MIGRATION MONITORING AT CABOT HEAD

SPRING 2018

by

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prepared for

BRUCE PENINSULA BIRD OBSERVATORY

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Preface

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

The Breeding Bird Survey (BBS) is the principle method for monitoring bird populations in the United States and southern Canada. However, breeding ranges of many species in northern Canada are inaccessible to roadside surveys and are therefore poorly monitored by the BBS method. The Canadian Migration Monitoring Network (CMMN) is a nation-wide, Bird Studies Canada-led initiative, intended to assess changes in bird populations during migration. There are 25 stations across Canada where data are being collected for each bird species during the spring and fall migrations, typically through a standardized capture and observation protocol. Through continuous data collection since 2001, BPBO has demonstrated that Cabot Head is a significant site for monitoring migratory landbirds. In recognition of its importance and established migration monitoring effort, BPBO became a member of the CMMN in fall 2003.

BPBO was incorporated as a non-profit charitable organization in 2001 to initiate and direct ornithological assessments and monitoring at Cabot Head and the surrounding areas. Migration monitoring has been the primary focus of bird research at Cabot Head since 1998. This document reports on results of the spring 2018 migration monitoring season at the CHRS.

Executive Summary

In this document are summarized the results of migration monitoring at Cabot Head in spring 2018. Spring fieldwork began on April 20, with banding starting on April 22, and ended on June 10 for a total of 52 consecutive days of coverage. A total of 160 species were detected during the monitoring period. A complete list of all species observed, with season Estimated Totals, days with observation, maximum and minimum daily totals, is provided in the appendix (as Table 5). A total of 1159 birds of 67 species were banded and 52 birds of 15 species were recaptured. Recapture data suggest that overall stopover rates at Cabot Head are low.

The defining characteristic of spring 2018 was the four-day snowstorm in mid-April, which prevented from opening the station on the scheduled day of April 15. Access to the station was only possible on foot until April 30. Monitoring started on April 20, with census and observation, and banding on April 22. Ground was 100% snow covered at that time, with big snowbanks around the C nets. Only the A and B nets were in operation from April 22 to 29, then nets C14&15 were added on April 30. Nets C11&12 were in operation starting on May 3, and finally, the last net, C13, was on from May 9 onwards. Poor weather was frequent early in the season, with strong winds, sometimes accompanied by rain, completely precluding banding for nine days during the first 19 days of monitoring. In contrast, during the next 33 days, only one full day of banding was lost due to high wind. There were still a good number of days with very good coverage (more than 80 mist net hours out of a potential of 90 for a given day): 30 days (i.e. 60% of the monitoring period). In spring 2018, the banding total of 1159 birds was well below the spring average of 1588 ± 505 banded birds (high of 2622 birds in spring 2002 and low of 876 in spring 2014). Three species, Golden-crowned Kinglet, American Redstart, and Ruby-crowned Kinglet (in decreasing order), represented 35% of the banding total. There were only seven days with banding totals over 50 birds (including two over 100 birds). The greatest number of captures was on April 24 with 130 birds banded. On May 9, 79 species were detected, the highest diversity of the spring.

The 2018 spring migration monitoring season was a success thanks to the efforts of the nine volunteer field biologists who contributed their time to this project.

1.0 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 commencing 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.

2.0 Season Summary

April

Fieldwork for spring migration monitoring began at CHRS on April 20 with census and casual observation. Banding started on April 22, with a limited number of nets due to snow on the ground (see Executive Summary for details). It would be May 9 before all nets were up and ready to go, in sharp contrast from the previous spring when April 15 marked the first day of monitoring with the whole array of nets. A snow storm raged from April 14 to 17, dumping about 40 cm of snow on ground already covered in snow from an earlier storm in the first days of April. Weather afterward was frequently cold and windy, with episodes of strong wind and rain, precluding banding for a total of three days out of the nine days of banding in April. Potential mist net hours could be calculated in two ways: the fully theoretical potential for April (15 days with 15 mist nets) or the actual potential (number of days from start of banding with actual number of nets set up). With the former approach, only 25% of potential mist net hours were realized in April, well below average for this early-season period. With the latter definition, 73% of potential mist net hours were achieved.

In April, 82 species were detected (51% of the season total), of which six species were detected only this month (early migrants: Fox Sparrow; occasional species: American Widgeon, Vesper Sparrow; rare species: Snow Goose). A daily average of 36 species were detected (range: 17 – 56 species). A total of 394 birds of 21 species were banded in April. Banding in April is highly variable: From 2002 – 2017, on average, 363 ± 275 birds are banded during the two weeks in April in which nets are open, but numbers have fluctuated from a low of 138 in spring 2005 to a record

high of 1159 in spring 2016, an eight-fold difference! Given the limited numbers of banding days in April 2018, the banding total is relatively good, with Golden-crowned Kinglets the most common species banded, comprising 41% of the April banding total. The 2018 banding total for that species is 194 birds (with 162 banded in April), representing the fourth highest total. Despite the late spring, there was no repeat of the massive movement of spring 2016, when 666 Golden-crowned Kinglets were banded. Brown Creeper was the second most banded species in April, with a total of 72 birds. It is an early migrant, with part of its migration often missed in early springs. With only seven more birds banded in May, the 2018 total of 79 Brown Creepers is also the fourth highest number across the 17 spring seasons, an indication of how late the spring was this year.

The American Tree Sparrow is an early migrant, with most of its migration missed at Cabot Head, especially if good weather comes early. However, this species has been captured every spring, albeit very often in single digit numbers. For ten of the previous 16 springs, only a very small number (i.e. less than ten) of birds were banded. This year, though, a total of 12 American Tree Sparrows were banded, with one bird captured on June 8, the first and only bird of that species ever banded in June (Fig.1).

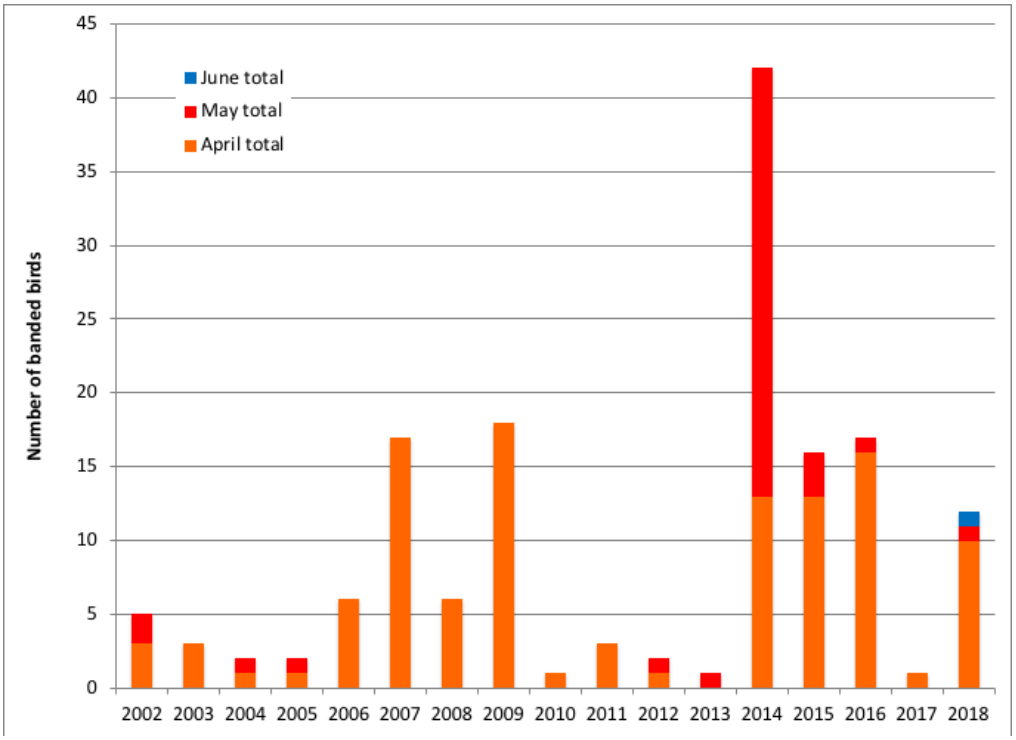

Figure 1. Numbers of banded American Tree Sparrows by month and year at CHRS, 2002 – 2018.

A Myrtle Warbler, one of the earliest of the warblers, was the first warbler species to be detected on April 22. This species was detected sparsely in April, with observations in only five days of the ten days of monitoring, and relatively small numbers. It was nonetheless the most common species of warblers in April. Pine Warblers, the second species detected, on April 23, were observed only in two days in April, and Palm Warblers were detected in three days, with the first bird on April 25. It is certainly a reflection both of the late spring and poor weather for a few days during monitoring in April. Numbers of warbler species detected increased rapidly in early May.

Tree Swallows were the only swallow species detected in April, with the first birds on April 22 and observations on almost every day afterwards in April and throughout the rest of the season. The highest numbers detected were 12 birds on April 30 and 20 birds on May 2. The almost daily observations are mostly due to the pair of Tree Swallow breeding in the nest box near the station. No Barn Swallows were detected in April: the first two birds were seen on May 1.

Visual movements of birds were somewhat limited this April. It is usually a time when impressive numbers (with daily totals in the hundreds) of American Robins, Northern Flickers, Red-winged Blackbirds, and Yellow-rumped Warblers are occasionally seen. This spring, numbers were quite small in comparisons, with highest Detected Totals (DT) of 68 Common Grackles on April 22, 59 Yellow-shafted Flickers on April 26, and 22 American Robins on April 23. In contrast, Turkey Vultures were observed in higher than usual numbers at this time of year, especially on April 24, when a total of 104 birds were detected, the highest DT of the season and of any previous April months.

