SPRING WARBLER MIGRATION

IN ONTARIO - 2003

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THE ONTARIO SPRING WARBLER MIGRATION COUNT – 2003

INTRODUCTION

With another year's field observations behind us it is time to present the findings of our observers in a way that allows us to see what happened during the spring migration of 2003. As with any year there have been surprises, both pleasant and unpleasant. However, that is one of the reasons fieldwork is done. If everything was completely predictable what a boring world it would be. One of the great joys of fieldwork is in observing and recording something different. I would like to thank all of the observers whose diligence makes this report possible. I made a couple of bobbles with the collection of raw data this year but the patience and understanding of those involved means that I am able to bring you data from as many locations as possible. I hope that you enjoy this report and look forward to your continuing contributions and feedback.

Each spring the Warbler Count collects and analyzes migration information from across Ontario on 21 common species of wood warblers and three other passerine species (namely swainson's thrush, scarlet tanager and rose-breasted grosbeak) that primarily migrate during the May 01 to June 05 period when our data is collected. While the methods of the count may not produce scientifically rigourous results they do provide a fascinating snapshot of the spring migration of one of the most loved families of birds.

The Spring Warbler Count is a very attractive project for those who enjoy morning bird walks and would like to see some results from their outings. It involves picking out a small area of woodland and walking the same route through it each morning. The length of the route should only be what can be covered in an hour on a day of heavy migration. This keeps the areas to roughly equal size. We ask that all warblers that are observed be recorded. As mentionned above we focus this report on 21 species of warblers while individuals of other warbler species are recorded but because of their low numbers are not included in the averaging.

The data for the Warbler Count comes from two main sources. The first is volunteer participants who can easily visit a park or wooded area near their home each morning (often before going to work) but who may not be able to commit extended periods of time at an established migration station. Some participants go out every morning for the full 36 days but most find it more convenient to split the task between two or more observers. Results from Toronto go back to 1970 though 1985 and 1986 were missed. The second source is data from Bird Observatories. Beginning in 1998 Estimated Totals from Bird Observatories that submitted data were included in the report. For 2003 we have data from the following: Haldimand BO (comprising the Rock Point, Ruthven and Selkirk stations), Long Point BO (Old Cut station), Prince Edward Point BO and Thunder Cape BO.

The short-term purpose of the project is to record warbler migration each spring. The long term goal is to analyze how the numbers of warblers counted is changing over time. Changes in numbers counted will be related (at least in part) to the rise and fall of the populations of count species. Determining the strength of that relation and the exact breeding populations affected are beyond the scope of this study. That being said, Warbler Count results can provide good indications of which species may warrant further more academic research. In this vein, this year's report will include an individual species analysis for the Toronto area from 1970 to 2003. The species that will be presented is the Black-throated Green Warbler. Individual species analyses for the Toronto area have also been done for Black-and-white, Yellow and Yellow-rumped Warblers. If you are interested in obtaining a copy of any of these reports please contact the author.

If you would like more information about the Spring Warbler Count or are intersted in doing a warbler count, either covering an existing study area or starting a new one, please contact Tom Flinn [redacted]. There is no charge for participating in the Spring Warbler Count. Contributors will receive a free copy of the Ontario report. Additional copies for non-participants are available at the nominal cost of $5.00 to cover printing expenses.

THE OBSERVERS AND THE STUDY AREAS

Table 1 lists the study areas, the number of visits made to each of them in 2003 and the name(s) of the person(s) responsible for each area. All the observers are competent, experienced birders capable of identifying all species by voice and in all plumages. The participants showed great dedication in getting up and out almost every morning for five weeks. To all the observers I extend my heartfelt thanks. I would also like to thank all the Bird Observatories for the data they submitted. I know that the data asked for is slightly different from what they normally generate so their efforts to accommodate the methods of this study are most appreciated. Without all of you there would be no warbler count.

In Toronto we had more turnover of observers in 2003. Mike Solomon did not cover the Cedarvale Park and Ravine study areas for the first time since 1997. His contributions will be missed. While Cedarvale Park and Ravine were not covered in 2003 we hope to get at least one of them covered for next year's count.

In 2003 there were seven study areas in Toronto. The study areas are mostly wooded ravines and hillsides surrounded by built-up areas of the city. Their positions within heavily built-up residential and industrial areas discourages those species that would normally nest in this part of Ontario from setting up territories. Although this may result in lower counts than richer habitats away from the city it also reduces the problem of sorting out resident birds from migrants.

This year each of the Toronto study areas received an average of just under 29 visits during the course of the Warbler Count. This is less than last year's average of just under 31 visits per study area and mainly due to less reporting than expected from Mount Pleasant and Moore Park. We expect that these areas will receive more coverage in 2004 and would like to particularly thank the observers who covered those plots in 2003 for keeping these two areas as the longest running plots in the Warbler Count.

There have also been changes outside of Toronto. While we received data from the usual study areas in Newmarket and Massey unfortunately there were no reports from Port Hope or Thickson's Woods (Whitby). Port Hope had been covered by Elizabeth Kellogg and Roger Frost but other commitments, especially to the Breeding Bird Atlas, meant they just had no time to do the warbler count in 2003. While they may be back when the Atlas is completed, Elizabeth informed me that the route they have covered in the past is slated for 'development' so if they return it would be in a slightly different area. The loss of data from Thickson's Woods is in part due to the inability of Margaret Bain to cover that area in 2003. We hope an appeal to our friends in Durham region will allow data from this migrant trap to be collected in 2004. The loss of these two areas meant there was no coverage between Toronto and Prince Edward Point in 2003. There has been no change in the Bird Observatories submitting data to the warbler count. For 2003 data was again received from Haldimand (Rock Point, Ruthven and Selkirk stations), Long Point (Old Cut station), Prince Edward Point and Thunder Cape.

TABLE 1

OBSERVERS AND STUDY AREAS

Study Areas	No. of Visits	Observers
Toronto:		
Brookbanks Ravine	28	Naish McHugh, Jean Iron, Ron Pittaway, Carol Horner
High Park North	30	Don Barnett
Moore Park Ravine	17	N. & S. Macdougall, G. Fairfield, R. Powley, M. Schuster
Mount Pleasant Cemetary	13	Neil & Shirley Macdougall, Roger Powley, Mary Schuster
Pine Hill Cemetary	35	Edmund & Jean Johns
Unwin Avenue	36	Tom Flinn, Don Peuramaki
Wychwood Park	35	Herb Elliott, Tom Flinn
Total Visits in Toronto	200	

Massey	19	Erwin Meissner
Newmarket (Mabel Davis)	25	Kevin Shackleton, Keith Dunn
Bird Observatories:		
Haldimand		
Rock Point	28	Jim Smith
Ruthven	26	R. Ludkin, D. Edwards, L. Mousseau, M. Boulet
Selkirk	34	John Miles
Long Point - Old Cut	36	LPBO staff and volunteers
Prince Edward Point	35	Eric Machell, PEPBO staff and volunteers
Thunder Cape	36	John Woodcock

THE TORONTO COUNT

In this section we will look at the results of this year's warbler count in Toronto in the following ways: first we will look at the overall number of warblers observed, following this we will look at the pattern of this year's migration and finally we will look at some numbers for individual species from this year's count and do a brief comparison with the individual species numbers from previous counts.

Table 2 sets out the combined observations for the seven study areas covered within Toronto for each of the 24 species studied. The totals for each day and each species are given. In addition the average number of warblers per visit per day (the daily total divided by the number of visits that day) is included. This average is called daily warblers per visit or daily WPV. This average is much more meaningful than the simple total of the birds observed. It eliminates problems that result from a different number of observers going out on any given day and thus allows for direct comparisons of daily results. Further, by using warblers per visit we can even compare days from different years. Also calculated (but not shown in this report) is an average warblers per visit for each individual species. For any given species this is obtained by dividing the total number of birds of that species that were observed over the five weeks of the study by the total number of visits (see Table 1 above). The phrase warblers per visit is used so frequently in this report that hereafter we will use the acronym WPV in its place.

I have decided to try using a slightly different format for displaying the data in Table 2. If no birds of a particular species were recorded on a given day there is a blank space in the table rather than a '0' (zero) as in years past. The previous format resulted in a whole page filled with numbers. I think that the new format makes it easier to quickly pick out when individual species are being counted and when their numbers are peaking. It also makes it easier to see which days have high or low species diversity (i.e., the number of species counted that day). Any comments on this new format would be most appreciated.

YEARLY WARBLERS PER VISIT

The single most important number to characterize the year's migration as a whole is the average warblers per visit for the year (hereafter Yearly WPV). This figure is obtained by dividing the total number of warblers seen during the five weeks (1568) by the total number of visits (200). Thus the Yearly WPV for 2003 is 7.8. Now we can compare 2003 with the other years of the Warbler Count (see Table 3 below).

As we can see from Table 3 the Yearly WPV figure for 2003 at 7.8 is above the Yearly WPV figures for 2001 and 2002 but was the ninth lowest figure for the 32 years for which we have data. This can be further placed in context by looking at it within the framework of a pattern we have already identified. In the 2001 Spring Warbler Migration in Ontario report we used the Yearly WPV figures to divide the entire study into four periods. We used the figure of 10 warblers per visit as the cutoff point for defining the four periods. This resulted in us having two high periods (1970-1980 and 1990-1997) where the WPV figures are above 10 and two low periods (1981-1989 and 1998-2002) where the WPV figures are below 10. There are some years where the WPV figure does not follow the criteria for the period they are in but in no

period are there two consecutive years where the WPV figure does not meet the criteria of that period. Thus we were anticipating that the 2003 Yearly WPV figure would be below 10 fitting in with the low period which has prevailed since 1998. Further, I suspect that Yearly WPV figures will remain below 10 for another year or two at least.

TABLE 3
YEARLY WPV - 1970 TO 2003

Year	Visits	Number	Yearly WPV	Year	Visits	Number	Yearly WPV
1970	117	1413	12.1	1987	187	1313	7.0
1971	99	1248	12.6	1988	198	1537	7.7
1972	249	2622	10.5	1989	149	1013	6.8
1973	269	3071	11.4	1990	221	2587	11.7
1974	303	3174	10.5	1991	263	2805	10.7
1975	301	2921	9.7	1992	294	2676	9.1
1976	243	4466	18.4	1993	349	5641	16.2
1977	271	3007	11.1	1994	299	4017	13.4
1978	242	2321	9.6	1995	369	5170	14.0
1979	201	2826	14.1	1996	360	4518	12.6
1980	203	2340	11.5	1997	467	5247	11.2
1981	237	1436	6.1	1998	439	2867	6.5
1982	216	1721	8.0	1999	411	3837	9.3
1983	150	1051	7.0	2000	364	4606	12.7
1984	108	864	8.0	2001	329	1725	5.2
1985	No Count Taken			2002	277	1736	6.3
1986	No Count Taken			2003	200	1568	7.8

THE MIGRATION PATTERN

Graph 1 shows the pattern of migration for the 21 species of study warblers as a group by displaying the daily WPV figures (the line graph) and the millimetres of rainfall in Toronto (the bar graph).

GRAPH 1 - DAILY WPV AND RAINFALL 2003

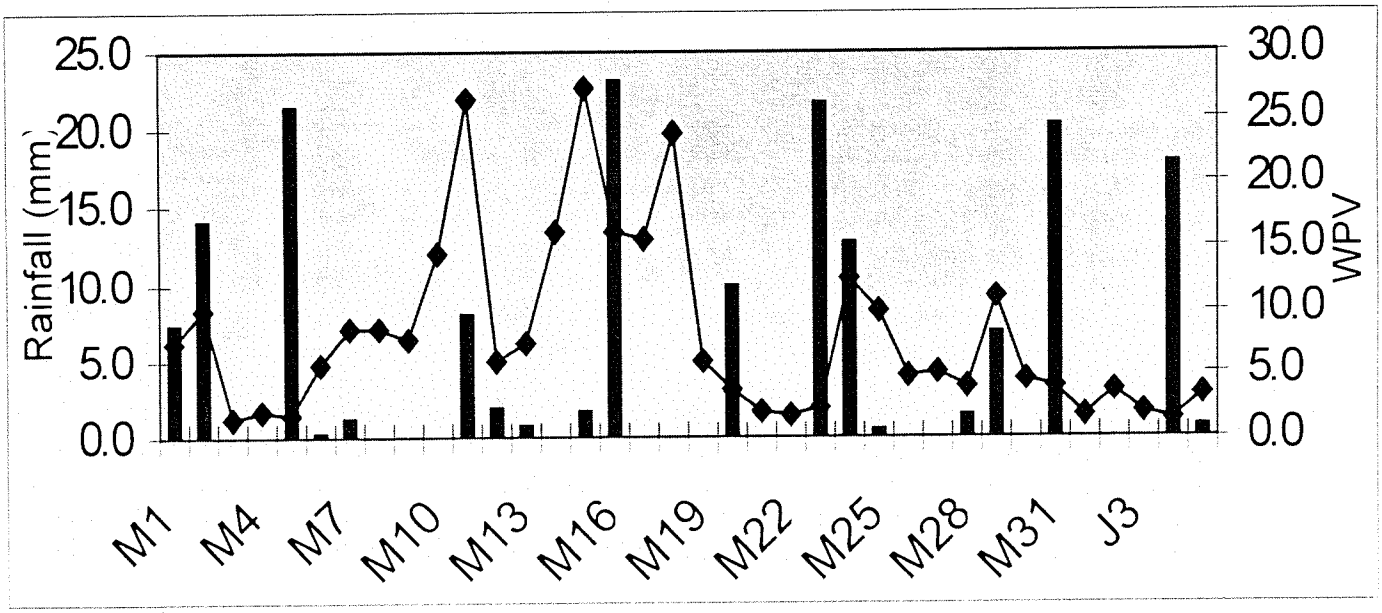


TABLE 2

WARBLER COUNT - TORONTO TOTALS 2003

TORONTO SPRING WARBLER COUNT - 2003
Seven Toronto Plots Combined

	May																														June					Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	
Bl. & Wh.	13	5	1		1	1	3	3	2	6	10	2	3	8	18	2	8	3	2					1				1									93
Tenness.											2	1	1		2		3	2					1	6	4	5	3	2	3	1	4					3	43
Nashville	1	4	1			4	7	7	1	10	16	3	3	13	24	1	6	7	2		2	1		1		1		1	1								117
Yellow		2			1		6	10	6	7	7	2		3	5		2	5	4	2	2					1			2	2					1	1	71
Magnolia		1								3	7	1	4	7	17	8	16	20	10	2	1	2	5	11	12	5	8	3	7	1	4		6	2	1	3	167
Cape May																			1						1												2
BT Blue	1	2			2	3	1	2	4	3	4	2	7	6	21	3	7	22	5		1	1	2	2	3	3					1						108
Yel.-rump	26	31	2	6	6	14	14	7	11	9	22	11	4	12	26	14	10	9		3		1		2	3	1		1					1				246
BT Green	3	1			1	3	2	5	2	8	8		2	12	20	2	7	8	2		2	1	1	4	1				2						1	2	100
Blackburn.						1			1	5	2		1	3	7	3	2	6						5	3	2	2	1	2				1			2	49
Chestnut		1					4	1	2	10	7	1	4	19	29		6	17	7	2	3	3		5	6	3	3	2	10	5	3		1				154
Bay-breast											4				10	4	2	2	1			1		4	2						1						31
Blackpoll																1	2						1	1	3		3	9	3	3	1		4	2	1	3	37
Palm	6	2	1	2	1		4	2	7	7	7	4	2	6	2			1																			54
Ovenbird	1					2	2	5	2	2	2		1	14	2	1	5	3	1	1		1		1	1												47
N. Water												1		1			1								1				1								5
Mourning																									1								1				2
C. Yellwthrt										1	3	1		3		1	5	6	4	6	2	1	1	1	5	4	1	3	9	3	1	2	2	3	4	2	74
Wilson's																		2		2	1		1	1	2	3	3	3	8	1			3	2		1	33
Canada													1					1	1						1	3			3	1	1	1	1			1	15
A. Redst.								1		1	4	1	4	5	8	8	11	5	2	1	1			5	1	3	3	4	25	6	4	6	5	1	2	3	120
Daily Total	51	49	5	8	12	28	43	43	38	72	105	30	37	112	191	48	93	119	42	19	15	12	12	50	50	34	26	29	77	23	20	9	25	10	10	21	1568
# of Visits	7	5	4	4	7	5	5	5	5	5	4	5	5	7	7	3	6	5	7	5	7	7	5	4	5	7	5	7	7	5	5	5	7	5	7	6	200
Warb / Visit	7	10	1	2	2	6	9	9	8	14	26	6	7	16	27	16	16	24	6	4	2	2	2	13	10	5	5	4	11	5	4	2	4	2	1	4	7.8
Rounded to the closest whole number																																					
Swain Thr.						2		1						2	1	7	9	3	1	2	2	1		2	8	2	1	3	8	3		2	4	4			68
Scar Tan.							2							1	2	1	1	1	1	1				1	3				3							1	18
Rose-br Gr.	1				1	2	2	11	3	4	2	2	2	6	8	2	8	8	2	3	1	3	2	3	4	6	2	1	4	2	1		2		1		99

