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The Canadian Breeding Bird Survey, 1966–1994

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Introduction

The Breeding Bird Survey (BBS) is a major data source for information on population changes in terrestrial birds in North America. The BBS began in 1966 in the eastern United States and maritime Canada and has since expanded throughout the U.S. and Canada, including Alaska, Yukon, and a few routes in the Northwest Territories (Fig. 1). In 1992, several routes were established in northern Mexico on a trial basis. For most landbirds, the BBS is the only source of long-term data on population change that extends throughout the continent. In 1994, 377 BBS routes were run in Canada by approximately 292 volunteers. The BBS is jointly coordinated by the U.S. National Biological Service (USNBS) and the Canadian Wildlife Service (CWS).

This Progress Note presents the Canadian population trends from 1966 to 1994 for all species of birds recorded on the BBS for which sample sizes are sufficient. Trend estimates are summarized by seven biogeographical regions, or ecozones (Ecological Stratification Working Group 1996), and for Canada as a whole.

Methods

The BBS is run each year between 28 May and 7 July. In Canada, volunteers are encouraged to run their routes after 1 June or, for the boreal regions, after 5 June. Routes are located along all-weather secondary roads. The starting point and starting direction of routes are selected randomly in order to sample a range of habitats representative of the region. Because the BBS is designed to monitor long-term changes in bird populations, volunteers are encouraged to continue to run routes in areas where the habitat conditions have changed over time. The path of a route is changed only in cases where the road system has been altered or when traffic has increased to the point that the noise interferes with bird identification and detection or creates conditions where it is dangerous for participants to stop their car. Participants are encouraged to run their routes for as many consecutive years as possible in order to reduce the effects of observer variability on data analysis (Collins and Wendt 1989; Sauer et al. 1994).

Routes consist of 50 stops spaced 0.8 km apart along a 39.4-km route. Participants record the total number of individual birds heard or seen within 0.4 km of each stop during a 3-minute observation period. Data on starting and

finishing times and weather conditions are also recorded. Canadian volunteers submit data forms to the National Wildlife Research Centre, CWS, where data are checked for errors, trends are analyzed, and the database is maintained. Canadian data are also forwarded to the USNBS for inclusion in the North American BBS database. Raw data are available on request to the first author.

Data analysis

Analyses of short- and long-term trends are calculated by CWS. Trends are summarized for seven ecozones (Boreal Shield, Atlantic Maritime, Mixedwood Plains, Boreal Plains, Prairies, Pacific Maritime, and Montane Cordillera) and for Canada overall (see Fig. 1). Previous analyses of Canadian BBS data were divided into seven regions: Newfoundland and the Maritime provinces, southern Ontario and Quebec, central Ontario and Quebec, the southern Prairie provinces, central Prairie provinces, and southern B.C. (see for example Erskine et al. 1992). The Boreal Shield ecozone used in this analysis takes in most of what used to be the "central Ontario and Quebec" region (except for the Gaspé Peninsula); it also includes boreal regions north of "central Ontario and Quebec"; boreal regions in Labrador, Manitoba, and Saskatchewan; and all of the island of Newfoundland. The Atlantic Maritime ecozone includes the previous "Maritime provinces" region and the Gaspé Peninsula. The Mixedwood Plains ecozone corresponds quite closely to the previous "southern Ontario and Quebec" region. The Boreal Plains ecozone corresponds quite closely to the previous "central Prairies" BBS region. The Prairies ecozone includes the grassland areas of southern Manitoba, Saskatchewan, and Alberta and comprises approximately the same area as the previous "southern Prairie provinces" BBS region. The Pacific Maritime ecozone includes the B.C. coastal area, the Queen Charlotte Islands, and Vancouver Island. The Montane Cordillera ecozone includes most of the previous "southern British Columbia" BBS region excluding the coastal area. In previous BBS analyses one "southern British Columbia" region that included both coastal and interior areas in B.C. was used.

In this report, bird population trends are calculated for four time periods: 1966–1994, 1966–1979, 1980–1994, and 1993–94.

Data screening

Several factors contribute to variation in BBS counts in addition to changes in bird populations; these include changes in weather, date of the survey, starting and finishing time, and differences among observers. To help control these sources of variation, data are screened to

