



**BRUCE PENINSULA
BIRD OBSERVATORY**
THE VOICE OF BIRDS ON THE BRUCE

**MIGRATION MONITORING AT
CABOT HEAD**

SPRING 2023

by

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*prepared
for*

BRUCE PENINSULA BIRD OBSERVATORY

June 2023

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Citation:

Menu, S. August 2023. Migration Monitoring at Cabot Head, Spring 2023. Unpublished report for Bruce Peninsula Bird Observatory

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 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 following an established protocol 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 2023 migration monitoring season at the CHRS.

Executive Summary

In this document are summarized the results of migration monitoring at Cabot Head in spring 2023. Spring fieldwork began on April 15 and ended on June 10 for a total of 57 consecutive days of coverage. A total of 161 species were detected during the monitoring period, with another species, Common Nighthawk, only seen in the evening (outside the monitoring period). A total of 1934 birds of 68 species were banded and 140 birds of 19 species were recaptured.

In spring 2023, weather conditions were relatively good throughout the season with only three days of notable precipitation, which precluded banding. Windy conditions in several days interfered with opening (some) nets but, in general, this spring, weather was relatively clement, notably during the last 17 days when banding coverage was almost 100% (Fig.5). 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 60% of the days during the season. In spring 2023, the banding total of 1934 birds is the fourth highest banding total in spring, well above average with record high totals for four species (season average of 1606 ± 475 banded birds, low of 876 in 2015 and high of 2431 in 2002). Three species, Ruby-crowned Kinglet, Golden-crowned Kinglet, and American Redstart (in decreasing order), accounted for 40% of the banding total. There were 11 days with banding totals of over 50 birds, including three days with over 100 birds, notably 267 birds banded on April 19 (the third highest daily total in 22 spring seasons). On May 19, 86 species were detected, the day with the highest diversity this spring. A Black-crowned Night-heron was heard very early on May 11, a new species for Cabot Head.

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 2023 season, an edited version of the blog is reproduced in Appendix II.

The 2023 spring migration monitoring season was a success thanks to the efforts of the seven 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 throughout the entire 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. Banding was not possible on three days because of bad weather. Across the season, 22% of mist-net coverage (in hours) was lost. The number of days with complete banding coverage was well above average (31 days out of 57, i.e. 54%, compared to an average of $45\% \pm 12$; Fig.1). This spring the station scientist worked by himself for several days, notably for a week in June. Furthermore, there was usually only one volunteer present, except for the first two weeks of monitoring with two volunteers. Both conditions automatically reduced the observation effort.

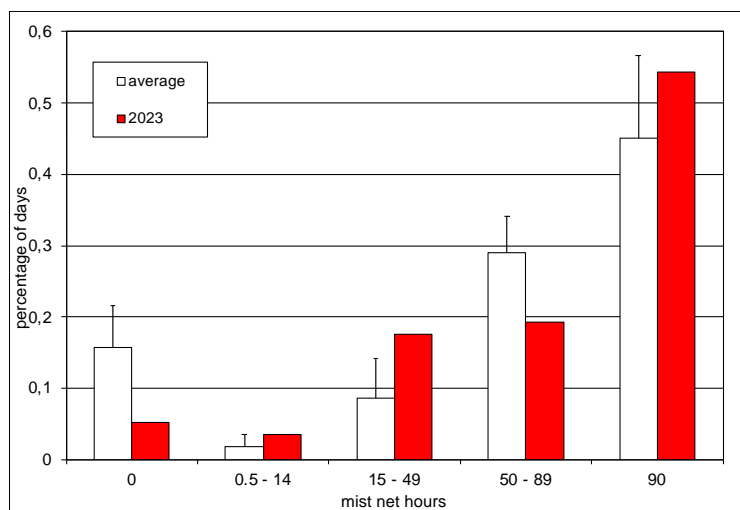


Figure 1. Coverage (in mist-net hours) at CHRS in spring 2023 and average 2003-2022 (with years 2012 to 2014 and 2020 excluded).

Weather

Weather in spring 2023 followed a usual pattern with lots of days of unsettled conditions early in the season and calmer conditions later. Overcast conditions, often associated with strong wind, were prevalent in the first three weeks of the season. During the first 23 days (April 15 to May 7), there were 11 days with precipitation of varying intensity and length, but always impacting the banding operation. Snow showers occurred on April 18 and 24. Periods of strong wind (5 or more on the Beaufort scale) were also very frequent during that period, occurring on 10 days, five of them combined with precipitation. Because of the unsettled weather during these 23 days, 32% of potential mist-net hours were lost, while the maximum daily total of 90 mist-net hours was achieved on only eight days (39% of the period).

In contrast, the remaining 34 days of monitoring (May 8 to June 10) were remarkably clement; only two days had precipitation (rain in the afternoon of May 19 and drizzle all day on May 20) and five had strong winds (between May 15 and 24). From May 25 onward, weather conditions allowed for all nets to be open for the full six hours per day, except on May 31, when the strong south wind blowing during the night precluding opening before dawn, shearing 30 minutes off the total potential banding time before a reduction in wind speed allowed net opening to proceed. Only 15% of potential mist-net hours were lost during these 34 days, a remarkable 24 of them (71%) having a complete daily mist-net coverage of 90 hours (all 15 nets open for the full six hours of banding).

In June, the large wildfires burning in northwest Québec sent smoke and haze over southern Ontario, affecting Cabot Head mostly from June 3 to 9, with the smell of smoke the strongest on June 9. How these conditions affected birds and bird migration is difficult to tell.

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 highest 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 can probably be felt before they develop into full windstorms. This spring, strong winds (defined as at least 5 on the Beaufort scale) predominantly came from south and west in equal measure and occurred on 18 days (32% of the season). Another 21 days (36% 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). However, days with strong winds were more frequent early in the season, with 56% of days in April experiencing strong winds. North winds occurred much less frequently than winds from other directions this spring and were mostly concentrated in May. There were only two days with strong north winds, conditions the most detrimental to migration in spring. In contrast, south and west winds, often very strong, were predominant throughout the season until late May. During both 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 thus has the potential to “push” birds towards Cabot Head. Likewise, south winds are favoured by migratory birds, as these tailwinds help reduce the energy required for non-stop flights.

Remarkably, there were no strong winds during the 10 days of monitoring in June. No wind at all was recorded on one day in May and two days in June.

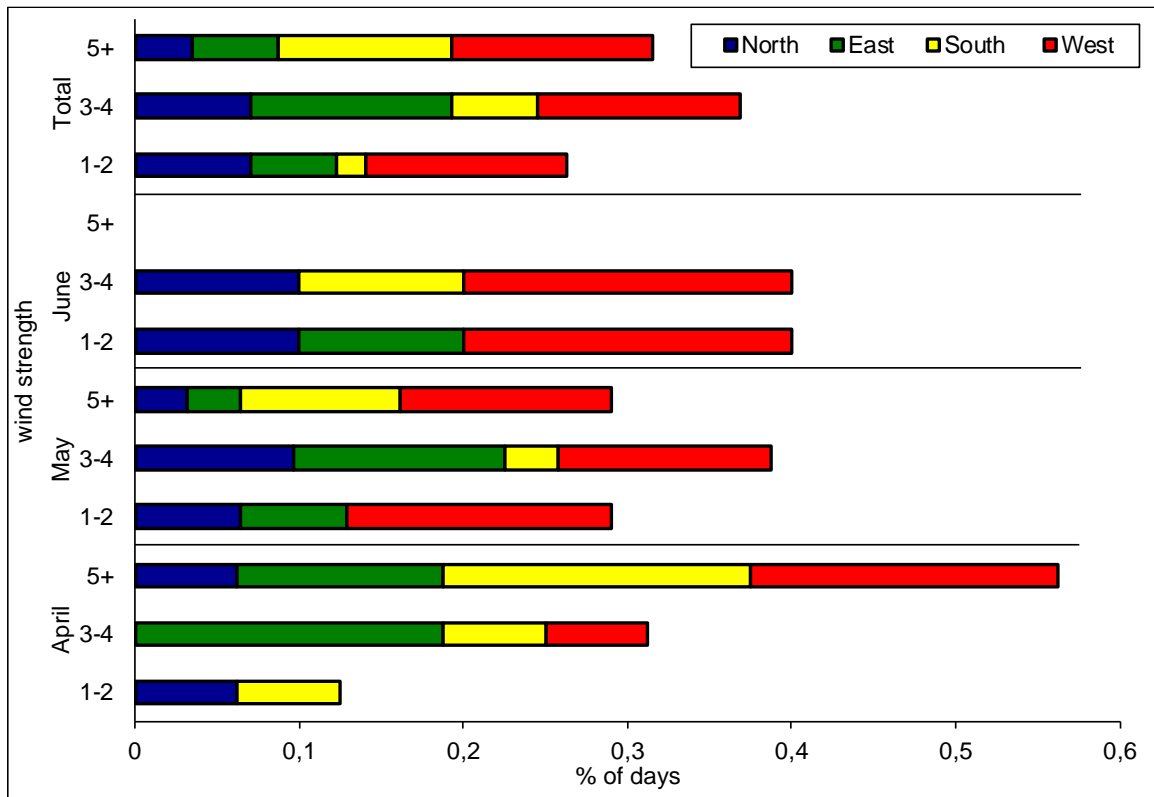


Figure 2. Wind pattern (strength on the Beaufort scale, direction, and proportion of time) at CHRS, spring 2023.

Migration Monitoring

Migration Overview

Migration is an inherently dynamic phenomenon, greatly influenced by weather and food availability (both operating at different spatial scales). Spring 2023 at Cabot Head was marked by relatively steady arrivals of new species throughout the season and large movements of birds on a few days (notably April 27 and May 6 & 18), 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).

The week leading up to the start of the spring monitoring period was exceptionally warm and sunny. These conditions continued on April 15 and 16, the first days of monitoring, with clear sky and temperatures reaching a high of 20°C. The weather changed abruptly on April 17 with rain in the afternoon, overcast conditions, and a high of only 4°C. The overcast conditions were predominant during the next three weeks, with only five days with (some) sunshine in that period. As a consequence, from April 17 to May 3, no large visible movements of birds happened except during short time windows of good weather. In contrast, on April 19, following a day of windstorms and snow showers, captures reached the third highest one-day total among the 21 spring seasons; there were 267 birds of 12 species, with the two species of kinglets accounting for 82%. The following day was cold with a strong north wind, shifting to the east during the morning. Only 40 birds were captured on that day but 40 previously banded birds were recaptured, mostly kinglets banded the day(s) before, a strong indication that very few birds migrated during the night. On April 21, two days after the banding of so many birds, only five nets could be open for two hours, due to strong wind and coming rain, and only one bird was captured.

A window of good weather occurred on April 27, the first clear day after 10 days of poor weather. On that day, a total of 59 species were detected (but only one new arrival) with the highest daily count of Common Grackles of the season (406 birds) and the first large kettles of Broad-winged Hawk of the spring (50 birds). This spring, the detection of new species for the season amounted to a steady but very slow trickle, notably between April 17 to May 3 (Fig.3): there was no massive arrivals as there had been, for example, in 2022 when 16 new species were detected in one day on April 24. Weather conditions markedly improved after early May, bringing an uptick

of new species in early May and most notably in mid-May when 29 new species were observed between May 10 and 13. That first period of high diversity corresponded to the arrival of many long-distance migrant species (see the section “Passerines and Near-Passerines”).

Diversity of birds was at its highest during the period of May 18 to 22, with a total of 113 species detected (86 species on May 19, highest daily total of the season) and a total of 15 new species. Weather during these five days was very variable, changing from day to day. For example, the clear and calm conditions of May 18 were followed by a very strong south wind on May 19 with rain starting in early afternoon (after the nets were closed). May 20 was overcast, foggy, with drizzle sometimes shifting into light rain: the third and final day with no banding at all, but instead, a compensatory high observation effort. Clear skies returned on May 21 under a fierce west wind, which kept most nets closed. And, finally, more clement weather returned on May 22, allowing the first full day of banding coverage since May 18. Observation efforts were thus quite high during the period of inclement weather, more so with a very experienced volunteer present. Undoubtedly, these conditions helped to detect potentially many more birds. Nonetheless, only 37 of the 113 species detected during this five-day period (or 33%) were observed every day; the lowest one-day total during this period was 22 species. Canada Goose and American Crow, both typically 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.

The second half of May corresponds with the arrival of the “late” species among the long-distance migrants, typically species among the last to migrate through Cabot Head. Between May 18 and 22 this spring, first detections during this period included: Gray-cheeked Thrush; Red-eyed and Philadelphia Vireos; Mourning, Canada, and Blackpoll Warblers; Olive-sided Flycatcher; and, finally, Gray Catbird on May 19, which is the latest arrival date across all spring seasons for this species. First detections of Gray Catbirds have ranged widely, from April 30, in 2016 (the only one in April) to May 16, in 2007. First detections were on or before May 10 in 10 of the previous 20 spring seasons. It is possible that the first Gray Catbird(s) to arrive are mostly quiet and stay well hidden in dense vegetation. Many early observations have been followed by a long gap with no sightings. For example, the first bird in 2014 was detected on May 1 but the next observation was on May 18.