Unlike the slow start to the 2002 count, in 2003 May 01 & 02 represent a mini-peak in this year's pattern of migration. While most of the birds recorded were of the early migranting species of yellow-rumped warbler, black-and-white warbler and palm warbler there was good species diversity during these two days. Of the 10 species recorded the yellow-rumped warbler obtained its peak numbers for the year while we had early observations of yellow warbler, magnolia warbler, chestnut-sided warbler and ovenbird.

The first major peak on Graph 1 occurs on May 10 & 11 where Daily WPV figures of 14 and 26 respectively easily outstrip the Yearly WPV figure of 7.8. There were 15 species recorded on May 11 including the peak numbers for palm warbler and the end of the first wave of yellow warblers. The yellow warbler is a special case in that unlike the other species considered by this study the yellow warbler does set up breeding territories in Toronto. When the first wave of yellow warblers arrives it is difficult for our observers to determine if these birds are migrating through Toronto or if they will attempt to set up territories. Thus, early in the count period all yellow warblers seen are likely to be reported as migrants whereas if yellow warblers are consistently being seen in the same location on a given study route the observer will be unlikely to report them as being migrants later in the study period. Other species with high but not peak numbers on May 10 & 11 were black-and-white warbler, nashville warbler, yellow-rumped warbler, black-throated green warbler and chestnut-sided warbler. Also observed were american redstart and common yellowthroat which are two species that mainly come through Toronto in the second half of our study period.

The largest and most sustained peak occurs during the period of May 14 to 18 where daily WPV figures range from 16 to 27. This is as we would expect as there will still be some numbers of early migrating species around (for example the last big day for the yellow-rumped warbler was May 18), those warblers whose migration peaks in mid-May will be around in their highest numbers (for example the chestnut-sided warbler) and numbers will be starting to build for those species whose numbers peak in our area later than mid-May (for example the common yellowthroat). The most common species during this period were the yellow-rumped, chestnut-sided, magnolia, black-throated blue and black-throated green warblers. As expected, species diversity was highest at this time with 19 of the 21 count species being recorded. The only two that were not observed were cape may warbler and mourning warblers. Those species who had their peak numbers at this time were: black-and-white, nashville, magnolia, black-throated blue, black-throated green, blackburnian chestnut-sided and bay-breasted warblers and ovenbird. Initial observations of the late migrating blackpoll and wilson's warblers were also made.

The third major peak of this year's migration occurred on May 24 and 25 when daily WPV figures were 13 and 10 respectively. The most common species during this peak were the magnolia, chestnut-sided, tenessee and blackburnian warblers. It is interesting that neither common yellowthroat or american redstart were among the top four at this time. The only species with its peak number at this time was the tenessee warbler. Species diversity was again very high with 19 species recorded though most were in low numbers. The first mourning warbler of the year was also obvserved at this time.

The final peak of this year's migration occurred on May 29 which had a Daily WPV figure of 11. Species with their peak numbers on that day were american redstart, common yellowthroat and wilson's warbler. Species diversity was good at 14 species including the last observations of the year for black-and-white and nashville warblers. Good numbers of magnolia warblers from May 29 until the end of the study seems to indicate that large numbers of this species were migrating later in 2003 than is usual.

After the final peak Daily WPV values fall off much as expected but did remain higher than comparable figures for 2000-2002 so not only did the 2003 count begin strong but it also ended strong. By very late May and into June the bulk of warblers have gone through. Those that are still moving are usually adult females or immature birds. At this time of year foliage is much more advanced and the birds that are still moving through are much less vocal than adult males making it doubly difficult to find those birds that are still migrating.

Every year we look at Graph 1 to see if there are any obvious correlations between rainfall and WPV. Every birder has dreams of being in the field on the day of the big fallout and generally assumes that overnight rainfall will lead to such an event. However, over the years we have been unable to find a strong correlation between rainfall and WPV. This is not to say that on some days with rain there will not be a greater number of birds merely to say that there are other factors to consider as well. Rain will certainly stop overflight but without large numbers of birds moving there can be no fallout. Example of this are May 5 when Daily BPV was only 1.7 while there was 21 mm of rainfall and May 23 when Daily BPV

was 2.4 while there was 22 mm of rainfall. However, when we look at the days noted above as migration peaks we do see rain associated with most of them. There was rainfall on May 01, 02 & 11. During the main peak of migration during May 14-18 there was rainfall on May 15 & 16. There was also rainfall on May 24, 25 & 29. Mind you, with there being 17 days with measurable rainfall in May we can expect just by coincidence that of the 11 days in May identified as peak days we would have rain on 6 of them. The fact that 8 of the 11 peak days had rainfall is an indication that 2003 saw a stronger correlation between rainfall and increased WPV than 2001 and 2002.

A LOOK AT SOME INDIVIDUAL SPECIES

We have learned over the course of this study that for any given species there can be a large variation in numbers reported from one year to the next and that this variation does not necessarily indicate any trend in the longer term. That said, it is still interesting to compare one year's results with those of previous years.

In 2003 the five most commonly seen species (in descending order of abundance) were: yellow-rumped warbler, magnolia warbler, chestnut-sided warbler, american redstart and nashville warbler. In 2002 the comparable list was yellow-rumped warbler, magnolia warbler, american redstart, chestnut-sided warbler and yellow warbler. In 2001 the comparable list was american redstart followed by magnolia, chestnut-sided, yellow-rumped and nashville warblers. While these three lists are different, in all three years the total of the top five species accounts for just over 50% of all warblers observed during the count. Since the Yearly WPV figure for 2003 is well above those for 2002 and 2001 while the percentage of all birds observed being taken up by the big five remained roughly constant we know that this year's increased Yearly WPV will be the result of increased numbers for many of the count species.

These next comparisons will be split into two groups. For three species I have completed individual species reports covering the years 1970 to 2002 and they will provide the standards against which I measure those three species. The other eighteen species will have their 2003 results compared against their respective 2001 and 2002 results. As more individual species are analyzed the first method will become more prominent in reports for coming years.

The 2003 Yearly BPV figure for the black-and-white warbler was 0.47 which is well above the 1998-2002 five year average of 0.25 and close to 1970-2002 study average of 0.51. The 2003 Yearly BPV figure for the yellow warbler was 0.36 which is well below both the 1998-2002 five year average of 0.56 and the 1970-2002 study average of 0.54. However, as mentionned above data for the yellow warbler is difficult to deal with because of the complication of resident birds. The 2003 Yearly BPV figure for the yellow-rumped warbler was 1.23 which is below both the 1998-2002 five year average of 1.41 and the 1970-2002 study average of 1.29.

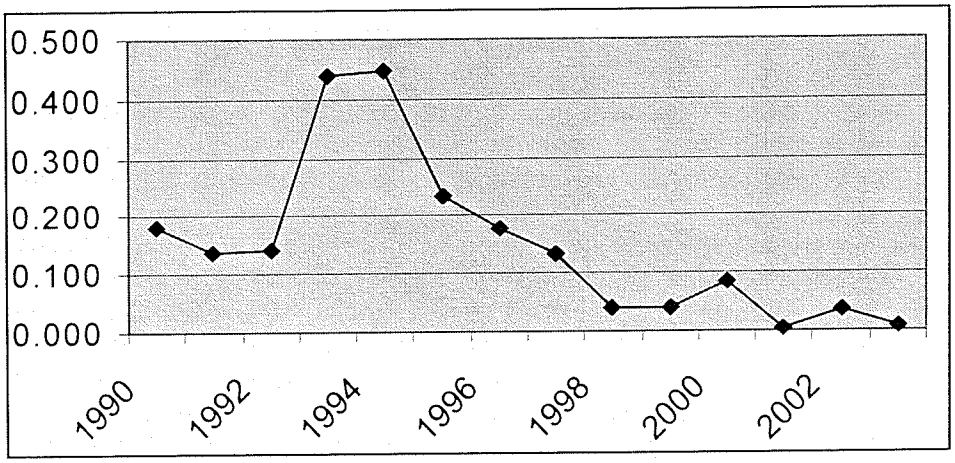
There were four species whose 2003 Yearly WPV was more than 50% higher than in both 2002 and 2001. These are the nashville, black-throated green, blackburnian and palm warblers. It is particularly gratifying to me to see the black-throated green warbler in this group of large gainers after several years of low results. There were four other species whose 2003 Yearly WPV was higher than in both 2002 and 2001 though not to nearly as dramatic a degree. These are magnolia warbler, black-throated blue warbler, chestnut-sided warbler and common yellowthroat. There was one species whose 2003 Yearly WPV figure was more than 50% lower than in both 2002 and 2001. This was the mourning warbler. While never a common warbler on the count in 2003 there were only 2 individuals recorded. There were two other species whose 2003 Yearly WPV was lower than in both 2002 and 2001. These were the northern waterthrush and american redstart.

THE CAPE MAY WARBLER SINCE 1990

In 1999 as a result of the paucity of sightings we began to examine the Cape May warbler records going back to 1990. While the Cape May warbler has never been found in abundant numbers during the Warbler Count in the mid-1990's we saw the start of a precipitous decline in terms of WPV for this species. We have updated the Cape May graph (Graph 2 below) and see that our data indicates that after an extremely low result for 2001 (only 2 Cape Mays were recorded in 329 total visits) and a slight recovery in 2002 (to

10 records in 277 total visits) we again have a very low result in 2003 with a Yearly WPV figure of 0.010 (from 2 records in 200 total visits). The 2003 Yearly WPV is the second lowest result we have had for this species since 1971 and is certainly still low enough for us to continue special monitoring. We remain hopeful that numbers will recover in the coming years.

GRAPH 2 - CAPE MAY WARBLER YEARLY WPV 1990-2003



OTHER WARBLERS

Several species of warbler are not included in our analysis because too few are observed in any given year. However, the numbers and species of these other warblers are not only interesting but also provide another subjective measure of the overall state of the year's migration. Those reported are set out in Table 4. For the names of the observers please refer to Table 1.

TABLE 4

Species	Number	Date(s)	Study Plot
Golden-winged Warbler	1	May 21	Unwin Avenue
Kentucky Warbler	1	May 05	Moore Park Ravine
Northern Parula	1	May 07-11	Unwin Avenue
	2	May 11	Brookbank Ravine
	4	May 14	Brookbank Ravine
	1	May 14-15	Unwin Avenue
	2	May 15	Moore Park Ravine
	1	May 15	Brookbank Ravine
	6	May 17	Brookbank Ravine
	4	May 18	Brookbank Ravine
	1	May 18	High Park
	1	May 18-19	Wychwood Park
	1	May 19	Brookbank Ravine
	1	May 20-21	Unwin Avenue
Orange-crowned Warbler	1	May 11-12	Wychwood Park
	1	May 14	Wychwood Park

Pine Warbler	2	May 05	Pine Hills Cemetary
	1	May 24	Wychwood Park
Worm-eating Warbler	1	May 02	Brookbank Ravine

When we compare Table 4 to the list of other warblers for 2002 the first thing that is obvious is that 2003 was a big year for the northern parula. There were 32 observations of northern parula in 2003 compared with 8 in 2002 and 5 in 2001. Most impressive were the following days from Brookbank Ravine: 6 northern parulas on May 17 and 4 on each of May 14 & 18. In 2003 we recorded three speices that were not observed in 2002, namely golden-winged, kentucky and worm-eating warblers. No birds of those three species had been recorded on the count since 2000. The three species recorded in 2002 that were not observed in 2003 were the blue-winged, hooded and prairie warblers. Only orange-crowned and pine warblers were recorded in both 2003 and 2002. For both these species there was one more record in 2003 than in 2002.

TORONTO SUMMARY

The 2003 Warbler Count obtained a Yearly WPV figure of 7.8 which is well above the Yearly WPV figures for 2001 and 2002. When compared with the average WPV for 1970-2002 which is 10.5 we find it is still well below that and fits in with our theory of high and low periods. One of the main reasons for more warblers being counted this year must come back to weather conditions. There were fewer clear nights than in 2002 so there would be less overflight. Another weather factor is rainfall which occurred on 8 of 11 days with peak counts and the only three peak days with no rainfall were during Toronto's traditional peak time for warbler migration (within a day or two both ways from May 17). Increased total numbers for 2003 over 2001 and 2002 were the result of increased numbers for a broad range of warbler species and not just the most common ones. Particularly gratifying increases were recorded for black-and-white warbler and black-throated green warbler. The cape may warbler remains of special concern with 2003 supplying another very low result. On the other hand, 2003 was a great year for the northern parula with more observations in 2003 than were obtained for 5 of our 21 count species.

BLACK-THROATED GREEN WARBLER SPRING MIGRATION 1970-2003 A PRESENTATION OF TORONTO DATA

This brief report will look at the spring migration of the Black-throated Green Warbler in Toronto. The raw data for this report comes from the Toronto Spring Warbler Count. The Toronto Spring Warbler Count has run from 1970 to the present with the exception that no count was taken during 1985 and 1986.

