



**BRUCE PENINSULA  
BIRD OBSERVATORY**

THE VOICE OF BIRDS ON THE BRUCE

# **MIGRATION MONITORING AT CABOT HEAD**

## **SPRING 2022**

*by*

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*prepared  
for*

**BRUCE PENINSULA BIRD OBSERVATORY**

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## **Preface**

Cabot Head is a promontory of the northeast headland of the upper Bruce Peninsula in south-central Ontario. Cabot Head Research Station (CHRS) is situated on the western side of Wingfield Basin (at 45°15'N, 81°18'W) near the community of Dyer's Bay. In 2001, Cabot Head was designated as an Important Bird Area (IBA) by Birdlife International for its significant concentrations of migratory bird species. Both Ontario Parks and Bruce Peninsula Bird Observatory (BPBO) manage the Cabot Head Research Station.

The Breeding Bird Survey (BBS) is the principle method for monitoring bird populations in the United States and southern Canada. However, breeding ranges of many species in northern Canada are inaccessible to roadside surveys and are therefore poorly monitored by the BBS method. The Canadian Migration Monitoring Network (CMMN) is a nation-wide, Bird Studies Canada-led initiative, intended to assess changes in bird populations during migration. There are 25 stations across Canada where data are collected for each bird species during the spring and fall migrations, typically through a standardized capture and observation protocol. Through continuous data collection since 2001, BPBO has demonstrated that Cabot Head is a significant site for monitoring migratory landbirds. In recognition of its importance and established migration monitoring effort, BPBO became a member of the CMMN in fall 2003. Bird migration monitoring at Cabot Head by BPBO has been ongoing without interruption since spring 2002.

BPBO was incorporated as a non-profit charitable organization in 2001 to initiate and direct ornithological assessments and monitoring at Cabot Head and the surrounding areas. Migration monitoring has been the primary focus of bird research at Cabot Head since 1998. This document reports on results of the spring 2022 migration monitoring season at the CHRS.

## **Executive Summary**

In this document are summarized the results of migration monitoring at Cabot Head in spring 2022. Spring fieldwork began on April 15 and ended on June 10 for a total of 57 consecutive days of coverage. A total of 167 species were detected during the monitoring period, with another species, Horned Lark, only seen in the afternoon (outside the monitoring period). A total of 1651 birds of 70 species were banded and 157 birds of 17 species were recaptured. Recapture data suggest that overall stopover rates at Cabot Head are low with species and yearly variations.

In spring 2022, good weather conditions were interspersed with short and infrequent periods of high wind and/or rain. As opposed to the usual pattern, poor weather was more common late in the season, with strong winds, sometime accompanied by rain, completely precluding banding for six days during the last 16 days of monitoring. In contrast, during the first 41 days of monitoring, only four days of banding were lost due to rain and/or high wind, with an additional five days of limited coverage. Very good coverage for banding (defined as at least 80 mist net hours or more out of a potential of 90 for any given day) happened on 42% of the days during the season. In spring 2022, the banding total of 1651 birds is very close to average with barely any record low or high totals (average of  $1604 \pm 488$  banded birds, low of 876 in 2015 and high of 2431 in 2002). Three species, Golden-crowned Kinglet, American Redstart, and Ruby-crowned Kinglet (in decreasing order), account for 45% of the banding total. There were 12 days with banding totals of over 50 birds (including two days with over 100 birds). On May 12, 78 species were detected, the day with the highest diversity this spring. Two new species, Fish Crown and Swainson's Hawk, were observed for the first time ever at Cabot Head, on April 30 and May 10 for the former and May 20 for the latter. A new subspecies, Yellow Palm Warbler, was banded this spring.

Migration monitoring at Cabot Head has been ongoing since 2002 and allows comparisons across years. However, monitoring in spring 2020 was reduced due to the Covid19 pandemic. Hence, data from spring 2020 have been excluded from the analysis. The entire list of all species observed is given in Appendix I. For a more casual take on the spring 2022 season, an edited version of the blog is reproduced in Appendix II.

The 2022 spring migration monitoring season was a success thanks to the efforts of the six volunteer field biologists who contributed their time to this project.

## 1. Methods

The migration monitoring program at Cabot Head, like all CMMN stations, follows a field protocol as it is essential for the production of population indices that data collection be consistent over the long term. At CHRS, fifteen mist nets are operated for six hours starting 30 minutes before sunrise, weather permitting. Personnel also complete a census done for one hour along a fixed route starting an hour after sunrise, where all birds seen or heard are recorded. Supplemental surveys such as visible migration counts and bay watches are completed when circumstances permit, but casual observation occurs all throughout the count period of seven hours.

## 2. Season Summary

### Coverage

Fieldwork for spring migration monitoring began at CHRS on April 15 and ended on June 10, for a total of 57 consecutive days. Census and casual observation were performed every day (except during intense rain). Weather impacted banding with a slightly above average total of 10 days without any banding. Across the season, 37% of mist net coverage (in hours) was lost. The number of days with complete banding coverage was well below average (20 days out of 57, i.e. 35%, compared to an average of  $46\% \pm 12$ ; Fig.1). This spring the station scientist was by himself during 10 days scattered throughout the season. Furthermore, when volunteers were present, there was usually only one. Both conditions automatically reduced the observation effort.

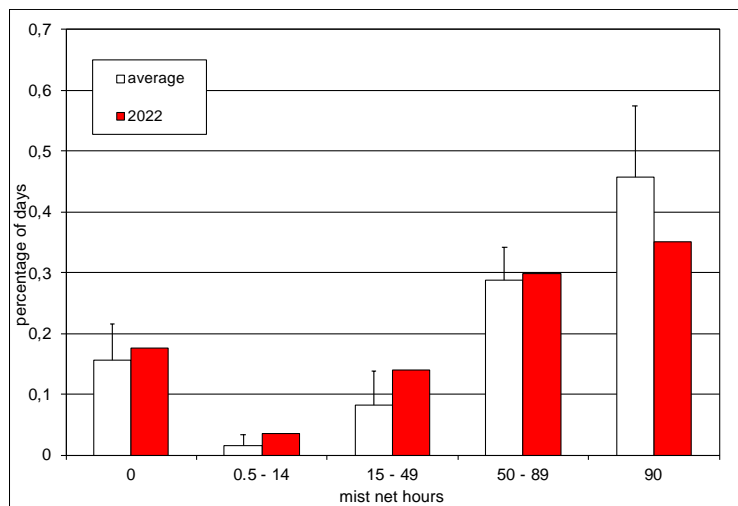


Figure 1. Coverage (in mist net hours) at CHRS in spring 2022 and average 2003-2021 (with years 2012 to 2014 and 2020 excluded).

## Weather

Weather in spring 2022 followed a somewhat unusual pattern with fewer days of unsettled conditions early in the season as compared to the last few weeks of monitoring when strong winds and/or rain were frequent. There were three days with snow or snow flurries (April 15, 19, & 27) and 10 days with precipitation, often heavy and lasting all day, other times in the form of short showers, distributed mostly in the second half of season (seven days of rain from May 16 onwards). Rain tremendously affects migration, grounding birds and impacting their foraging abilities. It also precludes any banding, for birds' safety. Periods of high wind occurred quite often this spring all throughout the season: 35% of days experienced winds of at least 5 on the Beaufort scale. These strong winds did not always last the entire morning but they nonetheless affected banding operations, as nets in their paths had to be closed.

Periods of inclement weather were not evenly distributed throughout the season. As usual, the first two weeks of monitoring experienced some unsettled weather, with wind and/or rain (and occasionally snow) hindering banding and monitoring during six days from April 15 to May 1 (i.e. 35% of the total of 17 days), with rain happening on three of them. For the rest of the season, weather greatly impacted banding during another 10 days from May 16 onward, i.e. 38% of these 26 days of monitoring. There was also a period of strong to very strong south winds and warm temperatures between May 9 and 13, reducing mist net hours by about half (see Fig.5).

Along with rain, wind is a major factor that influences migration. It is difficult to accurately quantify such a dynamic component of the weather, especially because wind strength and direction are recorded only at the start and end of the count period. To characterize wind force (on the Beaufort scale) and direction, we considered only the strongest wind speed during the count period of seven hours. Undoubtedly, this method tends to over-represent strong winds. However, strong winds affect migration tremendously and their effect could probably be felt before they develop into a full windstorm. This spring, strong winds (at least 5 on the Beaufort scale) were predominantly from the south and, to a lesser extent, from the west and occurred on 20 days (35% of the season). Another 24 days (42% of the season) experienced moderate winds (3 to 4 on the Beaufort scale). Therefore, most of the monitoring period experienced moderate to strong winds (Fig.2). North winds occurred much less frequently than winds from other directions this spring

and were mostly concentrated in April and early May. There were no occasions of strong north wind, conditions detrimental to migration. On the other hand, south and west winds, often very strong, were predominant throughout the season. Both during nocturnal migration and diurnal foraging flights, winds can induce migration drifts in birds: Cabot Head being the northeast promontory of the Bruce Peninsula, a west wind has thus the potential to “push” birds towards it. Likewise, south winds are favoured by migratory birds, as these tailwinds help reduce the energy required in non-stop flights. The highest diversity and numbers of birds observed this spring corresponded to periods of moderate to strong south winds.

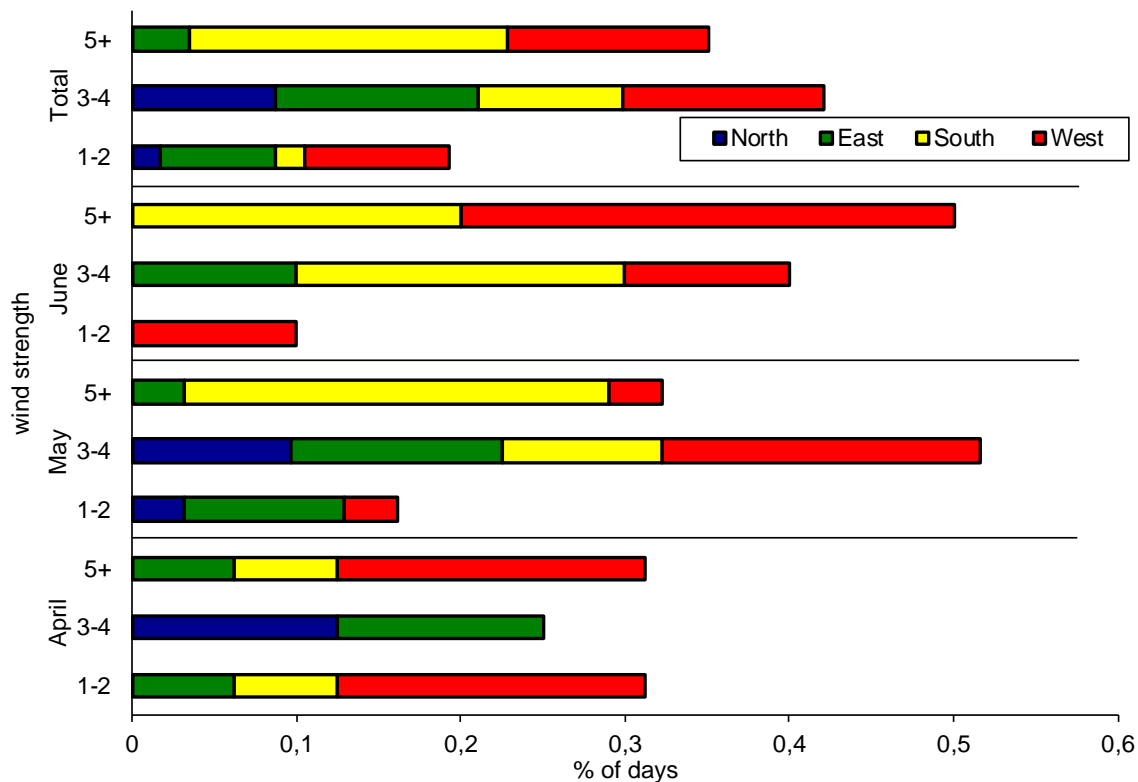


Figure 2. Wind pattern (strength on the Beaufort scale, direction, and proportion of time) at CHRS, spring 2022.



## Migration Monitoring

### Migration Overview

Migration is an inherently dynamic phenomenon, greatly influenced by weather and food availability (both operating at different spatial scales). Spring 2022 at Cabot Head was marked by sudden arrivals of new species and large movements of birds during a few days (notably April 24 and in mid-May) interspaced with calmer periods (Fig. 3 & 4). A migration overview can be expressed graphically with daily numbers of visible migration and species (Fig.3) and banded and recaptured birds (Fig.4) with the most numerous species highlighted. Finally, days of bad weather may be, in part, illustrated with daily mist net hours (Fig.5). A closer look at a few special days, the “boom” days of migration, will reveal the sheer magnitude of bird movement.

On the first few days of monitoring, weather was quite often poor, with strong winds, rain or snow which not only disturbed the banding operation but also precluded most birds from migrating. During this period, birds took advantage of “windows” of good weather to move *en masse*. That was notably the case on April 22 and even more so on April 24. A total of 54 species, including nine new arrivals, were detected on April 22 with good numbers of Common Grackles (408 counted) and Golden-crowned Kinglets (85 counted, including 22 banded). Heavy rain occurred on the previous and following days, blocking all migration in areas affected by it. Consequently, when good weather returned on April 24, there was a huge movement of birds, aided by a strong south wind. The wind precluded opening nets that day, which also increased the observation pressure. A high total (for April) of 67 species were detected that day, including 16 new species observed in the spring, the highest rate of new arrivals in the spring (11 new species on May 10). A very large movement of many species was observed on April 24, with many record highs for the season: 1200 Common Grackles (highest ever across spring seasons) and 238 Red-winged Blackbirds (second highest ever across spring seasons); 237 Sharp-shinned Hawks (highest ever across spring seasons); 36 American Kestrels (the first time ever that this species has been counted in double-digit numbers); and 216 Northern Flickers (third highest across spring seasons). Other species took advantage of the good conditions that day: 323 Canada Geese (highest count for spring 2022); 20 Sandhill Cranes (second highest count for spring 2022; high of 29 on April 25); 92 American Crows (highest count for spring 2022); 47 American Robins (second highest count for spring 2022); and 52 Purple Finches (highest count for spring 2022). The south wind also pushed many raptors towards Georgian Bay, with 12 species detected on that day, including two

Peregrine Falcons and two Ospreys. Among the new arrivals, there were two very early species: one Eastern Kingbird (only one other detection in April on the 25<sup>th</sup> in 2013); and a White-crowned Sparrow, which has only three other observations in April in the previous 20 years.

Movements of Golden-crowned Kinglet at Cabot Head this spring were concentrated in late April and early May (Fig.3&4). Captures were at their highest on April 28 and 29, accounting for 42% of the season banding total. Recaptures of Golden-crowned Kinglets during these two days were also quite high, relatively unusual for this species which tends to move quickly through the area. On these days, the weather was clear and calm but quite cold, with freezing temperatures at night and early morning. It is possible that these conditions forced kinglets to linger in the area, most likely in search of harder-to-find food.

