SPRING WARBLER MIGRATION

IN ONTARIO - 2002

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THE ONTARIO SPRING WARBLER MIGRATION COUNT – 2002

INTRODUCTION

Before beginning the report proper on the 2002 migration I feel a few words of introduction are in order. While many of you will know me there will also be many who do not. I started working on the Warbler Count in 2000 doing some data entry for George Fairfield. George had been leading the Warbler Count in Toronto since 1970. In 2001 I wrote some sections of the report and did my first warbler counting. The observer who had covered a particular lakefront route in Toronto since 1987 would be unable to participate so I was honoured to be able to replace him. In 2002 when I agreed to take over the writing of this report I had no idea how much work would be involved. Now knowing what is involved I am awed by the amount of work George has put into the Toronto and Ontario Counts over the years and feel very humbled to be succeeding him.

Now I feel that a few words of apology are in order. I realize that this report is terribly late. I was completely overwhelmed by the amount of work involved. However, I do enjoy this project and think that it has value. 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. I feel that it was better the report be late so I could try to maintain the level of quality that George has managed over the years rather than rush out something that would be an embarrassment to both myself and the tradition of the Warbler Count and that would not respect the contributions of those dedicated individuals who had done the field counts. I hope that the quality of this report measures up and thank all those who have already submitted their 2003 results. With your continuing contributions and feedback I hope to make this report stronger in the coming years.

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.

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 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 2002 we have data from the following: Long Point (Old Cut station), Prince Edward Point and Haldimand (comprising the Rock Point, Ruthven and Selkirk stations).

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 our first individual species analysis for the Toronto area from 1970 to 2002. The species that will be presented is the Black-and-White Warbler. Individual species analyses for the Toronto area have also been done for Yellow and Yellow-rumped Warbler. Those reports will not be published but if you are interested 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 at M[illegible] There is no charge for participating in the Spring Warbler Count. Contributors will receive a free copy of the 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 (see page 3) lists the study areas, the number of visits made to each of them in 2002, and the name 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. This year Mike Solomon was the only observer to cover two study areas. Unfortunately, Mike has announced that he will be unable to cover the two sudy areas in Cedarvale in 2003. We would like to thank Mike for his valuable contribution to the warbler count over the past several years.

In Toronto we had more turnover of observers in 2002. Harry and Eileen Kerr did not cover the Mount Pleasant Cemetary and Moore Park Ravine study areas for the first time since 1972. Their contributions were missed and will continue to be missed. As they have now retired from the warbler count George was able to put together a team of observers that covered Mount Pleasant and Moore Park Ravine with each observer covering one or two days per week. To all our observers and especially those for whom 2002 was their first year of participation we extend our heartfelt thanks. Without you there would be no warbler count.

In 2002 there were nine 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 31 visits during the course of the warbler count. While this is less than last year's average of just under 33 visits per study area it still represents good coverage especially given the following: the retirement of Harry and Eileen Kerr, some of our long-time observers were away for extended periods this spring and, last but not least, the weather was generally cold and miserable for at least the first two weeks of the count.

There have also been changes outside of Toronto. While we received data from the usual study areas in Newmarket, Port Hope and Whitby there has been a change from the Nickel Belt area. For the past two years Erwin Meissner has surveyed a study area at Elliott Lake. Erwin has relocated and will now be sending in results of a count he is conducting in the Massey area. Massey is between Elliott Lake and Espanola so while the change in location has not been great in terms of kilometres it will be interesting to see whether Erwin reports a slightly different mix of birds in the coming years.

There have also been changes in the data received from Bird Observatories. Data was again received from Long Point, Prince Edward Point and Thunder Cape. We are most pleased that this year we have received data from all three stations of the Haldimand Bird Observatory. I would like to thank all the Bird Observatories for the data they submitted. I know that the data we ask for is slightly different from what they normally generate so their efforts to accommodate the methods of this study are most appreciated.

TABLE 1

OBSERVERS AND STUDY AREAS

Study Areas	No. of Visits	Observers
Toronto:		
Brookbanks Ravine	28	Naish McHugh, Jean Iron, Ron Pittaway, Carol Horner
Cedarvale Park	31	Mike Solomon
Cedarvale Ravine	31	Mike Solomon
High Park North	32	Don Barnett
Moore Park Ravine	31	N. & S. Macdougall, Pat Hodgson, R. Powley, M. Schuster
Mount Pleasant Cemetary	24	Neil & Shirley Macdougall, Roger Powley, Mary Schuster
Pine Hills Cemetary	36	Edmund & Jean Johns
Unwin Avenue	36	Tom Flinn, Don Peuramaki
Wychwood Park	28	Herb Elliott, Hugh Currie, George & Jean Fairfield
Total Visits in Toronto	277	
Massey	24	Erwin Meissner
Newmarket (Mabel Davis)	30	Kevin Shackleton, Keith Dunn, John Watson
Port Hope	31	Roger Frost, Elizabeth Kellogg
Whitby (Thickson's Woods)	35	Margaret Bain
Bird Observatories:		
Haldimand		
Rock Point	31	Jim Smith
Ruthven	27	R. Ludkin, D. Edwards, L. Mousseau, M. Boulet
Selkirk	34	John Miles
Long Point - Old Cut	36	LPBO staff and volunteers
Prince Edward Point	36	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 years warbler count 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 last years count.

Table 2 sets out the combined observations for the nine 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 (see 'Warblers per Visit'). 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 a direct comparison of the 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.

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 (1736) by the total number of visits (277). Thus the Yearly WPV for 2002 is 6.3. Now we can compare 2002 with the other years of the Warbler Count (see Table 3 below).

TABLE 3

YEARLY WPV - 1970 TO 2002

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						

As we can see from Table 3 the Yearly WPV figure for 2002 is the third lowest (above only 2001 and 1981) in the 31 years for which data has been collected. While at first this may seem alarming the situation may not be as bleak as it appears on first blush. 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 those 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 2002 Yearly WPV figure would be below 10 and suspect that it will remain below 10 for another year or two at least.

THE MIGRATION PATTERN

Graph 1 shows the pattern of migration by displaying the daily WPV figures (the line graph) and the millimetres of rainfall in Toronto (the bar graph).

TABLE 2

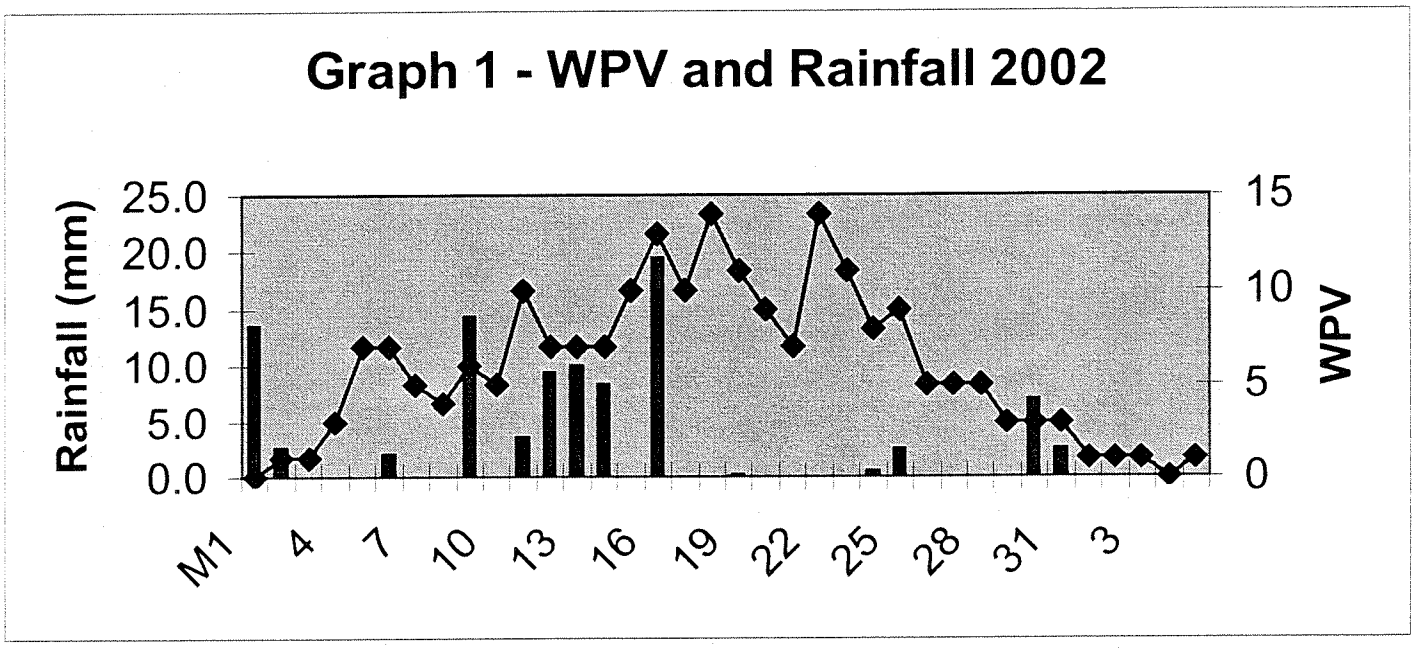
WARBLER COUNT - TORONTO TOTALS 2002

TORONTO SPRING WARBLER COUNT - 2002
Nine 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.	2	0	3	5	6	2	3	1	2	3	6	3	1	4	3	4	1	3	5	3	2	5	2	0	2	0	0	0	0	0	0	0	0	0	0	0	71
Tenness.	0	0	0	0	1	1	0	0	0	0	1	0	0	0	1	0	1	1	2	3	0	3	4	2	2	6	2	1	0	1	1	0	0	0	0	0	33
Nashville	0	0	0	2	2	1	7	3	2	5	6	1	5	3	12	11	4	2	4	6	4	4	0	1	0	1	2	1	0	0	0	0	1	0	0	0	90
Yellow	0	0	0	3	10	14	11	4	2	4	4	1	6	3	4	9	9	8	5	5	7	6	4	3	3	5	3	1	2	1	1	1	1	0	0	0	140
Magnolia	0	0	0	0	4	3	0	0	4	4	7	2	2	2	7	11	19	13	14	14	17	20	12	13	11	5	2	1	0	2	1	1	0	0	0	0	191
Cape May	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
BT Blue	0	0	0	1	2	0	0	1	4	1	12	2	5	2	10	9	14	16	9	11	3	12	10	5	2	1	0	0	0	0	0	0	1	0	0	0	133
Yel.-rump	0	4	3	9	17	19	8	11	21	19	13	16	12	10	22	7	8	6	3	3	0	8	4	0	1	1	1	0	0	0	0	0	0	0	0	0	226
BT Green	1	0	0	3	6	4	4	1	8	2	9	1	0	4	2	8	0	3	1	0	1	8	3	5	3	0	1	0	1	0	0	0	0	0	0	0	79
Blackburn.	0	0	0	0	2	0	3	0	1	1	3	1	1	0	0	4	2	2	1	0	1	7	4	3	3	1	0	1	0	0	0	0	0	0	0	0	41
Chestnut	0	0	0	0	0	5	2	0	0	0	8	1	3	1	2	16	12	12	18	17	9	13	11	5	8	2	5	1	3	1	0	1	0	0	0	0	156
Bay-breast	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	8	3	2	2	1	0	9	1	5	0	4	2	3	0	0	0	0	0	0	0	0	42
Blackpoll	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	1	3	0	1	1	2	5	3	4	1	3	1	0	1	30
Palm	0	0	0	1	5	8	2	3	8	6	3	3	3	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
Ovenbird	0	0	0	0	2	2	5	3	2	1	3	2	8	2	15	1	6	5	6	4	7	5	5	3	4	0	2	1	0	0	0	0	0	0	0	0	94
N. Water	0	0	0	3	0	0	0	0	0	1	1	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Mourning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	0	0	7
C. Yellwthrt	0	0	0	0	0	0	0	0	0	0	0	1	4	0	4	1	5	10	7	3	3	5	2	4	5	5	7	7	4	5	3	2	0	1	1	1	90
Wilson's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	5	6	1	2	2	4	2	5	1	3	3	2	1	2	0	2	2	0	1	48
Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	4	1	1	2	3	1	1	0	0	0	0	0	0	1	17
A. Redst.	0	0	0	0	3	3	1	0	0	1	3	0	1	0	0	10	8	8	5	7	3	14	26	19	14	11	14	9	3	6	5	2	1	1	1	1	180
Daily Total	**3**	**4**	**6**	**27**	**60**	**62**	**46**	**27**	**54**	**48**	**79**	**36**	**54**	**33**	**93**	**103**	**94**	**99**	**88**	**79**	**60**	**129**	**97**	**75**	**64**	**46**	**48**	**33**	**22**	**20**	**17**	**9**	**9**	**5**	**2**	**5**	**1736**
# of Visits	9	4	7	8	9	9	9	7	9	9	8	5	8	5	9	8	9	7	8	9	9	9	9	9	7	9	9	7	8	7	5	7	9	6	6	5	277
Warb / Visit	**0**	**1**	**1**	**3**	**7**	**7**	**5**	**4**	**6**	**5**	**10**	**7**	**7**	**7**	**10**	**13**	**10**	**14**	**11**	**9**	**7**	**14**	**11**	**8**	**9**	**5**	**5**	**5**	**3**	**3**	**3**	**1**	**1**	**1**	**0**	**1**	**6.3**
Rounded to the closest whole number																																					
Swain Thr.	0	0	0	0	0	0	0	0	0	1	2	4	11	6	16	2	10	7	24	19	14	24	6	8	3	4	3	3	0	1	0	0	1	0	0	1	170
Scar Tan.	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	1	14	1	3	1	0	2	2	0	1	5	2	0	1	0	0	0	1	0	0	0	37
Rose-br Gr.	0	0	0	0	1	9	8	5	6	5	5	2	7	0	6	5	5	3	14	6	5	4	2	0	3	3	4	1	1	0	0	0	1	0	0	0	111

The first three days of May yielded very low daily WPV values which was probably mainly due to the weather which was abnormally cold with north winds and precipitation on May 1 & 2.

The first peak on Graph 1 occurs on May 5 & 6 which each have a daily WPV figure of 7. The most common warbler species observed on those days were the yellow-rumped, black-throated green, palm and yellow warblers. We know that the first three species are among the earliest warbler species to migrate through our study area. 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 waves of yellow warblers arrive 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.



The next peak occurs on May 11 which had a daily WPV figure of 10. The most common species observed on that day were yellow-rumped, black-throated blue, black-throated green and chestnut-sided warblers. With the black-throated blue and chestnut-sided warblers we are seeing the first large numbers of species that we consider to have the peak of their migration through the Toronto area in mid-May.

The largest and most sustained peak occurs during the period of May 15 to 19 where daily WPV figures range from 10 to 14. 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 15), 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 american redstart). The most common species during this period were the magnolia, chestnut-sided, black-throated blue and yellow-rumped warblers. Since yellow-rumped numbers remained fairly high we can safely say that a greater proportion of migrating yellow-rumps was recorded this year when compared with 2001 where large numbers of yellow-rumps went through in April before this count begins.

The final peak of this year's migration occurred on May 22 and 23 when daily WPV figures were 14 and 11 respectively. The most common species during this peak were the american redstart and magnolia, chestnut-sided and black-throated blue warblers. This shows that the migration of chestnut-sided and black-throated blue warblers was quite sustained.

