



BRUCE PENINSULA BIRD OBSERVATORY

THE VOICE OF BIRDS ON THE BRUCE

MIGRATION MONITORING AT CABOT HEAD

FALL 2020

by

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*prepared
for*

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Preface

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

The Breeding Bird Survey (BBS) is the principle method for monitoring bird populations in the United States and southern Canada. However, breeding ranges of many species in northern Canada are inaccessible to roadside surveys and are therefore poorly monitored by the BBS method. The Canadian Migration Monitoring Network (CMMN) is a nation-wide, Bird Studies Canada-led initiative, intended to assess changes in bird populations during migration. There are 25 stations across Canada where data are being collected for each bird species during the fall 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.

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 fall 2020 migration monitoring season at the CHRS.

Executive Summary

In this document are summarized the results of migration monitoring at Cabot Head in fall 2020. Fieldwork began on August 15 and ended on October 31 for a total of 78 consecutive days of coverage. A total of 146 species were detected during the monitoring period (range of 120 to 154 species in 2002 - 2019). A complete list of all species observed, with season Estimated Totals, days with observation, maximum and minimum daily totals, is provided in appendix I (as Table 7). For a casual view on the fall 2020 season, an edited version of the blog is reproduced in Appendix II. A total of 1515 birds of 72 species were banded and 100 birds of 18 species were recaptured. Recapture data suggest that overall stopover rates at Cabot Head are low.

The defining characteristic of fall 2020 was a good migration overall, reflected both in the average numbers of birds banded and in daily observations. Bad weather, mostly strong winds, sometimes accompanied by rain, completely precluding banding for 13 days during the season (quite above the 2003-2019 average of 9 ± 5 first). Complete daily coverage for banding (i.e. 90 mist net hours, or six hours for all the 15 nets) was also below average and happened in 36% of the days during the season (28 out of 78 days). In fall 2020, the banding total of 1515 birds was slightly below average (2002 - 2019 average of 1624 ± 360 banded birds), with exactly nine fall season banding totals above the 2020 total and nine seasons below. Almost half (47%) of the banding total is made by five species: Golden-crowned Kinglet, (about 24% of the total), Black-capped Chickadee, Slate-colored Junco, and Red-breasted Nuthatch (about 6% each), and, finally White-throated Sparrow (5% of the total). There were seven days with banding totals at or over 50 birds, with the highest total of 87 on October 8. Banding totals were less than 30 birds in more than half the days with full banding coverage (15 of 28 days). On September 24, 45 species were detected, the highest diversity of the fall. Later in the season, winter finches became predominant. No species new to Cabot Head was observed this fall, despite the high overall diversity.

The 2020 fall migration monitoring season was a success thanks to the dedication and efforts of the four volunteer field biologists who contributed their time to this project.

1. Methods

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

2. Season Summary

Coverage

Fieldwork for fall migration monitoring began at CHRS on August 15 and ended on October 31, for a total of 78 consecutive days. Census and casual observation were performed every day (except during intense rain). Banding is more affected by weather and there was an above-average total of 13 days without any banding. Across the season, 30% of mist netting coverage (in hours) was lost. The number of days with complete coverage (i.e. 15 nets open for six hours) was slightly below average (28 out of 78, i.e. 36%, compared to an average of $41\% \pm 11$; Fig.1).

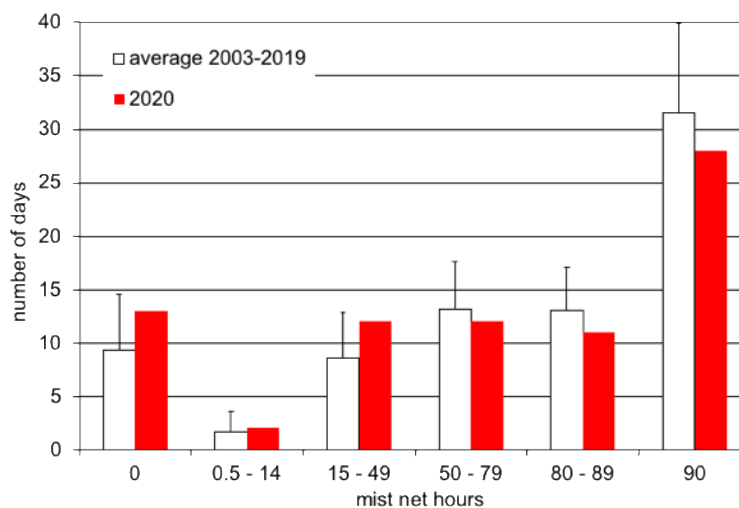


Figure 1. Coverage (in mist net hour) at CHRS, fall 2020.

Weather

The main characteristic of the weather in fall 2020 was periods of strong wind, notably in October (see Fig.3). There were 16 days with precipitation during the monitoring period (i.e. 7 hours from half an hour before sunrise), mostly in the form of short showers, distributed throughout the season, but sometimes rain was heavy and lasting all day. There were another five days with precipitation in the afternoon or evening. Rain tremendously affects migration, grounding birds and impacting their foraging abilities. It also precludes any banding, for birds' safety. Periods of high wind occurred quite often this fall all throughout the season: 45% of days experienced winds of at least 5 on the Beaufort scale. There was notably a remarkable stretch of eight days, from October 9 in late morning to October 16, with constant but shifting strong wind.

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 strength (on the Beaufort scale) and direction, we considered only the strongest wind during the count period of seven hours. Undoubtedly, this method would tend to over-represent strong winds. However, strong winds affect migration tremendously and their effect could probably be felt before they develop into a full windstorm. This fall, strong winds (at least five on the Beaufort scale) were predominantly from the South (57% of the days with strong wind) and occurred on 35 days (45% of the season). Another 28 days (36%) experienced moderate wind (three to four on the Beaufort scale). Therefore, most of the monitoring period experienced strong to moderate winds (Fig.2). North wind occurred much less frequently than winds from other directions this fall, with four days of strong North wind in October and one in September. Most of the strong winds came from the West and South, often accompanied with rain, conditions detrimental to migration. Both during nocturnal migration and diurnal foraging flights, winds can induce migration drifts in birds: Cabot Head being the northeast promontory of the Bruce Peninsula, West winds have thus the potential to "push" birds towards it. However, the extent and importance of migration drifts on observation and banding of birds at Cabot Head are poorly understood.

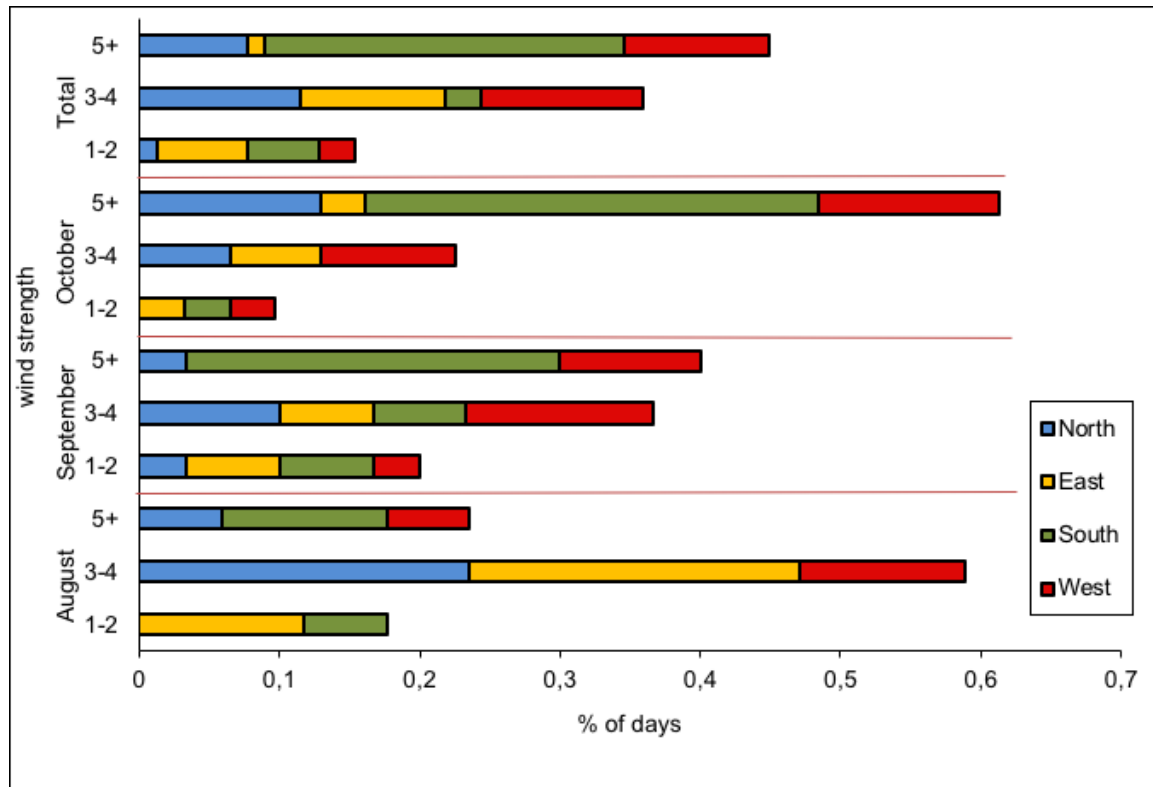


Figure 2. Wind pattern (strength on the Beaufort scale, direction and proportion of time) at CHRS, fall 2020.

Migration Monitoring

Overview

Migration at Cabot Head in fall 2020 was, in general, good across all taxon and throughout the season. Numbers of birds observed or banded were around average for most species, with a few exceptions. There are multiple factors influencing bird populations, with weather and food availability likely paramount. Warbler diversity was high in August, although the most common species, American Redstart, was not as abundant as usual. After the very low numbers of last fall, sparrows were detected in average numbers. The so-called winter finches (Pine Siskin, Common Redpoll, Crossbill) were all detected and in large numbers for some, definitely a highlight of the season. This fall, there was also an irruption of Red-breasted Nuthatches, filling the woods (and the nets) with their nasal trumpeting calls.

The seasonal variation in diversity and abundance is presented for a few groups in figure 3.

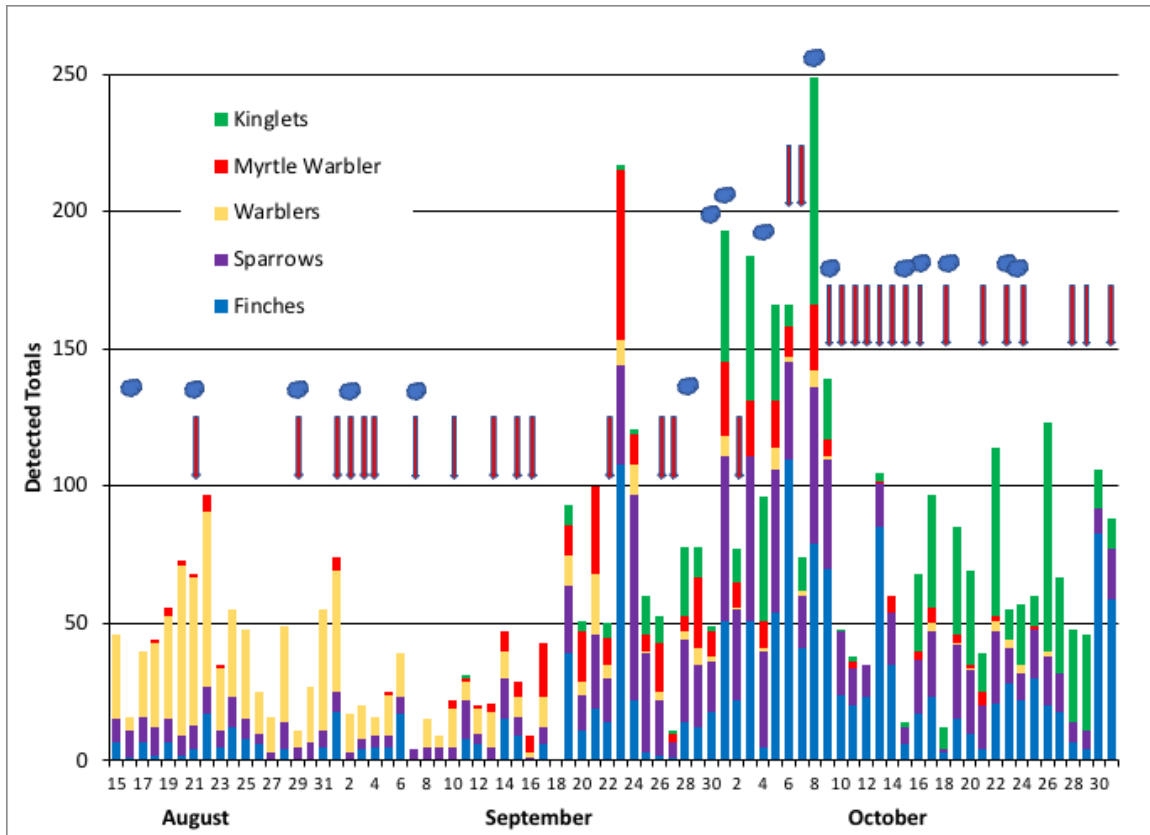


Figure 3. Detected Totals of the most common groups of songbird species throughout the monitoring period at CHRS, fall 2020. The arrows mark days with strong wind (5 or more on the Beaufort scale) and the blue circles indicate days with rain or showers during the monitoring period.

Passerines and near-passerines

Long-distance migrants

Long-distance migrants include a wide variety of birds, from hummingbirds to flycatchers to vireos to warblers. The main characteristics are the long distances flown between their breeding and wintering grounds, which are usually separated by thousands of kilometers. At Cabot Head, this diverse group is already on the move in mid-August when fall monitoring begins, with migration usually peaking in early- to mid-September. Stragglers are always a possibility later in the season.

Tyrant Flycatchers are early migrants (with the exception of Eastern Phoebe), among the first species to depart south in the fall, as early as August, and are never detected in large numbers at Cabot Head. Least Flycatcher was the second-most detected species (after Eastern Phoebe) this fall, with 15 birds (including six banded) in 11 days from August 19 to September 15. A total of

five Traill's Flycatchers (combined Alder and Willow Flycatchers, which can only be distinguished by voice) were detected, with four through banding, from August 21 to September 8. This species is never numerous, with banding totals usually in single-digit numbers, reaching a high of 16 in fall 2007. Six Yellow-bellied Flycatchers were detected, all through banding, from August 18 to 25, and one on September 19, a rather late date. The latest record is on September 27, in 2010. On August 23 and 24, one Eastern Wood-Pewee was detected through its characteristic song. This species is quite rare in the fall at Cabot Head, as reflected in the paucity of captures: none this fall and captures in only five previous fall seasons. Between August 18 and 21, one Great-crested Flycatcher, likely the same bird, was heard and seen, with a second bird also detected on August 21. Three Eastern Kingbird were seen together on August 19. This species prefers the marshy margins of the shallow lakes at the base of West and Middle Bluffs: it is thus not rare at Cabot Head and is occasionally seen around the station - albeit in small numbers - when moving from and to its preferred habitats. Eastern Phoebe were seen in 14 days from August 15 to October 29: it is possible that the same individual(s) is/are seen several times. Two birds were observed on two occasions, September 29 and October 5. The only other observations in October were on the 27th and 29th, which represent the latest records for this species. Eastern Phoebe is a hardy species of flycatcher, being a very early spring migrant and a late fall migrant: in 19 fall seasons, this species was detected in October every year but five.

Ruby-throated Hummingbirds were seen almost every day from August 15 to September 11, with a maximum of four birds.

Red-eyed Vireo is a local, and vocal, abundant breeder on the Bruce Peninsula, making it difficult to determine a clear pattern of migration. Nonetheless, most of them move through Cabot Head in late August and early September. Daily observations of a few Red-eyed Vireos (from one to 12 birds) were steady and constant from August 15 to September 25. Afterward, Red-eyed Vireos became rapidly scarce: one bird each on September 28 and 30 and on October 1 and 26. It is only the fifth year that a Red-eyed Vireo was observed after October 15: one bird on October 18, 2019, two birds on October 20, 2005, one bird on October 25, 2004 and 2007, and one bird on October 28, 2004. If the observations in 2004 are of the same bird, only six Red-eyed Vireos have been detected after October 15 out of a total of 4299 birds counted in the combined 18 fall seasons. Based on a review of eBird records around Georgian Bay and Lake Huron, it appears that the October 28 record of 2004 would be the latest known date for Red-eyed Vireo in this area. Despite

general and local abundance, Red-eyed Vireos are not often captured, because birds tend to stay high in the canopy. However, there is a tremendous range in numbers banded in the fall, from a low of 24 birds in 2009 and a high of 239 birds in 2005. The banding total of 70 birds in fall 2020 is the seventh highest, but is slightly below the fall average of 77 ± 51 . Only two birds of the 70 banded were adults, sporting the namesake red eye. Eye colour is the easiest way to age Red-eyed Vireos in the fall, with young birds having a brown eye. Across the fall seasons, young birds always predominate, accounting for more than 90% of banded birds (except in 2007 with 86%, 2009, 83%, and, 2013, 75%), and even 100% in 2016 (68 birds banded) and 2017 (33 birds banded). In fall 2005, a record 239 Red-eyed Vireos were banded, 98% of them young of the year.

In fall 2020, there was no observation of Warbling Vireo and only one of Philadelphia, on August 18, both species being always more uncommon at Cabot Head than Red-eyed Vireos

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. All Thrushes are very secretive, most often detected through banding or singing. This fall, very few birds were recorded, with all species banded at below average. The only Veery banded was captured on August 25. This species is never banded in large numbers in the fall, from one (in 2010) to 15 (in 2015) and three seasons without captures. The number of Swainson's Thrushes banded has somewhat rebounded from the low of 12 birds in 2019 to 25 birds this fall (Fig.4), although it is still quite below average (40 ± 20). Captures were scattered from August 25 (likely a bird from the small local breeding population of the Bruce Peninsula) to October 20, which marks the latest detection ever, a full seven days later than the previous record of October 15 in 2015. Despite variations between years, Swainson's Thrushes seem to have become more common in October. In the first nine years (2002 - 2010), a total of five birds were banded in October, in only three seasons, or 2% of the overall total of these years. In the last nine years (2011 - 2019), Swainson's Thrushes were banded every October, for a total of 33 birds (9% of the overall total). In 2020, two of the 25 Swainson's Thrushes were banded in October, i.e. 8% of the banding total (Fig.5). On the other hand, Gray-cheeked Thrushes, always less numerous than Swainson's Thrush, do not show an increasing presence in October. There have been eight seasons with detection of one or two birds in October, always in the first few days (latest is October 8), scattered from 2003 to 2015. This year, only one Gray-cheeked Thrush was banded, on September 14, the only detection of the season and the lowest banding total (Fig.4).

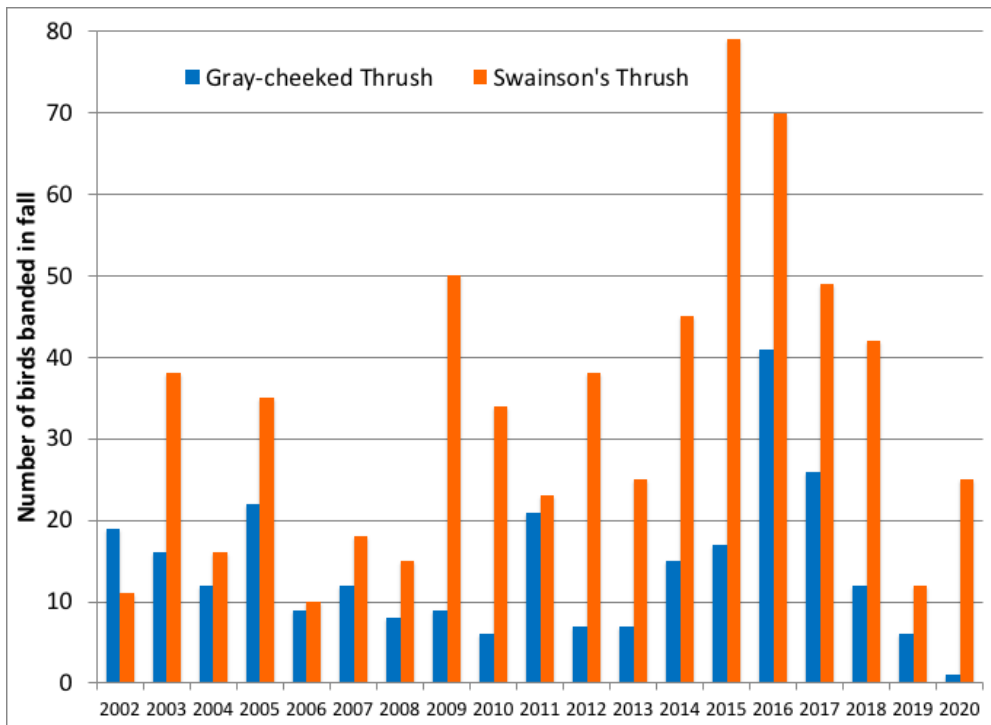


Figure 4. Banding totals of Gray-cheeked and Swainson's Thrushes at CHRS -fall 2002 - 2020.