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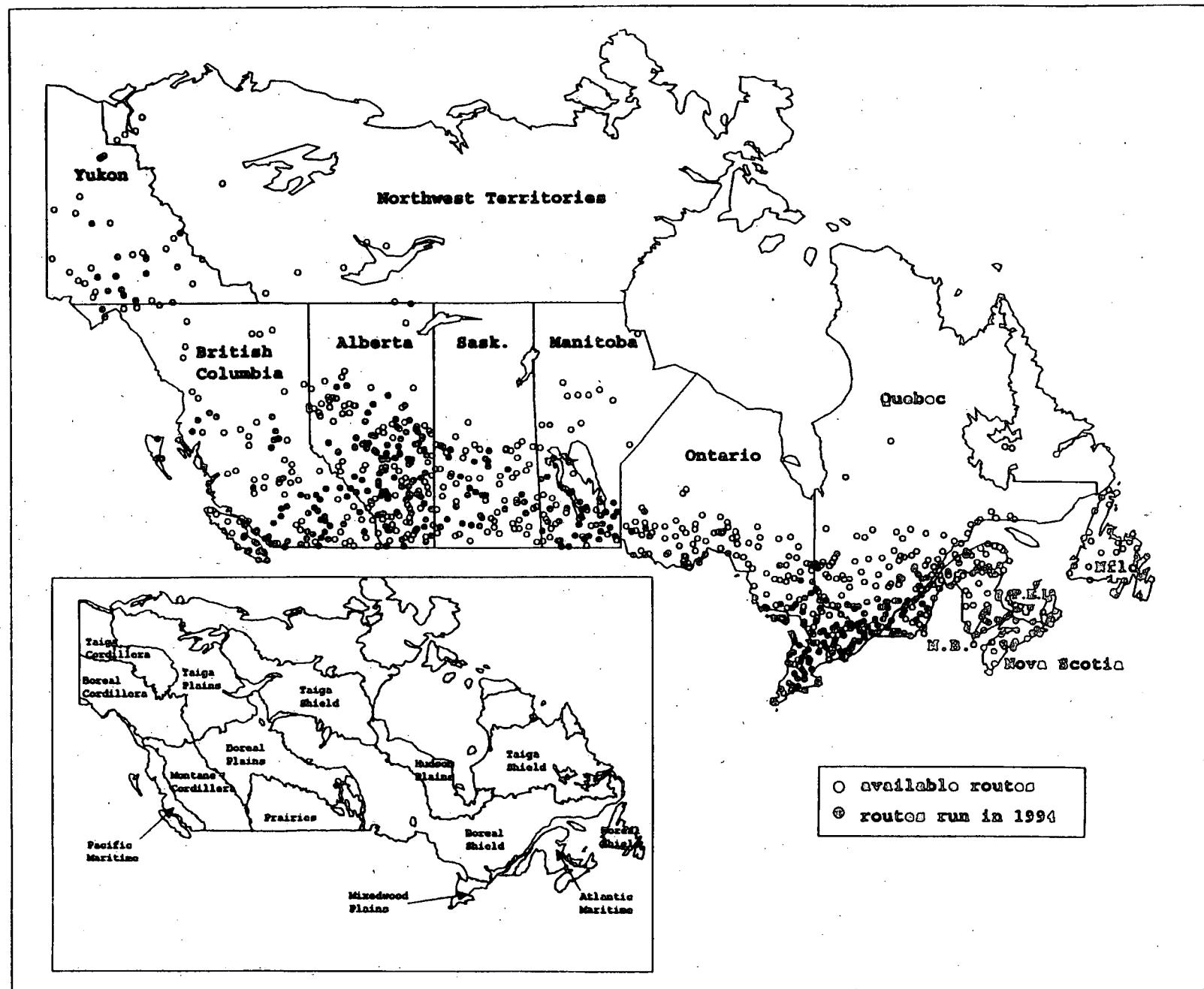
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Figure 1

All available BBS routes and all routes run in 1994. The inset shows Canadian terrestrial ecozones, except Arctic ecozones



determine which surveys are included in analyses and how they are subdivided. Individual routes that were run under similar conditions are grouped into "subroutes" for analytical purposes. The set of conditions used to define a subroute is as follows:

- 1) all surveys were run by the same observer;
- 2) all surveys were run within a span of 19 or fewer calendar days;
- 3) all surveys were run under acceptable weather conditions: surveys with winds of force 4 (Beaufort scale) at both the beginning and end or force 5 at either point are excluded; surveys where rain combined with winds equal to force 4 or greater are excluded; on the prairies (where high winds are frequent) surveys are excluded only if winds are force 5 at the beginning and end of a route.

Only data from surveys run by the same observer for two or more years are used. Surveys run outside the allowable dates (28 May through 7 July) and those that started more than one hour after the prescribed time or finished after 11:00 (local time) are excluded from the analyses. Routes on which a species has never been recorded are excluded for the analysis of that species' trend. Analyses are calculated for all species with sample sizes of more than 15 routes in all years combined and with more than 40 individuals recorded per year.

Analysis

Over the last few years there has been much debate about the most appropriate analytical method for BBS data (e.g., Sauer and Droege 1990; James et al. 1990; Link and Sauer 1994; Thomas 1996; James et al. 1996). Both the U.S. and Canada are actively examining the statistical methodology of the BBS, and it is expected that analytical methods will continue to evolve. The linear route-regression analysis, developed by Geissler and Noon (1981), has been considered the standard method for the past several years.

In this report, as in previous years (Collins and Wendt 1989; Erskine et al. 1992), we use the linear route-regression described by Geissler and Noon (1981) but with some modifications. Observed counts (y) are log-transformed after the addition of a constant (0.23) to handle zero counts ($z = \log(y+0.23)$). For each route, an analysis of covariance is run, giving each subroute a different intercept but parallel slope. The overall estimate of trend for the ecozones is a weighted average of the estimated trends for individual routes. The routes are weighted based on precision, area, and a measure of the population density as described below. The resulting average is then adjusted using a Quenouille's estimator (Geissler and Noon 1981). The significance of the slope is assessed using a t-test based on the "jackknife" estimate of variance.

