



Bruce Peninsula Bird Observatory

Cabot Head Research Station Migration Monitoring Fall 2012 Field Season Report

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Introduction

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 (Cheskey and Wilson, 2001). Ontario Parks and Bruce Peninsula Bird Observatory (BPBO) manage Cabot Head Research Station.

The Breeding Bird Survey (BBS) is the principle method for monitoring bird populations in the United States. 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 nationwide Bird Studies Canada initiative, enacted to assess changes in populations during migration. There are 21 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. Bruce Peninsula Bird Observatory has demonstrated through data collection since 1998 that Cabot Head is a significant site for monitoring migrating land birds. In recognition of its importance and established migration monitoring effort, BPBO became a member of the CMMN in fall 2003.

Bruce Peninsula Bird Observatory was incorporated as a non-profit charitable organization in 2001 to initiate and direct ornithological assessments and monitoring at Cabot Head and surrounding areas. Migration monitoring has been the primary focus of bird research at Cabot Head since 1998. A standard migration monitoring protocol has been implemented since 2002 and 2012 represents the 11th consecutive season of migration monitoring at Cabot Head. This fall BPBO banded 2096 individuals of 73 species bringing the grand total since 2002 to 36,032 birds.

Executive Summary

In this document are summarized the results of migration monitoring at Cabot Head for fall, 2012. Fall fieldwork began on August 14th and ended on October 31st for a total of 77 consecutive days of coverage yielding 5118 net hours with a catch rate of 41.0 birds/100 net hours. A total of 170 species and forms were detected during the monitoring period. A total of 2,096 birds of 73 species were banded and 475

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birds of 15 species were recaptured. There was an above average number of rainy days this fall following a very dry summer. The season banding total was the 2nd highest fall total in 10 years. Four species, Golden-crowned Kinglet, Myrtle Warbler, Red-breasted Nuthatch and Black-capped Chickadee represent 47% of the banding total, contributing 23%, 8%, 8% and 8% respectively. There was an overall trend of above average numbers of temperate migrants that winter in southern Ontario and northern U.S.A. banded. 166 Red-breasted Nuthatches almost doubled the previous record of 93 and 107 Slate-coloured Juncos breaks the previous fall record of 103. 476 Golden-crowned Kinglets was the third highest total, 164 Black-capped Chickadee banded this fall was the fourth highest record, Red-eyed Vireo was third highest with 116 banded and 112 White-crowned Sparrows is the second highest total for the fall. There were 8 days with banding total over 50 birds, with the highest day for the fall being October with 135 birds of species banded. At least 1 bird this fall was a foreign recapture a Northern Saw-whet Owl that was believed to have been banded last year. 2 new species were added to the Cabot Head checklist this fall, Hoary Redpoll observed on Oct. 30th and 31st and a Red Crossbill seen on Oct. 31st. The 2nd White-eyed Vireo and Carolina Wren banded in 10 years were also banded this fall.

Methods

The migration monitoring program at Cabot Head like all CMMN stations follows a field protocol (established by Heagy et al, 2003, modified from Heagy 2002) as it is essential for the production of population indices that data collection be consistent over the long term. At Cabot Head Research Station, fifteen mist nets are operated for 6 hours starting a half hour 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. Throughout a 7 hour period starting when nets open personnel also record any observations of birds during the morning.

The addition of birds banded, re-captured, daily observations and census create a value called the detected total (DT) which is the total number of a certain species that was observed in the census area for a given day. Estimated totals (ET) are also calculated which allows the personnel to estimate the number of birds likely to have moved through the area despite not physically counting every individual. The estimated total (ET) is used for calculating population trends by the Canadian Migration Monitoring Network from year to year. Supplemental surveys such as visible migration counts and bay watches are completed when circumstances permit.