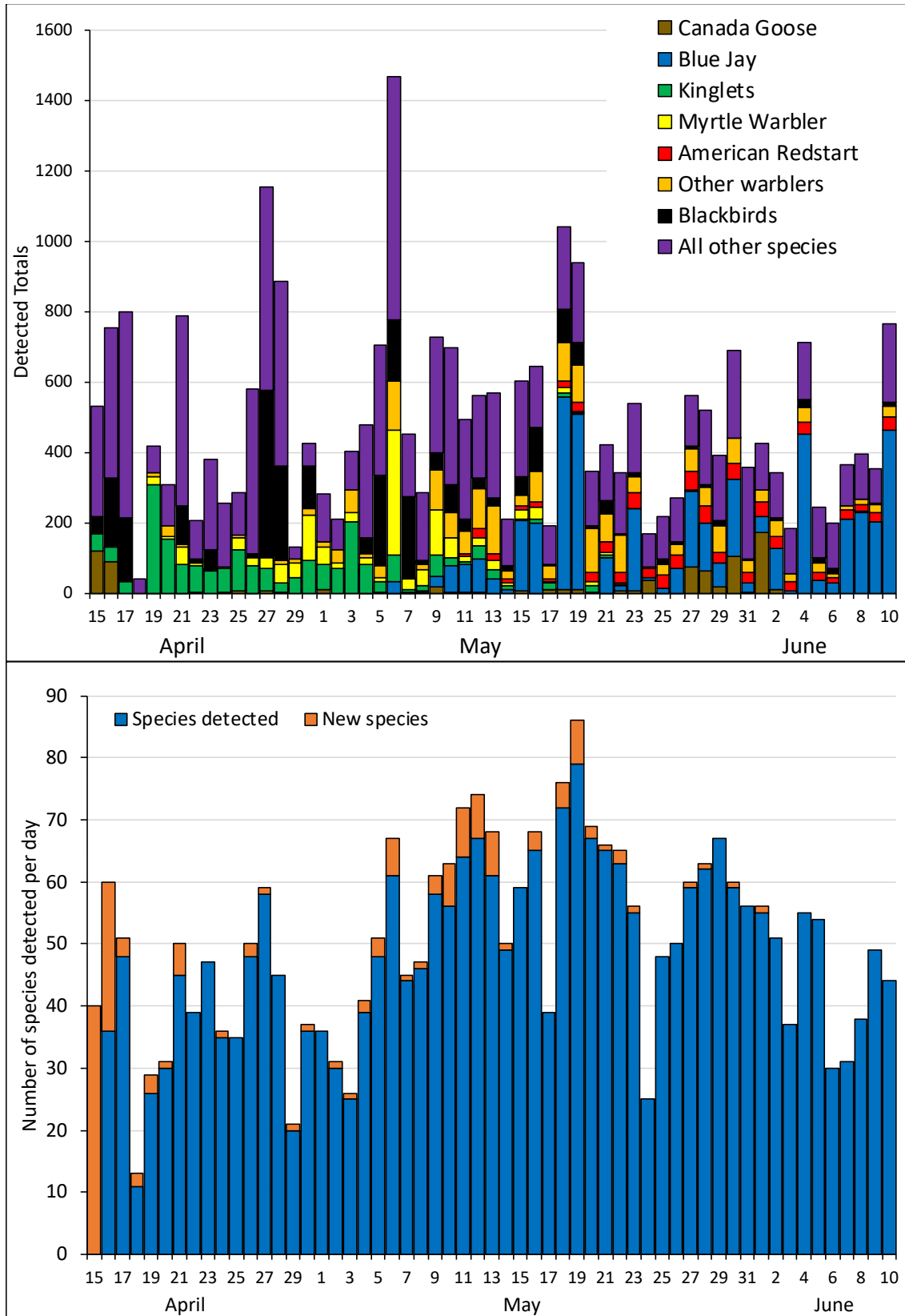


Figure 3: Detected totals (top) and diversity (bottom) at CHRS, spring 2023. (Kinglets: Golden- and Ruby-crowned Kinglets; Blackbirds: Common Grackle and Red-winged Blackbird)

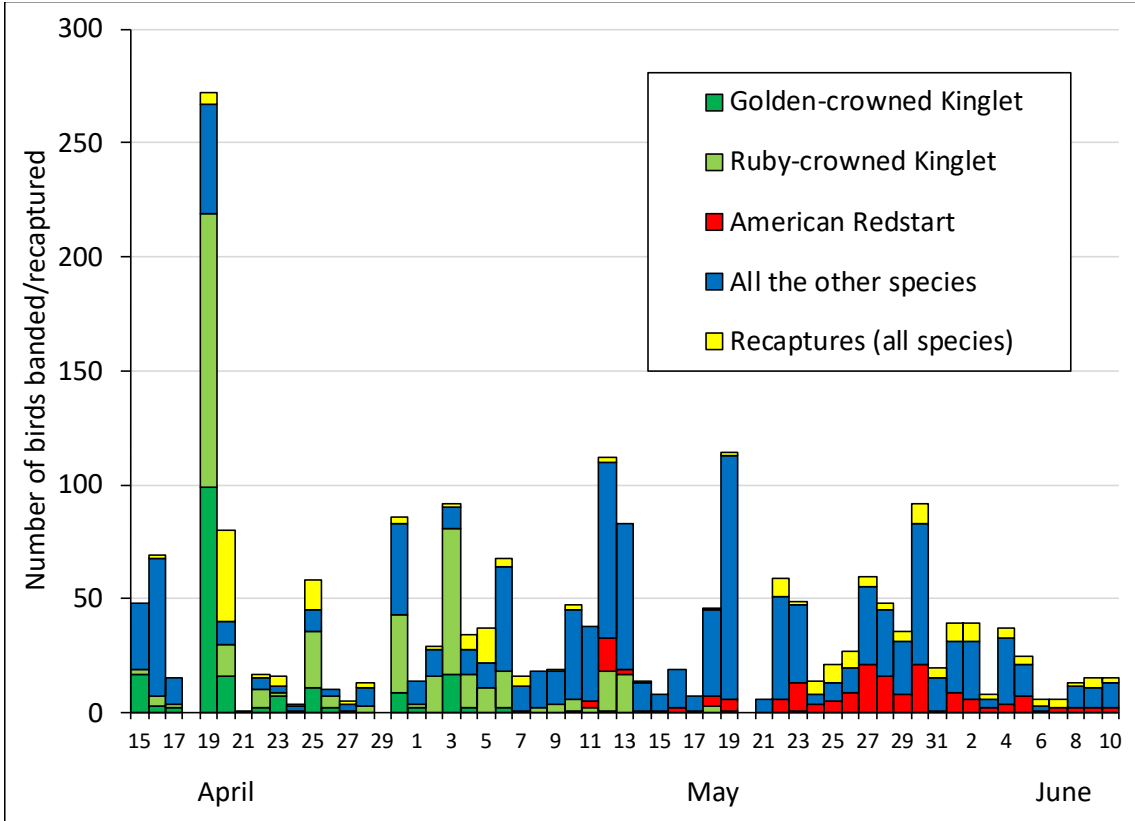


Figure 4: Daily banding and recapture totals at CHRS, spring 2023, with selected species.

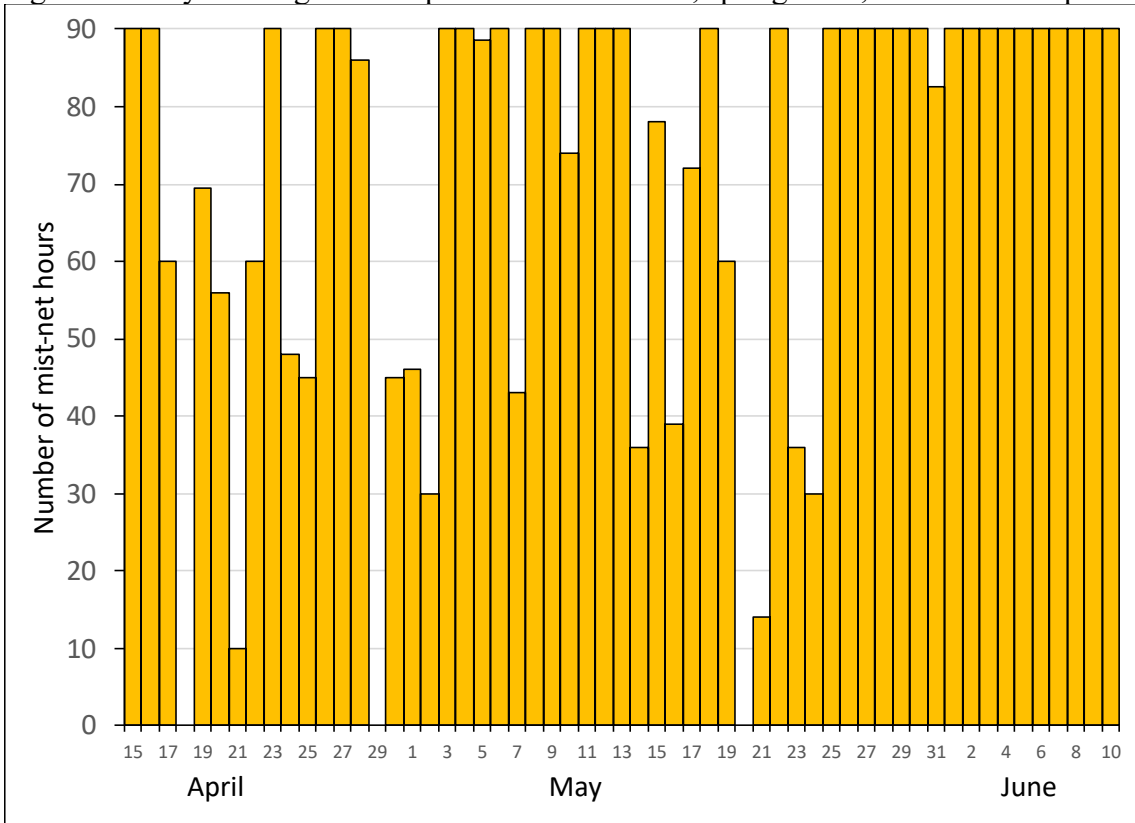


Figure 5: Daily numbers of mist-net hours achieved at CHRS, spring 2023.

Waterfowl

A total of 12 species of ducks and geese were observed this spring, Canada Goose, Common Merganser, and Long-tailed Duck being the most numerous ones, although with very different observation patterns in terms of the number of days with detections and the number of birds detected. Common Mergansers were seen almost every day of the 57 days of monitoring, with daily totals ranging from one to 18 birds (and a high of 38 birds on June 11, the day after monitoring ended). Long-tailed Ducks, in contrast, were observed on only eight days but in high numbers on some of them: 100 birds on April 21 and 56 on April 28. Most of the other species of waterfowl were also detected on one to eight days only. No Surf Scoters were observed this spring and only one Black Scoter on April 27. White-winged Scoter is always the most common scoter species, with observations on 13 days this spring from April 15 to May 19 and a daily high of 15 birds on April 15. A few Common Goldeneyes were seen on eight days from April 15 to 26. Buffleheads were detected more regularly, often in Wingfield Basin, from April 15 to May 3, with up to nine birds per day (on April 22) and a late record of one bird on each of May 22, 24 and 25.

Red-necked Grebes were seen off Cabot Head on six days between April 20 and May 14 and a daily high of 14 birds on April 26. In comparison, Horned Grebes were detected more regularly, seen on 12 days from April 15 and May 1, with a high of 14 birds on April 26, and a late sighting of two birds on May 16. 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, this spring there were nine birds detected over the course of only three days). Numbers of Red-breasted Mergansers ranged from one to 55 birds detected on 24 days from April 17 to June 6.

A few large flocks of Canada Geese were detected at the beginning of the season with notable daily totals of 122 and 89 birds on April 15 and 16, respectively. A more typical pattern is the strong passage seen in late May - June, associated with a moult migration. Late major movements this spring occurred only on May 30, with 105 birds, and on June 1, with 173 birds.

Common Loons were very regularly detected this spring from April 16 to June 9 over a total of 48 days. Most daily totals were single-digit numbers, except during late April and early May when daily totals ranged from 10 to 50 birds.

Raptors

A substantial migration of soaring raptors occurs 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 22 this year, with a few more detections up to June 1 and a daily high of 45 birds on April 16. Despite the high detection rate, the season total was close to average, with 336 birds (average of 389 ± 116). However, 32 Sharp-shinned Hawks were banded, the second highest total (range: 10 to 34). Broad-winged Hawks were seen from April 16 to June 5, with a high of 108 and 139 birds on May 4 and 5, respectively, and a season total of 592 birds (2003-2022 average of 444 ± 329 birds). Large variations in season totals are frequent for this species, with a low of 75 in spring 2021 and a high of 1283 in spring 2013. Large groups occur mostly during periods of strong south winds, which push the soaring birds along the shoreline.

A total of 14 species of raptors were detected in the spring, including Northern Harrier, with observations from April 16 to May 31, and Red-shouldered Hawk, detected six times throughout the season. American Kestrels were seen regularly from April 15 to May 21. 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. Merlins do breed at Cabot Head, as indicated by territorial defence and the presence of young birds in fall. This spring, they were observed almost daily from April 15 to May 23, but with detections on only 4 of the 18 days left in the season, suggestive of more subdued behaviour during the breeding period. The breeding pair of Bald Eagle was still present at Cabot Head and already on the eggs in mid-April. Hatching time was in late May or early June, with one eaglet seen poking its head above the nest. This species was seen every day of the season, with the occasional passing immature or adult bird. A season high total of nine Bald Eagles were counted on May 31: besides the resident pair, 5 immature Bald Eagles were seen loosely together riding a thermal. 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, Ospreys were detected on three days with one bird each. Turkey Vultures were detected almost as frequently as Bald Eagle, with a daily high of 40 birds on May 28. 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 to pass through Cabot Head, with some species barely detected in early spring during some years. For example, the American Tree Sparrow is an 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 only. In 2023, detections occurred from April 18 to 27 with one bird observed each day (except for two on April 18) and one late record of one bird on May 9. Spring 2023 was the first spring season with no captures of American Tree Sparrow.

Brown Creepers are also early migrants but their migration extends well into early May. This spring, they were detected on 19 days from April 15 to May 14 with daily totals in single-digit numbers except on April 15 and 16 with 14 and 23 birds, respectively. There were a few late detections from May 30 to June 9, with a banded bird on June 4 starting to develop a brood patch, a clear indication of a local breeding bird. A little over half the detections were through banding, with 42 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 49 birds (± 44). Sharing a similar migration pattern with that of the Brown Creeper, Golden-crowned Kinglets are, however, much more numerous; they can be one of the most numerous birds banded, especially early in the season. This spring, 194 Golden-crowned Kinglets were banded, 87% of them in April, with 99 birds banded on April 19. The sex-ratio (the number of males divided by the number of females) of captured kinglets was greatly skewed towards females, with 26 males and 167 females banded (sex ratio of 0.16). 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, however, almost the entire migration of this species is missed: seasonal numbers banded have fluctuated from three and nine birds in 2008 and 2012 (respectively) to 666 in 2016. On the other hand, Ruby-crowned Kinglets have their entire migration covered during the monitoring period at Cabot Head. This spring, the banding total of 401 birds was the second highest ever after 610 Ruby-crowned Kinglets in spring 2021. Numbers

have fluctuated widely over the years, from lows of 55 and 56 in springs 2012 and 2015 to a high of 261 in spring 2019 (the previous second highest total). The highest daily banding total was on April 19 this spring, with 120 birds (coinciding with the highest day for Golden-crowned Kinglets). Not only was this a very high number of birds banded, it also happened very early in the season. Only two of the 385 days with banding of Ruby-crowned Kinglets over the previous 20 spring seasons have been totals of over 100 birds: 149 on May 5 and 132 on April 29, both in spring 2021. In spring 2023, the second highest daily total was 64 birds on May 3. Only two other days of banding this spring had totals over 50 birds (but less than 100). As opposed to Golden-crowned Kinglets, captures of Ruby-crowned Kinglets this spring were heavily skewed towards males, with 331 banded compared to only 70 female Ruby-crowned Kinglets. The females migrate noticeably later than males, mostly peaking in mid-May, compared to late April and early May for males. It is unclear why so few females were captured this spring, although sex-ratios of this species seem to be quite variable across the years (Fig.6).