Weighting

Three weighting factors are used in the analyses. 1) An area weighting is used to allow for differences in the area of

land each survey route represents. There are one or more BBS routes established within "degree-blocks" of one degree of latitude and longitude. The area weighting considers the numbers of routes in a degree-block of latitude/longitude and the proportion of land area in each degree-block. Each degree-block is given an area value of 1, except those blocks that include major water bodies. The weight given to each route in the degree-block is equal to the total area of the block divided by the number of routes in it. 2) A slope precision factor is used to adjust for differences in the precision of the regression line. The precision of the estimate of slope depends on the number and spacing of the annual surveys done on each route. Routes with more precise estimates, generally those with a longer run of years, are given more weight. 3) The population-density weighting factor adjusts for differences in the number of individual birds detected on a route. This weighting factor is the back transformation of the average of the transformed counts: i.e., $\exp(z/m)$ where m is the total number of observations made on the route. This gives greater weight to routes with high population density, because trends on such routes represent a high proportion of the total population.

This analysis differs from that of Erskine et al. (1992) in the population-density weighting. In previous analyses the population weighting was the estimated population size in the middle year of the time period. The trend in the log scale was extrapolated to the middle year, and this value was then back-transformed by taking exponents. This approach was found to give undue weight to routes that were run only a few times near the beginning or end of the time period. The current scheme removes the possibility of such unreasonable weightings by taking the average of years when data were collected.

A Fisher exact test was used to test if the proportion of species increasing changed between the time periods. A binomial test was used to test if the proportion of species increasing was significantly different from 0.5.

Results

BBS coverage

In Canada, the number of BBS routes conducted has increased each year. Table 1 shows the number of routes completed in Canada in 1990 through 1994. Results for previous years are summarized in Erskine et al. (1992). Figure 1 illustrates all the available BBS routes in Canada and indicates the routes that were run in 1994.

Species results

The number of species for which trends could be calculated varied among time periods and ecozones (Appendix 1). Table 2 summarizes the percentages of total species with positive trends and of total species with statistically significant positive trends for Canada and for the seven ecozones with sufficient coverage to calculate trends.

Since 1990, more than 15 routes have been run in the southern Yukon, the area that comprises much of the Boreal Cordillera ecozone. However, sample sizes were

insufficient to calculate long-term trends for that ecozone. If coverage continues at the present level, we expect to be able to calculate a trend within the next few years.

Year-to-year population changes may vary considerably, depending on which years are being compared. Here we report trends between the last two years of the survey (1993 and 1994). However, two-year trends are based on smaller sample sizes than trends for other time periods and thus are likely to have greater chance variation (Erskine et al. 1992). Year-to-year trends are nonetheless of interest because they may reflect short-term changes in environmental conditions, even if they cannot be assumed to indicate a continuing population change.

Species trends for Canada and by ecozone

i) Canada

The trends for the period 1966–1994 were positive for 133 of the 267 species, negative for 127 species, and showed no trend (trend=0) for 7 species (Table 2). The percentage of species showing significant positive trends declined by 17% between 1966–1979 and 1980–1994 ($P=0.049$).

Of the 45 species that showed significantly positive trends in 1966–1994, 13 species had consistently positive trends in the other three time periods (Common Loon, Canada Goose, Osprey, Hairy Woodpecker, Common Raven, Lazuli Bunting, Red-eyed Vireo, Warbling Vireo, Yellow-rumped Warbler, House Wren, Marsh Wren, Red-breasted Nuthatch, Black-capped Chickadee). However, only in the House Wren were all these trends significant. The Black-capped Chickadee had significantly positive trends in three of the four periods.

Of the 39 species that showed significantly negative trends in 1966–1994, 12 species had consistently negative trends in the other three time periods (Common Tern, American Wigeon, Olive-sided Flycatcher, Eastern Wood-Pewee, European Starling, Eastern Meadowlark, Western Meadowlark, Common Grackle, Purple Finch, White-throated Sparrow, House Sparrow, and Boreal Chickadee). However, for only two species (Eastern Wood-Pewee and Eastern Meadowlark) were the trends significant in each of the four time periods. The Western Meadowlark, European Starling, Purple Finch, House Sparrow, and Boreal Chickadee showed significant negative trends in all periods except 1993–94.

ii) Boreal Shield

As shown in Table 2, the percentage of species increasing was approximately equal to the percentage decreasing in the Boreal Shield. The percentage of species showing positive trends declined by 34% ($P=0.006$) between the periods 1966–1979 and 1980–1994.

Of the 20 species that showed significantly positive trends in 1966–1994, only five (Great Blue Heron, Downy Woodpecker, Common Raven, Cape May Warbler, and Black-and-white Warbler) had positive trends in all of the other time periods, none of which were consistently significant. Of the species showing significant negative trends over the long term, eight (Olive-sided Flycatcher,

European Starling, Eastern Meadowlark, Common Grackle, Savannah Sparrow, White-throated Sparrow, Song Sparrow, and Gray Catbird) were consistently negative in each of the other three time periods. No species showed significant trends throughout, although the European Starling had significantly negative trends in all periods except 1993–94.

iii) Atlantic Maritime

During 1966–1994, species with increasing populations in the Atlantic Maritime ecozone equalled those with decreasing populations. However, between the periods 1966–1979 and 1980–1994 the percentage of species with positive trends declined from 64% to 30% ($P=0.004$).

