text { Avg. per day } \\ \hline \text { Days observed } \\ \hline \end{array}$ | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
|  | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
|  | First date: July 23 (1) |  |  |  | Peak date: September 11 (1) |  |  |  | Last date: September 11 (1) |  |  |  | 2 |

## Winter Wren

Troglodytes hiemalis


## Marsh Wren

## Cistothorus palustris

|  | APRIL | MAY |  |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
|  | First date: May 11 |  | Peak da | 1 (1) |  | : May 1 |  |  | 1 |

Golden-crowned Kinglet
Regulus satrapa

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
|  | First date: May 19 (1) |  | Peak date: May 19 (1) |  | Last date: May 19 (1) |  |  |  | 1 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 1.0 | 0.4 | 0.6 | 0.9 | 1.0 | 0.4 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 2 | 1 | 3 | 3 | 13 |
| Processed | 0 | 0 | 0 | 0 | 0 | 1-0-0 | 0 | 0 | 0 | 1-0-0 | 0 | 0 | 2-0-0 |
|  | First date: August 20 (3) |  |  |  | Peak date: September 4 (5) |  |  |  | Last date: September 30 (1) |  |  |  | 27 |

## Ruby-crowned Kinglet

Regulus calendula


|  |  | JULY |  |  |  | UST |  |  |  | SEPTEMB |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 2.9 | 0.1 | 0.0 | 0.7 | 0.6 | 1.3 | 3.0 | 4.1 | 2.3 | 1.0 | 1.3 |
| Days observed | 0 | 0 | 6 | 1 | 0 | 1 | 3 | 3 | 6 | 7 | 5 | 2 | 34 |
| Processed | 0 | 0 | 6-0-0 | 0 | 0 | 0 | 0 | 1-0-0 | 3-0-0 | 4-0-0 | 7-0-0 | 1-0-0 | 22-0-0 |
|  | First date: July 27 (4) |  |  |  | Peak date: September 17 (11) |  |  | Last date: September 30 (2) |  |  |  |  | 109 |

Mountain Bluebird
Sialia currucoides

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
|  | First date: May 23 (1) |  | Peak date: May 23 (1) |  | Last date: May 23 (1) |  |  |  | 1 |

## Townsend's Solitaire

Myadestes townsendi

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11(3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Days observed | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
|  | First date: May 3 |  | Peak da | 3 (3) |  | : May 3 |  |  | 3 |

Catharus Thrush (genus total including unidentified)
Catharus sp.


## Gray-cheeked Thrush

Catharus minimus


Swainson's Thrush
Catharus ustulatus


Hermit Thrush
Catharus guttatus


Hermit Thrush
Catharus guttatus

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.3 | 0.3 | 0.3 | 0.4 | 4.7 | 0.3 | 0.0 | 0.6 |
| Days observed | 0 | 2 | 1 | 0 | 0 | 2 | 2 | 2 | 3 | 7 | 2 | 0 | 21 |
| Processed | 0 | 0 | 0 | 0 | 0 | 1-0-0 | 1-0-0 | 0 | 2-0-0 | 14-0-10 | 2-0-0 | 0 | 20-0-10 |
|  | First date: July 21 (1) |  |  |  | Peak date: September 13 (8) |  |  |  | Last date: September 25 (1) |  |  |  | 47 |

## American Robin

Turdus migratorius


## Gray Catbird

Dumetella carolinensis


## European Starling

Sturnus vulgaris


## Cedar Waxwing

Bombycilla cedrorum



Finch (family total including unidentified)
Fringillidae sp.

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 513.3 | 163.3 | 6.0 | 2.3 | 5.0 | 9.7 | 16.8 | 60.0 | 97.1 |
| Days observed | 6 | 6 | 5 | 4 | 4 | 6 | 5 | 2 | 38 |
|  | First date: April 21 (859) |  | Peak date: April 21 (859) |  | Last date: June 10 (95) |  |  |  | 4419 |


|  |  | JULY |  |  |  | GUST |  |  |  | SEPTEMB |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 101.0 | 79.4 | 117.9 | 19.9 | 8.7 | 108.4 | 148.4 | 72.4 | 39.7 | 35.4 | 6.3 | 6.0 | 62.0 |
| Days observed | 7 | 6 | 7 | 7 | 6 | 7 | 7 | 7 | 6 | 7 | 4 | 2 | 73 |
| Processed | 0 | 0 | 4-0-0 | 0 | 0 | 1-0-0 | 1-0-0 | 1-0-0 | 2-0-0 | 0 | 0 | 0 | 9-0-0 |
|  | First date: July 12 (60) |  |  |  | Peak date: July 29 (361) |  |  |  | Last date: September 30 (23) |  |  |  | 5187 |

## Evening Grosbeak

Coccothraustes vespertinus

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 2.2 | 1.2 | 0.3 | 1.2 | 1.3 | 0.8 | 0.0 | 1.0 | 1.0 |
| Days observed | 3 | 2 | 2 | 4 | 3 | 3 | 0 | 1 | 18 |
|  | First date: April 22 (2) |  | Peak date: April 25 (7) |  |  | Last date: June 10 (2) |  |  | 44 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.6 | 2.1 | 0.7 | 0.9 | 2.9 | 2.0 | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.8 |
| Days observed | 0 | 2 | 5 | 3 | 2 | 4 | 3 | 3 | 2 | 0 | 0 | 0 | 24 |
|  | First date: July 21 (3) |  |  |  | Peak date: August 20 (9) |  |  |  | Last date: September 10 (1) |  |  |  | 69 |