After the final peak daily WPV values fall off much as expected. 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 consistently 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. An example of this is shown on Graph 1 during the period of May 11-14. The 3.6 mm of rain on May 11 would seem to have a direct effect on the daily WPV figure of 10 which was one of the strong peaks of this year's migration. However, on May 12-14 we have higher rainfall amounts but lower daily WPV figures. Of all the days with rain in May, only with May 11 can we see a strong correlation between rainfall and WPV. May 9, 16 and 25 show a weaker relationship between rainfall and an increased daily WPV figure.

A LOOK AT SOME INDIVIDUAL SPECIES

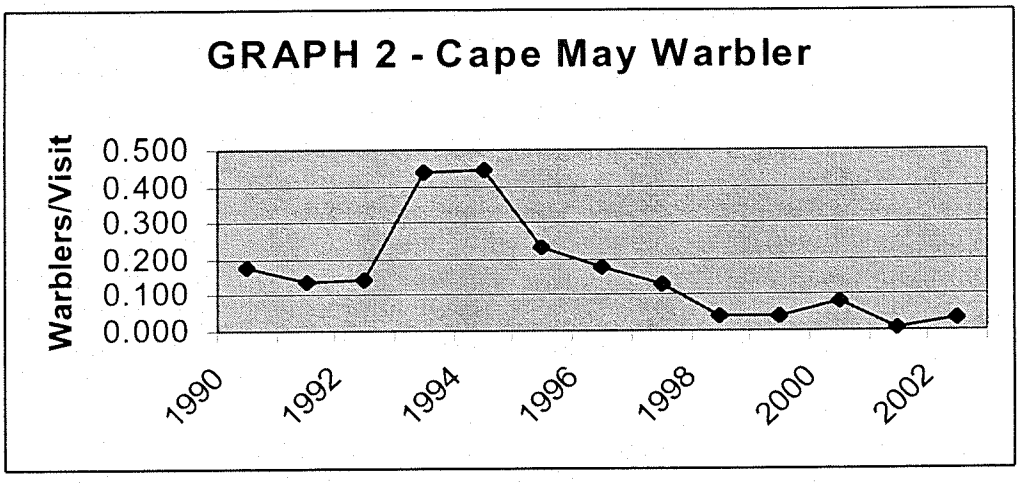
We have learned over the course of this study that for any given species there can be a large variation in numbers reported from one year to the next and that this variation does not necessarily indicate any trend in the longer term. That being said, it is still interesting to compare one year's results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

In 2001 the five most commonly seen species (in descending order or abundance) were american redstart followed by magnolia, chestnut-sided, yellow-rumped and nashville warblers. In 2002 the same list reads yellow-rumped warbler, magnolia warbler, american redstart, chestnut-sided warbler and yellow warbler. While these two lists are different, in both years the total of the top five species accounts for just over 50% of all warblers observed during the count. In 2002 the yellow-rumped warbler reassumed the mantle of the most commonly seen species. This is primarily due to the fact that in 2001 a large number of yellow-rumps passed through before the May 1 starting date for the count which lowered numbers observed last year. The only new species in the top five this year is the yellow warbler. We suspect that this is mainly due to more individuals of this species being seen later in the count due to retarded foliage well into May and the prolonged nature of this species individual migration pattern.

There are eight species whose average daily WPV was at least 50% higher in 2002 than it was in 2001. These are (in order from largest percentage increase on down) the cape may warbler (see below), palm warbler, black-and-white warbler, black-throated blue warbler, common yellowthroat, yellow-rumped warbler, yellow warbler and ovenbird. There are three species whose average daily WPV was at least 40% lower in 2002 than it was in 2001. These are (in order from largest percentage decrease on down) the tennessee, blackpoll and bay-breasted warblers.

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) and see that our data indicates that after an extremely low result for 2001 (only 2 Cape Mays were recorded in 329 total visits) there has been a slight recovery in 2002 to a WPV figure comparable to those of 1998 and 1999. While this figure, namely 0.036 WPV for 2002 (from 10 records in 277 total visits), is still low enough for us to continue special monitoring of this species we remain hopeful that numbers will continue to recover in the coming years.



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
Blue-Winged Warbler	1	May 7	Unwin Avenue
	1	May 23	Cedarvale Ravine
Hooded Warbler	1	May 24	Cedarvale Ravine
	1	May 29	Moore Park Ravine
Northern Parula	1	May 9	Unwin Avenue
	1	May 9, 10	Moore Park Ravine
	2	May 11	Moore Park Ravine
	1	May 11	Brookbanks Ravine
	1	May 20, 22	Mount Pleasant Cemetary
	1	May 21, 22, 23	Brookbanks Ravine
	1	May 24	Unwin Avenue
Orange-Crowned Warbler	1	May 11	Cedarvale Ravine
	1	May 18	Cedarvale Park
Pine Warbler	1	May 24	Cedarvale Ravine
Prairie Warbler	1	May 05	Cedarvale Park

When we compare Table 4 to the list of other warblers for 2001 we find that the observed numbers of orange-crowned and pine warblers are the same while that of the northern parula is higher (8 birds in 2002 compared with 5 in 2001). In 2002 we recorded three speices that were not observed in 2001, namely blue-winged, hooded and prairie warblers. The only species recorded in 2001 that was not observed in 2002 was the connecticut warbler.

Black-and-white Warbler Spring Migration in Toronto 1970-2002

Note: This report has appeared in the Newsletter of the Toronto Ornithological Club.

This brief report will look at the spring migration of the Black-and-white Warbler through 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. We use birds per visit figures to allow for meaningful comparison. 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. 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.

The Black-and-white Warbler has bred in the Greater Toronto Area and its breeding range includes much of Ontario save the Hudson Bay lowlands. However, there have been no recent breeding records from Metro Toronto (Glenn Coady, personal comment) and while the current Atlas project shows confirmed breeding in Durham, Halton and York regions there is not even a possible breeding record for Metro Toronto. Thus we can be fairly certain that the vast majority of Black-and-white Warblers observed during the Warbler count will pass through Metro Toronto and we can safely count them as migrants.

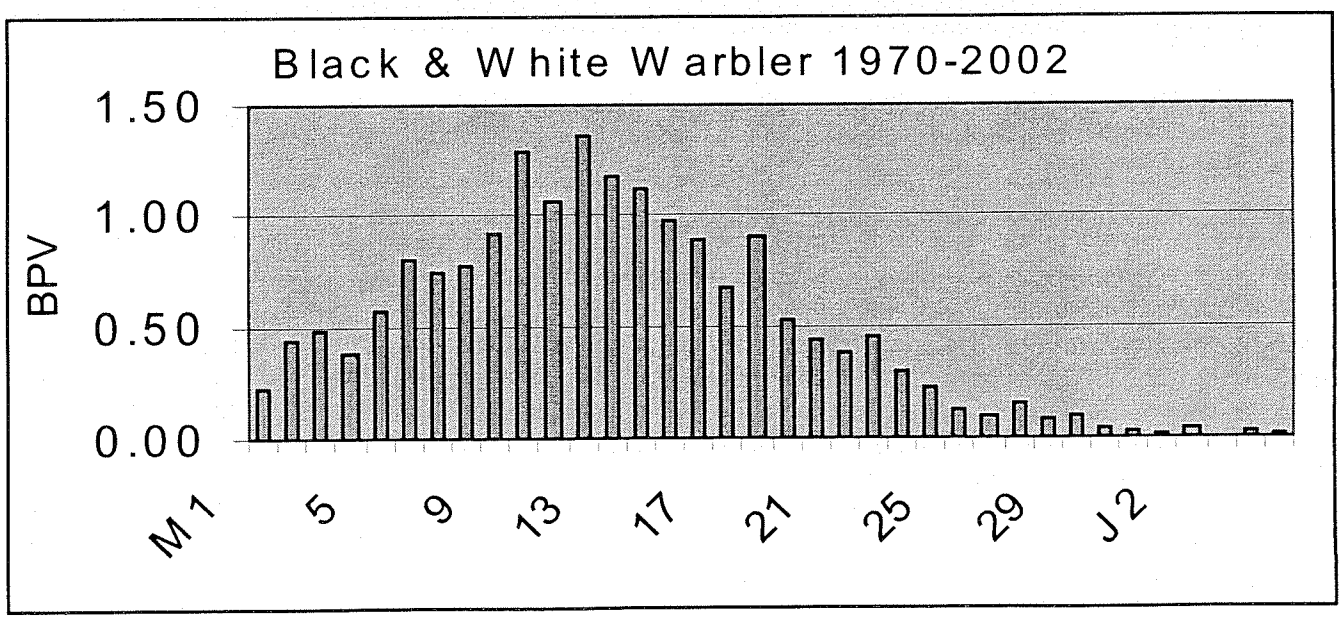
Overall Average BPV

The average BPV for the years 1970 - 2002 is 0.51. This figure is obtained by taking all the Black-and-white Warblers observed over those years (4200) and dividing by all the visits over those years (8179). This figure of 0.51 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 will show what a 'normal' migration pattern would look like. The daily BPV for the years 1970-2002 is shown in Graph 3 below.

Graph 3 - Black-and-white Warbler Daily BPV 1970-2002



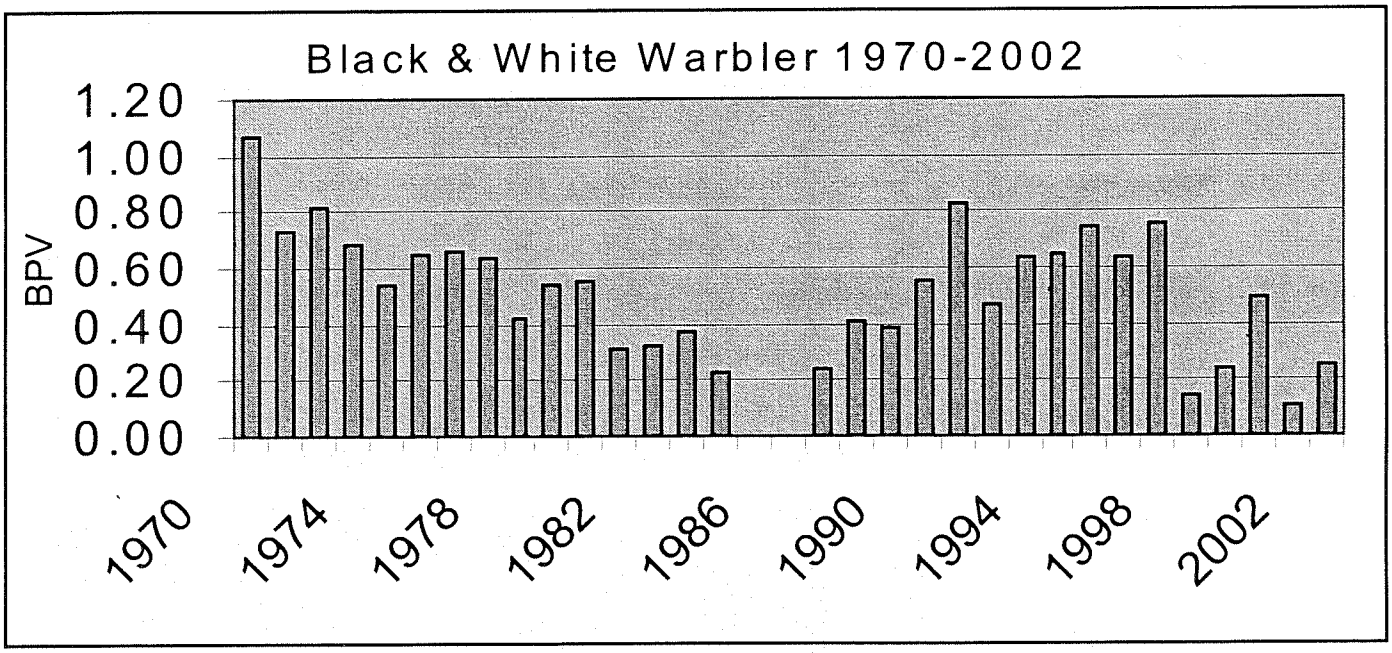
The shape of Graph 3 is roughly what one would expect for this species given that we know the migration of Black-and-white Warblers begins early and is usually of prolonged duration compared with many warbler species. Daily BPV figures are close to or above the long-term BPV figure of 0.51 from May 2 till May 22 giving a three week span during which we can expect decent numbers of Black-and-white Warblers to be possibly seen in Toronto. One seeming anomoly is the spike on May 18 when daily BPV figures should be in decline. The main reason for this spike is the 39 Black-and-white Warblers that were counted on May 18, 1996. This figure is roughly twice the next highest gross figure recorded for May 18 in any other year of the study and represents about 20% of all records for May 18.

So, just when is the peak of migration? As we can see from Graph 3 daily BPV is above the long-term average of 0.51 birds per visit from May 5 to May 19. However, daily BPV figures are above 0.90 for the period May 9 to 16 so that is what we will consider the 'normal' peak of migration for Black-and-white 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 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-and-white Warbler Yearly BPV 1974-2002



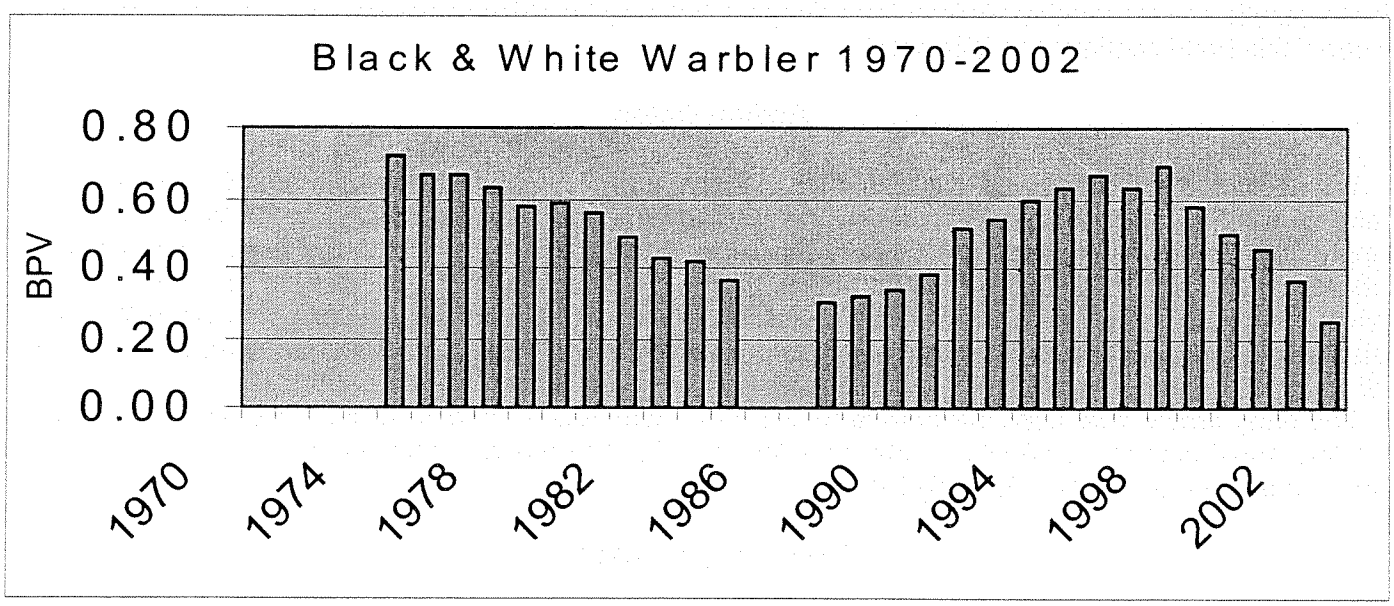
When one looks at Graph 4 some reasonably obvious trends are apparent. Keeping in mind the long-term average of 0.51 birds per visit we see that we have 17 years with a yearly BPV figure above 0.51 and 14 years with a yearly BPV figure below 0.51. One way to illuminate trends is to identify series of consecutive years in which the yearly BPV is either above or below the long-term average. The longest such series is 1970-1977 during which the yearly BPV is above 0.51. Another series for which yearly BPV is above 0.51 is 1993-1997. The longest series in which yearly BPV is below 0.51 is 1998-2002. We also have two other series where the yearly BPV is below 0.51, namely 1981-1984 and 1987-1989, which sandwich the years for which we have no data. These series emphasize the loss of having no data collected in 1985 and 1986 which may have shown a longer period of below average yearly BPV. Using

these series we see that Graph 4 shows a reasonably orderly cycle which starts with a high period in the 1970's. The numbers gradually decline into a low period from 1981 to 1989 then rise through another high period from 1990 to 1997. Then we come to the most dramatic feature of Graph 4 which is the huge disparity in yearly BPV figures between 1997 (at 0.75 the fourth highest year in the entire study and about 50% higher than the long-term average) and 1998 (at 0.14 the second lowest year in the entire study and less than 40% of than the long-term average). 1998 ushered in the low period which has continued through 2002.