Waterfowl migration through the Great Lakes region typically peaks in March and April. As was the case in the previous three spring seasons, very few waterfowl were observed this spring. No Scoters were observed during the monitoring period and Long-tailed Ducks were detected (through their characteristic calls) only once on May 13. Likewise, Red-necked Grebes were seen off Cabot Head only once, on April 30, with two birds. One or two Common Goldeneyes were seen in Wingfield Basin during April. Interestingly, a pair was also seen in the Basin in late May (on the 28th and 29th). Buffleheads were seen more frequently and in higher number, with a high count of 18 birds on April 27 and 29, and a few birds lingering into mid-May (with last sightings of five birds on May 17). Mergansers (a mix of migrants and residents) were observed throughout the entire spring. Hooded Mergansers are always observed in very small numbers on Wingfield Basin:

they tend to use the shallower, marsh-like lakes closer to the bluffs. A high count of five birds were seen on April 23 in Wingfield Basin. Most observations of one to five birds were in April, but one bird was seen in a few days in mid-May. Numbers of Red-breasted Mergansers were usually low this spring, although a total of 15 birds were seen on May 1 and 12. The biggest flocks of Common Mergansers were seen at the end of the season, with tight groups of mostly males feeding and resting together (maximum of 24 birds on June 7). It is likely that they are non-breeders or young.

The water level in Georgian Bay and Wingfield Basin continues to be at its highest since 2002. Most of the rocks on the eastern side of the Basin are now underwater and cannot be used as roosting sites for gulls and cormorants as they have historically been. Thus, much smaller numbers of these species are seen now compared to previous years.

May

May is usually the busiest and certainly the most diverse month for spring migration. This year, 149 species were detected (93% of the seasonal total), of which 35 species were detected during only this month. A daily average of 49 species was detected in May but with a wide range: a low of 24 species on May 31 during a morning of strong wind and heavy rain; five days with over 60 species; and a high of 79 species on May 9. A total of 704 birds of 59 species were banded in May, with American Redstart being the most common (99 birds, i.e. 14% of the May total, despite having the first capture on May 15), followed by Western Palm Warbler (with 56 birds banded) and Myrtle Warbler (with 55 birds banded), both accounting for about 8% of May total, then Ruby-crowned Kinglet (7%), and Black-and-White Warbler (6%). As always, numbers caught on any given day were highly variable: only two “big days” (108 birds banded on May 6 and 66 birds on May 9), many slow days (12 days with less than 20 birds banded, including six days with less than ten birds banded), and six days with no banding at all due to bad weather in the first ten days of the month.

There were a few uncommon species banded this spring: a Red-bellied Woodpecker was banded on May 9, the second ever in the spring season. An adult male Scarlet Tanager was banded on May 24, the fourth spring season with a capture of that species. A Yellow-billed Cuckoo was captured and banded on May 28, the second ever in the spring, even though that species is captured in almost every fall season.

After detection of only three species of warblers in April, there were an influx of new

species in early May, both in numbers and diversity, reaching 14 species detected on May 6. After the sharp increase of 11 species in the first week of May, the pace of new arrivals slowed markedly: it took 17 days to add the next 11 species of warblers. A total of 25 species of warblers were detected in spring 2018. On May 21, 21 species of warblers were detected, the highest number of the season. In a span of four days (May 19 – 23), 24 species of warblers were detected, with only Pine Warbler missing. The last warblers to arrive were detected shortly after mid-May, with Canada and Wilson's Warblers on May 16, and Tennessee, Bay-breasted, and Blackpoll Warblers on May 20 (Fig.2). The only detection of Golden-winged Warbler was on May 21. The last species to arrive was Mourning Warbler, on May 23. The sequence of warbler arrivals is relatively consistent between years, from early- to late-migrant species, although dates of first arrivals do vary for individual species.

Overall species diversity increased rapidly in the first half of May as many species arrived at the upper Bruce Peninsula: numbers of species detected grew from 82 on April 30 (i.e., 51% of the season total) to 133 on May 15 (83% of the spring total). From May 16 to May 23, another 23 new arrivals were detected, bringing the total number of species detected to 91% of the spring total. The remaining 17 days of monitoring only brought 14 additional species, the so-called late migrants. There were a certain number of days with no new species throughout the monitoring period, not restricted to the end of the season, reflecting a stalled migration at various stages of the spring (Fig.3). There is an obvious high number of new species detected per day in the first few days of monitoring in April (with 31 species detected on April 22).

As with the warblers discussed above, there can be variations in dates of first detection within a general time window for a specific species. For example, two species easily detected when first present, Ruby-throated Hummingbird and Common Yellowthroat provide some perspective in fluctuations in arrival dates. This spring, they arrived only one day apart: on May 8 in the afternoon for the hummingbird and May 9 for the Common Yellowthroat. The median date of arrival, based on the past 17 years, is May 9 for the hummingbird (range: May 3 in 2012; May 18 in 2011) and May 12 for the yellowthroat (range: April 29 in 2013; May 18 in 2005). These observations indicate, albeit with a small sample size, a great range of variations between years and species in timing of first arrival. Among the most common species of warblers at Cabot Head, it appears that Common Yellowthroat has the widest range of first arrival. Arrival dates for American Redstart, for example, have been very consistent throughout the years, with first

detection between May 8 and 10 for 13 years out of 16, including 2018, with two earlier years (May 1 in 2013 and May 4 in 2010) and two later years (May 12 in 2004 and 13 in 2002).

The highest diversity of species observed in the spring season was achieved on May 9, with a total of 79 species. On that day, among others, there were nine species of raptors (including three Peregrine Falcon) and 15 species of warblers detected. The first observations of Northern Rough-winged Swallow and Bank Swallow (which was the only observation for the latter) were made. A total of 13 new species for the season were detected on that day.

At the end of May, birds were starting to establish territories, sing and chase potential competitors and mates. Migration always slows down at this time of year, with only the late migrants continuing to move through Cabot Head. Weather was still relatively cool throughout, except on May 31 when a strong south wind blew, bringing temperatures up to 25°C as well as abundant rain.

A spring invasion of Snowy Owl at Cabot Head

The winter 2017/18 was marked by an impressive invasion of Snowy Owl in southern Canada and northern USA. There were many seen on the Bruce Peninsula. At Cabot Head, between 2002 and 2017, there has been only one sighting of this fabled species, on May 4, 2006. The spring of 2018 brought an unheard-of total of six observations! The first one, on May 1, was of a bird in active migration, flying over the water of Georgian Bay as nonchalantly as if it was the vast treeless expanse of the tundra. In the afternoon of that same day, another Snowy Owl (based on difference in plumage) was seen briefly as it came from the Bay, perching shortly at the tip near him, panting strongly, before flying off to the East. At dawn on May 3, coming back from opening the nets, we flushed another Snowy Owl perched in a birch near the station! Another owl was also seen flying over the Bay on May 5.
On the afternoon of May 8, during a walk on the shoreline, we were surprised once more by a Snowy Owl resting – and panting – in the warmth of the pebble beach, while Green Darters flew lazily around it. The first American Redstart and Ruby-throated Hummingbird arrived on that day, a day when we also observed the Bald Eagles and one Golden Eagle. It is a quintet of bird species that might not be seen ever again in one day at Cabot Head!
As we did not think of owl anymore, we watched in awe and amazement the last Snowy Owl of the season, on June 1, as it was sitting in the fog on the shore, feet in the water of Georgian bay, drinking several times!