Of the 22 species showing significant positive trends in the period 1966–1994, only the Red-eyed Vireo, Yellow Warbler, and Black-capped Chickadee had positive trends in the other three time periods, none of which were significant throughout. Five of the species showing significant negative trends in 1966–1994 showed negative trends throughout the other time periods. These were the Brown-headed Cowbird, Purple Finch, Savannah Sparrow, White-throated Sparrow, and House Sparrow. The White-throated Sparrow, and Cowbird had significant negative trends in all periods except 1993–94.

iv) Mixedwood Plains

In contrast to the situation in other ecozones, the percentage of significantly positive trends slightly increased (5%, $P=0.079$) in the Mixedwood Plains between the 1966–1979 and 1980–1994 periods.

Only three species (Mallard, Warbling Vireo, and Black-capped Chickadee) in the Mixedwood Plains had positive trends in all four time periods, and for only the chickadee were these trends consistently significant or nearly significant ($0.05 < P < 0.15$). The Spotted Sandpiper, Northern Flicker, Eastern Meadowlark, and House Sparrow had negative trends in all time periods with both the flicker and meadowlark showing significant trends in all periods except 1993–94.

v) Boreal Plains

Eight species with significantly positive trends in 1966–1994 were also positive in each of the other three time periods, although none of the trends was consistently significant throughout. The species include Mourning Dove, Hairy Woodpecker, Lincoln's Sparrow, Yellow Warbler, Yellow-rumped Warbler, and Ruby-crowned Kinglet. Only the American Coot and the Eastern Kingbird had negative trends in all the time periods although, again, these trends were not consistently significant.

vi) Prairies

In 1966–1979 61% of the species were increasing, while 54% showed increasing trends in 1980–1994; however, these changes were not significant.

Table 1
Number of BBS routes conducted by volunteers during 1990–94

Province/territory	1990	1991	1992	1993	1994
Newfoundland	1	2	1	3	2
Prince Edward Island	2	2	3	4	2
Nova Scotia	12	13	14	15	17
New Brunswick	12	16	12	15	9
Quebec	42	38	38	46	46
Ontario	47	55	69	65	89
Manitoba	31	33	29	31	31
Saskatchewan	27	27	31	29	27
Alberta	45	48	68	66	82
British Columbia	44	49	42	55	56
Yukon	7	13	16	14	16
Northwest Territories	6	5	6	2	0
Total	276	301	329	345	377

Table 2

Percentage of species with positive trends. Line one includes species with significant ($P<0.05$) positive trends only, line two includes both significant and nonsignificant positive trends. Species with trends equal to zero are not included. Numbers in parentheses indicate the total number of species for which a trend was calculated. An asterisk indicates that the proportion of species with positive trends was different from 0.5 ($P<0.05$).

	1966–1994		1966–1979		1980–1994		1993–94	
	%	(N)	%	(N)	%	(N)	%	(N)
Canada								
significant trends	53	(84)	69	(70)*	52	(86)	55	(32)
all trends	51	(260)	60	(234)*	46	(258)	45	(197)
Boreal Shield ecozone								
significant trends	48	(42)	64	(25)	30	(47)	29	(7)
all trends	54	(155)	63	(120)*	43	(148)	43	(99)
Atlantic Maritime ecozone								
significant trends	50	(44)	64	(36)	30	(46)*	29	(7)
all trends	51	(126)	51	(115)*	44	(117)	31	(62)*
Mixedwood Plains ecozone								
significant trends	65	(34)	50	(26)	55	(29)	17	(6)
all trends	69	(108)*	54	(90)	59	(100)*	37	(71)
Boreal Plains ecozone								
significant trends	57	(35)	82	(11)*	40	(20)	56	(9)
all trends	57	(145)	58	(81)	45	(140)	60	(68)
Prairies ecozone								
significant trends	56	(32)	61	(18)	54	(26)	50	(14)
all trends	57	(130)	58	(97)	52	(124)	43	(76)
Montane Cordillera ecozone								
significant trends	74	(131)*	55	(11)	75	(24)*	75	(8)
all trends	68	(121)*	64	(82)*	60	(109)	66	(59)*
Pacific Maritime ecozone								
significant trends	33	(15)	80	(5)	0	(8)*	NA	(0)
all trends	38	(69)*	69	(36)*	47	(61)	NA	(0)

NA = not applicable.

Four species—Gadwall, Upland Sandpiper, Least Flycatcher and House Wren—showed significant positive trends during 1966–1994 and consistently positive trends in each of the other three time periods. However, only the House Wren had significant trends in each period. Among the 14 species that had significantly negative trends in 1966–1994, the American Wigeon and Western Meadowlark exhibited negative, although nonsignificant, trends in all of the other time periods.

vii) Pacific Maritime

The number of species in the Pacific Maritime for which trends could be calculated was small (69) compared with other ecozones, and it is difficult to interpret the trends. Only five species had significant trends in 1966–1979, four of which were positive, whereas in 1980–1994 all of the eight significant trends were negative ($P=0.007$). None of the five species showing significant positive trends in 1966–94 or the 10 species showing significant negative trends exhibited consistent positive or negative changes throughout the other three time periods.

viii) Montane Cordillera

The Montane Cordillera was one of only two ecozones where the percentage of species showing significantly positive trends increased between 1966–79 (55%) and 1980–94 (75%); however, this change was not significant ($P=0.263$).