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Migration Monitoring Summary

BPBO opened its nets on August 14th at Cabot Head Research Station kicking off its 11th fall season. A very dry and warm summer left many of the fruit bearing trees and shrubs around the station without any fruit. Migration seemed to start ahead of schedule with neo-tropical migrants such as warblers and flycatchers were all ready migrating through when personnel arrived. The 14th started off well with a mix of warblers, Red-eyed Vireos and a flock of 11 Red-breasted Nuthatches banded. There were large numbers of Red-breasted Nuthatches observed and this trend continued throughout the season. 10 species of warbler were banded in the first week including many American Redstarts, Canada, Black-throated Green, Black-throated Blue, Black-and-white, Nashville, Mourning, Myrtle, Magnolia Warbler and Common Yellowthroat. Flycatchers were common as well with Eastern Phoebe, Least and Trail's Flycatcher. On the 19th a single adult Bald Eagle was seen gliding over Middle Bluff along with several Turkey Vultures. Sharp-shinned Hawks were seen daily for most of August, the only banded individual of the season was banded on the 19th. Red-tailed Hawks and Merlins were also observed daily. Sandhill Cranes were observed daily and Double-crested Cormorants numbered in the hundreds for most of August.

Table 1: Top 10 banded species divided by age ratios at BPBO in Fall 2012.

Species	Number Banded	% Hatch Year	% After Hatch Year	% Unknown
Golden-crowned Kinglet	476	92.0	6.2	1.8
Myrtle Warbler	167	94.2	4.2	0.6
Red-breasted Nuthatch	166	83.7	15.7	0.6
Black-capped Chickadee	164	90.2	9.2	0.6
Red-eyed Vireo	116	92.2	7.8	0.0
White-crowned Sparrow	112	74.1	25.9	0.0
Slate-coloured Junco	107	82.2	15.9	1.9
American Redstart	74	78.4	21.6	0.0
Brown Creeper	71	74.6	8.5	16.9
White-throated Sparrow	60	93.3	3.3	3.3

Warm temperatures and light southerly winds brought migration to a stall over the next weeks though some new species began to move through in low numbers. Our only Black-billed Cuckoo of the season was banded on August 21st. Shorebird migration is normally quite small in the fall at Cabot Head and our only shorebirds were seen in August, only 3 species Spotted Sandpiper, Solitary Sandpiper and Killdeer. The 22nd proved to be an unusual day when Hermit Thrush and an American Tree Sparrow were

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banded. This is the earliest record of American Tree Sparrow at Cabot Head by 1 month. Northern Flickers were moving through the area in the latter days of August into September with a high of 100 on the 22nd. A surprise on census on the 22nd was a single Wild Turkey that was flushed and it flew into a nearby aspen tree.

Moderate west winds seemed to blow in some mixed flocks of warblers our nets were their busiest during August. Eastern Wood Pewee, Veery and Bay-breasted Warbler were new arrivals. Waterfowl movement in August was light with the usual Common Mergansers hanging around and the occasional Mallards floating in the basin. Whip-Poor-Will and Common Nighthawk were heard in the evening passing through with 6 Nighthawks one evening. Early September is a time when migration stalls in Ontario when the local neo-tropic migrants have moved through and the more northerly temperate migrants have yet to arrive. September 2nd was our only decent Hawk day with 22 Broad-winged Hawks, 5 Red-tailed Hawks and Merlins seen. There was a family of Ruffed Grouse hanging around the nets and they were captured several times. On the 6th the first Western Palm Warbler of the fall was banded and large numbers of Black-capped Chickadees were observed. A Carolina Wren was banded on the 4th of September this was the 3rd record of this species at Cabot Head and the 2nd banded. On the 7th a Peregrine Falcon was observed along with several Merlins and a Sharp-shinned Hawk aside from a few days hawk migration was almost non-existent this fall. The first Tennessee warbler of the fall was banded on the 7th as well as 2 Brown Creepers which were quite early in the season. Strong North-west winds on September 8th produced some impressive movements of Common Loons and Canada Geese, observing 121 and 170 respectively. Red-necked and Horned Grebes began moving through and continued in low numbers throughout September. White-throated Sparrows began moving in numbers after the 10th. Red-breasted Mergansers began showing up in small numbers moving through with Common Mergansers.