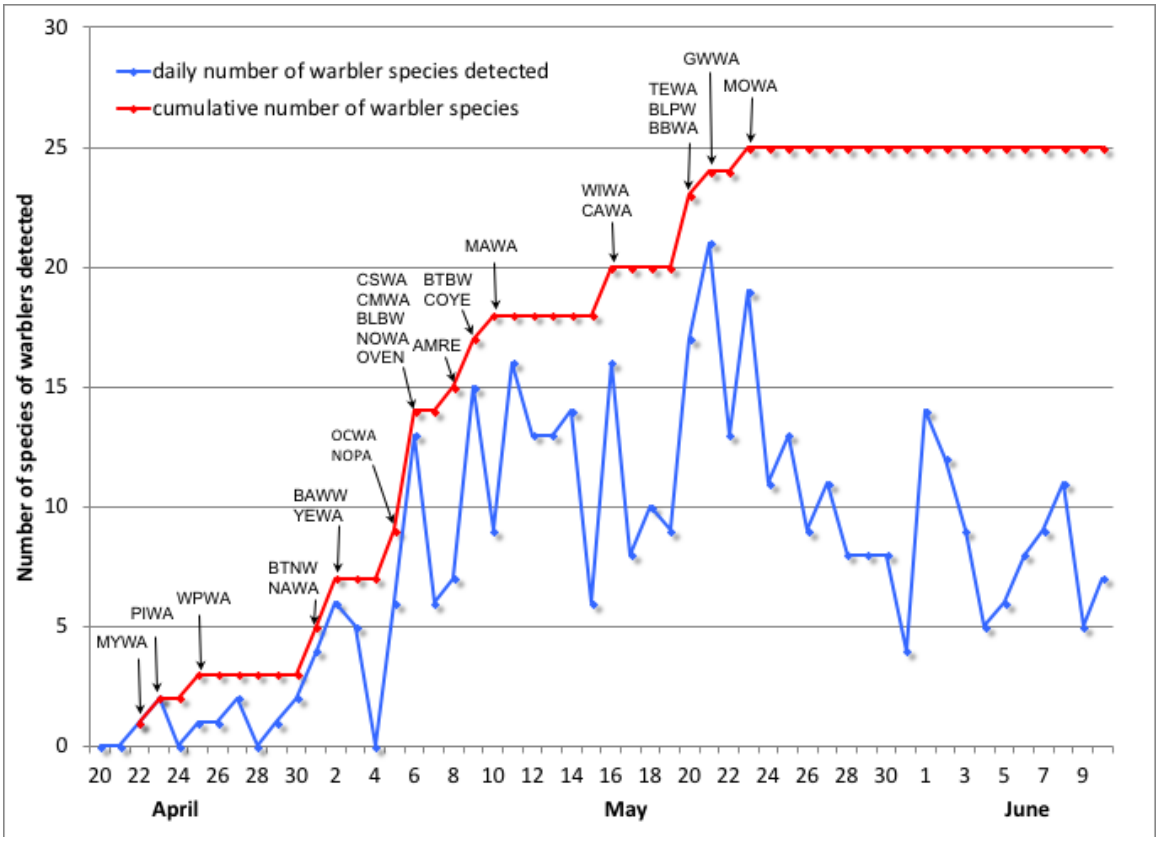

Figure 2. Daily and cumulative numbers of species of warblers detected at CHRS in spring 2018. Alpha codes denote date of first detection. (MYWA: Myrtle Warbler; PIWA: Pine Warbler; WPWA: Western Palm Warbler; BTNW: Black-throated Green Warbler; NAWA: Nashville Warbler; BAWW: Black-and-White Warbler; YEWA: Yellow Warbler; OCWA: Orange-crowned Warbler; NOPA: Northern Parula; CSWA: Chestnut-sided Warbler; CMWA: Cape May Warbler; BLBW: Blackburnian Warbler; NOWA: Northern Waterthrush; OVEN: Ovenbird; AMRE: American Redstart; BTBW: Black-throated Blue Warbler; COYE: Common Yellowthroat; MAWA: Magnolia Warbler; WIWA: Wilson's Warbler; CAWA: Canada Warbler; TEWA: Tennessee Warbler; BLPW: Blackpoll Warbler; BBWA: Bay-breasted Warbler; GWWA: Golden-winged Warbler; MOWA: Mourning Warbler)

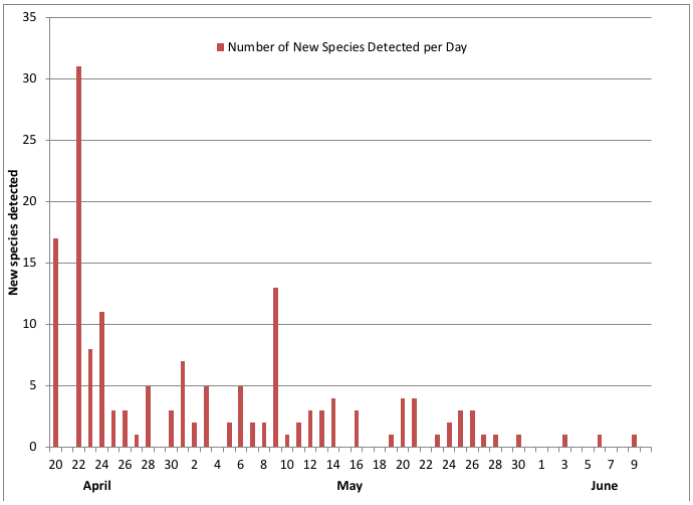

Figure 3. Number of new species of birds observed at CHRS per day in spring 2018.

June

Relatively good weather prevailed during the migration monitoring period in June, allowing excellent coverage, with 89% of potential mist net-hours realized (only one day with no banding at all due to strong wind). In the 10 days of monitoring in June, 92 species of birds were detected (58% of the seasonal total) with four species added as new species for the month: a Chimney Swift and a Bobolink, both on June 3. The former, seen again on June 8, is seen almost every spring (missed only in 2007, 2012, & 2013), but only in small numbers (from one to five birds) in a few occasions (from two to four days in a season). A Rock Pigeon was seen on June 6! And an Alder Flycatcher was heard on June 9. That species, undistinguishable from Willow Flycatcher when silent, may have arrived earlier but was counted as a Traill's Flycatcher, which lumps both species.

A daily average of 42 species was detected in June (range: 19 – 55 species seen on any given day). Despite the good monitoring conditions, the total numbers of banded birds for June are the second lowest since 2002 (excluding 2010 when coverage ended on June 2). Only 61 birds of 26 species were banded with American Redstart comprising 16% of the total. Between 2002 and 2017 (excluding June 2010), an average of 148 ± 69 birds are banded in June, using June 10 as the last day of banding. The highest total was in 2003 with 275 birds banded and the lowest was in 2016 with 44.

The Yellow-bellied Flycatcher is one of the latest migrants arriving on our shores, with, typically, the first birds showing up at the end of May, the average date being May 22. Indeed, it is a species with one of the shortest stays on its breeding grounds, starting its fall migration in early August. The earliest arrival was noted on May 14 in 2012, while the latest was on May 28 in 2002, 2006, and 2015. This spring, the first detection was on May 25, with continued observations of Yellow-bellied Flycatchers the following two days and on May 29. It was afterward only detected one more time on June 7. A total of 11 birds were banded this spring, which is about average. Banding totals for this species are highly variable between springs, with a low of three birds in 2013 and a high of 28 birds in 2015.

Another late migrant species, the Red-eyed Vireo, was first detected on May 13, a relatively early date (earliest of May 5 in 2013; latest of May 28 in 2003). It was indeed not detected again until May 21, although detections were daily afterwards. It is a bird that tends to spend lots of time high up in the canopy, which reduces likelihood of capture. The banding total this year was

only eight birds banded, the second lowest total (average of 14.3 ± 6.1; range: 6 in 2016 – 31 in 2013).

The first Cedar Waxwings were seen on May 21, an average date for this late migrant. Flocks, small and large, were seen almost every day afterward until the end of monitoring, resulting in an above average season total. However, none were captured.

Large flocks of Canada Geese are usually seen in late May - June. These late movements are a moult migration, when failed breeders and non-breeders go north to a remote location to moult their flight feathers all at once. Major movements of Canada Geese (daily total over 100 birds) in late spring this year occurred only in two days, June 7 with 604 geese counted and June 9, with 361 geese.

3.0 Unusual Records

There are many ways an observation can be considered an unusual record at Cabot Head: a bird out of range; 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. A new species was added to the Cabot Head Bird List in the most unusual way: One day in mid-May, Mathieu returned from census with a curious tale of a long-billed bird upside down up in a tall cedar tree. Quickly locating it, I focused my binoculars on it and discovered the weirdest scene ever to be witnessed in the history of Cabot Head. The dead bird hanging upside down by a leg was a Virginia Rail, a bird of mudflats and wetlands, never before seen within the Cabot Head count area. It was clear that the bird had been dead for a few days. On May 10, the weather was particularly bad, with strong South winds, fog, and rain. It is more than likely that the rail crashed into the trees during the storm and got trapped, if not killed instantly.

One Vesper Sparrow was observed on April 25, a species only occasionally detected at Cabot Head. It was detected in seven previous spring seasons, in dates ranging from April 21 to May 18. On April 26, two Snow geese were seen flying in a flock of Canada Geese, the third spring in a row that this species has detected. Two American Widgeons flew over Wingfield Basin on April 27, a relatively regular species in the spring, with detection in nine previous years. One Northern Shoveler was seen on May 9, the third spring season only with detection of that species, after 2012 and 2013. Detected first through their call, a small flock of six Tundra Swans were seen

on the same day than the Shoveler. It is only the second spring with observation.

Field Sparrow is detected in every spring (but 2015), although in small and variable numbers. This spring, it was detected only on April 22 and May 5 with one individual each.

Golden Eagles were seen twice, on April 24 and in the afternoon of May 8, both time an immature bird. A declining species across southern Ontario, no Red-headed Woodpecker was observed this spring, even though it had been observed every spring since 2011. The Red-bellied Woodpecker, on the other hand, is increasing in southern Ontario, although no obvious trend is apparent at Cabot Head: this species is seen almost every spring but always in small numbers. This year, it was detected only once, with an individual captured and banded on May 9.

A female Orchard Oriole was observed two days in a row, on May 11 and 12. It is the first time a female has been observed at Cabot Head and only the fourth year with observation (all in spring). First heard, a Green Heron flew over Wingfield Basin in the early morning of May 9. It was seen again on May 12. It is a species seen occasionally in the monitoring area, albeit it prefers the shallow wetlands nearby.

Even though Northern Goshawks are seen almost every spring, being missed only in three seasons, this year's sighting was remarkable: on May 12, an immature Goshawk got caught in net A4 but managed to escape before it could be grabbed. It then perched in a tree nearby where it could be observed readily for several minutes. A Barred Owl was heard on May 13, the second spring in a row with detection.

There were three days with observations of Clay-coloured Sparrows this spring, on May 12, 21, and 30. A very common bird in the western prairies, its breeding range extends from Sault Ste. Marie, across Manitoulin, parts of the Bruce Peninsula, the Carden Plains, across the Oak Ridges Moraine North Lake Ontario to the Kingston area and north to Ottawa. There is also a small population around James Bay. It is detected only in very small numbers and occasions at Cabot Head and was completely missed in springs of 2006, 2008, 2010 and 2012.