## Purple Finch

## Haemorhous purpureus



## Redpoll (genus total including Common, Hoary, unidentified)

Acanthis flammea/hornemanni

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18(4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 508.0 | 122.5 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 79.0 |
| Days observed | 6 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 14 |
|  | First date: April 21 (859) |  | Peak date: April 22 (1114) |  | Last date: May 8 (3) |  |  |  | 3793 |

## Common Redpoll

Acanthis flammea

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 501.3 | 122.5 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 78.2 |
| Days observed | 6 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 14 |
|  | First date: April 21 (839) |  | Peak date: April 22 (1094) |  | Last date: May 8 (3) |  |  |  | 3753 |

White-winged Crossbill
Loxia leucoptera


## Pine Siskin

Spinus pinus

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  | TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) |  | 5-11 (3) | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8 (7) | 9-10 (8) |  |
| Avg. per day | 0.0 |  | 5.2 |  | 0.3 | 0.5 |  | 2.7 | 8.2 |  | 16.3 | 58.5 | 11.5 |
| Days observed | 0 |  | 2 |  | 1 | 1 |  | 2 | 6 |  | 5 | 2 | 19 |
|  | First date: April 28 (14) |  |  |  | Peak date: June 10 (93) |  |  |  | ast date: June 10 (93) |  |  |  | 316 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 97.7 | 46.3 | 102.0 | 13.0 | 6.7 | 91.1 | 134.9 | 68.6 | 35.9 | 34.6 | 6.3 | 6.0 | 53.6 |
| Days observed | 7 | 6 | 7 | 7 | 5 | 7 | 7 | 7 | 6 | 7 | 4 | 2 | 72 |
| Processed | 0 | 0 | 3-0-0 | 0 | 0 | 0 | 1-0-0 | 0 | 1-0-0 | 0 | 0 | 0 | 5-0-0 |
|  | First date: July 12 (60) |  |  |  | Peak date: July 29 (327) |  |  |  | Last date: September 30 (23) |  |  |  | 4483 |

American Goldfinch
Spinus tristis


Sparrow (family total including unidentified)
Passerellidae sp.


## Lapland Longspur

Calcarius lapponicus


## Chipping Sparrow

Spizella passerina


Clay-colored Sparrow
Spizella pallida

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5 | 21-27 (Week 1) |  | 28-4 (2) |  | 5-11 (3) | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 |  | 0.0 | 0.3 |  | 5.3 |  | 5.5 | 9.0 |  | 0.3 | 0.0 | 2.6 |
| Days observed | 0 |  | 0 |  | 2 | 4 |  | 5 | 5 |  | 1 | 0 | 17 |
| Processed | 0 |  | 0 |  | 0 | 3-0-0 |  | 3-0-0 | 5-0-0 |  | 0 | 0 | 11-0-0 |
|  | First date: May 6 (1) |  |  |  | Peak date: May 26 (36) |  |  |  | ast date: June 2 (2) |  |  |  | 123 |
|  |  |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | JULY  <br> $12-18$ (1) $19-25(2)$ |  | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | $0.0$ | 1.1 | 1.0 | 0.1 | 0.4 | 0.9 | 0.3 | 0.0 | 1.4 | 1.6 | 0.3 | 0.0 | 0.6 |
| Days observed | 0  <br>  0 | 4 | 4 | 1 | 1 | 4 | 2 | 0 | 5 | 5 | 2 | 0 | 28 |
| Processed |  |  | 3-0-0 | 0 | 0 | 1-0-0 | 1-0-0 | 0 | 3-0-0 | 2-0-0 | 0 | 0 | 12-0-0 |
|  | First date: July 20 (5) |  |  |  | Peak date: September 19 (5) |  |  |  | Last date: September 22 (1) |  |  |  | 50 |

## Fox Sparrow

Passerella iliaca


## American Tree Sparrow

Spizelloides arborea

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 10.5 | 6.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 |
| Days observed | 4 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 10 |
| Processed | 21-0-0 | 8-0-0 | 1-0-0 | 0 | 0 | 0 | 0 | 0 | 30-0-0 |
|  | First date: April 23 (18) |  | Peak date: April 24 (39) |  | Last date: May 8 (1) |  |  |  | 106 |

American Tree Sparrow
Spizelloides arborea

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 0.4 | 2.5 | 0.4 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 4 | 7 |
| Processed | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4-0-0 | 1-0-0 | 1-0-0 | 6-0-0 |
|  | First date: September 17 (9) |  |  |  | Peak date: September 17 (9) |  |  |  | Last date: September 30 (1) |  |  |  | 23 |