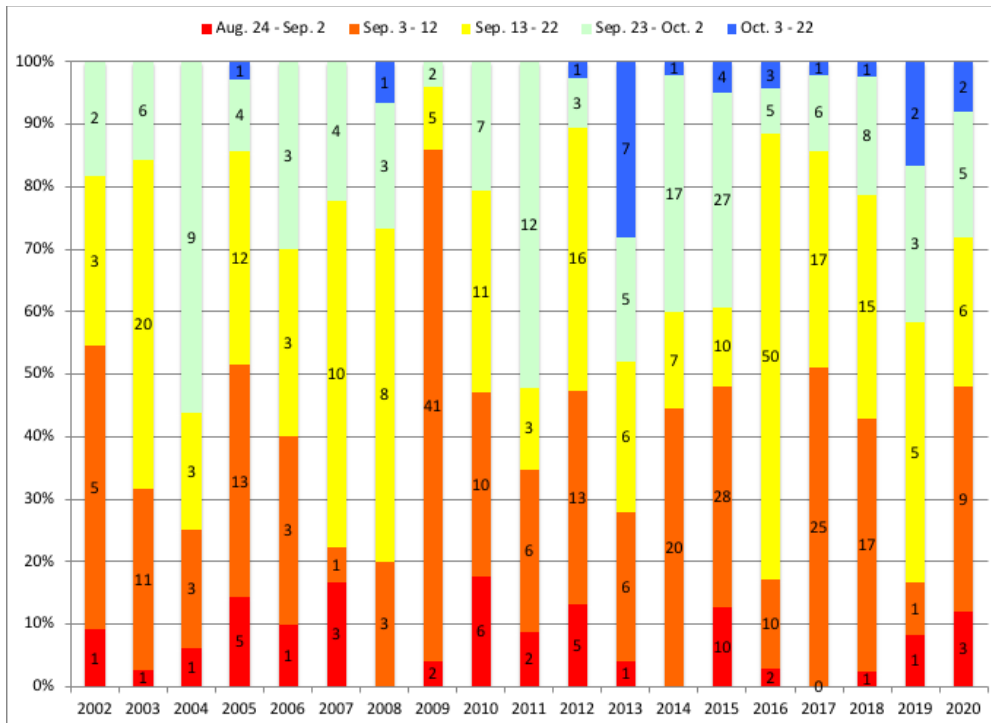


Figure 5. Proportions of banding totals of Swainson's Thrushes at CHRS in fall 2002 - 2020 by 10-day periods. Banding totals by period are indicated in the bars. The last period is 20 days long with only three birds in the second ten days (one each in 2016, 2019, and 2020).

Diversity and abundance of warblers showed two peaks this fall, in mid-August and in mid-September: Between August 21 and 25, 15 species of warblers were detected, with American Redstart the most abundant (about 30% of its seasonal total counted during these five days), whereas a total of 16 warbler species were detected between September 20 and 24, with Myrtle Warbler the most abundant (about 30% of its seasonal total were counted during these five days)(Fig.6). On September 19, a cumulative total of 22 species of warblers have been observed. Orange-crowned Warbler is usually among the last species of warbler to be detected: in fall 2020, the first one was on October 4, a rather late date for first detection. Indeed, it is the latest first detection, tied with the fall seasons of 2004 and 2008. The earliest detection for Orange-crowned Warbler was September 3, in 2010, but most of first detections are in the second half of September. Warbler diversity declined sharply after September 24 but abundance stayed relatively high into the beginning of October. Throughout the season, Myrtle Warbler, American Redstart, Black-throated Green Warbler, Common Yellowthroat, and, to a lesser extent, Nashville Warbler, were the species most often detected and in the highest numbers (in decreasing order). Spruce budworm specialists, like Bay-breasted Warbler, have very fluctuating populations, in response to budworm infestations. As a consequence, numbers seen in the fall at Cabot Head are quite variable. were seen in good, albeit still small, numbers this fall, compared to most previous falls. A total of 27 Bay-breasted Warblers were detected this fall, small absolute numbers, but the second-highest ever compared to previous seasons (range of one to 35 birds, with totals below ten birds in 11 years). The banding total of 15 birds this fall is also the second-highest (tied with 2018 and 2019).

American Redstart, alongside Myrtle and, occasionally, Black-throated Green Warblers, is the species of warbler most commonly captured and banded, albeit with large variations across the years (Fig.7). It is likely that the earliest part of its migration is not covered, as indicated by American Redstarts banded from August 10 to 14, in 2003, when monitoring started a few days before the more regular August 15 (See the Summer section for a longer discussion). In fall 2020, banding totals were the third lowest.

For the first time in the fall, no Yellow Warbler was observed or banded. Previously, this species has always been detected in the fall at Cabot Head, with totals from two to 34 birds in two to 19 days with detection from mid-August to early September. It is certainly not an abundant species in the fall at Cabot Head but it still is surprising to not have detected it this fall. Yellow Warblers are far more often detected in spring, both in terms of numbers and frequency (numbers

of days with observation). As a rule, almost all species of warblers are observed in greater numbers in spring than in fall. However, the contrast is extreme for a handful of species, notably Magnolia Warbler, Mourning Warbler, and Chestnut-sided Warbler.

In October, most warblers have usually already gone through the area with the exception of Orange-crowned and Yellow-rumped (Myrtle) Warblers, which are late, short-distance migrants; it is therefore mostly stragglers that are observed. Nonetheless, an average of $9 (\pm 3)$ species of warblers are detected every October between 2002 and 2019, ranging from a low of 5 species (in 2005, 2007, and 2011) to a high of 15 in 2014, for an overall total of 21 species of warblers. Three species (Orange-crowned, Nashville, and Myrtle Warblers) have been observed every October, with Palm Warbler only missed once in 2004. This fall, ten species of warblers were detected in October and the highest diversity was on October 1 with five species. Orange-crowned, Nashville, and Myrtle Warblers were again the species most commonly detected, with Myrtle Warbler by far the most abundant. (Western) Palm Warblers were observed, on three occasions, with five birds on October 5. One Tennessee Warbler was banded on October 1, the only detection for that month. This species is somewhat regular in October, although there was a long hiatus without observation from fall 2005 to 2012. A Pine Warbler was banded on October 26, the second-latest date, just a few days from the record for this species (October 30, 2010). One Black-throated Green Warbler was banded on October 22 and observed again the following day: it set a new record for latest date, beating by more than ten days the long-standing record of October 10, in 2003. More modestly, the Common Yellowthroat detected on October 19 is only a few days after the previous record of October 14, in 2017. The last two species of warblers observed this October were American Redstart and Black-throated Blue Warbler, with one bird each, on October 6 and 7, respectively.

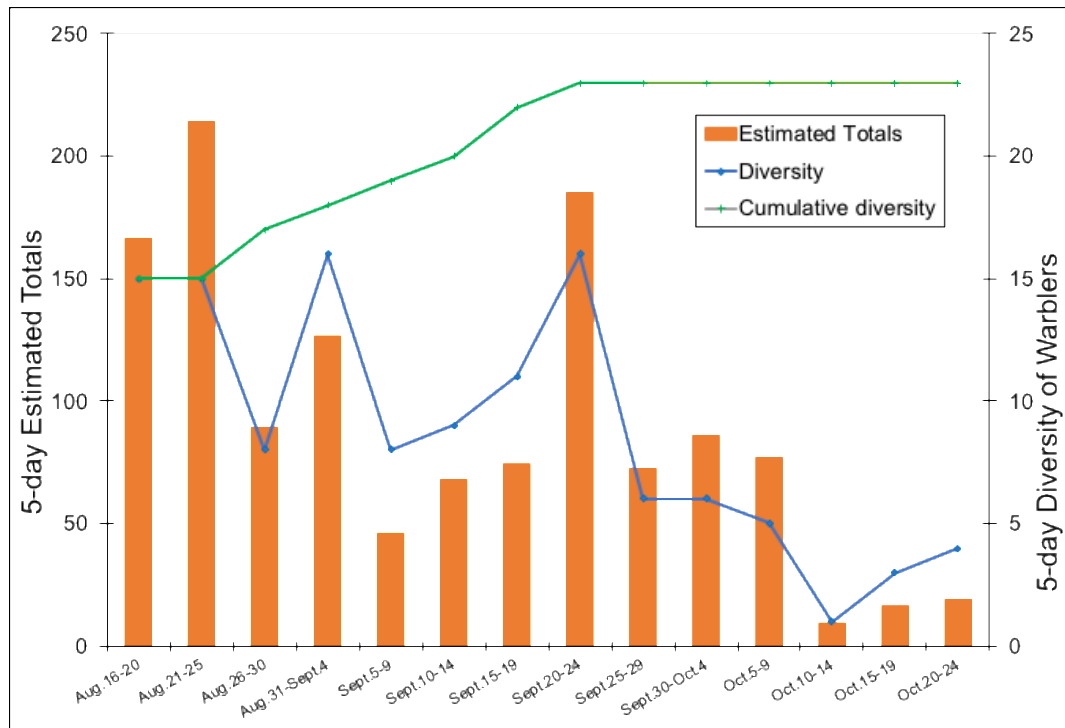


Figure 6. 5-day total numbers of warbler species (right Y-axis) and 5-day Estimated Totals of warblers (all species combined; left Y-axis) at CHRS in fall 2020.

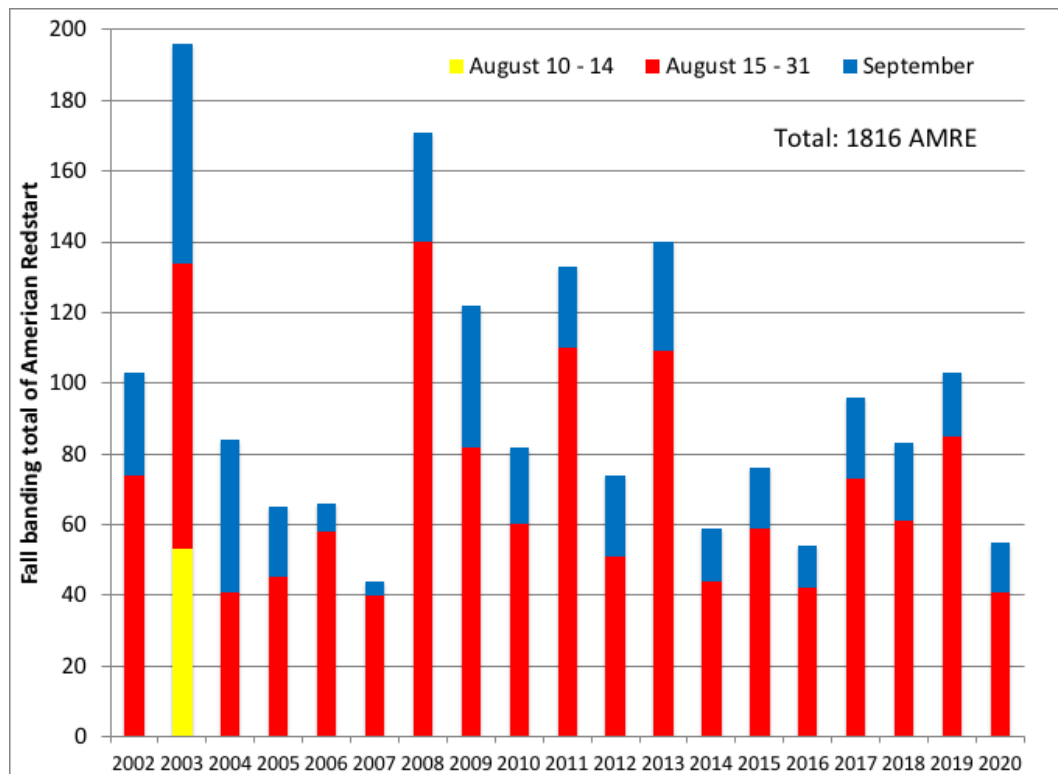


Figure 7. Banding total of American Redstart by month at CHRS in fall 2002 - 2020.

Short-distance migrants

Among passerines, the short-distance migrants are the latest birds in the fall to arrive and pass through Cabot Head, with some species even barely detected in years of late fall. For example, Fox Sparrow is a very late migrant, with most of its fall migration missed at Cabot Head. However, this species has been detected and captured almost every fall (missed only in 2002 and 2017), albeit always in single digit numbers. In 2020, Fox Sparrows were detected on two occasions: one bird was briefly seen at the tip on October 25 before flying across the little channel that connects Wingfield Basin and Georgian Bay; one bird was banded on the last day, October 31, which is the latest detection on record.

Brown Creepers are also late fall migrants but their migration starts in mid-September, with a few local birds potentially seen and captured as early as mid-August. This year, from first detection on September 14, Brown Creepers were regularly detected in small numbers throughout the rest of the season. The majority of detection was through banding, with 50 birds banded, out of 65 birds recorded. This species is easily overlooked as it creeps slowly up tree trunks, well camouflaged in its brown and beige plumage. Sharing a similar migration pattern, Golden-crowned Kinglets are however much more numerous (and more vocal), often the most numerous species banded in fall. That was the case this fall again when a total of 359 Golden-crowned Kinglets were banded, which is slightly above the average of 312 ± 162 banded Golden-crowned Kinglets. However, there are extreme variations in banded numbers for this species: low of 113 birds in 2005 and high of 758 birds in 2013. In fall 2020, the first Golden-crowned Kinglet was detected early, on September 11 (first detections range from September 10, in 2008, to 24, in 2009; with the outlier of August 31, in 2003). The next detection - of two birds - was on September 19, followed by detections almost every day afterward, with good numbers all the way to the end. However, there were barely any kinglets observed from October 10 to 15, most likely due to the consistent high winds during this period, which very likely stalled migration for most species (see Weather). This period usually marks the peak of migration for Golden-crowned Kinglet. That was certainly not the case this fall: from October 7 to 16, only 14% of the season total of Golden-crowned Kinglets were counted, when it was between 25 and 74% for this period in previous fall seasons. As a likely consequence of the stalled migration, the remaining 15 days of October in 2020 showed a higher than usual numbers of kinglets moving through, comprising more than 50% of the season total, with, notably, 16% detected during the last five days! It is noteworthy, though, that migration

patterns for this species is very variable in the fall, with passage peaks potentially very different in timing and intensity between years (Fig.8). Using increments of five-day periods, it is clear that there is no clear and constant pattern in Golden-crowned Kinglet movements at Cabot Head. For example, migration has barely begun up to September 26, with usually less than 10% of the season total of kinglets counted. However, in fall 2012, that number was already 20%, an indication of the early movements during this fall. Indeed, more than 50% of the season total were detected before October 6 in 2012. However, that mid-point was also reached around the same time in the falls of 2008, 2016, & 2017, without the early influx of birds. Like fall 2020, the fall of 2009 stands out for a very late migration, with 60% of the season total counted after October 17.

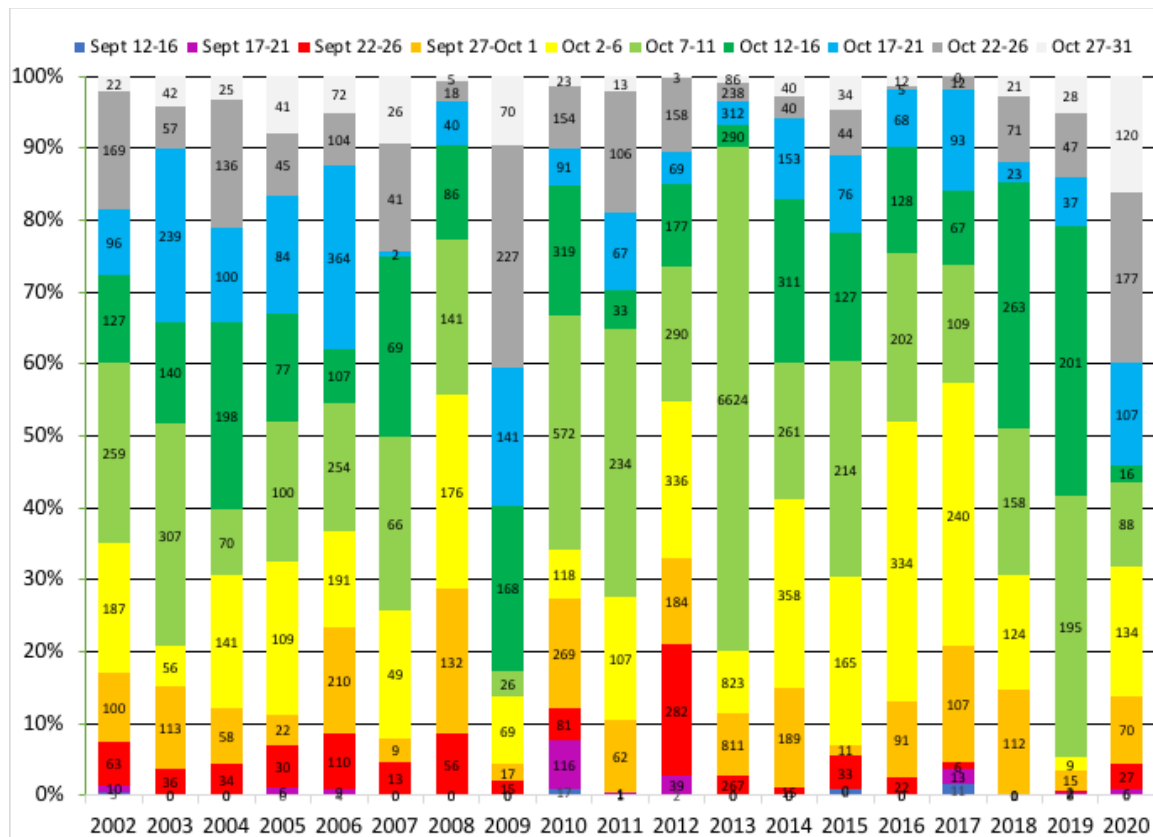


Figure 8. Proportions of banding totals of Golden-crowned Kinglets at CHRS in fall 2002 - 2020 by 5-day periods. Banding totals by period are indicated in the bars.

Fall migration of Ruby-crowned Kinglet is quite similar than Golden-crowned Kinglet, as opposed to spring, when the latter migrates up to two weeks earlier. Numbers of Ruby-crowned Kinglets are usually lower than Golden-crowned Kinglets, as is the case again this fall. A total of 145 Ruby-crowned Kinglets were detected from September 19 to October 30. The passage pattern

mirrors closely with Golden-crowned Kinglets, except that the numbers of Ruby-crowned Kinglets dropped sharply after October 17. Whereas 40% of Golden-crowned Kinglets were counted in the last ten days of October, that proportion is only 14% for Ruby-crowned Kinglets.

As opposed to the previous fall, there was an important movement of Red-breasted Nuthatch this fall, with observations almost daily from the first to the last day of monitoring. This species actually has the highest frequency (as defined by number of days with observation) of all species in fall 2020, with detection on 72 out of the 78 days of monitoring. The Red-breasted Nuthatch is an irruptive species, although seemingly less nomadic than other irruptive species. As a consequence, it is recorded in either low or large numbers in a somewhat cyclical fashion, south of its core breeding range in the boreal forest (Dunn, 2019). At Cabot Head, irruptions are better measured with banding data, because local resident birds may obscure detection data. In fall 2020, 92 nuthatches were banded, the fourth highest total (Fig.9). Observations well south and outside of its breeding range were widely reported. Irruptions are said to occur approximately every second year, although, as noted at Long Point Bird Observatory, the pattern is highly irregular, with intervals between large irruptions ranging from zero to seven years (Dunn, 2019). A variable, cyclical pattern seems to emerge as well at Cabot Head over the 19 years of monitoring. Spring banding totals may indicate birds returning north but banding totals are usually low and do not seem to correlate strongly with the previous fall banding totals (Fig.9), possibly due to a combination of factors (winter mortality, different migration pathways, etc.).