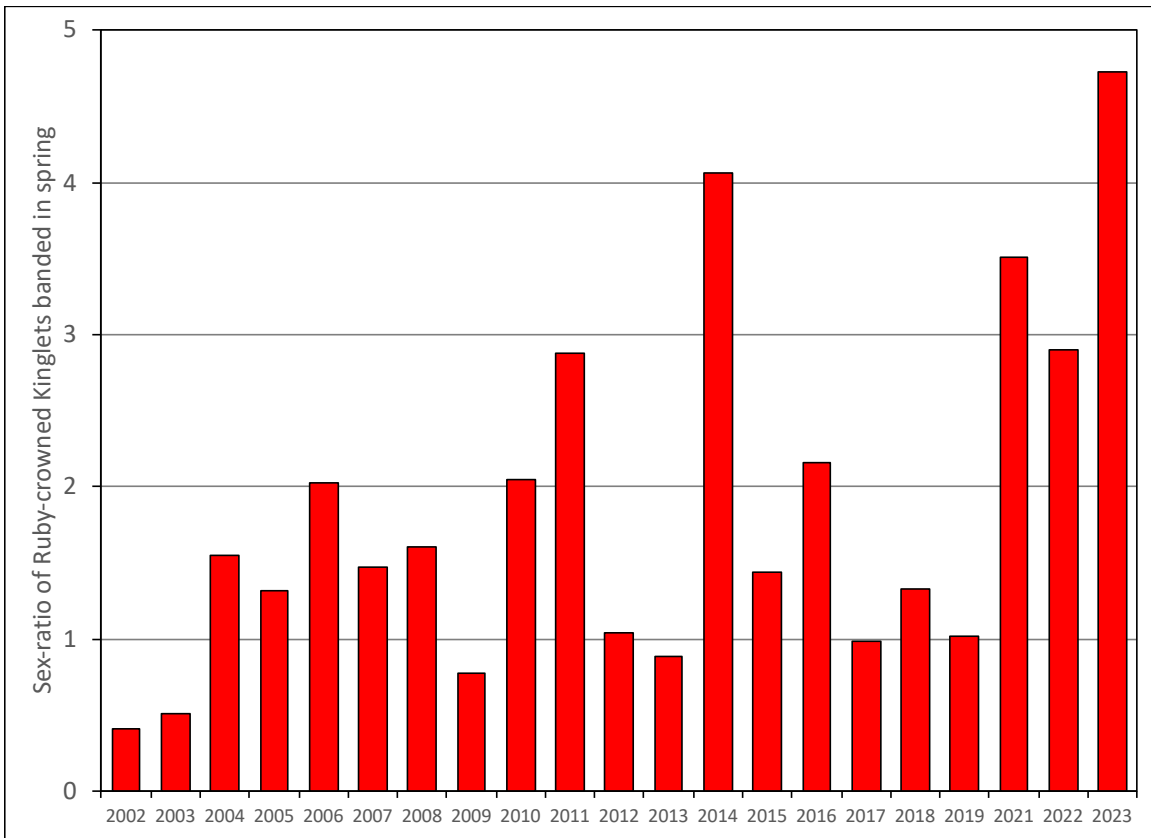


Figure 6. Sex-ratio of Ruby-crowned Kinglets banded in spring at CHRS, 2002-2023 (2020 excluded).

Blackbirds, notably Red-winged Blackbirds and Common Grackles, move through in early spring as well, often in highly visible diurnal flights. In spring 2023, good movements occurred between mid-April and early May, notably on April 27 with 407 Common Grackles and on May 7 with 107 Red-winged Blackbirds and 115 Common Grackles. Rusty Blackbirds, not always easily separated from other Icterids, were seen from April 16 to May 19 in numbers ranging from one to 120 birds.

American Robins were seen almost daily during the entire spring season (missed only on seven of the 57 days of monitoring); most of the time, detections were in single-digit numbers, except on six days with highs of 32 and 61 birds on April 16 and 21, respectively. The Northern (Yellow-shafted) Flicker is also a very visible early migrant. Its migration at Cabot Head this spring was once again concentrated from mid-April to early May, with peak numbers of 86 birds on April 15, 57 on April 16, and 56 on May 6. The season total in 2023 of 473 Northern Flicker is about average, although there are extreme variations in the passage of this species at Cabot Head (low of 150 in spring 2017; high of 821 and 1348 in springs 2016 and 2014, respectively).

Eastern Phoebes are the hardiest of the Tyrant Flycatchers, wintering in the southern USA and arriving early on their breeding grounds. Three birds were detected on the first day of monitoring, April 15. This species is very vocal and visible, as well as attempting to breed around the station, so it is usually easily detected when present. This spring, though, it was detected only on 42% of the 57 days of monitoring, including the first and last days, with extended periods of no detections. A total of four birds were banded, slightly below 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 throughout the season, albeit always in small numbers. The highest number of Tree Swallows detected this spring was on April 17 with 11 birds. Northern Rough-winged and Barn Swallows were observed less frequently than Tree Swallow, with detections on five and 12 days, respectively. First detections were April 21 for Barn Swallow and May 9 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 on April 15 and 16, respectively. Most of the passage of Myrtle Warblers was between late April and early May, with a few days exceeding a hundred birds, notably 129 birds both on April 30 and May 9 and a season high of 356 birds on May 6. Movement of Pine Warblers is never as impressive, although, this spring, there were 11 days from April 19 to May 9 with double-digit totals ranging from 10 to 43 birds. Between spring 2002 and 2022, there have been only 22 days with double-digit observations (five and seven of them in springs 2021 and 2022, respectively), accounting for 3.6% of the 607 days with sightings of Pine Warbler. This species was detected all throughout the season in 2023 as in the other spring seasons, mostly because it breeds locally in the jack pines located at the end of the census route. Palm Warbler was also first detected in April, on the 19th, with one bird. This species was then not seen until April 30 with nine birds. It was observed almost daily afterward until May 22 with three more late but not unusual records on May 25, 27, and 28 of one bird each. The highest daily count was of 68 birds on May 6. No other species of warblers were detected in April this year. From 2002 and 2022 (excluding 2020), two to seven species of warblers have been detected in April for a total of 16 species overall; about half of them have been detected only once, whereas Myrtle and Pine Warblers have been seen every April (Fig.7).

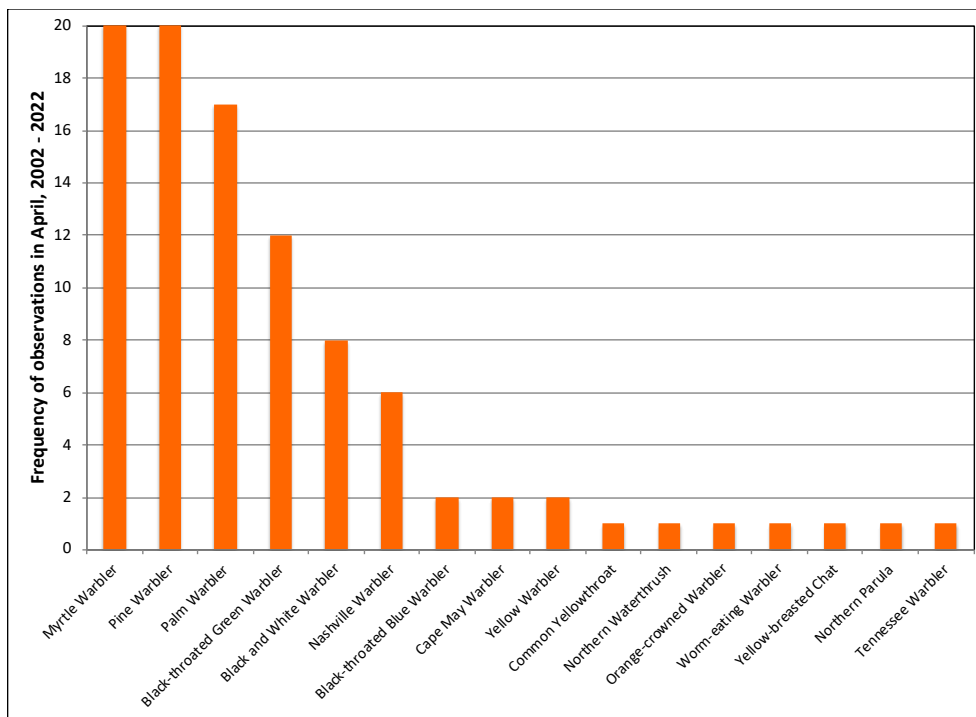


Figure 7. Frequency of observations in April for species of warblers at CHRS, 2002-2023 (2020 excluded).

Most sparrow species are short-distance migrants, with wintering ranges usually confined to North America. At Cabot Head in spring 2023, Dark-eyed Junco and Song Sparrow were the first species of sparrows detected, on the first day of monitoring, April 15, as well as Fox Sparrow, with one bird captured. Another Fox Sparrow was banded on April 24, the second and last detection of this early migrant. 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, with detection on 44 of 57 days and a season banding total of 11 birds, seem to indicate that most detected Song Sparrows this spring were local birds. Unlike Song Sparrow, Dark-eyed Juncos migrate mostly in the second half of April and into early May. This spring, they were detected regularly from April 15 to May 13, albeit in very small numbers (season high of 17 birds on April 15 and May 6), with two more detections on May 17 and June 1. The total of 56 Juncos banded this spring is about average, although banding totals have ranged from 15 birds in 2010 to 150 in 2007, illustrating the highly variable nature of migration of this species at Cabot Head. 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 16 to June 9 in small numbers, with a below-average banding total of 17 birds. In contrast, White-throated Sparrow shows a distinct migration with a peak in late April - early May: this spring, White-throated Sparrows were detected almost daily from April 21 to May 21. However, the season total of 113 birds is the second lowest ever (average: 268 ± 114 birds; range: 101 birds in 2017 -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 early to mid-May. In spring 2023, the first detection of White-crowned Sparrow (five birds) was on April 24, which represents the sixth detection in April for this species in as many spring seasons (earliest on April 15, 2012). However, there was no other detection until May 6 with five birds again; this was followed by almost daily detections until May 25, with a daily high of 19 birds on the 19th, and a late record on May 30. The season total of 135 birds is the first time since 2017 that the spring count exceeded a hundred 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: 135 ± 85). A total of 18 White-crowned Sparrows were banded in spring 2023, the first double-digit total since 2017. Eastern Towhee was first detected on April 29 and very regularly afterward until June 10, usually one or two territorial singing males.

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 species to arrive at Cabot Head, up to a month earlier than the other ones. The first Hermit Thrush this year was on April 15 with a bird caught in the nets. There were detections on 15 days afterward, mostly in April and early May but with a late one on May 31. About two thirds of detections are through banding. The banding total of 27 Hermit Thrushes is the third highest ever, after 30 in 2016 and 32 in 2019. On April 16, 2023, 11 Hermit Thrushes were banded, the highest one-day total ever. Between 2002 and 2022, there have been only two in 170 days with banding totals of Hermit Thrush in the double digits, ten birds on April 22 and May 5, both in 2019.

In the past 20 spring seasons, Purple Finches were observed in double-digit numbers on five days, with a record high of 91 birds on April 27, 2021. In spring 2023, there were eight days of double-digit daily totals, ranging from 10 to 30 birds, from April 21 to May 16. During the rest of the season, as usual, only a few Purple Finches were heard or seen, with some birds obviously local breeders. It is possible that these higher detection rates result in a better knowledge of their flight call as well as a heightened awareness of their migration phenology.

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 90 on April 30 (i.e., 56% of the season total) to 138 on May 15 (86% of the spring total). From May 16 to May 25, another 20 new arrivals were detected, bringing the total number of species detected to 98% of the spring total. The remaining 16 days of monitoring brought only four 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, this finding reflects a slow or stalled migration at various stages of the spring (see Fig.3). In spring 2023, there were three distinct periods of a few

consecutive days when diversity was high: May 9 to 13 with 108 species; May 18 to 22 with 113 species; and May 27 to 30 with 97 species. Daily diversity on these 14 days exceeded 60 species, with three days of over 70 species and one, May 19, with a total of 86 species, the highest of the season. When combining and comparing the three periods, of the total of 140 species detected, 34 were seen during only one period (15 on May 9 - 13; 14 on May 18 - 22; and 5 on May 27 - 30).

Besides Myrtle, Pine, and Palm Warblers detected by April 16, new species of warblers did not arrive until May 2 with a trickle of four species over a few days at first, and then, a surge of five new species on May 6. Afterward, new arrivals were spread over several days up to May 13, reaching a total of 21 species of warblers on that date. The first Wilson Warbler was detected on May 13 this spring (as in 2009), the second-earliest date on record after May 11 in 2007. After a gap of several days, new arrivals of three species were noted from May 19 to 21 (in order: Mourning, Canada, and Blackpoll Warblers, species of warblers usually among the last ones to arrive). One Blue-winged Warbler was heard and seen on May 23, the only detection of this species this spring, bringing the cumulative total of species to 25 (Fig.7). 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. On May 19 and 20, 20 species of warblers were detected, the highest number for the season (Fig.8). A 26th species of warbler, the Golden-winged Warbler, was captured on May 13, but, unfortunately, killed by a Blue Jay while in the net. This bird was not added in the results, figures, and tables of this report. This Species-at-risk is more regularly detected at Cabot Head than the closely related Blue-winged Warbler, with detections in 12 previous spring seasons for the former and only in four previous springs for the latter.

Two rather secretive warbler species, Mourning and Canada Warblers, were detected quite regularly this spring after their initial detection. Mourning Warblers were detected on 11 days from May 19 to June 5 and Canada Warblers on 16 days between May 20 to June 10. These birds are more often heard than seen and that was the case again this spring. Banding accounted this spring for about half of birds detected for both species. Northern Parulas are always banded in small numbers: two birds in spring 2023. In contrast, 84 birds were seen or heard on 20 days from May 10 to June 3, with daily highs of 11 birds both on May 13 and 22 and 12 birds on May 18, counts not very different from the previous one-day highest total (16 Northern Parulas on May 21, 2016). Between 2002 and 2022, there have been only eight days out of 199 days with detections of Northern Parula that involved 10 or more birds, half of them in spring 2019.