Slate-colored Junco

## Junco hyemalis hyemalis



Gambel's White-crowned Sparrow

## Zonotrichia leucophrys gambelii

|  | APRIL |  | MAY |  |  | JUNE |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5 | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.3 | 1.3 | 1.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.4 |
| Days observed | 0 | 2 | 4 | 2 | 1 | 0 | 0 | 0 | 9 |
| Processed | 0 | 1-0-0 | 1-0-0 | 0 | 0 | 0 | 0 | 0 | 2-0-0 |
|  | First date: April 30 (1) |  | Peak date: May 14 (6) |  | Last date: May 19 (1) |  |  |  | 20 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 1.7 | 2.0 | 0.1 | 0.0 | 0.4 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 5 | 1 | 0 | 12 |
| Processed | 0 | 0 | 0 | 0 | 0 | 0 | 2-0-0 | 0 | 2-0-0 | 8-0-0 | 0 | 0 | 12-0-0 |
|  | First date: August 28 (3) |  |  |  | Peak date: September 15 (5) |  |  |  | Last date: September 22 (1) |  |  |  | 30 |

White-throated Sparrow
Zonotrichia albicollis

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5 | 21-27 (Week 1) |  | 28-4 (2) |  | 5-11 (3) | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 |  | 4.2 |  | 19.5 | 15.2 |  | 28.2 | 15.3 |  | 9.5 | 8.5 | 12.5 |
| Days observed | 0 |  | 3 |  | 6 | 6 |  | 6 | 6 |  | 6 | 2 | 35 |
| Processed | 0 |  | 1-1-0 |  | 11-0-2 | 11-2-5 |  | 46-2-7 | 17-0-4 |  | 2-1-5 | 0 | 88-6-23 |
|  | First date: May 1 (15) |  |  |  | Peak date: May 25 (39) |  |  |  | ast date: June 10 (8) |  |  |  | 568 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8(4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 6.1 | 8.0 | 9.6 | 10.9 | 5.6 | 9.7 | 12.6 | 10.0 | 17.6 | 21.3 | 7.4 | 0.3 | 9.9 |
| Days observed | 7 | 7 | 7 | 7 | 7 | 5 | 7 | 6 | 7 | 7 | 6 | 1 | 74 |
| Processed | 1-0-3 | 6-0-3 | 17-1-4 | 15-0-7 | 1-0-0 | 14-0-3 | 11-0-1 | 11-0-2 | 27-0-3 | 25-0-17 | 7-0-0 | 0 | 135-1-43 |
|  | First date: July 12 (12) |  |  |  | Peak date: September 10 (30) |  |  | Last date: September 27 (1) |  |  |  |  | 832 |

## Vesper Sparrow

## Pooecetes gramineus

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.1 |
| Days observed | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
|  | First date: May 13 (3) |  | Peak date: May 13 (3) |  | Last date: May 24 (2) |  |  |  | 5 |

## Le Conte's Sparrow

Ammospiza leconteii


Savannah Sparrow
Passerculus sandwichensis


## Song Sparrow

Peak date: September 2 (4) $\quad$ Last date: September 11 (1)
Melospiza melodia


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 4.4 | 7.0 | 7.4 | 3.7 | 2.3 | 5.3 | 1.9 | 1.7 | 1.0 | 2.0 | 0.1 | 0.5 | 3.1 |
| Days observed | 7 | 7 | 7 | 6 | 5 | 7 | 6 | 4 | 4 | 6 | 1 | 2 | 62 |
| Processed | 0-0-2 | 4-0-1 | 8-0-3 | 3-0-1 | 1-0-0 | 6-0-3 | 2-0-1 | 1-0-0 | 1-0-0 | 2-0-1 | 0 | 0 | 28-0-12 |
|  | First date: July 12 (4) |  |  |  | Peak date: August 18 (12) |  |  |  | Last date: September 28 (1) |  |  |  | 260 |

## Lincoln's Sparrow

Melospiza lincolnii

|  | APRIL |  | MAY |  |  |  |  |  |  |  |  | JUNE |  |  | TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) | 5-11 (3) |  | 12-18 (4) |  | 19-25 (5) |  | 26-1 (6) |  |  | 2-8(7) | 9-10 (8) |  |
| Avg. per day | 0.0 |  | 0.3 | 2.7 |  | 1.5 |  | 2.7 |  | 1.5 |  |  | 1.5 | 1.0 | 1.4 |
| Days observed | 0 |  | 1 | 5 |  | 5 |  | 6 |  | 5 |  |  | 6 | 2 | 30 |
| Processed | 0 |  | 0 | 3-0-0 |  | 1-1-0 |  | 2-0-1 |  | 0-0-1 |  |  | 0 | 0 | 6-1-2 |
|  | First date: May 4 (2) |  |  |  | Peak date: May 5 (6) |  |  |  |  | Last date: June 10 (1) |  |  |  |  | 63 |
|  | JULY |  |  | AUGUST |  |  |  |  | SEPTEMBER |  |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 |  | 30-5 (8) | 6-12 (9) | 13-1 | 19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.9 | 1.3 | 0.6 | 0.1 | 1.4 | 0.3 |  | 0.3 | 1.0 |  | 3.0 | 1.1 | 0.0 | 0.8 |
| Days observed | 0 | 4 | 7 | 2 | 1 | 5 | 2 |  | 2 | 4 |  | 7 | 4 | 0 | 38 |
| Processed | 0 | 2-0-0 | 3-0-0 | 1-0-0 | 0 | 5-0-1 | 0 |  | 0-0-1 | 2-0-1 |  | -0-0 | 1-0-0 | 0 | 21-0-3 |
|  | First date: July 20 (2) |  |  |  | Peak date: September 17 (5) |  |  |  |  | Last date: September 24 (1) |  |  |  |  | 70 |

## Swamp Sparrow

## Melospiza georgiana



## Blackbird (family total including unidentified)

Icteridaesp.