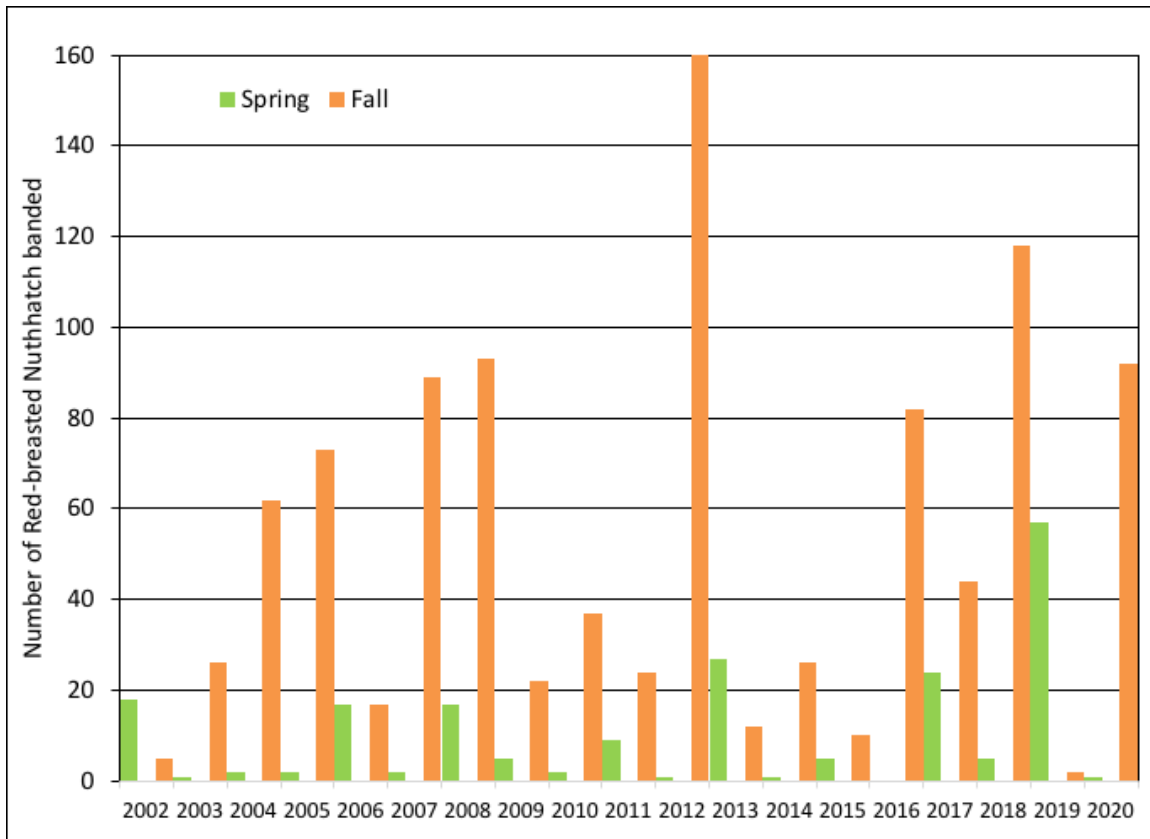


Figure 9. Banding totals of Red-breasted Nuthatches at CHRS in spring and fall 2002 - 2020.

At Cabot Head, Blackbirds (Common Grackles, Red-winged and Rusty Blackbirds) are observed in very small numbers in fall, as opposed to spring when large flocks are counted. Rusty Blackbirds have been detected in every fall season, sometimes with only one bird, most often in single-digit numbers, and with significant numbers only in six fall seasons (reaching a high of 91 birds in 2016). In fall 2020, 30 Rusty Blackbirds in total were observed on ten occasions, from September 20 to October 27. On the other hand, Common Grackles are regularly missed completely, with no observation at all in seven fall seasons, and otherwise observed in small numbers (from one, in 2017, to 16, in 2013, with an exceptional tally of 133 in 2012). This fall, a group of 71 birds was seen on August 19. Observations this summer at Cabot Head seems to indicate an early movement of Common Grackles in mid- to late July. Patterns of observation for Red-winged Blackbird are somewhat in between the other two species: missed in three seasons between 2002 and 2018, observed in small numbers otherwise, with a few years reaching in double-digit counts. This fall, three Red-winged Blackbirds were observed on three occasions.

American Robins are common birds at Cabot Head, both as local and migrant birds. They are seen regularly throughout the season in variable numbers across the years, which usually peak in October during their main passage. This fall, there was some movement in late September, with a high of 17 birds on September 22, and another small passage in the second week of October, with a high again of 17 birds on October 8. Over the years, daily highs have ranged from less than ten American Robins (in 2007, 2017, & 2018, with a record “low” high of two birds in that latter year) to more than a hundred birds (100 in 2002, 114 in 2013, and 217 in 2006).

The overwhelming majority of Blue Jays and Yellow-shafted Flickers usually migrate in September. Indeed, in 2020, around 80% of detected totals of both species occurred during this month. Even though the bulk of migration is in September for both species, their phenology could be quite different at Cabot Head (Fig.10&11): passage of Yellow-shafted Flickers is spread throughout September, whereas Blue Jays almost always tend to peak over a few days in mid-month. In fall 2020, Yellow-shafted Flickers were detected in slightly below average numbers, with 125 birds (2002-2019 average of $160 \text{ ET} \pm 103$; low of 72 in 2007 and high of 394 in 2014). There were less Flickers than average observed in late September, which usually corresponds to the peak of passage, whereas above-average numbers were seen in late October, with the last Yellow-shafted Flicker seen on October 25. Blue Jay numbers were above average in August and early September but migration followed the usual pattern with a (large) peak in mid-September. Very few Blue Jays were seen in October, as opposed to the previous fall.

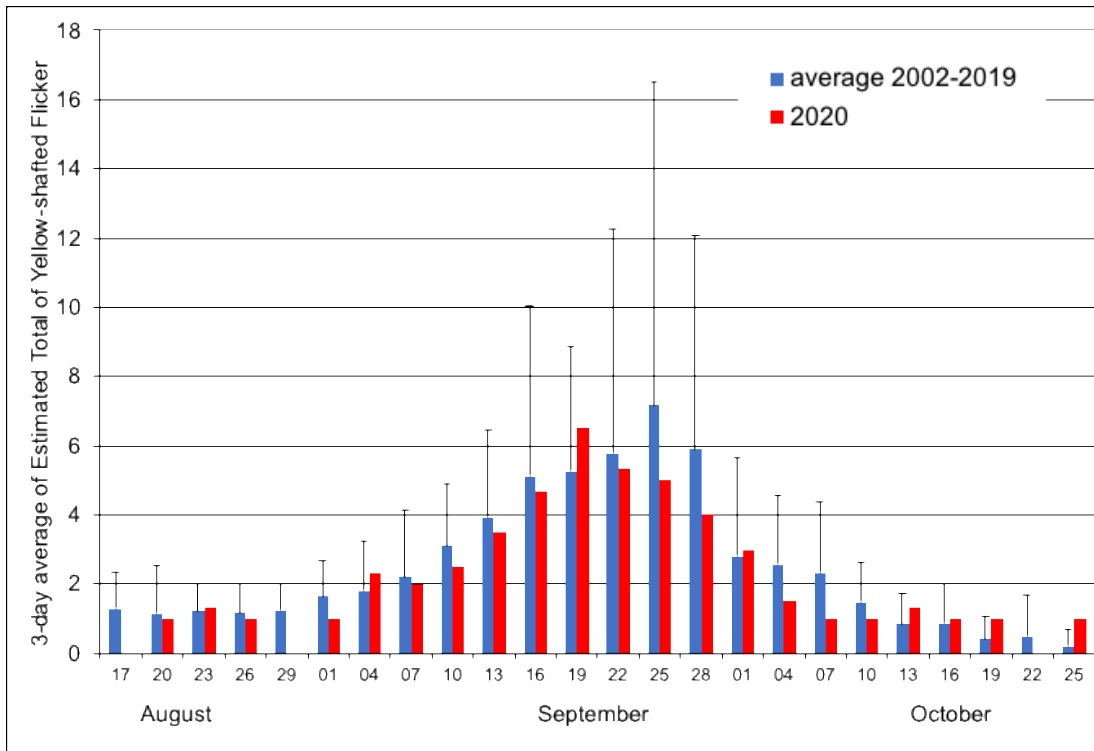


Figure 10. 3-day average of Estimated Totals of Yellow-shafted Flickers for 2020 and the combined years of 2002 to 2019 at CHRS.

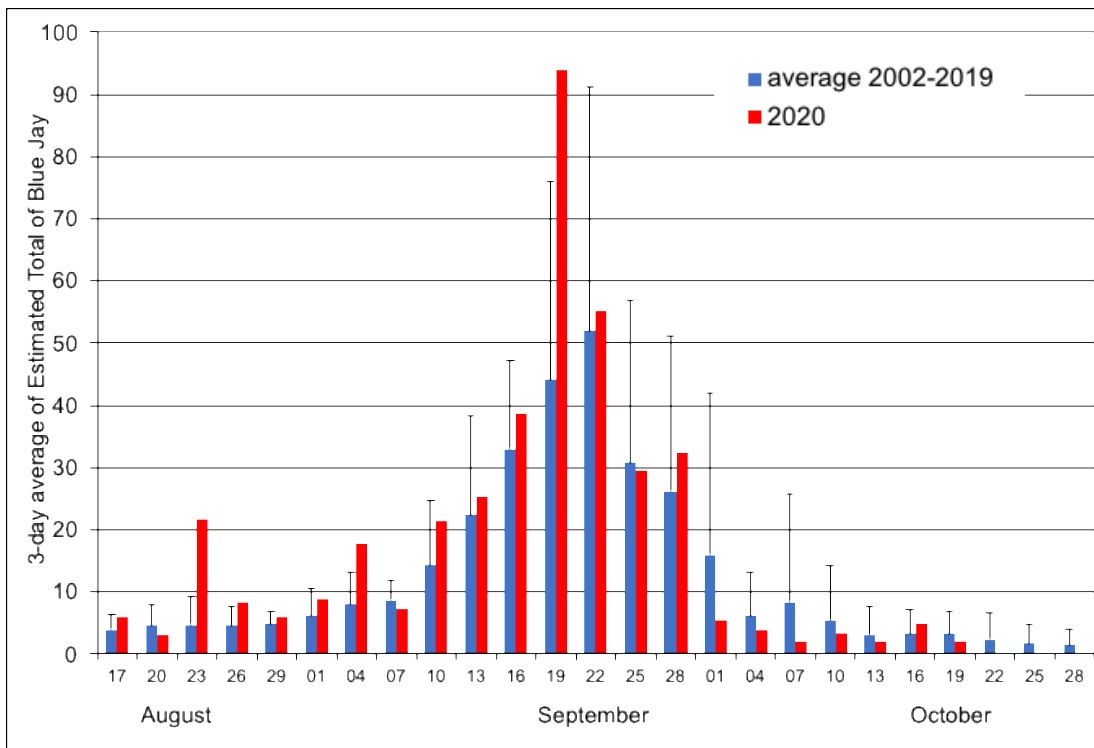


Figure 11. 3-day average of Estimated Totals of Blue Jays for 2020 and the combined years of 2002 to 2018 at CHRS.

Eastern Phoebe are the hardiest of the Tyrant Flycatchers, wintering in the southern USA and arriving early on and leaving late from the breeding grounds. At Cabot Head, it is easily seen around the buildings, where it has attempted to breed. Once again, this year, Eastern Phoebe tried to breed but, unlike last year, it appeared that they were not successful. Nonetheless, this species was seen from August 15 to October 29, for a total of 14 days with observation scattered throughout the season. No Phoebe were banded this fall. This species is usually detected in October (missed only in five seasons) but observations after October 20 occurred only in five years, with October 29 the latest on record.

Myrtle and Pine Warblers, and to a lesser extent, Orange-crowned and Palm Warblers, can be considered short-distance migrants, with a large part of their wintering grounds in the southern USA. Pine Warblers were detected on six days, with one bird each time. On the other hand, Myrtle Warblers were seen regularly, with detections on 59% of the 78 days of monitoring, from August 18 to October 25. The main passage of Myrtle Warblers was from mid-September to early October, with 85% of the detected total counted from September 16 to October 8 and the highest daily count, of 62 birds, on September 23. This species, like Pine Warbler, breeds on the Bruce Peninsula: most detections in August and early September are likely from local birds. On the other hand, Orange-crowned and Palm Warblers are boreal breeders and do not breed on the Peninsula. The first Palm Warblers (three birds) were detected on September 10. This species was seen again on September 15, with one bird, and then, sporadically, up to October 5, with, for example, six birds counted on September 29. Orange-crowned Warbler is a late migrant: the first bird, as already mentioned, was detected late, on October 4, followed by nine other days with observations of one to three birds, the last one on October 26.

The sparrow species observed at Cabot Head are short-distance migrants, with wintering ranges confined mostly in southern Canada and the eastern part of the United States of America. At Cabot Head, Song Sparrow is a local breeder, which tends to obscure migration patterns for that species. It was observed in small numbers (from one to 11 birds) almost daily from August 15 to October 26: it has the second-highest detection rate, after Red-breasted Nuthatch, with observations on 66 days of the 78 days of monitoring. It was also banded in record number this fall, with 23 birds, only one bird more than the previous record in fall 2008, but quite above the average of 13 ± 5 birds. Savannah Sparrow is another species with record breaking numbers of banded birds: 11

Savannah Sparrows were banded from September 1 to October 8. Usually, only one to four birds, with a previous record of eight in fall 2007, are banded in the fall, and none at all during six fall seasons. It is unclear why this species was so abundant this fall.

The most abundant sparrows monitored in the fall are White-crowned and White-throated Sparrows and Dark-eyed Juncos, the latter two species also breeding in very low densities on the Bruce Peninsula. Very few birds, if any, of these two species are detected in August and early September at Cabot Head. As a consequence, most of the birds detected are in migration. This fall, a few Dark-eyed Juncos were observed in August (from the 15th to 25th), likely local birds: this species was not detected again until September 20, after which it was seen almost daily up to the end of monitoring, in numbers relatively constant throughout the season. This fall, unlike all previous seasons, there was no obvious peak in the passage of Dark-eyed Juncos (Fig.12). As with other species, the phenology of junco migration is very variable between years: in some fall seasons, more than 70% of the seasonal total are already counted by October 10, whereas it is between 10 and 20% in other years. In the last week of monitoring (October 25 - 31), numbers of Juncos detected can amount to less than 10% of seasonal total or to 30% or more (extreme of 55% in 2019, during a year of very low overall numbers). Migration can thus be “early” with 50 to 70% of the total passage happening before October 10 or “late” with 60 to 80% of the numbers counted after October 18 (Fig.12).

The first (three) White-throated Sparrows were detected on September 6, with the next observation just a few days later, on September 9. This species was then observed daily up to October 10, with only a handful of sightings afterward (October 19, 22, 29, and 30). Highest daily total was 39 birds on September 24, during the peak of this species’ passage this fall. From September 19 to October 1, 66% of the season detected total of 265 birds were counted. White-crowned Sparrows have a migration slightly later than the White-throated Sparrows. This fall, the first detection was on September 20, with five birds, and observations occurred thereafter almost daily up to October 31. The bulk of passage happened from October 1 to 9, when about 69% of the season detected total of 286 birds were counted. Both species were banded in numbers close to the 2002-2019 average.

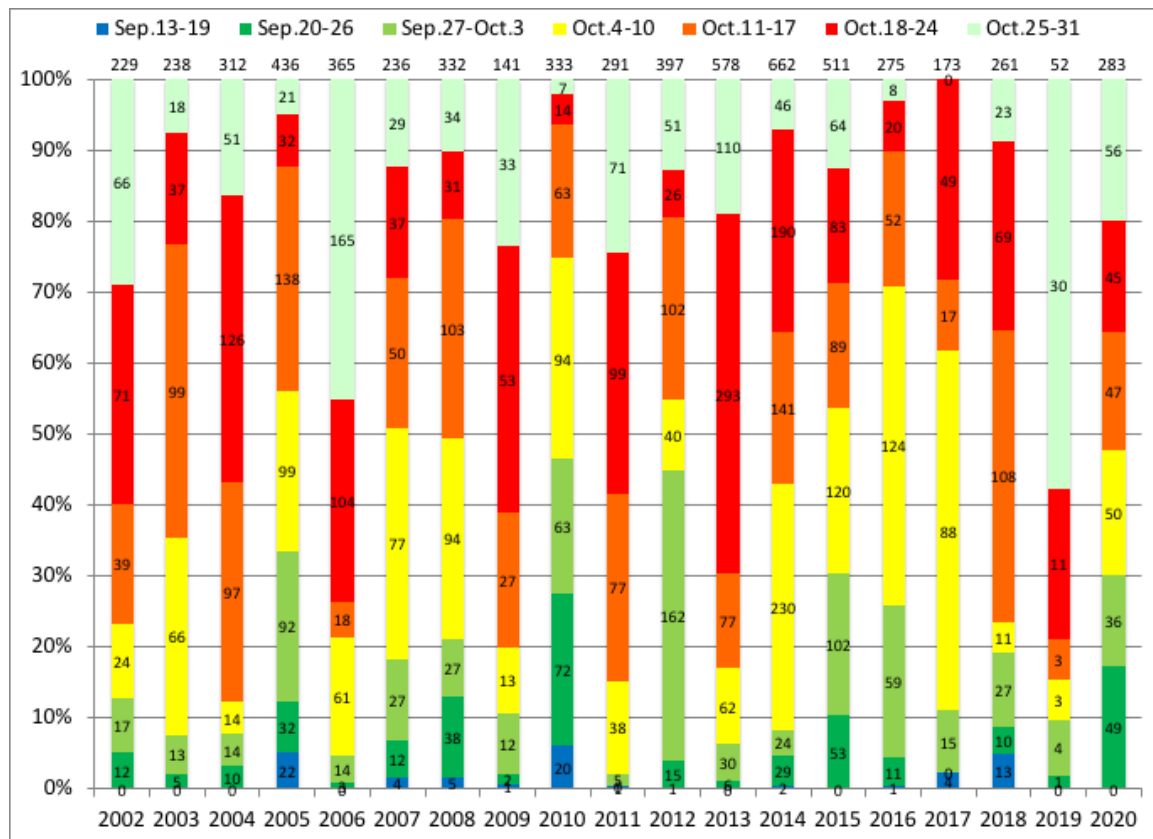


Figure 12. Proportions of detected totals of Dark-eyed Juncos at CHRS in fall 2002 - 2020 by 7-day periods. Detected totals by period are indicated in the bars and season totals on top of bars.

Lincoln's and Swamp Sparrows are always detected in small numbers in the fall, very often through banding, as they are quite secretive. This fall, a total of 16 Lincoln's Sparrows (range from one in 2009 to 18 in 2002) were detected sporadically from September 15 to October 9, with a straggler on October 23, just two days shy of the latest record (in 2002). The migration of Swamp Sparrows was a bit more condensed, with 11 birds (range from one in 2015 to 28 in 2003) detected from September 23 to October 19.

American Tree Sparrow is a late migrant, with movements through Cabot Head starting in mid-October and likely continuing into November after the end of the migration monitoring period. In 2020, the first detection - of one bird - was on October 13 (same as in fall 2009), a date about halfway between earliest and latest dates of first detection recorded across the years. First detections occurred after October 13 in eight fall seasons, with October 22, 2018, being the latest on record. Early first detections are scattered in the first week or so of October, although there are a few very early records: one bird banded on August 22, 2012, one observed on September 11,

2013, and one observed on September 9, 2014. The other earliest record is September 21, 2004. There is a gap of several days, even weeks, between these early detections and the next ones, which could be either an indication on how a single bird can be easily missed or that these early detections are true outliers of the general migration pattern of the species. In 2020, American Tree Sparrows were detected daily (except in two days) from first detection to end of monitoring, with one to ten birds observed. A total of 25 American Tree Sparrows were banded, which is around average. This species, however, shows extreme variations in banded numbers, from a low of four birds in 2018 to a high of 88 birds in 2010. Daily banding totals are usually in the single-digit, as was the case in 2020 (with one to five birds banded) but, occasionally, impressive numbers can be banded: 38 birds on October 26, 2004, 41 on October 28, and 37 on October 26, 2015.