Five of the 23 species showing significantly positive trends in 1966–1994 also exhibited positive trends in each of the other time periods (Pileated Woodpecker, Lazuli Bunting, Solitary Vireo, and Red-Breasted Nuthatch). In most of the other three time periods the positive trends were nonsignificant. For species showing significant, negative long-term trends, only the Olive-sided Flycatcher showed negative, though nonsignificant, trends throughout the other time periods.

Discussion

Statistical analyses

Currently both USNBS and CWS use a version of the route-regression method developed by Geissler and Noon (1981) to analyse BBS data, although with a number of differences. (Thomas and Martin [in press] provide a detailed discussion of these differences.) For example, CWS uses the logarithm of the counts with the addition of a constant (Collins and Wendt 1989) in the regression. The value of the constant (0.23) was selected after simulation studies showed it produced the least biased results. Until 1994, the USNBS used a similar system with the addition of 0.5 as a constant. However, in 1994 the USNBS began using an estimation procedure based on estimating equations in order to avoid the use of a constant and thus reduce bias in the estimation (Link and Sauer 1994).

Other differences between the two analyses include the grouping of routes run under similar conditions. CWS uses all routes that have been run for two or more years by the same observer under acceptable weather conditions.

Individual routes are grouped into one or more subroutes that include the years in which the route has been run by the same observer within a 19-day time span. The USNBS requires that a route be run for at least three years under acceptable weather conditions and by the same observer. Data from the first year an observer participates in the BBS route are deleted from the U.S. analysis. The USNBS groups all years that a particular route is run by the same observer regardless of whether they fall within a 19-day time span. There are also differences between the two countries in the definition of acceptable weather conditions and starting and finishing times.

The USNBS calculates the density weighting in two different manners depending on whether the actual years of observation span the middle year of the time period. If the actual years of observation span the middle year then the predicted count in the middle year is used; otherwise, the average of the observed counts is used. In the CWS analysis the average of the observed counts is used for all routes.

Despite these differences in analytical techniques there was a high degree of correspondence between the results of trend analysis. Of the 230 species for which both the USNBS and CWS calculated trends for Canada, overall 81% (186) of the trends agreed in both the direction and significance of the trend, although there were differences in magnitude. More work is needed to understand how differences in analytical techniques affect results.

Species trends

During 1966–1994, 72 species had significant negative trends in at least one ecozone, and 85 species had significant positive trends. Among the short-distance migrants, 37% of the trends were significantly positive in at least one area and 36% were significantly negative. Among the long-distance migrants, 37% of the trends were significantly positive and 25% were negative. Among resident species, 52% showed significantly positive trends and 28% negative trends. These results for individual species can be compared with analyses of birds by habitat and migration pattern. Downes and Collins (in prep.) analysed BBS data for birds grouped into several categories of habitat (forest, scrubland, grassland, wetland, and urban) and migratory pattern (long-distance, short-distance, and resident) for the seven ecozones and for Canada overall. Results indicate that short-distance migrants and birds in scrubland, grassland, and urban habitats had negative long-term trends in a majority of ecozones and in Canada overall. Neotropical migrants showed mainly nonsignificant trends, although the majority were negative. Results for forest and wetland birds and for resident species varied among ecozones.

Many species showed a pattern of declining or increasing trends throughout several ecozones (during 1966–1994). For example, those showing a relatively consistent pattern of positive trends among ecozones include Red-necked Grebe, Common Loon, Ring-billed Gull, Mallard, Lesser Scaup, Canada Goose, Great Blue Heron, Rock Dove, Mourning Dove, Turkey Vulture, Red-tailed Hawk, Bald Eagle, American Kestrel, Osprey, Hairy Woodpecker,

Pileated Woodpecker, Least Flycatcher, Alder Flycatcher, Steller's Jay, Common Raven, American Crow, Evening Grosbeak, House Finch, Lincoln's Sparrow, Purple Martin, Cliff Swallow, Tree Swallow, Cedar Waxwing, Red-eyed Vireo, Warbling Vireo, Solitary Vireo, Black-and-White Warbler, Yellow Warbler, Yellow-rumped Warbler, Magnolia Warbler, Common Yellowthroat, Wilson's Warbler, Marsh Wren, White-breasted Nuthatch, Red-breasted Nuthatch, Black-capped Chickadee, Golden-crowned Kinglet, Hermit Thrush, and American Robin.