Yellow-headed Blackbird


## Baltimore Oriole



## Red-winged Blackbird

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  | TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) |  | 5-11 (3) | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8 (7) | 9-10 (8) |  |
| Avg. per day | 1.0 |  | 16.2 |  | 5.8 | 2.0 |  | 5.5 | 1.0 |  | 0.2 | 2.0 | 4.2 |
| Days observed | 1 |  | 6 |  | 5 | 4 |  | 5 | 3 |  | 1 | 1 | 26 |
|  | First date: April 27 (6) |  |  |  | Peak date: April 28 (65) |  |  |  | Last date: June 9 (4) |  |  |  | 194 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 13.0 | 23.3 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 |
| Days observed | 0 | 3 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
|  | First date: July 21 (1) |  |  |  | Peak date: July 27 (129) |  |  | Last date: August 18 (1) |  |  |  |  | 255 |

## Brown-headed Cowbird

|  | APRIL |  | MAY |  |  | JUNE |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 2.3 | 2.5 | 2.3 | 2.8 | 2.2 | 0.2 | 0.0 | 1.5 |
| Days observed | 0 | 4 | 5 | 4 | 5 | 4 | 1 | 0 | 23 |
|  | First date: April 28 |  | Peak da | 18 (11) |  | : June 5 |  |  | 74 |

## Rusty Blackbird

Euphagus carolinus


## Brewer's Blackbird

|  | APRIL |  | MAY |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\mathbf{S}$ | $21-27$ (Week 1) | $28-4(2)$ | $5-11(3)$ | $12-18(4)$ |
| Avg. per day | 0.0 | 0.0 | 0.5 | 0.0 |  |
| Days observed | 0 | 0 | 2 | 0 |  |

Euphagus cyanocephalus

| JUNE |  |  |
| :---: | :---: | :---: |
| $2-8(7)$ | $9-10(8)$ | TOTAL |
| 0.0 | 0.5 | 0.2 |
| 0 | 1 | 4 |
|  |  |  |

Common Grackle
Quiscalus quiscula


## Warbler (family total including unidentified)

Parulidae sp.


## Ovenbird

Seiurus aurocapilla


## Northern Waterthrush

## Parkesia noveboracensis



## Black-and-white Warbler

## Mniotilta varia



## Tennessee Warbler

## Leiothlypis peregrina

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5 | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 7.8 | 26.0 | 10.8 | 10.5 | 6.9 |
| Days observed | 0 | 0 | 0 | 0 | 5 | 6 | 6 | 2 | 19 |
| Processed | 0 | 0 | 0 | 0 | 4-0-0 | 13-0-5 | 5-0-2 | 2-0-1 | 24-0-8 |
|  | First date: May 20 (1) |  | Peak date: May 26 (75) |  | Last date: June 10 (9) |  |  |  | 289 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 5.0 | 50.0 | 32.3 | 7.6 | 3.1 | 46.0 | 18.7 | 19.0 | 4.1 | 0.1 | 0.0 | 0.0 | 15.5 |
| Days observed | 5 | 7 | 7 | 5 | 7 | 7 | 5 | 6 | 6 | 1 | 0 | 0 | 56 |
| Processed | 16-0-1 | 130-0-7 | 50-0-0 | 17-0-3 | 5-0-0 | 146-0-0 | 51-0-0 | 59-0-0 | 3-0-0 | 1-0-0 | 0 | 0 | 478-0-11 |
|  | First date: July 12 (4) |  |  |  | Peak date: July 21 (103) |  |  | Last date: September 14 (1) |  |  |  |  | 1302 |

## Orange-crowned Warbler

## Leiothlypis celata

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) |  | 5-11 (3) | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8 (7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 |  | 3.0 |  | 9.8 | 1.7 |  | 1.2 | 0.0 |  | 0.0 | 0.0 | 2.0 |
| Days observed | 0 |  | 1 |  | 6 | 4 |  | 2 | 0 |  | 0 | 0 | 13 |
| Processed | 0 |  | 1-0-0 |  | 3-0-0 | 2-0-0 |  | 1-0-0 | 0 |  | 0 | 0 | 7-0-0 |
|  | First date: May 4 (18) |  |  |  | Peak date: May 5 (36) |  |  |  | Last date: May 21 (1) |  |  |  | 94 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 1.0 | 1.1 | 12.4 | 40.0 | 4.4 | 1.0 | 5.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 7 | 7 | 6 | 3 | 31 |
| Processed | 0 | 0 | 0 | 0 | 0 | 2-0-0 | 0 | 5-0-0 | 47-0-0 | 87-0-1 | 2-0-0 | 0 | 143-0-1 |
|  | First date: August 20 (1) |  |  |  | Peak date: September 13 (63) |  |  | Last date: September 30 (1) |  |  |  |  | 421 |