This fall, a record seven species of Finches were detected, which marks 2020 as the third fall season when all seven have been seen during one season (after 2010 and 2012). Except for American Goldfinch and Purple (and House, although this species is usually not detected at Cabot Head) Finch, finches spend most of their time in the boreal forest, depending on seed and cone crops of various specific trees and shrubs for food. When these resources fail, as they tend to in some years, it provokes a southward movement of finches, an “irruption” of variable amplitude. Predicting irruptions is as much science as art and is greatly awaited every year: <https://finchnetwork.org/winter-finch-forecast-2020>. It seems that an irruption of some winter finches happened this fall, as experienced at Cabot Head, notably for Common Redpoll, although no finch species were seen in record numbers this fall compared to previous seasons. American Goldfinch and, to a lesser extent, Purple Finch were the first finches to move through in good numbers at Cabot Head (Fig.13). The first Pine Siskin was seen on September 12, with numbers building up rapidly afterward, to reach a daily high on October 6, with 108 birds counted. The first Common Redpolls were seen on October 3, with eight birds, but that was followed by a long period without sightings, until October 24, when one bird was detected. Numbers were high only in the last two days of the monitoring period, with 81 and 46 birds on October 30 and 31, respectively. The other four species of finches were seen in more modest numbers. Two Pine Grosbeaks were banded on October 27 and one bird detected on October 31. This species has been detected in eight previous fall seasons but captured in only four of them. Between two and four White-winged Crossbills were seen and/or heard on seven days, scattered from August 26 to October 31, but with most observations toward the end of October. Red Crossbill is the rarest of

all finch species, having been observed previously in only three fall seasons (2008, 2010, and 2012) with one bird each time. This fall, one male adult was easily seen as it perched on top of cedars and, even, the TV antenna for a few minutes on October 9. Another, or possibly the same, bird was detected by call and briefly seen on October 31. Amazingly enough, on that last day of monitoring, all species of finches were detected, except for Purple Finch.

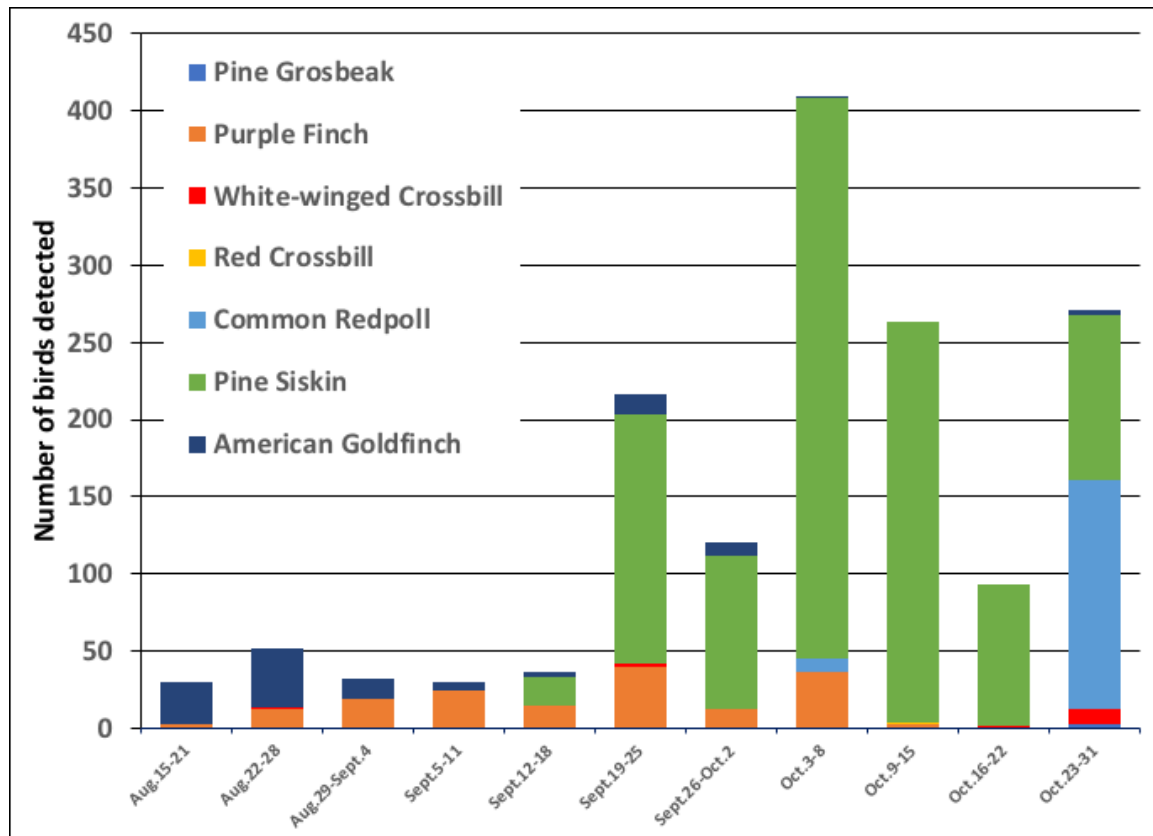


Figure 13. Weekly Detected Totals of finches at CHRS in fall 2020. NB: the last “weekly” period comprises nine days.

Raptors

In contrast with spring, no substantial migration of soaring raptors occurs over the Bruce Peninsula in the fall, as Georgian Bay presents a formidable barrier to cross, since no thermals used by these species can form over water. As a consequence, the most commonly seen species are the local breeding residents, like Bald Eagle, Merlin, and Sharp-shinned Hawk. Bald Eagles were seen quite regularly throughout the season, with detection in almost 60% of the days. A total of five eagles were counted on September 13, the season record one-day total. The other high count was four Bald Eagles two days later. All other observations were of one to three eagles.

Merlins breed every year at Cabot Head, exhibiting a strong territorial behaviour and aggression against potential nest predators. It is thus a species regularly seen, usually in ones or twos. This fall, it was detected on 45 days, or 58% of the time, with many observations of young birds. On August 26, a record six Merlins were observed: one was seen early in the day, whereas five were seen together, alongside two American Kestrels, flying above Middle Bluff, and chasing each other. The Merlins were mostly targeting the Kestrels in these aerial chases. I personally had never seen that many Merlins together.

Sharp-shinned Hawks were seen less frequently than Merlins, with observations in 13 days, with a high of four birds on September 29. This fall, no sharp-shinned hawks were banded, only the third fall season without capture. Other notable observations include: 28 Red-tailed Hawks on October 13; one Rough-legged Hawk on that same day, and another one on October 25. This species was previously detected in only three fall seasons (2003, 2008, and 2015), whereas it has been observed in every spring season (except in 2020 when the season started three weeks later than usual); seven days with observations of Peregrine Falcons, from September 15 to October 4, with three birds on September 27 (see blog in Appendix for more details). a Red-shouldered hawk was observed on September 1; a Cooper's Hawk on September 20 and October 12; No Northern Goshawk, a resident but discreet species, was seen, as was the case in six previous fall seasons.

Waterfowl

Canada Geese usually migrate in early September but with large variations across the years (Fig.14). Large movements are strongly influenced by weather: north winds tend to bring numerous flocks flying through. This fall, notable movements were scattered from late August to late October, with a somewhat more conspicuous passage from September 10 to 14 (the latter having the highest one-day count with 156 Canada Geese). There are usually very few geese observed after mid-October: the count of 115 geese on October 30 this fall is thus quite remarkable.

Double-crested Cormorants were seen daily from the start of monitoring period until September 7, with one bird sporadically seen afterward up to September 21, and the last detection on October 7. This species is typically observed roosting or fishing in Wingfield Basin and in Georgian Bay on near-shore water. It is, however, rarely seen in active migration. Water levels once again were at record high levels, covering rocks in Wingfield Basin that cormorants (and other birds like gulls) like to use as resting areas. As a consequence, daily numbers reached high of 15 to 20 birds, much lower than in earlier years, with cormorants crowding the few rocks still available, as well as the navigation markers. Daily counts of this species likely include birds staying for some extended periods (stop-over), which could vary across the years, notably through food availability around Cabot Head. Another factor potentially influencing the stopover length of Cormorant is disturbance and predation by the resident Bald Eagles. All these factors can explain the sharp decline in numbers detected in the fall at Cabot Head but it seems likely that the high-water levels have been the dominant one in recent years (Fig.15).

Common Loons were seen throughout the entire season, from August 20 to October 31, with observations in October accounting to 52% of the season detected total. Loons can usually be seen in small rafts on Georgian Bay or flying in a southeast direction, either over water or land. This fall, a total of 136 Common Loons was detected, within the range of totals detected since 2010 (with the exception of the fall of 2014; Fig.16). This species is a strong flyer and moves through the area rapidly, making detection difficult. Another potential problem is that it routinely flies, low or high, over Georgian Bay at any time of the day, which makes accurate monitoring difficult as well. However, detection probabilities should stay relatively consistent between years. It is possible that the sharp drop in numbers after 2009 results in differences in use of Georgian Bay offshore from Cabot Head. In the first few years of monitoring, it was common to see good numbers of

loons resting on the water of Georgian Bay, making detection much easier than with birds flying through.

On October 6, the three species of Scoters were detected. That would be the first and last detection this fall for the Surf and Black Scoters, which tend to be infrequent at Cabot Head. Scoters tend to be seen flying low and fast over the water of Georgian Bay and often quite some distance from the shore. As such, they can be easily missed, unless a more dedicated effort is made, which was not really the case this fall given the limited number of volunteers. White-winged Scoters were seen again on seven other days, for a season total of 36 birds (season total ranges from 9 in 2011 to 310 in 2014, with the highest one-day count of 152 birds on October 19, 2014). Long-tailed Duck is another waterfowl species with extreme fluctuations in numbers detected, from a low of five and six birds (in 2016 and 2017) to a high of 187 birds in 2008. Its migration happens mostly after mid-October and, very likely, extends into November, after the monitoring period. In fall 2020, a total of 123 Long-tailed Ducks were counted, with 120 of them in one day, on October 25, and the first and last birds of the season on October 21 and 29, respectively. Another late migrant, Buffleheads were observed on October 25, 26, and 31, with a total of 31 birds. Likewise, Common Goldeneyes were detected for several days from October 25 to 30, for a season total of 19 birds. Both Greater and Lesser Scaups were detected this fall, albeit in a very few occasions and in small numbers. Like Scoters and the other waterfowl species mentioned in this section, Scaups tend to fly fast and at a distance from shore, making detection difficult.

Common Mergansers were observed from August 16 to October 20, with most of the sightings in September and a daily high of 22 birds on September 22. Observations of Red-breasted Mergansers, on the other hand, were concentrated from October 18 to 27, with a daily high of 26 birds on October 25 (and a few early birds on October 3 and 7). It is only the third fall season (after 2008 and 2017) with no Red-breasted Mergansers observed in August and/or September). There were observations of one to three Hooded Mergansers from August 29 to October 31.

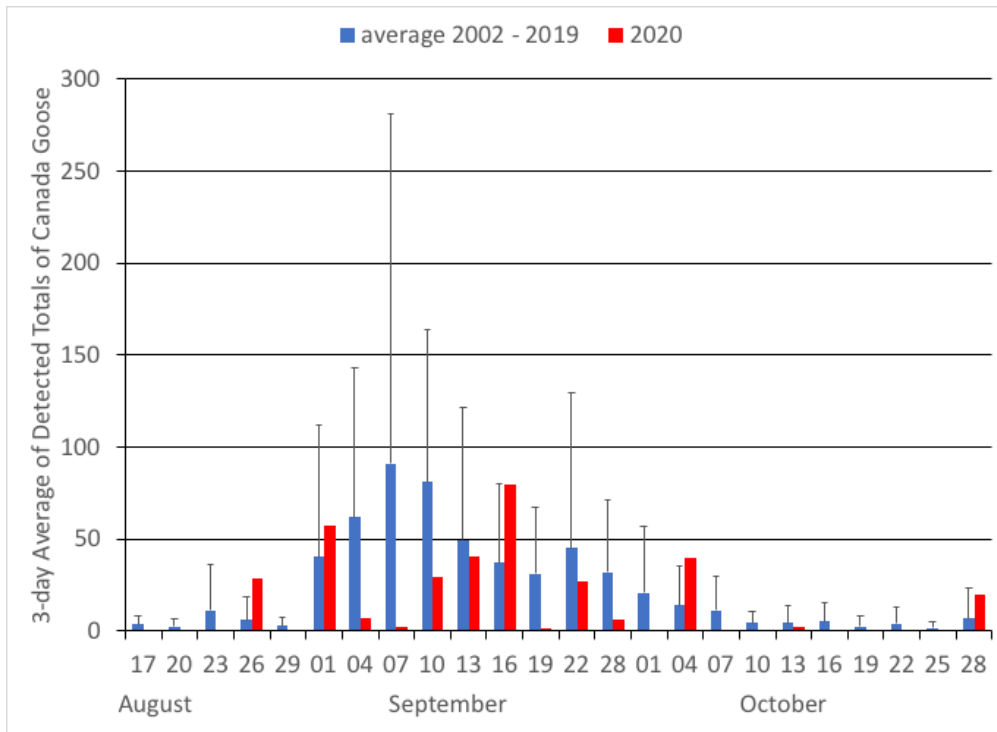


Figure 14. 3-day average of Detected Totals of Canada Goose for falls 2020 and average 2002 to 2019 at CHRS.

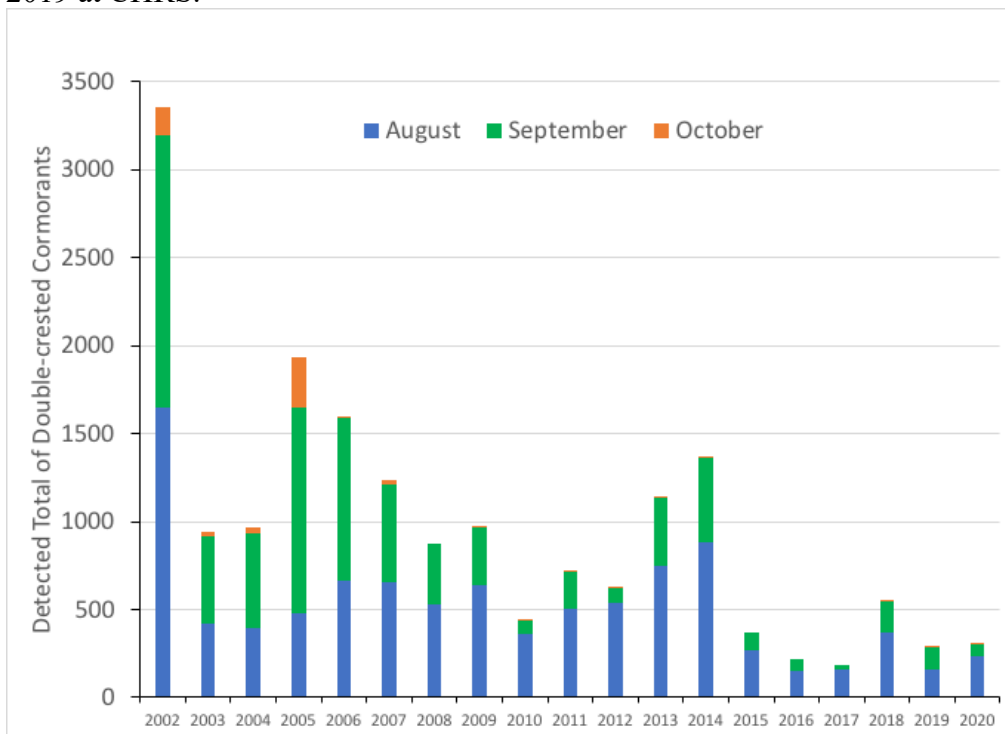


Figure 15. Detected Totals of Double-crested Cormorants at CHRS, 2002 - 2020, in relation to year and month of monitoring.

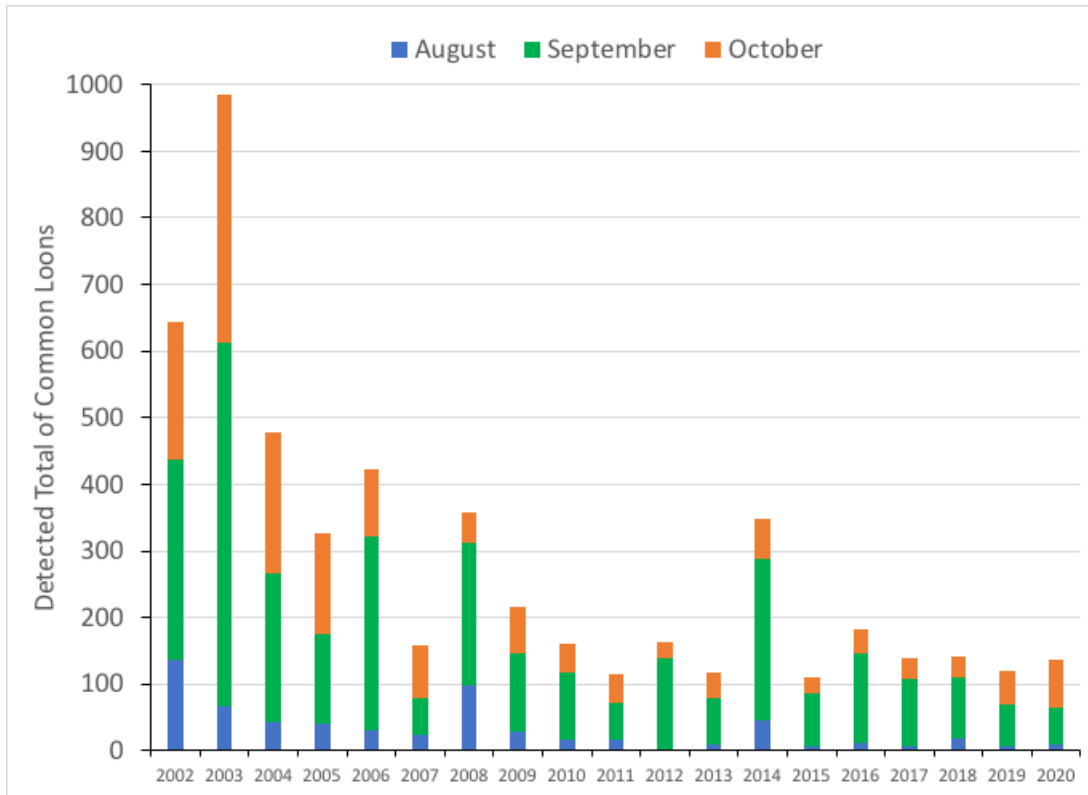


Figure 16. Detected Totals of Common Loons at CHRS, 2002 - 2020, in relation to year and month of monitoring.

3. Unusual Records

An unusual record at Cabot Head can be: a bird outside of range, either spatial, temporal, or numerical; a bird with an overall low population on the Northern Bruce; a bird which preferred habitats are not present at Cabot Head; a bird which is rare overall, either at provincial or continental levels. Below is the list of the fall 2020 unusual records, in chronological order.

One Eastern Towhee was detected during census on August 17. One Caspian Tern was seen on August 18 and 28. This species was seen much more regularly in the summer in the early years of monitoring, with occurrence in every fall season from 2002 to 2011. It became very sparse afterward, with a few sightings in falls 2014 and 2018. However, it is detected every spring. One Barn Swallow was seen on August 20. Wood Ducks were seen on two occasions, with one bird each, on August 20 and on October 2. Following a spring and summer with many observations, Black-billed Cuckoos were seen on six days from August 23 and September 21. This species is more sporadic than rare at Cabot Head, with detections on eight previous fall seasons. A Solitary Sandpiper was seen at very close range on September 5 at the Pine barrens. Previous fall detections during the monitoring period and area for this species were in 2003, 2008, and 2018. One Northern Parula was seen on September 19. This species is quite rare in the fall, with one to three birds counted per season, and also missed in five fall seasons. One Lapland Longspur was observed on October 3 and 8, the sixth fall season this species was detected. A young Northern Shrike was seen in the afternoon of October 17, near the gate, thus, outside the monitoring period and area. However, one young Northern Shrike was banded on October 26, the same day of the last detection of Red-eyed Vireo (through banding). On that day, a flock of 20 Bohemian Waxwings were seen during census and, on October 31, 11 Bohemian Waxwings were also observed. It is only the third year with observations in the fall, after 2007 (one bird on October 29) and 2010 (six birds on October 31). An American Widgeon was seen in a flock of seven American Black Duck flying over the bay on October 25, the fourth fall season with detection of Widgeon (after 2011, 2012, and 2016). Three Sandhill Cranes were seen flying together on October 27, the latest record for this species (previous one: October 18, 2008) and the fifth year with sightings for the month of October. One Red-throated Loon was observed flying over Georgian Bay on October 29. No Red-bellied or Red-headed Woodpeckers were observed this fall, whereas they were observed in 12 and 13 previous fall seasons, respectively.