Diversity of birds was at its highest during the period of May 9 to 14, with a total of 115 species detected (75 species on May 10, highest daily total of the season) and a total of 31 new species. The first three days were characterized by strong to very strong south winds, bringing unseasonably warm air and a rapid leaf-out process. Of the 115 species detected during this six-day period, 32 were observed every day, whereas 24 species were seen only on one day. Common Raven and Red-tailed Hawk, both highly visible and detectable species, were each missed on one day during this period, a small but telling indication of the inherently stochastic nature of bird monitoring. Mid-May is a period of arrival of many long-distance migrants, which were well represented in the 31 new species detected between May 9 and 14 this spring. For example, Scarlet Tanager, Rose-breasted Grosbeak, and Baltimore Oriole arrived during this period, as well as Gray Catbird and three species of flycatchers and thrushes (each), and nine species of warblers. A total of 22 species of warblers were observed during this period, with a high daily total of 16 on May 12. However, the highest daily diversity for this group was on May 21, with 19 of the 25 warbler species detected this spring. Banding totals were average during this period with 206 birds banded (12% of the season total). However, there were very few recaptures, an indication of a rapid movement of birds through Cabot Head: one Black-and-white Warbler banded the previous day was recaptured on May 11. The other seven birds recaptured during this period were all American Redstarts banded in previous seasons and arriving back at Cabot Head. This period marks the end of the Myrtle Warbler passage (417 and 225 birds counted on May 8 and 9, respectively) and the beginning of the American Redstart migration and arrival on its breeding grounds (which includes Cabot Head).

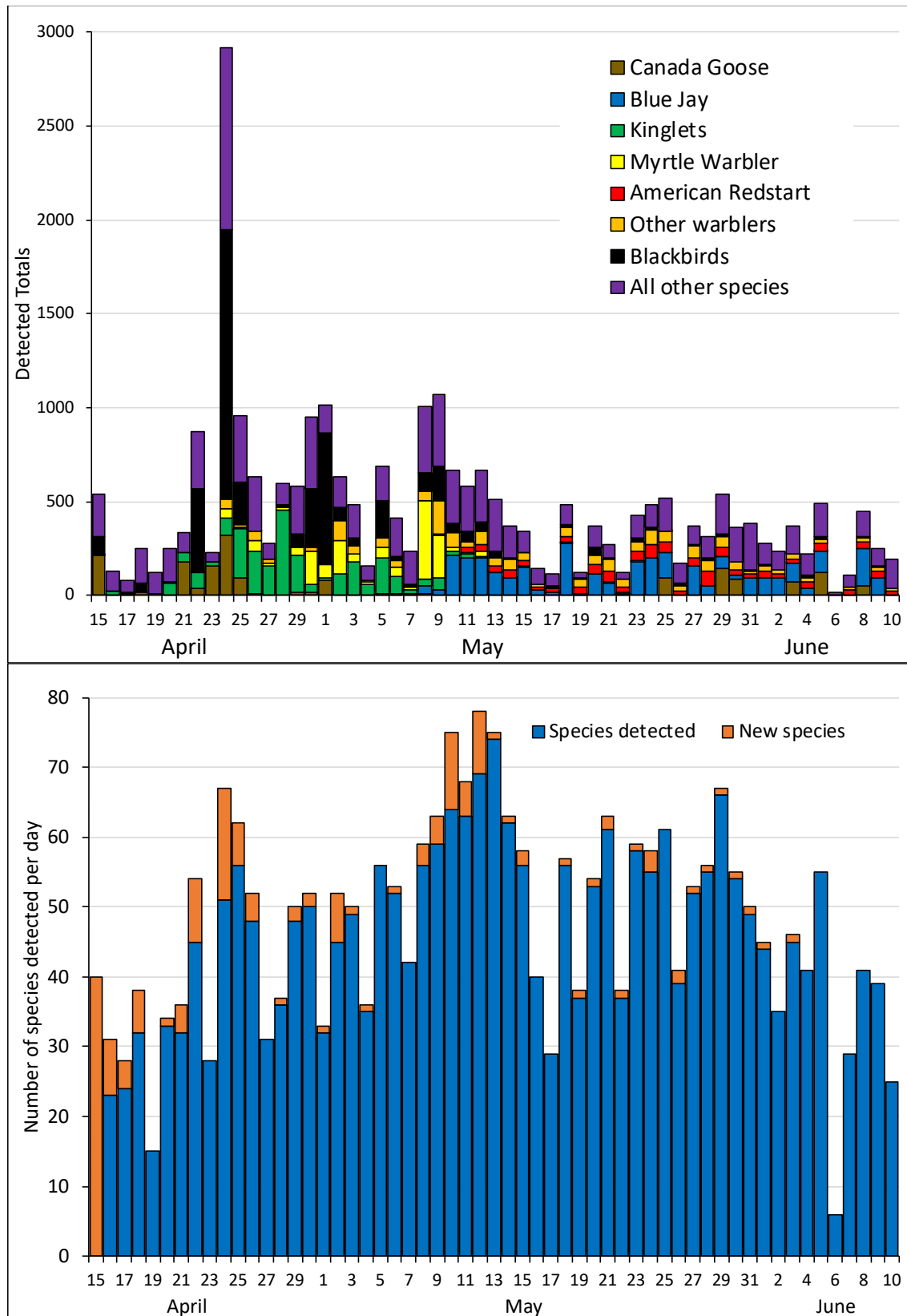


Figure 3: Detected totals (top) and diversity (bottom) at CHRS, spring 2022. (Kinglets: Golden- and Ruby-crowned Kinglets; Blackbirds: Common Grackle and Red-winged Blackbird)

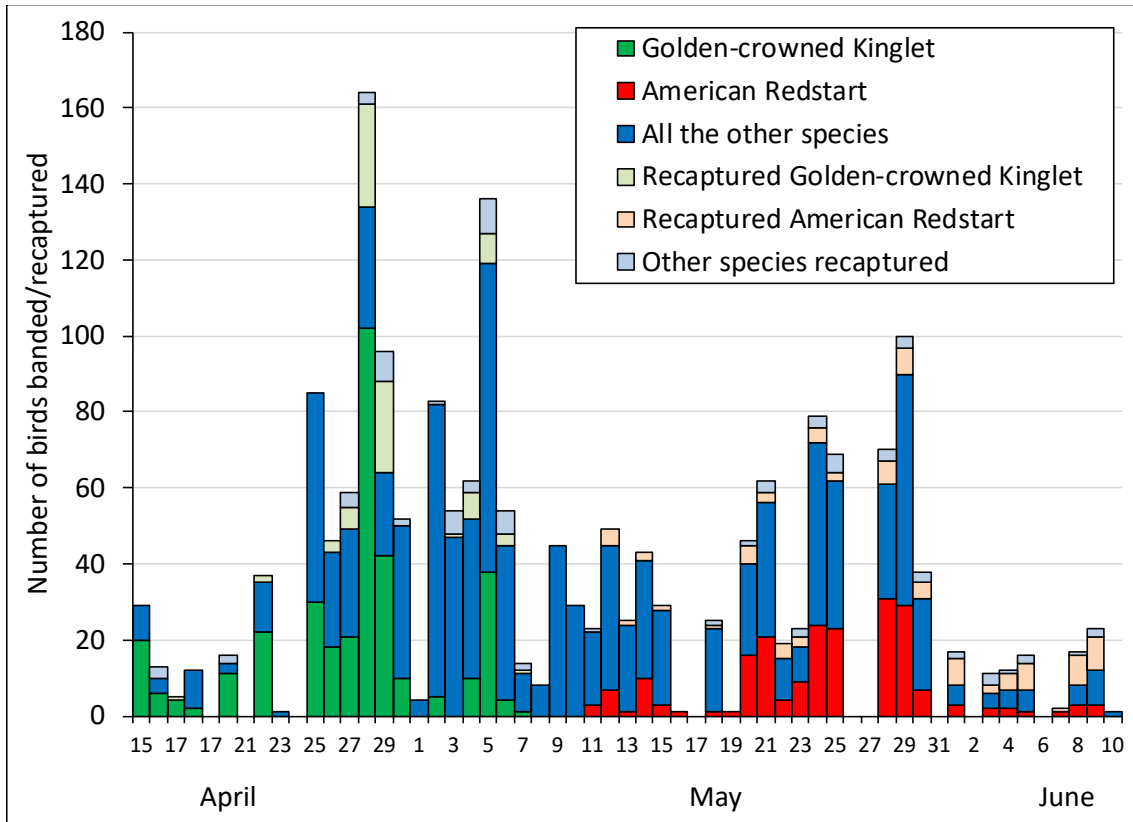


Figure 4: Daily banding and recapture totals at CHRS, spring 2022, with selected species.

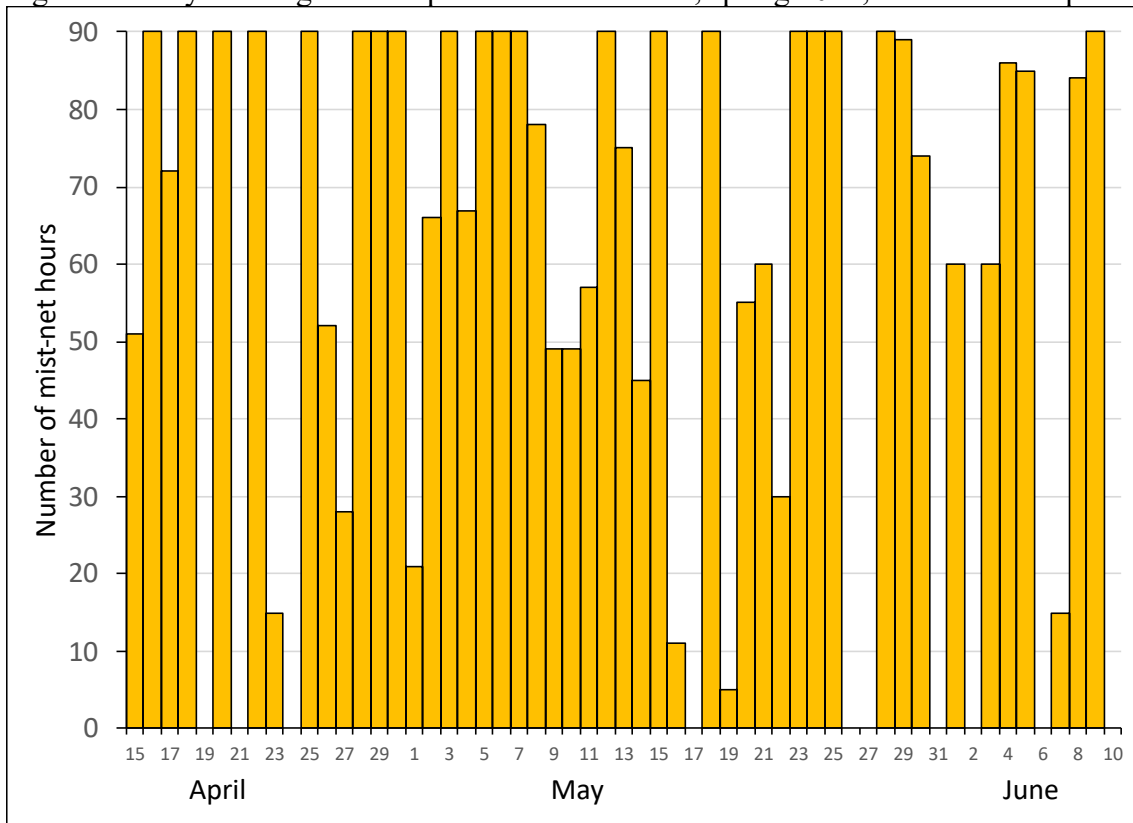


Figure 5: Daily numbers of mist net hours realized at CHRS, spring 2022.

## **Waterfowl**

Waterfowl migration through the Great Lakes region typically peaks in March and April. A total of 15 species of ducks and geese were observed this spring, with Canada Goose, Bufflehead, Common Goldeneye, Mallard, and two species of Mergansers being the most common ones. All the other species were detected on one to eight days only. No Black Scoters were observed this spring, and only two Surf Scoters on June 3. White-winged Scoter is always the most common scoter species but there were only observations on two days this spring, on May 8 and 11, with four and six birds respectively. Long-tailed Ducks were detected only on three days, April 16 and 18 with two and five birds and May 6 with eight birds. Common Goldeneyes were seen almost daily from April 16 to May 5 with up to 11 birds per day. Buffleheads were also detected regularly, often in Wingfield Basin, from April 16 to May 7, with up to 18 birds (on April 25) and a late record of one bird on June 7. In previous years, there were only two days with observations of Buffleheads in June, with one bird each (June 1, 2002 and June 6, 2014).

Red-necked Grebes were seen off Cabot Head only once with two birds on April 21. On the other hand, a total of 16 Horned Grebes were detected on five days from April 18 to 26, with a high of nine birds on April 21. The three species of Mergansers (a mix of migrants and residents) were observed throughout the entire spring, although Hooded Mergansers are always observed in very small numbers on Wingfield Basin. Observations of that species occurred on six days from April 15 to June 8 with one bird each (except on May 21 with two birds). Numbers of Red-breasted Mergansers were usually low this spring, with daily totals from one to eight birds detected on 27 days from April 18 to June 4. In contrast, Common Mergansers were seen almost daily from April 15 to June 10, with the season high of 21 birds on June 4.

Some large flocks of Canada Geese were detected at the beginning of the season with notable daily totals of 212 and 323 birds on April 15 and 24, respectively. More typical is the strong passage seen in late May - June, associated with a moult migration. However, in late spring this year, major movements of Canada Geese (defined as a daily total over 100 birds) were somewhat limited and occurred only on May 29, with 140 birds, and on June 5, with 120 birds.

### Raptors

A substantial migration of soaring raptors occurs only in spring over the Bruce Peninsula, as the landform acts as a gigantic funnel for these species reluctant to fly over big bodies of water. Sharp-shinned Hawk and Broad-winged Hawk are the species of raptors detected in the highest numbers at Cabot Head. Sharp-shinned Hawks were observed almost daily from April 15 to May 15 with a fourth-highest season total of 520 birds (average of  $382 \pm 115$ ; range of 241 in spring 2018 to 630 in spring 2011). A record 237 Sharp-shinned Hawks were counted on April 24. Daily totals of over 100 birds have occurred on only five days between 2002 and 2021, with a previous record of 216 birds on May 1, 2011.

Broad-winged Hawks were seen from April 22 to May 31 sparingly this spring, with a high of 85 birds on May 9, and a season total of 308 birds (2003-2021 average of  $452 \pm 337$  birds. Large variations in season total are frequent for this species, with a low of 75 in spring 2021 and a high of 1283 in spring 2013. Detections of large groups in the form of “kettles” occur mostly during periods of strong south wind, which pushes the soaring birds along the shoreline.