The topics which will be considered will be average daily birds per visit (daily BPV hereafter), yearly birds per vist (yearly BPV hereafter) and arrival date. For any given time period the BPV figure is determined by dividing the gross number of birds observed in that time period by the number of visits made. We use birds per visit figures to allow for meaningful and direct comparisons. During the Warbler Count different numbers of plots will be surveyed each year and within any given year there will be different numbers of plots surveyed on any given day.

While a few Black-throated Green Warblers will arrive in Metro Toronto in late April the great majority come through during our count period of May 01 to June 05. This eliminates complications like those seen in our report on the Yellow-rumped Warbler. Ontario Breeding Bird Atlas preliminary data for 2001-2003 does not even show any possible breeding evidence for this species in Metro Toronto. While the first Atlas (1981-1985) did have two squares with probable breeding evidence we can still be certain that virtually all Black-throated Green Warblers counted in Metro Toronto are migrants. This eliminates the complications of trying to deal with resident birds as illustrated in our report on the Yellow Warbler.

Overall Average BPV

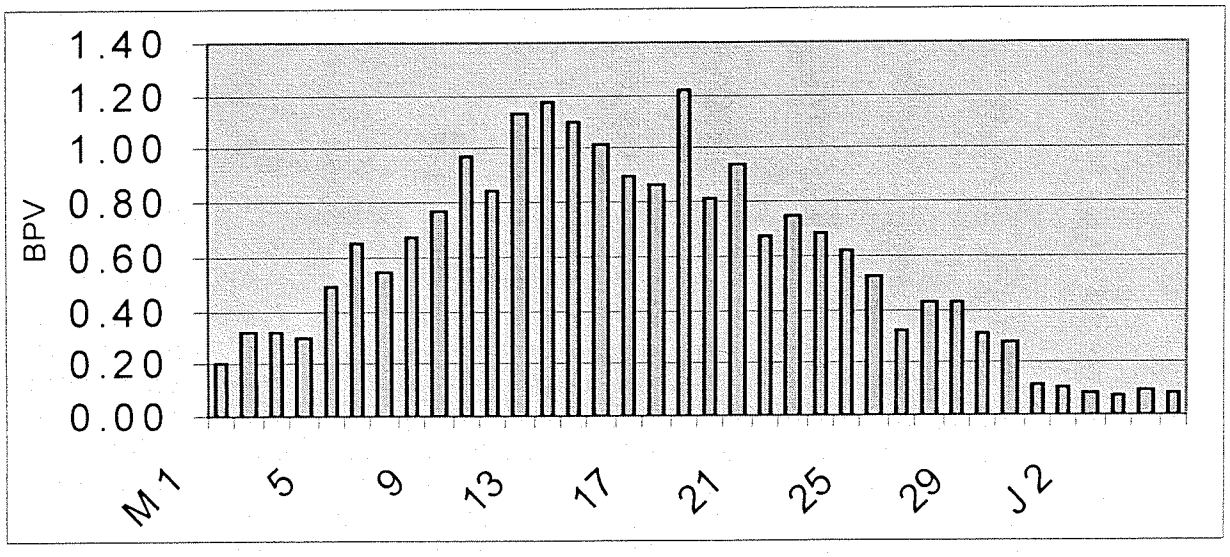
The long-term average BPV for the years 1970-2003 is 0.60. This figure is obtained by taking all

the Black-throated Green Warblers observed over those years (5005) and dividing by all the visits over those years (8179). This figure of 0.60 birds per visit provides the baseline figure we will use in the analysis of daily BPV and yearly BPV in the next two sections.

Daily BPV

Daily BPV numbers should show what a 'normal' migration pattern would look like. The daily BPV for the years 1970-2003 is shown in Graph 3 below.

Graph 3 - Black-throated Green Warbler Daily BPV 1970-2003



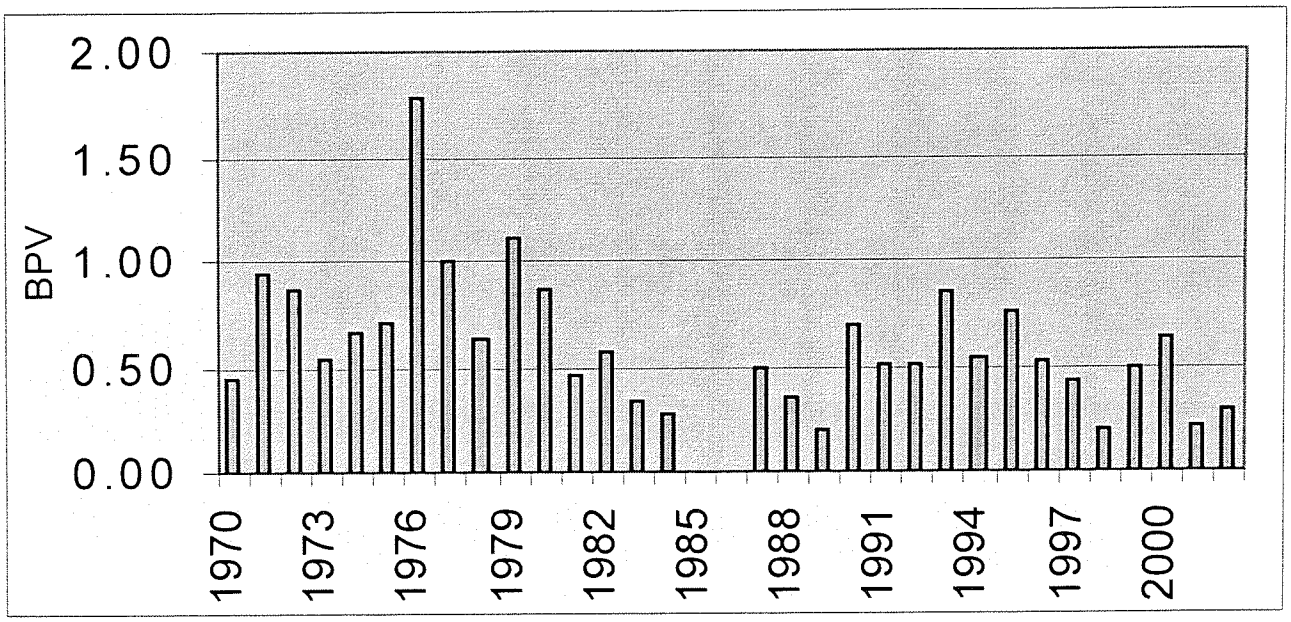
The shape of Graph 3 roughly shows what one would expect for a species that is a migrant through Metro Toronto in the period May 01 to June 05. The figure of 0.20 BPV for May 01 indicates that in most years there will be small numbers of Black-throated Green Warblers arriving in late April or early May. Daily BPV figures then rise to peak values that occur right around May 13 (roughly the end of the second week of May). After this, with one major exception, Daily BPV figures gradually decrease until the end of our count period. As seen from Graph 3 that exception in the case of the Black-throated Green Warbler occurs on May 18. May 18 actually has the highest Daily BPV figure at 1.21. When one looks at the raw data it is quickly obvious that this does not represent a second normal peak but is the result of one exceptional day. That day is May 18, 1996 when a gross count of 75 Black-throated Green Warblers was obtained. That 75 birds is more than 25% of all May 18 records (which total 296) and is more than 3 times higher than the gross count for any other May 18. Not only that, it is actually more than twice as high as the gross count for any other day in the entire count. This May 18 figure provides a great example of the effect that one extraordinary day can have on 32 years of data.

In spite of its complications the data does provide a reasonable basis for talking about the peak of migration. As we can see from Graph 1 daily BPV is above the long-term average of 0.60 birds per visit from May 08 to May 24. However, daily BPV figures are above 0.90 for the period May 12 to 16 so that is what we will consider the 'normal' peak of migration for Black-throated Green Warblers through Toronto.

Yearly BPV

While yearly BPV figures vary considerably from one year to the next we expect to be able to see some kinds of trends emerging over the course of the study. These trends will be partly related to population changes in certain parts of the breeding range but it is beyond the scope of this report to determine the strength of that relation or the exact areas effected. Graph 4 shows the yearly BPV figures obtained from our study.

Graph 4 - Black-throated Green Warbler Yearly BPV 1970-2003

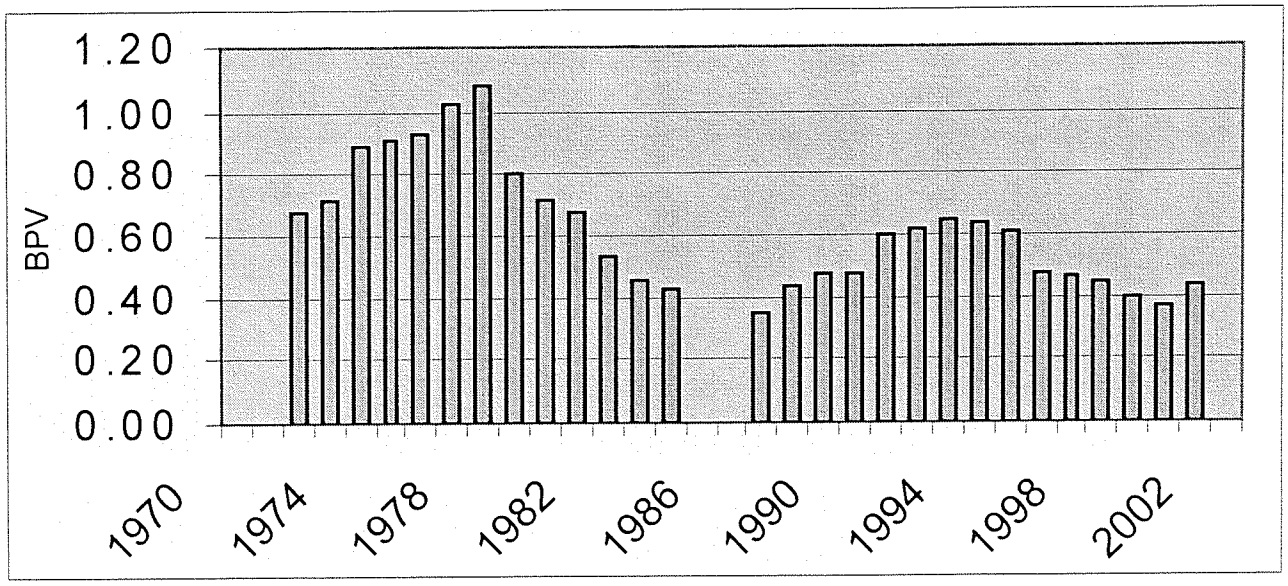


When one looks at Graph 4 finding trends is difficult because of the large variations between yearly BPV figures from one year to the next. Considering the long-term average of 0.60 birds per visit we see that we have 14 years with a yearly BPV figure above 0.60 and 18 years with a yearly BPV figure below 0.60. One thing that is obvious when looking at Graph 4 is that the yearly WPV figures from 1970-1984 appear higher than those from 1987-2002. As we saw in the section on daily WPV we have one seemingly anomolous result and that is the yearly WPV figure for 1976 at 1.78. However, the 1976 figure appears more reasonable when we place it in the context that the next five highest yearly BPV figures are also from the 1970-1984 period and that four of the five years with the lowest yearly BPV are in the 1987-2003 period. It appears that this is becoming a tale of the two sides of the graph. One way to illuminate this is to identify series of consecutive years in which the yearly BPV is either above or below the long-term average. The longest such series is the seven year span 1974-1980 during which the yearly BPV is above 0.60. In the 1987-2003 period there are no two consecutive years where the yearly WPV figures are above 0.60. When we look for series where the yearly BPV is below 0.60 the only one on the left side of Graph 4 is 1981-84. The gap in our data for 1985 and 1986 again comes into play when we consider that 1987-1989 yearly WPV figures are also below the long-term average. There are two other series from the right side of the graph where yearly WPV is below the long-term average, namely 1996-1999 and 2001-2003. Please note that the yearly BPV for 1996 is below the long-term average in spite of the extraordinary result for May 18, 1996 discussed in the section on daily WPV above.

To further clarify the differences between the two sides of Graph 4 we will try to present the data in a way that makes trends more obvious. One of the methods used to normalize data variation is that of rolling averages. In this method the figure reported for a given year will be the average of that year's figure and those of a number of surrounding years. For example a three year rolling average figure could be the average of the figures for the current year, the preceding year and the following year. The longer the time span used the smoother the data becomes but you also lose some of the fine detail. We will present the data using a five year rolling average. The numbers generated using a three-year rolling average have also been calculated but will not be presented here. If you are interested in them please contact the author.

Please note that the y-axis on Graph 5 does not rise to as high a figure as the y-axis on Graph 4. Also note that using this rolling average method means there can be no figures given for the first two or last two years of the study. Data points range from a high of 1.08 in 1978 to a low of 0.35 in 1987. Thus our high five year average yearly BPV figure is 80% higher than the long-term average and our low five

Graph 5 - Black-throated Green Warbler Yearly BPV (Rolling five year average)



year average yearly BPV figure is 40% below the long-term average. This is quite a large range. Graph 5 shows some patterns that would be very difficult to discern from Graph 4. We see that five year rolling average yearly BPV figures are above the long-term average from our first data point in 1972 all the way to 1981 and peak in 1977-1978. Certainly the exceptional yearly WPV figure for 1976 from Graph 4 is a large contributor to the high figures seen in Graph 5 for 1974-1978 but the fact that this five year span is preceded and followed by more data points that are above the long-term average means that the peak in the late 1970's is not merely the effect of 1976. The high period of the 1970's is followed by five year average yearly BPV figures that are lower than the long-term average for most of the 1980's. In the early 1990's we see another high period with the five year average yearly BPV figures for 1991-1995 all being at or above the long-term average. This is followed by another decline through the latter part of the 1990's and the modest upturn in the 2001 figure. The disparity in the two sides of Graph 4 is clarified by the presentation of Graph 5. While both sides of Graph 5 show a rise and decline the numbers overall are much higher on the left hand side of the graph. This would seem to indicate that actual population levels for the Black-throated Green Warbler have fallen over the course of our study. This disturbing notion seems to agree with Breeding Bird Survey data that have also shown a decline in population levels for the Black-throated Green Warbler.

We can also compare our results with those of other southern Ontario sites. The Canadian Migration Monitoring Network (a program of Bird Studies Canada) provides web access to information from three bird observatories in southern Ontario, namely Haldimand (Selkirk), Prince Edward Point and Long Point. Selkirk data from 1996-2002 has been showing a downward trend of -2.8% per year (though this figure is not statistically significant). Prince Edward Point data from 1998-2002 shows a upward trend of +5.6% per year and like Selkirk that figure is not statistically significant. Long Point data from 1961-2001 shows an upward trend of +1.44% per year and this figure is statistically very significant. The trends at Long Point have been quite different than we have experienced in Toronto. They had middling numbers in the mid-1970's rising through the early to mid 1980's while we had high numbers in the mid to late 1970's falling through the mid-1980's. They had low numbers in the late 1980's rising through the 1990's while we had low numbers in the late 1980's rising to a modest peak in the early to mid 1990's followed by a decline through the late 1990's and early 2000's.