4. Banding Data Analysis

Fall 2020, with 1515 birds of 72 species banded, has a banding total close to the 2002-2019 average (1624 ± 360 birds). Banding totals in the fall have been quite variable over the years, with lows of 1018 and 1037 banded birds (in 2019 and 2017, respectively) and highs over 2000 banded birds in three fall seasons (record high of 2475 in 2005). As noted previously, there were 13 days fully lost due to bad weather (about 15% of the period). Banding totals for about half the days with banding were between 11 and 30 birds, whereas ten birds or less were banded in 25% of the days. Only seven days have banding totals of more than 50 birds. Most of the 19 species, with average of 20 birds or more, were banded in numbers around average, except for a few species either on the low or high end. Red-breasted Nuthatch, Golden-crowned Kinglet, and Slate-colored Junco were banded in numbers much above the highly variable average of their species. On the other hand, Myrtle Warbler and American Redstart are species quite below their 2002-2019 average (Table 2). Large variations in numbers banded for both species occur across the seasons, with a low of 50 in 2007 and a high of 204 in 2005 for Myrtle Warbler and a low of 44 in 2007 and a high of 198 in 2003 for American Redstart. A Common Grackle was banded on August 18, the first individual of this species captured in the fall.

Golden-crowned Kinglet, with 359 birds banded, represents 24% of the seasonal total, and the species most banded this fall, as is usually the case. Golden-crowned Kinglet is the top species banded in every fall season, except in two, accounting from 12 to 37% of the season total. However, this species was only 5% of season total in 2005, when a few species were banded in higher numbers, notably Back-capped Chickadee and 10% in 2007, with Chickadees again banded in higher numbers. The top five species account for 48% of the banding total this fall and 11 species have banding totals over 50 individuals. On the other end of the spectrum, 19 species have only one individual banded (Table 1).

Numerous variables affect the 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.17). The capture rate is determined by dividing the number of birds caught by the number of hours for which the nets were operated. Thus, variation in capture rate reflects variation in those two parameters, which are themselves dependent upon various conditions (weather being the major one). Mist net hours are primarily lost when weather

conditions (i.e. rain or strong wind) render it unsafe to capture birds thus forcing net closure. In fall 2020, weekly capture rates were quite variable, with three weeks below average and three others above average, notably the last one. The high capture rate of October 25 - 31 corresponds to a record high of 170 birds banded during that period. This fall, mist net hours were around average for six weeks of the 11 weeks of monitoring, with four weeks below average, especially on October 11 - 17 week when only 36% of mist net hours were possible, the lowest ever rate for that week. On the other hand, the last week experienced good weather allowing for higher than average mist net hours (Fig.18).

Weekly numbers of banded birds partially reflect variation in capture rates (Fig.17). Most of the weeks show banded numbers relatively around average. However, numbers are quite below average in three weeks. Of course, a week is a rather arbitrary temporal division, mostly useful to smooth the extreme daily variations in banding (see Fig.19) and to allow comparisons between years.

In fall 2020, 65% of the potential mist net hours were realized, compared to a range of 54% in fall 2007 to 85% in fall 2008, with an average of $72\% \pm 9$. Poor weather conditions either precluded opening any mist nets for a total of 13 days or only a portion of the 15 nets or a portion of the day. Conditions allowed for a complete banding operation (all 15 mist nets opened for six hours, i.e. 90 mist-net hours a day) during 36% of the monitoring period. Coverage of 80 mist-net hours or more was realized during 50% of the monitoring period.

Table 1. Number of species banded in fall 2020 at CHRS according to their banding total.

Banding total	1 - 10	11 – 50	51 – 100	>101
Number of species	45	17	8	2

Table 2. Banding total at CHRS in fall 2020, with 2002 - 2019 average (and standard deviation), maximum and minimum totals for 2002 - 2019, and number of previous falls with captures.

Group	Species	2020	Av.	StDev.	Max.	Min.	#
Cuckoos	Black-billed Cuckoo	1	2,5	1,7	5	1	4
	Yellow-billed Cuckoo	1	1,7	0,5	2	1	9
Goatsuckers	Eastern Whip-poor-will	1	1,0		1	1	1
Woodpeckers	Downy Woodpecker	17	9,6	7,6	31	1	18
	Hairy Woodpecker	3	5,4	3,1	12	1	15
	Yellow-Shafted Flicker	3	4,3	2,1	8	1	17
Tyrant Flycatchers	Yellow-bellied Flycatcher	6	2,9	1,7	7	1	16
	Traill's Flycatcher	4	5,8	3,8	16	1	18
	Least Flycatcher	6	4,9	1,9	9	3	17
Shrikes	Northern Shrike	1	1,8	0,8	3	1	6
Vireos	Blue-headed Vireo	4	6,6	3,8	13	1	18
	Philadelphia Vireo	1	2,5	1,7	6	1	14
	Red-eyed Vireo	70	76,6	51,0	239	24	18
Crows & Jays	Blue Jay	3	5,0	3,6	16	1	17
Chickadees	Black-capped Chickadee	102	146,9	172,6	717	11	18
Nuthatches	Red-breasted Nuthatch	92	50,1	44,1	160	2	18
	White-breasted Nuthatch	1	1,2	0,4	2	1	5
Creepers	Brown Creeper	50	40,2	17,7	75	19	18
Wrens	House Wren	1	1,3	0,5	2	1	8
	Winter Wren	4	4,4	2,3	8	1	17
Kinglets	Golden-crowned Kinglet	359	312,3	161,9	758	113	18
	Ruby-crowned Kinglet	56	61,4	29,9	122	20	18
Thrushes	Veery	1	3,9	2,6	10	1	15
	Gray-cheeked Thrush	1	14,7	8,9	41	6	18
	Swainson's Thrush	25	33,9	19,9	79	10	18
	Hermit Thrush	31	37,4	18,8	87	15	18
	American Robin	12	16,9	9,3	36	1	18
Mockingbirds & Thrashers	Gray Catbird	2	4,9	3,1	12	1	18
	Brown Thrasher	1	1,4	0,5	2	1	5
Waxwings	Cedar Waxwing	2	30,3	34,3	117	1	17
Finches	Pine Grosbeak	2	2,8	1,7	5	1	4
	Purple Finch	3	4,3	4,5	17	1	16
	White-winged Crossbill	1	8,3	11,8	22	1	3
	Common Redpoll	4	3,3	2,6	6	1	4
	Pine Siskin	8	26,1	49,3	170	2	11
	American Goldfinch	3	7,9	10,2	30	1	11

Group	Species	2020	Av.	StDev.	Max.	Min.	#
New World Warblers	Tennessee Warbler	3	10,2	12,0	44	2	17
	Orange-crowned Warbler	11	15,1	8,2	28	3	18
	Nashville Warbler	24	32,9	15,6	78	14	18
	Chestnut-sided Warbler	1	1,8	1,2	5	1	16
	Magnolia Warbler	11	20,6	6,1	34	11	18
	Black-throated Blue Warbler	14	13,1	4,6	21	2	18
	Myrtle Warbler	65	79,7	40,9	204	34	18
	Black-throated Green Warbler	59	56,6	32,6	116	14	18
	Blackburnian Warbler	2	3,2	2,4	10	1	13
	Pine Warbler	1	1,8	0,7	3	1	8
	Palm Warbler	3	7,4	5,4	22	1	18
	Bay-breasted Warbler	15	7,3	5,9	23	1	16
	Blackpoll Warbler	6	11,6	8,2	31	3	18
	Black and White Warbler	15	23,0	8,0	37	9	18
	American Redstart	55	97,8	41,4	198	44	18
	Ovenbird	14	18,0	5,2	31	10	18
	Northern Waterthrush	4	5,9	3,7	15	1	18
	Connecticut Warbler	1	1,0	0,0	1	1	2
	Mourning Warbler	1	2,5	1,1	4	1	13
	Common Yellowthroat	25	25,6	6,4	39	17	18
	Wilson's Warbler	2	6,6	3,3	12	1	18
	Canada Warbler	5	3,9	2,0	7	1	18
New World Sparrows	American Tree Sparrow	25	27,3	26,2	94	2	18
	Chipping Sparrow	3	2,3	1,7	6	1	15
	Savannah Sparrow	11	2,5	2,1	8	1	11
	Fox Sparrow	1	2,6	1,8	7	1	16
	Song Sparrow	23	12,8	5,1	22	5	18
	Lincoln's Sparrow	8	5,4	3,3	13	1	17
	Swamp Sparrow	7	4,4	2,3	11	1	17
	White-throated Sparrow	74	72,7	44,6	199	27	18
	E. White-crowned Sparrow	42	45,2	29,2	126	17	18
	Slate-coloured Junco	94	81,8	29,2	141	24	18
Cardinals & allies	Scarlet Tanager	1	1,5	0,5	2	1	10
	Rose-breasted Grosbeak	5	3,0	2,5	8	1	9
	Indigo Bunting	1	2,2	1,8	5	1	12
New World Blackbirds	Common Grackle	1					

For 2020, record high captures in red, record low in yellow.

Av.: average; stdev: standard deviation; Max: Maximum; Min: Minimum; #: Number of previous fall seasons with captures.

E.: Eastern

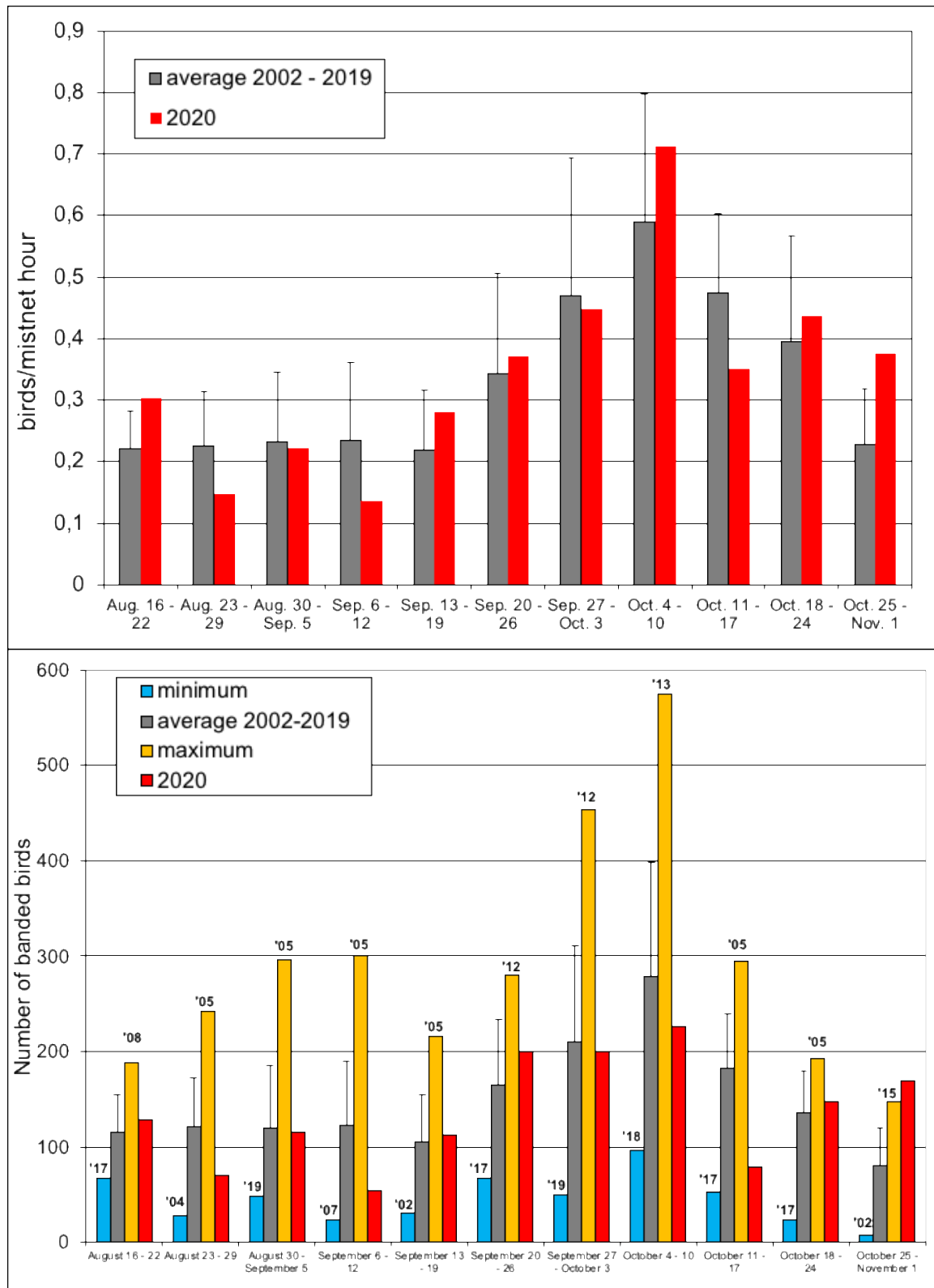


Figure 17. Weekly capture rates (top) and number of banded birds (bottom) at CHRS during the fall season (average 2002-2019, minimum and maximum (with corresponding year) and 2020). Error bars show Standard Deviation.

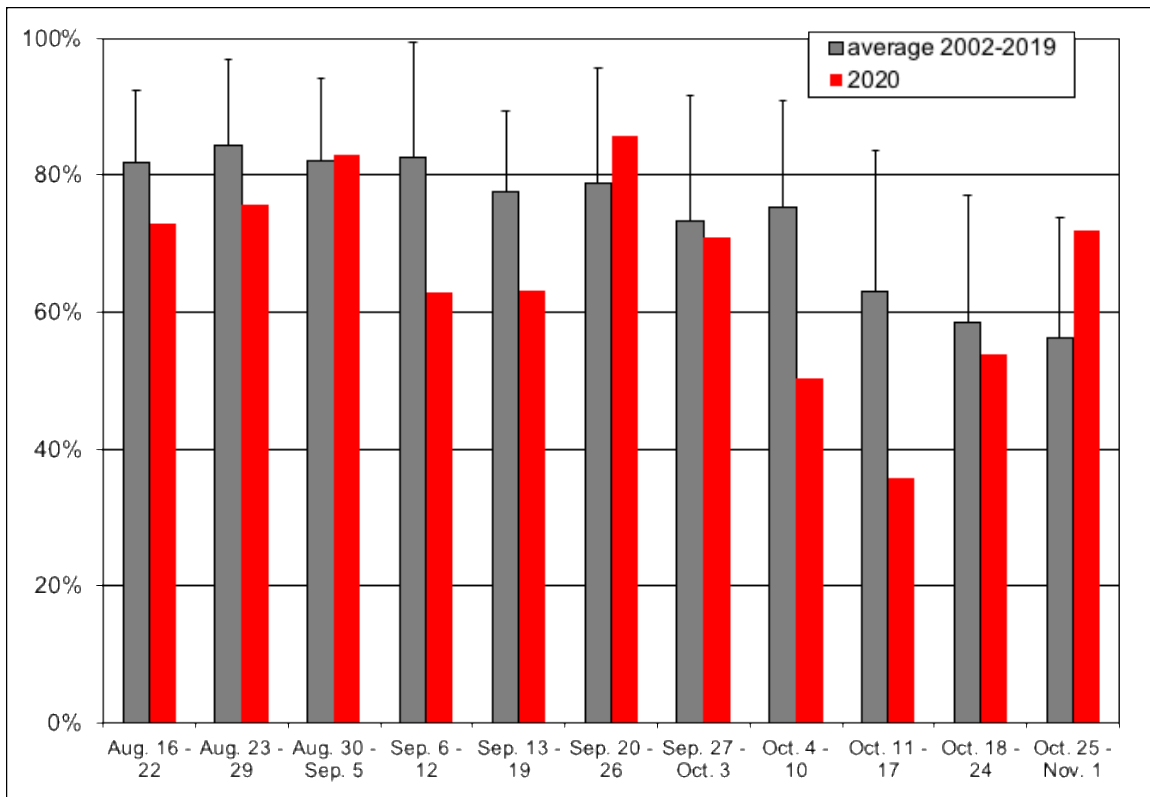


Figure 18. Weekly proportion of realized mist net hours at CHRS during the fall season (average 2002-2019 and 2020). Error bars show Standard Deviation.

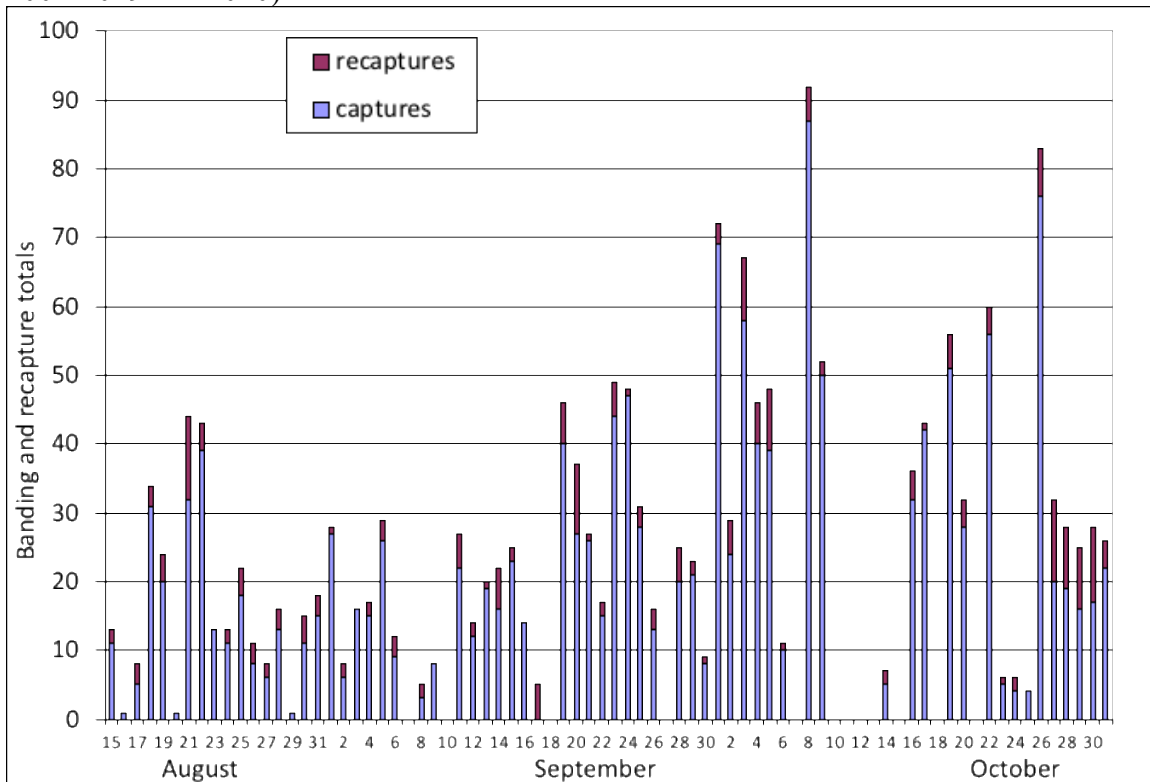


Figure 19. Daily number of captured and recaptured birds at CHRS, fall 2020.

Species newly or rarely banded at Cabot Head:

This fall season, one species was banded for the first time in the fall: A Common Grackle on August 18. A few species rarely banded (from one to four occurrences in previous fall seasons) were captured this fall. An Eastern Whip-poor-will was banded on August 22. This nocturnal species is obviously rarely captured: one bird in spring 2005 and one in fall 2013. It is much more commonly detected by ear: Whip-poor-wills were heard regularly during the early part of the season, up to September 15, one of the latest dates on record (September 29, 2011 being the latest). One Connecticut Warbler was banded on September 2 and recaptured two days later, the third fall season with a capture, after 2003 and 2005. A Black-billed Cuckoo was banded on September 9. This species has been banded previously in four other fall seasons (and six spring ones, including 2020), from one to five birds. A Yellow-billed Cuckoo was banded on September 23. A Northern Shrike was banded on October 26.

The so-called winter finches are rarely seen, as their name implies, let alone banded. This fall, White-winged Crossbills (one bird), Pine Grosbeaks (two birds), and Common Redpolls (four birds) were captured. They were previously banded in three fall seasons for the former, and four fall seasons for the other two.



Photo 3: Common Grackle (left), Eastern Whip-poor-will (middle), and Connecticut Warbler (right).



Photo 4: Black-billed Cuckoo (left), Yellow-billed Cuckoo (middle), and Northern Shrike (right).



Photo 5: White-winged Crossbill (left), Pine Grosbeak (middle), and Common Redpoll (right).