A total of 15 species of raptors were detected in the spring, including Rough-legged Hawk, with observations from April 15 to May 12, and Red-shouldered Hawk, detected seven times throughout the season. American Kestrels were seen regularly from April 15 to May 8, with a late sighting on May 30. The absence of observation after mid-May could indicate that this species does not breed around Cabot Head or that it becomes more discreet during that period. On the other hand, Merlins were observed from April 18 to June 10, with the occasional display of territorial defence against other birds. The breeding pair of Bald Eagle was still present at Cabot Head (although it abandoned the nest in early June, at a time when eggs should have been hatching). As a consequence, this species was seen almost every day of the season (50 days with detections during the 57 days of monitoring), with the occasional passing immature or adult birds. A season high total of nine Bald Eagles were counted on May 13. In contrast, Ospreys are rarely seen, and, when detected, they rarely linger around Cabot Head, possibly due to lack of prey and/or competition with Bald Eagle. This spring, two Ospreys were detected on April 24 and one bird on May 20. Turkey Vultures were detected almost as frequently as Bald Eagle, with a daily high of 31 birds on May 7. However, it is difficult to determine their migration pattern due to their behaviour.

## Passerines and Near-Passerines

### Short-distance migrants

Among passerines, the short-distance migrants are the earliest to arrive and pass through Cabot Head, with some species barely detected in early spring during some years. For example, the American Tree Sparrow is a very early migrant, with most of its migration missed at Cabot Head, especially if good weather comes early. However, this species has been detected and captured every spring, albeit very often in single digit numbers. In 2022, detections occurred on four days from April 21 to 27 for a total of five birds (including one banded).

Brown Creepers are also early migrants but their migration extends well into early May. This spring, they were detected every day (but two) from April 15 to May 10 with daily totals from one to 26 birds (on May 8 for the latter) and a very late detection on June 5, likely a local breeding bird. A little less than half the detections were through banding, with 83 birds banded. Spring banding totals vary greatly from a low of eight birds (in 2002 and 2008) to a high of 200 birds in 2016, for an average of 48 birds ( $\pm 45$ ). Sharing a similar migration pattern to that of the Brown Creeper, Golden-crowned Kinglets are, however, much more numerous; they are often one of the most numerous birds banded, especially early in the season. That was again the case this spring, with a total of 346 banded Golden-crowned Kinglets, the highest total of any species, 83% of them in April. This spring, the sex-ratio (numbers of males divided by numbers of females) of captured kinglets was skewed towards females, with 112 males and 234 females banded (sex ratio of 0.48). Some years, barely any male Golden-crowned Kinglets are captured, having moved through before the monitoring starts: the sex-ratio ranges from 0 (in 2008 and 2012) to 1.24 (in 2009) for an overall average value of 0.64. Sometimes, it is almost the entire migration of this species that is missed: seasonal numbers banded have fluctuated from three and nine birds in 2008 and 2012 (respectively) to 666 in 2016.

Blackbirds, notably Red-winged Blackbirds and Common Grackles, move through in early spring as well, often in highly visible diurnal flights. In spring 2022, large movements occurred between mid-April and early May, notably on April 24 with 1200 Common Grackles and 238 Red-winged Blackbirds. Rusty Blackbirds, not always easily separated from other Icterids, were seen from April 22 to May 9 in numbers ranging from one to 20 birds.

American Robins were seen almost daily during the entire spring season (missed only on three of the 57 days of monitoring!); most of the time, detections were in single-digit numbers, except on nine days with highs of 47 and 72 birds on April 24 and 30, respectively. The Northern (Yellow-shafted) Flicker is also a very visible early migrant. Its migration at Cabot Head is concentrated from mid-April to early May, with peak numbers this year of 50 birds on April 22, 216 on April 24, and 88 on April 30. Daily totals of 200 or more Northern Flickers have happened only three times before, with 247 and 261 birds on April 24 and 28, respectively, in 2014 and 200 birds on May 1, 2015. Across the years, there have been an additional eight days with daily totals of 100 birds or more (but less than 200). The season total in 2022 of 627 Northern Flicker is the third highest after springs 2016 and 2014 (with totals of 821 and 1348, respectively). The lowest season total was 150 birds in spring 2017, an indication of extreme variations in the passage of this species at Cabot Head.

Eastern Phoebe are the hardiest of the Tyrant Flycatchers, wintering in the southern USA and arriving early on their breeding grounds. Five birds were detected on the first day of monitoring, April 15. This species is very vocal and visible, as well as attempting to breed at Cabot Head, so it is easily detected: on 82% of the days with detections this spring, although daily totals were relatively small: between one and four birds (with the exception of the first day). A total of nine birds were banded, slightly above average (6 birds  $\pm$  5; range: 1 - 23; two seasons with no capture, 2008 and 2021). This species likely migrates through Cabot Head before mid-April, as it is observed and banded in good numbers only during cold, late springs.

The first Tree Swallows were detected on April 15, with regular observations afterwards in April and throughout the rest of the season. The highest number of Tree Swallows detected was on April 26 with 111 birds, an exceptional total. There were 100 Tree Swallows detected on May 19, 2002 and 215 on May 4, 2004, the only other days with totals over a hundred birds. In the early years of monitoring, days with dozens of Tree Swallows were frequent, whereas now they occur only a few times in a spring season. The almost daily observations are mostly due to the pair of Tree Swallows breeding in the nest box near the station. Northern Rough-winged and Barn Swallows were observed relatively frequently this spring, with detections of each on 11 and 10 days, respectively. First detections were April 24 for Barn Swallow and April 30 for Northern Rough-winged Swallow. Bank and Cliff Swallows have always been more infrequent at Cabot Head: these two species were not detected this spring.



Myrtle (Yellow-rumped) and Pine Warblers, the earliest of the warblers, were the first warbler species to be detected this spring which happened on April 22, a rather late date, with observations on every day of April afterward (except April 23 for Pine Warbler). Most of the passage of Myrtle Warblers was between late April and early May, with a few days exceeding a hundred birds, notably 427 and 225 birds on May 8 and 9, respectively. Movement of Pine Warblers was not as pronounced, although there were seven days from April 24 to May 3 with double-digit totals ranging from 11 to 42 birds. Between spring 2002 and 2021, there have been only 10 days with double-digit observations, less than 2% of the 559 days with sightings of Pine Warbler.

Palm Warbler was also first detected in April, on the 24<sup>th</sup>, with nine birds. This species was observed almost daily afterward until May 23 with a late but not unusual record of one bird on May 29. Highest daily counts were 73 and 76 birds on May 2 and 9, respectively. On April 26, besides the aforementioned warblers, one Yellow and one Tennessee Warbler were observed, the latter the first Tennessee Warbler ever detected in April (previous earliest dates were May 2, 2013 and May 10, 2019: migration at Cabot Head occurs in the second half of May). That day, a Black-and-white Warbler was detected in the afternoon, technically outside the monitoring period; this species was not detected again until May 2. Excluding the Black-and-white Warbler, there were thus five species of warblers seen in April 2022, compared to the record high of eight species detected in April 2021. From 2002 and 2019 (no monitoring was done in April 2020), two to seven species of warblers have been detected in April for a total of 14 species overall; half of them have been detected only once, whereas only Myrtle and Pine Warblers have been seen in every April (Fig.6).

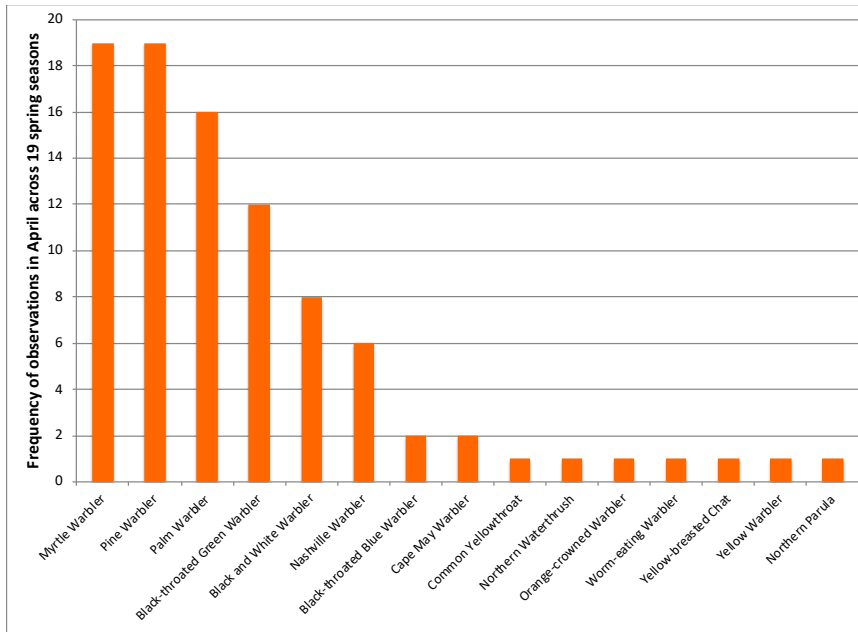


Figure 6. Frequency of observations in April for species of warblers at CHRS, 2002-2022 (2020 excluded).

Most sparrow species are short-distance migrants, with wintering ranges usually confined to North America. At Cabot Head in spring 2022, Dark-eyed Junco and Song Sparrow were the first species of sparrows detected, on the first day of monitoring, April 15. Because of a local population, the migration of Song Sparrow is not easily monitored and it is likely that the bulk of this species' migration occurs before mid-April at Cabot Head. Single-digit daily totals (except on April 25 with 13 birds) and a season banding total of 11 birds seem to indicate that most detected Song Sparrows this spring were local birds. Dark-eyed Juncos, on the other hand, migrate mostly in the second half of April and into early May. This spring, they were detected regularly from April 15 to May 5 albeit in very small numbers (season high of 16 birds on April 25), with two more detections on May 8 and 13. Illustrating the highly variable nature of migration of this species at Cabot Head, the total of 18 Juncos banded this spring is the second lowest ever, whereas it was the second-highest banding total the previous spring with 126 Juncos. Spring banding totals of Dark-eyed Juncos are indeed very variable, ranging from 15 birds in 2010 to 150 in 2007. Like Song Sparrow, Chipping Sparrows have a local breeding population at Cabot head, making its migration difficult to monitor. This species was detected regularly this spring from April 25 to June 9 in small numbers, except on April 26 and May 2 with respective daily totals of 16 and 21 birds. On the other hand, White-throated Sparrow shows a distinct migration with a peak in late April - early May: this

spring, White-throated Sparrows were detected daily from April 24 to May 15, with two late sightings on May 20 and 25 of one bird each. The season total of 159 birds is quite below the average of  $274 \pm 125$  birds but large variations have occurred across the years from a season low of 101 birds in 2017 to a high of 562 birds in 2013. White-crowned Sparrows usually migrate later than White-throated Sparrows and detections tend to be concentrated on a few days in mid-May. In spring 2022, the first detection of one White-crowned Sparrow was on April 24, as with White-throated Sparrow. However, there was no other detection until May 5 with a single bird again, followed by daily detections between May 10 and 13, with a daily high of 17 birds on the 12<sup>th</sup>, for a second-lowest season total of 36 birds. Detected totals in spring for this species are quite variable, ranging from a low of 28 birds in 2019 to a high of 344 in 2013 (average:  $140 \pm 84$ ). However, totals of less than 60 birds have occurred every spring since 2017, but only once from 2002 to 2016, in spring 2011. Eastern Towhee was first detected on April 24 and very regularly afterward until June 10, most of the time through singing. A female was seen a few times alongside the male, always in the same area, an indication of potential breeding.

Hermit Thrush is the lone short-distance migrant among the *Catharus* thrushes, with the eastern population wintering mostly in the USA from Florida to the mid-Atlantic States. It is thus the first thrush to arrive at Cabot Head, up to a month earlier than the other species. The first Hermit Thrushes this year were observed on April 22 with a few detections afterward from April 24 to May 5. Two late birds on June 2 are likely local breeders. The banding total of six Hermit Thrushes is the lowest ever, tied with spring 2004. Otherwise, spring banding totals range from 8 (in 2002) to 32 (in 2019).

On April 24, 52 Purple Finches were observed, the fifth day for this species across all spring seasons with a double-digit total (record high of 91 birds on April 27, 2021). During the rest of the season, as usual, only a few Purple Finches were heard or seen, with some birds obviously local breeders.

### **Long-distance migrants**

Long-distance migrants include a wide variety of birds, from hummingbirds to flycatchers to vireos to warblers. The defining characteristic involves the long distances flown between their breeding and wintering grounds, which are usually separated by hundreds, if not thousands, of kilometers. At Cabot Head, this diverse group tends to arrive from early May to early June,

depending on species and conditions, making the month of May, especially mid-May, the busiest and - some would say - the most exciting time of year for birdwatching.

Overall species diversity increased rapidly in the first half of May as many species arrived at the upper Bruce Peninsula: numbers of species detected grew from 103 on April 30 (i.e. 61% of the season total) to 150 on May 15 (89% of the spring total). From May 16 to May 25, another 10 new arrivals were detected, bringing the total number of species detected to 95% of the spring total. The remaining 16 days of monitoring only brought nine additional species, the so-called late migrants. There were several days with very few or no new species throughout the monitoring period, not restricted to the end of the season, reflecting a slow or stalled migration at various stages of the spring (see Fig.3).

After the detection of six species of warblers on April 26 (including the afternoon Black-and-white Warbler), new species of warblers did not arrive until May 2 with a surge of five new species, as well as the “official” first Black-and-white Warblers. New arrivals were again slow for a few days before another “surge” over two days: on May 9 and 10 there were six new species in total, with diversity reaching 16 species of warblers on the latter date. There were five more species to arrive on a more staggered pattern with the last one, Blackpoll Warbler, on May 22 and the cumulative total reaching 25 species that day (Fig.7). On May 19, 19 species of warblers were detected, the highest number of the season. Daily totals of 13 to 19 species were detected between May 9 and 29, the peak of diversity for warblers this spring (Fig.7). The first Mourning Warbler was detected on May 10, the second-earliest date on record, after May 6 in 2002. This secretive species is usually detected from late May to early June. In spring 2022, it was detected six more times after the initial date, from May 21 to June 8. Among the last species to arrive, the first Canada Warbler was detected on May 14 with the next detection on May 21 followed by almost daily detections up to June 3, including visuals on three male birds at once, a rare treat from this usually shy species. The arrival of the first Wilson’s Warbler on May 18 was quite average, with eight spring seasons having earlier dates by a few days (May 11, 2007 being the earliest and May 25, 2008 the latest). The sequence of warbler arrivals from early- to late-migrant species has been relatively consistent across the years, , although dates of first arrivals do vary for individual species.