Another way of looking for patterns is to see how the Black-throated Green Warbler data corresponds to trends we have identified elsewhere. In our Warbler Count analysis we have divided the course of the study into four periods representing high and low yearly BPV figures for the 21 species of study warblers as a group. For the 1970 to 1980 warbler high cycle the corresponding Black-throated Green Warbler average yearly BPV of 0.87 is above its long-term average of 0.60. For the 1981 to 1989

warbler low cycle the Black-throated Green Warbler average yearly BPV is 0.41. For the 1990 to 1997 warbler high cycle the Black-throated Green Warbler average yearly BPV is 0.59. For the 1998 to 2003 warbler low cycle the Black-throated Green Warbler average yearly BPV is 0.38. From this we can see that our observed cycles for the Black-throated Green Warbler are roughly matching the cycles of the study warblers as a group. While the average of yearly BPV figures for the Black-throated Green Warbler for 1990 to 1997 is slightly below the long term average of 0.60 BPV, overall we have higher BPV figures during the high periods for the study warblers as a group and lower BPV figures for the Black-throated Green Warbler during the low periods for the study warblers as a group.

Arrival Dates

We know that the Black-throated Green Warbler is an relatively early migrant compared with the rest of the study warblers. Indeed, in most years the Black-throated Green Warbler is recorded among the first half dozen of our count species. We also know that Black-throated Green Warblers seen in Metro Toronto will migrate through the area as Atlas data show not even a possible breeding record for the current atlas and in the first atlas there were only two Metro Toronto squares with possible evidence for breeding. The closest confirmed breeding records from atlas data for 2000-2002 are from Durham and York regions with many probable breeding sites to the west and northwest of Metro Toronto in the regions of Halton, Peel and Wellington.

Since the Warbler Count begins on May 1 each year it is not possible for us to show an arrival date earlier than that. Thus the average arrival date we can calculate will be slightly later than the actual average arrival date in our area. The early arrival date from our data is May 1 which was recorded in 11 of the 32 years of the study. The late arrival date is May 13 which was recorded in 1989. The average arrival date is 3.2 days from the start of our count period or effectively May 3.

Finally we will examine whether there is any relationship between arrival dates and yearly BPV. Over the entire study there have been 16 years with an early arrival date (May 1 or 2), 8 years with an average arrival date (May 3) and 8 years with a late arrival date (May 4 or later). Table 5 below shows the number of years in each group whose yearly BPV is above or below the long term average as well as the average yearly BPV for that group. Since there is such a large discrepency in yearly BPV figures between the periods 1970-1984 and 1987-2003 we will also show those results separately.

Table 5 - Arrival Dates and Yearly BPV

Period	Arrival	# of years	# above LT	# below LT	Avg yearly BPV
1970-2003	Early	16	5	9	0.62
1970-2003	Average	8	5	3	0.70
1970-2003	Late	8	3	5	0.48
1970-1984	Early	8	3	5	0.74
1970-1984	Average	3	3	0	0.89
1970-1984	Late	4	3	1	0.64
1987-2003	Early	8	2	6	0.50
1987-2003	Average	5	2	3	0.59
1987-2003	Late	4	0	4	0.31

Table 5 shows some interesting patterns. For each period the group of years with a late arrival date shows the lowest average yearly BPV. That is to be expected as in years with a late arrival date we expect that more birds, especially adult males, will either pass through Metro Toronto quickly or overfly us completely. For each period the group of years with the average arrival date has a higher average yearly BPV than the corresponding group of years with an early arrival date. This is a more difficult trend to get a

handle on. One explanation is that it is just a statistical anomoly. However the fact that the pattern persists over all three periods and that in each of the three periods the ratio of years that have a yearly BPV that is above the long term average versus those with a yearly BPV below the long term average is greatest for the group of years with the average arrival date makes me think there may be more to it. The question is what? One possible explanation is that in years with an early arrival date some adult males are passing through Metro Toronto before the count begins on May 1 and so cannot be recorded. On the other hand, in years with an average arrival date we have a chance to count a higher percentage of all the birds passing through as none (or fewer at least) will pass through before May 1. I realize that this is speculative and would welcome any feedback/comments on this notion.

Summary

In this report we have looked at the migration of the Black-throated Green Warbler which is one of the more common migrant warblers seen in Toronto. While this species does breed close to Metro Toronto, the vast majority of Black-throated Green Warblers will pass through Toronto without attempting to establish breeding territories so we do not have to be concerned with the effects of resident birds on the count figures we obtain. The Black-throated Green Warbler is also one of the earlier migrant warblers to be seen in Toronto each year with an average arrival date of May 3 for the period 1970-2003. The peak of migration in a normal year will occur between May 12 and 16. Looking at yearly BPV figures using a five year rolling average calculation showed that the trends of this species have been roughly following those of our study warblers as a group. However, they also showed that the numbers of this species that were obtained in the period 1970-1984 are much higher than corresponding numbers for 1987-2003 which points to a decline in actual population numbers for this species.

MASSEY

Massey represents our northernmost count area on the east side of Ontario. Massey is about 100 kilometres west of Sudbury along Highway 17. The area studied is on the eastern outskirts of Massey at the confluence of the Sauble and Spanish Rivers. There is a mixture of forest with lower areas containing mainly deciduous trees (poplar, birch, willow and even black cherry) and higher areas containing mainly coniferous trees (mainly pines - white, red and jack). While arrival dates from southern counts indicate when warblers are ariving in the province the arrival dates for the Massey count are a better indication of when warblers are arriving on their breeding grounds.

The results of the Massey count are presented in Table 6. Since this is only the second year for the Massey count I am still coming to grips with how to deal with the data for this area. Obviously, there will be a greater number of species likely to be on breeding territory than for counts from the south and these breeding birds will generally be the ones recorded in the highest numbers. I expect that with more years of data patterns specific to this area will show themselves and that will allow me to notice when a significant change is taking place. For now, our presentation will be fairly basic.

The yearly BPV figure of 11.4 for 2003 compares with 14.4 for 2002. The five most commonly recorded species (in descending order of abundance) for 2003 were: yellow-rumped warbler, ovenbird, chestnut-sided warbler, nashville warble and blackburnian warbler. The comparable list from 2002 is: yellow-rumped warbler, ovenbird, chestnut-sided warbler, blackburnian warbler and black-and-white warbler. Fourteen of the 21 count species were recorded in 2003 compared with eighteen in 2002. Overall, four less species were recorded in 2003 than in 2002. This was achieved by two species (tennessee and palm warblers) being recorded in 2003 but not in 2002 while six species (yellow, black-throated blue, blackpoll, wilson's and canada warblers and northern waterthrush) were not recorded in 2003 that were recorded in 2002. This means that in the two years this count has been done there have already been records for twenty of the 21 count species. However, the numbers for all of these eight species has been quite low so will not give us a good indication of why the 2003 yearly BPV figure is less than that for 2002.

There were different numbers of visits in 2003 and 2002 so we will use BPV figures on individual species to determine which ones are primarily responsible for the drop in yearly BPV for 2003. Since yellow-rumped warbler and ovenbird are by far the most common species on this count it makes sense to

TABLE 6

WARBLER COUNT - MASSEY TOTALS 2003

ONTARIO SPRING WARBLER COUNT - 2003
Massey

	May																														June					Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	
	EM	EM	EM		EM	EM	EM	EM	EM		EM	EM	EM	EM	EM				EM		EM		EM	EM			EM								EM		
Bl. & Wh.															1				2				2												1		6
Tenness.																								1													1
Nashville												1	3	2	3				1				1	1			2										14
Yellow																																					0
Magnolia																					1														1		2
Cape May															1						1			2													4
BT Blue																																					0
Yel.-rump	4	2	4		4	5	3	3	2		5	4	6	6	6				5		3		1	2			3										68
BT Green															1				1					2			1								2		7
Blackburn.													1	1	1				2		1		1	1			1								1		10
Chestnut																			8		7		7	4			4								3		33
Bay-breast																																					0
Blackpoll																																					0
Palm	1																																				1
Ovenbird											4	6	3	5					9		10		8	6			3								7		61
N. Water																																					0
Mourning																																			2		2
C. Yellwthrt																					1			1											3		5
Wilson's																																					0
Canada																																					0
A. Redst.																											2								1		3
Daily Total	5	2	4	0	4	5	3	3	2	0	9	11	13	14	13	0	0	0	28	0	24	0	20	20	0	0	16	0	0	0	0	0	0	0	21	0	217
# of Visits	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	0	0	1	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	1	0	19
Warb / Visit	5	2	4	0	4	5	3	3	2	0	9	11	13	14	13	0	0	0	28	0	24	0	20	20	0	0	16	0	0	0	0	0	0	0	21	0	11.42
Swain Thr.																			3				1	2			2										8
Scar Tan.																																					0
Rose-br Gr.											1		1																								2

EM = Erwin Meissner

look first for any decrease in these two species. While both these species experienced drops in WPV figures for 2003 their average decrease is only on the order of 5% while that for all 21 count species (the yearly WPV) is greater than 20%. When we look at BPV figures for all the count species it is seen that there were five species that all experienced large drops: namely black-and-white, black-throated green, blackburnian and chestnut-sided warblers and american redstart. Numbers were also well down for the rose-breasted grosbeak. On the other hand, one species experienced a large increase and that was the nashville warbler.

It appears from Table 6 that several species were breeding in the area covered by this count. Indeed, birds that were on territory represent a large percentage of the results from this study area. While the timings of this year's visits make it more difficult to identify likely breeders from this count as opposed to 2002 it still appears the following species were breeding in this area: yellow-rumped warbler, black-and-white warbler, black-throated green warbler, blackburnian warbler, chestnut-sided warbler and ovenbird. The results are less convincing for common yellowthroat, american redstart and pine warbler which were all presumed to be likely breeders last year.

Because of the number of resident birds, identifying a pattern of migration is a challenging proposition. As can be seen from Table 6 the date when the first warblers besides yellow-rumped and palm were observed was May 11 which, as expected, is several days later than those study areas from the south. There was a small wave of warblers in the period May 11-15 when seven species were recorded but only nashville and cape may were likely passage migrants while the other five species were among those who would attempt to set up territiories in this area. The four days that were counted in the period May 19-24 appear to be the 'peak' of migration. The 28 individuals counted on May 19 represent the high day for 2003 and the nine species recorded on May 24 ties with June 04 for the days with the greatest species diversity.

The only other observed warblers that do not appear on Table 6 are one individual each of pine and orange-crowned warblers that were recorded on May 21.

NEWMARKET - MABEL DAVIS CONSERVATION AREA

Mabel Davis Conservation Area is a 5.5 hectare wooded area on the east bank of the Holland River running north from Davis Drive to the Madsen's Greenhouse property. It 'is located in the heart of Newmarket. It is comprised of a variety of wooded areas criss-crossed by paths.' (K. Shackleton)

The results of the Newmarket count are presented in Table 7. The yearly WPV figure for 2003 was 11.5. This is much higher than the previous three years which saw a 2002 figure of 5.9, a 2001 figure of 2.3 and a 2000 figure of 5.5. Before we attempt to establish which species were responsible for this large increase we will say a few words about two of the non-warbler species that are counted. No swainson's thrushes were recorded in 2003. While this count does not generally produce large numbers of swainson's thrush there are usually at least some recorded. On the other hand, in the 2002 Ontario Report we noted declining numbers of rose-breasted grosbeaks from this area. After 43 individuals were counted in 2000 and 13 in 2001 only 7 were reported in 2002. In 2003 that number rebounded to 22 which is very nice to see.

In 2003 the five most common species at Newmarket (in descending order of abundance) were: chestnut-sided warbler, yellow warbler, black-throated blue warbler, nashville warbler and yellow-rumped warbler. For 2002 the corresponding list was: yellow warbler, chestnut-sided warbler, nashville warbler, magnolia warbler and black-throated green warbler. For 2001 the corresponding list was: magnolia warbler, yellow warbler, american redstart, chestnut-sided warbler and mourning warbler. For 2000 the corresponding list was: chestnust-sided warbler, nashville warbler, yellow-rumped warbler, magnolia warbler and bay-breasted warbler. From these lists it appears that the count species which will be most consistently seen in good numbers at Mabel Davis are chestnut-sided warbler, yellow warbler, nashville warbler and magnolia warbler. It also appears that the bonus for the slow year in 2001 was the number of mourning warblers seen. The presence of bay-breasted warbler on the 2000 list is mainly due to the six individuals that were seen on May 19 of that year. One fascinating feature of these lists when compared with those from other areas is that yellow-rumped warbler appears on only two of the four lists for this area and has not been higher than the third most common warbler species for this area.

TABLE 7

WARBLER COUNT - NEWMARKET TOTALS 2003

ONTARIO SPRING WARBLER COUNT - 2003
Newmarket Mabel Davis C.A.

	May																													June					Totals
	1 S	2 S	3 S	4 S	5 S	6 S	7 D	8 D	9 S	10 D	11 S	12 S	13 D	14 S	15 D	16 D	17	18 S	19 D	20 S	21 D	22 D	23 S	24	25	26	27 S	28	29 S	30	31 S	1	2	3	4	5	
Bl. & Wh.							1	3			1	2	2	5	2	1		1																		18
Tenness.								1			2		1																								4
Nashville											3	3	4	5	3	3		2																			23
Yellow								1	1		4	1	7	5	3	1			1	1	1	3	2				3		3		2						39
Magnolia											2	2	8			1		2				1															16
Cape May																																					0
BT Blue			1						1	3	4	2	5	3	5																						24
Yel.-rump							5			4	1	1	6	1	1																						19
BT Green			2							1	3	1	2																1								10
Blackburn.										1	2	4	3	1	6			1																			18
Chestnut										2	12	20	25	15	10	6		2											2								94
Bay-breast																																					0
Blackpoll																																					0
Palm																																					0
Ovenbird													2					1																			3
N. Water							1																														1
Mourning																																					0
C. Yellwthrt									1			1	1	1		1		1				1															7
Wilson's																																					0
Canada																																					0
A. Redst.											1	1	2	1	5														1								11
Daily Total	0	0	3	0	0	0	7	5	3	12	35	39	67	41	30	13	0	10	1	1	1	5	2	0	0	0	3	0	7	0	2	0	0	0	0	0	287
# of Visits	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	0	1	0	1	0	1	0	0	0	0	0	25
Warb / Visit	0	0	3	0	0	0	7	5	3	12	35	39	67	41	30	13	0	10	1	1	1	5	2	0	0	0	3	0	7	0	2	0	0	0	0	0	11.5
Swain Thr.																																					0
Scar Tan.											1	1				1													1								4
Rose-br Gr.								2		2	8				3	1		3	3																		22

Observers: D=Keith Dunn, S=Kevin Shackleton

When one looks for which species have made the largest contribution to the high yearly WPV for 2003 it is obvious from Table 7 that that title must go to the chestnut-sided warbler. Indeed, it's individual species WPV for 2003 is over three times higher than that for 2002. However, it was not the only species to show a sizeable increase over 2002 figures. Other species that had much higher WPV figures for 2003 than 2002 are: black-and-white warbler, black-throated blue warbler, yellow-rumped warbler, blackburnian warbler, common yellowthroat and american redstart. Four other species showed more modest increases. Only six species showed decreases relative to 2002 figures and all of these species usually appear only in small numbers in this area. Thus we see that like Toronto the increased yearly WPV figure for 2003 is the result of increases for many species.