5. Recaptures

There was a total of 236 recaptures for 151 individuals of 31 species from August 15 to October 31 (Table 3). The vast majority (86%) of recaptures came from birds banded in the fall. In total, 73% of the recaptured birds were recaptured only once and another 22 birds were recaptured on two occasions. No bird banded outside of Cabot Head was recaptured this fall.

The 21 birds of seven species banded in previous seasons and recaptured this fall are most likely local breeders, with 11 birds of five species banded in summer 2020, despite limited banding (See Summer Section). Of the nine birds banded before summer 2020, only three have a history of recapture at Cabot Head, although a recent one: Two American Redstart banded in spring 2020 were also recaptured in the summer. One Black-capped Chickadee banded in fall 2019 was recaptured twice in spring 2020 before being recaptured four times this fall. The oldest known recaptured bird this fall is a Red-eyed Vireo banded as an After-Hatch-Year in fall 2015 (hatched in or before 2014). Despite nine seasons (including summer 2020) from banding to recapture, this at least 6-year-old Red-eyed Vireo had never been recaptured before September 2, 2020.

For species banded with more than 20 individuals, the within-season recapture rates vary from 2% (Ruby-crown Kinglet) to 28% (Common Yellowthroat). It is highest for species that tend to forage mostly on the ground or low in the vegetation, which increases the likelihood of capture, like Common Yellowthroat, White-crowned Sparrow and Hermit Thrush (recapture rate of 22% for both). Locally abundant breeding species tend also to be recaptured in high proportion: 14% of the 70 Red-eyed Vireos were recaptured, as well as 13% of American Redstart. Despite being captured in high numbers, only 3 to 11% of Golden-crowned Kinglets (7% this fall) are ever recaptured during the same season, indicating a quick movement through Cabot Head.

One Black-capped Chickadee, banded on September 11, was subsequently recaptured nine times from September 14 to October 30 as befit a local resident. Eight of the ten recaptured chickadees were recaptured four or more times, their weight staying relatively constant, a clear indication of their resident status. A Slate-colored Junco, banded on October 9, was recaptured eight times from October 14 to 31. Its original weight was 17.7g but it dropped to 14.7g ten days later on October 19 (a 17% reduction). Slowly, this bird put back on weight: 15g on the 20th, 15.3 on the 22nd, 16.3 on October 28, and, finally, 17g on the last capture, on October 31. On the other hand, the Mourning Warbler banded on September 15 and weighing 10.3g then, slowly gained

weight over the course of four recaptures from September 19 to 23, from 11g to 12.9g, an increase of more than 20% from initial to final weight. These two examples show the importance of high-quality stopover habitats and variation among species and individuals.

Table 3. Total recaptures by species in relation with year and season of banding (only one recapture per individual is included) at CHRIS, fall 2020.

Species	2015	2019		2020			%
	fall	spring	fall	spring	summer	fall	
Downy Woodpecker						5	29%
Hairy Woodpecker						1	33%
Red-eyed Vireo	1					10	14%
Black-capped Chickadee			3		2	7	7%
Brown Creeper						6	12%
Golden-crowned Kinglet						26	7%
Ruby-crowned Kinglet						1	2%
Swainson's Thrush						3	12%
Hermit Thrush						5	16%
Purple Finch						1	38%
Tennessee Warbler						1	33%
Nashville Warbler						3	13%
Chestnut-sided Warbler						1	100%
Magnolia Warbler						1	9%
Black-throated Blue Warbler						1	7%
Myrtle Warbler						3	5%
Black-throated Green Warbler				1		2	3%
Bay-breasted Warbler						1	7%
Black and White Warbler					1	1	7%
American Redstart		1	1	3	6	7	13%
Ovenbird						2	14%
Connecticut Warbler						1	100%
Mourning Warbler						1	100%
Common Yellowthroat					1	7	28%
Chipping Sparrow					1	1	33%
Song Sparrow						4	17%
White-throated Sparrow						6	8%
White-crowned Sparrow						7	17%
Slate-coloured Junco						8	9%
Scarlet Tanager						1	100%
Total	1	1	4	4	11	130	11%

%; Proportion of birds banded in fall 2020 recaptured.

6. Personnel

Four volunteers contributed 49 person-days to the fall migration monitoring season (Table 4). The volunteers this fall came from Ontario and Quebec. A big thank to them!

Table 4. Volunteer effort, fall 2020.

19 - 26 Days	5 - 6 Days
Fanny Senez-Gagnon	RuiLin Guo
Annick Antaya	Ted Cheskey

7. Summer

Because of the Covid19 pandemic, no stewardship program was possible during the summer (see bpbo.ca for details). As a consequence, and to keep a presence at the station, it was decided that the station scientist would stay over the summer at Cabot Head. This situation presented a wonderful opportunity to do some summer banding. A selection of eight (and, later, ten) nets were open from about sunrise and run for six hours, every five days, from June 15 to August 5. Opening time was 5:30am from June 15 to July 21 and 6:00am from July 25 to August 5. The nets with the highest capture rate in the regular spring and fall season were selected: A1, 2, &3, B9&10, C13, 14, &15. From July 5 onward, nets A5 and B7 were added as well.

Weather during the 13 banding days this summer was relatively good, with a few days with high wind and only one day with rain starting in mid-morning. In total, about 94% of the potential mist net hours were realized, indicating of an excellent coverage. A total of 217 birds of 33 species were banded (Table 5 and Fig.20), with 39% of them American Redstarts (84 birds), followed by Red-breasted Nuthatch (18 birds banded, 8% of the total), Red-eyed Vireo and Black-and-white Warbler (13 birds each, or 6% of the total). The other 29 species were banded in very small numbers, from one to seven birds. These results reflect the overwhelming preponderance of American Redstarts as a local breeder, compared to other species. However, there were interesting captures of Common Grackles (seven birds) and Red-winged Blackbirds (four birds): both species are rarely caught in spring and never in fall (except for the first Common Grackle this fall). Small flocks of both species were observed in July, with 40 Common Grackles on July 13, the day when

six were banded. However, more Grackles escaped from the nets, since their large size prevents a thorough entanglement. It appears that post-breeding movements of both species occur in mid-summer at Cabot Head, which explains the dearth of observation during the fall season. A total of six Gray Catbirds were banded between June 27 and July 25, including one young on that last day, compared to only two birds banded in fall (and four in spring).

Timing of captures of American Redstarts (including recaptures of birds banded before summer) reflected the breeding process (Fig.20): adult males were predominant early on, in mid-June, when they likely move around to defend territories, while females sit on nests. A quiet time followed in late June, possibly because young nestlings were in nests with adults busy feeding them while avoiding attracting attention to the nests. The first fledged young was caught on July 5, with numbers of young birds captured increasing readily afterward. Fledging occurs about nine days on average after hatching, the incubation period itself being ten to 13 days. After fledging, each parent typically cares for certain offspring only. The two parents often separate with their respective young, although the male typically stays near the nest site. Adult females, not being tied to the nest anymore, become more mobile and prone to get caught. The predominance of young birds in the captures from July 21 onward could reflect both their greater ability to fly around and their still reduced skills compared to adult birds. As mentioned, eight, then ten, nets were in use during the summer. Notably, nets A5 and B7 were added on July 5. Remarkably, A5 caught about 26% of all unbanded American Redstarts, whereas this net caught only 7% of American Redstarts during the fall season. In summer, 18 of the 22 redstarts caught in A5 were young birds. Overall, 43% of all young redstarts were captured in A5 this summer. About a third of A5 is very close to dense shrubs and most of the young redstarts were caught in that section: it is easy to imagine young birds with limited flying skills hopping and barely flying through the dense tangle of Mountain Maple and Mountain-Ash and coming into the net without much chance to fly around.

The summer banding total of 84 American Redstart stands in sharp contrast with the spring and fall totals of 42 and 55 American Redstarts, respectively. Banding totals are highly variable for this species, both in spring and fall. Having only one year of banding in summer limits our conclusions, but summer banding certainly provided interesting data, notably with recaptures of previously banded birds.

All the 13 Red-eyed Vireos captured in summer were adult, as opposed to only two of the 70 birds banded during the fall season.

Table 5. Banding and recapture totals at CHRS in summer 2020.

Group	Species	Summer 2020	
		Banding	Recapture
Cuckoos	Black-billed Cuckoo	3	
Tyrant Flycatchers	Yellow-bellied Flycatcher	1	
	Least Flycatcher	1	
	Eastern Phoebe	3	
Vireos	Red-eyed Vireo	13	3
Chickadees	Black-capped Chickadee	5	
Nuthatches	Red-breasted Nuthatch	18	
Creepers	Brown Creeper	2	
Thrushes	Veery	3	
	Swainson's Thrush	1	
	American Robin	5	
Mockingbirds & Thrashers	Gray Catbird	6	2
Waxwings	Cedar Waxwing	5	1
Finches	Purple Finch	1	
	American Goldfinch	1	
New World Warblers	Chestnut-sided Warbler	1	
	Black-throated Blue Warbler	1	
	Myrtle Warbler	1	
	Black-throated Green Warbler	5	1
	Black-and-White Warbler	13	
	American Redstart	84	14
	Ovenbird	5	
	Mourning Warbler	1	
	Common Yellowthroat	4	2
	Canada Warbler	6	
New World Sparrows	Chipping Sparrow	4	1
	Song Sparrow	6	
	Slate-coloured Junco	1	
Cardinals & allies	Northern Cardinal	2	
	Rose-breasted Grosbeak	1	
	Indigo Bunting	3	
New World Blackbirds	Red-winged Blackbird	4	
	Common Grackle	7	
Total		217	24

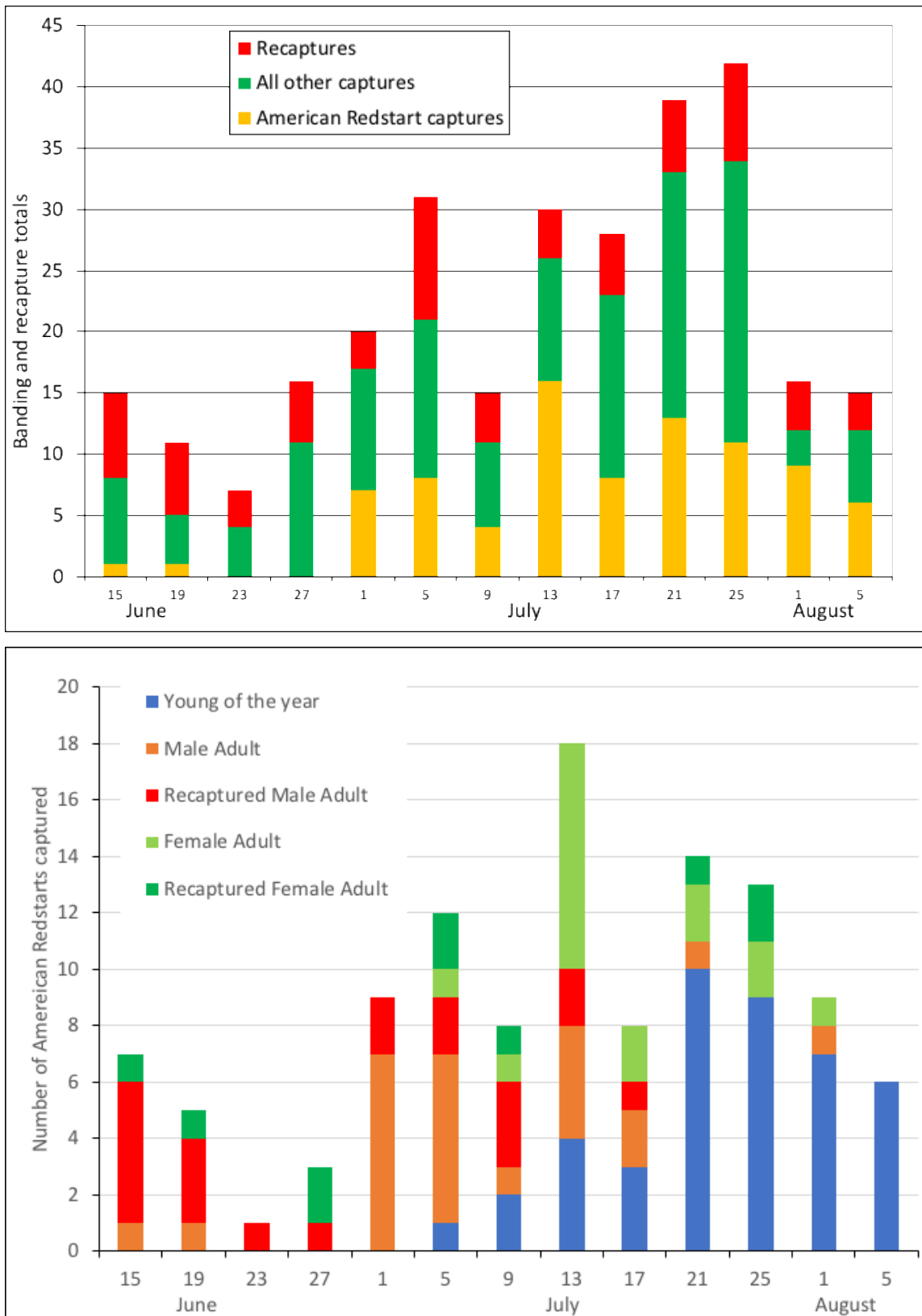


Figure 20. Daily number of captured and recaptured birds (top) and American Redstart (bottom) at CHRS, summer 2020.

There was a total of 68 recaptures for 50 individuals of eight species from June 15 to August 5 (Tables 5&6). About half (48%) of recaptures came from birds banded during the summer, including all recaptured birds for four species. Thus, only four species, Red-eyed Vireos, American Redstart, Black-and-white and Black-throated Green Warblers have recaptures of birds banded prior to summer 2020 (Table 6). In total, 78% of the recaptured birds were recaptured only once and another six birds were recaptured on two occasions. The oldest recapture is a female American Redstart banded as a Second-Year in spring 2014 (meaning it hatched in 2013), being now seven-year-old. After its banding in spring 2014, that bird was recaptured once in spring 2015, twice in spring 2016, and then never again until the recapture in summer 2020. The Black-and-white Warbler, banded in spring 2017, was recaptured in fall 2017 and spring 2018, but was not recaptured again until this summer. Both examples illustrate how easy it is for a bird to miss the nets, even though both are also likely breeders at Cabot Head. The Red-eyed Vireo banded in fall 2019 was recaptured for the first time this summer.

Having three seasons of banding in 2020 (albeit with a reduced spring one) provides a unique opportunity to examine in more details the recapture history of the most common local breeder, the American Redstart. A total of 22 American Redstarts banded before 2020 (11 birds from fall 2019, 11 from spring 2014 to spring 2019) were recaptured during at least one season of banding in 2020 (spring, summer, or fall). All but one bird banded prior to fall 2019 had been recaptured at Cabot Head already before 2020, a strong indication of their breeding status at the station. All 22 American Redstarts may be assumed to be breeders at Cabot Head in 2020, which should increase their likelihood of capture, regardless of the season. However, less than a third of them (7 birds) were recaptured in two seasons in 2020 (spring and summer) and none at all recaptured in all three seasons. Recaptures in fall were very low: only two birds of the 22, indicating that most birds possibly leave the Cabot Head area earlier than the onset of the fall season (August 15). About half of the recaptured American Redstarts (ten birds) were recaptured only during the summer banding, including the bird banded in spring 2014. However, it should be noted that there were more mist net hours during the 13 days of summer banding than during the 34 days of spring banding this year: 674 vs. 568 mist net hours. In spring, only six nets were in use, and opened two hours after sunrise, compared to eight, at first, then ten, nets opened at sunrise in summer. The six nets deployed in spring 2020 have captured in previous springs about 61% of all redstarts captured. Timing of capture is also important: of the 3066 American Redstarts captured in the springs 2002

-2019, 51% were captured from opening time to two hours after sunrise. The early hours are thus crucial to capture American Redstarts, at least, in spring. Despite these caveats, it is clear that a limited summer banding provided opportunities to capture and recapture birds, especially American Redstarts, that would have been missed otherwise. Of the 84 American Redstarts banded in summer 2020, only six (7%) were recaptured in the fall, another indication that migration of this species is already underway when monitoring starts in August 15. However, four American Redstarts of the 42 banded in spring (9.5%) were later recaptured, one only in fall, three in summer, with two of them also recaptured in fall.

Table 6. Recapture totals for birds banded before summer 2020, at CHRS in summer 2020.

Group	Species	2014	2016	2017	2018		2019		2020
		spring	spring	spring	spring	fall	spring	fall	spring
Vireos	Red-eyed Vireo							1	
New World Warblers	Black-thr. Green Warbler								3
	Black-and-White Warbler			1					1
	American Redstart	1	1		1	2	3	9	3
Total		1	1	1	1	2	3	9	7

Black-thr.: Black-throated

8. Conclusion

For a nineteenth consecutive fall, bird migration monitoring at Cabot Head was done daily from August 15 to October 31, thanks notably to a dedicated team of volunteers. The continuing monitoring effort throughout the years continually adds details and refines our knowledge the natural history of bird migration on the Bruce Peninsula.

A long-term monitoring is immensely valuable to better understand such a dynamic and complex phenomenon that bird migration is. For example, BPBO data show how variable in both timing and numbers migration of some species, like Golden-crowned Kinglet and Slate-colored Junco, can be at Cabot Head. Data also illustrate the highly cyclical aspect of some movements: the somewhat regular irruptions of Red-breasted Nuthatch, for example, contrasting sharply with the more random movements of winter finches.

This fall, a high diversity and relatively good numbers of birds were observed, combining notably, an influx of winter finches late in the season and an irruption of Red-breasted Nuthatch throughout the fall. A remarkable windstorm took place in early October this fall: eight days of almost uninterrupted gale-force winds from October 9 in late morning to October 16, during a period of usually large movements of many short-distance migrants.

Despite the continuing global Covid19 pandemic, the full protocol of migration monitoring was followed, with a reduced number of experienced volunteers. It is possible that observation pressure was somewhat reduced as a consequence. Nonetheless, the total number of species detected and a good number of unusual records observed this fall seem to indicate a correct level of observation. An unintended consequence of Covid19 was the possibility of summer banding, which, for at least one summer, provided interesting data, notably regarding the local breeders, especially American Redstart. Every observation brings its own reward, and increases our knowledge, understanding, and appreciation of the natural world.

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

Acknowledgements

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

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Appendix I

Table 7. Season Total of species observed in fall 2020 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 name	Season Total	Daily Max.	Daily Min.	Days with obs.	First date	Last date
Ducks, Geese & Swans	Canada Goose	774	156	1	23	25 Au.	29 Oc.
	Wood Duck	2	1	1	2	20 Au.	2 Oc.
	American Wigeon	1	1	1	1	26 Oc.	
	American Black Duck	7	7	7	1	26 Oc.	
	Mallard	25	12	1	9	7 Se.	28 Oc.
	Green-winged Teal	21	19	2	2	22 Se.	11 Oc.
	Ring-necked Duck	2	1	1	2	10 Oc.	10 Oc.
	Greater Scaup	13	8	2	3	24 Se.	8 Oc.
	Lesser Scaup	18	18	18	1	26 Oc.	
	Surf Scoter	1	1	1	1	7 Oc.	
	White-winged Scoter	36	8	2	8	7 Oc.	27 Oc.
	Black Scoter	1	1	1	1	7 Oc.	
	Long-tailed Duck	123	120	1	4	22 Oc.	29 Oc.
	Bufflehead	31	19	1	3	26 Oc.	31 Oc.
	Common Goldeneye	22	11	2	5	26 Oc.	30 Oc.
	Hooded Merganser	19	3	1	13	29 Au.	31 Oc.
	Common Merganser	106	22	1	20	16 Au.	20 Oc.
	Red-breasted Merganser	88	26	1	10	4 Oc.	27 Oc.
Grouse & Turkeys	Ruffed Grouse	43	5	1	19	5 Oc.	31 Oc.
Grebes	Horned Grebe	55	8	1	19	6 Oc.	30 Oc.
	Red-necked Grebe	15	4	1	8	24 Se.	13 Oc.
Pigeons and Doves	Mourning Dove	3	1	1	3	17 Oc.	26 Oc.
Cuckoos	Black-billed Cuckoo	6	1	1	6	23 Au.	21 Se.
	Yellow-billed Cuckoo	1	1	1	1	23 Se.	
Goatsuckers	Common Nighthawk	1	1	1	1	21 Au.	
	Eastern Whip-poor-will	6	1	1	6	16 Au.	15 Se.
Hummingbirds	Ruby-throated Hummingbird	30	4	1	18	15 Au.	11 Se.
Cranes	Sandhill Crane	11	3	2	5	19 Au.	27 Oc.
Sandpipers & Phalaropes	Killdeer	1	1	1	1	31 Au.	
	Greater Yellowlegs	10	3	1	7	16 Au.	25 Oc.
	Lesser Yellowlegs	2	2	2	1	3 Oc.	
	Solitary Sandpiper	1	1	1	1	5 Se.	
	Spotted Sandpiper	2	1	1	2	16 Au.	31 Au.