Does this disparity in 1997 and 1998 figures represent a crash in Black-and-white Warbler populations in at least part of their range? Before becoming too alarmed we should consider the following. We know that there are fallouts of migrants where larger than usual numbers will be found at one place on a given day making any observer lucky enough to be there very happy indeed. On the other hand we have overflight where migrants will pass over a given area without being seen and thus will be impossible to count. Other situations which may depress the number of birds counted include inclement weather when the breeding males are passing through (which will make them less likely to sing and may also reduce their activity level) and an early leafing-out of deciduous plants (which will make it harder to find females and first alternate males who don't sing). Also consider the broad-winged hawk migration through Toronto in fall 2002. The numbers counted were much lower than average. Since other raptor count sites reported numbers closer to normal it was determined that the reason for the low numbers here was that the birds had followed a flight path that did not take them over the counters and did not represent a crash in the population of the species.

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 preceding years. For example a three year rolling average figure would be the average of the figures for the current year and the two preceding years. 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.

Graph 5 - Black-and-white Warbler Yearly BPV (Rolling five year average)



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 will show cycles but they will be shifted to the right on a graph compared to using yearly figures. Graph 5 clearly shows the pattern described above in the discussion of

Graph 4, namely a high period at the beginning of the study declining into a low period then rising into another high period before again declining into the current low period. The figures range from a high of 0.72 in 1974 to a low of 0.25 in 2002. Both of these figures represent a difference of more than 40% from the long-term average figure of 0.51 and provide a strong indication that the numbers of Black-and-white Warblers migrating through Toronto does vary by a significant amount over time. The decline shown in the five year averages for the last five years of Graph 5 represents the sharpest decline (or gain) of any five year period on the graph. This would seem to indicate that the population of Black-and-white Warblers that migrates through Toronto is in the throes of its lowest period since 1970 but that does not mean they have crashed. We need more data to see how the current low period plays out and where figures end up in the next high period before drawing conclusions about long-term changes in Black-and-white Warbler numbers.

When we look at other southern Ontario trends we also see good reason to be cautious. 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 1996-2001 has been showing a downward trend and contains a very low figure for 1998. Prince Edward Point data from 1995-2001 shows a steeper downward trend than Selkirk but not a low figure for 1998. Long Point data from 1961-2001 show that the figures from 1970-1990 are fairly consistent and have been significantly increasing through the 1990's (overall about +1.9%/year). There is quite a disparity between a high 1997 figure and a lower 1998 figure but the 1998 figure is as high as most years in the 1970-1990 period. Some of the differences between Long Point and our data are that they showed no low period in the 1980's and rather than the low numbers we have been getting since 1997 they have been experiencing the highest numbers in their entire study.

Another way of looking for patterns is to see how the Black-and-white 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-and-white Warbler average yearly BPV 0.64. For the 1981 to 1989 warbler low cycle the Black-and-white Warbler average yearly BPV is 0.33. For the 1990 to 1997 warbler high cycle the Black-and-white Warbler average yearly BPV is 0.67. For the 1998 to 2002 warbler low cycle the Black-and-white Warbler average yearly BPV is 0.25. The cycles of the Black-and-white Warbler seem to be matching the cycles of the study warblers as a group. These results are reasonably obvious from Graph 4 but may be strictly coincidental. We await more data to see if this trend continues or falls apart.

Arrival Dates

We know that the Black-and-white Warbler is an early migrant compared with most of the other study warblers. This is mainly due to its bark-probing feeding technique which allows it access to a steady food supply at a time when the leaf- and twig-gleaning techniques used by most other warblers may not yield sufficient food. Since the Warbler Count begins on May 1 each year it is not possible for us to show an arrival date earlier than that. However, we also know that small numbers of Black-and-white Warblers usually arrive in the Toronto area by the last two weeks of April. Thus the arrival dates shown below are not an accurate representation of the actual arrival dates of the Black-and-white Warbler.

The early arrival date from our data is May 1 which was recorded in 18 of the 31 years of the study. The late arival date is May 8 which was recorded in 1984. The average arrival date is 1.9 days from the start of our count period or effectively May 2.

Acknowledgements

In conclusion I would like to thank all the observers whose efforts over the years have gathered the data which has been analysed above. I would also like to thank Glenn Coady for his insights on breeding status in Toronto and his suggestions on how to improve these individual species accounts. Finally, I would like to thank George Fairfield for his stewardship of the Warbler Count since its inception.

MASSEY

After two years reporting from Elliott Lake, Erwin Meissner has relocated to Massey. Massey is about 100 kilometres west of Sudbury along Highway 17. The area studied this year was 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 5. It is immediately obvious from Table 5 that several species were breeding in the area covered by this count. Indeed, birds that were likely on territory represent the majority of the results from this study area. While the numbers of yellow-rumped warblers peaked in mid-May the fact that they were still being observed right up to the end of the count period is indication of their breeding in this area. Other species that count numbers reveal as breeding are black-and-white warbler, black-throated green warbler, blackburnian warbler, chestnut-sided warbler, ovenbird, common yellowthroat and american redstart. Sightings of pine warbler on most days after May 16 indicate that that species was also breeding in this area.

Now we shall present a brief comparison between the Elliott Lake results obtained in 2000 and 2001 and the Massey results from 2002. The daily WPV figures for the three years are as follows: 2000 - 47.9, 2001 - 35.5 and 2002 - 14.4. These figures indicate many fewer birds being seen in Massey but the reasons for this would be hard to pinpoint. We know that variations from year to year can be large even when it is the same study area being looked at. However, here we are trying to compare two different study areas which are likely of differing size and forest makeup. It will be interesting to see the results from Massey in the coming years. When we look back at the Elliott Lake data it is obvious that the main contribution to a lower WPV figure from Massey is reduced numbers of the following species: black-and-white warbler, black-throated blue warbler, black-throated green warbler, ovenbird and american redstart.

In 2000 and 2001 the five most common species at Elliott Lake (in descending order of abundance) were: black-throated green warbler, ovenbird, black-and-white warbler, american redstart and yellow-rumped warbler. In 2002 the five most common species at Massey (again in descending order of abundance) were: yellow-rumped warbler, ovenbird, chestnut-sided warbler, blackburnian warbler and black-and-white warbler. These two lists are markedly different. Since counts from these areas will be less susceptible to the vagaries of large swings in the numbers of yellow-rumps that we experience in the south we can say that there were relatively more yellow-rumped warblers breeding in the Massey study area than in the Elliott Lake one. Other species that were present in relatively larger numbers in the Massey area are chestnut-sided warbler and blackburnian warbler. Species that are present in relatively larger numbers in the Elliott Lake study area are black-and-white warbler, black-throated green warbler and american redstart. A final note of comparison concerns the cape may warbler which seems to be in short supply in Toronto. In 2002 four were observed at Massey while only three were observed in 2000 and 2001 combined at Elliott Lake.

Besides the pine warblers mentionned above the only other observed warbler that does not appear on Table 5 is a northern parula from May 28.

As can be seen from Table 5 the date when the first warblers besides yellow-rumps were observed was May 06 which, as expected, is several days later than those study areas from the south. It appears that the 'peak' of migration was on May 16. While the May 16 result contains some birds that ended up being resident in the area I suspect that most of the birds seen that day were passing through. While there were days later in the month with higher numbers of observed birds than May 16 it is evident from Table 5 than many of the birds observed on those days were resident.

TABLE 5

WARBLER COUNT - MASSEY TOTALS 2002

ONTARIO SPRING WARBLER COUNT - 2002
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	EM	EM	EM	EM						EM	
Bl. & Wh.	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	4	1	1	0	0	0	2	3	0	0	1	4	2	0	1	0	0	0	0	0	0	**22**
Tenness.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Nashville	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**
Yellow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	**5**
Magnolia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	**3**
Cape May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	**4**
BT Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Yel.-rump	5	3	3	2	0	4	5	5	0	2	0	2	0	3	1	9	4	2	0	5	5	7	3	0	0	2	5	3	4	1	0	0	0	0	0	3	**88**
BT Green	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	0	0	1	1	4	0	1	0	0	0	0	0	1	**13**
Blackburn.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	2	2	0	0	3	2	2	2	3	0	0	0	0	0	2	**24**
Chestnut	0	0	0	0	0	0	0	0	0	3	0	2	0	1	0	3	2	1	0	4	4	3	4	0	0	4	7	7	6	10	0	0	0	0	0	6	**67**
Bay-breast	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Blackpoll	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	**1**
Palm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Ovenbird	0	0	0	0	0	0	1	1	0	1	0	3	0	2	3	5	4	4	0	2	5	6	7	0	0	6	7	5	7	7	0	0	0	0	0	8	**84**
N. Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Mourning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	**3**
C. Yellwthrt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	1	**5**
Wilson's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	**1**
Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	**2**
A. Redst.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	1	7	0	0	0	0	0	5	**16**
Daily Total	5	3	3	2	0	9	6	6	0	6	0	7	0	7	4	29	15	8	0	14	18	22	23	0	0	18	27	29	23	32	0	0	0	0	0	30	**346**
# of Visits	1	1	1	1	0	1	1	1	0	1	0	1	0	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	1	0	0	0	0	0	1	**24**
Warb / Visit	5	3	3	2	0	9	6	6	0	6	0	7	0	7	4	29	15	8	0	14	18	22	23	0	0	18	27	29	23	32	0	0	0	0	0	30	**14.4**
Swain Thr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	3	1	2	0	0	0	0	0	1	**10**
Scar Tan.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	**1**
Rose-br Gr.	0	0	0	0	0	0	0	0	0	0	0	2	0	2	1	3	0	0	0	0	2	0	2	0	0	0	0	0	1	1	0	0	0	0	0	0	**14**

EM = Erwin Meissner

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 6. The first count warblers were observed on May 6 and decent numbers were seen for the next three weeks. The daily WPV figure for 2002 was 5.9. This compares with the 2001 figure of 2.3 and the 2000 figure of 5.5. So after a slow 2001 numbers for 2002 were right back up to 2000 levels. One other interesting feature of the 2002 count concerns the numbers of rose-breasted grosbeaks. After 43 individuals were counted in 2000 and 13 in 2001 only 7 were reported this year. We hope that these numbers come back up for 2003. As can be seen from Table 6 the only strong peak for warblers in the 2002 count was on May 17. There was a secondary peak on May 21 and 22 which is in the same time frame as many of the southern Ontario counts were also showing a peak. The only warbler species observed that is not shown in Table 6 is the northern parula. Single individuals of that species were reported from May 7 and 11.

In 2002 the five most common species at Newmarket (in descending order of abundance) were: 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.

Another species that was noteworthy in 2002 was the northern waterthrush with five reported compared to two in 2000 and 2001 combined. Scarlet tanager at four reports matched the figure for 2000 and 2001 combined. Yellow-rumped warbler numbers were low in 2002 and this is consistent with the results of several of the other southern counts.

PORT HOPE

The Port Hope study area often provides good numbers of warblers and like many of our study areas it is the number of yellow-rumped warblers that are recorded that makes the difference as to whether a year's count will be above, below or on average. The percentage of yellow-rumps observed in this study area has varied from a low of approximately 22% of all warblers observed in 2001 to over 50% of all warblers observed in 1997 and 1999. Not surprisingly, this study area's highest overall totals have come from 1997 and 1999. The results of the 2002 Port Hope count are presented in Table 7 and we can see from there that this year yellow-rumped warblers made up about 40% of all warblers observed.

We can also see from Table 7 that this years WPV figure was 11.8. This compares with 35.3 in 1997, 8.2 in 1998, 21.9 in 1999, 17.3 in 2000 and 12.1 in 2001. These figures give an average WPV over the last six years of 17.8. If we exclude the 1997 WPV figure the average WPV over the last five years is 14.3. This figure of 14.3 is likely to be about what can be expected from this study area except in years with exceptional numbers of yellow-rumped warblers and is certainly higher than the Toronto count has been over the last five years.

However, this study area has much to offer besides yellow-rumped warblers. Besides the birds recorded on Table 7 the following species were recorded this year. One orange-crowned warbler was observed on May 22. One pine warbler was observed on each of May 06 and 25. One northern parula was observed on each of May 05, 16 and 22 and two were observed on May 23.