As can be seen from Table 7 the only strong peak in the 2003 count was on May 13 which is in the middle of the May 11-15 period which was the only high period in the 2003 count. Of the fourteen species recorded on this year's count thirteen were observed on May 13 which also makes it the day with the highest diversity of species. Also, seven of the thirteen species observed on May 13 reached or tied their peak number for 2003.

It appears from the persistence of yellow warbler sightings that there may have been birds on territory recorded in late May. Finally, no species other than the 21 regularly counted were reported.

HALDIMAND BIRD OBSERVATORY

Haldimand Bird Observatory is operating three field stations - one inland at Ruthven Park on the Grand River near Cuyaga and two on the north shore of Lake Erie at Rock Point Provincial Park and Selkirk Provinicial Park. As we shall see, even though these three site are in fairly close proximity to each other there are some notable differences in their Warbler Count results.

ROCK POINT

The bander at the Rock Point station is Jim Smith. Jim started his work with the Haldimand Bird Observatory with John Miles at Selkirk in 1998 and 1999 and briefly worked at the Ruthven station with Rick Ludkin in 1999. He started the Rock Point station in June 2000 and has submitted warbler count data beginning with the 2001 season.

The results of the Rock Point count are presented in Table 8. It can be seen from Table 8 that both yellow warblers and common yellowthroats were attempting to establish territories which leads to the difficulty of trying to distinguish between migrant and resident birds. The results shown in Table 8 represent the largest surprise I have yet encountered in writing this 2003 report. While the results presented may look fairly standard it is when we compare the 2003 results with those of 2002 and 2001 that a striking difference is shown. Those of you who have read the 2002 report will recall that count results for Rock Point and Ruthven were treated specially because of the dominance of yellow warblers and common yellowthroats in the overall numbers. In 2001 yellow warblers and common yellowthroats comprised 55% of all warblers counted at Rock Point. In 2002 the figure was 66%. In 2003 yellow warblers and common yellowthroats comprised only 31% of all warblers counted. This is a huge change and one for which I have no ready explanation. This is a fascinating development that will be closely monitored in the coming years.

To try and get some handle on the above change we must look at changes in the numbers of yellow warblers and common yellowthroats and changes in the numbers of the other nineteen study warblers. The yearly BPV figure for all 21 study warblers for 2003 was 17.6 which is considerably lower than the 2002 yearly BPV figure of 28.6. Because the 2001 results used estimated totals while those for 2002 and 2003 used actual numbers of birds seen the yearly BPV for 2001 is not directly comparable to the 2002 and 2003 figures. Considering yellow warbler and common yellowthroat only we see that their yearly BPV figure for 2003 was 5.4 while for 2002 the figure was 19.0. For the other 19 study species the 2003 yearly BPV figure was 12.3 while for 2002 the figure was 9.6. Thus we see that the above change is due to both a decrease in numbers for yellow warbler and common yellowthroat as well as an increase for the other 19 study species.

TABLE 8

WARBLER COUNT - HBO ROCK POINT TOTALS 2003

ONTARIO SPRING WARBLER COUNT - 2003 Actual Detected Totals NOT Estimated Totals
HBO Rock Point banded+recovered+censused+ observed

	May																														June					Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	
	JS	JS	JS		JS	JS	JS	JS	JS	JS			JS	JS	JS	JS	JS		JS	JS	JS	JS	JS	JS		JS	JS	JS	JS	JS				JS	JS	JS	
Bl. & Wh.		1	1		1		1		1														1			1											7
Tenness.																										1											1
Nashville	6				3		10	35	17	6			2	15	1	1	1																				97
Yellow	1					3	3	3	5	5			6	12	8		6		7	13	6	8	5	2		6	3		1	4				2	4		113
Magnolia								1		1			3	7		1	8		8	1	1		7	7		15	10		3	1				3			77
Cape May																	1																				1
BT Blue															3		1		1					1					1								7
Yel.-rump	1	11	6			1	1	1	2						2																						25
BT Green						1				1																1								1			4
Blackburn.																																					0
Chestnut		1			1			1		1			3	1			1			2						3	1		1								16
Bay-breast																							1														1
Blackpoll																							1				1		2					3			7
Palm	2	11	3		1			3		2				1																							23
Ovenbird									1						1		2																				4
N. Water								1												1		1				4	3		1								11
Mourning																						1				1	1		1								4
C. Yellwthrt	1					1		1	2				1	1	3		7		2	1	2	2	2			3	2		6	1				2			40
Wilson's														1	1		3		1		2	5				4	5		14	1				1	1		39
Canada														1			1			1	1		1			1	1		3	1							11
A. Redst.														1	1	1				1	1													1			6
Daily Total	11	24	10	0	6	6	15	46	28	16	0	0	15	40	20	3	31	0	19	20	13	17	18	10	0	40	27	0	33	8	0	0	0	13	5	0	494
# of Visits	1	1	1	0	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	0	0	0	1	1	1	28
Warb / Visit	11	24	10	0	6	6	15	46	28	16	0	0	15	40	20	3	31	0	19	20	13	17	18	10	0	40	27	0	33	8	0	0	0	13	5	0	17.6
Swain Thr.	1																1		1	1	1	1				1	2		1	1				1			12
Scar Tan.																																					0
Rose-br Gr.													4	1	1	5	5		2	1	1	1	1												2		24

Observer/Bander: James Smith=JS

Species diversity has been consistently high at Rock Point since 2001. While several species are only seen in low numbers 20 of the 21 study warblers were recorded in both 2003 and 2002. In 2001 all 21 species of study warbler were recorded. Because of the numbers of the yellow warblers and common yellowthroats for this study area we will look at the six most common species (in descending order of abundance). For 2003 the list was yellow warbler, nashville warbler, magnolia warbler, common yellowthroat, wilson's warbler and yellow-rumped warbler. For 2002 the list was yellow warbler, common yellowthroat, magnolia warbler, yellow-rumped warbler, wilson's warbler and nashville warbler. For 2001 the list was yellow warbler, magnolia warbler, common yellowthroat, chestnut-sided warbler, wilson's warbler and american redstart. Two interesting features that show up from these lists are the generally low rankings for the yellow-rumped warbler and the high rankings for the wilson's warbler when compared to other areas participating in the warbler count.

Looking at the pattern of migration is somewhat complicated because of yellow warbler and common yellowthroat. However, since their numbers relative to other species are much lower for 2003 than 2002 the pattern of migration obtained when excluding their numbers is very similar to that we can see by simply looking at the changes in the Daily Total numbers shown in Table 8. The first peak occurs on May 02 when peak numbers were achieved for yellow-rumped and palm warblers. The next peak is May 08-09 when ten species were recorded but the daily totals are dominated by the number of nashville warblers. Another peak appears on May 14 with nine species recorded dominated by nashville, yellow and magnolia warblers. There is another peak on May 17 when ten species were observed includeing the peak number of common yellowthroats as well as the only cape may warbler of the year. The final peak of the year occurs during May 26-29 with thirteen species being recorded including peak numbers for magnolia warbler, northern waterthrush and wilson's warbler. The high numbers of magnolia warblers coming through late seems a fairly common feature of the overall 2003 migration as will be shown in upcoming sections.

Individuals from species other than the twenty-one shown in Table 8 are as follows. One golden-winged warbler was reported from May 26. One northern parula was reported from each of May 14 & 15. A total of twelve orange-crowned warblers were reported with two on May 08, one on each of May 09 & 30 and four on each of May 26 & 29.

RUTHVEN

Ruthven Park is a National Historic Site two kilometres north of Cayuga on the Grand River. The spacious grounds are surrounded by edge scrub habitat and heavier forest. Rick Ludkin and Loretta Mousseau run a bird banding/migration monitoring station.

The results of the Ruthven count for 2003 appear in Table 9. It is immediately obvious from Table 9 that as with Rock Point there are numbers of breeding yellow warblers and common yellowthroats around this station. Thus when looking at pattern of migration we will have to compensate for the yellow warbler and common yellowthroat. Also around this station there are breeding rose-breasted grosbeaks, scarlet tanagers and blue-winged warblers.

As can be seen from Table 9 the yearly BPV figure for 2003 was 50.0 which compares with the 2002 figure of 47.1 and the 2000 figure of 39.7. Unfortunately I have no data for 2001. When we look only at yellow warbler and common yellowthroat we see that they comprised 57% of all birds recorded in 2003, 58% in 2002 and 55% in 2000. Since the percentage of all birds counted that comes from these two species has remained very consistent, it follow that the increase in yearly BPV figures from 2000 to 2002 and on to 2003 is the result of increases of several species and not just of increases of yellow warblers and common yellowthroats.

Species diversity has been consistenetly high at Ruthven with all 21 study warblers being recorded in 2003 and 2002 while 20 of the study species were recorded in 2000 with only cape may warbler being missed that year. For 2003 the six most common species (in descending order of abundance) were yellow warbler, common yellowthroat, magnolia warbler, chestnut-sided warbler, nashville warbler and yellow-rumped warbler. The comparable list for 2002 was yellow warbler, common yellowthroat, yellow-rumped warbler, magnolia warbler, nashville warbler and chestnut-sided warbler. For 2000 the comparable list was yellow warbler, common yellowthroat, magnolia warbler, yellow-rumped warbler, blackpoll warbler and a

TABLE 9

WARBLER COUNT - HBO RUTHVEN TOTALS 2003

ONTARIO SPRING WARBLER COUNT - 2003

HBO Ruthven

Estimated	May																													June						Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	
		LM	RL	RL	RL	RL	RL	RL	RL	MB	RL	RL		RL	RL	DE	RL	RL	RL	DE	LM	RL	LM		MB	LM	RL		RL								
Bl. & Wh.						3		3			4			2			5																				17
Tenness.							2											2																			4
Nashville				2	4		12	6	5	10	5			8		3	6	5	2				1														69
Yellow		2	4	4	8	8	15	25	15	16	40	4		40	35	30	30	35	25	25	20	25	20		20	20	20		20	20							526
Magnolia							2	2	1	6	5			1	20	5	15	22	8	10	6	2	8		15		2		4	2							136
Cape May										1																											1
BT Blue				1					1	1				1	1	1	6	4	2						2		1										21
Yel.-rump			15	10			2	5	1		7	1		10	5			6					2														64
BT Green		2				1		3			7	1		4	2			6	2	2					1												31
Blackburn.											5			4	4	4	8	8	1	2			2				2										40
Chestnut						2	3			1	10	2		8	10	2	7	12	8			4				2	4		2								77
Bay-breast																	7	5					2														14
Blackpoll																1						3	2		10		2										18
Palm							2	5	2	1				1	2																							13
Ovenbird					1	1		2										1																			5
N. Water															1										1												2
Mourning																	3				1				2		1			1							8
C. Yellwthrt					2	1	3	8	4	6	8	1		12	10	12	8	12	12	15	12	10	15		16	10	10		10	8							205
Wilson's										2				1						5	1		1		6	2			3								21
Canada								1										2	2				4		1												10
A. Redst.											2				5			1		2	2						2		4								18
Daily Total	0	4	19	17	15	16	41	60	29	44	93	9	0	92	95	58	95	121	62	61	42	44	57	0	74	34	44	0	43	31	0	0	0	0	0	0	1300
# of Visits	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	0	0	0	0	0	0	26
Warb / Visit	0	4	19	17	15	16	41	60	29	44	93	9	0	92	95	58	95	121	62	61	42	44	57	0	74	34	44	0	43	31	0	0	0	0	0	0	50.0
Swain Thr.																										1			2								3
Scar Tan.											5								1	1							2			2							11
Rose-br Gr.				1	2	10	8	15	10	8	10	6		25	15	12	15	15	20	20	8	12	8		6	6	8		10	8							258

Observers: DE=Darryl Edwards, LM=Loretta Mousseau, MB=Marylene Boulet, RL=Rick Ludkin

sixth-place tie between canada warbler and american redstart. These lists have remained fairly consistent with the major change being the appearance of nashville warbler on the 2003 and 2002 lists. More data from upcoming years will help establish baseline figures for each individual species so that significant changes can be more easily detected.

As with Rock Point trying to determine the pattern of migration is complicated by the numbers of yellow warblers and common yellowthroats. As we see from Table 9 the first large numbers of yellow warblers show up on May 07 and for the common yellowthroat the corresponding date is May 08. The remainder of this discussion on pattern of migration will exclude yellow warbler and common yellowthroat. The first peak is May 08 when 27 individuals of eight species were recorded including the peak numbers for palm warbler and ovenbird as well as an early record for canada warbler. The next peak is May 11 when 45 individuals of eight species were recorded including the peak number for black-throated green warbler and the first american redstarts of the season. The next and highest peak for the year is May 17-18 when fourteen species were recorded including the peak numbers for black-and-white, magnolia, black-throated blue, blackburnian, chestnut-sided, bay-breasted and mourning warblers. The final peak is May 25 when 38 individuals of 8 species were recorded including the peak numbers for wilson's and blackpoll warblers.

The only warbler species seen that is not among the twenty-one species whose numbers are shown in Graph 9 is the blue-winged warbler and the numbers for them seem lower than 2002. Single birds were recorded on each of May 07, 08, 10, 14, 17, 19 & 27. Two birds were recorded on each of May 15, 16, 18, 21, 23 & 25.

SELKIRK

Selkirk station begain operation in the spring of 1996 under the guidance of John Miles. The station is at the southwest corner of Selkirk Provincial Park and encompasses approximately 20 acres. Starting from the north end of the study area and proceeding south there is an oak-hickory savanna, a 30 year old white pine plantation, a strip of 30 year old red and silver maple, another 30 year old white pine plantation and finally another oak-hickory savanna at the south 'tip' overlooking Lake Erie. Along the west side there is a buffer zone of oaks, hickory and hawthorns and along the east side hawthorns separate the pines from the Spring Creek Marsh. There is some data for the Selkirk station available on the internet. This can be found in the Bird Studies Canada website in the section on the Canadian Migration Monitoring Network (see References section for address).

The 2003 results from Selkirk are presented in Table 10. The yearly WPV figure for 2003 is 51.7 which compares with the figures of 35.3 for 2002, 26.0 for 2001 and 31.2 for 2000. In comparison with the previous three years the 2003 yearly WPV looks high. As with the other two stations of the HBO we note that there are numbers of resident yellow warblers, common yellowthroats and rose-breasted grosbeaks. When we look at what percentage of all warblers counted is made up of yellow warblers and common yellowthroats we come up with the following: 2003 - 32%, 2002 - 35%, 2001 - 55%, 2000 - 42%. Since the percentage of all warblers counted that is made up of yellow warblers and common yellowthroats is the lowest it has been since 2000 while the yearly BPV figure is the highest we know that several species have made significant increases. Species whose numbers are up substantially in 2003 are nashville, magnolia, black-throated blue, yellow-rumped, black-throated green, chestnut-sided, wilson's and canada warblers.