Group	Species name	Season Total	Daily Max.	Daily Min.	Days with obs.	First date	Last date
Sandpipers & Phalaropes	Wilson's Snipe	4	4	4	1	10 Oc.	
	American Woodcock	1	1	1	1	8 Oc.	
Gulls & Terns	Ring-billed Gull	567	112	1	59	15 Au.	27 Oc.
	Herring Gull	98	13	1	41	15 Au.	29 Oc.
	Caspian Tern	2	1	1	2	18 Au.	28 Au.
Loons	Red-throated Loon	1	1	1	1	31 Oc.	
	Common Loon	136	13	1	45	20 Au.	31 Oc.
Cormorants	Double-crested Cormorant	303	24	1	31	15 Au.	8 Oc.
Hérons & Bitterns	Great Blue Heron	4	1	1	4	15 Au.	28 Au.
Vultures	Turkey Vulture	48	6	1	14	15 Au.	2 Oc.
Hawks, Kites & Eagles	Bald Eagle	77	5	1	45	15 Au.	29 Oc.
	Northern Harrier	7	1	1	7	1 Se.	29 Oc.
	Sharp-shinned Hawk	23	4	1	13	1 Se.	1 Oc.
	Cooper's Hawk	2	1	1	2	20 Se.	11 Oc.
	Red-shouldered Hawk	1	1	1	1	1 Se.	
	Broad-winged Hawk	12	6	1	5	16 Au.	3 Se.
	Red-tailed Hawk	40	28	1	5	15 Au.	14 Oc.
	Rough-legged Hawk	2	1	1	2	14 Oc.	25 Oc.
Kingfishers	Belted Kingfisher	72	2	1	55	15 Au.	23 Oc.
Woodpeckers	Yellow-bellied Sapsucker	1	1	1	1	25 Se.	
	Downy Woodpecker	134	10	1	44	1 Se.	31 Oc.
	Hairy Woodpecker	27	3	1	20	23 Se.	31 Oc.
	Northern Flicker	125	9	1	48	19 Au.	25 Oc.
	Pileated Woodpecker	31	2	1	25	21 Au.	31 Oc.
Falcons	American Kestrel	5	2	1	4	25 Au.	29 Se.
	Merlin	69	6	1	45	15 Au.	25 Oc.
	Peregrine Falcon	9	3	1	7	15 Se.	4 Oc.
Tyrant Flycatchers	Eastern Wood-Pewee	2	1	1	2	23 Au.	24 Au.
	Yellow-bellied Flycatcher	6	2	1	5	18 Au.	19 Se.
	Traill's Flycatcher	5	1	1	5	21 Au.	8 Se.
	Least Flycatcher	15	3	1	11	20 Au.	15 Se.
	Eastern Phoebe	16	2	1	14	15 Au.	29 Oc.
	Great Crested Flycatcher	5	2	1	4	18 Au.	21 Au.
	Eastern Kingbird	3	3	3	1	19 Au.	
Shrikes	Northern Shrike	1	1	1	1	27 Oc.	
Vireos	Blue-headed Vireo	10	2	1	9	25 Au.	8 Oc.
	Philadelphia Vireo	1	1	1	1	18 Au.	
	Red-eyed Vireo	223	13	1	43	15 Au.	26 Oc.

Group	Species name	Season Total	Daily Max.	Daily Min.	Days with obs.	First date	Last date
Crows & Jays	Blue Jay	1048	142	1	54	15 Au.	17 Oc.
	American Crow	106	7	1	39	15 Au.	29 Oc.
	Common Raven	88	9	1	44	15 Au.	31 Oc.
Larks	Horned Lark	16	4	1	7	23 Se.	22 Oc.
Swallows	Barn Swallow	1	1	1	1	20 Au.	
Chickadees	Black-capped Chickadee	1191	88	2	69	17 Au.	31 Oc.
Nuthatches	Red-breasted Nuthatch	686	47	1	72	15 Au.	31 Oc.
	White-breasted Nuthatch	24	6	1	17	14 Se.	31 Oc.
Creepers	Brown Creeper	65	6	1	28	13 Se.	31 Oc.
Wrens	House Wren	16	2	1	13	22 Au.	21 Se.
	Winter Wren	18	2	1	14	11 Se.	28 Oc.
Kinglets	Golden-crowned Kinglet	746	79	1	37	11 Se.	31 Oc.
	Ruby-crowned Kinglet	145	25	1	31	19 Se.	30 Oc.
Thrushes	Veery	1	1	1	1	25 Au.	
	Gray-cheeked Thrush	1	1	1	1	14 Se.	
	Swainson's Thrush	31	5	1	18	25 Au.	22 Oc.
	Hermit Thrush	50	8	1	20	24 Se.	31 Oc.
	American Robin	150	17	1	42	15 Au.	30 Oc.
Mockingbirds & Thrashers	Gray Catbird	3	1	1	3	25 Se.	31 Oc.
	Brown Thrasher	1	1	1	1	22 Se.	
Waxwings	Bohemian Waxwing	31	20	11	2	27 Oc.	31 Oc.
	Cedar Waxwing	215	40	1	24	15 Au.	30 Oc.
Pipits	American Pipit	15	5	1	9	15 Se.	25 Oc.
Finches	Pine Grosbeak	3	2	1	2	28 Oc.	31 Oc.
	Purple Finch	160	18	1	35	16 Au.	12 Oc.
	White-winged Crossbill	15	4	1	7	26 Au.	31 Oc.
	Red Crossbill	2	1	1	2	10 Oc.	31 Oc.
	Common Redpoll	156	81	1	8	4 Oc.	31 Oc.
	Pine Siskin	1033	108	1	46	12 Se.	31 Oc.
	American Goldfinch	111	17	1	29	15 Au.	31 Oc.
Longspurs & Snow Buntings	Lapland Longspur	2	1	1	2	4 Oc.	8 Oc.
	Snow Bunting	59	20	1	8	25 Oc.	31 Oc.
New World Warblers	Tennessee Warbler	11	3	1	7	19 Au.	1 Oc.
	Orange-crowned Warbler	16	3	1	10	5 Oc.	26 Oc.
	Nashville Warbler	42	4	1	23	18 Au.	22 Oc.
	Northern Parula	1	1	1	1	19 Se.	
	Chestnut-sided Warbler	8	2	1	7	17 Au.	31 Au.
	Magnolia Warbler	18	2	1	14	17 Au.	14 Se.

Group	Species name	Season Total	Daily Max.	Daily Min.	Days with obs.	First date	Last date
New World Warblers	Black-throated Blue Warbler	18	3	1	12	15 Au.	7 Oc.
	Myrtle Warbler	433	62	1	46	18 Au.	25 Oc.
	Black-throated Green Warbler	176	22	1	28	15 Au.	23 Oc.
	Blackburnian Warbler	7	2	1	4	20 Au.	26 Se.
	Pine Warbler	6	1	1	6	20 Au.	26 Oc.
	Western Palm Warbler	25	6	1	10	10 Se.	5 Oc.
	Bay-breasted Warbler	27	9	1	12	20 Au.	28 Se.
	Blackpoll Warbler	7	1	1	7	5 Se.	26 Se.
	Black-and-white Warbler	31	8	1	12	15 Au.	6 Se.
	American Redstart	272	22	1	29	15 Au.	6 Oc.
	Ovenbird	17	5	1	11	17 Au.	24 Se.
	Northern Waterthrush	4	2	1	3	26 Au.	22 Se.
	Connecticut Warbler	2	1	1	2	2 Se.	4 Se.
	Mourning Warbler	5	1	1	5	15 Se.	23 Se.
	Common Yellowthroat	146	10	1	42	15 Au.	19 Oc.
	Wilson's Warbler	4	1	1	4	30 Au.	23 Se.
	Canada Warbler	5	1	1	5	18 Au.	3 Se.
New World Sparrows	Eastern Towhee	1	1	1	1	17 Au.	
	American Tree Sparrow	62	10	1	17	14 Oc.	31 Oc.
	Chipping Sparrow	22	3	1	11	15 Au.	1 Oc.
	Clay-colored Sparrow	1	1	1	1	2 Oc.	
	Field Sparrow	1	1	1	1	10 Oc.	
	Savannah Sparrow	14	3	1	10	19 Se.	8 Oc.
	Fox Sparrow	2	1	1	2	26 Oc.	31 Oc.
	Song Sparrow	311	11	1	66	15 Au.	26 Oc.
	Lincoln's Sparrow	16	6	1	9	8 Se.	23 Oc.
	Swamp Sparrow	11	3	1	7	23 Se.	19 Oc.
	White-throated Sparrow	265	39	1	35	6 Se.	30 Oc.
	White-crowned Sparrow	286	34	1	35	21 Se.	31 Oc.
	Dark-eyed Junco	294	17	1	43	15 Au.	31 Oc.
Cardinals & allies	Scarlet Tanager	2	1	1	2	11 Se.	12 Se.
	Northern Cardinal	4	1	1	4	16 Au.	31 Oc.
	Rose-breasted Grosbeak	12	7	1	5	22 Au.	10 Se.
	Indigo Bunting	1	1	1	1	5 Se.	
New World Blackbirds	Red-winged Blackbird	3	1	1	3	26 Au.	24 Se.
	Rusty Blackbird	30	9	1	10	5 Se.	27 Oc.
	Common Grackle	71	71	71	1	19 Au.	

Appendix II

An edited (for brevity and clarity) version of the blog published during the fall 2020 monitoring season.

Fall migration monitoring in the middle of summer! - August 21

August 15, marked the first day of the 2020 fall migration monitoring season and “yours truly” opened up all the 15 mist nets as per the regular CMMN protocol. For more information about the protocol [...], see; <https://www.birdscanada.org/bird-science/canadian-migration-monitoring-network-cmmn/>

[...] This fall, a decision was made to run a normal fall monitoring protocol, as normal as can be: we are accepting volunteers, although only one at a time, as per COVID-19 compliance, with no overlap between volunteers. [...]

So, why start so early with the fall migration monitoring protocol, you may ask? A good question, indeed! In fact, there are already some fall migrants on the move and in order to have the best monitoring results possible, it is essential to encompass the whole period of migration, from the first early birds to the last stragglers. For example, a Greater Yellowlegs was heard calling on August 16, already moving south from its boreal summer haunts.

Other species are not so easily separated between birds on the move and locals still enjoying their summer. For example, American Redstart, the “poster bird” of a local species, is very abundant on the Bruce Peninsula. In fact, the American Redstart is the signature bird of the local Huron Fringe Birding Festival, named one of the Top 100 birding festivals in North America. (see <https://friendsofmacgregor.org/page/huron-fringe-birding-festival>). All American Redstarts will eventually start their migration to warmer climes but it is difficult to know who is who - when an unmarked bird is captured in one of our nets if it is a local bird or one coming from away.

Bird banding days in mid-August are usually relatively quiet. However, on August 18, with cooler temperatures at night and in the early morning and a strong, constant North wind throughout the day, there was a notable movement of many birds, resulting in 30 birds of 14 species being captured and banded, including nine species of warblers. Most of the captured birds were young from this breeding year, so called Hatch-Year birds, and many were from species that breed on the Bruce Peninsula as well as further north. However, one Philadelphia Vireo was captured: it is a species most associated with the boreal forest, with very small numbers breeding on the northern Bruce Peninsula and Manitoulin island. It is possibly that this Philadelphia Vireo was our first “real” songbird migrant

Another “true” songbird migrant in the mist net, was the young Tennessee Warbler captured on August 19. Like the Philadelphia Vireo, is a boreal forest specialist (despite some summer records on the Bruce and Manitoulin), that enjoys good times during spruce budworm outbreaks.

Finally, on August 20th, short periods of rain and strong South winds forced us to close the nets after only one hour of opening. However, there were small flocks of birds passing through Cabot Head from time to time, with a great diversity, notably of warblers, with 10 species detected with my eyes and my binoculars. The most notable were Bay-breasted and Blackburnian Warblers, the former another spruce budworm boreal specialist. A Common Loon was also seen flying quickly towards the southern horizon.

[...]

Flying South! - August 27, 2020

On August 26, a few small flocks of Canada Goose (for a total of 82 birds) were flying South, their iconic V-shaped formation aiming towards warmer climes, pre-emptively fleeing the frost, the snow and the icy conditions of the late fall that signal the coming winter. I wonder, are these Canada Geese the most eager, the most timid, or the most sensitive to cold? They are certainly the early fall migration scouts, the harbingers of more to come, and the first to cross over the Cabot Head skies this summer (or is it fall now that geese are flying South?). With 19 years of migration monitoring, it is possible to look back and compare my observations with previous years. On August 23, 2005, a startling 255 Canada Geese were counted but, on August 31, 2017, there were 684 geese counted! But these days are the exception to the rule: a few other days in August bring totals between 25 and 70 birds on the move, but, most often than not, there are barely any notable movements of Canada Goose during this month. [...]

Migration was indeed quite slow this past week, with very few obvious movements or bird activities, and this was reflected in low captures in the mist nets. On the first net check on the morning of August 22, with the sun slowly poking over the watery horizon, I approached a strange, dark shape caught in net A5, hanging there in the shadow of a big Sugar Maple tree. My brain, pre-coffee, was working hard to match the apparition to a species. It was after I finally put my hands on the bird and started gently extracting it, that I understood why it was so difficult to recognize it. It was our first Eastern Whip-poor-will of 2020 monitoring and only the third eastern Whip-poor-will EVER to be captured during the migration monitoring at Cabot Head! I still remember vividly the one that was caught and banded in the spring of 2005, it got caught in the net after it sang so loudly around the station. A second bird was captured in fall 2013, when I was actually not present. So, it was with trepidation that I pulled the Whip-poor-will out of the net. It was an adult male, with the trademark white patches on its tail, the short bill but a wide mouth, along with long modified feathers around the beak/mouth that resemble cat whiskers. Their plumage is designed to mimic the surrounding habitat – so the bird looks a lot like dead leaves and grey bark. It is quite small for such a vociferous bird, all wings and mouth, weighing less than an American Robin. In fact, this bird weighed only 45g, as much as a Rose-breasted Grosbeak. Why would I compare it to a seed-specialist passerine?

Simply because later on that fateful day, we caught four Grosbeaks, with three in the same net at the same time, ready to pounce on my fingers with their namesake GROS bill.

August 22 turned out to be the best banding day so far this fall season, with a good catch of various warblers, notably eleven Black-throated Green Warblers, five Black-and-white Warblers, and to spice things up, one Bay-breasted and one Canada Warblers! In total, 12 species of warblers got detected that day.

Other noteworthy moments: on August 25, five (5!) Merlins and two American Kestrels were flying together above Middle Bluff, chasing and diving at each other. The Merlins were picking mostly on the hapless Kestrels. I had never observed that many Merlins flocking together before this time at Cabot Head.

The morning surprise, on August 26th, was a young White-winged Crossbill! It is a species that has been only captured in three previous fall seasons (and never in spring) but never this early in fall migration. In fall 2008, a total of 22 White-winged Crossbills were captured, with three on September 13, the earliest date before now, and the other 19 were caught all at once in the same

net on October 19. The other Crossbills were caught on October 31, with two birds in 2011 and one in 2012.

As I constantly repeat: “always expect the unexpected” at migration time! So, keep your mind open and your ears and eyes sharp!

Unsettled weather! - September 3, 2020

[...] On September 2nd, after an early morning of strong South wind and rain, the weather calmed down enough for us to open the nets. Among the meagre six birds caught was an adult male Connecticut Warbler! It is only the fourth Connecticut Warbler ever captured in the 19 years of monitoring at Cabot Head. This elusive and secretive bird is hardly ever observed, especially during migration. I have heard its explosive, loud song in the boreal forest (of Northern Alberta) but I have never seen one in the wild. And I have never heard nor seen it in Ontario, let alone at Cabot Head, other than in our nets.

What makes it special? Think of the Connecticut Warbler as an oversized Mourning Warbler, with a much stronger white eye ring, but lacking the black breast band. Instead, the adult male's breast feathers are subtle with darker gray tips. After admiring this most rare of warblers and taking many pictures, we wished it good luck on its long migration journey to the Amazon basin.

[...] not much else of note has happened since I last blogged, except for a series of storms that moved through during the last week including August 29th, and again on September 2nd, (such wind!) – and finally a fierce, warm, south wind on September 3rd, that rendered an intense but short-lived thunderstorm in the afternoon.

There were very little bird activities overall during the past week, with the usual suspects around: Song Sparrows, Black-capped Chickadees and Red-breasted Nuthatches, the spattering of warblers, the drab flycatchers, the ever-singing Red-eyed Vireos... But on August 31st, a Blue-headed Vireo brought an end to the red-eyed monopoly and monotony. And, in the nets on September 1st, five Ovenbirds were captured, a seemingly low number but, in fact, a record for Cabot Head! Considering all the previous fall days of operation at Cabot Head, captures of Ovenbirds have only been between one and three birds, except on August 30, 2011, with five.

Swainson's Thrushes are now on the move, with two birds captured on September 1st, and five on September 3rd. This long-distance migrant, alongside Grey-cheeked Thrush, migrate mostly during September, and like the Connecticut Warbler, have a long way to go to fly to reach the continent of South America.

On September 3rd, four Merlins were seen briefly flying together in a much-disorganized fashion; I wonder if they are siblings. One Merlin soared with a Sharp-shinned Hawk for a little short while: they kept diving at each other!

[...]

A change is in the air! - September 12, 2020

This past week, it felt like summer had been slipping away, much faster than it should at this time of year. Temperatures were much cooler than usual, cloudy days brought a damper to wearing shorts and jumping into Wingfield Basin for a refreshing dip.

It was not the most exciting week as well for bird activity, I'm afraid. Nonetheless, we recaptured the Connecticut Warbler on September 4th. On September 5th, we captured the first (and so far, only) Blackpoll Warbler of the season. At the Pine Barrens the same day, I observed for several long minutes a Solitary Sandpiper around a rain puddle, a beautiful shorebird etched in black and white and some browns, a denizen of the boreal forest in summer, seen around here only during migration and always solitary.

[...] The first Palm Warblers of the fall were seen on September 10th, at the very end of the 60-minute census, among a varied flock of birds: There were many chickadees and nuthatches (both very common this fall), a few Bay-breasted Warblers, a couple of Yellow-rumped Warblers, one Rose-breasted Grosbeak, and several Red-eyed Vireos. It was a nice reward after almost nothing heard or seen during the census that day.

On September 11th, we caught a young female Scarlet Tanager, in a yellow and olive outfit, a far cry from the outrageous scarlet of the males, but a beautiful bird nonetheless. Surprisingly, from 2002 to 2009, this species was caught only during two fall seasons, whereas it was captured almost every fall season from 2010 onward (missed only on 2014 and 2018).

As I'm writing these lines, a strong East wind is blowing under a thick layer of clouds, harbinger of rain. And rain always brings a halt to bird migration. But the relentless of seasonal changes will soon enough be expressed again through the passage of birds at Cabot Head.

A time of transition - September 19

We are almost at the fall equinox, when the whole earth is equally balanced between night and day. Leaves have started to change colour in earnest, another sign of transition.

This is a time when we are saying good bye to many species, although we are never sure exactly when to say "so long for now": a late bird is always possible. For example, the American Redstart seen on September 16 might be the very last one of the year. Or not: across the years, stragglers have been seen well into October, with the latest date being October 25. But the bulk of the long-distance migrants are further south now, with only the rear guard still moving through, mingling with the first individuals of the short-distance migrants.

Among the latter, we observed and banded the first Golden-crowned and Ruby-crowned Kinglets of the season on September 19, a rather typical date of arrival for these species. (As they breed in small numbers on the Bruce Peninsula, they are sometimes detected earlier in the season) On that date, they shared the woods (and the nets!) with a Yellow-bellied Flycatcher, a species that usually doesn't linger in its Canadian breeding grounds: among the last to arrive in late May - early June and first to leave in August! Indeed, from 2002 to 2019, only three birds were detected after September 19, with the latest bird on the 27th.