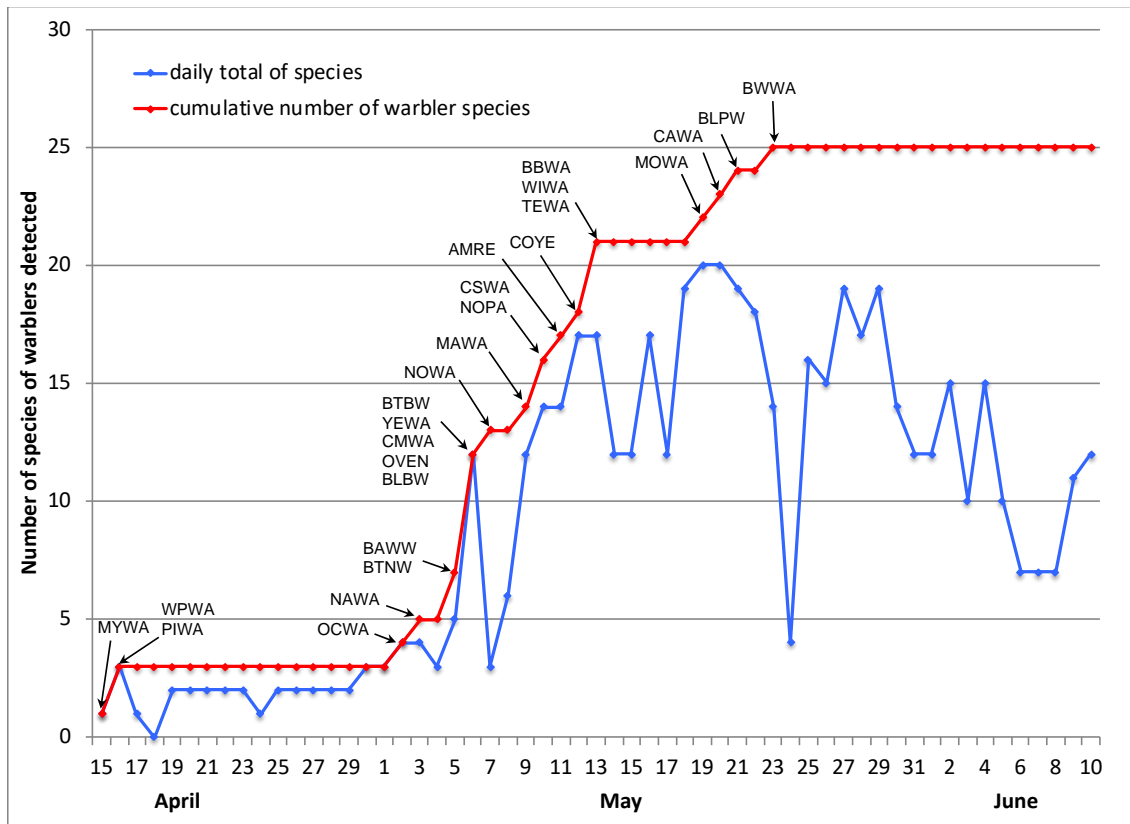


Figure 8. Daily and cumulative numbers of species of warblers detected at CHRS in spring 2023. Alpha codes and arrows indicate date of first detection (MYWA: Myrtle Warbler; PIWA: Pine Warbler; WPWA: Western Palm Warbler; OCWA: Orange-crowned Warbler; NAWA: Nashville Warbler; BAWW: Black-and-White Warbler; BTNW: Black-throated Green Warbler; BTBW: Black-throated Blue Warbler; YEWA: Yellow Warbler; CMWA: Cape May Warbler; OVEN: Ovenbird; BLBW: Blackburnian Warbler; NOWA: Northern Waterthrush; MAWA: Magnolia Warbler; CSWA: Chestnut-sided Warbler; NOPA: Northern Parula; AMRE: American Redstart; COYE: Common Yellowthroat; BBWA: Bay-breasted Warbler; WIWA: Wilson’s Warbler; TEWA: Tennessee Warbler; MOWA: Mourning Warbler; CAWA: Canada Warbler; BLPW: Blackpoll Warbler; BWWA: Blue-winged Warbler).

Blue-headed Vireo, a short-distance migrant, usually returns in late April or early May: this spring, its first detection was on May 6, the second-latest date after May 10, 2007. This species was detected in April in only seven of the previous 20 spring seasons. The other three species of Vireos seen at Cabot Head - long-distance migrants - arrive in mid-May, with the occasional very early birds in early May. This spring, first detections were on May 18 for Red-eyed Vireo and May 19 for Philadelphia and Warbling Vireos. Philadelphia Vireo was seen on two other occasions: four birds on May 20 and one on May 28, whereas Warbling Vireo was detected on seven other days, notably on June 10. 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 19 this spring, it was detected (mostly through its song) 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 11 birds this spring is below the average of 15 birds \pm 8 (range: 6 in 2016 and 2021- 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 9, followed by relatively regular detections up to June 6 and a high of 13 and 14 birds on May 19 and 20, respectively. Detections of Yellow-bellied Flycatchers were from May 16 to June 10, with a high of seven birds on May 30 and a season total of 31 birds. Willow and Alder Flycatchers cannot be distinguished in hand and are banded as Traill's Flycatcher. This spring, 11 Traill's Flycatchers were banded from May 30 to June 10. Alder Flycatchers were heard on June 1, 2, and 9 with one bird each. The first Great Crested Flycatcher was on May 11, on the early side of detections (earliest dates in four previous springs only). The second observation in spring 2023 was on May 13, followed by a long stretch with no detections. This species is more often heard than seen: it was heard again on May 27 and then regularly up to June 10. Eastern Kingbirds were seen from May 12 to June 1 with one or two individuals at a time, except on May 12 when six birds were counted. Eastern Wood-Pewees were recorded on 17 days between May 16 to June 10, mainly through their namesake song. Finally, one Olive-sided Flycatcher was seen very well and for very long on May 20, a rare treat on a misty and drizzly day,. This species was also heard on two other occasions, May 30 and 31.

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 May 12 and 13, respectively. They were then detected sporadically throughout the rest of the season, on 12 and 19 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, 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 2023, that was the case for 50% of detections of Veeries and 67% for Swainson's Thrushes. On May 30, 15 Swainson's Thrushes were banded, the sixth time only with double-digit banding totals for that species. The Gray-cheeked Thrush is the rarest and latest of the three species. This year, the first Gray-cheeked Thrush was banded on May 18 and the last one on June 10, for a high season total of seven birds banded (record of eight birds in spring 2010).

There are usually yearly variations in dates of first detection within a general time window for a specific species. 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 10 while the first Common Yellowthroat was heard on May 12. First detections of Common Yellowthroats before or on May 12 have occurred in 12 of the previous 20 spring seasons (excluding spring 2020). The spring 2023 arrival date of Ruby-throated Hummingbird is quite average, with 11 previous spring seasons having an earlier date (earliest on May 3, 2012). These two species are either quite vocal or easily seen. Nonetheless, it may be easy to miss the very first individual of any species arriving at Cabot Head, which means that yearly variations in first detection could be as much a factor of observation effort as any variations in weather or phenology. Arrival dates for American Redstart, however, have been very consistent throughout the years: The first detection has been between May 8 and 10 for 14 of 21 years, 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 11 but with six adult males observed that day, it indicates a possible 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, with only the late migrants continuing to move through Cabot Head. Cedar Waxwings, for example, were first observed on May 28, with 15 birds, becoming an almost daily sight up to the end of the spring monitoring period, with a season high of 121 birds on June 10. The first few Blue Jays were detected on May 5 and on the following days but numbers quickly built up: 200 birds on May 15 and 16 and a peak of about 500 on May 18 and 19. Afterward, daily numbers fluctuated widely, with lows of a few birds and highs of several hundred birds (455 and 464 birds on June 4 and 10, respectively).

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. Here's a list in chronological order of the unusual records for spring 2023.

One White-breasted Nuthatch was detected on April 15, with two more observations on April 27 and June 5. This species is quite infrequent at Cabot Head despite its abundance in southern Ontario. Wood Ducks were observed on four days, with four birds on April 15. The first Eastern Whip-poor-will of the season was on April 16, heard shortly before net opening. It is the earliest date on record, nine days before the previous early date of April 25, in 2019. Northern Goshawk is a rare resident at Cabot Head. It was seen on three occasions this spring, with the first in the afternoon of April 19. One Blue-gray Gnatcatcher was banded on April 19, the third ever banded at Cabot Head. Another one was detected on May 20. One Short-eared Owl was seen briefly on April 20 as it was flying low over Wingfield Basin, the second ever sighting at Cabot Head. Four Green-winged Teals were seen on April 20. One Vesper Sparrow was seen on April 30 and May 3 and 10. An immature Golden Eagle was observed on May 4 and 8, possibly the same bird. One Red-throated Loon was seen flying with a Common Loon on May 4. Chimney Swift, a fast flyer that doesn't linger, was seen on four occasions, from May 10 to June 10. The first Bobolinks were seen on May 10 with three more sightings on May 11, 18, and 19. Solitary Sandpipers were heard on May 10, 11, and 15. One Red-headed Woodpecker was seen flying on May 14, whereas a Red-bellied Woodpecker was heard on May 22 and June 1. Both Common and Caspian Terns are seen every spring but always in small numbers and in a few days. Caspian Terns were heard but not seen on May 26 and June 4, while Common Terns were seen on May 13 (3 birds) and May 27 and 28 (two birds each). Three Semipalmated Plovers were detected on May 19, the same day one Ruddy Turnstone was seen, the second detection ever (five birds on August 27, 2011). A Green Heron was heard on that day as well. Two birds of that species were seen a few times in afternoons and evenings afterward. On the evening of May 19, the first Common Nighthawk of the year was heard. The only Cooper's Hawk of the season was seen on May 22. In contrast, Peregrine Falcon

was detected on 18 days from April 16 to June 9, with one or two birds in a day, except on May 5 with three birds. This species is detected every spring but usually on one to ten days per season (13 seasons with five or fewer days with detections). There are signs that a pair of Peregrine Falcon is establishing a territory on west Bluff to the west of the station.

Species not detected

A few species were not detected this spring, even though they have been in most of previous spring seasons (at least more than 10 of the 21 previous spring seasons). For example, no Clay-coloured Sparrows were detected, whereas this species had been observed in 16 of the past 21 spring seasons. Likewise, no Black-billed Cuckoos were detected in spring 2023, after being detected in 16 previous springs. Ring-necked Ducks were also missed this spring, seen in 16 previous springs. Northern Mockingbird is much rarer; nevertheless, it had been detected in 13 previous spring seasons but not this year. On the other hand, Rough-legged Hawks have been seen every spring (except 2020 because of a late start of monitoring) with multiple sightings in each spring from April 15 to June 10. Not one was seen in spring 2023.

4. Banding Data Analysis

Spring 2023 had the fourth highest banding total in 22 years of monitoring, with 1934 birds of 68 species banded in total (Table 2), more than 300 birds above the spring banding average of 2002 - 2022 (1606 ± 475 birds). As noted previously, there were only three days fully lost due to bad weather (about 5% of the period). The top three days of banding accounted for 25% of the season total while, overall, ten of the 54 days with banding accounted for 52% of the banding total. Most species this spring were banded in numbers at or above average. A few species set a second-highest or highest total this spring, notably Swainson's and Gray-cheeked Thrushes (Table 2). A record 10 Tennessee Warblers were banded this spring, a species usually with totals of one or two birds (five in 2019 and six in 2002) and even none in seven spring seasons. Likewise, a record 19 Bay-breasted Warblers were banded. Following a pattern similar to Tennessee Warbler, there were no captures in three spring seasons, totals between one and eight birds otherwise, except 11 and 14 birds in 2002 and 2019, respectively. Like these two species, Cape May Warbler is another spruce budworm specialist. This spring, eight birds were banded (same total as spring 2006), compared to nine and 28 in 2002 and 2019, respectively. Blackburnian Warblers were also banded in high numbers, with the third-highest total of 17 birds (high of 18 in 2019 and 21 in 2022). It seems that these four species of warblers follow the same general trend in their population numbers. For the third spring season in a row, a (relatively) high number of Pine Warblers were banded, 22 in total (24 in 2021, 19 in 2022).

Ruby-crowned Kinglet accounted for 21% of the season banding total. With 401 birds banded, it is the second highest total across the years for this species (record of 610 birds in spring 2021). This species shows large inter-annual variations in banding totals, with seven spring seasons below a hundred birds (lowest total: 55 birds in 2012). Golden-crowned Kinglet was the second most banded species this spring, 194 birds, accounting for 10% of the total. American Redstart, with 171 birds banded in spring 2023, represents 9% of the seasonal total, and the third most banded species this spring. Like kinglets, there are great variations in numbers banded of this species, from lows of 74 and 88 birds in springs 2017 and 2021 to a high of 273 birds in spring 2009. Typically, only a few species are captured in numbers over 50 individuals; most species are banded in low to very low numbers (Table 1): 26 species in 2023 had banding totals of five birds or less, representing about 3% of the season total, while the top five banded species amounted to 48%.

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.9). The capture rate is determined by dividing the number of birds caught by the number of hours during which the nets were operated. Thus, variation in capture rates 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 2023, weekly capture rates varied greatly, from the third highest since spring 2002 in the first week to very low in the second week, and to around or above average for the remaining weeks. Mist-net hours were at or above average for the entire season except for the week May 14 - 20, when it was well below average.

Weekly and daily numbers of banded birds partially reflect variation in capture rates (Fig.10&11). The totals in the first week of monitoring reached the third-highest counts ever, while the totals the following week ranked among the lowest, even though mist-net hours were above average. Weekly totals for the rest of the season were mostly above average, except from May 14 to 27. Totals were slightly below average during those two weeks, possibly a reflection of fewer mist-net hours during that period. Banding numbers during the last week (June 5 - 10) were the fourth highest total (95 birds), likely partly due to complete net coverage that week. With an average of 70 ± 38 banded birds, this period represents the tail end of migration, regardless of the number of mist-net hours achieved.

In spring 2023, 78% of the potential maximum number of mist-net hours was achieved; the range spans a low of 58% coverage in spring 2004 to 92% in spring 2010, with an average of 73% (± 1). Poor weather conditions either precluded opening any mist nets on three days, permitted only a portion of the 15 nets to be used, or reduced the length of time the mist nets could be opened, thus shortening a day's possible monitoring period (see Fig.5). Conditions allowed for complete daily banding operation during 54% of the monitoring period.

Table 1. Number of species banded in spring 2023 at CHRS according to their banding total.

Banding total	1 - 10	11 – 50	51 – 100	>101
Number of species	33	25	7	3

Table 2. Banding total of species in spring 2023 at CHRS, 2002 - 2022 average (and standard deviation), maximum and minimum totals for 2002 - 2022, and number of springs with captures.