The Port Hope count produced two distinct peaks in terms of warblers counted. These can be seen on Table 7 and will show later when graphs are presented to compare the patterns of migration for all the

TABLE 6

WARBLER COUNT - NEWMARKET TOTALS 2002

ONTARIO SPRING WARBLER COUNT - 2002
Newmarket **Mabel Davis C.A.**

	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	
	KD	KS	KS	KD	KS	KS	KS	KS	KS	JW	KS	KS	KS	KS	KS	KS	KS		KS	KD	KS	KD	KS	KD	KD	KD	KS	KS	KS	KD	KD						
Bl. & Wh.	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**5**
Tenness.	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	**6**
Nashville	0	0	0	0	0	3	0	1	1	0	2	0	1	0	0	0	6	0	1	0	6	3	0	0	0	1	0	1	0	1	0	0	0	0	0	0	**27**
Yellow	0	0	0	0	0	1	0	0	0	0	1	1	1	1	2	1	3	0	4	5	4	4	0	1	3	1	2	0	1	1	0	0	0	0	0	0	**37**
Magnolia	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	3	0	0	0	1	2	3	0	1	0	1	0	0	0	0	0	0	0	0	0	**14**
Cape May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
BT Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
Yel.-rump	0	0	0	0	0	0	1	2	2	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**8**
BT Green	0	0	0	0	0	0	1	1	0	0	2	0	5	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**11**
Blackburn.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	**4**
Chestnut	0	0	0	0	0	0	0	0	1	0	1	0	3	0	2	2	2	0	2	5	2	3	2	2	3	3	0	0	0	0	0	0	0	0	0	0	**33**
Bay-breast	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
Blackpoll	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Palm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Ovenbird	0	0	0	0	0	0	1	0	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**5**
N. Water	0	0	0	0	0	1	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**5**
Mourning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
C. Yellwthrt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	1	0	0	0	0	0	0	**4**
Wilson's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1	0	0	0	0	0	0	0	0	0	0	**4**
A. Redst.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	0	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	**8**
Daily Total	0	0	0	0	0	6	3	5	4	0	10	3	13	2	9	8	19	0	11	11	15	16	6	3	11	9	6	1	2	3	0	0	0	0	0	0	**176**
# of Visits	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	1	0	0	0	0	0	**30**
Warb / Visit	0	0	0	0	0	6	3	5	4	0	10	3	13	2	9	8	19	0	11	11	15	16	6	3	11	9	6	1	2	3	0	0	0	0	0	0	**5.9**
Swain Thr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	**3**
Scar Tan.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	1	0	0	0	0	0	0	0	0	**4**
Rose-br Gr.	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	**7**

KS = Kevin Shackleton, KD = Keith Dunn, JW = John Watson

study areas. The first peak is the period of May 05 to 07. While most of the birds were yellow-rumps on May 05 and 06, May 07 is the first day with a good diversity of species with ten being observed. The second peak is May 22 and 23 and at this time yellow-rumps do not play much of a factor. Rather it is the effect of smaller numbers of more species that lead to this peak - on May 22 there were twelve species recorded and on May 23 there were thirteen species recorded.

The five most frequently observed warbler species over the last six years have been (in descending order of abundance): yellow-rumped warbler, magnolia warbler, nashville warbler, chestnut-sided warbler and black-throated green warbler. Several species were down this year from their averages over the past six years. These include black-throated green warbler, chestnut-sided warbler and rose-breasted grosbeak. The following species were recorded at their lowest levels in the 1997-2002 period: magnolia warbler, ovenbird and american redstart. In addition, no cape may warblers were observed this year.

While the above comments may sound negative that is certainly not their intent. I am just pointing out what the numbers are showing. Indeed many of the study areas appear to have low totals this year. As pointed out in the report on the black-and-white warbler in Toronto a low year does not a disaster make. It is a point in the data stream which must be taken in the context of what came before and what follows. I think this is a wonderful study area and with six years of data now accumulated there is a good baseline of information on which to base further analysis. I very much look forward to receiving continued reports from Port Hope.

WHITBY - THICKSON'S WOODS

Thickson's Wood's is located near the foot of Thickson Road in south Whitby. This small woodlot commonly hosts large numbers of migrants and rarities regularly show up. More birds are counted here than in any other area we report on save the bird observatories. Thickson's contains some mature white pines as well as deciduous trees of various ages and some bushy sections. Immediately north and west of Thickson's there are grassy areas, to the south is Lake Ontario and to the east is a small marsh.

One feature that is different in this year's results are the number of days for which the reported figures come from the Thickson's Woods' logbook. In past years there were generally several counters involved but this year only Margaret Bain did individual counts. Given the distance she had to travel to do the count it would be unrealistic to expect her to be able to cover every day by herself. Certainly the amount of work she contributed was considerable. In past years there here been a few days where the daily figures have come from the logbook but for the 35 days reported for 2002 logbook figures have been used for 12 of them. This does make handling the data a little more problematic for the following reasons: Some reports (though certainly very few) may be misidentifications. For species where several individuals are present on a given day the number reported may be inaccurate. Admittedly, even with an expert like Margaret doing the count in an area with so many birds there will be small inaccuracies because of the tendency on some days for birds to circulate around the Woods. This may make for some duplication in the birds being counted. This tendency may be exaggerated in the logbook data. On the other hand since logbook recorders may not be trying to count every bird there may also be under-reporting of numbers of some species when several individuals are present. In the end, I have decided to include the logbook figures in this report. While they are not going to be as accurate as Margaret's they do fill out the coverage allowing for better comparison with the results of previous years and making it easier to illustrate the pattern of migration.

The results of the 2002 count are shown in Table 8. One feature that is immediately noticeable is the large number of yellow-rumped warblers which account for about 38% of all birds recorded. As can be seen from Table 8 the yearly WPV figure for 2002 is 58.2. This compares with the figures from 1997-2001 which are 76.4, 34.7, 38.2, 40.3 and 32.5 respectively. These numbers give an average for the previous five years of 44.4. We also see that the 2002 WPV figure is the highest since 1997 and is significantly over the five year average. Not surprisingly, 1997 was the last year with a very large number of yellow-rumped warblers. In 1997 yellow-rumps made up over 42% of the 2674 warblers observed. In contrast, for the years 1998-2001 yellow-rumps averaged 20% of the warblers observed. Given these large swings it may

TABLE 7

WARBLER COUNT - PORT HOPE TOTALS 2002

ONTARIO SPRING WARBLER COUNT - 2002
Port Hope

	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	
	RF		RF	EK	EK	EK	EK	RF	RF	RF	EK	RF	RF	RF	RF	RF	RF	RF	EK	EK	RF	RF	RF	RF	EK	RF	RF	RF	RF			EK		RF	RF		
Bl. & Wh.	0	0	2	1	4	0	2	0	0	0	2	0	0	0	0	1	0	0	0	0	1	1	2	0	0	0	0	1	0	0	0	0	0	0	0	0	17
Tenness.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Nashville	0	0	0	0	1	1	5	1	2	1	3	1	1	0	1	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	22
Yellow	0	0	0	1	0	1	3	2	1	1	3	2	0	0	2	2	3	0	3	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	28
Magnolia	0	0	0	0	0	0	1	0	1	1	0	0	3	0	0	0	2	1	1	0	0	5	5	0	2	1	3	2	2	0	0	0	0	0	0	0	30
Cape May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BT Blue	0	0	0	1	0	0	1	0	0	2	0	0	1	0	0	1	0	0	1	0	0	1	3	0	0	0	2	0	0	0	0	0	0	0	0	0	13
Yel.-rump	0	0	18	4	19	27	11	5	14	5	8	10	8	0	5	2	1	0	0	0	2	3	1	0	0	0	1	1	0	0	0	0	0	0	0	0	145
BT Green	0	0	1	3	4	0	1	1	0	0	0	2	0	0	0	5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
Blackburn.	0	0	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0	1	0	0	1	0	4	0	0	0	0	1	0	0	0	0	0	0	0	0	11
Chestnut	0	0	0	0	5	3	2	0	1	0	0	0	0	0	0	0	0	0	3	0	2	5	4	1	0	0	1	1	0	0	0	0	0	0	0	0	28
Bay-breast	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Blackpoll	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	4
Palm	0	0	1	0	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Ovenbird	0	0	0	0	1	0	1	1	0	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
N. Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mourning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	4
C. Yellwthrt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	4
Wilson's	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	5
Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	3
A. Redst.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	4	4	0	0	2	0	0	0	0	1	0	0	0	0	14
Daily Total	0	0	22	10	36	34	28	11	20	11	18	16	14	0	8	14	8	3	8	1	7	27	32	6	2	2	11	8	6	0	0	2	0	0	1	0	366
# of Visits	1	0	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	0	0	1	0	1	1	0	31
Warb / Visit	0	0	22	10	36	34	28	11	20	11	18	16	14	0	8	14	8	3	8	1	7	27	32	6	2	2	11	8	6	0	0	2	0	0	1	0	11.8
Swain Thr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	6	0	0	1	0	0	0	0	0	0	0	0	0	0	11
Scar Tan.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Rose-br Gr.	0	0	0	0	0	2	1	0	1	1	1	0	0	0	2	0	2	0	1	1	1	4	3	1	1	0	1	0	0	0	0	0	0	0	0	0	23

RF = Roger Frost, EK = Elizabeth Kellogg

be instructive to look at WPV figures with yellow-rumps removed. The WPV figures calculated with yellow-rumps removed for 1997-2001 are 41.1, 27.2, 29.4, 34.8 and 25.5 respectively. The five year average without yellow-rumps is 31.6. For 2002 the WPV figure with yellow-rumps removed is 35.9. What these WPV figures with yellow-rumps removed show is that while 2002 was an above average year it was not as unusual as it may have appeared at first glance. The second thing these figures show is that 1997 truly was an outstanding year and not just for yellow-rumps.

When we look at Table 8 we can see that the first major peak in migration occurs during May 09-12. The next major peak is on May 15 though that is mainly due to yellow-rumps. A third major peak occurs on May 22-23. The final peak for 2002 was on May 27. Given the above paragraph I thought a look at pattern of migration with yellow-rumps removed would be warranted. The first day with significant numbers of non-yellow-rumps was May 05 with 42 individuals of 14 species. The first major peak was on May 11 with 63 individuals of 17 species. The second major peak was on May 22-23 with 80 individuals of 17 species and 94 individuals of 14 species respectively. The final peak is again on May 27. As we can see with the exception of May 15 the two sets of peaks are much the same.

As is to be expected with a migrant trap like Thickson's there were several sightings of warbler species that are not shown on Table 8. These other warblers for 2002 are as follows:

Blue-winged warbler	- 1 on May 06
Cerulean warbler	- 1 on May 11
Connecticut warbler	- 1 on May 21 & 22
Golden-winged warbler	- 1 on May 26
Hooded warbler	- 1 on May 18, 19 & 23
Northern Parula	- 1 on May 05, 11, 16, 17, 20, 25, 26 & 27
	- 5 on May 23
Orange-crowned warbler	- 1 on May 04, 18, 19 & 20
Pine warbler	- 1 on May 01, 05 & 27
Prairie warbler	- 1 on May 06
Yellow-throated warbler	- 1 on May 19

As can be seen from Table 8 the five most frequently observed species in 2002 (in descending order of abundance) were: yellow-rumped warbler, yellow warbler, magnolia warbler, american redstart and a fifth place tie between black-throated blue warbler and chestnut-sided warbler. The five most frequently observed species in 2001 (in descending order of abundance) were: yellow-rumped warbler, yellow warbler, magnolia warbler, black-throated blue warbler and chestnut-sided warbler. The five most frequently observed species for the period 1997-2001 (in descending order of abundance) were: yellow-rumped warbler, yellow warbler, black-throated blue warbler, american redstart and magnolia warbler. The numbers of yellow warblers may include some who are setting up territories but even if allowances are made for that it will still appear on these lists of five most commonly observed species.

There are also some interesting things going on with those species who aren't making the lists of the five most frequent. Those species whose 2002 numbers were fairly close to their five year average include: black-and-white warbler, black-throated green warbler, blackburnian warbler, mourning warbler and common yellowthroat. Those species whose 2002 numbers were more than 20% below their five year average were: tennessee warbler, cape may warbler, blackpoll warbler and northern waterthrush. In the case of the blackpoll warbler the 2002 figure is at least a partial rebound from a very low 2001 figure. For the cape may warbler the five year average is skewed by the 1997 gross total which is higher than the gross total of the entire 1998-2001 period. The 2002 figure for the cape may warbler is close to the average for the period 1998-2001. Those species whose 2002 numbers were more than 20% above their five year average were: nashville warbler, bay-breasted warbler, palm warbler, ovenbird, wilson's warbler and canada warbler. For the nashville and palm warblers the 2002 figures were the highest since 1997. For the wilson's warbler the 2002 figure was the highest since 1998. For the canada warbler the 2002 figure is the highest yet reported.

TABLE 8

WARBLER COUNT - THICKSONS WOODS TOTALS 2002

ONTARIO SPRING WARBLER COUNT - 2002
Thickson's Woods

	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	
	MB	MB	MB	MB	MB	MB	MB	MB	MB	MB	MB	TL	TL	TL	TL	TL	TL	MB	MB	MB	MB	MB	MB	TL	TL	TL	TL	MB	MB	MB	MB	TL	MB	TL		MB	
Bl. & Wh.	0	0	1	4	4	3	3	1	1	2	6	2	2	1	4	3	1	2	1	0	0	2	3	0	0	1	0	0	0	0	0	0	0	0	0	0	**47**
Tenness.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	1	0	1	0	1	0	0	2	0	0	0	0	0	0	0	0	0	**9**
Nashville	3	2	2	2	4	3	4	3	4	4	6	5	4	4	3	3	2	2	2	3	6	4	2	1	3	2	0	0	1	0	0	0	0	0	0	0	**84**
Yellow	2	0	0	2	4	8	10	4	5	5	8	8	6	5	6	8	15	8	12	8	8	12	12	5	6	5	15	12	12	6	8	8	6	6	0	4	**249**
Magnolia	0	0	0	0	3	2	2	1	3	2	5	8	2	1	6	5	3	4	4	2	5	15	20	3	3	3	12	15	2	1	4	1	2	5	0	0	**144**
Cape May	0	0	0	1	1	0	0	0	1	2	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**9**
BT Blue	0	2	1	2	4	3	3	1	3	3	4	2	2	1	1	5	3	4	4	4	4	4	2	2	2	6	10	2	1	1	0	1	0	0	0	1	**88**
Yel.-rump	12	35	30	50	45	25	25	15	90	60	150	40	25	20	100	20	15	8	6	1	0	1	2	0	0	2	3	0	2	0	0	0	0	0	0	0	**782**
BT Green	2	3	5	6	1	1	4	1	3	3	5	4	2	2	3	1	2	3	2	1	0	0	0	1	0	2	1	0	0	0	0	0	0	0	0	0	**58**
Blackburn.	0	0	0	0	1	1	2	0	1	2	4	0	2	2	4	2	4	2	3	1	0	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	**36**
Chestnut	0	0	0	0	4	4	4	1	2	2	4	3	2	1	2	1	3	5	5	4	5	4	4	2	2	6	8	2	5	1	1	1	0	0	0	0	**88**
Bay-breast	0	0	0	0	0	2	2	0	1	0	1	1	0	0	0	2	5	1	0	0	0	1	1	1	0	3	0	0	0	0	0	0	0	0	0	0	**21**
Blackpoll	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1	2	8	2	0	0	0	0	0	0	0	0	**16**
Palm	1	1	0	2	10	7	6	3	6	5	5	4	5	2	4	0	1	1	1	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**68**
Ovenbird	0	0	0	1	3	2	2	0	3	2	4	2	3	1	2	2	1	3	3	2	3	4	2	1	0	1	1	0	1	0	0	0	0	0	0	0	**49**
N. Water	0	0	0	1	1	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**
Mourning	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	2	1	0	1	2	1	1	1	1	0	0	0	0	0	0	0	0	0	**13**
C. Yellwthrt	0	0	0	0	1	1	1	0	0	1	2	2	2	1	2	1	1	4	6	3	4	4	12	2	2	0	1	2	1	1	1	1	2	0	0	1	**62**
Wilson's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	1	2	2	1	1	12	6	2	2	1	3	2	1	0	1	0	0	0	0	0	**42**
Canada	0	0	0	0	0	0	0	0	0	1	1	2	0	0	2	1	1	1	3	0	1	4	2	3	3	8	6	6	2	1	1	1	1	1	0	1	**53**
A. Redst.	0	0	0	0	1	0	0	0	0	0	3	1	2	1	1	8	4	8	8	6	6	6	25	2	4	6	2	5	2	2	5	1	2	2	0	0	**113**
Daily Total	20	43	39	71	87	62	68	30	123	94	213	88	60	42	145	64	62	60	66	38	44	81	96	27	30	51	73	48	30	13	21	14	13	14	0	7	**2037**
# 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	0	1	**35**
Warb / Visit	20	43	39	71	87	62	68	30	123	94	213	88	60	42	145	64	62	60	66	38	44	81	96	27	30	51	73	48	30	13	21	14	13	14	0	7	**58.2**
Swain Thr.	0	0	0	0	0	1	0	0	0	1	2	2	1	1	2	3	2	5	8	4	4	3	6	2	1	3	1	1	2	0	0	1	0	0	0	1	**57**
Scar Tan.	0	0	0	0	0	0	0	0	1	1	2	1	0	0	0	4	2	1	0	1	1	3	3	4	0	0	1	0	0	0	0	0	0	0	0	0	**25**
Rose-br Gr.	0	0	1	2	12	10	12	10	6	8	8	6	2	1	1	3	4	6	3	2	4	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	**107**

MB = Margaret Bain, TL = Thickson's Logbook

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. In 2000 Jim worked at the Ruthven station with Rick Ludkin before moving to Rock Point for 2001. While Jim did submit his 2001 results they were lost somewhere in the electronic haze. He has been kind enough to re-submit those results and while they will not be presented in their entirety here they will be used to gain an added perspective on the 2002 results.