Species showing a consistent pattern of negative trends (1966–1994) among ecozones include Northern Pintail, American Bittern, American Coot, Lesser Yellowlegs, Spotted Sandpiper (eastern ecozones only), Killdeer, Short-eared Owl, Black-billed Cuckoo, Northern Flicker, Chimney Swift, Olive-sided Flycatcher, Horned Lark, European Starling, Bobolink, Brown-headed Cowbird, Rusty Blackbird, Brewer's Blackbird, Purple Finch, Savannah Sparrow, White-crowned Sparrow, White-throated Sparrow, Song Sparrow, Barn Swallow, Loggerhead Shrike, House Sparrow, Gray Catbird, Boreal Chickadee, and Wood Thrush.

The House Finch showed significant long-term increases in all three ecozones in which a trend could be calculated, reflecting the range expansion of the House Finch in recent years. During 1966–1979 there were not enough data to calculate trends for the House Finch in any ecozone in Canada, and in the period 1980–1994 significant positive trends were detected in Canada overall and in the Mixedwood Plains. The 1993–94 trends were nonsignificant.

Several of the species showing long-term decreases are those associated with agriculture and urban landscapes and include some introduced species (i.e., House Sparrow, European Starling). A variety of sparrows show decreasing populations in several ecozones. The decreasing populations of Savannah Sparrows in the east may be reflecting a decrease in habitat availability as fields are abandoned and revert to woody habitat (see, for example, Government of Canada 1991). In the prairies, Savannah Sparrows show a positive trend. Although ditches, wetland edges, and fields are decreasing on the prairies, the resurgence of zero-till methods in the last 10 years may explain the positive population trend (B. Dale, CWS, pers. commun.). Zero-till methods leave standing stubble and weeds in the fields that provide cover for Savannah Sparrows. Vesper Sparrows and White-throated Sparrows also appear to be maintaining their populations on the prairies but are showing a similar decrease in the east, particularly in the Atlantic Maritime ecozone. Song Sparrows show decreasing trends in all ecozones except the Mixedwood Plains.

Brown-headed Cowbirds are thought to be an increasing threat to the reproductive success of many other birds (e.g., Brittingham and Temple 1983; Rothstein and Robinson 1994). However, in this report, cowbirds showed negative long-term trends in six of seven ecozones (three significant). This pattern of declining populations appeared in the 1966–1979 period (four of six ecozones) and was

more pronounced in the period 1980–1994, with negative trends in all six ecozones (four significant).

Kirk et al. (1994/95) reviewed data for raptors from the BBS (1966–1991), hawk migration counts, and the Christmas Bird Count. The 1966–1994 trends from BBS for Canada remain consistent to their estimates of status. Red-tailed Hawk, American Kestrel, Turkey Vultures, and Ospreys were considered by Kirk et al. (1994/95) to be generally increasing in Canada, and all continued to show significantly positive BBS trends in the current analysis. Osprey populations may be responding to the bans on organochlorine pesticides and the number of nest-platforms erected by volunteers over the last several years (L. Shutt, CWS, pers. commun.). American Kestrel showed significantly positive trends during 1966–1994 in two ecozones and nonsignificant positive trends in three more ecozones. However, for 1980–94, the American Kestrel showed negative trends in five of the six ecozones and in Canada overall. This decline corresponds to a perceived decrease in the amount of old field and mature forest habitat, which may reflect a decrease in habitat quality for the species by reducing hunting territory and the availability of cavity nests. Trends for 1993–94 were nonsignificant for these species.

BBS results for the Common Loon show long-term positive trends in all of the six ecozones for which a trend could be calculated (three significant, three nonsignificant). These positive trends remained consistent throughout 1966–1979 and 1980–1994. There are several other sources of information on Common Loons, and the BBS results correspond to those of other studies in indicating a relatively stable or increasing loon population during the recent past. For example, the results of CWS surveys in northeastern Ontario over the last four years show an increase in breeding density of loons from 8.72 to 10.44 pairs per 100 km² in 1994 (Ross 1994). In Quebec, Cyr and Larivée (1995) used results from l'Étude des populations d'oiseaux du Québec (ÉPOQ) to estimate indices of annual change. The trend from ÉPOQ for the Common Loon between 1970 and 1989 was positive (0.0825 slope of the regression).