Nashville Warbler
Leiothlypis ruficapilla

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8(4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 4 |
| Processed | 0 | 0 | 0 | 0 | 0 | 1-0-0 | 1-0-0 | 2-0-0 | 0 | 1-0-0 | 0 | 0 | 5-0-0 |
|  | First date: August 21 (1) |  |  |  | Peak date: September 4 (2) |  |  |  | Last date: September 18 (1) |  |  |  | 5 |

Connecticut Warbler
Oporornis agilis

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Processed | 0 | 0 | 0 | 0 | 0 | 1-0-0 | 0 | 0 | 0 | 0 | 0 | 0 | 1-0-0 |
|  | First date: August 16 (1) |  |  |  | Peak date: August 16 (1) |  |  |  | Last date: August 16 (1) |  |  |  | 1 |

## Mourning Warbler

Geothlypis philadelphia


## Common Yellowthroat

Geothlypis trichas

|  | APRIL |  | MAY |  |  |  |  |  |  |  | JUNE |  | TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) |  | 5-11 (3) | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8 (7) | 9-10 (8) |  |
| Avg. per day | 0.0 |  | 0.0 |  | 0.0 | 0.0 |  | 1.2 | 3.2 |  | 2.2 | 7.5 | 1.8 |
| Days observed | 0 |  | 0 |  | 0 | 0 |  | 4 | 5 |  | 5 | 2 | 16 |
| Processed | 0 |  | 0 |  | 0 | 0 |  | 1-0-0 |  |  | 5-0-0 | 8-0-0 | 25-0-0 |
|  | First date: May 20 (1) |  |  |  | Peak date: June 5 (8) |  |  |  | Last date: June 10 (4) |  |  |  | 54 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.4 | 1.1 | 1.1 | 1.1 | 1.9 | 4.9 | 2.7 | 2.9 | 1.9 | 3.7 | 0.6 | 0.0 | 1.9 |
| Days observed | 2 | 4 | 5 | 5 | 7 | 6 | 5 | 5 | 6 | 7 | 2 | 0 | 54 |
| Processed | 0 | 1-0-0 | 2-0-0 | 1-0-0 | 3-0-0 | 14-0-1 | 4-0-1 | 5-0-0 | 3-0-0 | 7-0-0 | 1-0-0 | 0 | 41-0-2 |
|  | First date: July 12 (2) |  |  |  | Peak date: September 16 (11) |  |  |  | Last date: September 21 (3) |  |  |  | 156 |

## American Redstart

## Setophaga ruticilla



Setophaga tigrina

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Processed | 0 | 0 | 0 | 0 | 0 | 1-0-0 | 0 | 0 | 0 | 0 | 0 | 0 | 1-0-0 |
|  | First date: August 20 (1) |  |  |  | Peak date: August 21 (1) |  |  | Last date: August 21 (1) |  |  |  |  | 2 |



## Bay-breasted Warbler

## Setophaga castanea

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.3 | 0.1 | 0.1 | 0.1 | 0.6 | 2.9 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 |
| Days observed | 2 | 1 | 1 | 1 | 3 | 7 | 3 | 0 | 0 | 0 | 0 | 0 | 18 |
| Processed | 0 | 1-0-0 | 1-0-0 | 1-0-0 | 1-0-0 | 8-0-0 | 6-0-0 | 0 | 0 | 0 | 0 | 0 | 18-0-0 |
|  | First date: July 16 (1) |  |  |  | Peak date: August 17 (6) |  |  | Last date: August 28 (6) |  |  |  |  | 39 |

## Yellow Warbler

Setophaga petechia


Chestnut-sided Warbler
Setophaga pensylvanica

|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
|  | First date: July 27 (1) |  |  |  | Peak date: July 27 (1) |  |  |  | Last date: July 27 (1) |  |  |  | 1 |

## Blackpoll Warbler

## Setophaga striata

|  |  | JULY |  |  |  | UST |  |  |  | SEPTEMB |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Days observed | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 4 |
| Processed | 0 | 1-0-0 | 0 | 0 | 0 | 3-0-0 | 1-0-0 | 0 | 0 | 0 | 0 | 0 | 5-0-0 |
|  | First date: July 23 (1) |  |  |  | Peak date: August 20 (2) $\quad$ Last date: August 28 (1) |  |  |  |  |  |  |  | 5 |