Family	Species	2023	Av.	StDev	Min.	Max.	Nb. of springs with capture
Hawks	Sharp-shinned Hawk	32	19	7	10	34	20
Woodpeckers	Yellow-bellied Sapsucker	1	2	1	1	5	14
	Downy Woodpecker	1	1	0	1	1	3
	Hairy Woodpecker	4	2	1	1	3	7
	Yellow-Shafted Flicker	2	4	3	1	12	19
	Pileated Woodpecker	2	1	0	1	1	4
Tyrant Flycatchers	Eastern Wood-pewee	1	2	1	1	3	15
	Yellow-bellied Flycatcher	15	13	6	3	24	20
	Traill's Flycatcher	11	14	9	4	32	20
	Least Flycatcher	18	13	6	1	23	20
	Eastern phoebe	4	6	5	1	23	18
Vireos	Blue-headed Vireo	7	4	2	1	8	17
	Philadelphia Vireo	1	2	2	1	6	10
	Red-eyed Vireo	11	15	8	6	39	20
Crows & Jays	Blue Jay	26	58	81	10	264	20
Chickadees	Black-capped Chickadee	89	46	85	2	365	20
Nuthatches	Red-breasted Nuthatch	29	12	14	1	57	19
Creepers	Brown Creeper	42	50	45	8	200	20
Wrens	House Wren	1	2	2	1	6	10
	Winter Wren	4	2	1	1	5	17
Gnatcatchers	Blue-gray Gnatcatcher	1	1		1		1
Kinglets	Golden-crowned Kinglet	194	162	166	3	666	20
	Ruby-crowned Kinglet	401	164	128	55	610	20
Thrushes	Veery	10	10	6	1	22	20
	Gray-cheeked Thrush	7	3	2	1	8	18
	Swainson's Thrush	54	24	10	9	43	20
	Hermit Thrush	27	15	7	6	32	20
	Wood Thrush	5	2	1	1	6	19
	American Robin	2	6	4	1	16	20
Mockingbirds & Thrashers	Gray Catbird	10	10	5	1	19	20
	Brown Thrasher	2	6	3	1	12	20
New World Warblers	Tennessee Warbler	10	2	2	1	6	13
	Orange-crowned Warbler	4	10	8	2	31	19
	Nashville Warbler	30	47	55	8	237	20

New World Warblers	Northern Parula	2	3	4	1	15	13
	Yellow Warbler	3	9	7	1	25	18
	Chestnut-sided Warbler	22	14	7	3	30	20
	Magnolia Warbler	72	84	43	23	198	20
	Cape May Warbler	8	5	7	1	28	16
	Black-throated Blue Warbler	32	26	11	7	64	20
	Myrtle Warbler	71	67	54	16	246	20
	Black-throated Green Warbler	20	25	8	13	41	20
	Blackburnian Warbler	17	6	6	1	21	18
	Pine Warbler	22	5	7	1	24	17
	Western Palm Warbler	67	80	54	34	219	20
	Bay-breasted Warbler	19	4	4	1	14	16
	Blackpoll Warbler	1	2	1	1	5	14
	Black and White Warbler	51	53	17	25	91	20
	American Redstart	171	176	54	74	273	20
	Ovenbird	41	27	10	12	53	20
	Northern Waterthrush	4	4	3	1	13	20
	Mourning Warbler	11	8	4	1	17	20
	Common Yellowthroat	49	37	12	21	66	20
New World Warblers	Wilson's Warbler	8	13	8	2	34	20
	Canada Warbler	19	15	6	5	26	20
	Chipping Sparrow	17	23	25	5	101	20
	Field Sparrow	3	3	7	1	26	13
	Savannah Sparrow	3	2	2	1	10	17
	Fox Sparrow	2	2	1	1	4	16
	Song Sparrow	11	16	9	4	34	20
	Lincoln's Sparrow	12	12	7	3	25	20
	Swamp Sparrow	3	6	4	1	14	20
	White-throated Sparrow	37	55	24	13	104	20
	E, White-crowned Sparrow	18	22	18	2	69	20
Slate-coloured Junco	52	56	41	15	150	20	
Cardinals & allies	Rose-breasted Grosbeak	3	4	4	1	18	18
	Indigo Bunting	4	3	2	1	7	17
Blackbirds	Red-winged Blackbird	1	1	0	1	1	3

For 2023, record high captures in red, second highest in orange.

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

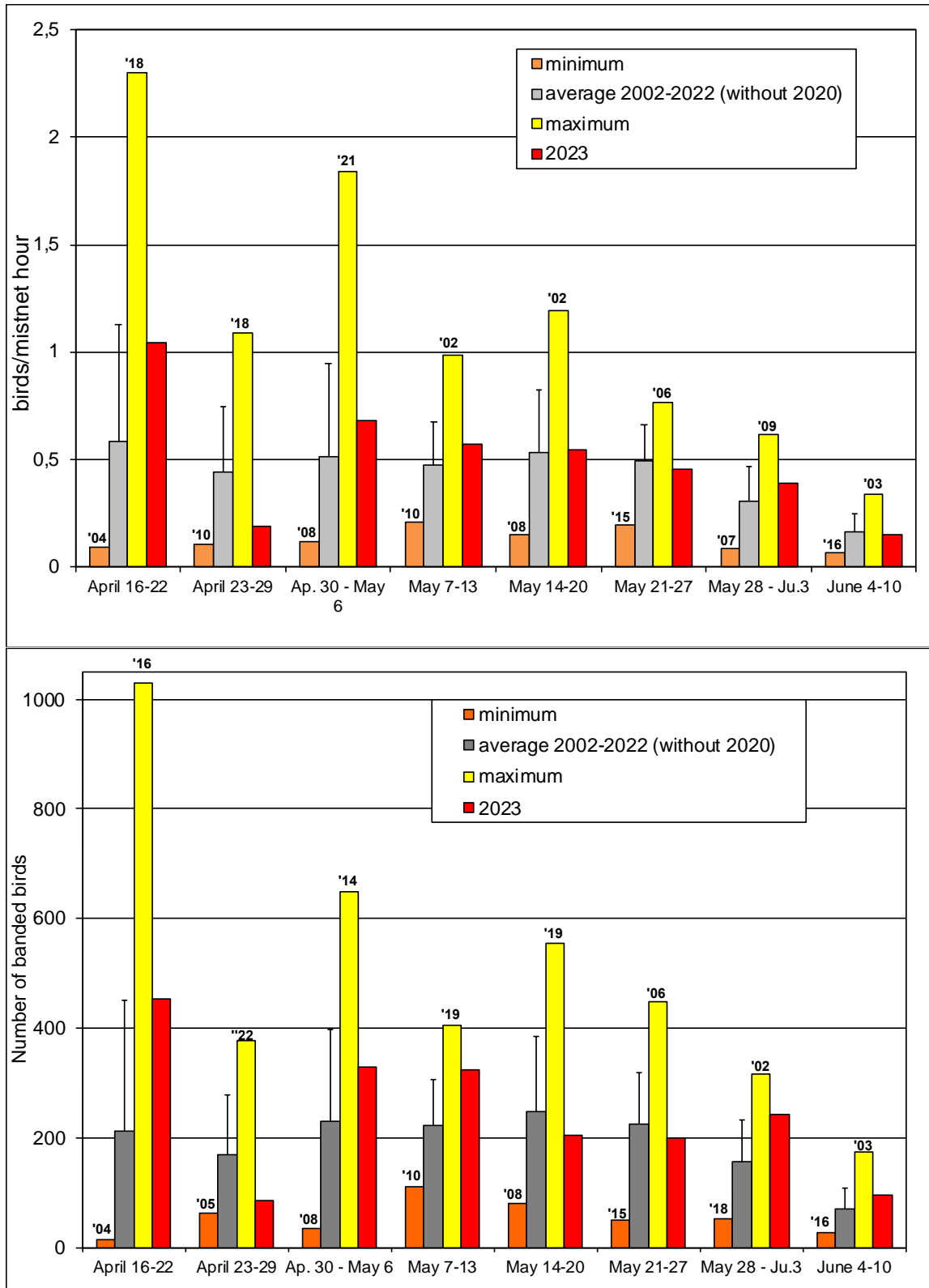


Figure 9. Weekly capture rates (top) and number of banded birds (bottom) at CHRS during the spring season (average 2003-2021, minimum and maximum with corresponding year and 2023). Error bars show Standard Deviation.

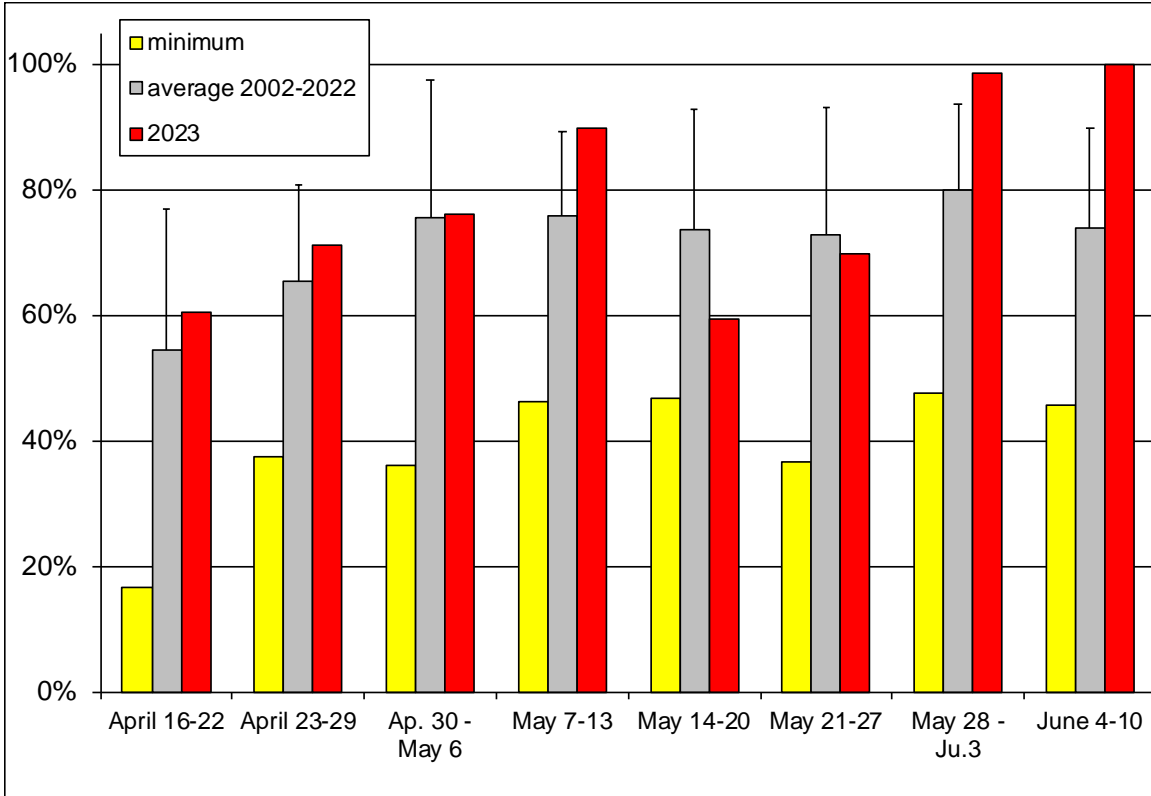


Figure 10. Weekly proportion of achieved mist-net hours at CHRS during the spring season (minimum, average 2002-2021 and 2023). Error bars show Standard Deviation.

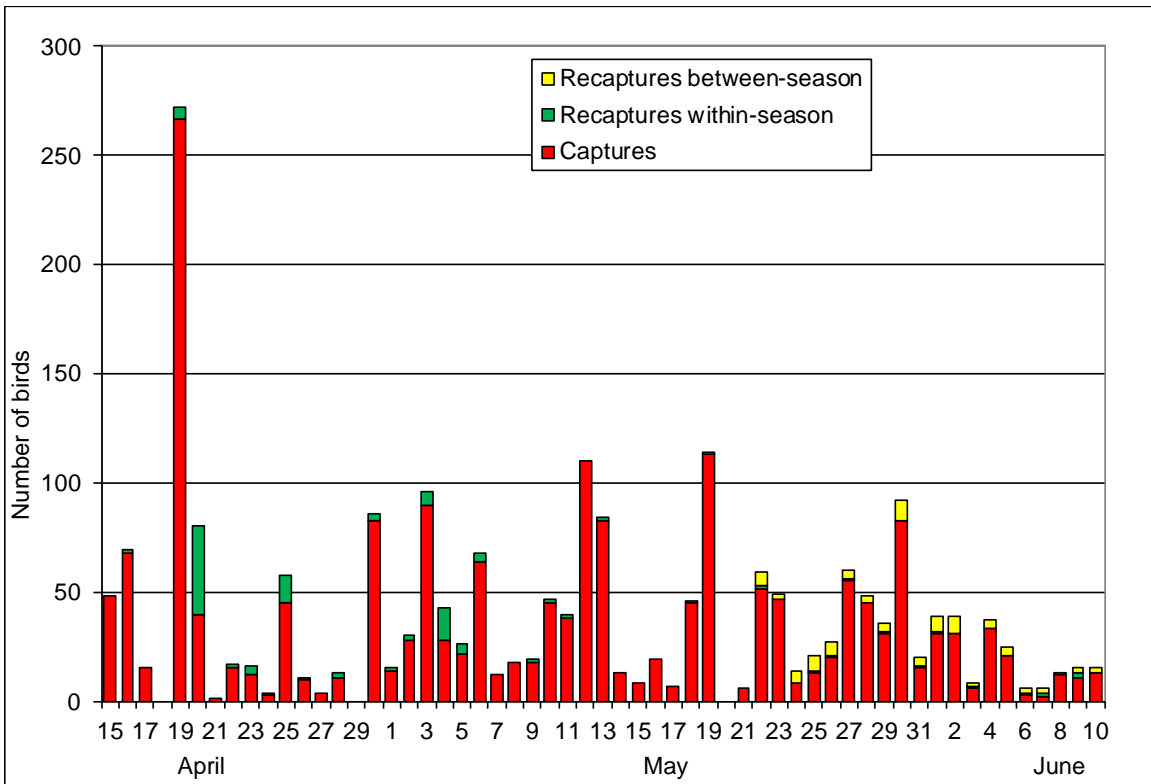


Figure 11. Daily number of captured and recaptured birds at CHRS, spring 2023.

5. Recaptures

This spring, there was a total of 210 recaptures of 140 individuals of 19 species from April 16 to June 10 (Table 3). Recaptures include birds banded during the spring season (i.e., within-season recaptures) and birds from previous years (i.e., between-season recaptures). No recaptured bird came from a different location than Cabot Head this spring. Among the recaptured birds this spring, 31 birds of five species had been banded in previous seasons at Cabot Head (Table 4). Most of the between-season recaptures are American Redstart, the most abundant locally breeding species. In spring 2023, 76% of the recaptured birds (i.e., 106 birds) were recaptured only once and another 13% (18 birds) were recaptured on two occasions. The remaining 16 birds were recaptured three to nine times. A female adult American Redstart originally banded in fall 2022 was recaptured nine times between May 22 and June 3.