Species diversity has been good at Selkirk with all 21 study species recorded in 2003, 20 of the 21 in 2002 and 19 of the 21 were recorded in each of 2001 and 2000. The six most common species for 2003 (in descending order of abundance) were: yellow warbler, yellow-rumped warbler, nashville warbler, magnolia warbler, common yellowthroat and overnbird. The comparable list for 2002 is yellow warbler, magnolia warbler, yellow-rumped warbler, common yellowthroat, nashville warbler and ovenbird. The comparable list for 2001 is yellow warbler, common yellowthroat, yellow-rumped warbler, ovenbird, magnolia warbler and chestnut-sided warbler. The comparable list for 2000 was yellow warbler, common yellowthroat, yellow-rumped warbler, magnolia warbler, ovenbird and black-throated blue warbler. One thing we see from these lists is that many more yellow-rumped warblers are seen at Selkirk than at Rock Point or Ruthven.

TABLE 10

WARBLER COUNT - HBO SELKIRK TOTALS 2003

ONTARIO SPRING WARBLER COUNT - 2003
HBO Selkirk
Estimated

	May																													June					Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	
	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM		JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM	JM		JM	JM	JM	JM	JM	
Bl. & Wh.	2	1	2		1	5	1	1	2	3	5	2	3				1		1				1														31
Tenness.										1											1		1		1												4
Nashville	1	15	10	5	5	7	30	30	15	20	10	20	20	20	5		15	2					1	1	1								1				234
Yellow						3	3	5	7	1	20	15	25	15	15		20	20	15	30	15	15	15	25	20	15	15	10	15	15		10	15	15	10	10	414
Magnolia						1				5	20	10	10	10	10		25	10	10	5	5	4	20	15	20	10	5	1	10	1		2	4	2		1	216
Cape May									1				1																								2
BT Blue						1		5		3	5	1	2	4	10		4	5	5	1	1	1	1	2		1		1	1								54
Yel.-rump	25	45	25	25	15	15	15	20	20	15	15	10	10	10			2	5	1			1			2	2											278
BT Green		1	1		2	5	5	3	5	7	2	2	2	6	3		2	5	1		1		1	2					1								57
Blackburn.										5	4			2	1		2	1									1										16
Chestnut						1	1	1		3	3	5	4	1			5	4	2	2	4		1	3	3	1			1								45
Bay-breast										1				1			2																			2	6
Blackpoll										1														2	1												4
Palm	1	4	5	4		2	5	6	4	8	5	3		4	2																						53
Ovenbird	1	1	1			1	2		5	2	5	2	2	2	10		7	4	5			2	2		3		2		2								61
N. Water							1			1				1	1		1		1								1	1									8
Mourning																				1					1			1	2	1		1	1	1	1	1	11
C. Yellwthrt	3	1	2	2	2	3	3	7	4	3	5	3	2	5	10		5	5		10	5	5	7	10	5	5	5	3	10	5		2	3	6	2	3	151
Wilson's													1	2				2		3	1	3	3	10	10	2			12	2			2	2			55
Canada											1		2	1			1	1	1	1	2	3	2			1	1	1	5				1				24
A. Redst.											1	1	3	1	3		6	2	2			1	2	3	2	2	1		3	1							34
Daily Total	33	68	46	36	25	44	66	78	63	79	101	74	87	85	70	0	98	66	44	53	35	35	57	73	69	39	31	18	62	25	0	15	27	26	13	17	1758
# of Visits	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	34
Warb / Visit	33	68	46	36	25	44	66	78	63	79	101	74	87	85	70	0	98	66	44	53	35	35	57	73	69	39	31	18	62	25	0	15	27	26	13	17	51.7
Swain Thr.									1		1			3	4		5	4	2	4	3	2	5	1	15	3	1		7			1					62
Scar Tan.								1		3		1			2		1	1						1													10
Rose-br Gr.			2			1	3	2	8	4	5	5	10	5	10		10	10	10	5	5	10	7	5	5	2	4	2	2	2		1		1			136

Observer/Bander: JM=John Miles

When looking for the pattern of migration we have followed the lead of the Ruthven station and removed yellow warblers and common yellowthroats. While their contribution to overall numbers is relatively low as shown above it still has a significant effect when looking for peaks of migration, especially after the first two weeks of May. The first significant numbers of yellow warblers arrived on May 11 and common yellowthroats on May 08. The first significant peak of migration was May 02 when 67 individuals of six species were recorded including the peak number for yellow-rumped warbler. The next peak is really a high plateau from May 07-14 with the highest days being May 10 & 11. All of the days in this period recorded 52 or more individuals. Of the 18 species recorded in this period there were peak numbers for black-and-white, nashville, black-throated green, blackburnian, and palm warblers and the year's only two cape may warblers were recorded. The next peak is May 17 when 73 inividuals of 13 species were recorded including the peak number for magnolia warbler. The final peak of the year was on May 25 when 44 individuals of 10 species were recorded. While no species had their peak numbers the biggest contributions to this day's total came from magnolia and wilson's warblers.

Warbler species observed at Selkirk in 2003 whose numbers do not appear in Table 10 are listed below:

Blue-winged warbler	- 1 on each of May 06, 11, 12 & 14
Hooded warbler	- 1 on May 08
Northern parula	- 1 on May 08
Orange-crowned warbler	- 1 on May 14
Pine warbler	- 1 on each of May 01 & 18

LONG POINT BIRD OBSERVATORY - OLD CUT STATION

The LPBO operates three stations on the Long Point peninsula - one at the Tip, one called the Breakwater approximately halfway out the peninsula and Old Cut located just before one enters the provincial park. I'm sure most readers have been to Old Cut and realize this tiny woodlot with its few mature pines and variety of deciduous trees is a major migrant trap.

The 2003 estimated totals for Old Cut appear in Table 11. Data from Long Point going back to 1960 is available at the Bird Studies Canada website. It should be noted that the data on the BSC website is a composite figure for the three LPBO stations run through a sophisticated statistical analysis so there will be differences from the data presented here. We see from Table 11 that the yearly BPV figure for 2003 was 75.1. This compares with 53.6 for 2002, 78.3 for 2001 and 102.1 for 2000. We see that after a low figure for 2002 numbers have bounced right back up. As with the three stations of the Haldimand Bird Observatory, we can see from Table 11 that yellow warbler and common yellowthroat are setting up breeding territories in the area of this station. In 2003 yellow warblers and common yellowthroats comprised 18.4% of all warblers recorded. The comparable figures for earlier years are: 27.5% for 2002, 26.8% for 2001 and 30.7% for 2000. Since the percentage of all warblers recorded that is made up of yellow warblers and common yellowthroats is relatively low when compared with Haldimand Bird Observatory stations (for 2003 at least) we will include those two species when looking at pattern of migration.

Species diversity has been very good at Old Cut with all 21 of the study warblers being recorded in all four years in the period 2000-2003. In 2003 the six most common species (in descending order of abundance) were: magnolia warbler, yellow warbler, yellow-rumped warbler, american redstart, black-throated blue warbler and common yellowthroat. The comparable list for 2002 was magnolia warbler, yellow warbler, common yellowthroat, american redstart, black-and-white warbler and black-throated blue warbler. The comparable list for 2001 was: magnolia warbler, yellow warbler, common yellowthroat, ovenbird, chestnut-sided warbler and wilson's warbler. The corresponding list for 2000 was: yellow warbler, magnolia warbler, common yellowthroat, american redstart, black-throated blue warbler and wilson's warbler. From these lists we can see that there are large swings from year to year in the representation of the most common warblers for this station.

Now we will look for the pattern of migration for 2003. The first major numbers of yellow warblers show up on May 07 and common yellowthroats on May 06. The first peak of 2003 migration is actually the mini-peak that occurs on May 06 when 79 individuals of 13 species were reported including the peak

TABLE 11

WARBLER COUNT - LPBO TOTALS 2003

ONTARIO SPRING WARBLER COUNT - 2003
LPBO Old Cut Estimated Totals

	May																													June					Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	
Bl. & Wh.	5	1		1	2	8	3	1	2	6	8	10	12	10	6	1	12	2	1		2		1	2	1	1	3						3				104
Tenness.										1	1	1		1		1		1	1			1		1	3											12
Nashville	8		1	4	3	6	4	8	4	6	10	15	16	7	3		4	3	3	2						1						1	2				111
Yellow	1	1	1	3	1	5	8	9	7	11	14	15	14	14	15	8	14	15	16	24	10	16	8	8	18	6	14	9	16	13	8	8	7	8	6	9	360
Magnolia						3	1	1	2	5	15	12	23	11	14	8	70	18	22	15	16	14	9	24	40	33	26	2	44	13		2	230	3	1	2	679
Cape May										1	1			1		1			3																	7
BT Blue					3	2	2	1	4	2	4	3	3	7	33	10	25	8	4	4	7	10	3	6	4	3	5		5	1		1	1				161
Yel.-rump	23		3	11	11	19	7	6	12	17	28	25	32	17	11	2	4	8	4	4		1	2	1	3				1								252
BT Green	5	1		2	4	8	3	8	2	6	5	10	17	7	5	1	7	4	5	4	3			2	7	4			1				12	2			135
Blackburn.										2	5	7	8	3	8	4	10	2	3	2				1	2	4	1		1				9				72
Chestnut						2	4	3	1	3	15	12	19	4	5	4	8	5	2	4		3		5	7	5			10	3	2	1	6		1	1	135
Bay-breast												1		4	4		10		3	1					1	2						1				27
Blackpoll																	1	1	1	1	1	2	3	6	6	5	2			3	1	4	4	1	2	2	46
Palm			1	1		6	2	4	1	3	1	4	2	3	3	1	4																1			1	38
Ovenbird		1	2	3	2	12	3	3	2	4	2	3	5	8	4		12	9		3	2	1	1	3	3	3			1	1			4				97
N. Water	1	1								1				2		1							1	1	1	1							1				11
Mourning											1	1					1					1		3	4	4	1		2	1		3	3	1	1		27
C. Yellwthrt		1		1	1	5	3	5	3	2	1	2	3	3	5	1	8	4	4	6	8	4	4	10	7	8	7	1	5	3	2	4	5	3	4	4	137
Wilson's						2							1	2	4		1		1			2	1	8	2	3	4	2	4			1	8	1			47
Canada														2	3		3		2	3	2		3	4	2	4	5	1	4	2		1	5	1			47
A. Redst.						1	1	1	1	1	1	1		4	19	13	30	13	5	5	8	10	8	10	8	16	5		11	10		4	4	2	3	3	198
Daily Total	43	6	8	26	27	79	41	50	41	71	112	122	155	110	142	56	224	93	80	78	59	65	44	95	119	103	73	15	105	50	13	30	306	22	18	22	2703
# of Visits	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	36
Warb / Visit	43	6	8	26	27	79	41	50	41	71	112	122	155	110	142	56	224	93	80	78	59	65	44	95	119	103	73	15	105	50	13	30	306	22	18	22	75.1
Swain Thr.											1			3	11	3	14	1	3	12	7	2	3	8	16	10	5	4	5		3	5			2	1	119
Scar Tan.	1					4	3			2	3		1	6	3		8	4	4	2	3	2	2	4	2		1		1								56
Rose-br Gr.	2	1	1	3	4	18	4	6	3	2	4	4	7	17	8	4	6			2				2								1					99

LPBO Staff and Volunteers

number for palm warbler and tying the peak number for ovenbird. The first major peak is actually a plateau that covers the period May 11-15. The daily WPV figure is above 100 for each of these five days as can be seen in Table 11. Twenty species were reported including peak numbers for nashville warbler, black-throated blue warbler, yellow-rumped warbler, black-throated green warbler and chestnut-sided warbler. The next peak occurs on May 17 when 224 individuals of 18 species were reported including the peak numbers for blackburnian warbler, bay-breasted warbler and american redstart. The next peak is another plateau covering the period May 24-26 with a daily WPV figure of 95 or higher being reported for each of these three days. Nineteen species were reported in this period including peak numbers for blackpoll, mourning and wilson's warblers. There is another peak on May 29 when 105 individuals of 13 species were reported. The final peak on June 02 contains what may the most interesting single feature of the 2003 migration at Old Cut. A whopping 306 individuals of 18 species was reported including an amazing 230 magnolia warblers. This number is so high I was sure it must be a typo so I contacted Jon McCracken at BSC who confirmed that it was indeed correct. Not only did all three LPBO stations report very high numbers of magnolia warblers that day but there was also a significant movement of many species of warblers and flycatchers.

As is to be expected from a migrant trap of this magnitude there were many warblers seen that are not among the twenty-one species whose numbers are shown in Graph 11 and these are listed below:

Blue-winged warbler	- 1 on May 05, 06, 11, 17 & 27 and June 02
Golden-winged warbler	- 1 on May 15
Hooded Warbler	- 1 on May 11, 12, 13, 14 & 15
	- 3 on May 16
Kentucky warbler	- 1 on May 16 & 17
Northern Parula	- 1 on May 13, 16 & 19
	- 3 on May 17
Orange-crowned warbler	- 1 on May 07, 08 & 17
Pine warbler	- 1 on May 02, 06, 08 & 14
	- 2 on May 01
Yellow-breasted chat	- 1 on May 14

PRINCE EDWARD POINT BIRD OBSERVATORY

Prince Edward Point Bird Observatory is located at the eastern tip of Prince Edward Point. It is on the north shore of Lake Ontario about a twenty minute drive southeast of Picton. The field station is located in a National Wildlife Area theat is maintained by the Canadian Wildlife Service. Prince Edward Point is a narrow point of land that extends approximately ten kilometres into the lake from the bulk of Prince Edward county. Much of the habitat consists of old field (savannah) and shrub thickets with some small deciduous and coniferous woodlots. The number and diversity of landbirds that concentrate in this small area during spring and fall migration are outstanding. The site is designated as a Globally Important Birding Area.

The 2003 estimated totals for PEPBO appear in Table 12. There is some data for PEPBO located in the Canadian Migration Monitoring Network section of the Bird Studies Canada website. The 2003 gross total of 4623 birds shown in Table 12 compares with 2699 in 2002, 2638 in 2001 and 2019 in 2000. The data submitted for 2003 and 2002 go all the way until June 05 while the data from 2001 and 2000 ends on May 31. The numbers for the period May 01-31 for 2003 and 2002, respectively, are 4227 and 2424. Any way you present the numbers it is obvious that 2003 was a big year at Prince Edward Point. As we can see from Table 12 consistently high numbers of yellow warblers and lesser numbers of common yellowthroats extend until the end of the count period indicative of breeding populations of those species in the vicinity of the observatory.