A Lesser Yellowlegs was heard on May 14. That same day, a Dunlin was seen flying low and close from the station over Wingfield Basin. That species has been seen in only two other occasions, with 20 birds on May 27, 2008, and with one bird on September 3, 2002.

Only one individual of Bank Swallow was detected on June 1. No Cliff Swallows were observed this spring, the fourth spring without detection (also in 2003, 2011, and 2013). Black-billed Cuckoos were heard on a few days in early June.

An Eastern Screech Owl was heard during census on May 24, the first spring detection for that species noted on five fall seasons. An Olive-sided Flycatcher was heard briefly on May 27, the only detection of the species this spring. There were eight days with observation of Peregrine Falcon throughout the season (from May 1 to 31), with three birds observed on May 9.

A spring "invasion" of Eastern Bluebirds at Cabot Head

Eastern Bluebirds are heard and seen every spring at Cabot Head, from the earliest detection of April 15 in 2012 to latest observation of June 12 in 2008 & 2009. Although never abundant, it is detected quite regularly, very often by its sweet and soft flight call. From 2002 to 2017, it has been observed each spring from a total of nine to 28 days across a season, with detected totals ranging from 17 (in 2004) to 132 birds (in 2014). However, daily totals of 10 or more birds happened only in 16 days (out of 289 days with observation, or, 5.5%), with a record high of 22 Eastern Bluebirds on May 9, 2014.

In Spring 2018, Eastern Bluebirds were detected from April 22 to June 10, with observations on 31 days and a season detected total of 407 birds. The most remarkable observations were from May 30 to June 1: on May 30, 154 Eastern Bluebirds were counted during the monitoring period, the highest ever one-day count. Several large flocks were seen, with one of more than 50 birds. On June 1, 77 birds were recorded. During this time, it was not unusual to see small flocks of a dozen or more birds in the Pine Barrens. In all, there were six days with more than 20 birds detected.

4.0 Banding Data Analysis

Spring 2018 has the fifth lowest banding total since migration monitoring started in its present form in 2002, with 1159 birds of 67 species banded in total (Table 1). It is about 300 birds less than the spring banding average of 2002 - 2017 (1487 ± 444 birds). As noted previously, the banding only started on April 22, resulting in the loss of six potential banding days. As a consequence, the season banding total is not quite comparable to previous ones. Only a few species were banded in record low numbers, most notably Sharp-shinned Hawk (only 10 birds banded compared to an average of 20 ± 7) and White-throated Sparrow (13 birds banded; average of 58 ± 23). As with Least and Traill's Flycatchers, also banded in record low numbers, the late opening could not be responsible for the low numbers: migration occurs mostly in May for these species. On the other hand, the two species banded in record high numbers, Eastern Phoebe and Song Sparrow are early migrants: it is possible that the bad weather in mid-April blocked and delayed their northward progression, resulting in more birds captured. A total of 34 Eastern Phoebes were banded this spring, significantly higher than the previous record of 11 birds in spring 2016 and the average of 5 ± 3 birds

Golden-crowned Kinglet, with 194 birds banded, represents 17% of the seasonal total, and the species most banded this spring. American Redstart, with 109 birds banded, is a distant second and represents 9% of the seasonal total. It is the second lowest total after the record low of 74 birds of spring 2017. A neat 100 birds of the next species in numbers, Ruby-crowned Kinglet, were banded, about 9% of the season total. Despite migrating wholly within the monitoring period, there are great variations in numbers banded of this species, from a low of 55 birds in spring 2012 to a high of 292 birds in spring 2014. Brown Creepers and Palm and Warblers were the next most numerous banded birds. The top five species account for 37% of the banding total this spring. Typically, only a few species are captured in numbers over 50 individuals while most species are banded in low to very low numbers (Table 2). Numerous variables could 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.4). The capture rate is determined by dividing the number of birds caught by the number of hours for which the nets were operated. Thus, variation in capture rate reflects variation in those two parameters, which are themselves dependent

upon various conditions (weather being the major one). Mist net hours are primarily lost when weather conditions (i.e. rain or strong wind) render it unsafe to capture birds thus forcing net closure. In spring 2018, weekly capture rates varied dramatically, from highest to lowest, both during the season and across the years. The first three weeks of the season had the highest capture rates, mostly due to a lower than average numbers of mist net hours during that period. From May 8 until the end of the season, capture rates were much lower than average, reaching a record low level for two weeks. During this time, mist net hours were at or above average.

Weekly numbers of banded birds partially reflect variation in capture rates (Fig.4). The first week of monitoring (defined as April 16 to 23) has been extremely variable over the years: many birds can be missed if it is an early spring and many mist net hours can also be lost due to bad weather. Weekly banded totals for this time period have ranged from 15 in 2004 to 990 in 2016. With 158 birds banded during the only two days with banding on that week in 2018, it is definitively below average but still represents a decent total, compared to six previous years when the weekly total was under 100 birds. All the other weeks were below or well below average, except the April 24 – 30 and the May 22 – 28 weeks. Numbers of birds banded in late May and in June were extremely low.

In spring 2018, 72% of the potential mist net hours were realized, compared to a range of 58% in spring 2004 to 92% in spring 2010, with an average of 73% ± 0.09. Weather conditions either precluded opening mist nets (for a total of 10 days, 20% of the season, with nine days concentrated in the first 19 days, and only one day in the subsequent 31 days), or were relatively favourable, resulting in a good percentage of realized mist-net hours (Fig.5). Conditions allowed for a complete banding operation (all 15 mist nets opened for six hours, i.e. 90 mist-net hours a day) during 46% of the monitoring period. Coverage of 80 mist-net hours or more was realized during 60% of the monitoring period.

Table 1. Banding total of species in spring 2018 at CHRS, average (and standard deviation) over 2002-2017, maximum and minimum totals and their respective year. Record high captures noted in red. (Av.: average; stdev: standard deviation; Max: Maximum; Min: Minimum)

Species	2018	Av.	sdev	Max	Year	Min	Year
Sharp-shinned Hawk	10	20	7	34	2011	10	2004-2005
Yellow-billed Cuckoo	1						
Red-bellied Woodpecker	1						
Yellow-bellied Sapsucker	5	2	1	5	2009	1	many years
Yellow-Shafted Flicker	8	4	3	12	2007	1	many years
Eastern Wood-pewee	1	2	1	3	many years	1	many years
Yellow-bellied Flycatcher	11	13	7	22	2005	3	2014
Traill's Flycatcher	4	15	8	32	2009	4	2014
Least Flycatcher	6	14	5	22	2004	8	2006
Eastern phoebe	23	5	3	11	2016	1	2010-2012
Great Crested Flycatcher	2						
Blue-headed Vireo	2	4	2	8	2014	1	2005
Red-eyed Vireo	8	15	8	31	2013	9	2010
Blue Jay	33	64	90	88	2004	10	2011
Black-capped Chickadee	3	51	94	342	2002	4	2003-2005
Red-breasted Nuthatch	5	9	9	27	2013	1	2003-2014
Brown Creeper	79	45	49	200	2016	6	2002-2009
House Wren	1	2	1	3	2002	1	many years
Winter Wren	4	2	1	4	2015	1	many years
Golden-crowned Kinglet	194	143	178	666	2016	3	2008
Ruby-crowned Kinglet	100	132	74	258	2014	54	2012
Veery	9	10	6	21	2006	1	2002
Swainson's Thrush	17	26	10	43	2011	12	2004
Hermit Thrush	9	15	6	30	2016	6	2004
Wood Thrush	3	2	2	6	2016	1	many years
American Robin	6	7	4	15	2014	3	2008
Gray Catbird	10	11	5	19	2016	3	2013
Brown Thrasher	4	6	3	12	2008	2	2007
Tennessee Warbler	1	2	1	6	2002	1	many years
Orange-crowned Warbler	5	9	8	29	2002	1	2014
Nashville Warbler	20	46	53	227	2002	18	2004
Yellow Warbler	1	11	7	25	2002-2013	4	many years
Chestnut-sided Warbler	8	14	6	26	2002	8	2008
Magnolia Warbler	36	92	42	184	2002	53	2013
Cape May Warbler	3	4	3	9	20021		2003-2011
Black-throated Blue Warbler	23	27	11	64	2003	18	2005
Myrtle Warbler	55	60	58	244	2002	21	2011

Black-throated Green Warbler	14	24	7	38	2002	15	2005
Blackburnian Warbler	2	5	4	13	2002	1	2014
Pine Warbler	1	3	2	4	2002-2011	1	many years
Palm Warbler	59	72	48	216	2002	37	2014
Bay-breasted Warbler	2	4	3	11	2002	1	many years
Black and White Warbler	43	54	18	85	2014	31	2008
American Redstart	109	186	52	273	2009	146	2011
Ovenbird	16	30	10	53	2016	19	2011
Northern Waterthrush	2	4	3	13	2010	1	2008
Mourning Warbler	6	9	4	17	2009	2	2014
Common Yellowthroat	41	38	13	56	2002	23	2007-2012
Wilson's Warbler	10	15	8	32	2002	6	2014
Canada Warbler	10	16	5	24	2013	11	2008
Scarlet Tanager	1	2	1	3	2016		
American Tree Sparrow	12	11	13	42	2014	1	2010
Chipping Sparrow	13	26	28	47	2002	7	2008
Field Sparrow	1	4	8	26	2013		
Savannah Sparrow	2	2		10	2014	1	many years
Fox Sparrow	2	2	1	4	2009	1	many years
Song Sparrow	34	14	8	26	2009	4	2010
Lincoln's Sparrow	8	13	7	25	2005	4	2012
Swamp Sparrow	6	6	3	13	2016	3	2002-2015
White-throated Sparrow	13	58	23	104	2016	25	2004
E. White-crowned Sparrow	6	27	17	69	2005	4	2011
Slate-coloured Junco	23	58	39	150	2007	15	2010
Rose-breasted Grosbeak	1	5	4	18	2014	1	02-07-15
Indigo Bunting	2	3	2	3	2009	1	2003-2012
Purple Finch	1	2	1	3	2007	1	many years
Pine Siskin	1	2	1	3	many years	1	many years
American Goldfinch	7	5	11	41	2002	1	many years
Total	1159	1575	471	2622	2002	876	2015

Table 2. Number of species banded in spring 2018 at CHRS according to their banding total.