Yearly variations in within-season recaptures of Golden-crowned Kinglet have shown marked differences, with most spring seasons having very low rates of recaptures. Spring 2023 is an exception, with 36 of the 194 Golden-crowned Kinglets recaptured (i.e., 19%). Almost half of these recapture recaptures happened on April 20, the day after 99 Golden-crowned Kinglets were banded (see Fig.4).

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 (24 of the 31 recaptured birds this spring). 39% of the between-season recaptures were birds banded the previous fall, with spring 2023 being, of course, their first possible occasion of recapture. Among the remaining 19 birds banded prior to fall 2022, all but six birds were previously recaptured at Cabot Head in seasons between the original banding and spring 2023; this indicates a strong fidelity to Cabot Head (Table 4). A female American Redstart banded in spring 2018 as a Second-Year has been recaptured in seven of the 11 eleven seasons since the original banding, including the limited season of summer 2020. In contrast, a Red-eyed Vireo originally banded in fall 2018 as a Hatch-Year has been recaptured only three times before spring 2023. These counts illustrate anecdotally the difference in capture rate between these two species. Red-eyed Vireos tend to spend more time higher in the canopy than American Redstarts, limiting their chance of flying into a mist net.

Table 3. Recaptures in spring 2023 by species and time of banding.

Group	Species	2018		2020		'21	2022		2023	
		Sp.	Fall	Su.	Fall	Fall	Sp.	Fall	Sp.	%
Flycatchers	Eastern Phoebe								1	25%
Vireos	Red-eyed Vireo		1					1	1	9%
Chickadees	Black-capped Chickadee								1	1%
Nuthatches	Red-breasted Nuthatch								4	14%
Creepers	Brown Creeper								2	5%
Kinglets	Golden-crowned Kinglet								36	19%
	Ruby-crowned Kinglet								34	8%
Thrushes	Hermit Thrush								2	7%
New World Warblers	Magnolia Warbler								1	1%
	Black-thr. Green Warbler						1	1		
	Pine Warbler								3	14%
	Black-and-White Warbler					1		1	3	6%
	American Redstart	1	1	1	2	6	5	8	4	2%
	Common Yellowthroat							1	3	6%
	Canada Warbler								2	11%
New World Sparrows	Song Sparrow								1	9%
	Lincoln's Sparrow								2	17%
	White-throated Sparrow								1	3%
	Slate-coloured Junco								8	15%
	Total	1	2	1	2	7	6	12	109	8%

Sp.: spring; Su.: summer; %: percentage of banded birds in spring 2023 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 2023.

B_yr	B_season	Species	2018	2019		2020			2021		2022		2023
			F.	Sp.	F.	Sp.	Su.	F.	Sp.	F.	Sp.	F.	Sp.
2018	spring	American Redstart	1	1	1		1		2		4		1
	fall	American Redstart		1				2			2		1
		Red-eyed Vireo			2		1		4		1		2
2020	summer	American Redstart									1	2	2
	fall	American Redstart											1
		American Redstart											
2021	fall	Black-and-white Warbler									2	1	1
		American Redstart									6	3	2
		American Redstart									1	2	4
		American Redstart											3
		American Redstart											6
		American Redstart											2
		American Redstart									3		1
2021	spring	American Redstart											6
		American Redstart										1	4
		American Redstart									1		2
		American Redstart											3
		American Redstart											2
		Black-thr. Green Warbler											

B_yr: Banding year; B_season: banding season; Sp.: Spring; Su.: Summer; F.: Fall; Orange highlight: first ever recapture

6. Personnel

Seven volunteers helped throughout the season, contributing 48 person-days to the spring migration monitoring. Two volunteers from Québec, Ivar Alberto and Alexander Cristiano-miserere, were present for the first 14 days of monitoring. Two returning volunteers, Tania Havelka and Ted Cheskey, spent 4 and 7 days, respectively, at the station. Anna Zanduliet learned the basics of banding during eight days in early May. Lara Falkiner improved her knowledge both of banding and birding during 14 days in the second half of May. 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 12 days.

7. Conclusion

For a 21st consecutive spring, bird migration monitoring at Cabot Head was done daily from April 15 to June 10, thanks notably to a dedicated team of volunteers. The continuing monitoring effort throughout the years continually adds details and refines the natural history of bird migration on the Bruce Peninsula.

Despite the occasional challenging weather, coverage, notably banding, was remarkably good this spring, even with a more reduced team than usual. Migration is notoriously a very dynamic phenomenon, so being able to operate long-term, daily monitoring during spring and fall is crucial to truly capture the intricacies of migration. A striking example of the vagaries of migration is reflected in the one-day banding total of 120 Ruby-crowned Kinglet on April 19, the highest daily total ever for this species (regardless of season) and higher than ten previous spring season totals. Overall, the 2023 spring banding total is the fourth highest ever, possibly more a consequence of high numbers of mist-net hours than heavy migration or fall-out events. Only four species were banded in record numbers but an additional six reached their second-highest total.

This spring, there were a good number of unusual records, indicating a sustained observation effort. Among the most notable were the sightings of one Short-eared Owl on April 20 and one Ruddy Turnstone on May 19, each representing the second detection in the history of monitoring at Cabot Head. Two more Ruddy Turnstones were seen on the evening of May 30, preening and resting on the rocky shoreline of Wingfield Basin. However, it would be rather misleading to rank-order sightings based on the rarity of the species observed, as every observation brings its own reward and increases our knowledge, understanding, and appreciation of the natural world. For example, the high or record banding totals for the spruce budworm specialists, like Bay-breasted Warblers, this spring provides an indication of the situation in distant boreal forests where these birds breed and spend their summer.

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 better understanding and monitoring of bird populations.

Acknowledgements

As a non-profit, volunteer-based initiative, the Bruce Peninsula Bird Observatory would not be able to operate 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.

Land Acknowledgement

We want to acknowledge the traditional territory of the Anishinabek Nation: the People of the Three Fires known as Ojibway, Odawa and Pottawatomi Nations. We give thanks also to the Saugeen First Nation #29 and the Chippewas of Nawash unceded First Nation, collectively known as the Saugeen Ojibway Nation (SON), the traditional keepers of this land. As members and Directors of the Bruce Peninsula Bird Observatory, we accept our responsibility to be good stewards of this land, in this time and into the future.

Appendix I

Table 5. Season total of species observed in spring 2023 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	847	173	1	40	15 April	6 June
	Wood Duck	10	4	1	4	15 April	9 May
	Mallard	65	6	1	26	17 April	5 June
	Greater Scaup	27			1	26 April	
	White-winged Scoter	87	15	1	13	15 April	19 May
	Black Scoter	1	1	1	1	27 April	27 April
	Long-tailed Duck	257	100	4	8	18 April	2 May
	Bufflehead	50	9	1	18	15 April	25 May
	Common Goldeneye	12	4	1	8	15 April	26 April
	Hooded Merganser	7	3	2	3	15 April	26 April
	Common Merganser	378	18	1	54	16 April	10 June
	Red-breasted Merganser	219	55	1	24	17 April	6 June
Grouse & Turkeys	Ruffed Grouse	37	2	1	28	15 April	29 May
	Wild Turkey	68	10	1	32	15 April	9 June
Grebes	Pied-billed Grebe	4	2	1	3	16 April	9 June
	Horned Grebe	44	14	1	13	15 April	16 May
	Red-necked Grebe	31	14	1	6	20 April	14 May
Pigeons and Doves	Mourning Dove	12	2	1	11	15 April	5 June
Goatsuckers	Eastern Whip-poor-will	7	1	0	8	16 April	5 June
Swifts	Chimney Swift	4	1	1	4	10 May	10 June
Hummingbirds	Ruby-throated Hummingbird	74	8	1	31	10 May	10 June
Cranes	Sandhill Crane	149	13	1	53	15 April	10 June
Sandpipers & Phalaropes	Killdeer	23	5	1	14	15 April	4 June
	Greater Yellowlegs	22	6	1	13	16 April	23 May
	Lesser Yellowlegs	2	1	1	2	10 May	14 May
	Solitary Sandpiper	5	2	1	3	11 May	15 May
	Spotted Sandpiper	78	11	1	31	8 May	10 June
	Ruddy Turnstone	1			1	19 May	
	Semipalmated Plover	3			1	19 May	
	Least Sandpiper	23	15	8	2	16 May	19 May
	Wilson's Snipe	11	3	1	8	15 April	1 June
	American Woodcock	37	35	2	2	16 April	25 May

Group	Species	Season Total	Daily max.	Daily min.	Days with obs.	First day	Last day
Gulls & Terns	Ring-billed Gull	782	56	1	49	15 April	10 June
	Herring Gull	537	90	1	54	15 April	10 June
	Caspian Tern	2	1	1	2	27 May	4 June
	Common Tern	7	3	2	3	13 May	28 May
Loons	Red-throated Loon	1			1	4 May	
	Common Loon	485	50	1	48	16 April	9 June
Cormorants	Double-crested Cormorant	114	40	1	21	15 April	8 June
Herons & Bitterns	Great Blue Heron	123	102	1	11	16 April	8 June
	Green Heron	1			1	19 May	
	Green-winged Teal	4			1	21 April	
	Black-crowned Night-Heron	1	1	1	1	11 May	11 May
Vultures	Turkey Vulture	472	40	1	47	15 April	10 June
Osprey	Osprey	6	1	1	3	16 May	7 June
Hawks, Kites & Eagles	Bald Eagle	148	7	1	57	15 April	10 June
	Northern Harrier	30	8	1	14	16 April	31 May
	Sharp-shinned Hawk	336	45	1	40	15 April	1 June
	Cooper's Hawk	1	1	1	1	22 May	22 May
	Northern Goshawk	3	2	0	3	19 April	27 April
	Red-shouldered Hawk	11	3	1	6	16 April	5 June
	Broad-winged Hawk	592	139	1	24	16 April	5 June
	Red-tailed Hawk	35	9	1	11	16 April	30 May
	Golden Eagle	2	1	1	2	4 May	8 May
Typical Owls	Great Horned Owl	4	1	1	4	16 April	10 June
	Short-eared Owl	1			1	21 April	
Kingfishers	Belted Kingfisher	61	2	1	42	15 April	10 June
Woodpeckers	Red-headed Woodpecker	1			1	14 May	
	Red-bellied Woodpecker	2	1	1	2	22 May	1 June
	Yellow-bellied Sapsucker	18	5	1	11	15 April	20 May
	Downy Woodpecker	5	1	1	5	19 April	29 May
	Hairy Woodpecker	29	5	1	19	16 April	29 May
	Northern Flicker	473	86	1	34	15 April	29 May
	Pileated Woodpecker	62	4	1	36	15 April	10 June
Falcons	American Kestrel	23	3	1	17	15 April	21 May
	Merlin	56	3	1	35	15 April	9 June
	Peregrine Falcon	26	3	1	18	16 April	8 June
Tyrant Flycatchers	Olive-sided Flycatcher	3	1	1	3	20 May	31 May
	Eastern Wood-Pewee	31	7	1	17	16 May	10 June
	Yellow-bellied Flycatcher	28	6	1	13	16 May	9 June

Group	Species	Season Total	Daily max.	Daily min.	Days with obs.	First day	Last day
Tyrant Flycatchers	Traill's Flycatcher	11	3	1	8	30 May	10 June
	Alder Flycatcher	3	1	1	3	1 June	9 June
	Least Flycatcher	60	14	1	17	9 May	6 June
	Eastern Phoebe	41	3	1	24	15 April	10 June
	Great Crested Flycatcher	13	2	1	11	11 May	10 June
	Eastern Kingbird	15	6	1	9	12 May	1 June
Vireos	Blue-headed Vireo	17	4	1	8	6 May	22 May
	Warbling Vireo	16	4	1	8	19 May	10 June
	Philadelphia Vireo	6	4	1	3	19 May	28 May
	Red-eyed Vireo	148	21	1	24	18 May	10 June
Crows & Jays	Blue Jay	4743	550	2	37	5 May	10 June
	American Crow	463	29	1	56	15 April	10 June
	Common Raven	156	17	1	48	15 April	9 June
Swallows	Tree Swallow	86	11	1	36	15 April	10 June
	N. Rough-winged Swallow	7	2	1	5	9 May	10 June
	Barn Swallow	19	4	1	12	21 April	26 May
Chickadees	Black-capped Chickadee	1257	103	1	48	15 April	10 June
Nuthatches	Red-breasted Nuthatch	538	84	1	49	15 April	10 June
	White-breasted Nuthatch	3	1	1	3	15 April	5 June
Creepers	Brown Creeper	78	23	1	23	15 April	9 June
Wrens	House Wren	3	1	1	3	13 May	5 June
	Winter Wren	19	4	1	13	15 April	5 June
Gnatcatchers	Blue-gray Gnatcatcher	2	1	1	2	19 April	20 May
Kinglets	Golden-crowned Kinglet	722	146	1	27	15 April	8 June
	Ruby-crowned Kinglet	1383	164	2	38	15 April	23 May
Thrushes	Eastern Bluebird	164	31	1	33	15 April	10 June
	Veery	20	4	1	12	12 May	10 June
	Gray-cheeked Thrush	10	4	1	6	18 May	10 June
	Swainson's Thrush	81	18	1	19	13 May	5 June
	Hermit Thrush	46	16	1	16	15 April	31 May
	Wood Thrush	12	3	1	10	12 May	5 June
	American Robin	302	61	1	50	15 April	9 June
Mockingbirds & Thrashers	Gray Catbird	29	5	1	16	19 May	9 June
	Brown Thrasher	32	2	1	24	15 April	5 June
Starlings	European Starling	72	24	1	13	17 April	8 June
Waxwings	Cedar Waxwing	333	121	4	13	28 May	10 June
Pipits	American Pipit	20	8	1	6	12 May	22 May
Finches	Purple Finch	238	30	1	29	16 April	9 June