In mid-September the weather turned from balmy and warm to cold with strong winds and decent amount of rain the bad weather means that birds are starting to move to escape the frosty clutches of winter. On September 11th strong west winds blew in pushing down some good birds. Veery, Swainson's Thrush, Gray-cheeked Thrush, Blue-headed Vireo, Northern Flicker and Scarlet Tanager among others moved through. A large flock of over 100 Blue Jays was observed during census the total for the day was more than 200 for the standard count. On September 12th 21 species were banded including: Yellow-shafted Flicker, Philadelphia Vireo, Golden and Ruby crowned Kinglet, Veery, Red-breasted Nuthatch, Tennessee Warbler, Nashville Warbler, Magnolia Warbler, Myrtle Warbler, Black-throated Green Warbler, Western Palm Warbler, Bay-breasted Warbler, Blackpoll Warbler, American Redstart, Common Yellowthroat, Mourning Warbler and White-throat Sparrow and observed more than 60 species for the day. The first Hairy Woodpecker of the year was banded on the 15th. Whip-poor-will was heard calling

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before net opening and Yellow-bellied Sapsuckers moved through over the next couple days. Bay watches turned up, Common Loon, Common, Red-breasted and Hooded Merganser over the next week. American Pipits moved through daily into late September and Savannah Sparrow and Purple Finch were also moving through in decent numbers. The next week was rainy and cold with North winds blowing in migrants and a few surprises. On the 18th the first and only Yellow-bellied Flycatcher of the fall was banded. Late September Golden-crowned Kinglets began to move through in high numbers with more than 100 observed everyday and some banded. White-crowned Sparrows started to move through as well with up 50 seen during the count. Our 2nd ever record of White-eyed Vireo was banded on the 22nd. On the 25th 93 birds of 19 species were banded including: Lincoln's Sparrow, Black-throated Green and Blue, Nashville, Magnolia, Myrtle and Orange-crowned Warblers, Swainson's Thrush, Ruby-crowned Kinglet, Brown Creeper, 13 Red-breasted Nuthatches and 7 Black-capped Chickadees. 16 Northern Flickers, Pileated Woodpecker and Downy Woodpecker were observed moving through the area. On the 26th Myrtle Warbler moved through strongly with 19 banded and over 100 observed also Western-palm, Blackpoll and Nashville Warblers were banded. Kinglets dropped off with less than 20 observed. Over the next 2 weeks thousands of birds moved through and more than 900 birds were banded over the next 20 days. Sparrows were around with 30 White-Throated and Eastern White Crowned hanging around the cottage, Swamp Sparrow and Slate-coloured Junco were also banded. A Mourning Dove showed and hung around on the 26th only the third individual of this species seen this fall. On the 28th the first Fox Sparrow of the year was banded as well as White-throated, White-crowned Sparrow and Slate-coloured Junco. Our first Brown Thrasher of this fall was banded as well as 28 Golden-crowned Kinglets. The night of the 28th the first Northern Saw-whet Owl of the year was banded. On the 29th 100 birds of 18 species were banded and 40 species were observed for the day. Sparrows were everywhere with over 200 of both White-throated and White-crowned Sparrows observed. Slate-coloured Junco, Swamp, Song, Fox and Savannah Sparrow were also seen. Over 50 Western Palm Warbler were seen and 13 banded as well as 31 Myrtle Warblers banded and over 300 moving through. Nashville and Tennessee warblers moved through with 6 and 2 banded. 4 Hermit Thrush were banded as well as only 2 Golden-crowned Kinglets a big change from the previous days. 1 Ruby-crowned Kinglet was also banded and 4 Brown Creepers and Red-breasted Nuthatches. All Woodpeckers that are regular in southern Ontario except Red-headed Woodpecker were seen or banded. Downy, Hairy, Red-bellied and Pileated Woodpecker, Northern Flicker and Yellow-bellied Sapsucker were all observed during census. A Yellow-bellied Sapsucker and a fairly late Yellow-billed Cuckoo were also banded. Pine Siskins were flying over in good numbers with over 100 observed and 3 White-winged Crossbills were seen during census. Big thunderstorms moving in on the night of 19th continued to push in Kinglets, Creepers, Thrushes and Sparrows. 78 birds of 16 species were banded mostly White-crowned Sparrows and Slate-coloured Juncos. Our first Purple Finch

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of this fall was banded as well as a Hairy Woodpecker. Again North winds brought more migrants and on the 2nd was the biggest day of the year in terms of numbers with 135 birds of 14 species banded. The forest was alive with the high-pitched calls of Kinglets and Creepers and the narrow strip of land our nets are placed on became a Kinglet Highway for the morning with close to 1000 Golden-crowned Kinglets flying by. 81 Golden-crowned kinglets, 2 Ruby-crowned Kinglets and 8 Brown Creepers were banded. Sparrows were abundant as well with 9 White-crowned and 5 White-throated banded. Myrtle Warbler, Western Palm Warbler, Bay-breasted Warbler and Orange-crowned Warbler were also banded. Hermit Thrush and American Robin were also banded and Black-capped Chickadees and Red-breasted Nuthatches were banded too. Movement of Kinglets and Creepers continued with Golden-crowned Kinglet our most commonly banded bird over the next week. A push of Buteos mainly Red-tailed Hawks but also Red-shouldered Hawk moved through in low number over the next week.