The results of the Rock Point count are presented in Table 9. It is immediately obvious from Table 9 that yellow warblers were attempting to establish territories in considerable numbers and that common yellowthroats were doing the same although in smaller numbers. Indeed, birds that were on or attempting to establish territory represent the majority of the results from this study area. Another striking feature of Table 9 is the relatively low number of yellow-rumped warblers with 47 individuals recorded and 19 of those were on May 03.

Because of the dominance in numbers of the yellow warbler and common yellowthroat for this study area we will look at the six most common species (in descending order of abundance). 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. Species that moved three or more places in terms of rank are yellow-rumped warbler, nashville warbler, palm warbler, northern waterthrush and blackpoll warbler which ranked higher in 2002 than in 2001 and chestnut-sided warbler, canada warbler, black-throated green warbler and blackburnian warbler which ranked lower in 2002 than in 2001. Of course with only two years of data we expect to see some fairly large fluctuations at this point in any analysis. As more data comes in over the years we will get a better idea of what numbers to expect for each species. This will make it easier to show which species have turned up in unusual numbers (whether low or high) for a given year.

Looking at the pattern of migration is somewhat complicated because of the yellow warbler and common yellowthroat. The first peak occurs on May 03 but of the 25 individuals counted that day 19 of them were yellow-rumps. The next peak is May 06-08 with the first large batch of yellow warblers present on May 06 and the common yellowthroats being observed on May 07 are the first large number of that species. What looks like a peak on May 10 & 11 is primarily made up of yellow warblers and common yellowthroats so we must factor out these species to find the peaks that represent migrants. The next peak is May 22-24 with May 22 representing the highest number of migrants for this year's count with at least 43 individuals of 12 species. The final peak occurs on May 27 & 28.

No individuals from species other than the twenty-one shown in Table 9 were reported for 2002.

It is too early to make many comments on count numbers from the Rock Point station but we certainly look forward to receiving more results in the coming years so that trends will begin to show themselves.

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 2002 appear in Table 10. It is immediately obvious from Table 10 that as with Rock Point there are numbers of breeding yellow warblers and common yellowthroats around this station. Thus, as with our comments on Rock Point above we will have to compensate for the yellow warbler and american redstart. Also around this station there are breeding rose-breasted grosbeaks

TABLE 9

WARBLER COUNT - HBO ROCK POINT TOTALS 2002

ONTARIO SPRING WARBLER COUNT - 2002
HBO - Rock Point

	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.	1	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**
Tenness.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
Nashville	1	1	0	0	0	1	4	1	1	0	1	0	0	0	2	3	1	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	**19**
Yellow	0	0	1	0	0	20	8	9	6	30	20	0	0	0	19	37	28	15	0	25	16	36	34	19	24	0	32	18	11	7	8	5	0	12	13	0	**453**
Magnolia	0	0	0	0	0	0	1	0	0	2	1	0	1	0	1	0	6	2	0	0	2	21	7	3	2	0	3	9	2	0	0	1	0	0	2	0	**66**
Cape May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
BT Blue	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	**4**
Yel.-rump	5	1	19	3	0	0	5	0	1	3	2	0	2	0	1	0	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	**47**
BT Green	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
Blackburn.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Chestnut	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	2	2	0	0	0	2	1	1	0	0	0	0	0	0	**12**
Bay-breast	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Blackpoll	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3	0	0	1	2	1	0	0	0	0	0	0	0	**9**
Palm	0	2	4	1	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	**15**
Ovenbird	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
N. Water	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	1	0	0	1	0	0	0	2	1	1	1	0	0	0	0	0	0	**11**
Mourning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	2	5	0	0	0	0	0	0	**12**
C. Yellwthrt	0	0	0	0	0	1	6	2	2	3	6	0	2	0	0	0	6	4	0	4	5	5	5	6	3	0	9	7	4	4	8	4	0	6	5	0	**107**
Wilson's	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	3	1	4	1	3	0	0	7	1	3	3	1	0	0	0	1	0	**31**
Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	1	0	0	1	3	0	0	0	0	0	0	0	0	**9**
A. Redst.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	1	3	2	0	0	6	2	0	0	0	0	1	0	0	**18**
Daily Total	7	5	25	4	0	24	27	14	13	38	30	0	7	0	28	42	43	22	0	36	27	84	56	42	31	0	56	51	28	21	17	10	0	21	21	0	**830**
# of Visits	1	1	1	1	0	1	1	1	1	1	1	0	1	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	0	**29**
Warb / Visit	7	5	25	4	0	24	27	14	13	38	30	0	7	0	28	42	43	22	0	36	27	84	56	42	31	0	56	51	28	21	17	10	0	21	21	0	**28.6**
Swain Thr.	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	1	2	0	0	2	1	5	1	0	1	0	1	3	0	0	8	0	0	0	0	0	**29**
Scar Tan.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Rose-br Gr.	0	0	0	0	0	2	14	6	3	2	0	0	1	0	1	0	3	2	0	0	0	3	1	0	1	0	0	2	0	2	2	0	0	0	0	0	**45**

Observer/Bander = Jim Smith

and a colony of blue-winged warblers that produced many sighting of brewster's warblers and a few sightings of golden-winged warbler.

For 2002 the six most common species (in descending order of abundance) were yellow warbler, common yellowthroat, yellow-rumped warbler, magnolia warbler, nashville warbler and chestnut-sided warbler. I have no data for 2001 but for 2000 the comparable list was yellow warbler, common yellowthroat, magnolia warbler, yellow-rumped warbler, blackpoll warbler and a sixth-place tie between canada warbler and american redstart. Species that moved three or more places in terms of rank were nashville warbler, chestnut-sided warbler, palm warbler, black-throated green warbler, tennessee warbler and blackburnian warbler which ranked higher in 2002 than in 2000 American redstart, blackpoll warbler, canada warbler, northern waterthrush, black-throated blue warbler and mourning warbler ranked lower in 2002 than in 2000. The same comments made above with regard to the ranking of species in Rock Point apply to Ruthven so we await more data to make things clearer.

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 10 the first large numbers of yellow warblers show up on May 05 and for the common yellowthroat the corresponding date is May 06. The first peak obtained when yellow warblers and common yellowthroats are factored out is May 08 when the bulk of the migrants are yellow-rumped warbler, palm warbler and nashville warbler. The next peak is May 11 when the bulk of the migrants are yellow-rumped warbler, palm warbler, chestnut-sided warbler and magnolia warbler. The next peak is May 15-17. At this time numbers of yellow-rumps are declining but still significant while numbers of magnolia warblers and nashville warblers are at their peak. Another peak on May 19 shows the peak numbers of chestnut-sided warblers and black-throated green warblers. The final peak is May 26 when there are 25 individuals representing 10 species including such later migrants as wilson's warbler, canada warbler, mourning warbler and american redstart. The migration pattern at Ruthven is different from those we have obtained from most of the other areas covered in this report. That difference will be shown later when graphs representing the patterns of migration of all reported areas will be displayed together.

There were many warblers seen that are not among the twenty-one species whose numbers are shown in Graph 10 and these are mainly related to the colony of blue-winged warblers as we can see below:

Blue-winged warbler	- 1 on May 05 & 22
	- 2 on May 06, 10, 14, 19 & 20
	- 3 on May 08, 09 & 11
	- 4 on May 07, 15, 17, 24 & June 01
Brewster's warbler	- 1 on May 05, 06, 07, 08, 10, 11, 16, 18, 20, 21, 26, 27 & 29
	- 2 on May 17, 19, 22, 23 & 24
	- 3 on May 15, 31 & June 02
	- 4 on June 01
Golden-winged warbler	- 1 on May 10, 11 & 15
Hooded warbler	- 1 on May 08
Northern Parula	- 1 on May 19
Orange-crowned warbler	- 1 on May 15

As with Rock Point, we await more data from Ruthven to illuminate trends.

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

TABLE 10

WARBLER COUNT - HBO RUTHVEN TOTALS 2002

ONTARIO SPRING WARBLER COUNT - 2002
HBO - Ruthven

	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	
	DE		LM	MB	MB	DE	LM	RL	RL	LM	RL			RL	RL	RL	LM	RL	DE	MB	RL	RL	RL	LM		RL	RL		RL		LM	MB	DE				
Bl. & Wh.	0	0	0	0	4	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Tenness.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	3	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	9
Nashville	0	0	0	0	0	4	0	8	5	4	0	0	0	1	8	0	8	5	6	0	2	2	4	2	0	2	0	0	0	0	0	0	0	0	0	0	61
Yellow	0	0	2	1	10	20	15	20	20	20	30	0	0	10	20	25	30	15	20	20	20	20	30	20	0	25	20	0	25	0	15	24	20	0	0	0	497
Magnolia	0	0	0	0	0	2	0	6	5	0	5	0	0	0	6	8	15	6	8	5	5	6	5	10	0	6	5	0	2	0	2	0	1	0	0	0	108
Cape May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
BT Blue	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Yel.-rump	0	0	4	0	0	0	6	25	8	30	40	0	0	6	15	15	6	4	5	0	2	2	2	0	0	1	0	0	0	0	0	0	0	0	0	0	171
BT Green	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	12
Blackburn.	0	0	0	0	2	4	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Chestnut	0	0	0	0	2	0	0	3	0	0	6	0	0	0	2	0	0	0	8	0	0	0	5	2	0	0	2	0	0	0	0	0	0	0	0	0	30
Bay-breast	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
Blackpoll	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	3	0	0	0	0	0	0	0	7
Palm	0	0	0	0	2	2	0	5	2	2	15	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
Ovenbird	0	0	0	0	0	0	4	0	2	0	0	0	0	3	6	1	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	19
N. Water	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	6
Mourning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	1	0	0	0	0	0	0	0	4
C. Yellwthrt	0	0	0	0	0	5	0	8	10	8	12	0	0	4	12	10	10	12	15	10	12	12	15	15	0	20	12	0	15	0	15	12	15	0	0	0	259
Wilson's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	1	0	1	0	0	0	0	0	5	0	0	1	0	0	0	0	0	0	0	14
Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	4	0	0	1	0	0	0	0	0	0	0	7
A. Redst.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	1	4	0	2	2	0	0	0	0	0	0	0	0	0	12
Daily Total	0	0	6	1	22	38	25	76	53	64	109	0	0	25	81	62	74	44	70	37	48	45	64	58	0	70	43	0	50	0	32	38	36	0	0	0	1271
# of Visits	1	0	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	0	1	1	1	0	0	0	27
Warb / Visit	0	0	6	1	22	38	25	76	53	64	109	0	0	25	81	62	74	44	70	37	48	45	64	58	0	70	43	0	50	0	32	38	36	0	0	0	47.1
Swain Thr.	0	0	0	0	2	0	0	0	0	0	0	0	0	1	4	0	4	0	2	0	0	1	4	1	0	2	0	0	1	0	0	0	0	0	0	0	22
Scar Tan.	0	0	0	0	0	0	0	0	1	2	2	0	0	0	0	0	1	0	0	0	0	5	4	0	0	0	0	0	2	0	0	2	0	0	0	0	19
Rose-br Gr.	0	0	1	0	8	12	8	10	8	12	15	0	0	12	15	12	15	15	10	15	10	12	12	8	0	15	10	0	12	0	8	8	4	0	0	0	267

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

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 2002 results from Selkirk are presented in Table 11. 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. However, unlike the other two stations of the HBO the numbers of warblers reported are not dominated by the yellow warbler and common yellowthroat. The six most common species for 2002 (in descending order of abundance) were: yellow warbler, magnolia warbler, yellow-rumped warbler, common yellowthroat, nashville warbler and ovenbird.

When looking for the pattern of migration we have followed the lead of the other two HBO stations and removed yellow warblers and common yellowthroats. The first significant numbers of yellow warblers arrived on May 05. The first significant peak of migration was May 04 & 05 with the May 04 numbers dominated by yellow-rumped warbler and palm warbler. The situation on May 05 was different in that while numbers of yellow-rumped warblers and palm warblers remained high we see the peak numbers for nashville warbler, black-throated green wabler and ovenbird. The next peak is on May 09 when 12 species besides yellow warbler and common yellowthroat were counted. The next peak is May 14 when 11 species besides yellow warbler and common yellowthroat were counted. The final peak and the second highest of the year was on May 22 & 23 when 15 species other than yellow warbler and common yellowthroat were counted and which included the peak numbers for magnolia warbler, black-throated blue warbler, chestnut-sided warbler, wilson's warbler, canada warbler and american redstart.

Warbler species observed at Selkirk in 2002 whose numbers do not appear in Table 11 are listed below:

Blue-winged warbler	- 1 on May 09, 10, 11 & 14
Connecticut warbler	- 1 on May 22 & 23
Yellow-breasted chat	- 1 on May 06

Finally, we will say a few words about some similarities and contrasts between the counts of the three stations of the HBO. A more detailed analysis will follow in the coming years when we have more data, especially for Rock Point station. As mentionned above all three stations have resident yellow warblers, common yellowthroats and rose-breasted grosbeaks although the dominance of the two warbler species is not nearly as pronounced at Selkirk. Ruthven plays host to a colony of blue-winged warblers with many brewster's warblers being counted this year but the numbers of these hybrids will likely decrease as time goes on. In 2002 there were only two Cape May warblers recorded and they were both from Ruthven. Also noted above was that the pattern of migration was different at Ruthven than at most of our other reports from southern Ontario. To close I would like to present some lists that show that certain species were relatively more abundant at certain stations than at the others. The figures used relate to the percentage each species represents of the total number of warblers seen at a given station. Note that these are relative instead of absolute numbers and that they come only from 2002 data rather than average figures over a period of years. Species that were relatively more abundant at Rock Point in 2002 were blackpoll warbler, northern waterthrush, mourning warbler and wilson's warbler. Species that were relatively more abundant at Ruthven in 2002 were tennessee warbler, yellow-rumped warbler and chestnut-sided warbler. Species that were relatively more abundant at Selkirk in 2002 were black-and-white warbler, nashville warbler, magnolia warbler, black-throated blue warbler, black-throated green warbler, palm warbler, ovenbird and american redstart. These lists will probably change as more data comes in and a more thorough analysis is made of that data but they do serve to illustrate that even over relatively small distances there can be considerable variation in the makeup of warbler migration.