## Western Palm Warbler

Setophaga palmarum palmarum

|  | APRIL |  |  | MAY |  |  |  |  | JUNE |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) |  | 28-4 (2) | 5-11 (3) |  | 12-18 (4) |  | 19-25 (5) | 26-1 (6) |  | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 |  | 0.0 | 0.5 |  | 0.3 |  | 0.8 | 0.0 |  | 0.0 | 0.0 | 0.2 |
| Days observed | 0 |  | 0 |  | 1 | 2 |  | 2 | 0 |  | 0 | 0 | 5 |
| Processed | 0 |  | 0 |  | 0 | 1-0-0 |  | 0 | 0 |  | 0 | 0 | 1-0-0 |
|  | First date: May 8 (3) |  |  |  | Peak date: May 19 (2) |  |  |  | Last date: May 20 (3) |  |  |  | 10 |
|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8(4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 0.4 | 1.1 | 0.6 | 0.3 | 0.0 | 0.3 |
| Days observed | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 2 | 2 | 2 | 2 | 0 | 13 |
| Processed | 0 | 0 | 0 | 0 | 0 | 0 | 2-0-0 | 0 | 2-0-0 | 0 | 0 | 0 | 4-0-0 |
|  | First date: August 17 (1) |  |  |  | Peak date: September 10 (7) |  |  |  | Last date: September 23 (1) |  |  |  | 23 |

## Myrtle Warbler

## Setophaga coronata coronata



## Black-throated Green Warbler

Setophaga virens


## Canada Warbler

## Cardellina canadensis



Wilson's Warbler
Cardellina pusilla

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11(3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| Days observed | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
|  | First date: May 19 (1) |  | Peak date: May 19 (1) |  | Last date: May 19 (1) |  |  |  | 1 |


|  |  | JULY |  |  |  | UST |  |  |  | SEPTEMB |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.0 | 0.0 | 0.0 | 0.1 | 0.3 | 0.7 | 0.1 | 0.6 | 0.4 | 0.0 | 0.1 | 0.0 | 0.2 |
| Days observed | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 3 | 3 | 0 | 1 | 0 | 12 |
| Processed | 0 | 0 | 0 | 1-0-0 | 0 | 4-0-0 | 1-0-0 | 3-0-0 | 2-0-0 | 0 | 1-0-0 | 0 | 12-0-0 |
|  | First date: August 6 (1) |  |  |  | Peak date: August 20 (3) |  |  |  | Last date: September 20 (1) |  |  |  | 17 |

Western Tanager
Piranga ludoviciana

|  | APRIL |  | MAY |  |  |  | JUNE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | 21-27 (Week 1) | 28-4 (2) | 5-11 (3) | 12-18 (4) | 19-25 (5) | 26-1 (6) | 2-8(7) | 9-10 (8) | TOTAL |
| Avg. per day | 0.0 | 0.2 | 0.2 | 1.8 | 2.2 | 0.8 | 0.0 | 0.5 | 0.7 |
| Days observed | 0 | 1 | 1 | 5 | 4 | 4 | 0 | 1 | 16 |
|  | First date: May 4 (1) |  | Peak date: May 25 (7) |  | Last date: June 10 (1) |  |  |  | 32 |


|  | JULY |  |  | AUGUST |  |  |  | SEPTEMBER |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| F | 12-18 (1) | 19-25 (2) | 26-1 (3) | 2-8 (4) | 9-15 (5) | 16-22 (6) | 23-29 (7) | 30-5 (8) | 6-12 (9) | 13-19 (10) | 20-26 (11) | 27-30 (12) | TOTAL |
| Avg. per day | 0.7 | 2.0 | 6.3 | 2.6 | 1.9 | 5.9 | 2.7 | 0.7 | 0.1 | 0.0 | 0.0 | 0.0 | 1.9 |
| Days observed | 4 | 5 | 7 | 5 | 4 | 6 | 4 | 2 | 1 | 0 | 0 | 0 | 38 |
| Processed | 0 | 3-0-0 | 8-0-0 | 2-0-0 | 1-0-0 | 4-0-0 | 3-0-0 | 0 | 0 | 0 | 0 | 0 | 21-0-0 |
|  | First date: July 15 (1) |  |  |  | Peak date: August 16 (14) |  |  |  | Last date: September 9 (1) |  |  |  | 160 |

Rose-breasted Grosbeak

## Pheucticus ludovicianus



## Appendix II. To-date \& 2020 Banding Totals

The following is a list of all species with banding records at the LSLBO in taxonomic order. All 2020 projects are summarized with annual averages of new bands across programs since standardized efforts began in 1995 (2011 excluded) and grand totals since trials started in 1993. Subspecies are indicated with quotation marks.