Group	Species	Season Total	Daily max.	Daily min.	Days with obs.	First day	Last day
Finches	Pine Siskin	4	2	1	3	18 May	22 May
	American Goldfinch	292	36	1	37	16 April	10 June
	Evening Grosbeak	46	12	1	15	16 April	19 May
New World Warblers	Blue-winged Warbler	1	1	1	1	23 May	23 May
	Tennessee Warbler	39	13	1	13	13 May	8 June
	Orange-crowned Warbler	16	5	1	10	2 May	21 May
	Nashville Warbler	107	13	1	24	3 May	10 June
	Northern Parula	86	12	1	20	10 May	3 June
	Yellow Warbler	34	5	1	17	6 May	7 June
	Chestnut-sided Warbler	96	9	1	22	10 May	9 June
	Magnolia Warbler	125	21	1	26	9 May	10 June
	Cape May Warbler	75	10	1	16	6 May	29 May
	Black-throated Blue Warbler	85	10	1	25	6 May	10 June
	Myrtle Warbler	1338	356	1	41	15 April	29 May
	Black-throated Green Warbler	247	23	1	36	5 May	10 June
	Blackburnian Warbler	95	11	1	22	6 May	10 June
	Pine Warbler	260	43	1	43	16 April	10 June
	Western Palm Warbler	395	68	1	26	16 April	28 May
	Bay-breasted Warbler	45	11	1	13	13 May	1 June
	Blackpoll Warbler	19	5	1	8	21 May	5 June
	Black-and-white Warbler	182	20	1	34	5 May	10 June
	American Redstart	862	53	5	31	11 May	10 June
	Ovenbird	101	15	1	27	6 May	10 June
	Northern Waterthrush	8	2	1	6	7 May	10 June
	Mourning Warbler	21	6	1	11	19 May	5 June
	Common Yellowthroat	194	20	1	26	12 May	10 June
	Wilson's Warbler	20	4	1	14	13 May	4 June
	Canada Warbler	40	6	1	16	20 May	10 June
	New World Sparrows	Eastern Towhee	46	4	1	33	29 April
American Tree Sparrow		8	2	1	7	18 April	9 May
Chipping Sparrow		74	6	1	32	16 April	9 June
Field Sparrow		31	20	1	11	16 April	1 June
Vesper Sparrow		3	1	1	3	30 April	10 May
Savannah Sparrow		7	1	1	7	11 May	31 May
Fox Sparrow		2	1	1	2	15 April	24 April
Song Sparrow		112	6	1	44	15 April	10 June
Lincoln's Sparrow		25	5	1	12	11 May	9 June
Swamp Sparrow		35	29	1	6	16 April	19 May

Group	Species	Season Total	Daily max.	Daily min.	Days with obs.	First day	Last day
New World Sparrows	White-throated Sparrow	113	25	1	22	21 April	20 May
	White-crowned Sparrow	153	19	1	20	24 April	30 May
	Dark-eyed Junco	179	17	1	29	15 April	1 June
Cardinals & Allies	Scarlet Tanager	8	2	1	6	13 May	30 May
	Northern Cardinal	1			1	12 May	
	Rose-breasted Grosbeak	16	3	1	10	11 May	28 May
	Indigo Bunting	9	2	1	8	10 May	9 June
New World Blackbirds	Bobolink	10	4	1	4	11 May	19 May
	Red-winged Blackbird	801	107	1	44	15 April	10 June
	Eastern Meadowlark	4	2	1	3	21 April	15 May
	Rusty Blackbird	252	120	1	12	16 April	19 May
	Brewer's Blackbird	1	1	1	1	18 May	18 May
	Common Grackle	1810	406	1	40	15 April	10 June
	Brown-headed Cowbird	52	36	2	5	16 April	9 May
	Baltimore Oriole	14	4	1	8	10 May	30 May

N.: Northern

Appendix II

An edited version of the blog published during the spring 2023 monitoring season.

Another season begins - April 21

On April 15th, as dictated by protocol, a new spring bird migration monitoring began once more at the Cabot Head Research Station, the 22nd since the first year in 2002 - the 18th season for your humble bander and blog writer. It was a beautiful day of sunshine and blue sky, with unseasonal temperatures of 20°C, continuing a string of a few very balmy days for mid-April. As a consequence, only a few patches of snow were left in very sheltered spots and all 15 mist nets could be opened for the regular daily 6 hours, starting 30 minutes before sunrise.

With experienced help from two volunteers from Québec, we banded a decent first day total of 48 birds of 11 species and, overall, detected 46 species. As expected, Golden-crowned Kinglets were the most abundant in our nets, with 16 birds, with a good haul of Brown Creepers as well (8 birds). Both species migrate squarely in April, with the first part of their movement taking place early in the month. There was a good movement of Northern Flickers, with almost 100 birds counted. A few large flocks of Canada Goose streaked the sky in their unmistakable formation, always a sure sign of migration on the way.

Very early on April 16th, an Eastern Whip-poor-will was briefly heard: the earliest detection at Cabot Head, 9 days before the previous early date of April 25, in 2019. That day was as warm and sunny as the one before with a larger movement of migrants: many flocks of Common Grackle and a spattering of Red-winged and Rusty blackbirds, American Robins, and Northern Flickers. There were quite a few raptors as well: a total of 45 Sharp-shinned Hawks, the first Broad-winged Hawks of the season (12 birds), some Red-shouldered and Red-tailed Hawks, and as many as 20 Turkey Vultures.

A large twittering group of about 40 Black-capped Chickadees was around the station and eventually 20 were caught all at once in a net: that kept us busy for a while. We also caught a total of 11 Hermit Thrush after the first one of the previous day. Relatively speaking, very few kinglets of both species were around. However, we detected three species of warblers: Yellow-rumped, Palm, and Pine warblers.

To be honest, we certainly were enjoying the warm and sunny days, even though they were not quite right for this time of year. They didn't last: on April 17th, the weather returned to more typical April patterns with a thick cover of clouds and temperatures barely above the freezing point. An increasingly strong South wind was not bringing any warmth nor birds: it was a very slow day both at the nets and in the woods. The action was up in the sky with countless blackbirds (although we still counted them and got about 400 of them), a steady albeit small passage of flickers again, and a good diversity of raptors, including a pair of Peregrine Falcon cruising the shoreline early in the day.

Temperatures kept plunging: we were treated with snow showers on April 18th pushed by a relentless cold and strong West wind. No banding was done that day and very few birds were active

and/or visible. The wood stove was finally lit for the first time this spring while we certainly enjoyed the new windows put in last fall. Maybe a little break was in order given what was awaiting us the following day...

April 19th dawned cold and grey under a strong North wind. The wind decreased rapidly, however, allowing the nets to be open an hour later than usual. As we were opening nets, a Blue-gray Gnatcatcher flew in one: the third ever to be banded after one in spring 2002 and one in fall 2019. Shortly afterward, the nets started to be filled by hordes of little green puffballs, aka kinglets: the rush was on! Most of the morning was spent by Alex and Ivar extracting as fast and safely as possible while I was in the banding lab processing all these birds with the intensity of a factory worker, circa 1920: no coffee break, no union-mandated lunch hour, nothing but band, band, band. When all the nets were finally closed and all the birds safely banded and returned to the woods, the tally stood at the third highest daily total ever in the 22 spring seasons with 267 birds of 12 species, including 99 Golden-crowned Kinglets and 120 Ruby-crowned Kinglets. A distant bronze medal is awarded to Yellow-rumped Warbler with 18 birds banded. The total of 120 Ruby-crowned Kinglet is the highest daily total (both for spring and fall) and is higher than 10 previous SEASON totals! Interestingly, 6 Pine Warblers were also banded on that day. This species is only ever detected in small numbers at Cabot Head, even though it breeds here as well.

The following day was thankfully not as intense. Temperatures were only slightly above zero and the strong East wind did not help. Overall diversity was low with very few visible movements of larger birds like Icterids (the so-called Blackbirds), flickers, or raptors. The total of 80 birds of 8 species in the nets was evenly divided into new captures and recaptures. A quite remarkable 40 birds were indeed already banded, 30 of them kinglets from the previous day(s)! It is a sure indication that not many birds migrated the previous night. However, the biggest surprise was the 9 Pine Warblers banded and 4 recaptures. Banding totals for Pine Warbler typically vary between 1 and 5 birds per year, except in 2017 with 10 birds and 2021 with 24 birds, and no captures at all in 4 spring seasons. The highest daily total was 14 on April 29, 2021. Several Pine Warblers were seen foraging on the ground during the cold day of April 20 this spring.

On April 21st, to end the first week of monitoring, we had rain and wind most of the morning. Only 5 nets were open for 2 hours, capturing a grand total of one Ruby-crowned Kinglet. Nonetheless, we observed several small flocks of kinglets and Yellow-rumped Warblers (and a few Pine Warblers). We also saw the first Barn Swallow, with the first Tree Swallows having been seen on April 15th. There was a small movement over Georgian Bay of Common Loons, Long-tailed Ducks (total of about 100 birds), Red-breasted Mergansers, and a few Horned and Red-necked Grebes. Several Northern Harriers moved through as well. But the most exciting bird of the day was undoubtedly the Short-eared Owl that both Ivar and I watched coming low over the basin towards us until it disappeared behind trees and the high banks of Wingfield Basin. A frenetic search ensued but we never saw it again! Previously, one Short-eared Owl was seen flying over Georgian Bay on October 18, 2017. A rare sight at Cabot Head indeed!

Cold, grey, and wet: it is April! - April 28

Weather in the past week was mostly cloudy and cold, with episodes of rain from time to time. There were not many movements of songbirds during this week with few if any new species detected and very few captures in the nets. Only one day, April 25, had decent numbers of birds

captured, mostly of kinglets, while light rain on and off during that morning likely helped bring down the birds.

However, there had been a sustained passage of waterfowl over Georgian Bay, with strong numbers of Red-breasted Mergansers (high of 41 birds on April 26), Common Loons (about 50 birds on April 26 & 27), and Long-tailed Ducks (56 birds on April 28) throughout the week. Of course, when there is less action at the nets, we have more time to scan the bay!

And the sky: Icterids continue to move through in large numbers, with still a lot of Common Grackles but more and more Red-winged Blackbirds, including females. As in most species, males tend to migrate earlier than females, so seeing females indicates a new stage in the migration. That was the case notably with the first female Ruby-crowned Kinglet caught in our nets on April 28 after more than 170 males.

In a rare clear day, April 27, we counted about 50 Broad-winged Hawks milling in a “kettle”, as the gathering of “boiling” hawks soaring in a thermal are called in hawkwatch jargon. A handful of Red-shouldered and Red-tailed Hawks were also seen that day. All the Broad-winged Hawks we could see well were adults: young birds should arrive later. And, indeed, on April 28, among 30 Sharp-shinned Hawks counted, we saw the first young sharp-shin while all the previous ones we could age had been adults.

From time to time, large flocks of up to 50 Black-capped Chickadees have entertained us with their chattering and antics. Luckily (!) they mostly stay out of the nets: it is a feisty bird to entangle and no one wants too many at once in their nets...

With only two days left in April and rain in the forecast, it looks like we would only get three species of warblers this year for April: Yellow-rumped, Palm (only once on April 16), and Pine Warblers. It is not that unusual, with 7 of the past 20 spring seasons (excluding 2020) having that total in April and April 2015 having only two. We will appreciate even more the forest gems when they will show up. And show up they eventually will.

Stay tuned!

The return of the blue. - May 7, 2023

Now that we are in the merry, merry month of May, we hope for, and are getting, some blue skies, following a long and dreary stretch of overcast conditions experienced during 14 of the 16 days between April 17 and May 3. It seemed we enjoyed the return of blue, clear skies for a few days afterward, almost as much as birds did. It is ironic that I am writing these lines as heavy rain is falling mercilessly from a grey blanket of clouds on this 7th of May.

In the last couple days of April and the early few days of May, there was not a lot of diversity with barely any new species arriving on our shores. There was almost an uninterrupted period of rain from April 29 to May 2. With on-and-off showers the morning of April 30, it was very good conditions for catching birds, netting a total of 83 birds of eight species, mostly Ruby-crowned Kinglets and Yellow-rumped Warblers. After ending April with only three species of warblers caught/observed, there was a small trickle with an Orange-crowned Warbler on May 2 and a Nashville Warbler on May 3. On that latter day, banding was busy again with 90 birds of eight

species, 64 of them Ruby-crowned Kinglets. This species has been quite abundant in our nets this spring, with a total of 358 birds banded so far. There might still be many more to come, as we have captured almost only males, who migrate earlier than females: only 20 females have been banded to date, mostly in the last few days.

On May 4, a Red-throated Loon was flying not far from a Common Loon, allowing for an easy comparison and identification, despite disappearing quickly into the western horizon. Red-throated Loon is a rather uncommon species at Cabot Head, having been detected only once or twice in seven Spring seasons, but yearly since 2019 (and in seven fall seasons). A yearly appearance in Spring is the Golden Eagle: a young one was seen flying briefly on May 4 before it perched on West Bluff for some time.

On May 5, Black-throated Green Warbler and Black-and-white Warbler were finally detected: these two species of warblers are among the earliest, (relatively) often seen first in April (in 12 and eight of the previous 20 Spring seasons, respectively - Spring 2020 excluded).

May 6 was one of these days every migration lover and watcher hopes and waits for, the boom of intense movement following many days of bust. There was an almost constant stream of birds flying through Cabot Head, mostly warblers (and mostly Yellow-rumped Warblers at that). A total of 12 species of warblers were detected, with five of them giving 'FOY joy' (First-Of-Year: Yellow, Cape May, Black-throated Blue, Blackburnian Warblers and Ovenbird), in large numbers for some. For example, about 350 Yellow-rumped Warblers, 62 Palm Warblers, 20 Pine Warblers, and even nine striking male Blackburnian Warblers! An impressive total of 83 Red-breasted Nuthatches were counted: it was incredible to see and hear that many. There was also a rather large movement of Blackbirds (Red-winged and Common Grackles), as well as Northern Flickers. Finding some time to scan the sky at the end of the morning revealed an impressive spectacle: 250 Broad-winged Hawks (give or take a few) spread across the sky, gliding between thermals. On that impressive day, there were a few other new arrivals: Blue-headed Vireo, Swamp Sparrow, and White-crowned Sparrow.

All these birds must have known what was coming: the following day, May 7, was another day of overcast with rain coming in mid-morning. There was a short window of good weather to take advantage of, and migrating birds certainly did just that.

The return of the tropics - May 14

The tender green of fresh leaves is now covering the land, with warmth and sun bringing growth and renewal. And tropical birds are arriving, flying long distances from their winter homes in Central or South America or the Caribbean. The wood warblers, notably, aka "forest gems", bring the exuberance and flair of striking tropical colours into the austere dark woods of boreal spruce and tamaracks.

When, let's say, the American Redstarts have arrived (May 11th this year, in past seasons usually between May 8 and 10), we are entering, in my mind at least, the second (half of) Spring. This is the Spring most people prefer, I would dare to suggest, because it resembles summer the most: sunny, warm and green. The first half of Spring has merits too, of course, with many migrant birds

travelling at that time: kinglets, juncos, raptors, ducks and geese. But the rainbow of colours that comes hurtling through our skies, landing in our woods and on our shores in May is unparalleled: seeing my first of the year (or tenth or twentieth) adult male Blackburnian Warbler in its orange and black costume always takes my breath away. Or Cape May Warbler. Or Magnolia Warbler. Or Indigo Bunting. Or Scarlet Tanager. Or.. Or... Or... Beautiful!