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Appendix 1

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
Common Loon												
Canada	2.6	*	338	2.5		182	2.3	*	288	22.0		112
Boreal Shield	2.7		112	3.2		56	0.4		97	2.3		33
Atlantic Maritime	3.8	*	55	-2.4		49	3.0	*	43	-45.1	*	15
Mixedwood Plains	0.5		23				2.1		19			
Boreal Plains	0.8		45	2.0		17	0.5		41	34.7		17
Prairies	0.9		16									
Pacific Maritime	1.5		17				1.6		15			
Montane Cordillera	5.3	*	45	0.2		28	6.4	*	37	-12.5		15
Pied-billed Grebe												
Canada	-2.8	*	174	2.8		90	-3.7		137	161.0	*	40
Boreal Shield	-0.6		25				-0.4		17			
Atlantic Maritime	1.6		15									
Mixedwood Plains	-2.1		19									
Boreal Plains	-4.3	n	29				-6.8		27			
Prairies	-2.8	n	60	2.4		32	0.0		48	235.6	*	16
Horned Grebe												
Canada	-2.8	*	100	-3.6		54	-6.2	*	73	-12.6		18
Boreal Plains	-3.2	*	25				-9.7	*	22			
Prairies	-2.2		60	-4.9		39	-3.7		42			
Red-necked Grebe												
Canada	2.4	*	78	10.8		31	-0.1		67	46.7	n	26
Boreal Plains	4.8		25				-3.9		24			
Prairies	3.5		19				3.8		15			
Montane Cordillera	3.0	*	21				6.3	*	16			
Eared Grebe												
Canada	-3.1		66	32.1	*	29	-5.4		54			
Prairies	-2.1		45	23.4	*	24	2.9		35			
Western Grebe												
Canada	-1.0		34				-12.5		26			
Prairies	8.8		15									
American White Pelican												
Canada	2.1		43				2.0		37			
Boreal Plains	5.8	*	18				2.4		16			
Prairies	11.9	n	22				-2.3		17			
Double-crested Cormorant												
Canada	8.9	*	117	21.0	n	40	-0.5		103	49.9	*	34
Atlantic Maritime	11.2	*	40	28.2	*	25	-8.0		34			
Boreal Plains	-2.8		16				-11.6		16			
Prairies	7.8		34				4.8		26			
American Bittern												
Canada	-1.8		317	-0.3		189	2.7		250	14.8		78
Boreal Shield	2.0		93	-0.8		47	1.6		76	-22.0		23
Atlantic Maritime	-2.2	*	58	-2.3		50	0.2		44			
Mixedwood Plains	5.8	n	33	6.8		24	10.5	*	26			
Boreal Plains	-2.4		37	15.7		18	0.2		33			
Prairies	-7.7	*	61	-7.9		37	-0.3		42			
Montane Cordillera	-5.7	n	18									
Great Blue Heron												
Canada	2.0	*	330	0.3		177	1.2		293	-10.7		127
Boreal Shield	4.5	*	88	2.7		46	2.1		78	30.2		36
Atlantic Maritime	0.3		58	-2.6		48	2.7		46			
Mixedwood Plains	5.0	*	44	8.6	*	31	1.6		42	-33.2		26

Appendix I (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
Boreal Plains	4.2	*	38				2.1		36	-35.9		19
Prairies	-2.2		51	-9.6	*	20	1.9		44			
Pacific Maritime	-5.7	*	16									
Montane Cordillera	1.5		25				-0.2		23			
Green-backed Heron												
Canada	1.0		65	6.0	*	37	-1.3		59	-40.2		21
Boreal Shield	1.0		16									
Mixedwood Plains	2.0		38	7.2	*	25	-1.0		35			
Black-crowned Night-Heron												
Canada	1.6		75	12.7	*	40	1.4		51			
Prairies	2.8	n	30				1.4		22			
Canada Goose												
Canada	7.0	*	270	15.0	n	81	10.2	*	248	13.7		120
Boreal Shield	9.8	*	35				23.2	*	35	47.8		16
Mixedwood Plains	12.7	*	35				11.7	*	34	35.3		18
Boreal Plains	8.0	*	44				-1.3		42	-14.2		23
Prairies	6.1	*	74	26.0	*	21	9.2	n	68	-13.6		33
Pacific Maritime	6.9	n	16				11.1		16			
Montane Cordillera	6.2		39	4.8		15	10.5	*	34			
Wood Duck												
Canada	2.7	*	115	2.4		45	3.9	*	101	-33.5		29
Boreal Shield	3.9	*	37				6.3	*	34			
Atlantic Maritime	2.2	n	18									
Mixedwood Plains	2.3		29	4.3	n	17	4.9		25			
Green-winged Teal												
Canada	-1.3		177	6.4		81	-2.5		140	0.4		43
Boreal Shield	-4.2	*	22				-22.1		21			
Boreal Plains	0.6		38				0.6		37			
Prairies	-1.8		65	2.4		38	-2.0		49	-7.0		17
Montane Cordillera	5.1	n	17									
American Black Duck												
Canada	-1.2		165	3.1		110	-0.7		122	173.0		27
Boreal Shield	-2.9	n	60	9.9		33	-9.5		45			
Atlantic Maritime	-0.3		61	2.0		51	1.4		47	38.7		16
Mixedwood Plains	1.0		30	-8.3	*	22	9.8	*	19			
Mallard												
Canada	0.2		373	3.4		176	0.4		337	-42.0	*	166
Boreal Shield	3.0	*	68	38.3		34	-5.2		58	-11.9		29
Atlantic Maritime	0.0		15									
Mixedwood Plains	5.8	*	44	9.4	*	26	5.7	n	42	6.1		28
Boreal Plains	-0.3		63	-0.1		26	-2.4		60	-45.4		30
Prairies	0.0		92	4.2		49	1.7		82	-36.1		44
Pacific Maritime	-0.2		18				-0.9		18			
Montane Cordillera	2.1		53	-4.0		26	2.5	n	46			
Northern Pintail												
Canada	-7.1	*	175	-6.1	n	89	-1.2		146	59.9		42
Boreal Plains	-7.1	*	36	5.1		19	-5.0	*	33			
Prairies	-8.4	*	89	-6.9		48	-1.9		79	70.5		32
Blue-winged Teal												
Canada	-2.5	n	257	3.7		127	-4.8	*	210	14.9		79
Boreal Shield	4.6		34	21.0		15	-12.9		25			
Atlantic Maritime	-2.8		17									
Mixedwood Plains	1.3		30	0.3		19	-0.2		23			