Except for Blue-headed Vireo, a short-distance migrant which returns in April (first detection this year on April 24), Vireos arrive at Cabot Head in mid-May, with the occasional very early birds in early May. This spring, first detections were on May 15 for Red-eyed Vireo, May 23

for Philadelphia Vireo and May 27 for Warbling Vireo. These two latter species were observed only once more in the season, on May 28 for Warbling and May 29 for Philadelphia. Both species are relatively uncommon at Cabot Head: Philadelphia Vireos have been detected only on one or two days in 10 of the previous 20 spring seasons, whereas Warbling Vireos were missed in only two spring seasons but seen in small numbers in the other ones. Undeniably, Red-eyed Vireo is more common at Cabot Head than the other Vireo species, being notably a relatively abundant breeder on the Bruce Peninsula. Red-eyed Vireo is a late migrant, with most sightings from mid-May onwards, although the earliest detection was April 30, in 2005. A persistent singer, it is easily detected: after its arrival on May 15 this spring, it was heard almost every day during the rest of the season. Despite its general and local abundance, it is not often captured in the nets, as it tends to stay high in the canopy. The banding total of 15 birds this spring is very close to the average of  $14 \text{ birds} \pm 8$  (low of 6 in 2016 and 2021, high of 39 in 2013).

Tyrant Flycatchers are also late migrants (with the exception of Eastern Phoebe), arriving at Cabot Head usually around mid-May. Least Flycatcher is the earliest in the group, with its first detection this year on May 10, followed by relatively regular detections up to June 1 and a high of eight birds on May 20. Detections of Yellow-bellied Flycatchers were concentrated between May 25 and June 1, with the last one on June 8 for a season total of 23 birds. However, the first detection on May 12 was the earliest ever recorded, with the previous record on May 14, 2012. Traill's Flycatchers (Willow and Alder combined) were detected mostly through banding (14 birds out of a total of 19) from May 10 to 30. Based on their calls, one Willow Flycatcher was noted on May 24 whereas one Alder Flycatcher was heard on May 29. The first Great Crested Flycatcher was a record-breaking early one on May 3: the previous earliest date was on May 6 in 2011. The second observation in spring 2022 was on May 10, followed by regular detections, mostly through calls, up to June 9. Eastern Kingbirds were seen from May 13 to June 5 with one to four individuals at a time, except on May 27 when 11 birds were counted. It is only the third day with double-digit totals, after ten birds on May 11, in 2011, and 38 birds on May 21, in 2010. Eastern Wood-Pewees were recorded on 14 days between May 19 to June 9, mainly detected through their characteristic song. Finally, one Olive-sided Flycatcher was heard on June 1 and 4.

Of the four species of *Catharus* thrushes seen at Cabot Head, three - Veery, Swainson's and Gray-cheeked Thrushes - are long-distance migrants with wintering ranges mostly in South America. The first Veery and Swainson's Thrush arrived on the same day, May 10. They were then

detected sporadically throughout the rest of the season, on nine and 14 days respectively. First arrivals of these two species are quite variable, ranging from early May - even late April on one occasion for each species - to May 20, in 2009 for both species, and May 21, 2017 for Swainson's Thrush. Thrushes can be very secretive, not easily detected if not singing. As a consequence, most detections are usually through banding. In spring 2022, 10 of the 14 detections of Veeries were through banding, whereas 29 of the 32 detections of Swainson's Thrushes involved banding. The Gray-cheeked Thrush is the rarest and latest, this year with one bird banded on May 28 and 30 each.

There are usually yearly variations in dates of first detection within a general time window for a specific species. For example, two species easily detected when present, Ruby-throated Hummingbird and Common Yellowthroat, provide some perspective on fluctuations in arrival dates. This spring, the first hummingbird was on May 12 while the first Common Yellowthroat was heard on May 10. First detections of Common Yellowthroats before or on May 10 have occurred in nine spring seasons of the previous 19 (excluding spring 2020). The spring 2022 arrival date of Ruby-throated Hummingbird is a relatively late one, with only five other spring seasons having a later date (latest on May 18, 2011). Among the most common species of warblers at Cabot Head, it appears that Common Yellowthroat has the widest range of first arrival dates. Arrival dates for American Redstart, for example, have been very consistent throughout the years: The first detection has been between May 8 and 10 for 13 years out of 19, with two earlier years (May 1 in 2013 and May 4 in 2010) and four later years (May 12 in 2004 and 2017 and May 13 in 2002 and 2021). This spring, the first American Redstarts arrived on May 9 but with five adult males observed that day, a possible indication of a build-up of numbers south of Cabot Head.

At the end of May, birds were starting to establish territories, sing, and chase potential competitors and mates. Migration always slows down at this time of year, with only the late migrants continuing to move through Cabot Head. Cedar Waxwings, for example, were first observed on May 26, with 63 birds, becoming an almost daily sight up to the end of the spring monitoring period, with a season high of 132 birds on May 31. The first Blue Jay was a very early one on April 25. After a gap of nine days, a few Blue Jays were detected on May 5 and on the following days but numbers quickly built up (209 birds on May 10, for example). Numbers stayed relatively high for the rest of the season, peaking at 276 birds on May 18, but still reaching a total of 202 birds on June 8.

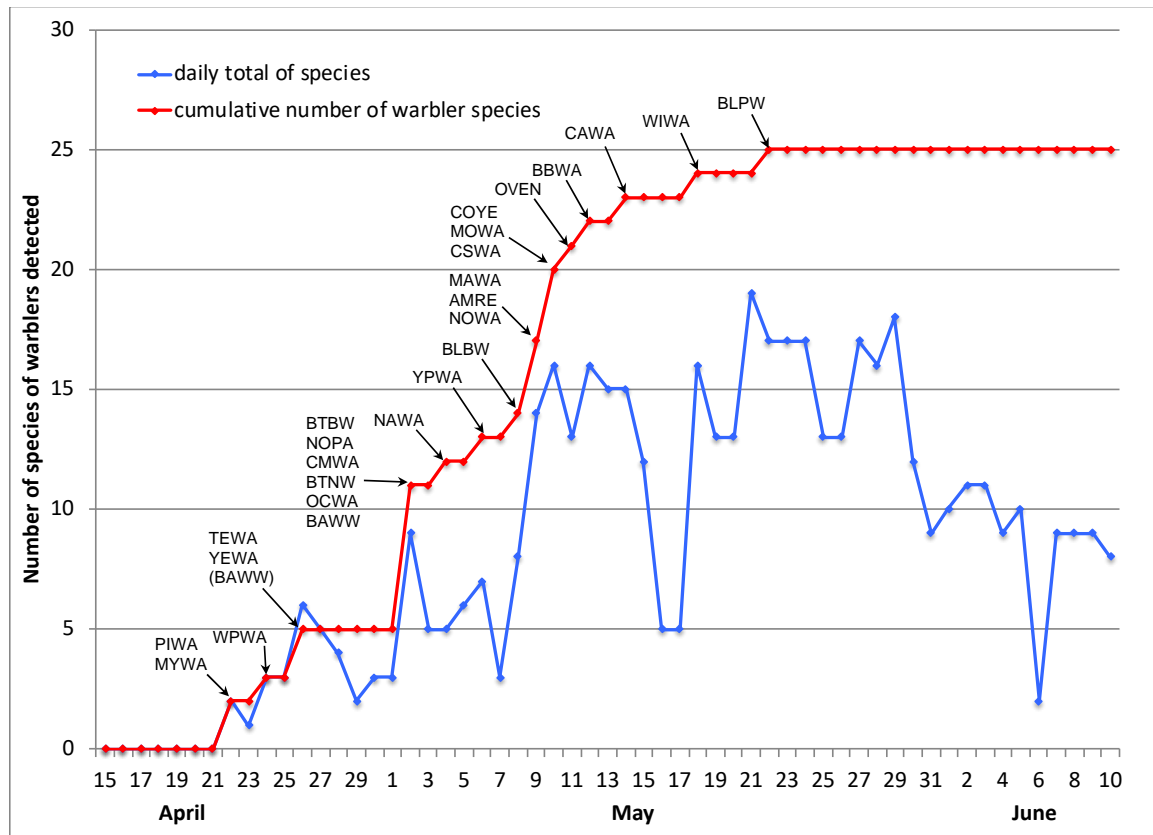


Figure 7. Daily and cumulative numbers of species of warblers detected at CHRS in spring 2022. Alpha codes and arrows indicate date of first detection. (MYWA: Myrtle Warbler; PIWA: Pine Warbler; WPWA: Western Palm Warbler; TEWA: Tennessee Warbler; YEWA: Yellow Warbler; BAWW: Black-and-White Warbler; BTBW: Black-throated Blue Warbler; NOPA: Northern Parula; CMWA: Cape May Warbler; OCWA: Orange-crowned Warbler; BTNW: Black-throated Green Warbler; NAWA: Nashville Warbler; YPWA: Yellow Palm Warbler; BLBW: Blackburnian Warbler; MAWA: Magnolia Warbler; AMRE: American Redstart; NOWA: Northern Waterthrush; COYE: Common Yellowthroat; MOWA: Mourning Warbler; CSWA: Chestnut-sided Warbler; OVEN: Ovenbird; BBWA: Bay-breasted Warbler; CAWA: Canada Warbler; WIWA: Wilson's Warbler; BLPW: Blackpoll Warbler)

### **3. Unusual Records**

There are many ways an observation can be considered an unusual record at Cabot Head: a bird out of geographic range; a bird with an overall low population on the Northern Bruce; a bird whose preferred habitats are not available at Cabot Head; a bird that is rare overall, either at provincial or continental levels; and, finally, a bird detected at a time or in numbers far outside the usual average at Cabot Head.

One Cooper's Hawk was seen on April 15 and another one on May 12. Two Northern Pintails were seen on April 15. One White-winged Crossbill was heard on April 16. One Snow Bunting was heard, then seen, on April 21, the fourth spring with observations after 2002, 2014, and 2017. Golden Eagles were seen on seven occasions, from April 22 to May 16 with one bird each time, except on April 29 with two birds. There were also three more observations in the afternoons, notably the last sighting on May 17 and two other observations on April 12 and 14, before monitoring started. One Common Redpoll was heard and seen on April 22. One White-breasted Nuthatch was detected on April 24, this common bird being infrequent at Cabot Head, although detected in 16 of the previous 20 spring seasons. Two Blue-winged Teals were seen on that same day. One Horned Lark was heard in the afternoon of April 24. There were three days with observations of two Peregrine Falcons from April 24 to May 13. American Widgeons were seen on April 25 and 27 with five birds each time. The only Fox Sparrow of the season was detected through banding on April 25. A Northern Goshawk was seen on April 26. A Fish Crow, a new species for Cabot Head (and Bruce County) was heard, then seen, on April 30, and heard again on May 10. Two Chimney Swifts were seen on May 10, with another bird on May 20. Red-throated Loons were seen on May 11 and 23, with one bird each. One Blue-gray Gnatcatcher was heard but never seen on May 12. In contrast, we had great views of the Northern Mockingbird detected the same day. Bobolinks were seen during three days, on May 12, 13, & 14. A Swainson's Hawk, another new species for Cabot head (and Bruce county) was seen for several minutes on May 20. It was observed again by others the following day near Tobermory. Green Herons were heard and seen on three days, on May 21 and 31 (with one bird each) and June 5 with two birds. The only Clay-colored Sparrow of the season was captured on May 24. One Great Egret was seen flying over Georgian Bay in the distance on May 26. As opposed to frequent sightings during the previous spring, one Black-billed Cuckoo was heard on May 31.



## 4. Banding Data Analysis

Spring 2022 has the ninth highest banding total since migration monitoring started in its present form in 2002, with 1651 birds of 70 species banded in total (Table 2), very close to the spring banding average of 2002 - 2021 ( $1604 \pm 488$  birds). As noted previously, there were 10 days fully lost due to bad weather (about 18% of the period). Ten days out of the 47 days with banding account for 50% of the banding total. Most species this spring were banded in numbers close to average. Only two species set a record, either low (Nashville Warbler with eight birds banded; previous low of 11 in 2017) or high (Blackburnian Warbler with 21 birds; previous high of 18 in 2019). Only four White-crowned Sparrows were banded this spring, far below the average of  $23 \pm 18$  birds. Large variations occur for this species, from two birds banded in spring 2021 to 69 in 2002, but single-digit banding totals are quite rare. On the other hand, 19 Pine Warblers were banded, the second-highest total after 24 birds in spring 2021.

Golden-crowned Kinglet is the most banded species this spring, accounting for 21% of the total. With 346 birds banded, it is the third highest total overall, although far below the record of 666 Golden-crowned Kinglets banded in spring 2016. American Redstart, with 206 birds banded in spring 2022, represents 12% of the seasonal total, and the second most banded species this spring. It is the first time since spring 2015 that the banding total is above 200 birds. There are great variations in numbers banded of this species, from lows of 74 and 88 birds in springs 2017 and 2021 to high of 273 birds in spring 2009. Ruby-crowned Kinglet also accounts for 12% of the season banding total but, with 191 birds banded, it is only the seventh-highest spring total. The top five banded species amount to 55% of the season total. Typically, only a few species are captured in numbers over 50 individuals (eight species in 2022) while most species are banded in low to very low numbers (Table 1): 32 species have banding totals of five birds or less, representing 4% of the season total.

Numerous variables affect capture rates, including population dynamics, weather conditions during migration, vegetation changes at the site, food availability, etc. Capture rates varied greatly on a weekly basis (Fig.8). The capture rate is determined by dividing the number of birds caught by the number of hours for which the nets were operated. Thus, variation in capture rate reflects variation in those two parameters, which are themselves dependent upon various conditions (weather being the major one). Mist net hours are primarily lost when weather

conditions (i.e. rain or strong wind) render it unsafe to capture birds, thus forcing net closure. In spring 2022, weekly capture rates varied greatly, from below average to around average to a record high. For the week of April 24 to 30, the capture rate reached a record high this spring, due to high numbers of birds captured, notably both species of kinglets (75% of the total of birds captured during this time) while mist net hours were about average. Mist net hours were below average for the four weeks after May 15, with a record low for the week May 15 - 21 and a near record low for the last week of monitoring. It is likely the cause of the low capture rates for these two weeks.

Weekly numbers of banded birds partially reflect variation in capture rates (Fig.9). There were very few banded birds during the first week of monitoring, despite above average mist net hours. The following two weeks had the only above average numbers of banded birds, with record numbers for the week April 24 - 30. The rest of the monitoring period experienced variations in numbers of banded birds around or below, sometimes well below, average. Banding numbers during the last week (June 5 - 10) were the third lowest total (28 birds), likely partly due to three days without banding due to wind and rain. With an average of  $69 \pm 41$  banded birds, this period represents the tail end of migration regardless of the number of mist hours realized.

In spring 2022, 63% of the potential mist net hours were realized, against a range of 58% in spring 2004 to 92% in spring 2010, with an average of 72% ( $\pm 1$ ). Poor weather conditions either precluded opening any mist nets on a total of 10 days (17% of the season, especially at the end of the season), or only a portion of the 15 nets or a portion of the day's possible monitoring period (Fig.10). Conditions allowed for a complete banding operation (all 15 mist nets opened for six hours, i.e. 90 mist-net hours a day) during 42% of the monitoring period.

Table 1. Number of species banded in spring 2022 at CHRS according to their banding total.

Banding total	1 - 10	11 – 50	51 – 100	>101
Number of species	42	20	5	3

Table 2. Banding total of species in spring 2022 at CHRS, 2002 - 2021 average (and standard deviation), maximum and minimum totals for 2002 - 2021, and number of springs with captures.