TABLE 11

WARBLER COUNT - HBO SELKIRK TOTALS 2002

ONTARIO SPRING WARBLER COUNT - 2002
HBO - Selkirk

	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.	0	1	0	3	8	2	0	0	6	2	1	0	0	3	2	0	1	0	1	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**34**
Tenness.	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**5**
Nashville	2	2	1	1	20	5	10	2	10	1	2	0	4	10	15	0	2	1	0	0	3	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	**93**
Yellow	0	4	1	2	15	10	10	6	10	10	15	0	10	5	15	0	15	5	10	5	10	10	10	10	10	15	10	10	12	5	5	6	10	7	10	4	**292**
Magnolia	0	0	0	0	3	10	10	2	12	5	2	0	1	0	1	0	12	5	5	5	3	50	30	5	2	3	5	5	10	0	0	1	0	0	0	0	**187**
Cape May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
BT Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	4	2	0	0	0	0	1	0	0	0	0	0	0	0	0	**9**
Yel.-rump	3	10	10	50	50	5	0	3	5	2	3	0	2	5	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**150**
BT Green	0	0	0	5	10	2	0	0	3	2	1	0	0	1	0	0	1	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**29**
Blackburn.	0	0	0	0	2	0	1	2	1	0	0	0	0	1	1	0	0	0	0	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**12**
Chestnut	0	0	0	0	0	2	1	0	3	0	0	0	1	2	1	0	2	1	1	1	0	2	5	1	1	0	2	1	0	0	0	0	0	0	0	0	**27**
Bay-breast	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**5**
Blackpoll	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	**3**
Palm	1	0	2	10	10	5	2	3	1	0	5	0	3	5	5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**53**
Ovenbird	0	1	2	1	30	5	3	2	3	2	3	0	3	10	5	0	1	2	1	0	0	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	**79**
N. Water	0	0	0	0	1	0	0	0	2	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**
Mourning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	2	1	0	2	1	0	0	1	2	0	2	0	0	1	0	0	0	**15**
C. Yellwthrt	0	0	0	1	4	3	3	2	2	2	2	0	0	2	2	0	2	2	2	5	2	5	10	5	3	1	5	10	6	2	3	4	5	4	5	4	**108**
Wilson's	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	1	2	10	5	5	3	0	2	1	0	1	0	0	0	0	0	0	**36**
Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	1	2	2	0	1	2	0	0	0	0	0	0	0	**15**
A. Redst.	0	0	2	0	0	0	0	0	2	0	0	0	2	1	0	0	1	0	2	1	1	0	10	1	2	1	5	6	3	1	1	0	0	0	0	0	**42**
Daily Total	6	18	18	73	153	49	40	22	61	28	36	0	27	47	52	0	39	17	26	24	24	94	85	30	24	22	32	37	33	13	9	11	16	11	15	8	**1200**
# of Visits	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**34**
Warb / Visit	6	18	18	73	153	49	40	22	61	28	36	0	27	47	52	0	39	17	26	24	24	94	85	30	24	22	32	37	33	13	9	11	16	11	15	8	**35.3**
Swain Thr.	0	0	0	0	0	0	0	0	3	0	1	0	4	1	2	0	2	1	1	0	1	2	15	2	1	2	7	6	10	0	2	0	1	0	0	0	**64**
Scar Tan.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	**4**
Rose-br Gr.	0	0	0	0	11	2	5	5	10	10	10	0	5	2	5	0	5	10	10	10	5	5	5	5	2	2	5	5	5	5	5	2	0	2	0	2	**155**

Observer/Bander = John Miles

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 there so my description will be brief. When one pulls into the parking lot and sees the tiny woodlot with its few mature pines and variety of deciduous trees you wonder if you've really come to the right place. How can this be one of the most storied birding locations in Ontario? Put your disbelief aside and make a few rounds of the small woodlot. On your first walkabout you'll find some birds, maybe lots of them. Make a second round and on a good day it seems birds just materialize. You wonder how could you have missed so many birds on your first trip. Try a third trip and see what happens. Or, if you're the more patient kind just stay in one spot and watch the parade of birds go by. Then you'll realize this truly is a major migrant trap.

The 2002 estimated totals for Old Cut appear in Table 12. Data from Old Cut going back to 1960 is available at the Bird Studies Canada website. When we look at the 2002 total of 1930 birds it is well below the 2001 figure of 2583 and the 2000 figure of 3676. Species that in 2002 were 40% or more below the 2000 figures include yellow warbler, magnolia warbler and eleven other species. Common yellowthroat and american redstart were more than 35% below 2000 levels. This shows that the drop from 2000 to 2002 is not merely because of low numbers of a couple of the most common species but has affected most of the 21 count species. Again, I caution the reader not to panic about falling populations for the following two reasons: firstly, we are only looking at the data for three years and secondly, when one looks at the data available from 1960 onward we find that many species were at some of their highest numbers during the late 1990's and into 2000-2001 so the 2002 numbers may be a swing back to more historically normal numbers.

In 2002 the six most common species (in descending order of abundance) were: magnolia warbler, yellow warbler, common yellowthroat, american redstart, black-and-white warbler and black-throated blue warbler. The corresponding 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 three lists we can see that there are large swings from year to year in the representation of the most common warblers for this station.

As seen in Table 12 there are breeding populations of yellow warbler and common yellowthroat in the area of this station. However, because their contribution to overall numbers is smaller than at the HBO stations we will include them in this discussion of pattern of migration. The first major numbers of yellow warblers show up on May 04 and common yellowthroats on May 05. The first major peak of 2002 migration occurred on May 05 when twelve species were tallied. May 05 saw the peak numbers for black-and-white warbler, black-throated blue warbler, black-throated green warbler, ovenbird and common yellowthroat along with a sizeable number of magnolia warblers. The next peak is on May 15 when eighteen species were tallied. May 15 saw the peak numbers for nashville warbler and yellow warbler along with sizeable numbers of black-and-white warbler, magnolia warbler and ovenbird. The next peak occurs on May 22 & 23 when twenty species were tallied over the two days. Peak numbers were obtained for magnolia warbler, blackburnian warbler, chestnut-sided warbler, bay-breasted warbler and american redstart. The final peak was May 27 when seventeen species were tallied with the main contributors being magnolia warbler, american redstart and common yellowthroat.

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 12 and these listed below:

Blue-winged warbler	- 1 on May 02, 15 & 29
	- 3 on May 07
	- 5 on May 05
Cerulean warbler	- 1 on May 27
Hooded warbler	- 1 on May 13, 14, 24, 25, 26 & 28
	- 2 on May 05
Northern Parula	- 1 on May 05, 06 & 09

TABLE 12

WARBLER COUNT - LPBO TOTALS 2002

ONTARIO SPRING WARBLER COUNT - 2002
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.	0	4	5	16	55	6	12	4	1	4	0	0	3	2	23	4	1	3	2	0	0	8	0	3	1	0	5	1	0	1	0	0	0	0	0	0	**164**
Tenness.	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	1	0	0	1	1	0	1	1	0	0	0	0	0	0	**10**
Nashville	1	1	1	2	4	0	5	0	0	1	0	1	2	2	12	1	6	1	3	0	2	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**51**
Yellow	1	0	1	12	11	12	9	3	0	9	10	4	2	12	22	15	15	8	6	11	10	8	21	10	2	8	10	10	6	9	8	6	15	10	15	12	**323**
Magnolia	0	0	0	0	25	25	14	0	0	6	1	1	4	9	40	8	10	4	5	1	4	101	33	16	15	5	20	13	9	2	1	2	0	0	0	5	**379**
Cape May	0	0	0	1	0	0	2	0	0	0	0	0	0	3	1	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	**10**
BT Blue	0	0	0	0	33	6	3	1	0	2	0	1	7	6	12	6	6	4	1	2	2	7	5	1	2	0	5	1	3	0	0	5	0	0	0	0	**121**
Yel.-rump	1	7	6	9	6	2	3	1	0	6	2	0	4	2	3	7	0	0	0	0	0	4	2	0	0	0	0	1	0	0	0	0	0	1	0	0	**67**
BT Green	0	1	1	5	13	4	5	0	0	1	0	0	2	3	4	1	0	1	1	0	1	10	1	1	0	0	1	2	2	0	0	1	1	0	0	0	**62**
Blackburn.	0	0	0	2	6	0	0	0	0	0	0	0	3	1	5	0	1	0	0	1	3	7	1	0	0	0	1	0	2	2	0	0	0	0	0	0	**35**
Chestnut	0	0	0	2	2	8	4	0	0	1	0	1	6	2	5	4	0	2	0	0	0	12	11	1	0	0	2	2	0	0	2	0	0	0	0	0	**67**
Bay-breast	0	0	0	0	0	0	0	0	3	0	0	0	0	1	1	1	2	0	0	0	0	6	1	1	0	0	1	0	0	0	0	0	0	0	0	0	**17**
Blackpoll	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	5	2	1	2	2	1	0	2	0	0	**16**
Palm	0	0	1	1	0	3	3	1	0	1	0	0	1	3	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**18**
Ovenbird	0	1	6	8	21	5	3	1	3	2	0	1	4	15	20	4	4	5	2	0	2	2	1	0	0	4	2	0	0	0	0	0	0	0	0	1	**117**
N. Water	0	0	1	0	0	1	1	0	3	0	0	0	1	0	3	1	0	1	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	1	**18**
Mourning	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	0	0	0	0	2	0	0	0	0	1	0	0	0	0	1	0	0	0	**8**
C. Yellwthrt	3	2	2	3	23	10	9	1	1	4	0	1	2	13	12	8	7	5	6	1	3	5	11	3	4	3	15	5	5	7	10	5	5	4	5	5	**208**
Wilson's	0	0	0	0	0	0	1	0	1	0	0	0	0	2	5	10	2	2	2	0	0	4	3	1	5	1	2	2	1	0	2	1	1	0	0	0	**48**
Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4	1	4	1	5	0	1	0	0	1	0	0	0	1	**21**
A. Redst.	0	0	0	0	2	0	0	0	2	1	2	1	6	10	12	5	15	6	7	3	5	27	20	4	8	5	15	6	3	0	1	0	1	1	1	1	**170**
Daily Total	6	16	24	61	201	82	75	12	15	38	15	11	47	86	182	76	71	43	35	19	33	216	118	42	41	28	96	46	34	24	26	22	24	18	21	26	**1930**
# 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	6	16	24	61	201	82	75	12	15	38	15	11	47	86	182	76	71	43	35	19	33	216	118	42	41	28	96	46	34	24	26	22	24	18	21	26	**53.6**
Swain Thr.	0	0	0	0	0	1	0	3	2	0	0	0	0	7	6	6	3	2	4	3	6	7	15	13	1	6	10	5	1	0	0	0	0	5	1	0	**107**
Scar Tan.	0	0	0	0	0	3	0	0	0	0	1	0	2	1	2	3	5	1	0	0	1	5	1	0	0	0	1	0	1	0	0	0	0	0	0	0	**27**
Rose-br Gr.	0	5	1	5	52	11	21	8	21	5	6	5	6	5	12	7	6	2	2	1	1	1	1	2	0	1	0	0	1	0	0	1	0	0	0	0	**189**

Observers = LPBO Staff and Volunteers

Orange-crowned warbler	- 1 on May 07, 14 & 15
Pine warbler	- 1 on May 03, 04 &19
	- 2 on May 05
Prairie Warbler	- 1 on May 14, 15, 16, 17 & 24
Prothonotary warbler	- 1 on May 18
Yellow-breasted chat	- 1 on May 27 & June 05

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 2002 estimated totals for PEPBO appear in Table 13. There is some data for PEPBO located in the Canadian Migration Monitoring Network section of the Bird Studies Canada website. The 2002 gross total of 2699 birds shown in Table 13 compares with 2638 in 2001 and 2019 in 2000. Note however that this years observations go all the way until June 05 while the data from 2001 and 2000 ends on May 31. The number of birds seen during the June 01-05 period for 2002 was 275. Thus the number of birds for May 01-31 for 2002 was 2424 and can be compared directly with the 2001 and 2000 figures above. As we can see from Table 13 high numbers of yellow warblers and common yellowthroats extend until the end of the count period indicative of breeding populations of those species in the vicinity of the observatory.

In 2002 the six most common warbler species (in descending order of abundance) were: 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 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%. What these percentages and above lists do not show is the variation in numbers for the three individual species. The number of yellow warblers recorded in the May 01-31 period during 2002 was 768, for 2001 was 566 and for 2000 was 454. The number of yellow-rumped warblers recorded during 2002 was 504, for 2001 was 438 and for 2000 was 429. The number of magnolia warblers recorded in the May 01-31 period during 2002 was 263, for 2001 was 690 and for 2000 was 428. The number of yellow warblers is by far the highest in 2002 and the 2002 figure is about 70% higher than the 2000 number. For the yellow-rumped warbler (a species whose numbers are notorious for variability from other areas represented in this report) 2002 again has the highest figure but it is less than 20% higher than the 2000 number. We see the greatest short-term variation in the numbers for the magnolia warbler. The 2001 figure is by far the highest and in fact was more than two and one half times higher than the 2002 number. Given the wide variation in yearly numbers for these three individual species it is surprising that their combined contribution to the toals counts for 2000 to 2002 has remained so consistent. It will be very interesting to see the figures for these species in the coming years.