Still on September 19th, we heard - and sometimes could see high in the sky - the calls of Purple Finches and Pine Siskins. These two species have been moving through in small but increasing numbers this fall, with the first small flocks of noisy siskins alighting on spruce and cedar tops, eager for fatty cone seeds. There was quite a bit of movement on September 19, with eight species of warblers detected, including the rare (at Cabot Head) but always beautiful Northern Parula and a Blackpoll Warbler.

Thrushes are secretive birds and are more often than not detected through banding. This year, the first, and, so far, only, Grey-cheeked Thrush was captured on September 14. This species, which migrates all the way to northern South America, typically moves through Cabot Head in September, coming from the northernmost reaches of the boreal forest. It is never captured in large numbers,

from a low of six birds (in 2011 and 2019) to a high of 41 birds in 2016. The Swainson's Thrush also migrates mostly in September at Cabot Head, heading for the same parts of the world as its cousin, the Grey-cheeked, but it is usually captured more often. So far, this year, a total of 16 Swainson's have been banded but its passage extends into early October here, so there are more to come.

We've been seeing and banding quite a few Red-breasted Nuthatches this fall, the ones captured being almost exclusively adults. It seems that we might be in for a repeat of the massive irruption of 2018 when the Northeast was flooded with this attractive bird. There have also been very good numbers of Red-eyed Vireos captured this fall, with a total over 60 birds, including 26 banded this past week. This bird, like the two thrushes mentioned above, travels all the way to South America to spend the winter in the Amazon forest, with its cousin, the Chivi Vireo.

We certainly wish them all "bon voyage" and good luck in their long travel!

The return of summer!? - September 26, 2020

The temperatures in the past week have been very summer-like, bringing an illusion of summer returning. However, all the signs indicate the coming of a new season: nights are longer than days; the leaves are turning in their greens, changing into a rich palette of colours, from dull browns to golden yellows to burgundies to scarlet red; and, of course, the palette of birds is also very different than the late-summer one.

As if to celebrate the fall equinox, the first White-crowned Sparrow of the season was observed on September 21. This species breeds further north than its cousin, the White-throated Sparrow, and as thus, arrives later in fall at Cabot Head. Its breeding range in Ontario is a wide band along the James and Hudson Bays. It is the easiest sparrow to age in the fall season, adults sporting the namesake white (and black!) crown, whereas young birds have a somewhat more subdued crown of different shades of brown.

On that time of equal length of night and day, we also observed two Rusty Blackbirds exploring the rusty hull of the shipwreck, seemingly finding good morsels of food on it. There was still a hint of summer on September 21 with 10 species of warblers observed, including two American Redstarts. [...]

We got a few treats on the morning of September 23, starting with a fantastic, albeit short, observation of an adult Peregrine Falcon flying low, but naturally fast, over Wingfield Basin. Shortly afterward, we captured and banded an adult Yellow-billed Cuckoo. This species has been banded in nine of the previous 18 fall seasons, with only one or two birds captured, but it is the first one since 2015. We've had quite a few sightings and captures of Black-billed Cuckoos this year, alongside an infestation of gypsy moths: the bane of trees is also the boom of cuckoos.

It really felt like autumn on September 24 when a diverse assortment of sparrows graced the woods, with a good number flying into our nets. We banded 14 White-throated Sparrows that day, certainly the most abundant species, followed by Dark-eyed Juncos (a far second with 6 birds banded). The first White-crowned Sparrow of the season was banded. Swamp and Lincoln's Sparrows were also present, sadly dismissed, like other sparrows, by many as LBJs (Little Brown Jobs). Yes, sparrows are not always easy to identify and their habits of skulking in dense vegetation doesn't help. But the nuances in shades of browns and greys, in spotting and streaking, in bill shape and size, make for a wonderful challenge for whoever wants to devote some time and patience to them. Flashy spring male warblers they are not! But beauty is not just feather deep.

And now for a textbook example of migration ecology! We banded a young Mourning Warbler of undefined sex (too young to tell) on September 15, a species of thick undergrowth in disturbed and regenerating forests. After the initial banding, we recaptured the Mourning Warbler every second day up to September 23, giving us five data points for its fat and weight. So, its weight was 10.3g on September 15 and steadily climbed with time: 11.0g on the 17th, 11.7g on the 19th, 12.1g on the 21st, and finally 12.9g on the 23rd. In eight days, the Mourning Warbler increased its weight by 25%, by feeding constantly to put on fat, the necessary fuel for the long non-stop night flights of its migration. Birds do need to replenish their reserves from time to time after the demanding migratory flights: they stop in various places for sometimes extended stays, depending on their needs and the richness in food. This small example of one Mourning Warbler highlights the critical importance of “stopover” habitats throughout the length of the migratory path: without places to stop and refuel, even if their breeding and wintering habitats were safeguarded, the miracle of migration would stumble and crumble, one paved paradise at a time, one more roadside mowed instead of “messy” shrubs and weeds.

Our textbook Mourning Warbler also tied with another one, in 2017, for the latest date on record at Cabot Head. The 2017 bird was also having a stopover, banded on September 15, and recaptured five times between September 18 and 23. Unlike its 2020 counterpart, it barely managed to put on weight, another textbook example of variability in either individuals or resource availability between years. Only long-term monitoring, like the one done here at Cabot Head research Station, can provide data of this kind, allowing comparisons across years and multiple species. [...]

Unsettled weather and aerial spectacle! - October 4, 2020

The past week has brought us fully into autumn, with the previous summer-like temperatures a distant memory and rain falling during part of four days, forcing net closures before the full extent of monitoring. [...]

On September 27th, it wasn't rain that precluded banding but a fierce South wind blowing constantly. [...] Nonetheless, we were outside doing observation and census. Not many birds were visible though. But quality made for lack of quantity: two young Peregrine Falcons offered us an impressive aerial spectacle for most of the morning! They seemed to enjoy the strong wind, soaring and gliding on stiff wings, likely expending very little energy while patrolling the air, high or low, along the shoreline of Cabot Head. Their brown plumage identified them as young of the year. They were frequently interacted with each other, letting me to suspect that they might be siblings. The strong wind was also creating ideal conditions for hunting, especially the unlucky small bird coming from the bay: with no cover to escape to, they were easier prey to these bird hunters. [...] It was a typical story of prey-predator, with most attacks being unsuccessful despite the seemingly perfect conditions. A Belted Kingfisher dove shortly in the water to escape sharp talons! Many small songbirds used last-minute sharp turns to evade the fast approaching falcons, who cannot turn as quickly. Throughout the morning, I believe that I witnessed only two successes.

As if it was not enough, a third Peregrine Falcon appeared in the sky. It even went in for the bird that the other two were trying to catch, taking turns at diving at the unfortunate bird. However, it looked like the falcons were more hindering each other than helping. The small bird flew away unscathed. The third Peregrine also disappeared behind the horizon. Later in the morning, it is a young Bald eagle that shared briefly the same aerial space as the two falcons. It is not often that one can see in their binoculars two Peregrine Falcons and a Bald eagle!

On October first, Golden-crowned Kinglets arrived in numbers, chattering away in the trees incessantly and hitting our nets frequently. They usually are the most common species around in the first half of October. That day, we also had eight species of sparrows, with an unusual Clay-coloured Sparrow, and five species of warblers, an interesting diversity.

On October 3rd, I briefly observed a Lapland Longspur on the shore of Georgian Bay. It was close enough that I could see the long claw on the hind toe, the “longspur” of its name. This species is rarely seen at Cabot Head, with sightings in two spring seasons and five fall seasons prior to this one. It breeds in the arctic tundra all around the northern hemisphere, a so-called Holarctic distribution, being the only longspur species present in Asia and Europe. The southernmost breeders in the world are in fact in Ontario, around Cape Henrietta Maria, which separates Hudson and James Bays, a mere one thousand kilometres from Cabot Head. Lapland Longspurs winter across much of the USA and in extreme southwestern Ontario and Quebec. There is no telling how further south the Cabot Head longspur will continue. Likewise, nobody knows where it started its journey. Nonetheless, it is clear that even so-called short-distance migrants routinely fly mind-boggling distances, sometimes more than a thousand kilometres.

On that day, an adult Peregrine Falcon was briefly observed, offering a brief glimpse of its solid black hood and blue-gray upperparts. Golden-crowned Kinglets kept us busy at the nets. The following day, October 4th, was a nice repeat: lots of kinglets in the nets and a still brief albeit longer sighting of an adult Peregrine Falcon. We also captured and banded the first Orange-crowned Warbler of the season, maybe the same bird that we observed in the afternoon of the previous day.

And then, a heavy curtain of rain brought the day to an end!

Being grateful in the time of coronavirus. - October 11, 2020

At this special time of the year when we pause and give thanks, I have been thinking of the many reasons why I am grateful, despite this being the weirdest of years. First and foremost, of course, being at beautiful Cabot Head is a blessing in of itself. But my staying here has been made possible only through the hard work and help of many. Behind the scenes, the Board of Directors is always working tirelessly on so many fronts, making sure the migration monitoring is possible. It is the endless and thankless task of finding funding, be it for a new roof (now a shining reality), more solar panels and batteries (a somewhat urgent priority), or, simply, to give the lucky Station Scientist a contract.

BPBO was also facing the complicated aspect of a washed-out lighthouse road. Here stepped up John, a friend of BPBO from Dyers Bay, who provided ATV rides to staff and volunteers, always willing, always cheerful! I cannot thank him enough for making my life so much easier. The road has now been temporarily fixed, still closed to all but BPBO and ON Parks staff, and always at the mercy of another strong storm.

With the return of a full monitoring program this fall, I have also been very lucky in finding enthusiastic and experienced volunteers, willing to spend their time and energy (one at a time) at a banding station. It was even more remarkable to have them given the very short time notice and the restrictions we are all facing. Soon, my fourth and last volunteer of the fall will arrive to spend the remaining three weeks of migration.

And, of course, I am grateful for the joy that birds and nature bring me, even though they are completely indifferent about my human needs. The past week was once again filled with little

moments of wonder and awe. Weather was very generous with fierce wind during that time: we had to shorten or fully abort banding on five different days!

Pine Siskins are still enlivening the place with their constant chattering and bouncing flights. A few even ended up in our nets. Many kinglets and quite a few sparrows were also captured when banding was possible. On October 8, seven species of sparrows were also banded: Savannah (so many this fall!), Song, Lincoln's, Swamp, White-throated, and White-crowned Sparrows, as well as the Dark-eyed Junco. The First of Fall American Tree Sparrow was observed on the windy morning of October 11.

The keen eye of Ted Cheskey, one of the founding persons of BPBO, detected the three species of Scoters in one day, October 6, which included a Surf Scoter taking a break in Wingfield Basin from fighting the strong South wind. Ted also heard a Red Crossbill on October 9.

And then, the wind returned with a vengeance. On October 9, it picked up very quickly around noon, coming from the south with a brute force. I discovered the extent of it, coming back from running errands, in the unmovable shape of a fallen poplar across the lighthouse road. Luckily, I was only 3.5km from the station: grabbing a couple of grocery bags with food in need of refrigeration, it was a nice walk in the dark.

The wind has been spinning around the compass rose in a dizzying manner. After blowing from the South for about 24 hours, it shifted West, then, Northwest in early evening Saturday. At dawn on Saturday 11, it was Northeast and is now - at this time of writing, Saturday afternoon - firmly blowing from the East, still with a fierce urgency. It is supposed to turn Southeast and South again later on.

I have never experienced such a complete 360 degrees roundabout in such a short time. The East wind is the worrying one, the one that might wash out the road again with big crashing waves. I will certainly go out tomorrow to check on it, as well as walking the hydro line once more just in case more trees fell on it. This is why more solar panels would be so nice and reduce our dependency on the standard hydro infrastructure.

For now, golden rays of sunshine are pouring down on golden leaves, the blue water of Wingfield Basin is a mirror to the depthless blue of the sky, Ravens are playing in the wind above Wingfield Basin, sometime joined by Bald Eagles. So many reasons to be grateful.

Oh, the wind, the wind! - October 18

It was a long and stormy week! The wind barely stopped in the last 10 days! As noticed in the last post, the wind picked up quickly and fiercely around noon on Friday, the 9th, and it did not relent for the following seven days! We could not open the nets at all during this time, except for only three (consecutive) hours on Wednesday, the 14th. The wind kept on spinning around the compass rose like a whirling dervish. Needless to say, birds were relatively sparse during these days. However, on October 13th, under a pounding West wind, we had a festival of raptors, showing off their aerial prowess, fully deserving to be named the Wind Masters (the title of a wonderful book by Pete Dunne, a legendary birder among the hawkwatchers of North America). On that day, there were many Red-tailed Hawks soaring and gliding with barely a beat of their broad wings. We counted a record 24 of them, seen all at once in the sky. Joining the two resident adults, we observed three immature Bald Eagles. A Northern Harrier was riding the wind with its long wings held high. A Rough-legged Hawk, the first of the season, glided across and over the station. It was a beautiful dark morph (also known as a colour phase), with head, body, and underwing coverts a dark chocolate brown, offsetting the translucent white of the wings and tail.

The Rough-legged Hawk has a Holarctic breeding distribution, roaming the arctic and subarctic tundra in search of small rodents and its preferred nesting sites, exposed bedrock cliffs and riverine bluffs. Its breeding distribution in North America is almost similar to the Lapland Longspur, another Holarctic species (highlighted in the October 4 blog). In Ontario, all documented nests of Rough-legged Hawk have been on artificial structures associated with abandoned radar sites (of the famous DEW line of yore). It is about 1,000 km from there to Cabot Head, but maybe this first visitor from a distant, barren land came from even further north. On October 16 and 17, we were finally able to open all the nets for the required 6 hours and we banded a decent number of birds each day, with kinglets being the most abundant. We also banded five American Tree Sparrows in one day, a species rarely with double-digit daily totals. Indeed, in all the fall seasons between 2002 and 2019, there have been only seven days with double-digit totals, out of 158 days with banding of this species. American Tree Sparrows are a late migrant among the late migrants, with often time the biggest numbers seen at the very end of October. It is likely that more birds move through in November, alas, at a time when monitoring has ended and the station has been closed for a long winter.

On October 17, we recorded three species of warblers, little splashes of colour. These included a few Yellow-rumped Warblers, the classic late warbler, a hardy species which can subsist on berries and bays which winters the furthest north of all wood warblers, One Orange-crowned Warbler in the bush and one in the net, these are relatively late migrants, which can winter along the Atlantic coast and the American Southeast, as well as Florida. Finally, one Nashville Warbler captured and duly banded, still a long way to Mexico and Central America, where it would switch its diet of insects to one of nectar, piercing flowers to drink the sugary treat. This trio of warblers have always been observed in October, even on later dates than October 17.

On the afternoon of October 17, we observed a young Northern Shrike perched several minutes on a wire at the large fen near the gate. Outside the count area and the monitoring period, it was nonetheless a very fun sighting. Perhaps the cold, clear, and crisp day seemed to invite this species to show up! Aptly named, it is another northern species, with far-away breeding territories of stunted trees amidst open peatlands and regenerative burns, the Land of Little Sticks. According to eBird, our sighting is the first for southern Ontario. [...]

A glimpse of winter! - October 26

We are now entering the last week - even days - of monitoring with the end date being October 31st, which completes 78 days of uninterrupted monitoring. The warm days of summer are long behind us, nights are now firmly longer than days, leaves of all the deciduous trees have changed their colours, with many already fallen to the ground. Even tamaracks are now slowly turning golden, with a nice gradation from green to yellow among the trees lining Wingfield Basin. It is the only coniferous species, the so-called “evergreen”, to shed all its needles come winter. We even got our first snow falling on October 25.

This is usually a time of year when migration slows down, both in terms of numbers and diversity. However, some birds are just getting under way, notably waterfowl like Common Goldeneyes and Bufflehead (first observed on October 25 at Cabot Head) or Long-tailed Ducks (heavy movement on October 25 with more 120 birds counted).

This past week, we banded an unusual number of Golden-crowned Kinglets, with a high daily total of 53 birds on October 26, which is a record total for this time of year. After October 20th,

daily totals are usually between a few to about 30 birds, with a previous high of 57 kinglets on October 24, 2009.

We also got several surprises. A Swainson's thrush was captured on October 22nd, the latest record ever, a full 7 days later than the previous latest date of October 15th, in 2016. On October 22nd we still detected four species of warblers: Orange-crowned, Nashville, Yellow-rumped, and Black-throated Green Warblers. The first three species are not unusual in October, even late October. The Black-throated Green Warbler, though, was extremely late. This species had never been observed after October 10th at Cabot Head in the 18 previous fall seasons. After the gold medals of the latest records, time for the silver medals of the second-latest records. On October 26th, a Pine Warbler and a Red-eyed Vireo were captured and duly banded. And yes, they are both the second latest record for their respective species.

Another sign that winter is coming, whether we like it or not, is the sudden appearance of little flocks of Common redpolls, with the first ones detected on October 24. On that day, October 24th, the first Snow Buntings were heard and seen flying over the station. They became a common sight and sound afterwards. The next day, a Fox Sparrow, the second biggest sparrow in North America, let me admire its striking reddish plumage and large bicoloured bill for a quick moment before flying away and across the basin, the first of the season. A flock of about 20 Bohemian Waxwings were briefly seen on October 26th, the only third time in 19 years of monitoring. Bohemian Waxwings, as the name implies, are irregular visitors and when they do it is it tends to be after the end of monitoring.

On that same day, we got another surprise, with a young Northern Shrike caught in a net. The aptly nicknamed butcher bird used expertly its hooked and sharp bill to defend itself from grasping hands. A few bloody fingers later, we put a band on the 12th Northern Shrike banded at Cabot Head, and the first since 2014. It is not a frequent occurrence in our nets, to say the least, although it is observed more regularly.

And, finally, the last surprise (for now) was on October 27th when we caught two Pine Grosbeaks, one young and one adult female. This boreal species had been previously detected during 8 fall seasons at Cabot Head but banded only in 2005, 2007, 2012, and 2014. [...]

Ending with a flourish! - November 11, 2020

In the last few days of monitoring at Cabot Head Research Station, we were delighted to make wonderful observations of many species, notably an amazing mix of species on the very last day. On October 27th, alongside the two Pine Grosbeaks captured and banded (as mentioned in the previous blog), we also observed three Sandhill Cranes flying South. It is the latest observation ever of Sandhill Cranes in the 19 years of monitoring. In the past, there's been only one record after mid-October, with four birds on October 18th, in 2008. An Eastern Phoebe was observed on October 27th and again on October 29th, the latter breaking the record for the latest date, but only by a meagre two days. Eastern Phoebe is a hardy species of flycatcher, being a very early spring migrant and a late fall migrant.

On October 29th, during a cold morning of increasing Northeast wind, a few flocks of Canada Geese were heading South (for a total of 115 birds). A Red-throated Loon was also briefly seen as it flew by. It is a species rarely seen at Cabot Head, with only five birds seen in four previous fall seasons. It is a species that doesn't seem to be very common in Georgian Bay compared to the rest of the Great Lakes. [...] Suddenly, it was the last day of monitoring, October 31st! The weather was overcast and cold, with an increasing south wind, but we were able to open the nets and do our

observations. We were treated with an astounding diversity and a strange mix of birds on that last day. It was as if birds wanted to celebrate with us on the end of another successful season. A Gray Catbird was observed, then captured and banded. While not exactly unusual in late October, it was still a surprise as very few Catbirds were detected this fall, with only two birds banded, including that late one. We also heard and observed a male Northern Cardinal and one White-breasted Nuthatch, species not very often encountered at Cabot Head, despite their abundance on the Bruce. We were lucky to catch a Fox Sparrow, the only one banded this season, as well as one last American Tree Sparrow. These two species not only share a late migration, but also a bicoloured bill made of black (for the upper mandible) and yellow (for the lower mandible). A couple of Snow Buntings were also detected but the highlight certainly goes to the suite of six species of finches, quite rarely, if ever, seen all in one day. Here's the list: Common Redpoll (lots!), Pine Siskin (a few), American Goldfinch (just one), Pine Grosbeak (also just one), Red Crossbill (happily - for me - showing off on top of cedars and on the TV antenna, in full view for a few minutes), and White-winged Crossbills. The cherry on the cake was the small flock of 11 Bohemian Waxwings. Thank you, birds, for giving us one last flourish as the season was ending!

It is always a bittersweet moment to take down the nets and store them away and then to pack up and close down the station for a long winter. But Spring is only five months away, when we will return to Cabot Head for another season, and not any season: 2021 will mark the 20th year of non-stop, long-term monitoring at Cabot Head by BPBO!

See you all next Spring!

Stéphane Menu

Station Scientist