Family	Species	2022	Av.	StDev.	Max.	Min.	Nb. of springs with capture
Hawks	Sharp-shinned Hawk	13	19	7	34	10	19
Woodpeckers	Yellow-bellied Sapsucker	1	2	1	5	1	13
	Yellow-Shafted Flicker	3	4	3	12	1	18
Falcons	Merlin	1	1	0	1	1	2
Tyrant Flycatchers	Eastern Wood-pewee	1	2	1	3	1	14
	Yellow-bellied Flycatcher	17	13	6	24	3	19
	Traill's Flycatcher	14	14	9	32	4	19
	Least Flycatcher	17	13	6	23	1	19
	Eastern phoebe	9	6	5	23	1	17
	Great Crested Flycatcher	1	1	1	2	1	3
Vireos	Blue-headed Vireo	2	4	2	8	1	16
	Philadelphia Vireo	1	3	2	6	1	9
	Red-eyed Vireo	15	14	8	39	6	19
Crows & Jays	Blue Jay	40	59	83	264	10	19
Chickadees	Black-capped Chickadee	8	48	86	365	2	19
Nuthatches	Red-breasted Nuthatch	20	12	14	57	1	18
Creepers	Brown Creeper	83	48	45	200	8	19
Wrens	House Wren	6	2	1	4	1	9
	Winter Wren	1	2	1	5	1	16
Kinglets	Golden-crowned Kinglet	346	152	165	666	3	19
	Ruby-crowned Kinglet	191	162	131	610	55	19
Thrushes	Veery	10	9	6	22	1	19
	Gray-cheeked Thrush	2	3	2	8	1	17
	Swainson's Thrush	29	24	10	43	9	19
	Hermit Thrush	6	15	7	32	6	19
	Wood Thrush	2	2	1	6	1	18
	American Robin	1	7	4	16	1	19
Mockingbirds & Thrashers	Gray Catbird	6	10	6	19	1	19
	Brown Thrasher	9	5	3	12	1	19
Finches	Common Redpoll	1	1		1	1	1
	Pine Siskin	4	2	1	3	1	8
New World Warblers	Tennessee Warbler	1	2	2	6	1	12
	Nashville Warbler	8	50	56	237	11	19
	Yellow Warbler	5	10	7	25	1	17
	Chestnut-sided Warbler	12	14	7	30	3	19

Family	Species	2022	Av.	StDev.	Max.	Min.	Nb. of springs with capture
New World Warblers	Magnolia Warbler	51	86	43	198	23	19
	Black-throated Blue Warbler	34	26	11	64	7	19
	Myrtle Warbler	83	66	56	246	16	19
	Black-throated Green Warbler	35	24	8	41	13	19
	Blackburnian Warbler	21	5	5	18	1	17
	Pine Warbler	19	4	6	24	1	16
	Western Palm Warbler	74	80	55	219	34	19
	Yellow Palm Warbler	1					
	Bay-breasted Warbler	5	4	4	14	1	15
	Blackpoll Warbler	2	2	1	5	1	13
	Black and White Warbler	51	53	17	91	25	19
	American Redstart	206	175	55	273	74	19
	Ovenbird	19	28	10	53	12	19
	Northern Waterthrush	3	4	3	13	1	19
	Mourning Warbler	7	8	4	17	1	19
	Common Yellowthroat	35	37	13	66	21	19
	Wilson's Warbler	5	13	8	34	2	19
	Canada Warbler	14	15	6	26	5	19
New World Sparrows	Eastern Towhee	1	2	1	2	1	7
	American Tree Sparrow	1	10	12	52	1	19
	Chipping Sparrow	10	24	26	101	5	19
	Clay-coloured Sparrow	1	2	1	2	1	6
	Field Sparrow	3	4	7	26	1	12
	Savannah Sparrow	2	2	2	10	1	16
	Fox Sparrow	1	2	1	4	1	15
	Song Sparrow	11	16	9	34	4	19
	Lincoln's Sparrow	12	11	7	25	3	19
	Swamp Sparrow	1	6	3	14	3	19
	White-throated Sparrow	24	56	24	104	13	19
	E. White-crowned Sparrow	4	23	18	69	2	19
	Slate-coloured Junco	18	58	41	150	15	19
Cardinals & allies	Scarlet Tanager	1	2	1	3	1	4
	Northern Cardinal	4	1	0	2	1	7
	Rose-breasted Grosbeak	3	4	4	18	1	17
	Indigo Bunting	3	3	2	7	1	16

For 2022, record high captures in red, record low in blue.

Av.: average; StDev: standard deviation; Max: Maximum; Min: Minimum; Nb.: Number

E.: Eastern

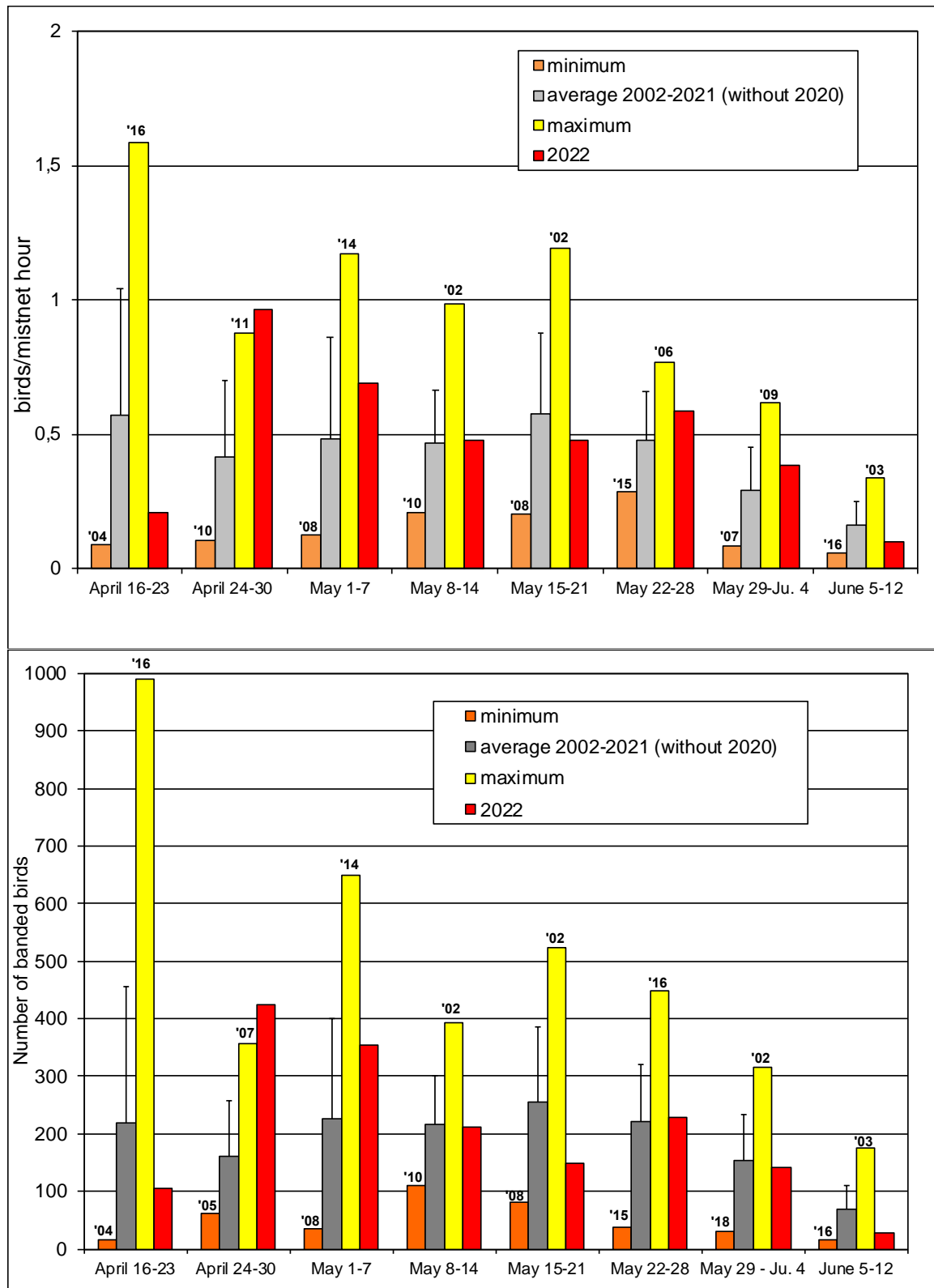


Figure 8. Weekly capture rates (top) and number of banded birds (bottom) at CHRS during the spring season (average 2003-2021, minimum and maximum with corresponding year and 2022). Error bars show Standard Deviation.

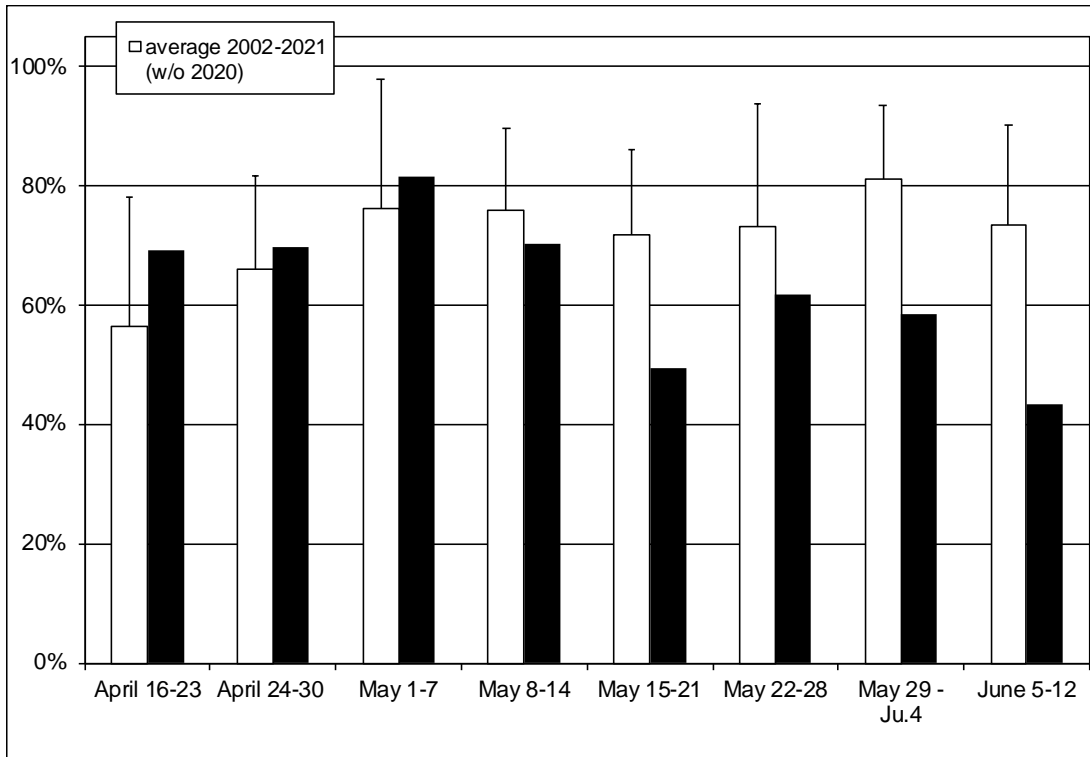


Figure 9. Weekly proportion of realized mist net hours at CHRS during the spring season (average 2002-2021 and 2022). Error bars show Standard Deviation.

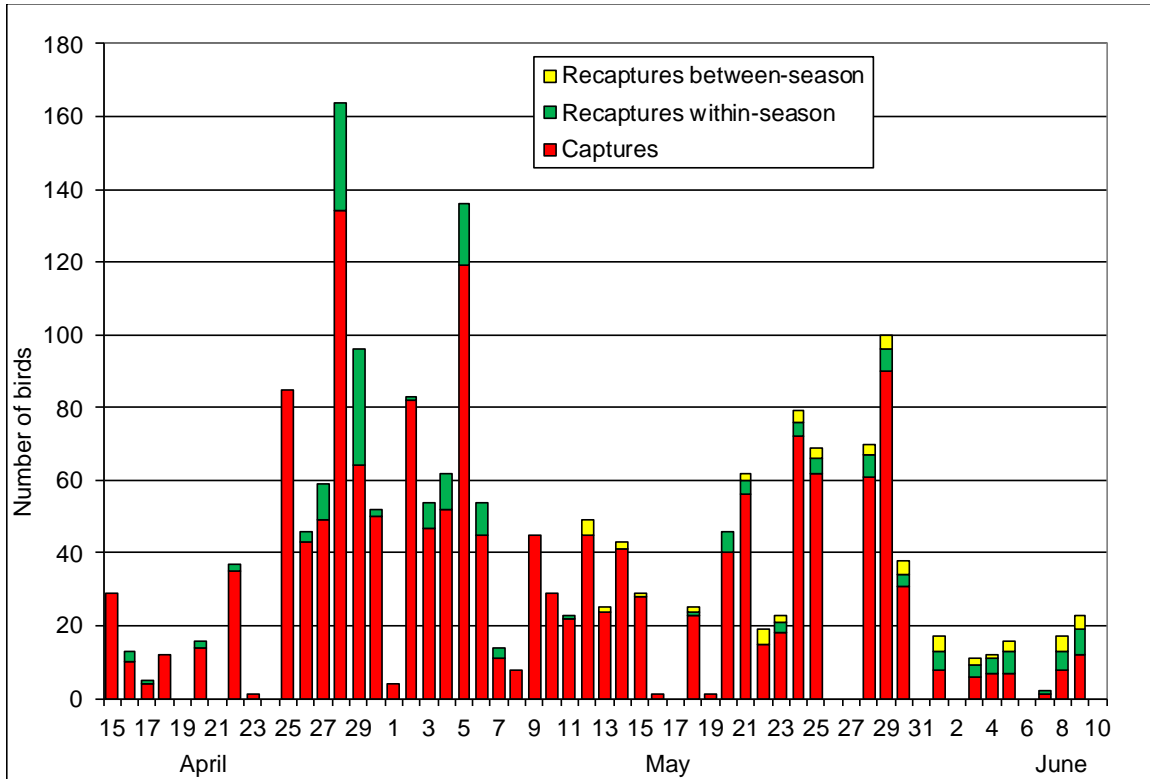


Figure 10. Daily number of captured and recaptured birds at CHRS, spring 2022.

New subspecies and rarely captured bird species banded at Cabot Head this spring:

A bird from the subspecies Yellow Palm Warbler was banded on May 6, the first ever at Cabot Head, while 74 birds of the subspecies Western Palm Warbler were banded this spring (with a total of 1518 Western Palm Warblers banded in springs 2002 - 2022). An adult male Merlin was banded on April 27, the third ever Merlin banded in spring over the years. Three young Merlins have been banded in the fall. An adult Great Crested Flycatcher was banded on May 3 this spring, a species with four and three previous captures in spring and fall, respectively, between 2002 and 2021. An adult Scarlet Tanager was captured on May 23 (seven birds banded in four previous spring seasons). One Common redpoll was banded on April 22, the second ever in spring.