[^3]|  | Migration |  | MAPS | Owls | $\begin{aligned} & 2020 \\ & \text { Total } \end{aligned}$ | Annual Average | $\begin{array}{\|l\|} \hline \text { Grand Total } \\ (1993-2020) \\ \hline \end{array}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Species | Spring | Fall |  |  |  |  |  |
| Brown Creeper | 1 | 4 |  |  | 5 | 3.2 | 81 |
| House Wren | 3 |  |  |  | 3 | 2.0 | 50 |
| Winter Wren* | 1 | $4^{\mathrm{H}}$ | 1 |  | 6 | 3.5 | 88 |
| Marsh Wren |  |  |  |  | 0 | 0.1 | 3 |
| Golden-crowned Kinglet |  | 2 |  |  | 2 | 4.2 | 106 |
| Ruby-crowned Kinglet | 2 | 22 | 1 |  | 25 | 18.8 | 500 |
| Townsend's Solitaire |  |  |  |  | 0 | 0.2 | 4 |
| Veery |  |  |  |  | 0 | 0.3 | 8 |
| Gray-cheeked Thrush | 4 | 4 |  |  | 8 | 10.4 | 260 |
| Swainson's Thrush | 88 | 310 | 37 |  | 435 | 288.6 | 7,510 |
| Hermit Thrush | 2 | 20 | 1 |  | 23 | 26.6 | 692 |
| American Robin | 7 | 5 | 6 |  | 18 | 22.4 | 599 |
| Varied Thrush |  |  |  |  | 0 | 0.2 | 6 |
| Gray Catbird* | 2 | $1^{\mathrm{H}}$ |  |  | $3^{\mathrm{H}}$ | 0.4 | 10 |
| Brown Thrasher |  |  |  |  | 0 | 0.0 | 1 |
| Northern Mockingbird |  |  |  |  | 0 | 0.0 | 1 |
| Cedar Waxwing* |  | $30^{\mathrm{H}}$ | 1 |  | $31^{\mathrm{H}}$ | 8.1 | 243 |
| American Pipit |  |  |  |  | 0 | 0.7 | 18 |
| Evening Grosbeak |  |  |  |  | 0 | 0.1 | 2 |
| Purple Finch |  | 4 |  |  | 4 | 4.6 | 124 |
| Common Redpoll |  |  |  |  | 0 | 0.2 | 4 |
| Hoary Redpoll |  |  |  |  | 0 | 0.0 | 1 |
| White-winged Crossbill |  |  |  |  | 0 | 0.0 | 1 |
| Pine Siskin* |  | 5 | $2^{\text {H }}$ |  | 7 | 6.1 | 185 |
| American Goldfinch |  |  |  |  | 0 | 0.1 | 2 |
| Lapland Longspur |  |  |  |  | 0 | 0.2 | 5 |
| Chipping Sparrow* | $3^{\text {L }}$ | 6 | 1 |  | 10 | 81.9 | 2,100 |
| Clay-coloured Sparrow | 11 | 12 |  |  | 23 | 44.2 | 1,128 |
| Fox Sparrow |  | 1 |  |  | 1 | 3.3 | 90 |
| American Tree Sparrow | 30 | 6 |  |  | 36 | 27.0 | 714 |
| "Slate-coloured" Junco | 48 | 27 |  |  | 75 | 77.4 | 2,027 |
| "Oregon" Junco |  |  |  |  | 0 | 0.8 | 20 |
| "Gambel's" White-crowned Sparrow | 2 | 12 |  |  | 14 | 22.7 | 581 |
| Harris's Sparrow |  |  |  |  | 0 | 0.3 | 8 |
| White-throated Sparrow* | 88 | $135^{\text {H }}$ | 100 |  | 323 | 182.8 | 4,759 |
| Vesper Sparrow |  |  |  |  | 0 | 0.1 | 3 |
| Le Conte's Sparrow |  | 1 |  |  | 1 | 0.4 | 11 |
| Savannah Sparrow* |  | 1 |  |  | $1{ }^{\text {L }}$ | 9.7 | 256 |
| Song Sparrow | 8 | 28 |  |  | 36 | 18.0 | 472 |
| Lincoln's Sparrow | 6 | 21 | 3 |  | 30 | 49.6 | 1,300 |
| Swamp Sparrow |  | 13 | 2 |  | 15 | 10.4 | 283 |

*Record breaker: the highest (H) or lowest (L) number of individuals banded in a season/year since 1995