Banding total	1 - 10	11 – 50	51 – 100	>101
Number of species	45	16	4	2

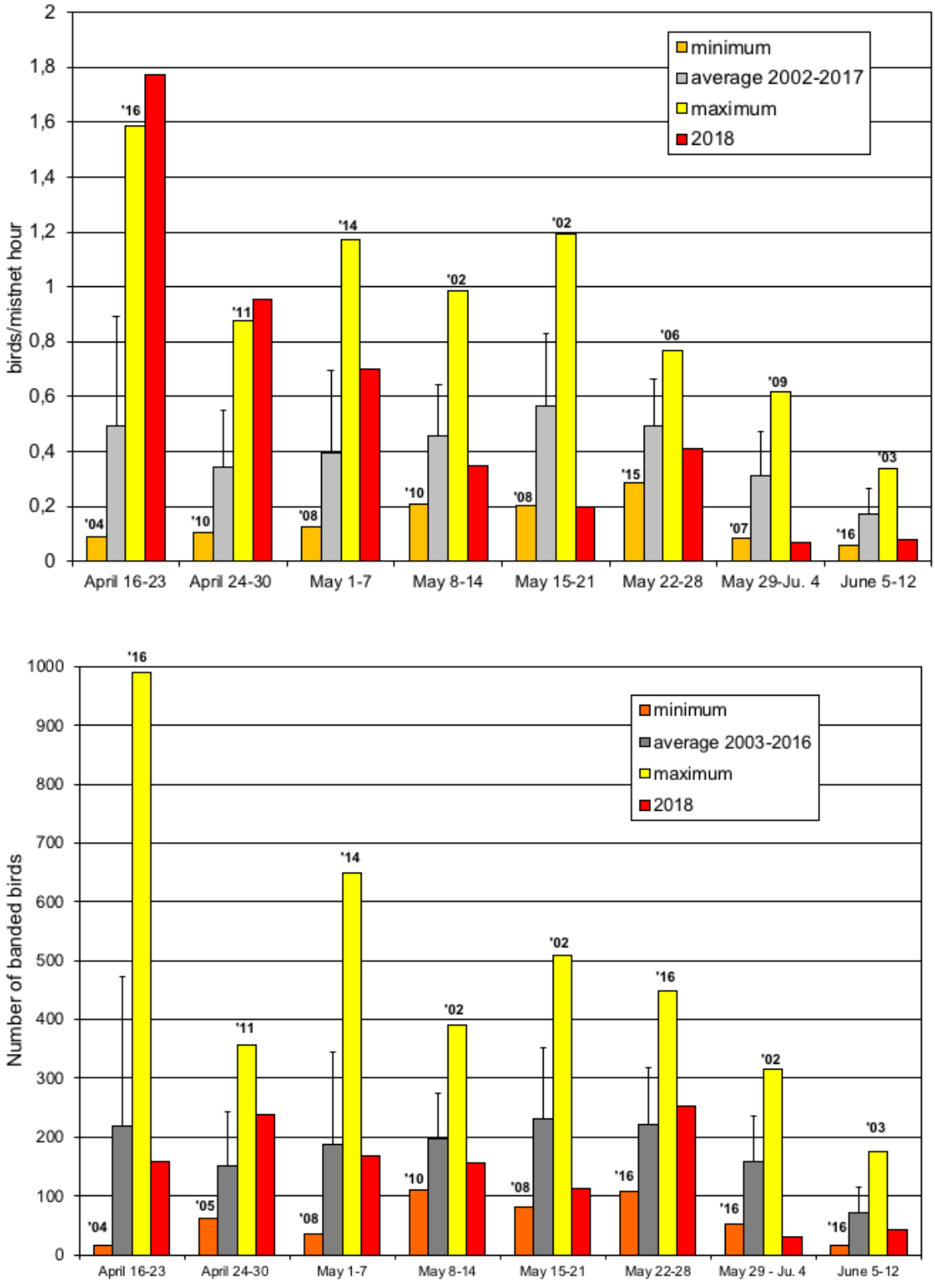

Figure 4. Weekly capture rates (top) and number of banded birds (bottom) at CHRS during the spring season (average 2003-2016, minimum and maximum (with corresponding year) and 2018). Error bars show Standard Deviation.

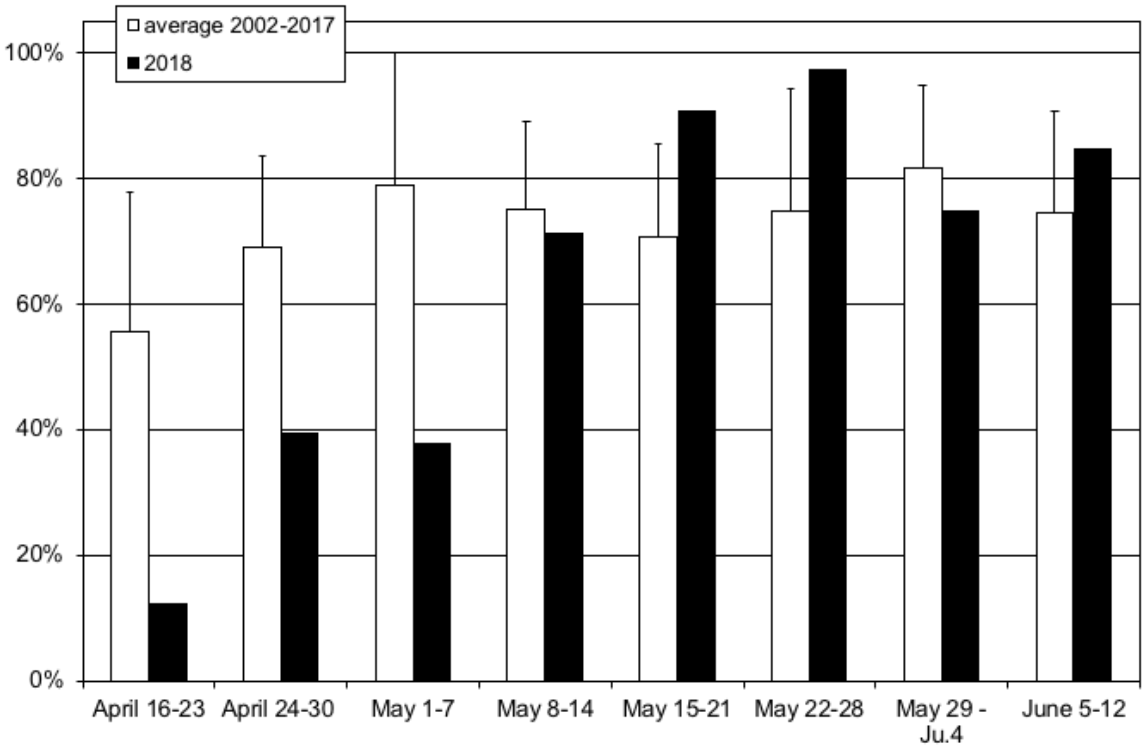

Figure 5. Weekly proportion of realized mist net hours at CHRS during the spring season (average 2002-20016 and 2018). Error bars show Standard Deviation.