Species diversity has been very good at PEPBO with all 21 study species recorded in 2003, 2002 and 2000 while 20 species were recorded in 2001 with the cape may warbler being the only miss. In 2003 the six most common warbler species (in descending order of abundance) were: yellow-rumped warbler, yellow warbler, magnolia warbler, common yellowthroat, nashville warbler and black-throated green

TABLE 12

WARBLER COUNT - PEPBO TOTALS 2003

ONTARIO SPRING WARBLER COUNT - 2003
PEPBO Estimated

	May																							June															Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	
Bl. & Wh.		2	4		3	6	10	5			8	2	3	2	2	1	1	3	4	1	2	2	1						1									63
Tenness.															1			1	1	3					1														7
Nashville	10	7	8	2	2	15	31	30	8	6	19	6	10	12	15	3	3	6	5	3	2	1	1		1								1						207
Yellow			1		2	6	4	10	6	18	45	45	30	40	25	35	25	55	80	100	45	50	70		25	50	40	40	46	45	35	25	50	35	35	25			1143
Magnolia		2	1				2			1	8	6	7	7	15	5	6	15	40	25	15	15	16		30	15	35	20	65	25	10	2	100	16		1			505
Cape May							3	5				1																											9
BT Blue							1	3		3	2	3	2	5	3	10	3	6	6	7	4	2	2		1	10	2	5	10	2			1	1					94
Yel.-rump	60	75	70	40	90	160	250	100	80	85	150	115	85	40	50	65	40	30	15	35	8	5	5		7	5	1	2	1		1								1670
BT Green					2	15	7	10	1	11	10	5	11	5	5	6	5	5	3	3	2	1	1		5	3	1		1	1	1	1	16	3					140
Blackburn.			2				3	1	2		2	2	3	3	5	1	1	2	4						2	2	6	3	2	1			4	1					52
Chestnut							4	1			4	2			3		1	3	10	10	3	2	3		2	15	3	3	22	8	3	2	15	6					125
Bay-breast						1					1		1					2	2						2	1	1						2						13
Blackpoll																		1	2		4	2			1	1	2	1	8	2	2	3	2	1					32
Palm	11	10	10	1		5	3	2	6	2	4	2	1	1	1	1		1																				61
Ovenbird	1	1	1			4	1			1	3		1	1	5	1	2	3	6	1	1	1	1			5	3	1	1		1	1	1						48
N. Water		2			3	5	4	1						1				3	1						1	1	1		3	1	1		1						29
Mourning																				1			1		1	2			6	1									12
C. Yellwthrt					1	5	3	1	1	3	2	8	2	6	5	5	20	20	15	25	6	6	7		5	6	6	20	10	5	4	3	5	4	3	2			214
Wilson's													1					2	2	1	1	2			2	1	3	1	8	4	1			2	2				33
Canada															1		1	1	6	2	4	2	1		4	6	2		6	1	1			3	1				42
A. Redst.										1	2	2	1	1	3	1	5	10	8	10	2	3	3		3	10	5	5	14	10	5	5	3	12					124
Daily Total	82	99	97	43	103	222	326	169	104	131	260	199	158	124	139	134	113	169	210	227	99	94	112	0	93	133	111	101	204	106	65	42	200	85	41	28			4623
# of Visits	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1			35
Warb / Visit	82	99	97	43	103	222	326	169	104	131	260	199	158	124	139	134	113	169	210	227	99	94	112	0	93	133	111	101	204	106	65	42	200	85	41	28			132.1
Swain Thr.						1					1				1		1		6			1	2		1	8	1	6	39	3	3	1	5	12					92
Scar Tan.							1				7	4	6	4	5	4	6	4	15	4	1		2		1	1		1	1		1								68
Rose-br Gr.				2	1	9	7	1	1	3	26	8	1	3	7	5	8	15	45	6	8	2	3		1			1		1	1	1							166

Observers: Eric Machel and PEPBO staff and volunteers

warbler. The comparable list for 2002 was yellow warbler, yellow-rumped warbler, magnolia warbler, common yellowthroat, american redstart and chestnut-sided warbler. The corresponding list for 2001 was: magnolia warbler, yellow warbler, yellow-rumped warbler, black-throated green warbler, common yellowthroat and american redstart. The corresponding list from 2000 was: yellow warbler, yellow-rumped warbler, magnolia warbler, common yellowthroat, black-throated green warbler and palm warbler.

In the 2002 report we noted that in each of the years 2000 to 2002 the percentage of all warblers recorded that was made up by the three most common species for this station (yellow warbler, yellow-rumped warbler and magnolia warbler) was between 64% and 66%. That figure remained consistent despite some large variations in the numbers of the three individual species. In 2003 the percentage of all warblers recorded that was made up by yellow, yellow-rumped and magnolia warblers was almost 72%. This is mostly due to the large number of yellow-rumped warblers recorded in 2003. The 1670 yellow-rumped warblers recorded is greater than the combined totals for the three previous years, namely 2000-2002.

Of course, those three are not the only species being counted. This section will only consider the figures for May 01-31 to allow for quick and direct comparison. The numbers for the following species for the 2003 count were at least 20% higher than in any of 2002, 2001 or 2000: black-and-white warbler, nashville warbler, yellow warbler, cape may warbler, black-throated blue warbler, chestnut-sided warbler and canada warbler. This list indicates that the higher total numbers for 2003 were not only the result of an exceptionally high count for the yellow-rumped warbler but in fact was driven by significant increases for several species. There were no species for which the numbers for 2003 were lowest for that species for the period 2000-2003. Further data and analysis will allow the establishment of 'normal' numbers to be expected for each species on a given year. That will make it easier to determine those species which are having exceptional years, whether on the high or low side. As a final note, while the count for cape may warbler was only 9 that is quite a change when you consider that only 3 were recorded in the previous three years.

Since both yellow warbler and common yellowthroat breed in the area of this station and their numbers make up about 29% of all warblers counted they will be excluded when we look at the pattern of migration. In 2002 the first double figure day for yellow warbler was May 08. This compares with May 05 for 2002, May 09 for 2001 and May 06 for 2000. The first double digit day for common yellowthroat was May 17. This compares with May 16 in 2002, May 18 in 2001 and May 22 in 2000. The first peak excluding those two species is the period May 06-08 with the highest numbers on May 07. Thirteen species were recorded in this period including the peak numbers for black-and-white warbler, nashville warbler, yellow-rumped warbler, cape may warbler and northern waterthrush. The next peak is May 11-12 when thirteen species were recorded. The main contributor to the high numbers for May 11-12 is still the yellow-rumped warbler and no species achieved their peak number at this time. The next peak occurs on May 29 when 148 individuals of fourteen species were recorded with peak numbers being recorded for chestnut-sided warbler, blackpoll warbler, mourning warbler, wilson's warbler and american redstart. The final peak occurs on June 02 when 145 individuals of ten species were recorded. The most notable species on this day was the magnolia warbler with 100 individuals being recorded, a situation reminiscent of that seen above in the discussion of Long Point.

Finally, no warbler species were reported besides those shown in Table 12.

THUNDER CAPE BIRD OBSERVATORY

The 2003 results for Thunder Cape Bird Observatory were supplied by Jonh Woodcock. The following description of TCBO was taken from the Bird Studies Canada website.

'Thunder Cape Bird Observatory is located in a clearing at the extreme southern tip of the Sibley Peninsula, a long tongue of forested land that extends into Lake Superior from the north shore...Although the Observatory is only 25 kilometres from the city of Thunder Bay (as the Raven flies), it is a remote and relatively inaccessible site. In addition to large numbers of regular species, TCBO has had a remarkable number of rarities, including Ontario's first Violet-Green Swallow and Black-throated Sparrow....'

'With support from Sleeping Giant Provincial Park, Thunder Cape Bird Observatory is a joint project of the Thunder Bay Field Naturalists, Ontario Ministry of Natural Resources and Bird Studies Canada.'

TABLE 13

WARBLER COUNT - THUNDER CAPE BIRD OBSERVATORY TOTALS 2003

ONTARIO SPRING WARBLER COUNT - 2003

Thunder Cape BO Estimated Totals

	May 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	June 1	2	3	4	5	Totals
	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	JW	
Bl. & Wh.				1		2				2		1			4	1	2	8	9			8		1	1			3	1		1	1	3	2	2	2	55
Tenness.																							1			3		2	1								7
Nashville					1							3			2	2		8	19	2		8			2			3	1		4	1		9	7	13	85
Yellow				1														4	2			2	2					5	3					3		1	23
Magnolia																		7	13	1		6	4	3	15	9	2	3	2		1	4	5	6	6	4	91
Cape May												2						5	3			3	1					15					1		2		32
BT Blue																		2	4			5	1	2	3			2	2			2		2	1	1	27
Yel.-rump	2		10	27	40	21	8	13	2	4	36	45	18	22	16	15	9	26	17	1		4	6	4	4	1	2	4	1		3	6	3	1	3	1	375
BT Green														3	8	6		11	11	1	13	27	17	9	10	13	10	33	5		8	12	10	11	17	5	240
Blackburn.									3									2	1			4	8		7	1	1	4	3		3	8	10	5	6	8	74
Chestnut																		10	7			7	3	2	2	2	1	3	4			3	4	8	5	9	70
Bay-breast																		8	2			10				2			1				5				28
Blackpoll																																1					1
Palm				5	1	10	4			8	8	8		2			3	28	11	3	5	2	1					23	2			3					127
Ovenbird											1	1	1					1	1	1	2	2	4	1	2	4	2	1	2			4	2	3	2		37
N. Water														1	1		2											1			3						8
Mourning																									2			2					2	1	2	1	10
C. Yellwthrt																				1								1	1		1		1	2	11	7	25
Wilson's																		3	1	1						2		3				7	5	2	1		25
Canada																										1	2	3	3		2	2		7	1	1	22
A. Redst.																		5	11			7	5	1	11	10	12	23	16		6	18	57	73	70	44	369
Daily Total	2	0	10	34	42	33	12	13	5	14	45	60	19	28	31	24	16	128	112	11	20	95	53	23	59	48	32	134	48	0	32	72	108	135	136	97	1731
# of Visits	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	36
Warb / Visit	2	0	10	34	42	33	12	13	5	14	45	60	19	28	31	24	16	128	112	11	20	95	53	23	59	48	32	134	48	0	32	72	108	135	136	97	48.1
Swain Thr.															1					1	1			4	6	6	5	4	9	2	7	1	8	19	11	15	100
Scar Tan.																			1																		1
Rose-br Gr.																	1	4							1		1	1					2		1		11

Bander/Observer: JW = John Woodcock

It is probable that the warblers recorded at TCBO are on a different flyway than those recorded in southern Ontario and represent a different breeding population. While banding recoveries are still too few to provide a clear picture of the migration routes used by warblers it is hoped that that situation will be clarified in the future by the efforts of TCBO, other bird observatories, and the biridng and naturalist communities of North America as a whole. Because we are looking at a different group of birds than those encountered in southern Ontario we should expect a different mix of species, different arrival dates and a different pattern of migration. This will serve as an excellent counterpoint to those results already presented in this report.

The 2003 results for TCBO are presented in Table 13. The yearly WPV figure for 2003 is 48.1 and this compares with 81.1 in 2002, 56.1 in 2001 and 31.4 in 2000. The primary reason for the fall in the yearly WPV figure for 2003 is the reduced number of yellow-rumped warblers recorded when compared with 2002 and 2001. The gross total for 2003 of 1731 birds includes 375 yellow-rumped warblers or about 22% of all warblers. The total for 2002 of 2920 birds includes 1690 yellow-rumps or about 58% of all warblers. In 2001 a total of 2020 birds included 1167 yellow-rumps or about 58% of all warblers. In 2000 the total of 1053 birds included 249 yellow-rumps or about 24% of all warblers. One species that I find particularly interesting is the cape may warbler, mainly because of the paucity of reports from southern Ontario in the last few years. The total of 32 cape may warblers from TCBO, while lower than the 2002 figure of 54, is higher than the totals for all of the southern Ontario counts combined and is certainly welcome to see.

As with the other bird observatories, species diversity is very good at Thunder Cape. All 21 of our count species were recorded in 2003, 2002 and 2000 while 19 species were recorded in 2001. In 2003 the six most common warbler species (in descending order of abundance) were: yellow-rumped warbler, american redstart, black-throated green warbler, palm warbler, magnolia warbler and nashville warbler. The comparable list for 2002 was: yellow-rumped warbler, nashville warbler, black-throated green warbler, american redstart, magnolia warbler and palm warbler. The corresponding list for 2001 was: yellow-rumped warbler, black-throated green warbler, american redstart, palm warbler, magnolia warbler and chestnut-sided warbler. The corresponding list for 2000 was: yellow-rumped warbler, american redstart, black-throated green warbler, palm warbler, magnolia warbler and nashville warbler. The continued presence of the palm warbler on these lists of the most commonly seen species is one indication of the different composition of the migration at Thunder Cape when compared with the southern Ontario stations. While the Thunder Bay region represents breeding territory for several of the 21 species of warbler that we study we can see from the above lists and Table 13 that the only two species that appear to be breeding at TCBO in substantial numbers are black-throated green warbler and american redstart.

The 2003 yearly BPV figure is the second lowest in the period 2000-2004. As we can see from above the yellow-rumped warbler is the most common warbler reported from this station and therefore has the largest effect on the yearly BPV figure. It may appear that 2003 was a bit of a slow year at TCBO and indeed it was when looking only at the yellow-rumped warbler. However, it certainly appears different when we consider the other 20 species of warbler we count. When we exclude the yellow-rumped warbler we see that 1356 warblers were recorded in 2003. This compares with 1230 in 2002, 853 in 2001 and 804 in 2000. Therefore, 2003 was actually quite a good year. When we look for which species are driving this increase we see that blackburnian, bay-breasted, palm and canada warblers all had their best year in the period 2000-2003. However, while the palm warbler occurs in substantial numbers at TCBO the 2003 figure is only about 10% higher than that from 2001 and the other three species all occur in more modest numbers. The two species mainly responsible for the high total in 2003 are the american redstart whose 2003 figure is more than twice as high as any other year in the period 2000-2002 and the black-throated green warbler whose 2003 figure is about 35% higher than any other year in the period 2000-2002. In fact, their numbers are so high in 2003 that they are the ones making it difficult to identify pattern of migration, especially for the last week of the count period. We await more data from TCBO in the coming years to begin the process of establishing 'normal' numbers for all the count species which will better allow us to see which species are having exceptional years, either high or low.

When we try to look at the pattern of migration for 2003 we see from Table 13 that prior to May 18 the only species appearing in any numbers are the yellow-rumped and palm warblers. There is a small peak on May 12 when 60 individuals of six species were recorded including the peak number for yellow-rumped warbler. The first major peak ooccurs on May 18-19 when fifteen species were recorded including

the peak numbers for black-and-white, nashville, chestnut-sided and palm warblers. When one looks at the TCBO numbers for palm warbler in Table 13 you can see two distinct peaks for this species unlike the situation in southern Ontario where numbers fall off after the second week of the study period. The next major peak is on May 22 when 95 individuals of fourteen species were recorded including the peak numbers for black-throated blue and bay-breasted warblers. The next major peak occurs on May 28 when 134 individuals of nineteen species were recorded including the peak numbers for yellow, cape may and black-throated green warblers and the second peak for the palm warbler. The final peak for 2003 was June 03-04 when sixteen species were recorded including peak numbers for canada warbler, common yellowthroat and american redstart. Indeed, american redstarts make up more than half the total on those two days.

No information was provided for warbler species that do not appear in Table 13.

GENERAL MIGRATION PATTERN FOR 2003

The last major section of this report will look at the overall pattern of warbler migration in 2003 using all the data collected. To do this the following pages contain charts showing the patterns of migration for each of the locations that reported.