Photo: Yellow (top left) and Western (top middle) Palm Warbler; Great Crested Flycatcher (top right); Merlin (bottom left); Scarlet Tanager (bottom middle); Common Redpoll (bottom right).

## 5. Recaptures

The rate of recapture (recaptures include birds banded during the spring season - within-season recaptures - and birds from previous years - between-season recaptures - or from other locations) at Cabot Head was quite high in spring 2022. There was a total of 253 recaptures of 157 individuals comprising 17 species from April 15 to June 9 (Table 3). Among the recaptured birds this spring, 32 birds of four species were banded in previous seasons at Cabot Head, the vast majority American Redstart, notably from the previous fall (Table 4). There was no bird banded at a different location among the recaptured birds this spring. In total, 63% of the recaptured birds (i.e. 99 birds) were recaptured only once and another 24% (38 birds) were recaptured on two occasions. The other 20 birds were recaptured on three or more occasions, with an American Redstart recaptured seven times between May 23 and June 5 after initial banding on May 12.

Brown Creepers, never recaptured between seasons, have very variable within-season capture rates across the spring seasons: between 2002 and 2021, there were six spring seasons without any recaptures while the recapture rates ranged from 2% to 13% in the other seasons, except in 2017 and 2021 when the rates reached 25 and 29%, respectively. In spring 2022, it was also quite high, with 20% of the 83 banded Brown Creepers recaptured. These recaptures were concentrated on a few days in late April and early May during times of cold but relatively good weather. Yearly variations in within-season recaptures of Golden-crowned Kinglet show similar patterns to those of Brown Creepers, with most spring seasons having very low rates of recaptures. Spring 2022 is an exception, with 18% of the 346 Golden-crowned Kinglets recaptured (see Fig.4), mostly during the same days as Brown Creepers.

Birds banded in previous years at Cabot Head and recaptured in the spring (Table 4) are most likely local resident breeders, with American Redstart being predominant (26 of the 32 recaptured birds this spring). A little less than half of the between-season recaptures are birds banded the previous fall, with spring 2022 being of course their first occasion of recapture. Among the remaining 18 birds banded prior to fall 2021, all but four birds (excluding potential recaptures during the season of original banding) were previously recaptured at Cabot Head, indicating a strong fidelity to the site (Table 4). A female American Redstart banded in spring 2016 as a Second-Year was recaptured for the first time this spring, making her an eight-year-old bird. It is remarkable that this bird, if present at Cabot Head, escaped recapture during 12 seasons up to spring



2022. On the other hand, a male American Redstart also banded as a Second-Year but in spring 2018 has been recaptured almost in every subsequent season from fall 2018 to spring 2021, missed only in spring 2020 and fall 2021. It was even recaptured during the limited banding done in summer 2020. During that summer, 88 American Redstarts were banded, of which 15 have been recaptured from fall 2020 to spring 2022, including two newly recaptured this spring. These recaptures represent 17% of the birds banded during the summer of 2020. In contrast,  $3.9\% \pm 1.2$  and  $9.1\% \pm 3.3$  of American Redstarts originally banded in spring and fall, respectively, have been recaptured in at least one subsequent season.

Table 3. Recaptures in spring 2022 by species and time of banding.

Group	Species	'16	2018		'19	2020			2021		2022	
		Sp.	Sp.	Fall	Sp.	Sp.	Su.	Fall	Sp.	Fall	Sp.	%
Flycatchers	Eastern Phoebe										1	11%
Vireos	Red-eyed Vireo			1					1		1	7%
Chickadees	Black-capped Chickadee							1		1		
Nuthatches	Red-breasted Nuthatch										3	15%
Creepers	Brown Creeper										17	20%
Kinglets	Golden-crowned Kinglet										64	18%
	Ruby-crowned Kinglet										9	5%
New World Warblers	Magnolia Warbler										1	2%
	Myrtle Warbler										1	1%
	Black-thr. Green Warbler										2	6%
	Black-and-White Warbler								2		4	8%
	American Redstart	1	1	1	2	2	4	1	1	13	14	7%
	Common Yellowthroat										3	8%
New World Sparrows	Chipping Sparrow										1	10%
	Song Sparrow										2	18%
	Lincoln's Sparrow										1	8%
	Slate-coloured Junco										1	6%
	Total	1	1	2	2	4	2	2	4	14	125	

Sp.: spring; Su.: summer; %: percentage of banded birds in spring 2022 recaptured that season; Black-thr.: Black-throated

Table 4. History of recaptures by species and time of banding for birds banded prior to and recaptured in spring 2022. (All recaptures per individual are included, including within-season recaptures).

B_yr	B_season	Species	2016	2018		2019		2020			2021		2022
			Sp.	Sp.	F.	Sp.	F.	Sp.	Su.	F.	Sp.	F.	Sp.
2016	spring	American Redstart	1										1
2018	spring	American Redstart		3	1	1	1		1		2		4
	fall	American Redstart				2		1		4			1
		Red-eyed Vireo				1				2			2
2019	spring	American Redstart				1	1	1		2			2
		American Redstart				2	2	2	1				1
2020	spring	American Redstart									1		1
		American Redstart											2
	summer	American Redstart									1		1
		American Redstart											4
		American Redstart						1					1
		American Redstart						1	2	5	1		3
	fall	American Redstart									1		2
		Black-capped Chickadee											2
2021	spring	American Redstart									3		1
		Black-and-white Warbler										1	3
		Black-and-white Warbler										1	1
		Red-eyed Vireo										1	1
	fall	American Redstart											1
		American Redstart											2
		American Redstart											3
		American Redstart											1
		American Redstart											1
		American Redstart											1
		American Redstart											5
		American Redstart											1
		American Redstart											2
		American Redstart											3
		American Redstart											1
		Red-eyed Vireo											2
		Red-eyed Vireo											6
		Black-capped Chickadee											2

B\_yr: Banding year; B\_season: banding season; Sp.: Spring; Su.: Summer; F.: Fall; Orange highlight: first ever recapture

## **6. Personnel**

A smaller number of volunteers than usual helped throughout the season, contributing in total 39 person-days to the spring migration monitoring. Three returning volunteers, Jake Nafzinger, RuiLin Guo, and Tania Havelka spent from six to 10 days at the station. Kristen Snoek learned the basics of banding during six days in mid-May. Likewise, Clare MacMartin spent about a week at the end of the season helping with scribing and extraction. Al Woodhouse, an old friend of BPBO, helped over a weekend in June. Regardless of their level of experience, volunteers are essential in running the monitoring program. A special thanks to them all!

There were a few unfortunate cancellations during the season, leaving the station scientist by himself for 10 days.

## **7. Conclusion**

Spring 2022 marks the beginning of a third decade of bird migration monitoring at Cabot Head Research Station. Despite a reduced volunteer workforce, the full protocol was again implemented, with bird migration monitoring done daily from April 15 to June 10. The ongoing monitoring effort throughout the years continually adds details and refines the natural history of bird migration on the Bruce Peninsula, providing invaluable long-term data that notably allow population trend analyses in collaboration with the Canadian Migration Monitoring Network.

Weather is the proximate factor driving migration, as well as monitoring: for example, strong south winds brought many migrants this spring but also precluded banding many times. The banding total was average this spring, with barely any record-breaking numbers, whether low or high. Migration is notoriously a very dynamic phenomenon, which means that operating a long-term, daily monitoring program during spring and fall is crucial to truly capture its intricacies. A perfect example this spring is the massive movement of birds arriving on April 24, when four species broke their highest daily total for spring (all years combined) and many more reached their highest season daily total.

This spring, there were a good number of unusual records, indicating a sustained observation effort, despite the reduced staff. The most notable sightings are, of course, the addition of two new species for Cabot Head, Fish Crow and Swainson's Hawk. However, it would be rather misleading to rank sightings, as every observation brings its own reward, and increases our knowledge, understanding, and appreciation of the natural world. For example, a very fresh-looking young Bald Eagle observed on May 30 was likely a newly fledged young from the Florida population, which is the only one breeding early enough to produce fully fledged and northbound migratory young.

Cabot Head is truly an amazing place to experience and share the beauty of nature. Continuing migration monitoring at CHRS contributes to the efforts of the CMMN and ultimately to the understanding and monitoring of bird populations.

## **Acknowledgements**

As a non-profit, volunteer-based initiative, the Bruce Peninsula Bird Observatory would not be operable without the overwhelming support of its membership, financial supporters and volunteers. BPBO wishes to thank Ontario Park and Parks Canada (Bruce Peninsula National Park), for their continued support.

The author wishes to thank all the members of the Bruce Peninsula Bird Observatory for their support during the field season. I would also like to commend the volunteers who helped make the field season efficient and enjoyable. It is an honour and a privilege to work again for BPBO.

## Appendix I

Table 5. Season total of species observed in spring 2022 at Cabot Head Research Station, with maximum and minimum daily totals, number of days with observation, and dates of first and last observation.

Group	Species	Season Total	Daily max.	Daily min.	Days with obs.	First day	Last day
Ducks, Geese & Swans	Canada Goose	1783	323	1	41	15 April	8 June
	Wood Duck	26	12	1	8	18 April	12 May
	American Wigeon	10	5	5	2	25 April	26 April
	American Black Duck	3	2	1	2	1 May	28 May
	Mallard	83	8	1	34	16 April	10 June
	Blue-winged Teal	2			1	24 April	
	Green-winged Teal	8	6	2	2	15 April	4 May
	Northern Pintail	2			1	15 April	
	Surf Scoter	2			1	3 June	
	White-winged Scoter	10	6	4	2	8 May	11 May
	Long-tailed Duck	15	8	2	3	16 April	6 May
	Bufflehead	120	18	1	20	16 April	7 June
	Common Goldeneye	93	11	1	18	15 April	5 May
	Hooded Merganser	7	2	1	6	15 April	8 June
	Common Merganser	306	21	1	51	15 April	10 June
	Red-breasted Merganser	85	8	1	27	18 April	4 June
Grouse & Turkeys	Ruffed Grouse	22	3	1	18	17 April	30 May
	Wild Turkey	29	7	1	11	24 April	29 May
Grebes	Pied-billed Grebe	11	1	1	11	13 May	9 June
	Horned Grebe	16	9	1	5	18 April	26 April
	Red-necked Grebe	2				21 April	
Pigeons and Doves	Rock Pigeon	1				24 April	
	Mourning Dove	35	5	1	20	18 April	4 June
Cuckoos	Black-billed Cuckoo	1				31 May	
Goatsuckers	Eastern Whip-poor-will	9	2	1	8	2 May	9 June
Swifts	Chimney Swift	3	2	1	2	10 May	20 May
Hummingbirds	Ruby-throated Hummingbird	54	6	1	21	12 May	9 June
Cranes	Sandhill Crane	198	29	1	43	16 April	9 June
Plovers	Black-bellied Plover	1				21 May	
Sandpipers & Phalaropes	Killdeer	31	5	1	14	24 April	23 May
	Greater Yellowlegs	16	4	1	12	18 April	5 June
	Lesser Yellowlegs	1				11 May	

Group	Species	Season Total	Daily max.	Daily min.	Days with obs.	First day	Last day
Sandpipers & Phalaropes	Spotted Sandpiper	59	4	1	28	9 May	10 June
	Wilson's Snipe	20	2	1	17	15 April	5 June
	American Woodcock	7	2	1	5	15 April	3 May
Gulls & Terns	Ring-billed Gull	412	32	1	48	15 April	10 June
	Herring Gull	367	89	1	53	15 April	10 June
	Caspian Tern	2				30 May	
	Common Tern	6	2	2	3	24 May	31 May
Loons	Red-throated Loon	2	1	1	2	11 May	23 May
	Common Loon	217	19	1	44	15 April	10 June
Cormorants	Double-crested Cormorant	127	16	1	23	15 April	8 June
Herons & Bitterns	Great Blue Heron	28	9	1	12	21 April	5 June
	Great Egret	1				26 May	
	Green Heron	4	2	1	3	21 May	5 June
Vultures	Turkey Vulture	463	31	1	47	15 April	9 June
Osprey	Osprey	3	2	1	2	24 April	20 May
Hawks, Kites & Eagles	Bald Eagle	138	9	1	50	15 April	5 June
	Northern Harrier	31	6	1	15	15 April	3 June
	Sharp-shinned Hawk	520	237	1	34	15 April	5 June
	Cooper's Hawk	2	1	1	2	15 April	12 May
	Northern Goshawk	1				26 April	
	Red-shouldered Hawk	7	1	1	7	20 April	31 May
	Broad-winged Hawk	308	85	1	21	22 April	31 May
	Swainson's Hawk	1				20 May	
	Red-tailed Hawk	62	11	1	23	15 April	9 June
	Rough-legged Hawk	10	4	1	6	15 April	12 May
	Golden Eagle	8	2	1	7	22 April	16 May
Owls	Great Horned Owl	8	2	1	5	29 April	16 May
Kingfishers	Belted Kingfisher	52	5	1	31	15 April	31 May
Woodpeckers	Red-bellied Woodpecker	4	1	1	4	12 May	4 June
	Yellow-bellied Sapsucker	31	4	1	15	15 April	7 June
	Downy Woodpecker	5	2	1	4	18 April	25 April
	Hairy Woodpecker	20	5	1	12	28 April	5 June
	Northern Flicker	627	216	1	42	15 April	9 June
	Pileated Woodpecker	51	3	1	32	15 April	10 June
Falcons	American Kestrel	55	36	1	13	15 April	30 May
	Merlin	64	3	1	40	15 April	9 June
	Peregrine Falcon	6	2	0	4	24 April	13 May