A cold front blew into Bruce County the week of the 5th with strong northerly winds, rain and a drop in temperatures. Not ideal weather for bird migration but despite that daily banding totals were average despite lower than average net hours due to bad weather. Again Golden-crowned Kinglets and Brown Creepers were the most common banded as well as good number of Slate-colored Juncos. 4 Lapland Longspurs were seen flying over on the 7th as well as an Adult Golden Eagle these are the only observations of these species this fall. Pine Siskins were around still and seemed to prefer White Birch catkins as their favorite food when they stop at Cabot Head being seen daily in numbers from a dozen to several hundred. The only Red-headed Woodpecker this year was observed on the 10th and was seen foraging around the rocky point and later that day another immature Red-headed Woodpecker was seen in the village of Dyer's Bay, possibly the same bird. A large flock of blackbirds flew by with 130 Common Grackle, 10 Red-winged Blackbirds and 10 Rusty Blackbirds on the 11th. During Bay watch Common Loon, Horned Grebe, Red-necked Grebe, White-winged Scoter, Long-tailed Duck, and Common Merganser were observed commonly over the next 2 weeks. During October were multiple nights that Eastern Screech Owl was seen and heard on October 27th 3 were heard calling back and forth to each other. On the 13th we banded 1 of only 2 American Goldfinches banded this fall. On the 14th and the days after up to 3 Horned Grebes and a White-winged Scoter stopped over in the basin. American Tree Sparrows, Fox Sparrows and Winter Wrens showed up and moved through from mid-October onward. Only 21 Tree Sparrows were banded this fall which is a good number but this was only the first push of them the majority of these northern sparrows moved through after the 31st and thus the majority of them were missed. Our first and only White-breasted Nuthatch of the season was banded on the 22nd. On the 24th 5 American Black Ducks flew over the basin and the first Northern Cardinal of the year was banded which hung around and was recaptured along with 3 friends several times. In the last week of October a large

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cold front along with the remnants of a hurricane collided and sent howling cold North-easterly winds our way bring northern finches to the Cabot Head area. On the 27th the first Red-bellied Woodpecker of the year was banded a male that had been seen multiple times throughout the season. The first Pine Grosbeak of the year was also banded and 5 Evening Grosbeaks were observed. Common Redpolls showed up on the 15th with small flocks observed along with more Evening and Pine Grosbeaks. On the 30th Pine Siskins were fewer than in weeks and replaced by large flocks of Common Redpolls. A single Hoary Redpoll was seen on the 30th followed by 3 Hoary Redpolls on the 31st this is the first record of Hoary Redpoll for the Cabot Head area. White-winged Crossbills joined the Redpolls on the 30th and 31st with hundreds moving through throughout the days one of which found its way into a net and was banded our first for the year. To finish the complete record of winter finches of Ontario a Red Crossbill was seen on the 31st also a new bird for the checklist. During census on the 31st 3 Snow Bunting were seen briefly landing on the opposite rocky point.

Almost 400 birds were recaptured this fall some of which were recaptured on multiple occasions. Most of our recaptured birds are birds that we have banded that season and have hung around the area to forage, grow in feathers or have been forced to stop due to bad weather conditions. At least 1 bird captured this fall was a foreign recapture which is a bird that was banded at another field station. It was a Northern Saw-whet Owl (1014-07508) determined to be a second-year bird and likely banded last year because of considerable wear on the band. An Indigo Bunting was captured which was originally banded in the spring. The bird was captured during its molt originally this fall and recaptured it several times. Recapturing birds is one of the most important pieces of data than can be collected at a migration monitoring station as it can give us an idea of what flyways the birds are using and where certain populations of birds go to winter.