The data presented in the charts reflects the discussion of the migration pattern for each individual area. For HBO-Ruthven and PEPBO we excluded yellow warbler and common yellowthroat in the discussion of pattern of migration so the charts for those areas will be for the data excluding those two species. The charts are presented in an order that roughly follows the lower Great Lakes from west to east. The exceptions are Massey and Thunder Cape BO which differ radically from the southern Ontario charts. This is to be expected as Massey is prime breeding territory for several of the species we monitor and Thunder Cape is so far west of the other count locations that their results likely represent a different population of birds.

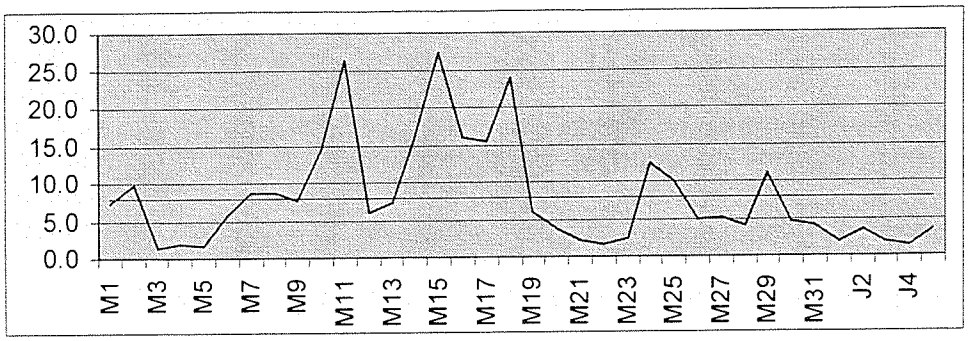
Shown on each chart is a horizontal line that represents the yearly BPV figure for that area. This makes it easier to identify peaks and troughs. In each chart the y-axis represents either the number of warblers counted/estimated that day or in the case of Toronto with multiple plots it represents the daily BPV figure. You will notice that the y-axis rises to different values on different charts. This is because some reporting areas have huge flows of birds and other areas experience more modest numbers of birds. We expect that if there is a large count at one southern Ontario location on a given day there is likely to be a similar high count at some or all of the other southern Ontario locations so having graphs that are all the same size allows us to easily see if this is in fact what happened.

You will notice that there are gaps in some of the charts. This is because not all areas conducted counts every day. However, if you look sharply you will have noticed that there are gaps on some charts even though the data table for that area indicates a count was performed that day. This occurs if a count day is preceded and followed by non-counted days. Since data points are not shown on the charts these 'island' days do not show up. The exception is that this year I decided to use data points for the Massey location since otherwise there would have been too many 'island' days and the chart would not really show the high numbers from the latter half of May. One must keep in mind that the yearly BPV figure for Massey for 2003 was 11.4.

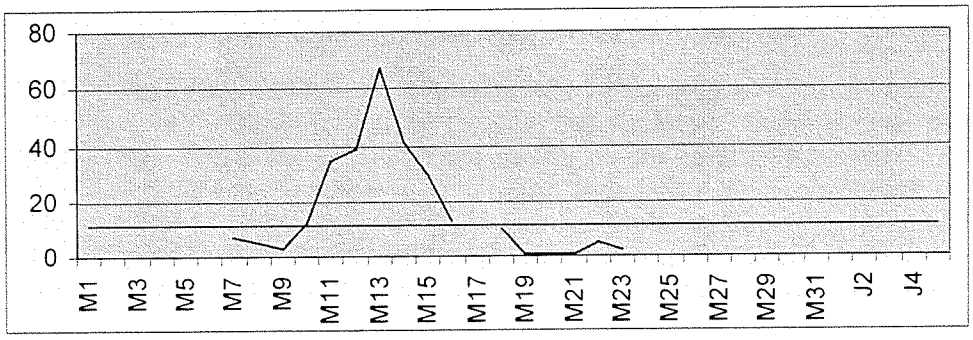
Conventional wisdom on warbler migration in southern Ontario runs something as follows: After a surge of yellow-rumps early in May the peak of migration will occur roughly in the middle of the month and numbers will gradually decline thereafter with the exception of a couple of 'good' days. When we look at the charts we see that this is certainly the case to a much greater extent in 2003 than it was 2002. The 2003 charts show very different shapes which is the value of receiving information from a wide range of locations. While this may make it more difficult to pin down an overall pattern of migration, it serves as a good example of the variations that exist within migration, even on a rather short distance scale.

One of the most consistent and significant features of this year's migration does not have to do strictly with pattern but certainly influences it. That is the fact that most stations reported higher numbers in 2003 than they did in 2002. Two of the locations that didn't were HBO - Rock Point and Thunder Cape BO. However, as we have seen from the sections on these stations the reason for this was the decrease for

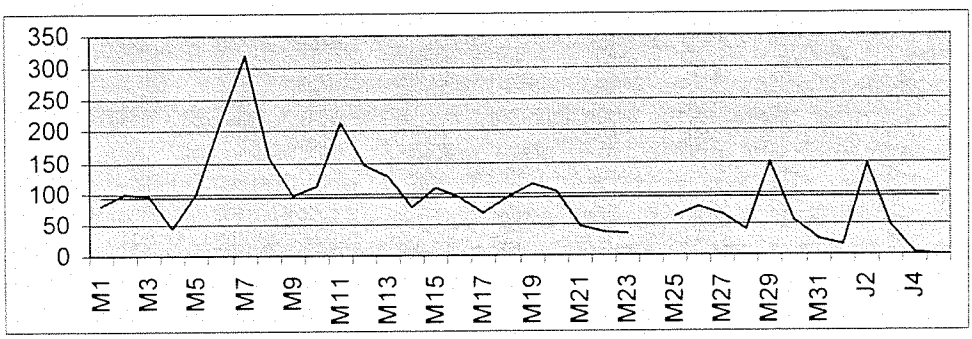
TORONTO



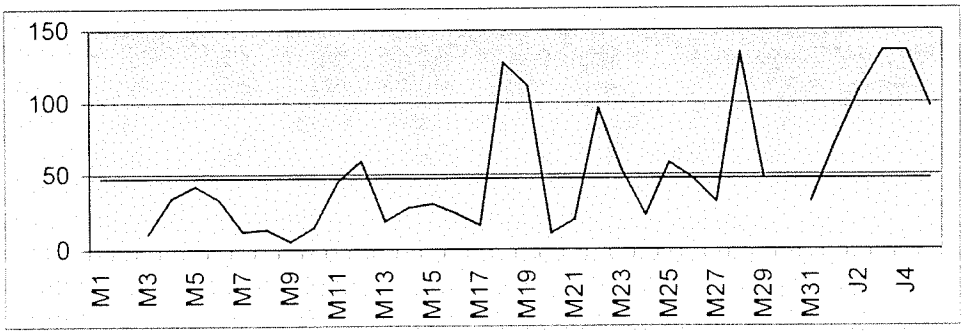
NEWMARKET



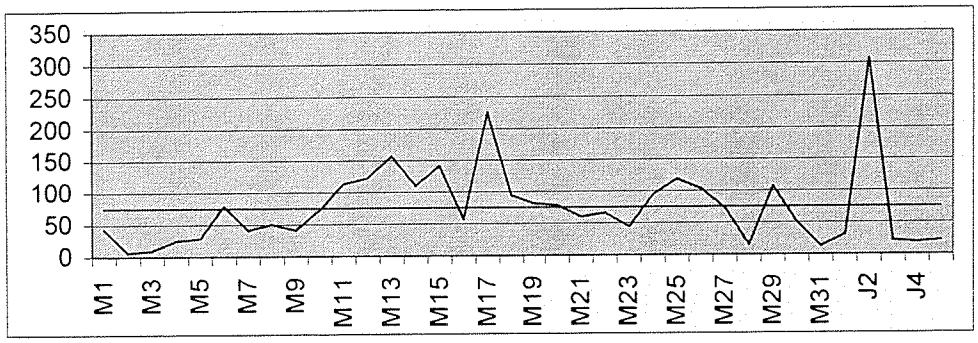
PRINCE EDWARD POINT BO (excluding yellow warbler and common yellowthroat)



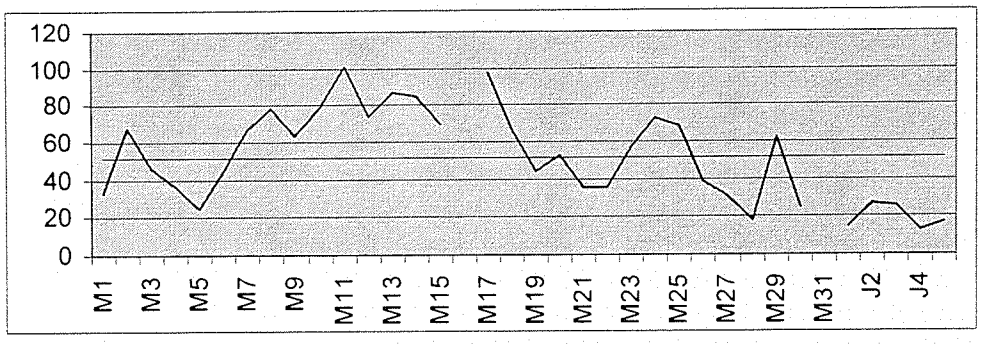
THUNDER CAPE BO



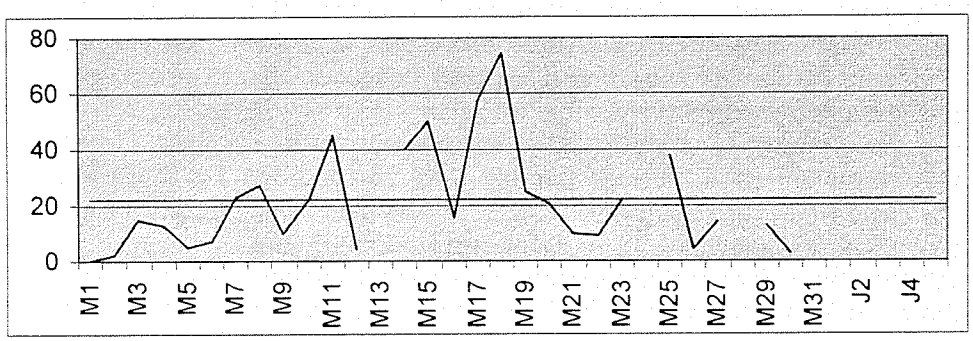
LPBO - OLD CUT



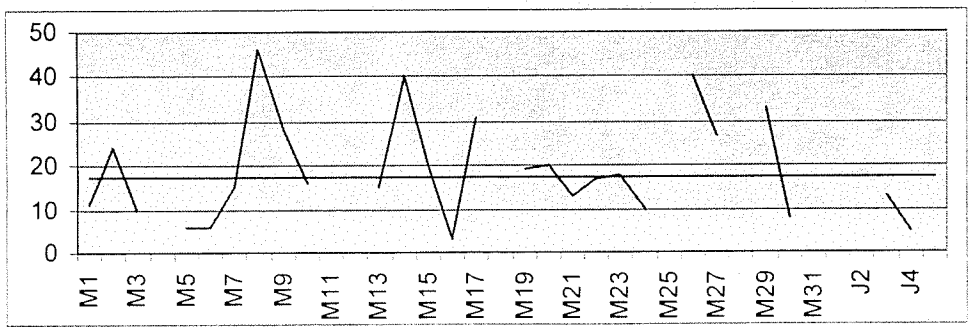
HBO - SELKIRK



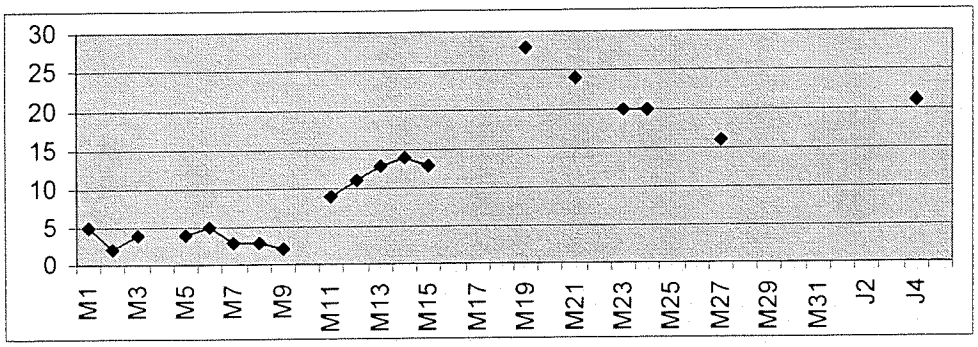
HBO - RUTHVEN (excluding yellow warbler and common yellowthroat)



HBO - ROCK POINT



MASSEY



one or two common species (yellow warbler and common yellowthroat for Rock Point and yellow-rumped warbler for Thunder Cape) that masked increases for a wide range of species.

When we look at the charts we see that several stations had good numbers on May 01 or 02 or both. While the yellow-rumped warbler was generally the largest contributor there was an overall species diversity that was higher than in many years. This is followed by a low point on May 05 for all the southern Ontario stations with the exception of Prince Edward Point.

The next common feature is a peak (small or large) that occurs between May 06-08 for all the southern Ontario stations except Newmarket. The location-specific dates are May 06 for Long Point, May 07 for Toronto and Prince Edward Point, and May 08 for Rock Point, Ruthven and Selkirk.

The next common feature is a high number for May 11 which occurs for all southern Ontario stations except Rock Point which did not report for May 11. However, this high number comes in different contexts at different stations. For Ruthven and Toronto it is followed by a May 12 figure that is below the yearly BPV figure for those stations. For Long Point, Selkirk, Newmarket and Prince Edward Point it occurs during a period of at least four days duration that represent a major peak/plateau for that station.

It is when we look for a mid-May peak in southern Ontario that the situation is not consistent. While there is a strong May 17 figure for Long Point, Rock Point, Ruthven, Selkirk and Toronto we see no peak at May 17 for Prince Edward Point. Indeed for Newmarket by May 17 figures have declined to or below the yearly BPV figure and will not rise above it again in 2003.

The next common feature is the low figures for May 21-22 which prevails for all southern Ontario stations. Beyond that we find two more strong days in May, namely May 25 for Long Point, Selkirk, Ruthven and Toronto and May 29 for Long Point, Selkirk, Rock Point, Toronto and Prince Edward Point. The final notable feature are the high peaks on June 02 for Long Point and Prince Edward Point.

Thus we find that even though the charts for southern Ontario look very dissimilar they do share a lot of commonalities. So what about conventional wisdom? Even though Long Point, Selkirk and Newmarket had many of their good days before May 15 for southern Ontario the middle of May still remains the best time to see good numbers of warblers with the most variety of species. We have also seen that there are some exceptional days possible even after May 24. Thus we can conclude that the general pattern of migration for 2003 conforms quite well with conventional wisdom.

ACKNOWLEDGMENTS

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Special thanks must go to George Fairfield. His guidance and involvement in the Toronto Warbler Count have left a legacy of data that stretches back to 1970. His vision of expanding the warbler count beyond Toronto led to the Ontario Report which first appeared for the 1997 migration. Thanks to all those persons who have commented, mostly favourably, on the Ontario Report in general and the individual species accounts in particular. Knowing that other people enjoy and appreciate these reports that provide a snapshot of warbler migration in Ontario gives me renewed enthusiasm and determination to make these reports better in years to come.

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