|  | Migration |  | MAPS | Owls | $\begin{aligned} & \hline 2020 \\ & \text { Total } \end{aligned}$ | Annual Average | Grand Total$(1993-2020)$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Species | Spring | Fall |  |  |  |  |  |
| Baltimore Oriole |  |  |  |  | 0 | 0.2 | 5 |
| Red-winged Blackbird |  |  |  |  | 0 | 0.3 | 8 |
| Brown-headed Cowbird |  |  |  |  | 0 | 0.4 | 10 |
| Common Grackle |  |  |  |  | 0 | 0.2 | 6 |
| Ovenbird | 17 | 188 | 29 |  | 234 | 192.2 | 5,051 |
| Northern Waterthrush* | 9 | $36^{\text {H }}$ | 2 |  | 47 | 34.2 | 892 |
| Black-and-white Warbler* | 10 | $123^{\text {H }}$ | $15^{\text {H }}$ |  | 148 | 96.8 | 2,550 |
| Tennessee Warbler | 24 | 478 | 48 |  | 550 | 261.4 | 6,965 |
| Orange-crowned Warbler | 7 | 143 |  |  | 150 | 75.4 | 1,934 |
| Nashville Warbler* |  | $5^{\text {H }}$ |  |  | $5^{\text {H }}$ | 0.6 | 14 |
| Connecticut Warbler |  | 1 |  |  | 1 | 1.3 | 32 |
| MacGillivray's Warbler |  |  |  |  | 0 | 0.1 | 2 |
| Mourning Warbler* | 24 | $131^{\text {H }}$ | 23 |  | 178 | 76.2 | 1,987 |
| Common Yellowthroat | 25 | 41 | 2 |  | 68 | 37.2 | 998 |
| American Redstart* | $10^{\text {L }}$ | 360 | $90^{\text {H }}$ |  | 460 | 307.8 | 8,379 |
| Cape May Warbler |  | 1 |  |  | 1 | 7.2 | 195 |
| Magnolia Warbler | 2 | 42 | 10 |  | 54 | 44.0 | 1,174 |
| Bay-breasted Warbler |  | 18 |  |  | 18 | 8.0 | 202 |
| Blackburnian Warbler |  |  |  |  | 0 | 0.1 | 2 |
| Yellow Warbler* | 3 | $291{ }^{\text {H }}$ | 10 |  | 304 | 157.6 | 4,220 |
| Chestnut-sided Warbler |  |  |  |  | 0 | 0.8 | 23 |
| Blackpoll Warbler |  | 5 |  |  | 5 | 15.2 | 389 |
| "Western" Palm Warbler | 1 | 4 |  |  | 5 | 12.7 | 326 |
| "Myrtle" Warbler* | $9{ }^{\text {L }}$ | 957 | 34 |  | 1,000 | 596.2 | 15,414 |
| "Audubon's" Warbler |  |  |  |  | 0 | 0.1 | 2 |
| Black-throated Green Warbler |  | 3 |  |  | 3 | 5.5 | 143 |
| Canada Warbler* | $14^{\text {L }}$ | $188^{\mathrm{H}}$ | $46^{\text {H }}$ |  | $248{ }^{\text {H }}$ | 143.7 | 3,811 |
| Wilson's Warbler |  | 12 |  |  | 12 | 22.0 | 631 |
| Western Tanager |  | 21 | 3 |  | 24 | 11.5 | 296 |
| Rose-breasted Grosbeak | 1 | 4 | 2 |  | 7 | 14.6 | 388 |
| Lazuli Bunting |  |  |  |  | 0 | 0.0 | 1 |
| Total number of birds banded, 2020* | 512 | 3,966 ${ }^{\text {H }}$ | $505{ }^{\text {H }}$ | 83 | 5,066 | 3,472.1 | 91,62 |
| Average season banded total | 935.2 | 2,160.7 | 246.5 | 106.2 | 3,472.1 |  | 91,626 |
| Banded species total, 2020 | 39 | 60 | 33 | 2 | 66 |  |  |
| Average season species total | 45.2 | 57.7 | 25.4 | 1.5 | 63.9 |  |  |

*Record breaker: the highest (H) or lowest (L) number of individuals banded in a season/year since 1995

## Appendix III. Banding Age Codes

The LSLBO uses age codes that are linked to the calendar year. This means that come January 1 , the age code given to all birds changes despite the bird itself not changing at all over the night of December 31. These codes are:

| Code | Expansion | Description |
| :---: | :--- | :--- |
| HY | Hatching Year | Hatched during the calendar year the bird was banded. |
| AHY | After Hatching Year | Hatched before the calendar year of banding, but exact year of hatching unknown. |
| SY | Second Year | Hatched the calendar year before the year of banding. For example, a bird hatched in June 2019 and banded in March 2020 <br> is a SY $\left(1^{\text {st }}\right.$ calendar year $\left.=2019,2^{\text {nd }}=2020\right)$, but is only 9 months old. |
| ASY | After Second Year | Hatched before the calendar year of banding, but exact year of hatching unknown. In other words, a bird that did not hatch <br> in the previous calendar year, but it is unknown what year it did hatch in. |
| TY | Third Year | Hatched the calendar year two years before the year of banding. Now in its third calendar year of life <br> $\left(1^{\text {st }}\right.$ calendar year $\left.=2018,2^{\text {nd }}=2019,3^{\text {rd }}=2020\right)$. |
| ATY | After Third Year | Hatched prior to two years before the year of banding, now in at least its fourth calendar year of life, but exact age unknown. |

Most adult songbird species moult (replace) all of the feathers on their body after they have finished breeding such that we can no longer see any juvenile feathers that would indicate a younger bird. We can now only say that this bird is an adult, but we do not know exactly how old it is, unless it has been banded previously. In this case, we use the following age codes:


For other species that have more complex moulting strategies, such as owls and woodpeckers, we can sometimes see more than two generations of feathers. This often allows us to use the following age codes:

|  | JUNE JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | First year of life |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Hatches | HY |  |  |  |  |  |  |  | SY |  |  |  |
|  | $\uparrow$ Fledging | Fall M |  |  | Winte |  |  |  |  |  | gration $\uparrow$ |  |
| Turns 1 year old | SY |  |  |  |  |  |  |  | TY |  |  | Second year of life |
|  | $\downarrow$ Breeding Moulting | Fall M |  |  | Winte |  | Spring Migration $\downarrow$ |  |  |  |  |  |
| Turns 2+ years old | TY | ASY |  |  |  |  | ATY |  |  |  |  | Third+ year of life |


[^0]:    *2011: Monitoring site was evacuated due to large forest fires in May cutting season short

[^1]:    *Capture rates from 2011 are excluded from averages.
    ** Aerials included in grand total averages.

[^2]:    * DEMO = Birds captured in mist-nets while they were being repaired near the banding lab.

[^3]:    *Record breaker: the highest (H) or lowest (L) number of individuals banded in a season/year since 1995