Group	Species	Season Total	Daily max.	Daily min.	Days with obs.	First day	Last day
Tyrant Flycatchers	Olive-sided Flycatcher	2	1	1	2	1 June	4 June
	Eastern Wood-Pewee	22	3	1	14	19 May	9 June
	Yellow-bellied Flycatcher	23	7	1	9	12 May	8 June
	Traill's Flycatcher	19	7	1	9	10 May	30 May
	Willow Flycatcher	1				24 May	
	Alder Flycatcher	1				29 May	
	Least Flycatcher	45	8	1	15	10 May	1 June
	Eastern Phoebe	91	5	1	47	15 April	10 June
	Great Crested Flycatcher	14	2	1	12	3 May	9 June
	Eastern Kingbird	30	11	1	12	24 April	8 June
Vireos	Blue-headed Vireo	16	2	1	14	24 April	25 May
	Warbling Vireo	2	1	1	2	27 May	28 May
	Philadelphia Vireo	2	1	1	2	23 May	29 May
	Red-eyed Vireo	149	12	1	22	16 May	10 June
Crows & Jays	Blue Jay	3161	276	1	37	25 April	10 June
	American Crow	778	95	2	54	15 April	10 June
	Fish Crow	2	1	1	2	30 April	10 May
	Common Raven	93	14	1	33	15 April	5 June
Larks	Horned Lark	(1)			1	24 April	
Swallows	Tree Swallow	303	111	1	43	15 April	5 June
	N. Rough-winged Swallow	17	3	1	11	30 April	1 June
	Barn Swallow	16	3	1	10	24 April	31 May
Chickadees	Black-capped Chickadee	253	17	1	46	15 April	10 June
Nuthatches	Red-breasted Nuthatch	294	51	1	43	16 April	10 June
	White-breasted Nuthatch	1				24 April	
Creepers	Brown Creeper	193	26	1	25	15 April	5 June
Wrens	House Wren	16	4	1	8	15 April	29 May
	Winter Wren	92	57	1	22	15 April	5 June
Gnatcatchers	Blue-gray Gnatcatcher	1				12 May	
Kinglets	Golden-crowned Kinglet	1589	365	1	29	15 April	3 June
	Ruby-crowned Kinglet	921	108	1	29	17 April	23 May
Thrushes	Eastern Bluebird	226	43	1	29	22 April	10 June
	Veery	16	4	1	9	10 May	9 June
	Gray-cheeked Thrush	2	1	1	2	28 May	30 May
	Swainson's Thrush	32	5	1	14	10 May	5 June
	Hermit Thrush	13	4	1	7	22 April	2 June
	Wood Thrush	4	2	1	3	12 May	15 May
	American Robin	412	72	1	54	15 April	9 June



Group	Species	Season Total	Daily max.	Daily min.	Days with obs.	First day	Last day
Mockingbirds & Thrashers	Gray Catbird	11	3	1	9	11 May	5 June
	Northern Mockingbird	1				12 May	
	Brown Thrasher	77	6	1	33	22 April	10 June
Starlings	European Starling	121	22	1	16	15 April	25 May
Waxwings	Cedar Waxwing	378	132	2	12	26 May	10 June
Pipits	American Pipit	3	1	1	3	11 May	19 May
Finches	Purple Finch	122	52	1	32	16 April	9 June
	House Finch	3	3	3	1	29 April	
	White-winged Crossbill	1				16 April	
	Common Redpoll	1				22 April	
	Pine Siskin	48	12	1	18	16 April	12 May
	American Goldfinch	287	30	1	36	25 April	8 June
Snow Buntings	Snow Bunting	1				21 April	
New World Warblers	Tennessee Warbler	14	4	1	10	26 April	29 May
	Orange-crowned Warbler	5	2	1	3	2 May	18 May
	Nashville Warbler	44	7	1	23	4 May	10 June
	Northern Parula	39	12	1	17	2 May	29 May
	Yellow Warbler	49	5	0	22	26 April	9 June
	Chestnut-sided Warbler	49	5	1	24	10 May	10 June
	Magnolia Warbler	85	12	1	24	9 May	9 June
	Cape May Warbler	31	14	1	9	2 May	27 May
	Black-throated Blue Warbler	74	15	1	18	2 May	3 June
	Myrtle Warbler	1519	417	1	41	22 April	10 June
	Black-thr. Green Warbler	278	21	1	38	2 May	10 June
	Blackburnian Warbler	98	13	1	18	8 May	29 May
	Pine Warbler	238	42	1	40	22 April	7 June
	Western Palm Warbler	364	76	1	26	24 April	29 May
	Yellow Palm Warbler	1				6 May	
	Bay-breasted Warbler	15	3	1	8	12 May	28 May
	Blackpoll Warbler	13	4	1	7	22 May	29 May
	Black-and-white Warbler	154	24	0	35	26 April	10 June
	American Redstart	1090	76	1	33	9 May	10 June
	Ovenbird	95	8	1	28	11 May	10 June
	Northern Waterthrush	4	1	1	4	9 May	14 May
	Mourning Warbler	8	2	1	7	10 May	8 June
	Common Yellowthroat	198	15	1	31	10 May	10 June
	Wilson's Warbler	10	6	1	5	18 May	29 May
	Canada Warbler	32	6	1	12	14 May	3 June

Group	Species	Season Total	Daily max.	Daily min.	Days with obs.	First day	Last day
New World Sparrows	Eastern Towhee	42	3	1	31	24 April	9 June
	American Tree Sparrow	5	2	1	4	21 April	26 April
	Chipping Sparrow	170	21	1	31	25 April	9 June
	Clay-colored Sparrow	1				24 May	
	Field Sparrow	20	4	1	13	24 April	31 May
	Savannah Sparrow	13	3	1	7	25 April	21 May
	Fox Sparrow	1				25 April	
	Song Sparrow	108	13	1	40	15 April	6 June
	Lincoln's Sparrow	15	3	1	10	10 May	28 May
	Swamp Sparrow	4	3	1	2	2 May	9 May
	White-throated Sparrow	159	20	1	24	24 April	25 May
	White-crowned Sparrow	36	17	1	7	24 April	16 May
	Dark-eyed Junco	93	16	1	19	15 April	13 May
Cardinals & allies	Scarlet Tanager	4	1	1	4	12 May	23 May
	Northern Cardinal	6	2	2	3	8 May	11 May
	Rose-breasted Grosbeak	11	3	1	6	10 May	28 May
	Indigo Bunting	11	3	1	7	15 May	10 June
New World Blackbirds	Bobolink	7	4	1	3	12 May	14 May
	Red-winged Blackbird	1099	238	1	39	17 April	9 June
	Eastern Meadowlark	7	2	1	5	17 April	4 June
	Rusty Blackbird	69	20	1	9	22 April	9 May
	Common Grackle	3284	1200	1	44	15 April	8 June
	Brown-headed Cowbird	17	10	1	4	15 April	29 May
	Baltimore Oriole	28	7	1	13	10 May	8 June

N.: Northern; thr.: throated

## Appendix II

An edited version of the blog published during the spring 2022 monitoring season.

### **Entering our 3<sup>rd</sup> decade: a new season has begun at Cabot Head! April 18, 2022**

Once again, I am at beautiful Cabot Head, ready to monitor the spring bird migration for 57 straight days, starting on April 15. The year 2022 marks BPBO's 21<sup>st</sup> year of monitoring at the Cabot Head Research Station and my own 17<sup>th</sup> year doing said monitoring! [...]

All 15 nets were up and running on the first day of monitoring, ready for 6 hours of banding. After a sunny start to the day, increasing wind decided otherwise, forcing us to close more and more nets throughout the morning: a blowing net is not safe for birds and bird safety is paramount.

Nonetheless, it was not a bad first day, with 29 birds of 6 species banded and a total of 40 species detected. The strong South wind pushed quite a few raptors towards Cabot Head, notably Sharp-shinned and Copper's Hawks, Northern Harrier, Rough-legged and Red-tailed Hawk. As expected, Golden-crowned Kinglets were numerous, with one single Ruby-crowned Kinglet among them. Eastern Phoebe were already singing, celebrating spring with their namesake song. Two of them were captured.

Among the usual ducks at this time of year (Common Goldeneye, the 3 Mergansers, Mallard, etc.), there was a pair of Northern Pintail, a species rarely seen at Cabot Head (in the previous 20 years, this species was detected in 2 spring and 2 fall seasons). The Bald Eagles were already incubating in their giant nest.

Two Tree Swallows were also seen on that first day, but "one Swallow does not make Spring". Indeed, it started snowing the very next day! The snow showers were frequent but short-lived throughout the morning but along plummeting temperatures, birds became quite sparse, either hunkering down or having flown south for a brief respite.

These cold conditions have continued up to now, keeping bird activity low. We are still waiting for the "official" arrival of the first warbler, that is, detected during the monitoring period. I did arrive at Cabot Head on April 12, under a warm sun, and heard my first Yellow-rumped Warbler then. There will undoubtedly be more to come: we are ready for them!

### **The rush of spring! April 26**

There is so much to do! Especially when you're a bird in spring: you need to get back to your breeding ground, establish or reclaim a territory, find a mate, engage in some courtship, build a nest, lay eggs - so much to do, so little time, sometimes less than a month from arrival and egg laying. No wonder the birds are in such a rush in spring to move North [...]. Weather dictates a lot in the lives of birds (and most living creatures for that matter) but it is even more so during migration. North winds, snow, rain, cold, all conspire against the winged odyssey of spring. Despite an indomitable urge, birds will avoid flying against a headwind or under rain or snow. The cold will rob the insect-eating ones of their food source so it is better to stay put, find shelter and food, and wait for better conditions.

Poor weather was indeed our lot here at Cabot Head for most of the past week. In 7 days, from the 18<sup>th</sup> to the 24<sup>th</sup>, we were able to open nets only during 3 days, the weather being too inclement the

other ones. It snowed on the 19<sup>th</sup>, it rained on the 21<sup>st</sup> and again on the 23<sup>rd</sup>! It was also very cold. As expected, there were very few birds and movement during that period.

April 22 was clear and calm and birds took advantage of this little window between two periods of intense rain. We detected 56 species, a decent total for this time of year, including a few FOY (First of Year) Brown Thrasher, Pine Warbler, and Broad-winged Hawk. We were surprised to capture a late Common Redpoll. The other warbler of the day was the Yellow-rumped Warbler. A Golden Eagle was another highlight of the day.

On Sunday April 24, it was not the rain or snow that precluded us to open the nets but a strong South wind pushing warm air. It was bringing with it swarms of birds, all too happy to offered a tailwind and a short window of good weather. With nets closed, we were free to spend the 7 hours of monitoring simply watching (and listening to) the waves and waves of birds.

The most impressive passage was of the Blackbirds. Large flocks flew overhead throughout the morning, with an estimated 1200 Common Grackles, 200 Red-winged Blackbirds as well as 13 Rusty Blackbirds and 10 Brown-headed Cowbirds in the mix. Northern Flickers and Sharp-shinned Hawks were streaming through in a steady flow with over 200 of each species counted! The South wind also pushed lots of raptors towards Georgian Bay, whether they liked it or not. Most birds of prey absolutely avoid crossing large bodies of water, which are devoid of the thermals needed by soaring raptors. A total of 12 species of raptors were detected, including the four species of *Buteo* (Red-tailed, Rough-legged, Broad-winged, and Red-shouldered Hawks), two Peregrine Falcons and two Ospreys. We had lots of FOY joy as well. A very, very early Eastern Kingbird (there is only one other observation in April, on the 25<sup>th</sup> in 2013), Blue-headed Vireo, Barn Swallow, Palm Warbler, Field Sparrow, White-throated Sparrow and an early White-crowned Sparrow (only 3 observations in April in the previous 20 years for this species).

The Yellow-rumped and Pine Warblers were numerous, with more than 40 birds each. In short, it was a day to remember, one of these amazing days of migration when one feels the push of life and the urge to roam. In 7 hours in our small area, we detected an impressive total of 66 species. In the previous 20 years, there has been only two days in April with more than 60 species: on the 29<sup>th</sup> in 2006 and 24<sup>th</sup> in 2011, both with 62 species.

The following day was almost as diverse although with reduced numbers. We detected another impressive 63 species, including another Golden Eagle and the FOY Chipping, Savannah, and Fox Sparrows. [...]

### **The shivering intent of moving North. April 26**

The past week was very busy both with banding and observation. There were a lot of kinglets, with numbers seemingly piling up during the first half of the week, a time of cold and North wind. Many got banded during these days, with a peak on the 28<sup>th</sup> when 102 Golden-crowned Kinglets and 24 Ruby-crowned Kinglets were captured. What was remarkable as well that day was the 27 recaptured Golden-crowned Kinglets from the previous days. Kinglets are very rarely recaptured, even a few days after the original banding, so it was a good indication not many departed from Cabot Head. The banding total of the day was 133 birds of 5 species and 30 recaptures of 2 species. With only two of us, we were kept busy! The following day was half as busy, with a total of 64 birds of 9 species but still with 32 recaptures of 3 species. Again, the crown goes to... hum, the golden-crowned kinglet (42 banded and 24 recaptures). And then they were gone! On April 30<sup>th</sup>, only 10 Golden-crowned and 5 Ruby-crowned Kinglets were banded and there was not a single recapture. Birds were on the move, with notably 22 Myrtle (Yellow-rumped) Warblers banded.

[...] On the Monday, 26<sup>th</sup>, the diversity was a decent 51 species, quite less than the previous two days (if you recall, with 66 and 63 species). But we got to see 5 species of warblers in the morning, Myrtle, Pine, Palm, so far, so normal, Yellow, early but not unheard of, and one Tennessee Warbler! Now that is a record, as the previous earliest date is May 2<sup>nd</sup> in 2013. And even that date was a record: the next earliest date of detection is May 10<sup>th</sup> in 2019. We also added our FOY Black-and-white Warbler in the afternoon of that day, but only a brief glimpse before it disappeared in the dense cedars.

Weekly banding totals are used for comparisons between years, smoothing the day-to-day variations. During the April 24-30 week, a total of 425 birds were banded this spring, the highest ever! (previous record of 356 birds in 2007 [...])

On April 30<sup>th</sup>, a strange call alerted my ears and made me look eagerly to find the source. The call was not unfamiliar though never heard along these shores. I finally found the bird, an innocuous-looking crow but with a unique voice, a short, flat, nasal caw: it was a Fish Crow! The first ever for Cabot Head (and Bruce County for that matter). I quickly made a recording with my PC (Pocket Computer, also known as smartphone) as proof to be posted on eBird.

The merry, merry, month of May started rather like the continuation of April with a windy and rainy May Day, where not much happened. Except for the immature Golden Eagle enjoying the wind, joined sometimes with an immature Bald Eagle (perfect to play the 7-difference game), the two frolicking together with not a care in the world. Ah! Youth!

May 2<sup>nd</sup> was still overcast and rather cold and windy but the forest gems, aka warblers, had decided it was time to move on. Life is short and one cannot just spend one's time loafing around eating midges. Breeding awaits! Dozens and dozens of warblers could be seen at once moving through the land, feeding on midges with quite a few ending up in the nets. Out of a daily total of 82 birds banded of 14 species, there were 19 Myrtle and 18 Palm Warblers, with 4 Black-and-white Warblers thrown in for good measure. And the FOY Black-throated Blue Warblers, two brilliant males, were also detected through banding. There was not a lot of time to observe but I managed to detect four other FOY warblers: Black-throated Green Warbler (finally! This species has been detected in April in 12 years of the previous 20), Orange-crowned Warbler (second earliest detection after April 29, 2006), a stunning male Cape May Warbler (two detections in April in 2017 and 2021), and a [...] Northern Parula (earliest, tied with 2013 [...]). There was also a FOY Swamp Sparrow captured in the nets, a delicately patterned bird of chestnut, black, and all the shades of brown and grey. Sparrows are subtle, their beauty much more nuanced than the flashy warblers. [...]