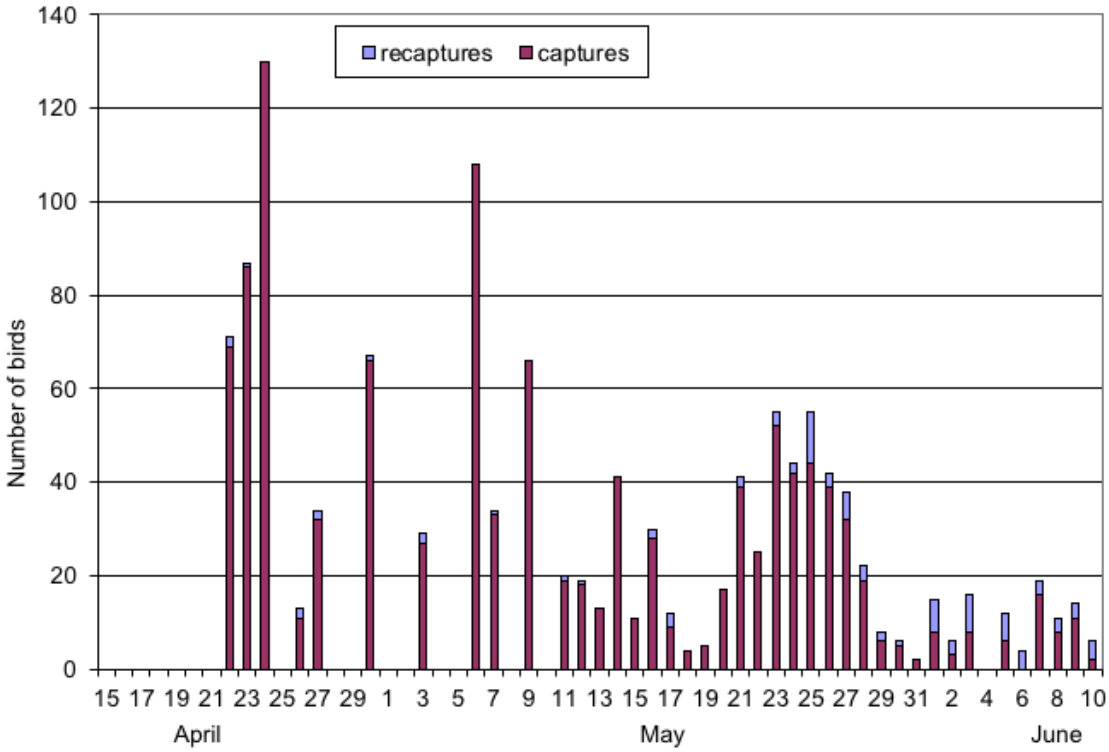

Figure 6. Daily number of captured and recaptured birds at CHRS, spring 2018.

4.1 Weather

As mentioned earlier, the weather was extremely variable during the spring of 2018. The notable characteristics of the spring were the prolonged snow storm at the start, the lingering snow on the ground, and inclement weather in the first half of the monitoring period, followed by more benign conditions. There were seven days with recorded precipitation, often heavy and lasting all day, other times a short shower, during the count period. Periods of high wind occurred relatively rarely this spring, especially in May (for a third of the time) and, to a lesser extent, in April but not in June. These strong winds did not always last during the entire morning but they nonetheless affected banding operations, as nets in their paths had to be closed and they were often accompanied by rain.

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 spring, strong winds (at least five on the Beaufort scale) were mostly from the South and occurred on 12 days (22% of the season), mostly in May. Another 22 days (under half of the season, or 40%) experienced moderate wind (three to four on the Beaufort scale). Therefore, most of the monitoring period experienced strong to moderate winds (Fig.7). This spring, there was no marked difference in the direction winds came from overall. North winds occurred less frequently than winds from other directions this spring and were mostly concentrated in April and early May. On the other hand, East wind became predominant in later May and early June. East winds tend to be associated with poor showing of migration at Cabot Head, as they are frequently the forbearers of, or associated with, precipitation. Even without precipitation, winds can induce migration drifts in birds: Cabot Head being the northeast promontory of the Bruce Peninsula, an East wind has the potential to "push" birds away from it. That period of predominantly East winds (even though most of them were light to moderate) in late May and early June experienced one of the lowest captures in BPBO history.

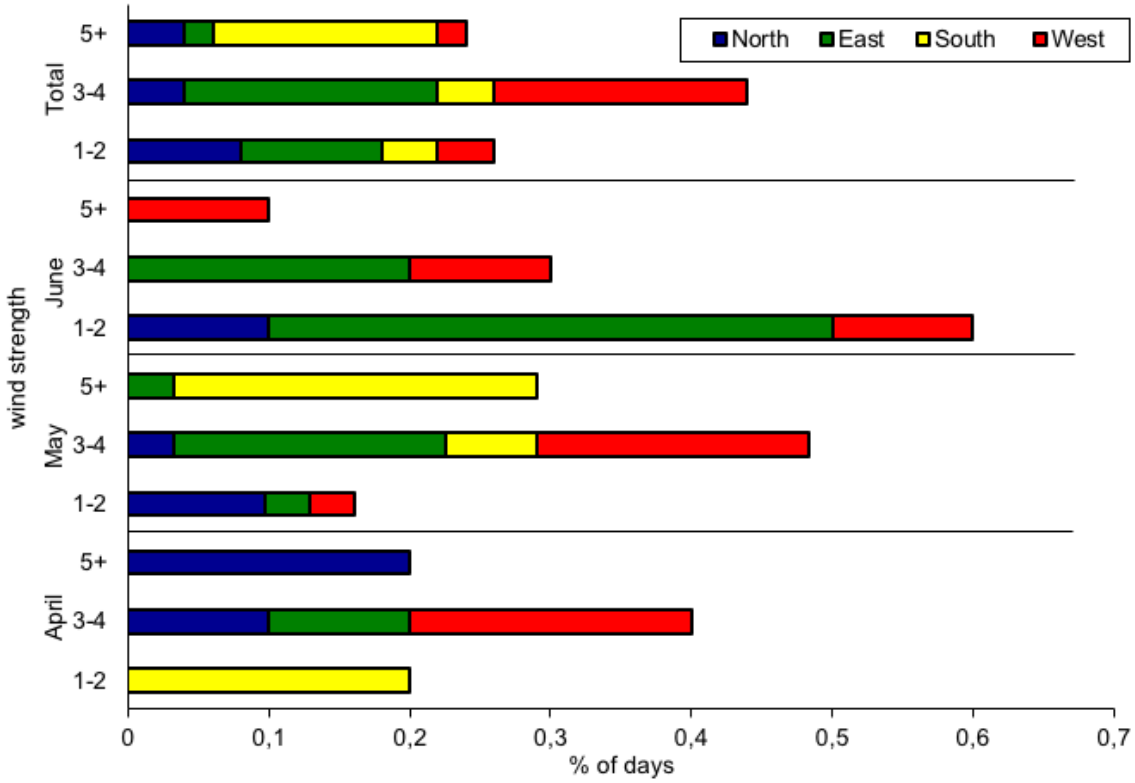

Figure 7. Wind pattern (strength on the Beaufort scale, direction and proportion of time) at CHRS, spring 2018.

4.2 Recaptures

The rate of recapture (recaptures include birds banded within the spring season and birds from previous years or other locations) at Cabot Head was quite low in spring 2018. There was a total of 92 recaptures for 52 individuals of 15 species from April 22 to June 10. Among the recaptured birds this spring, 24 individuals of six species were banded in previous seasons at Cabot Head. In total, 58% of the recaptured birds (30 individuals) were recaptured only once and another 12 birds were recaptured on two occasions. A total of ten birds were recaptured on more than two occasions, with the most recaptured being an American Redstart recaptured six times. All the birds recaptured three times or more were American Redstarts, except for one Black-and-white Warbler. That Black-and-White Warbler, an adult male, was originally banded at Cabot Head in the fall 2015 and has been recaptured in the previous two springs as well, 2016 and 2017. It is more than likely that it is a local breeder, as indicated by the series of recaptures this spring, from May 16 to June 7, with a growing cloacal protuberance.

Birds banded in previous years and recaptured in the spring (Table 3) are most likely local

resident breeders. From a total of 24 birds of six species, there were 11 birds of three species banded the previous fall, in 2017, meaning spring 2018 was the first between-season occasion of recapture. The other 13 birds have almost all a history of recapture at Cabot Head. The Pileated Woodpecker was banded in spring 2017 as a second-year female and was recaptured in fall 2017 before this spring's recapture. It is the first ever bird of that non-migratory species to be recaptured at Cabot Head. The other three species of recaptured birds are all long-distance migrants. Beside the Black-and-white Warbler previously discussed, the other individual of that species was banded in spring 2017 and recaptured in fall 2017. Of the three Red-eyed Vireos banded in previous seasons and recaptured this spring, only one had its first recapture this season. However, it was only banded in spring 2017. The vireo banded in fall 2013 has been recaptured every spring since 2015. The vireo banded in spring 2016 has been recaptured in both seasons of 2017.

Of the 23 American Redstarts recaptured this spring, only nine were newly banded (i.e. from spring 2018), with the remaining 14 were banded in the previous seasons at Cabot Head, with half from the previous fall. Of the seven American Redstarts banded before fall 2017, only two had their first recapture this season. The other five birds had at least one previous recapture before spring 2018. The oldest known recapture this spring was of one American Redstart banded as an after-hatch-year bird in fall 2013, thus at least five years old. That bird had been recaptured previously in springs 2015 and 2017.

Table 3. Total recaptures by species in relation with the year of banding. (Only one recapture per individual is included and within-season recaptures are excluded). S: spring; F: fall.

Species	2013	2014	2015	2016		2017		**Total**
	F	F	F	S	F	S	F	
Pileated Woodpecker						1		1
Red-eyed Vireo	1			1		1		3
Red-breasted Nuthatch							3	3
Black-and-white Warbler			1			1		2
American Redstart		1	2		1	3	7	14
Common Yellowthroat							1	1
Total Recaptures	**1**	**1**	**3**	**1**	**1**	**6**	**11**	24
Species Total	**1**	**1**	**2**	**1**	**1**	**4**	**3**	6

4.3 Net Analysis

Mist net locations at Cabot Head have been permanently set in place and any changes to this array will have to be carefully considered with respect to protocol and existing data sets. The standard net array in spring 2018 has not been changed since 2002 and is located primarily in forest edge assemblages, although a few nets are in relatively open, shrub habitat (A1-2, B8, & C14). As usual, there was a significant amount of variation in capture rates for each net (Fig.7). The five nets with the highest capture rate (A1, A2, A3, B9, and A5 in decreasing order) are located in or close to shrubby areas, except for A5, which is in a small depression and usually not a very productive net. The least productive nets this spring are among high cedars (for B6, C11, and C12) or in a relatively open area (for B8 and C14). Except for A1 and A5, all nets had a capture rate lower than the average. As in most spring seasons, captures were concentrated in a few nets, with the five best nets accounting for 59% of the total capture with 35% of the total mist net hours. The least productive five nets accounted for only 11%.