Research

This fall Greg Mitchell a Post-doctoral Fellow at Western University stayed at the station for more than a month studying the migratory behavior of Myrtle Warblers. Myrtles are one of the most versatile and hardy warblers in North America; although most individuals migrate south in the fall, some will stay and can survive the winter in SW Nova Scotia by foraging on frozen fruit.

Nine automated telemetry receiving stations, spanning from Tobermory to Lake Erie were set-up including one at Cabot Head. Each station is comprised of a small tower, multiple antennae (Yagi Antennae like the ones you see on homes), and a radio receiver. A small (0.38 g) radio transmitter is

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placed on some of the Yellow-rumped warblers banded at the station and the towers were used to track the timing and direction of their migration movements. If a bird passes within 15 km of a tower, the tower will receive a radio signal from the bird's transmitter and time stamp when the signal was received. By looking at the timing of the signals received at each tower and the direction of the antenna that received the signals, Greg will be able to reconstruct the migration routes of the yellow-rumps banded at the station. The data can also be used to look at natural history of Myrtle Warblers such as how long birds stopover to rest and refuel at or near the research station before resuming their migration, what kinds of weather conditions individuals are choosing to depart under, and determining whether or not some individuals are migrating during the day (this has yet to be definitely described in this species, but there is plenty of anecdotal evidence that they do).

In total Greg put out 40 transmitters which was his goal, but he was able to receive additional transmitters and used another 10 during the field season. Aside from allowing the receiving station do all the work Greg headed out every afternoon to track the warblers using a hand held radio receiver to try and see what habitats the Myrtles prefer to forage in. Greg also helped out with all aspects of the migration monitoring protocol and was a major asset during this busy fall season.

Personnel

This fall, 6 volunteers from 3 countries logged over 2500 person-hours monitoring migration at Cabot Head Research Station. A researcher from the University of Western Ontario also stayed for a month to study Myrtle warblers. Special thanks go out to all the volunteers and other personnel to their dedication and contribution to BPBO's Migration Monitoring program this fall.

Long Term Volunteers (> 3 weeks): Nicholas Moy (Gurnee, Illinois), Pat Burri (Luzern, Switzerland), Greg Mitchell (London, Ontario), Emily Cooper (Toronto, Ontario), Laurel McDonald (Winnipeg, Manitoba).

Short Term Volunteers (< 3 weeks): Justin Silverton (Toronto, Ontario), Stephane Menu (Kitchener, Ontario).

Coverage

Mist net and census coverage began on August 14th and ran through until October 31st. A total of 5118 net hours were completed this spring yielding a catch rate of 41.0 birds/100 net hours. This represents 75% of full coverage that is 77 days with 90 hours each. There were only 8 days in which no nets could be opened due to inclement weather or personnel absence. Number of days with full coverage that is 90

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net hours was above average this fall. For the period weather fair with some periods of high winds and rain particularly in the last 10 days.

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 National Park), for their continued support.

The author wishes to thank all the members of the Bruce Peninsula Bird Observatory, as well as Bob Lesperance of Ontario Parks for their support during the field season. I would also like to thank the 7 volunteers who helped make the field season efficient and enjoyable.

Conclusion

The 11th consecutive year of Bruce Peninsula Bird Observatory's migration monitoring at Cabot Head Research Station was a success. In total 3384 birds of 82 species were banded this fall. 15 volunteers from 5 countries contributed over 3500 hours to the migration monitoring program this year. B.P.B.O. also brought Nicaraguan ornithologist Salvadora Morales up from Nicaragua to volunteer and to give presentations on her work with birds and outreach down in the tropics. 5 new species of birds were added to the Cabot Head checklist; Eastern Tufted Titmouse, Hoary Redpoll, Le Conte's Sparrow, Red Crossbill and Swainson's Hawk. For the first time an independent researchers from University of Western Ontario studied the migratory behavior of Myrtle Warblers. As well, there were two bat researchers studying the migratory behavior of bats at Cape Hurd. This is an important first step to gaining further knowledge about the migratory behavior of birds and bats. Hopefully there will be more research in the area in the following years. A standardized Bay Watch was undertaken this spring because of the availability of experienced personnel. It was continued in the fall but with less reliability due to personnel constraints. Monitoring was a success as coverage was good and complete and the data collected was of high quality. Cabot Head is an excellent location for this program as bird concentrations are significant, the facilities are ideal and there is a skilled, enthusiastic, and increasingly local base of volunteer support. Migration monitoring at Cabot Head Research Station is an ongoing project and contributes to the efforts of the Canadian Migration Monitoring Network and ultimately to the understanding and monitoring of bird populations.