On Monday, May 8, the day was relatively uneventful, with very little movement following the previous day of rain. A young Golden Eagle glimpsed only briefly was certainly the highlight. The pace sped up throughout the week though, peaking on Friday and Saturday, the 12th and 13th. There was a high diversity of warblers all through these days, with several new arrivals: 12 species on May 9; 14 species on May 10 (including FOY Northern Waterthrush); 14 species again on May 11 (including FOY American Redstart); 17 species on May 12 (including FOY Common Yellowthroat and Chestnut-sided Warbler); and 16 species on May 13 (including FOY Wilson's Warbler and Bay-breasted Warbler).

During these last two days, birds seem to be everywhere, with trees suddenly filled by hungry birds. On May 12, 109 birds of 24 species were banded, 67 of them captured during the last hour of banding! The top banded species for the day were American Redstart and Magnolia Warblers with 15 birds each. We often hear that dawn is the best time for "bird watching" but it is not always the case. It is certainly when birds are more vocal during breeding season and will sing in a chorus aptly dubbed "dawn chorus". But during migration, what mostly matters to birds during daylight hours is to find food (songbirds migrate at night). And at Cabot Head, the early hours of the day can be chilly, as we sit on the lovely but cold shores of Georgian Bay. Bird activity is often more intense later in the morning, when the sun is higher up in the sky and has roused the insects back to life. As a counter-example, today, Sunday 14, a light but cold North wind kept the temperatures low and the insects hidden and very few birds were seen or banded.

On May 13, it was 80 birds of 26 species that were banded, including a remarkable ten Ovenbirds. It is the second time ever that Ovenbirds were banded in the double-digits in a day throughout the history of Cabot Head: 12 birds were banded on May 21, 2014. The 2023 FOY Wilson's Warbler was a very yellow male sporting its famous shiny black cap captured on May 13. Wilson's Warblers are definitely birds of the second half of Spring with most of their passage in late May. Our 2023 FOY is actually the earliest, tied with the 2009 FOY. To welcome him back, we put a band on it. I would be remiss if I don't tell you about all the other FOYs who are not forest gems. We appreciate birds of all kinds, shapes and colours here at Cabot Head. On May 10, Indigo Bunting (an adult female captured in all her brown glory) and Baltimore Oriole; on May 11, the loud "whack" at dawn alerted us to a nearby Black-crowned Night-heron, which was not seen, the flycatcher family brought us Least and Great Crested, and a pair of BOBO (bobolink) was seen flying in the distance; on May 12, several Eastern Kingbirds, a few American Pipits, and one Veery (in the nets); on May 13, one Scarlet Tanager (a beautiful green female) and one Swainson's Thrush in the nets. These last two species (of thrushes) spend their winters in the Andean foothills: imagine their journeys! And, finally, in the cold morning of May 14, the main excitement was a Red-headed Woodpecker...

This past week, then, saw the return of the tropics and we are glad for it. For a few months, these visitors will make a home in our home(land), raise a family if they're lucky, and ever too soon,

return to warmer climates for a long winter. Bird migration is a remarkable story of impressive feats of navigation and travel, of resilience and courage, of places and landscapes connected through a web made of feathers and spirit.

The return of the cold! May 20

Despite the continuous arrival of birds from tropical locales, the temperatures this week reminded us forcefully that we still live in Canada. There was frost on the ground on Thursday, May 18, a stark and clear statement that one should never put away one's toque (beanie for our American friends) at the bottom of a drawer too soon in Canada. Actually, one should always have their toque on hand almost any time of the year in the Great White North! The weather was actually quite bearable on that Thursday, since there was no wind. The previous day, on the other hand, a cold North wind blew all day and with it, all our hopes of catching many birds. Indeed, the grand total of the day was 7 birds of 5 species! With the cold, barely any insects stirred, which also meant that very few birds stirred. How do they cope, then? Likely by staying put and fluffing up their feathers in sheltered thick cedar boughs. Some might engage in reverse migration, flying in the opposite direction of their expected migration (i.e. South in Spring), to find better feeding conditions, but the extent and magnitude of this phenomenon is still poorly understood.

The beginning of the week was thus very quiet, except for very large flocks of Blue Jay (up to 200 birds!), with very few birds around and in the nets. However, that was about to change, in the usual boom and bust pattern of Spring migration.

Despite frost on the ground on May 18 in early morning, the air warmed up slowly but surely during that day, with an easterly wind picking up in late morning. East winds are usually a harbinger of rain on the way, be it in a few hours or a few days. Impending rain systems are very often preceded by a strong movement of bird migration. Indeed, that Thursday May 18, 45 birds of 22 species were banded, including 34 birds of 12 warbler species. It was a warm up for the following day...

On May 19, an impressive 113 birds of 27 species were banded, with an overall 87 species detected during the day, the highest diversity of the Spring so far. After its first appearance on May 11, Least Flycatcher were seen in ones or twos. But on May 19, 5 were banded and 8 more were observed. Philadelphia and Warbling Vireos were detected for the first time this year, with one banded and two observed, respectively. Quite a few thrushes were banded too, with 9 Swainson's, 2 Veeries, and the FOY Gray-cheeked Thrush. The FOY Gray Catbirds were also detected and banded. The stars of the show were the wood warblers again, with 73 birds banded of 15 species. We had the FOY Mourning Warbler. The striking Blackburnian Warbler kept landing in our nets, with 7 birds banded, a high daily total for Cabot Head: records are 8 and 10 birds in 2022 and 2019, respectively. After a day with 10 birds earlier this Spring, a total of 8 Ovenbird were banded; most days are only one or two banded for this species. But the real record breakers were: Bay-breasted Warbler with an impressive 11 birds banded! Previously, the highest daily total was 7 birds (on 2 occasions in 2006 and 2019). A remarkable 10 Tennessee Warblers were also banded; this species is actually rarely captured in Spring (as well as in Fall except for a few seasons): Tennessee Warblers were banded in only 13 in the last 21 Spring seasons, with captures on 24 days in total and the highest banding daily total was 2! Yes, two birds in 2 occasions both in 2019 were the most Tennessee

Warblers ever banded in one day. Previous season totals range from 1 to 2 in 11 Spring seasons and 5 birds in 2019 and 6 birds in 2002. So, having 10 Tennessee Warblers banded in one day is unprecedented at Cabot Head.

In that fateful day of May 19, Ted's excellent ears and eyes detected unusual shorebirds: 3 Semipalmated Plovers, 15 Least Sandpipers accompanied by one Ruddy Turnstone. The latter species was detected only once before, with 5 birds on August 27, 2011. A Green Heron was heard at dawn, likely part of the pair we watched flying above Wingfield Basin in the evening. On that same evening, we also heard the FOY Common Nighthawk after a winter spent in South America.

With so many birds to extract and band on that day and only two of us (thanks for BPBO's venerable "founding father", Ted Cheskey, for spending a week volunteering), we didn't have a lot of time to observe, which makes the 87 species detected even more so remarkable. Rain did indeed arrive on the heels of all these migrants, with intense showers on and off soon after midday. Heavy fog and drizzle settled over the land the next day, on the morning of Saturday May 20, precluding opening nets, the third day with no banding this Spring. The often-unsettled weather of a Canadian Spring means that a few to several days are always missed, often in the first half of the season: we do not open nets when it is raining or too windy, as this would not be safe for birds. On average, about 8 days are lost in a Spring season, 13 in 2017 but only one in 2010. It is likely that we will not lose too many more days this year as sunny and warm weather should now envelop us in a cozy cocoon. Or should it? Keep that toque close by!

The return of territorial singing - May 28

The eerie, tinkling song of the FOY Blackpoll Warbler on May 21 was a sure sign we're entering the last part of Spring migration. This northern-breeding species is among the last ones to migrate through Cabot Head. I do love their delicate song, even if it means that migration will soon be over. We are certainly entering the peak of singing time for territorial breeding birds. At Cabot Head, almost as soon as the first ones arrived, the very abundant American Redstarts were singing and establishing or reclaiming their territories. In this past week, American Redstarts were the loudest birds in the dawn chorus, engaging in the timeless search for a mate and a place to establish a nest, given the unwavering urge to bring forth a new generation. We watched many high-speed pursuits between males, as well as between males and females. In their frenzy, they quite often end up in our nets, not paying as much attention to their surroundings as usual. As such, it is not uncommon to find two American Redstarts, of varying sexes, side-by-side in a net. These such occurrences meant that this species was the most often banded this week, with, notably, 21 and 16 birds on May 27 and 28, respectively.

We are also getting quite a few recaptures of American Redstarts banded in previous seasons. On May 28, we recaptured an adult male that was originally banded as a young in August 2018. It is thus a respectable 5 years old and quite faithful to Cabot Head: he was recaptured in fall 2019 and spring 2021 but missed both in 2020 and 2022. Of course, a bird not recaptured one season does not mean it is not around: there is always some luck involved. It is nice to see that this bird made it back again from its wintering grounds (Cuba, maybe?). Think about this remarkable feat for a moment – so many kilometers on such tiny wings!

The weather is starting to feel more and more summer-like, especially in the last few days. It seems as though migration is over... but there are still birds on the move, even if not always in big and impressive waves. On May 27, for example, we observed a small and diverse flock of warblers, including the boreal species Tennessee, Cape May, Blackpoll, Blackburnian, and Bay-breasted Warblers. Most of them were females, which typically migrate after the males who have raced ahead of their prospective mates to secure the best quality breeding habitats. Nonetheless, we also banded a male Wilson's Warbler on May 28, one of the last species to migrate.

With the leaves in full display on every tree now, it is getting more difficult to detect and observe the not-as-numerous migrants. But they will still be on the go for a few more weeks, so keep your eyes (and ears) open!

A remarkable sighting (and hearing) was made on May 23 by Lara, the current volunteer, when she found a male Blue-winged Warbler! It is only the 5th Spring season with detection of this species (last one in 2014).

The return of the buzzing - June 4

The few chokecherry trees that the beavers have left standing in the shrubby area leading to the first two nets are now in full bloom. As soon as the sun is high and warm enough, the place is buzzing! Bees, hover flies, and several other species of flies are happily visiting the large white flowers, filling the air with their buzzing sound as we walk by every 30 minutes to check the nets. It is another sure sign that the season (of migration monitoring, that it) is almost over for us.

But there are still migrants moving through, even though numbers and diversity are not as high as earlier in the season. Nonetheless, on May 30, we banded a good number of birds: 83 individuals of 21 species, including 21 American Redstarts (locally very abundant) and, most notably, three gray-cheeked Thrushes and 15 Swainson's Thrushes. The latter species has been captured on 207 days in the last 21 Spring seasons, with only five days in double-digit numbers (a range from 12 to 26 birds banded) from May 20 to 29. On that day of May 30, there were also quite a few flycatchers around, many from the Empidonax group (Yellow-bellied, Alder, and Least), a few Eastern Woodpeewees, as well as Great Crested Flycatchers and Eastern Kingbirds.

In late afternoon of that fateful day, we were treated by a sailor's tall tale: a sailboat came into Wingfield Basin to moor. The (American) captain and his mate came ashore for a chat: a bird landed on their solar panels about 30 nautical miles (about 60km) from Wingfield and rode with them until they dropped anchor. Or so they said. Right! Well, they had pics... and we could determine that it was a Ruddy Turnstone. I dropped not anchor, but whatever I was doing, to go search the shoreline with bins and scopes to no avail. Later in the evening, with a kinder light, I scanned the basin shoreline slowly and methodically with the spotting scope and, sure enough, there they were: not one, but two Ruddy Turnstones, grooming and preening on the rocks. As mentioned earlier in an earlier blog, this species was seen in flight this Spring but it otherwise extremely rare: the sailing turnstones are the third record. Now the mystery is: where was the second bird? A castaway below deck?

The week continued to bring good daily totals of banded and recaptured birds, not as high as May 30, of course. Recaptures are overwhelmingly American Redstarts banded in previous seasons and years. One adult female American Redstart seems to “like” being in the nets: number 2950-68157 was originally banded on August 16, 2022, as an adult (so, we don’t know its exact age) and recaptured for the first time this spring on May 22. In the following 13 days (up to June 4), it has been recaptured eight times! Definitely a local bird on territory now!

Among the late-season migrants, it is always quite a surprise to have Blue Jays in this category! Most of the Blue Jays are sedentary except for the sliver of the population at the very north of their breeding range. A sliver maybe but that is still a lot of birds: on June 4, there was a flock of about 400 Blue Jays rising up over the trees in the eastern horizon. As they rose and dipped, turned and mingled, it was extremely difficult to precisely count them: it was a 10-bird by 10-bird count done very quickly before they dove down into the woods again. If you ever happen to be in said wood as a large group of jays fall from the sky, the ‘whoosh’ sound they make would have you crouching in sudden fear! At least the first time you hear it. Quite remarkable!

We are now entering the final countdown of the Spring season, with the last day on June 10 fast approaching. Stay tuned for a quick summary next week!

Ending in a smoky feeling - June 12

During the last week of monitoring, the clear sky was often obscured by a smoky haze, drifting smokes from forest fires in Northwest Quebec or sometimes from Ontario. On June 8, I even donned a mask outside to do the net rounds and spent most of the time inside in between: the smell of smoke was heavy, it was like sitting by a campfire, minus the singing and banter. Daily banding totals this past week were quite low with the last migratory birds like Yellow-bellied or Alder Flycatchers trickling through.

The last day of monitoring, June 10, brought an interesting tale of two birds. A Grey-cheeked Thrush was captured at dawn with a fat score of 4, clearly still intent on migrating. Their breeding range is the furthest North of the Catharus thrushes, which for Ontario is on the rim of Hudson Bay. Later in the day, another Catharus thrush, a Veery was caught, with no fat but a developed Cloacal Protuberance (which results in the production of sperm during the breeding season caused by a pulse of testosterone, which also promotes increased song rate for mate attraction). That said, this bird was certainly a local breeder, having finished its migration, even though it came from as far south as the Grey-cheeked Thrush (somewhere in southwest Brazil for Veery, somewhere in northwest Brazil - and adjoining countries - for Grey-cheeked Thrush).

Nets were furled one last time on June 10 after 6 hours, closing an amazing stretch of 17 perfect days of daily 6 hours of mist netting! As a result, in part, of many hours with nets open, the banding total for spring 2023 is the fourth highest, with 1934 birds banded of 68 species. A total of 161 species were detected during the monitoring period, with another species, Common Nighthawk, only seen in the evening. All in all, it was a good Spring season, thanks in no small part to the volunteers who helped make it all possible.