### **A web of connections or the importance of a messy garden. May 9, 2022**

Migratory birds are on the move and they coming from far-flung places. [...] Red Knots spend their winter in Tierra del Fuego at the southern tip of South America and breeds in the central Canadian Arctic, doing migratory round-trips of over 30,000 km each year, with few but crucial stopovers in between. Swainson's Thrushes would be coming from the northern Andes, wintering grounds they share with Canada Warblers and Olive-sided Flycatchers. A Black-throated Blue Warbler may have wintered in Cuba, where American Redstarts also like to spend their winter deep in mangroves. Some Palm Warblers, like true Canadians, may have chosen southern Florida for their getaway during the cold season. A White-throated Sparrow breeding in the heart of the boreal forest in Ontario may have not gone much further south than the state of New York.

All these species and all these birds are on the move right now! And they all need good weather and places to stop and feed. Not so much to rest: there are still lots to learn about sleep in birds but it seems that they can go on with very little. But they do need to feed and re-fuel: flying non-stop for several hours (most often at night) requires tremendous energy, burning fat as fuel that needs to be replenish periodically.

For some species, it is done in very specific locations: Red Knots, for example, will stop in Delaware Bay to gorge themselves on horseshoe crab eggs, timing their arrival with the spawning of these phantasmagorical-looking crabs. On the other hand, most songbirds can make do with any patch of habitat, a woodlot, a plowed field, a flooded spring creek, an urban garden, as long as they can find food.

At Cabot Head, we often watch hungry birds literally in a feeding frenzy, indifferent to our presence, being so intent into getting fat again. Midges are a great source of food and their emergence in huge numbers in spring greatly helps birds. And with a little help from (unknowing) friends, birds enjoy an even easier meal: there are many, many inactive, old spider webs around, which act as a perfect trap for midges, uncollected by still dormant spiders. Warblers, nuthatches, sparrows, we have observed them all pecking and eating midges from these spiderwebs using a little caution and much bill cleaning (rubbing the bill on a small branch to get rid of the sticky threads). Spiderwebs may look messy but in an interesting twist they are providing much needed calories to hungry migrants. [...] There were huge movements of birds during the past week resulting in very good numbers of birds banded and observations of some fantastic morning flights. The banding highlight was on May 5 when 117 birds were banded and 17 recaptured, about half of them kinglets but with good numbers of Yellow-rumped and Palm Warblers. [...]

On May 8, there was an almost constant stream of warblers flying over the treetops against an increasing East wind. Birds barely stopped and certainly didn't go near the nets, as only 8 birds of 5 species were captured. But we estimated over 400 Yellow-rumped Warblers over the course of 7 hours, as well as almost 30 Palm Warblers, 15 Cape May Warblers, 6 Norther Parulas, and a very short glimpse of the first Blackburnian Warbler of the year.

The following day, May 9, was also clear and sunny and windy. The wind was even stronger, forcing us to close many nets. The 5 left open did a good job, though, catching the bulk of the 45 birds of 10 species banded that day. Birds were not flying as high and were also interested in feeding while moving through the trees and shrubs. A total of 13 species of warblers were detected that day, including FOY Magnolia Warbler, Northern Waterthrush, and American Redstart. The striking black and orange male Redstart is a very common sight at Cabot Head once it has arrived, being the most abundant local breeder. Many are simply passing through intent on other breeding places. Our FOY American Redstarts for 2022 were just in time: FOY have been detected between May 8 and 10 in 13 of the past 19 years (2020 is a year apart due to a limited coverage).

[...] several male Blackburnian Warblers gave us excellent occasions to enjoy their amazing patterns of orange and black with sometime three males in the same tree at once! Cape May Warblers and Northern Parulas were also very obliging, with 13 and 9 individuals, respectively. Once again, the most abundant species was the Yellow-rumped Warbler with almost 200 birds observed, followed by Palm Warblers (60 birds) and Black-and-white Warblers (20 birds).

On May 9, the sky filled up with large kettles of raptors, mostly Broad-winged Hawks (85 birds) mixed with a few Red-tailed Hawks and several Turkey Vultures. Sharp-shinned Hawks continued to move through in good numbers as well, with 40 counted.

And, finally, still on May 9, the FOY Spotted Sandpipers claimed the shoreline with their bobbing tail and loud whistle. [...]

## **A blast of summer before mid-May! May 16, 2022**

There was some incredibly hot weather last week, brought in with strong south wind blowing furnace air into southern Ontario. It was summer weather in early May bringing a sudden explosive leaf-out at Cabot Head, greening the trees in a matter of days. After a long Canadian winter, I - like anyone - enjoyed soaking in the newly arrived warmth. Beyond the hedonistic moments though, there were nagging fears of climate chaos bringing life-altering mismatch between birds and plants and insects and all the web of connections that sustains life on earth (read <https://www.audubon.org/magazine/spring-2022/a-matter-timing-can-birds-keep-earlier-and> for a fascinating view on the challenges birds face in a warming world).

The warm weather and strong south wind provided great conditions for a massive push of migrant birds during this week, and truly massive it was. Hundreds of millions of birds moved North during these nights, as modeled by BirdCast (<https://birdcast.info>). At Cabot Head, we experienced the icicles from the tip of the classical iceberg, with many birds and new species detected during the week and a good banding harvest as well. As an indication of the rapid and intense movement, new species were detected every day, notably 11 new species on May 10, and good daily banding totals without any recaptures from newly banded birds.

A few examples of what a week it was: On May 8, there was an impressive morning flight of over 400 Yellow-rumped Warblers, with a spattering of other warblers notably 15 Cape May Warblers and 6 Northern Parulas and a brief glimpse of the FOY Blackburnian Warbler. On May 9, birds were seen mostly feeding instead of flying over, resulting in 45 birds banded as opposed to 8 the day before. Birds were also giving us very good views of their resplendent breeding plumage. [...] On May 10, [...] 11 new species arrived among a total of 75 species detected that day [...]. After a winter in northern South America, Swainson's Thrush and Veery have finally arrived at Cabot Head, with maybe only a "short" jaunt left into the boreal forest. Other newly arrived species were Lincoln's Sparrow, Common Yellowthroat, Mourning and Chestnut-sided Warbler, Baltimore Oriole and Rose-breasted Grosbeak, (always a relatively late date at Cabot Head), Least and Traill's Flycatchers [...] and two Chimney Swifts were seen flying high and fast, because Swifts will be swifts.

As a bonus, we were treated with rare sightings of one Red-throated Loon on flight on May 11 and one Northern Mockingbird on May 12 around the station for a few minutes.

After this mad week of intense migration, it now almost feels like summer with many birds singing and defending territory, not least the very abundant American Redstarts. There are still birds to arrive but it does seem that huge numbers of them took advantage of these unique conditions, resulting in a very condensed and rushed migration. As a consequence, we birders might feel deprived on more opportunities to watch migrant birds, but birds don't care much in providing easy watching for us. Very often a "good" migration in the point of view of birders (lots of birds for many days in unsettled weather) is a "bad" migration for birds (birds forced to stop and struggle feeding in bad unsettled weather).

[...]we have started recapturing birds banded here at Cabot Head in previous years. So far, all of them have been American Redstarts, the most common local breeding species. Of the 8 recaptured birds most came from last fall, a few from summer or fall 2020, and one from spring 2016. This adult female was banded as an after-second-year bird in spring 2016, so in banding lingo that means this bird was born before the year 2015, which makes it at least 7 years old! A very old bird indeed!

The oldest known American Redstarts are 10 years old ([https://www.pwrc.usgs.gov/bbl/longevity/longevity\\_main.cfm](https://www.pwrc.usgs.gov/bbl/longevity/longevity_main.cfm)). [...]

### **A (mega) rare visitor from the West! May 23**

On May 20 in mid-morning, I was finishing extracting a bird from the first net when my eyes were attracted to a *Buteo*-like raptor soaring close by [...]. The bird seemed different, its shape unusual enough that I put binoculars to eye and was immediately on high alert. Despite the harsh light of a background sun, I could see that the bird had dark flight feathers, which are unique characteristics of only one species of raptors in North America. I encouraged RuiLin, the volunteer who was at the net with me, to have a good look at it, not only because it was likely a very rare bird, but also to have a second opinion on what we were actually seeing. It is one thing to think one is seeing a rare bird, it is another to actually be fully confident about it.

I will leave all the minutia of the description out of the story here (people interested could read it on my eBird record once it will get through all the hoops to be accepted). Needless to say, I took great care to calm my excited mind into recording precisely what I was seeing, the slim, pointed wings whether soaring or gliding, the arching of the wings while gliding like an Osprey, the overall dark aspect of the entire bird. [...] it was an immature Swainson's Hawk! ([https://www.allaboutbirds.org/guide/Swainsons\\_Hawk/maps-range](https://www.allaboutbirds.org/guide/Swainsons_Hawk/maps-range)) A bird of grasslands and High Plains, this species has never been observed at Cabot Head, nor in Bruce County for that matter[...]

The week in itself was mostly quiet with some bad weather precluding banding and relatively few movements notably earlier in the week. Over the long weekend, more birds were observed and captured, including many with good fat reserves, a clear sign of their migratory status. Among warbler species, adult males usually migrate earlier to establish territories, followed a week or more later by females and young birds, which are the birds we're seeing and catching now. However, a few species have just started to move through at Cabot Head, the so-called late migrants. They are late only in relation to other species but perfectly on schedule in their own calendars. Wilson's Warbler (FOY on May 18) and Blackpoll Warbler (FOY on May 22) are the typical late warbler species. Among Flycatchers, Eastern Wood-pewee also arrives late (FOY May 19 this spring). Philadelphia Vireo is also a late species as well, although seen too infrequently at Cabot Head to really infer its phenology. This spring, the first one was seen on May 23. [...]

### **Migration is still on! May 30**

[...] The past week at Cabot Head definitely experienced large movements of birds, mostly reflected in numbers of birds banded (daily totals ranging from 61 to 90; two days with no banding because of bad weather). The ever-abundant American Redstart was the most frequently species banded with lots of females (both adult and young) and young males. Some of them will likely stay at Cabot Head but others will go on, as indicated by their fat reserves. Diversity of warblers was very good during the week with daily totals of 17 species achieved a few times. We were notably treated by a little influx of Blackburnian Warblers on the 24<sup>th</sup> with a daily total of 8 birds banded, including 5 caught in the same net at once. To put that number in perspective, that was more in one day than in the whole season of 15 spring seasons of the last 20 years.

The busiest day of the week was May 29, [...] (with) 90 birds of 22 species [...] banded that day with another 10 of 4 species recaptured. Once again, while the dominant species was American



Redstart with 29 birds banded and 7 recaptured, there were also a lot of Flycatchers in the nets. We banded the first Eastern Wood-Pewee, a species more often heard and occasionally seen than captured. Spring totals vary between one and three birds. A total of 7 Yellow-bellied Flycatchers were also banded, a species which always migrates relatively late in spring and is among the earliest to fly back south. That daily total has been achieved 3 times in the past, with records of 8 and 9 birds banded in a day on May 29, 2015 and May 29, 2012, respectively. Finally, there were 6 Traill's and 3 Least Flycatchers banded on that busy Sunday. The FOY Gray-cheeked Thrush was captured on May 28 and the SOY (Second of the Year) was on May 30 detected through banding as well.

On May 30th, while the rapidly increasing wind forced us to close most of the nets and cut short a productive banding morning, we observed an extremely clean cut young Bald Eagle. Its plumage looked extraordinarily fresh, with not a nick or wear in the wing feathers. It actually appeared like a newly fledged Bald Eagle: beside the freshness of plumage, it had the slightly bulging secondaries compared to primaries (an attribute of young raptors) as well as the colour pattern of a young. How could that be when the local breeding pair of Bald Eagle is still sitting on the nest with maybe barely hatched young or even eggs? Bald Eagles have a broad breeding range covering most of North America (north of Mexico). Eagles in Florida are among the earliest to breed, laying eggs from December to early January. Through telemetry and band recoveries, it has been shown that young eagles can disperse north, as far as central Quebec and Ontario. Could this Bald Eagle come from Florida? The timing would just work if its parents started in the early days of December: Incubation lasts about 35 days, with nestlings in Florida fledging at about 11 weeks and remaining with their parents for another 4 to 11 weeks. If that bird had an independent streak, it could have left in late April or early May, although that would mean covering well over 2,000km as the eagle flies to reach Cabot Head in a month. Florida young eagles are known to disperse northward but Ms. Google is not giving me a lot of precise information on the topic: a 2008 paper in the *Wilson Journal of Ornithology* presents results on 52 recently fledged Bald Eagles tagged with satellite transmitters during 1997-2001 on the Gulf Coast of Florida (near Tampa Bay). They began their first migration from April to June with a median date of May 24 with average distances achieved dependent on routes followed (coastal vs. mountain). Birds following the Appalachians Mountains migrated further, with an average of 2,112km. One eagle spent the summer 4,146 km north of Florida in coastal Labrador while another one traveled only 340 km and spent the summer in the middle of South Carolina. Unfortunately, the paper doesn't give any details on rate of migration and distances covered by day. Nonetheless, I feel confident that the Bald Eagle observed was a recently fledged bird, all the more when I could watch it perched in a tree with two other immature Bald Eagles. So, being a bird from Florida seems to be in the realm of possibilities.

### **The end (of spring monitoring) is coming soon! June 6**

It was a long and stormy week! There was very active weather all throughout last week reducing or precluding banding on all but two days. It was mostly strong wind that hindered the banding operations, as we had no rain except for an intense thunderstorm in the middle of the night on June 1<sup>st</sup>. There were many bluebird sky days and warm sun.

There are not many migrants still on the move at this time of year which is reflected in the very low numbers of birds captured and the high proportion of recaptures. Nonetheless, it is the period when large flocks of Canada Geese can be seen flying north [...] seemingly too late for breeding up North. That late passage of Canada Geese is a moult migration. Geese, ducks, and swans are

among the few species which moult (that is, replace) all their flight feathers at once, becoming flightless for a period of a few days or weeks. Southern failed or non-breeder Canada Geese fly north to large bodies of water (notably James Bay) which provide safe havens. There are also fewer predators in the boreal or sub-arctic. Previously at Cabot Head, daily totals have reached several hundred Canada Geese (604 on June 7, 2018, for example), however the highest daily total so far this year is 120 birds on June 5.

On that day, we also counted 112 Blue Jays in one single flock! Early June is also a time for a strong passage of this species at Cabot Head. We are seeing the migratory birds of this mostly sedentary species going back to the boreal forest at the northern fringe of their range. It is always quite a sight to see a large flock of Blue Jays taking flight and climbing up in the sky, flapping wings like giant butterflies. The best part though is when the Blue Jays all decide to dive down at once, making an incredible whooshing sound.

The characteristic song of an Olive-sided Flycatcher, a late migrant, was heard on June 1<sup>st</sup> and 4<sup>th</sup>. Two Green herons were seen flying across the basin, perching shortly in trees along the shore, and squawking loudly on June 5<sup>th</sup>. On June 3<sup>rd</sup>, a few flocks of Eastern Bluebirds were detected, thanks to their fluty flight call, with the largest one of 25 birds. There were also quite a few Eastern Bluebirds in the alvar where their dashing colours found an incredible background of Scarlet Paintbrush, Goldenrod, and Blue-eyed Grass. It was a feast of primary colours. [...]