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Appendix 1. Fall 2012 Recaptures summary

Species	Number of individuals
American Redstart	15
American Tree Sparrow	8
Black-and-White Warbler	12
Black-billed Cuckoo	1
Black-capped Chickadee	59
Brown Creeper	20
Black-throated Green Warbler	2
Common Yellowthroat	18
Downy Woodpecker	5
Eastern White-crowned Sparrow	10
Golden-crowned Kinglet	45
Gray-cheeked Thrush	1
Hairy Woodpecker	2
Hermit Thrush	1
Indigo Bunting	1
Least Flycatcher	1
Mourning Warbler	1
Myrtle Warbler	28
Nashville Warbler	2
Northern Cardinal	3
Northern Saw-whet Owl	1
Ovenbird	16
Purple Finch	1
Red-breasted Nuthatch	24
Red-eyed Vireo	30
Slate-colored Junco	31
Song Sparrow	1
Swainson's Thrush	4
Traill's Flycatcher	2
Veery	2
White-crowned Sparrow	28
Western Palm Warbler	1
White-throated Sparrow	17
Yellow-billed Cuckoo	1
Yellow-shafted Flicker	1
Total	395

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Appendix 2. Banding Totals by Species for fall at Cabot Head Research Station 2001-2012

A record high number banded for the fall season. (Highlighted in red)

A record low number banded for the fall season. (Highlighted in yellow)

First individual banded for the fall season. (Highlighted in green)

Species	Fall										
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
American Woodcock								1		2	
Sharp shinned Hawk		2	2	3	3	3	2	1	3	5	1
Cooper's Hawk	1										
Merlin			1			1					
Yellow-billed Cuckoo	2	2		1		2	2		1		2
Black-billed Cuckoo	2	5									1
Northern Saw-whet Owl	1				1	1	1	1		2	12
Belted Kingfisher	1	1	2		1					1	
Red bellied Woodpecker		1	1						1		1
Yellow bellied Sapsucker		1		1	1	2			1	3	1
Downy Woodpecker	1	12	4	3	6	7	4	31	13	4	12
Hairy Woodpecker		5	5	2	4	11	8	8	6		6
Black-backed Woodpecker					1						
Yellow-shafted Flicker		3	2	1	6	2	3	4	6	4	8
Pileated Woodpecker	1				1	1	1		1	1	
Eastern Wood-Pewee								1			1
Yellow-bellied Flycatcher	3	1	1			3	1	3	2	2	1

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Traill's Flycatcher	3	5	3	6	6	16	5	7	12	1	10
Least Flycatcher	3	5	5	7	3	6	4	3	9	6	4
Olive-sided Flycatcher									1		
Eastern Phoebe	4	1			3	2	4	1	1		3
Great Crested Flycatcher						1	1		1		
Eastern Kingbird	1										
Northern Shrike	2	1	3	1		2					
White-eyed Vireo											1
Blue-headed Vireo	1	3	4	11	8	1	8	3	9	7	4
Philadelphia Vireo		1		2		1		2	1	4	5
Red-eyed Vireo	51	117	31	239	52	49	66	24	121	105	116
Blue Jay	3	4	3	6		1	4	2	3	4	9
Black-capped Chickadee	29	368	169	717	12	269	47	131	125	94	164
Red-breasted Nuthatch	5	26	62	73	17	89	93	22	37	24	166
White-breasted Nuthatch				1		2					1
Brown Creeper	53	48	28	32	46	39	31	19	65	22	71
House Wren		2	1				1	2	1	1	
Winter Wren	3	1	5	4	4	8	8	6	2	6	
Carolina Wren											1
Golden-crowned Kinglet	490	321	262	113	407	148	255	312	514	205	476
Ruby-crowned Kinglet	71	122	62	20	106	40	63	48	41	31	36
Blue-gray Gnatcatcher	1										
Veery			3	5	3	6	4	2	1	2	6
Gray-cheeked Thrush	19	16	12	22	9	12	8	9	6	21	7
Swainson's Thrush	11	38	16	36	10	18	15	50	34	23	38
Hermit Thrush	16	34	24	48	57	28	39	32	49	87	30
Wood Thrush				2	1	1					
American Robin	11	19	16	10	36	1	21	20	17	15	18