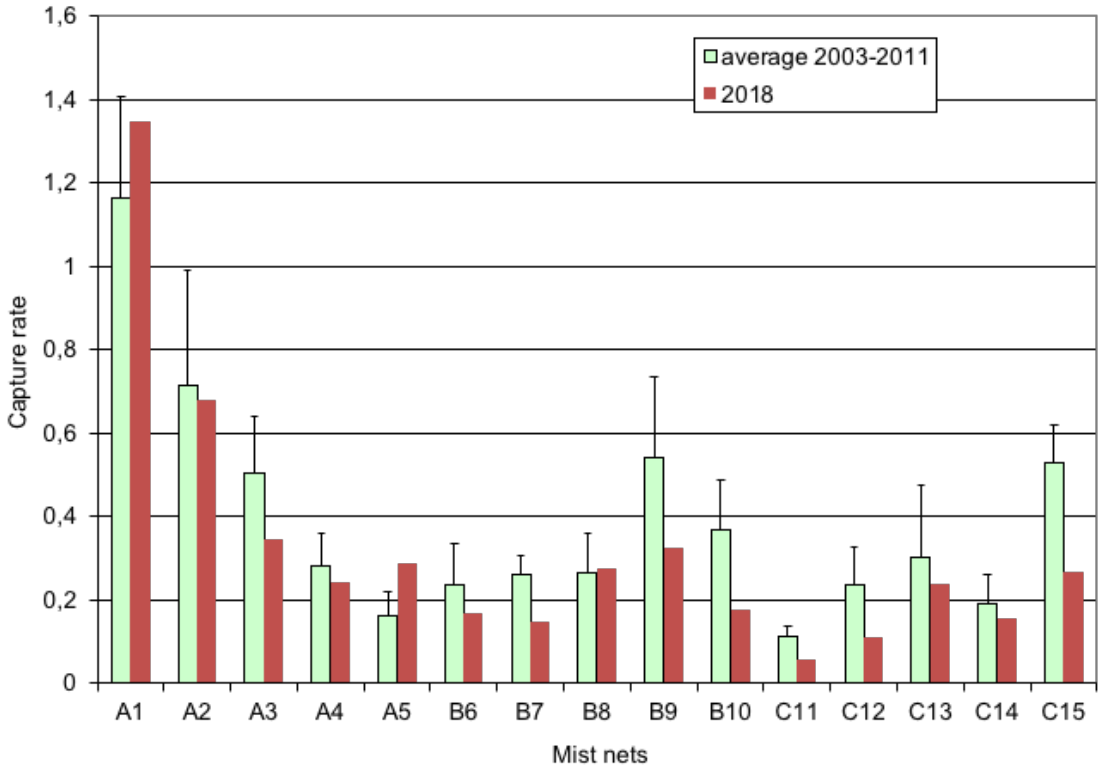

Figure 7. Capture rates per mist net for springs (average 2003-2011 and 2018). A1-C15 are net codes referring to specific net locations.

5.0 Mist net coverage

On account of inclement weather (rain and wind), 20% of mist netting coverage (in hours) was lost. This spring, there were an average number of days with complete coverage (23 out of 50, i.e. 46%; Fig.8). There were 10 days of no mist net coverage, one of the highest since 2003 (range of one to 11 days with no banding from 2003 to 2011). Due to the density of habitat at Cabot Head, at least a portion of the nets can usually be operated on windy days.

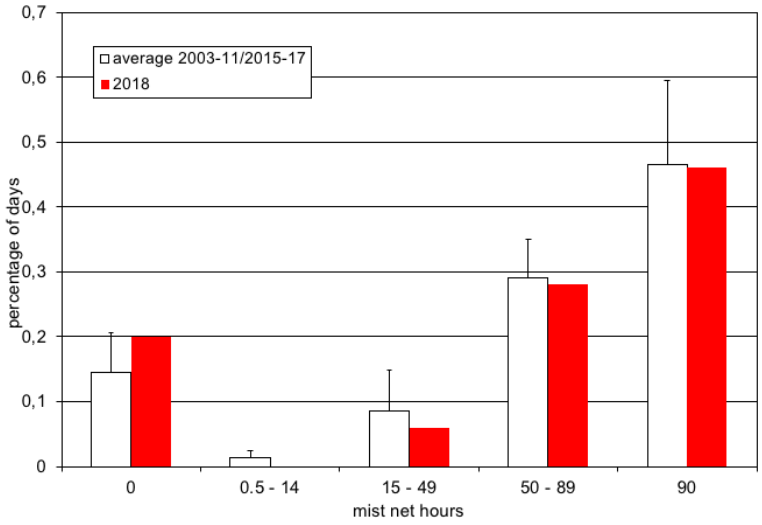

Figure 8. Coverage (in mist net hour) at CHRS, spring 2018.

6.0 Personnel

Nine volunteers contributed 83 person-days to the spring migration monitoring season (Table 4). The volunteers this spring hailed mostly from Ontario and Quebec. A special thanks to Mathieu Landry, the sole long-term volunteer who contributed just over five weeks of his time.

Table 4. Volunteer effort, spring 2018.

36 Days	**3 - 13 Days**		
	Judith Kennedy	Jackie Lamport	Al Woodhouse
Mathieu Landry	Florence Masson	Amber Lammers	Alicia Korpach
	Tanya Havelka	Anne Blondin	

7.0 Conclusion

For a seventeenth consecutive spring, bird migration monitoring at Cabot Head was done daily from April 20 to June 10, thanks notably to a dedicated team of volunteers. The continuing monitoring effort throughout the years continually adds detail and refines the picture of bird migration on the Bruce Peninsula.

As always with nature, this spring brought its share of surprises, with, most notably, a massive snow storm right at the scheduled start of the monitoring season. A late start might be partly the reason for the low number of birds banded, although it is likely that other factors were involved. Only a small number of species were banded in either low or high record numbers. Many days were impacted early in the season by inclement weather (strong wind and/or rain), negatively influencing the banding and observation. There were also very few birds (observed and banded) in late season, despite apparent good weather.

This spring, there were several unusual records, indicating a good observation effort. The most notable were the numerous sightings of Snowy Owl following an invasive winter. However, it would be rather misleading to rank sightings, as every observation brings its own reward, and increases our knowledge, understanding, and appreciation of the natural world. For example, the abundance of Eastern Phoebe captures this late spring provides an indication of changing patterns of migration influenced by harsh weather.

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

Acknowledgements

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

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

Appendix

Table 5. Estimated Total of species observed in spring 2018 at Cabot Head Research Station, with daily average, maximum and minimum daily ET, and dates of first and last observation.

Group	Species	Season Total	Average	Max Daily	Min Daily	Days with obs.	First date	Last date
Ducks, Geese & Swans	Canada Goose	1850	41	604	1	45	22 April	10 June
	Tundra Swan	6	6	6	6	1	9 May	
	Wood Duck	18	3	5	1	7	22 April	8 June
	American Wigeon	2	2	2	2	1	27 April	
	Mallard	42	2	6	1	20	20 April	8 June
	Northern Shoveler	2	2	2	2	1	9 May	
	Am. Green-winged Teal	6	2	4	1	3	26 April	6 May
	Ring-necked Duck	12	6	9	3	2	22 April	23 April
	Long-tailed Duck	1	1	1	1	1	13 May	
	Bufflehead	164	7	18	2	22	22 April	17 May
	Common Goldeneye	20	2	5	1	11	20 April	29 May
	Hooded Merganser	21	2	5	1	12	22 April	16 May
	Common Merganser	390	8	24	2	50	20 April	10 June
	Red-breasted Merganser	137	5	15	1	30	20 April	8 June
Grouse & Turkeys	Ruffed Grouse	48	2	5	1	28	26 April	9 June
	Wild Turkey	2	2	2	2	1	26 May	
Grebes	Pied-billed Grebe	12	1	1	1	12	24 April	7 May
	Horned Grebe	2	1	1	1	2	29 April	16 May
	Red-necked Grebe	2	2	2	2	1	30 April	
Pigeons and Doves	Rock Pigeon	1	1	1	1	1	6 June	
	Mourning Dove	14	1	3	1	10	23 April	8 June
Cuckoos	Yellow-billed Cuckoo	1	1	1	1	1	28 May	
Goatsuckers	Common Nighthawk	1	1	1	1	1	25 May	
	Whip-poor-will	4	1	2	1	3	3 May	7 June
Swifts	Chimney Swift	2	1	1	1	2	3 June	8 June
Hummingbirds	Ruby-throat. Hummingbird	76	3	6	0	30	1 May	10 June
Cranes	Sandhill Crane	95	3	7	1	34	20 April	7 June
Sandpipers & Phalaropes	Killdeer	17	1	2	1	14	20 April	10 June
	Greater Yellowlegs	10	1	1	1	10	24 April	28 May
	Lesser Yellowlegs	1	1	1	1	1	14 May	
	Spotted Sandpiper	61	2	5	0	30	3 May	10 June