Of course, those three are not the only species being counted. The following section will only consider the 2002 figures for the May 01-31 period to allow for quick and direct comparison. The following species were recorded in higher numbers on the 2002 count than in either 2001 or 2000: black-and-white warbler, black-throated blue warbler, bay-breasted warbler, blackpoll warbler, ovenbird, northern waterthrush and common yellowthroat. The species which were recorded in lower numbers in 2002 than in either 2001 or 2000 were: black-throated green warbler and wilson's warbler. These two lists show that as

TABLE 13

WARBLER COUNT - PEPBO TOTALS 2002

ONTARIO SPRING WARBLER COUNT - 2002
Prince Edward Point BO 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.	0	0	2	0	8	2	2	1	1	1	4	2	1	0	5	1	5	1	0	3	1	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	**43**
Tenness.	0	0	0	0	0	0	0	0	0	0	5	1	0	0	0	0	0	0	0	0	1	0	2	0	0	3	0	2	0	0	0	1	0	0	0	0	**15**
Nashville	2	0	0	1	1	0	15	2	1	4	25	6	3	2	3	1	1	1	0	1	0	3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	**74**
Yellow	1	0	0	0	12	10	20	10	10	12	25	15	15	20	15	40	30	18	40	30	25	30	50	40	40	40	50	50	40	20	60	50	60	30	40	30	**978**
Magnolia	0	0	0	0	1	0	4	2	1	2	8	5	0	1	4	20	8	8	2	10	10	30	60	30	12	6	15	15	3	5	1	4	1	6	1	2	**277**
Cape May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
BT Blue	0	0	0	0	1	1	2	3	0	1	8	3	1	2	5	8	3	5	1	1	1	3	8	3	2	2	0	0	0	0	0	0	0	0	0	0	**64**
Yel.-rump	4	1	15	10	30	20	100	40	25	40	100	15	6	40	30	6	2	1	2	0	0	2	10	0	0	5	0	0	0	0	0	0	0	0	0	0	**504**
BT Green	1	0	0	4	1	1	1	2	2	5	15	2	2	1	6	10	1	1	0	0	1	3	3	1	1	1	4	1	1	1	0	0	1	0	0	0	**73**
Blackburn.	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	1	0	0	0	1	1	10	3	4	1	2	4	4	2	0	1	0	0	0	0	0	**38**
Chestnut	0	0	0	0	2	0	3	2	1	1	8	3	1	1	1	8	3	1	0	1	2	5	8	1	3	6	5	5	0	1	1	2	0	0	0	0	**75**
Bay-breast	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	10	2	2	0	2	0	3	0	0	0	0	1	0	0	0	**23**
Blackpoll	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	10	4	10	2	1	0	1	4	0	0	1	**36**
Palm	0	0	0	1	6	0	0	2	1	3	15	3	0	0	5	4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**41**
Ovenbird	0	0	0	0	10	2	8	1	1	5	1	2	0	0	3	6	5	0	1	1	1	8	0	0	0	0	1	1	0	0	0	0	0	0	0	0	**57**
N. Water	0	0	1	1	0	0	2	0	0	0	1	1	0	0	2	2	0	0	0	2	1	5	6	1	0	0	0	0	0	0	0	1	0	0	0	0	**26**
Mourning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	1	5	0	0	1	0	0	1	**11**
C. Yellwthrt	0	0	0	0	3	1	1	2	1	2	5	1	1	2	4	18	12	5	5	8	8	8	20	8	15	8	20	15	8	8	4	1	4	3	6	5	**212**
Wilson's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	10	0	0	1	6	2	1	1	2	0	0	0	1	0	**27**
Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	3	0	0	0	1	1	1	1	0	1	4	1	0	0	1	1	1	1	0	**19**
A. Redst.	0	0	0	0	0	0	0	1	0	0	10	0	1	0	0	8	0	2	1	3	2	1	8	3	8	10	15	5	3	5	6	2	4	0	5	2	**105**
Daily Total	8	1	18	17	75	37	162	68	44	77	231	59	31	69	85	136	70	46	52	61	55	125	193	96	83	96	127	117	62	48	75	63	77	40	54	41	**2699**
# 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	8	1	18	17	75	37	162	68	44	77	231	59	31	69	85	136	70	46	52	61	55	125	193	96	83	96	127	117	62	48	75	63	77	40	54	41	**75.0**
Swain Thr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	10	10	5	1	12	10	2	1	3	0	1	0	0	0	2	**58**
Scar Tan.	0	0	0	0	2	0	0	1	0	1	0	0	0	1	0	5	3	0	0	0	0	0	1	0	1	2	0	1	0	0	0	0	0	0	0	0	**18**
Rose-br Gr.	0	0	0	0	2	2	3	5	4	3	5	3	1	3	10	10	25	1	8	8	1	4	12	6	2	2	1	4	1	1	1	0	0	0	0	0	**128**

Observers = Eric Machell, PEPBO staff and volunteers

expected there is a great deal of variability seen in the numbers of individual species on a year to year basis. 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, there have only been two cape may warblers recorded in the last three years at PEPBO, one in 2002 and one in 2000.

When we look at the pattern of migration for PEPBO we will be using figures with yellow warbler and common yellowthroat removed. Both species breed in numbers in the area of the station and their numbers would make it very difficult to look for peaks in migration during the last two weeks of the study period. Of course, some of the observed birds of these two species will be migrants but there is no way in sorting out the migrants from the residents. In 2002 the first double figure day for yellow warbler was May 05. This compares with May 09 for 2001 and May 06 for 2000. The first double digit day for common yellowthroat was May 16. This compares with May 18 in 2001 and May 22 in 2000. The first peak comes on May 07 when 141 individuals of ten species were recorded with 100 of them being yellow-rumped warblers. The next peak and the highest for the season occurs on May 11 when 201 individuals of thirteen species were recorded. While 100 of them were yellow-rumps May 11 also had the highest numbers for nashville warbler, black-throated green warbler and palm warbler. Now let us have a look at May 19. While the total for the day as shown in Table 13 is 52 which would make it a fairly good day, when we remove the numbers for yellow warbler and common yellowthroat we are left with ony 7 individuals. Suddenly what looked like a pretty good day has been reduced to the second slowest day in May. This example clearly shows the influence of yellow warbler and common yellowthroat when we are trying to establish a pattern of migration for this station. The next and final major peak occurs on May 22-23. Over the two days twenty species were recorded with 87 individuals on May 22 and 123 on May 23. Species that had their highest numbers for the year were blackburnian warbler, bay-breasted warbler, northern waterthrush and wilson's warbler. The final high point of migration is not so much a peak as a plateau that occurs during May 26-28. Fifteen species were recorded including the year's highest numbers for blackpoll warbler and american redstart.

The following warblers that are not recorded in Table 13 were also observed at PEPBO in 2002:

Blue-winged warbler	- 1 on May 06, 09 & 16
	- 2 on May 07
	- 4 on May 05
Golden-winged warbler	- 1 on May 07 & 18
Northern Parula	- 1 on May 09, 26 & June 02
	- 2 on May 07, 08 & 12
	- 3 on May 10
	- 12 on May 11

THUNDER CAPE BIRD OBSERVATORY

The 2002 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.'

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

TABLE 14

WARBLER COUNT - THUNDER CAPE BIRD OBSERVATORY TOTALS 2002

ONTARIO SPRING WARBLER COUNT - 2002
Thunder Cape Bird Observatory

	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.	0	0	0	0	0	0	0	0	4	1	15	0	0	0	7	1	0	0	0	2	1	1	1	3	0	0	0	3	3	0	2	0	0	1	0	1	**46**
Tenness.	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4	0	0	0	0	0	3	0	1	3	3	0	1	9	7	1	1	0	0	0	**34**
Nashville	0	2	0	1	2	2	0	1	0	0	14	8	4	1	26	4	12	6	4	1	10	24	16	13	12	4	2	6	3	4	3	1	4	2	0	3	**195**
Yellow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	2	5	5	5	1	0	1	1	0	**23**
Magnolia	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	5	4	10	8	9	32	18	5	10	3	3	2	1	1	**114**
Cape May	0	0	0	0	1	0	0	0	0	5	1	0	0	2	0	1	0	0	0	0	1	2	0	9	16	0	4	5	2	0	4	0	1	0	0	0	**54**
BT Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1	1	1	8	3	2	3	0	1	0	0	1	**25**
Yel.-rump	1	123	9	8	23	3	8	46	239	791	50	28	24	22	115	27	15	14	1	9	22	5	5	23	38	7	1	8	11	5	4	1	2	2	0	0	**1690**
BT Green	0	0	0	0	0	0	0	0	1	0	7	2	0	0	5	0	2	0	1	2	10	8	8	7	5	3	11	14	17	7	18	3	4	7	3	7	**152**
Blackburn.	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	1	0	0	0	3	2	1	0	0	1	9	5	7	2	2	1	0	1	0	**38**
Chestnut	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	9	4	5	0	4	22	15	4	4	3	3	0	0	1	**79**
Bay-breast	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	2	1	0	0	2	8	1	0	0	0	0	0	0	**18**
Blackpoll	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	2	0	0	0	1	2	0	0	0	0	0	**10**
Palm	0	4	0	0	2	4	1	13	10	6	15	4	2	5	1	0	0	0	1	1	3	1	0	9	15	3	0	0	1	0	4	0	1	0	0	0	**106**
Ovenbird	0	0	0	0	0	0	0	0	1	1	4	0	1	2	6	1	0	3	0	2	1	0	9	2	6	1	3	13	8	1	2	1	0	1	0	1	**70**
N. Water	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	2	0	2	0	1	0	0	1	0	0	1	0	1	0	0	0	**10**
Mourning	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	3	0	0	0	0	0	0	1	**9**
C. Yellwthrt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0	0	1	2	7	21	3	6	5	0	2	2	3	0	**56**
Wilson's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	1	1	5	8	4	0	1	0	0	1	0	0	**26**
Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	5	2	1	3	1	1	0	1	0	**17**
A. Redst.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6	3	12	0	4	14	23	6	33	18	7	7	1	11	**148**
Daily Total	1	129	9	9	28	9	9	61	256	806	109	42	31	32	162	35	33	24	7	17	55	55	73	87	130	36	56	176	135	64	113	35	32	26	11	27	**2920**
# 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	1	129	9	9	28	9	9	61	256	806	109	42	31	32	162	35	33	24	7	17	55	55	73	87	130	36	56	176	135	64	113	35	32	26	11	27	**81.1**
Swain Thr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	3	0	4	2	6	0	3	8	3	10	**43**
Scar Tan.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	1	0	0	0	0	0	**5**
Rose-br Gr.	0	0	0	0	0	0	0	0	0	0	0	0	0	2	7	5	5	0	0	0	7	1	3	7	3	2	0	0	5	3	2	0	0	0	0	0	**52**

Data submitted by John Woodcock

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 2002 results for TCBO are presented in Table 14. The most striking numbers from Table 14 are those for the yellow-rumped warbler. On some days they must have been everywhere. The total for 2002 of 2920 birds includes 1690 yellow-rumps or about 58% of all warblers. The comparable numbers for 2001 are a total of 2020 birds including 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. It should be noted that while data was collected on all 36 days of the count for 2002 and 2001, in 2000 data was collected on only 34 days. We see that while both 2001 and 2002 were years with high numbers of yellow-rumps the combined numbers for the other twenty species shown in Table 14 have also increased substantially from 2000 to 2002. 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 54 cape may warblers from TCBO is higher than the totals for all of the southern Ontario counts combined and is certainly welcome to see.

In 2002 the six most common warbler species (in descending order of abundance) were: 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. While the Thunder Bay region represents breeding territory for the majority of the 21 species of warbler that we study we can see from the above lists and Table 14 that the only two species that are breeding at TCBO in substantial numbers are black-throated green warbler and american redstart.

Besides the yellow-rumped warbler, those species whose 2002 numbers were higher than either 2001 or 2000 were: tennessee warbler, nashville warbler, yellow warbler, magnolia warbler, cape may warbler, chestnut-sided warbler, bay-breasted warbler, blackpoll warbler, ovenbird, mourning warbler, common yellowthroat and american redstart. This illustrates that the high total number for 2002 was not due to a few species having very high numbers but that the increase was widespread with more than half the 21 study species having higher numbers than the previous two years. 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 TCBO we really have to look at yellow-rumps separately due to their overwhelming numbers. For the yellow-rumped warbler we see three distinct peaks, namely May 02, May 09-10 and May 15. As with stations to the south, numbers of yellow-rumps generally fall off after the first two weeks of May. On Table 14 we see a final blip on May 23-24 but the numbers are not high enough to constitute a peak. As for the other twenty species excluding the yellow-rumped we have already indicated that numbers for black-throated green warbler and american redstart indicate breeding in the area of this station. However, those numbers do not dominate the totals once yellow-rumps start to decline and in fact they do not even reach their peak until the fourth week of the study period. For these reasons we have decided to leave these two species in when we look for pattern of migration. We expect the first peak for TCBO to be later than those areas in southern Ontario and indeed it does not occur until May 11 when 59 individuals of 8 species including the peak numbers for black-and-white warbler and palm warbler. A smaller peak on May 15 is mainly due to the 26 nashville warblers which is the peak number for that species. The next major peak is on May 25 when 92 individuals of sixteen species. Individual species with peak numbers are the cape may warbler and palm warbler (tying the May 11 number for that species). When one looks at the TCBO numbers for palm warbler in Table 14 you can see two distinct waves for this species unlike the situation in southern Ontario where numbers fall off after the second week of the study period. The highest peak for 2002 was on May 28-29 with 168 and 124 individuals respectively. Nineteen species were recorded during those two days with individual species peak numbers achieved for yellow warbler, magnolia warbler, black-throated blue warbler, blackburnian warbler, bay-breasted warbler, ovenbird, common yellowthroat, wilson's warbler and canada warbler. The final peak of the year was May 31 when 109 individuals of eighteen species were

recorded including individual species peak numbers for black-throated green warbler and american redstart. Of course at this point there probably were some resident birds of those two species but it appears from Table 14 that the majority of the birds counted of these two species were still migrants.

No information was provided for species that do not appear in Table 14.

GENERAL MIGRATION PATTERN FOR 2002

The last major section of this report will look at the overall pattern of migration for warblers in 2002 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 patterns for each individual area. For instance, if we excluded yellow warbler and common yellowthroat in the discussion of pattern of migration for an individual area the chart for that area will be for the data excluding those 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 many of the species we monitor and Thunder Cape 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 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. Since we expect that if there is a large count at one location on a given day there is likely to be a similar high count at some or all of the other southern Ontario locations having graphs that are all the same size allows us to easily see if this is in fact what happened.

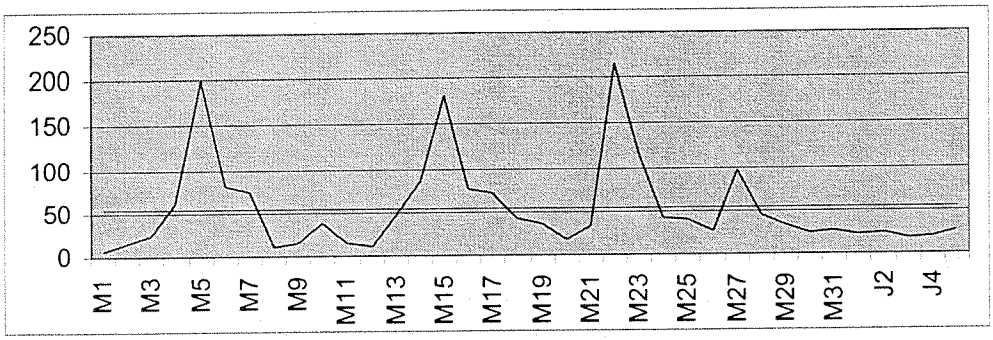
You will notice that there are gaps in some of the charts. This is because not all areas conducted counts every day. However, if you are sharp you will have noticed that there are gaps on some charts even though the data table for that area indicates a count was performed that day. The occurs if a count 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. I decided that the horizontal line for yearly BPV was more useful than showing data points. Trying to show both just made the charts too messy.

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 in the middle of the month and numbers will gradually decline thereafter. When we look at the charts we see that Toronto and Thickson's Woods generally follow this pattern while HBO-Ruthven and Newmarket follow it to a lesser extent.