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Gray Catbird	10	7	7	12	7	5	2	5	2	4	6
Brown Thrasher	1										2
American Pipit	1		1								
Cedar Waxwing	43	10	16	117	80	2	45	4	26	81	
Blue-w.x Golden-w. Warbler	1										
Golden-winged Warbler			1								
Tennessee Warbler	3	8	38	44	5			2	6	4	5
Orange-crowned Warbler	10	23	9	3	23	23	4	6	15	5	14
Nashville Warbler	41	48	24	78	32	37	22	21	19	27	37
Northern Parula				1			1				
Yellow Warbler	6	13	3	4	4	1	1	2	3	8	3
Chestnut-sided Warbler	5	2		1	3	3	1	1	1	1	
Magnolia Warbler	17	29	25	34	20	21	20	25	26	18	16
Cape May Warbler		3	1	1		3	2	1		1	5
Black-throated Blue Warbler	21	18	14	7	14	11	18	18	13	16	13
Myrtle Warbler	90	92	34	204	70	50	59	54	70	84	167
Black-throated Green Warbler	116	115	115	81	29	15	37	35	45	75	32
Blackburnian Warbler	5	3	3	10		5			3	2	1
Pine Warbler	2		2				2		1	3	
Western Palm Warbler	6	10	1	10	18	8	2	3	7	6	22
Bay-breasted Warbler		2		6	2	5	5	1	7	5	7
Blackpoll Warbler	6	6	7	23	5	7	6	10	8	19	23
Black-and-White Warbler	26	30	17	15	12	12	25	33	21	32	28
American Redstart	103	198	85	65	66	44	171	124	82	133	74
Ovenbird	10	16	16	24	17	10	16	25	19	18	31
Northern Waterthrush	11	4	4	1	7	4	8	7	15	11	2
Connecticut Warbler		1		1							
Mourning Warbler	1			2	3	3	2	4	3	2	4

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Common Yellowthroat	17	35	31	23	26	18	17	25	39	26	35
Hooded Warbler									1		
Wilson's Warbler	5	4	2	10	4	11	9	12	9	8	7
Canada Warbler	7	4	1	4	1	3	5	3	7	2	3
Yellow-breasted Chat								1		1	
American Tree Sparrow	10	19	56	12	18	29	28	27	88	29	21
Chipping Sparrow	3	1	6	6	1	4		1	2	1	3
Clay-colored Sparrow		1									
Savannah Sparrow	1	3	1	2	2	8			4		3
Fox Sparrow		1	3	2	2	1	3	5	2	5	2
Song Sparrow	20	17	10	10	15	13	22	20	18	12	10
Lincoln's Sparrow	9	2	4	7	8	9	4		13	5	3
Swamp Sparrow	4	11	7	2	4	2	5	4	4	5	1
White-throated Sparrow	49	42	84	199	43	39	158	84	58	56	60
Eastern White-crowned Sparrow	29	22	79	26	19	127	53	56	41	33	112
Slate-colored Junco	43	65	63	56	103	80	83	63	92	96	107
Eastern Towhee							1	1			
Snow Bunting					1				3		
Northern Cardinal	1	3	1	1		1	1	2	1	1	4
Rose-breasted Grosbeak	1	6				2	1			8	
Indigo Bunting		5	5	1	1		5		1		2
Summer Tanager			1								
Scarlet Tanager	1			2					1	2	2
Rusty Blackbird						1					
Baltimore Oriole		1					1				
Pine Grosbeak				2		5					3
Purple Finch	2	3	5	2	2	3	4	7	2	17	1
White-winged Crossbill							22			2	1

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Pine Siskin			4			3	44	5	22	170	12
American Goldfinch	3				6	1	1		1	3	2
Common Redpoll						6			5		
Total	1530	2047	1513	2477	1477	1419	1615	1442	1890	1719	2097
Species Total	68	68	65	67	62	74	68	63	73	69	73