Sandpipers & Phalaropes	Dunlin	1	1	1	1	1	14 May	
	Wilson's Snipe	8	1	2	1	6	24 April	7 June
	American Woodcock	2	1	1	1	2	3 May	16 May
Gulls & Terns	Ring-billed Gull	571	12	84	1	46	20 April	10 June
	Herring Gull	87	3	10	1	29	25 April	10 June
	Caspian Tern	1	1	1	1	1	25 May	
	Common Tern	22	2	2	1	12	19 May	10 June
Loons	Common Loon	319	8	80	1	39	22 April	10 June
Cormorants	Double-crested Cormorant	206	6	38	1	33	20 April	10 June
Herons & Bitterns	Great Blue Heron	24	2	5	1	13	22 April	10 June
	Green Heron	2	1	1	1	2	9 May	12 May
Vultures	Turkey Vulture	622	14	104	1	43	20 April	10 June
Osprey	Osprey	10	1	2	1	8	27 April	28 May
Hawks, Kites & Eagles	Bald eagle	112	2	8	1	51	20 April	10 June
	Northern harrier	26	2	4	1	16	22 April	28 May
	Sharp-shinned Hawk	241	10	57	1	24	22 April	4 June
	Coopers hawk	2	1	1	1	2	22 April	7 May
	Northern Goshawk	1	1	1	1	1	12 May	
	Red-shouldered Hawk	6	2	2	1	4	23 April	25 May
	Broad-winged Hawk	601	50	300	1	12	23 April	28 May
	Red-tailed Hawk	38	2	6	1	20	23 April	7 June
	Golden Eagle	1	1	1	0	2	24 April	8 May
Typical Owls	Eastern Screech Owl	1	1	1	1	1	24 May	
	Great-horned Owl	2	1	1	1	2	3 May	19 May
	Snowy Owl	4	1	1	1	4	1 May	1 June
Kingfishers	Belted Kingfisher	21	1	2	1	19	22 April	9 June
Woodpeckers	Red-headed Woodpecker	2	1	1	1	2	24 April	5 May
	Red-bellied Woodpecker	2	1	1	1	2	9 May	3 June
	Yellow-bellied Sapsucker	18	2	6	1	8	22 April	27 May
	Downy Woodpecker	3	1	1	1	3	27 April	2 June
	Hairy Woodpecker	4	1	1	1	4	27 April	1 June
	Pileated Woodpecker	37	1	2	1	31	20 April	10 June
Falcons	American Kestrel	31	2	5	1	13	22 April	13 May
	Merlin	30	1	3	1	21	20 April	10 June
	Peregrine Falcon	13	2	3	1	8	1 May	31 May
Tyrant Flycatchers	Olive-sided Flycatcher	1	1	1	1	1	27 May	
	Eastern Wood-pewee	10	1	2	1	9	24 May	10 June
	Yellow-bellied Flycatcher	15	3	6	1	5	25 May	7 June
	Traill's Flycatcher	4	2	2	2	2	30 May	7 June
	Alder Flycatcher	1	1	1	1	1	9 June	
	Least Flycatcher	13	2	3	1	7	1 May	26 May

Tyrant Flycatchers	Eastern Phoebe	92	2	10	1	42	22 April	10 June
	Great Crested Flycatcher	11	1	2	1	9	16 May	9 June
	Eastern Kingbird	19	2	5	1	11	7 May	30 May
Vireos	Blue-headed Vireo	8	1	2	1	7	30 April	9 June
	Warbling Vireo	2	1	1	1	2	21 May	23 May
	Philadelphia Vireo	2	2	2	2	1	21 May	
	Red-eyed Vireo	95	5	10	2	21	13 May	10 June
Crows & Jays	Blue Jay	2398	61	277	1	39	22 April	10 June
	American Crow	538	11	65	1	48	20 April	10 June
	Common Raven	77	2	7	1	37	20 April	10 June
Swallows	Tree swallow	169	4	20	1	44	22 April	10 June
	N. Rough-winged Swallow	12	2	5	1	5	9 May	9 June
	Bank Swallow	3	1	1	1	3	9 May	1 June
	Barn Swallow	70	2	6	1	29	1 May	10 June
Chickadees	Black-capped Chickadee	89	3	7	1	33	22 April	8 June
Nuthatches	Red-breasted Nuthatch	147	4	12	1	39	20 April	10 June
Creepers	Brown Creeper	120	9	30	1	14	22 April	23 May
Wrens	House Wren	4	1	1	1	4	3 May	8 June
	Winter Wren	15	2	4	1	9	23 April	16 May
Kinglets	Golden-crowned Kinglet	634	33	129	1	19	22 April	8 June
	Ruby-crowned Kinglet	500	20	86	1	25	22 April	26 May
Thrushes	Eastern Bluebird	407	13	154	1	31	22 April	10 June
	Veery	18	2	4	1	12	9 May	9 June
	Swainson's Thrush	18	2	4	1	9	11 May	8 June
	Hermit Thrush	16	1	2	1	12	23 April	7 June
	Wood Thrush	5	1	2	1	4	9 May	25 May
	American Robin	189	5	22	1	40	22 April	10 June
Mockingbirds & Thrashers	Gray Catbird	23	2	3	1	14	9 May	9 June
	Brown Thrasher	51	2	4	1	29	28 April	10 June
Starlings	European Starling	230	10	36	1	22	22 April	10 June
Waxwings	Cedar Waxwing	951	56	213	2	17	21 May	10 June
Pipits	American Pipit	29	4	15	1	7	9 May	22 May
Finches	Purple Finch	12	2	4	1	5	24 April	2 May
	Pine Siskin	60	4	20	1	14	20 April	24 May
	American Goldfinch	349	9	54	1	37	24 April	10 June
Snow Buntings	Snow Bunting	2	2	2	2	1	26 April	
New World Warblers	Golden-winged Warbler	1	1	1	1	1	21 May	
	Tennessee Warbler	15	4	7	1	4	20 May	10 June
	Orange-crowned Warbler	42	3	8	0	14	5 May	21 May
	Nashville Warbler	62	3	8	1	21	1 May	8 June
	Northern Parula	20	2	6	1	10	5 May	3 June

New World Warblers	Yellow Warbler	65	4	15	1	18	2 May	8 June
	Chestnut-sided Warbler	23	3	8	1	8	6 May	23 May
	Magnolia Warbler	84	5	24	1	17	10 May	8 June
	Cape May Warbler	37	3	12	0	12	6 May	23 May
	Black-throated Blue Warbler	34	3	7	1	13	9 May	8 June
	Myrtle Warbler	836	25	300	1	34	22 April	6 June
	Black-throat. Green Warbler	223	6	21	1	38	1 May	10 June
	Blackburnian Warbler	44	3	13	0	15	6 May	10 June
	Pine Warbler	48	2	8	1	23	23 April	10 June
	Palm Warbler	440	16	95	1	28	25 April	9 June
	Bay-breasted Warbler	6	2	3	1	4	20 May	23 May
	Blackpoll Warbler	3	1	1	1	3	20 May	1 June
	Black and White Warbler	165	5	18	1	35	2 May	9 June
	American Redstart	598	19	53	1	32	8 May	10 June
	Ovenbird	46	2	6	1	24	6 May	10 June
	Northern Waterthrush	3	1	1	1	3	6 May	20 May
	Mourning Warbler	10	1	2	1	8	23 May	8 June
	Common Yellowthroat	133	5	16	1	29	9 May	10 June
	Wilson's Warbler	13	1	3	1	10	16 May	2 June
	Canada Warbler	16	2	3	1	10	16 May	3 June
New World Sparrows	Eastern Towhee	3	1	1	1	3	24 April	8 June
	American Tree Sparrow	47	6	34	1	8	22 April	8 June
	Chipping Sparrow	80	3	9	1	28	23 April	10 June
	Clay-coloured Sparrow	5	2	2	1	3	12 May	30 May
	Field Sparrow	2	1	1	1	2	22 April	5 May
	Vesper Sparrow	1	1	1	1	1	25 April	
	Savannah Sparrow	4	1	1	1	4	14 May	26 May
	Fox Sparrow	2	1	1	1	2	24 April	27 April
	Song Sparrow	124	3	17	1	37	22 April	10 June
	Lincoln's Sparrow	18	2	5	1	9	27 April	27 May
	White-throated Sparrow	126	9	49	1	14	24 April	23 May
	White-crowned Sparrow	40	3	6	1	16	1 May	30 May
	Slate-coloured Junco	52	10	19	2	5	22 April	3 May
	Swamp Sparrow	9	1	3	1	7	24 April	14 May
Cardinals & allies	Scarlet Tanager	7	1	2	1	6	9 May	7 June
	Northern Cardinal	571	16	71	1	36	22 April	10 June
	Rose-breasted Grosbeak	15	2	3	1	9	12 May	9 June
	Indigo Bunting	9	1	2	1	8	20 May	6 June
New World Blackbirds	Bobolink	1	1	1	1	1	3 June	
	Red-winged Blackbird	429	11	72	1	38	22 April	9 June
	Eastern Meadowlark	4	1	2	1	3	30 April	3 May

New World Blackbirds	Rusty Blackbird	42	5	14	1	9	7 May	21 May
	Common Grackle	1001	28	353	1	36	22 April	10 June
	Brown-headed Cowbird	44	4	11	1	10	20 April	6 May
	Orchard Oriole	2	1	1	1	2	11 May	12 May
	Baltimore Oriole	11	1	2	1	8	14 May	10 June
	Baltimore Oriole	1	1	1	1	1	13 May	