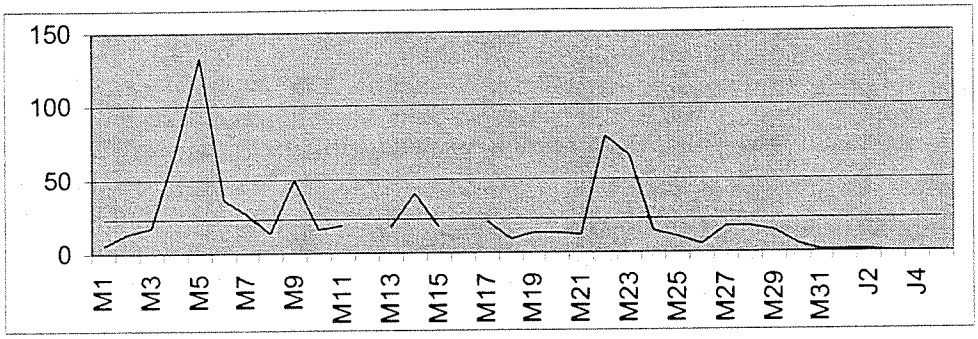
However, the majority of the southern Ontario charts reveal quite a different pattern. This pattern is best exemplified by the chart for LPBO-Old Cut. Looking at that chart we see four very distinct peaks. The first occurs in the first week of May but yellow-rumps are not the biggest contributor to this peak. The second occurs in the middle of the month as conventional wisdom would predict. In the case of LPBO-Old Cut it is on May 15. The third major peak occurs on May 22-23 and in the case of LPBO-Old Cut it is slightly higher than the mid-month peak. There is a final smaller peak on May 27.

Now let us look at the other charts to see how they correspond to this pattern. Since the first peaks on a given chart will be primarily related to the timing and size of yellow-rumped warbler migration we expect these will vary from one chart to the next. We will concentrate on the final three peaks. When we do we see quite a strong correspondence for almost all the southern Ontario charts. HBO-Selkirk had a small peak on May 14 but lack of data from May 16 means it is uncertain when or if there was a strong mid-month peak at this location. There is a strong peak on May 22-23 and a plateau from May 27-29 though numbers from the plateau do not exceed the yearly BPV figure. Gaps in the data for HBO-Ruthven make it difficult to look for the above pattern. While there is a peak on May 15 there is no strong feature on the chart for May 22-23. Gaps in the data for HBO-Rock Point make it impossible to identify the mid-month peak but the final two peaks on May 22 and May 28 are obvious. Toronto does not really fit the pattern. The mid-month peak of May 16 is surpassed by a peak on May 18. While the strongest peak of the year comes on May 22 there is no final peak. For Newmarket the mid-month peak comes on May 17 with the

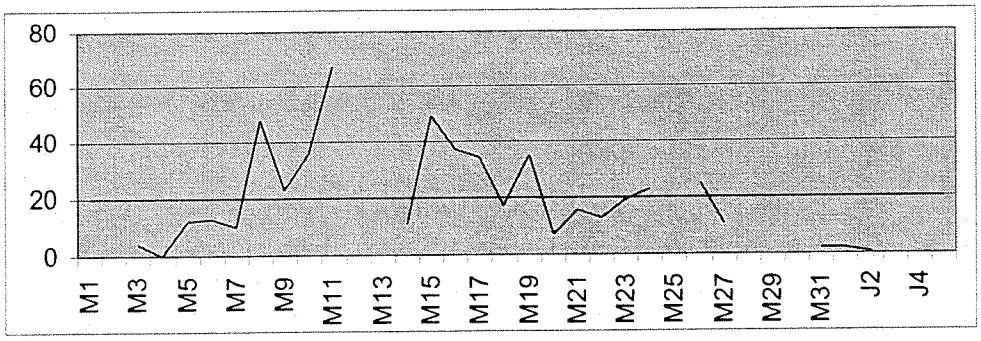
LPBO - OLD CUT



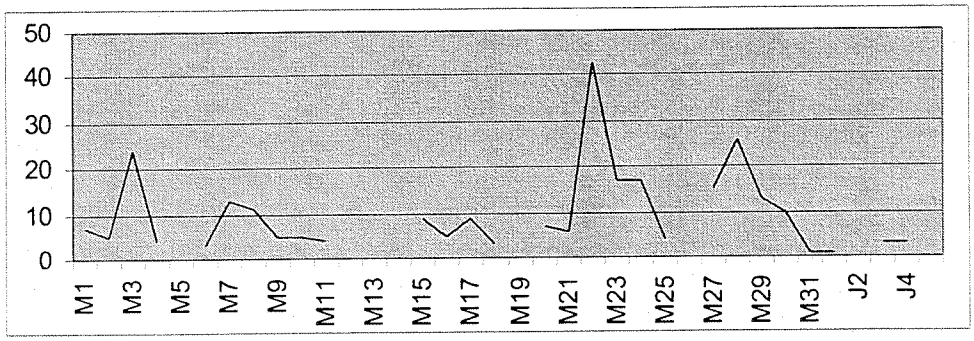
HBO - SELKIRK (excluding yellow warbler and common yellowthroat)



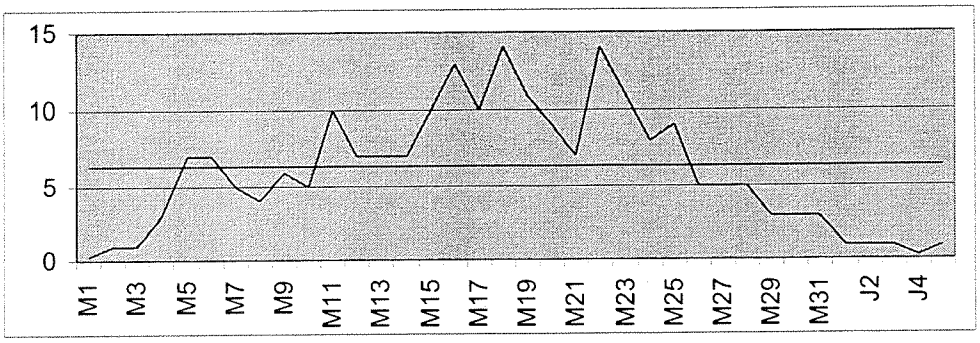
HBO - RUTHVEN (excluding yellow warbler and common yellowthroat)



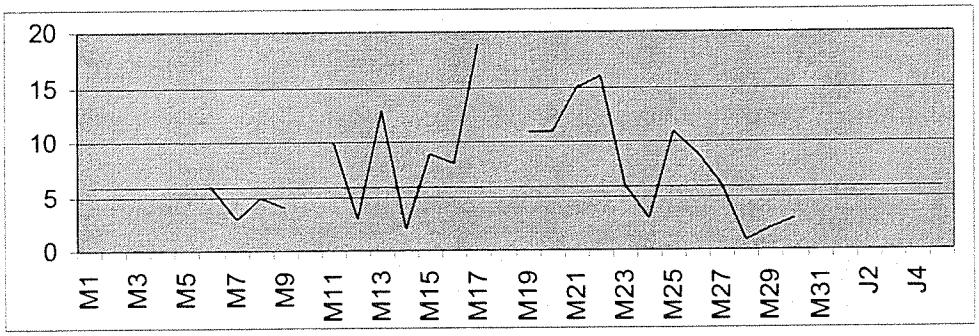
HBO - ROCK POINT (excluding yellow warbler and common yellowthroat)



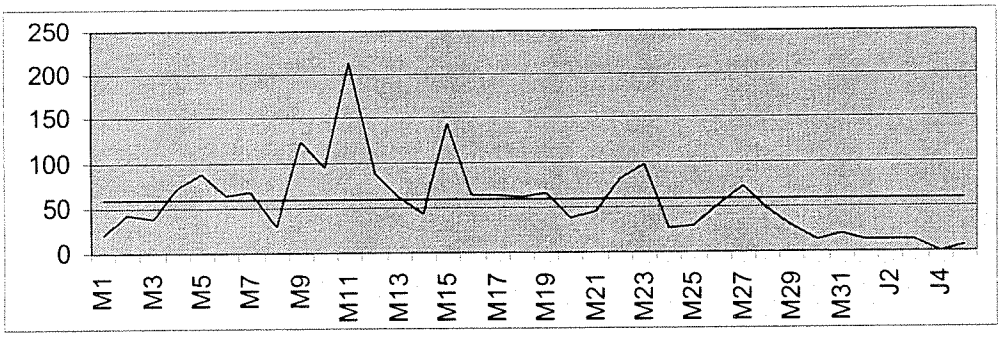
TORONTO



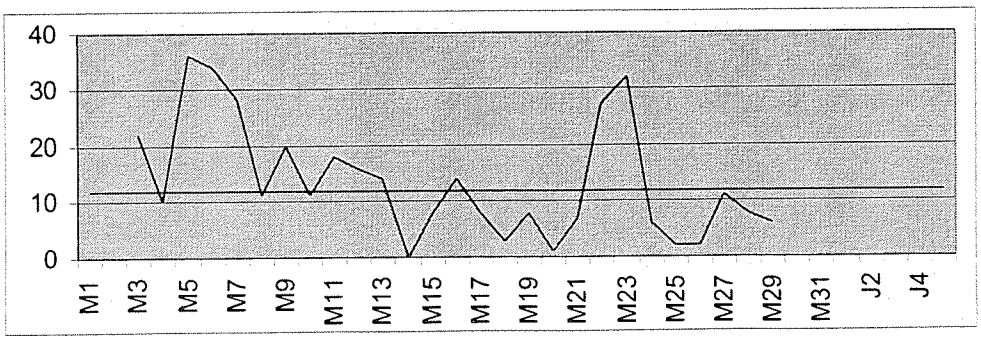
NEWMARKET



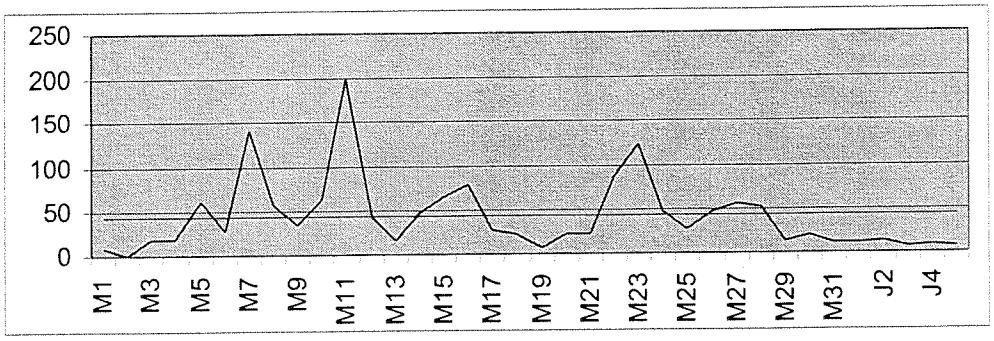
THICKSON'S WOODS



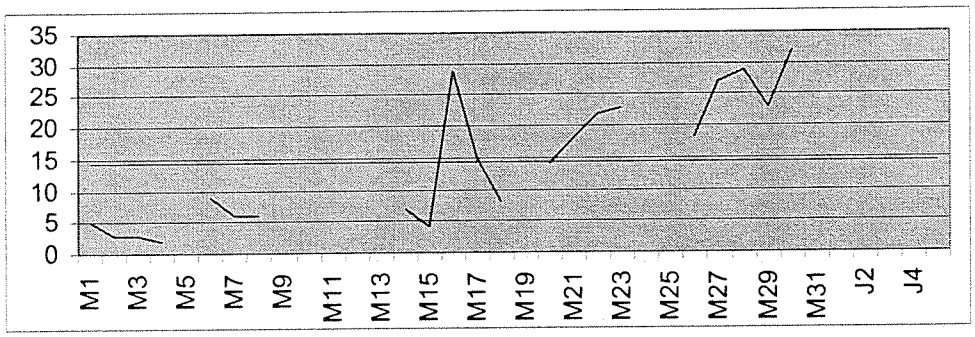
PORT HOPE



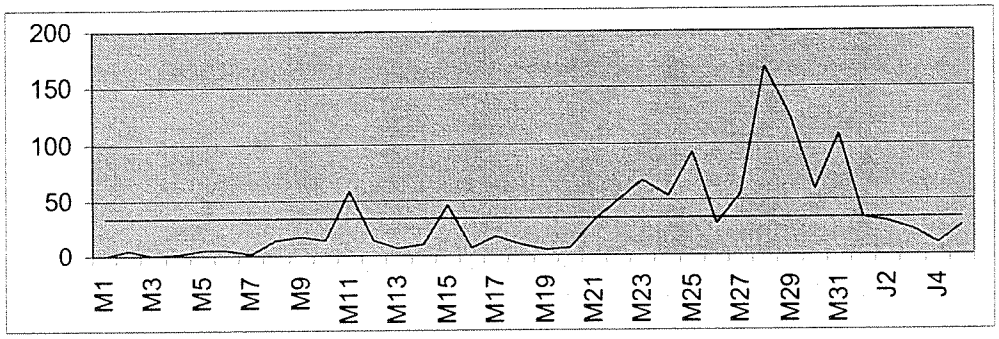
PRINCE EDWARD POINT BO (excluding yellow warbler and common yellowthroat)



MASSEY



THUNDER CAPE BO (excluding yellow-rumped warbler)



final two peaks on May 21-22 and May 25. Thickson's Woods fits the pattern to a tee. The mid-month peak on May 15 is followed by two final peaks on May 23 and 27. For Port Hope the mid-month peak on May 16 is not strong. This is followed by a strong peak on May 22-23 and a slight peak on May 27. For Prince Edward Point BO the mid-month peak of May 16 is followed by a peak on May 23 and a plateau on May 27-28. Note that the species compositions of the peaks varies somewhat from location to location as identified when looking at the pattern of migration for each individual area.

Does the identification of a four peak pattern of migration for 2002 mean that we should throw out conventional wisdom? Of course not. What it indicates is that like numbers for individual species, the pattern of migration can vary significantly from year to year. If you refer to the Ontario Report for 2001 you will see a quite different pattern of migration than that for 2002. For southern Ontario the middle of May still remains the best time to see good numbers of warblers with the most variety of species. However, both 2001 and 2002 show that results around May 22-24 can be quite rewarding as well.

ACKNOWLEDGEMENTS

Many thanks to the observers listed in Table 1 who gaciously supplied their time and expertise to count the birds on their study plots. Without you this report would not have been possible. Thanks to all of those observers who have demonstrated their commitment to this project by having already submitted their results for 2003. Thanks to the Ontario Climate Control Centre, Environment Canada, for supplying the weather information. Thanks to Glenn Coady for suggesting ways in which to improve the individual species accounts. More of these will appear in subsequent Ontario reports.

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 must also go to George for his patience. I know over the past months he must have been wondering if this report would ever come out. I must admit that at times I had my own doubts as I felt I had fallen into a quagmire and progress seemed painfully slow. I guess being stubborn as a mule does have its advantages at times.

REFERENCES

A.C. Bent's Life Histories of North American Birds from the Birdzilla website (www.birdzilla.com).

Canadian Migration Monitoring Network trends can be accessed at the Bird Studies Canada website (www.bsc-eoc.org).

Dunn, John L. and Kimball L. Garrett. 1997. A Field Guide to the Warblers of North America. New York: Houghton Mifflin.

Environment Canada, Monthly Meteorological Summary, Ontario Region, Toronto City, May 2002.

Fairfield, George M. 2001. The Ontario Spring Warbler Count - 2000. Toronto Ornithological Club, Special Publication.

Fairfield, George M. and W. Thomas Flinn. 2002. The Ontario Spring Warbler Count - 2001. Toronto Ornithological Club, Special Publication.

Ontario Breeding Bird Atlas information from the Atlas website (www.birdsontario.org).