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P ^a	N	Trend	P	N	Trend	P	N	Trend	P	N
Boreal Plains	-3.7		54	8.0	n	21	-9.6	*	51	-21.6		21
Prairies	-1.9		90	5.0		47	-2.0		78	32.7		37
Montane Cordillera	6.2		21				-5.6		16			
Cinnamon Teal												
Canada	2.5	*	39				2.1		33			
Prairies	1.2		19				5.5	*	16			
Montane Cordillera	2.9		15									
Northern Shoveler												
Canada	-1.4		147	-6.7		66	1.3		133	-18.4		51
Boreal Plains	0.2		37	8.3		16	10.2		36	-67.4		15
Prairies	-0.4		86	-3.4		45	0.8		75	5.1		34
Gadwall												
Canada	3.9	*	131	7.7		54	2.0		116	-45.7		50
Boreal Plains	0.9		30				0.6		28			
Prairies	4.5	*	85	10.2	*	42	2.1		75	0.8		34
American Wigeon												
Canada	-2.8	*	166	-2.0		80	-4.4		142	-31.6		50
Boreal Plains	-4.6		41	-3.7		17	-3.8		37	-78.8		15
Prairies	-3.0	*	80	-1.1		45	-5.7		67	-6.3		25
Canvasback												
Canada	-2.5		89	1.8		43	-5.2	*	69	224.0	n	17
Boreal Plains	-4.0		25				-5.5		22			
Prairies	-1.3		57	4.5		32	-5.5	*	42			
Redhead												
Canada	3.3		95	5.3		49	8.4		80	162.8		25
Boreal Plains	1.8		23				-4.6		22			
Prairies	6.8		63	-0.4		39	19.0	n	49	-58.5		16
Ring-necked Duck												
Canada	0.5		133	-1.8		47	4.5		110	29.3		30
Boreal Shield	-2.2		35				8.2		31			
Atlantic Maritime	-2.9		18									
Boreal Plains	0.7		26				3.8		25			
Prairies	-0.7		22				-4.4		16			
Montane Cordillera	3.6		25				5.4		20			
Lesser Scaup												
Canada	0.1		164	5.5		71	-2.2		140	126.4		54
Boreal Plains	2.3		43	0.0		20	-3.7		39	464.5		18
Prairies	0.2		75	5.8		40	-1.0		63	62.1	n	30
White-winged Scoter												
Canada	-3.4	*	26				-8.8		21			
Common Goldeneye												
Canada	0.4		138	-2.9		67	0.2		105	-6.4		21
Boreal Shield	2.8		45	-6.0		28	1.8		31			
Boreal Plains	-1.0		37				-4.2		34			
Prairies	2.0		15									
Montane Cordillera	-0.9		15									
Barrow's Goldeneye												
Canada	4.9		43	50.4	*	15	7.7		36	-7.8		17
Montane Cordillera	8.3		27				10.1		23			

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
Bufflehead												
Canada	2.2		84	9.3		29	4.9	n	70	-13.3		26
Boreal Plains	1.7		35				5.4		33			
Prairies	2.5		22				1.1		18			
Montane Cordillera	-1.5		16									
Hooded Merganser												
Canada	1.8	n	55	-4.3		15	2.0		47			
Boreal Shield	1.3		20				3.2		16			
Common Merganser												
Canada	1.3		202	-1.2		93	4.1	*	164	19.8		44
Boreal Shield	1.9		69	-0.7		27	1.8		59	-74.7	*	16
Atlantic Maritime	0.7		36	0.9		25	1.4		24			
Boreal Plains	-0.1		17				1.0		15			
Pacific Maritime	1.0		19				-0.3		16			
Montane Cordillera	3.4		33	-5.6		16	7.8	*	29			
Red-breasted Merganser												
Canada	-7.0		51	-0.5		17	-19.4		38			
Boreal Shield	-6.6		15									
Ruddy Duck												
Canada	-0.7		104	-0.1		49	-1.4		88	-20.3		31
Boreal Plains	-2.4		28				-9.6	*	27			
Prairies	0.1		59	-4.8		33	5.6		46	-7.2		20
Turkey Vulture												
Canada	4.3	*	80	-1.0		18	3.6		73	37.1		43
Boreal Shield	5.1	*	34				6.9	*	33	81.3	n	17
Mixedwood Plains	6.3	*	28				6.4	*	25	-10.8		17
Osprey												
Canada	2.0	*	158	2.7		70	4.0	*	129	4.1		31
Boreal Shield	2.9	*	44				4.8		39			
Atlantic Maritime	2.9	*	43	2.0		32	4.9	n	34			
Montane Cordillera	1.2		38	6.1		15	3.9		32			
Bald Eagle												
Canada	6.9	*	91	24.5	n	35	8.1	*	73	-54.3		29
Atlantic Maritime	0.6		15									
Pacific Maritime	10.2	*	19									
Montane Cordillera	2.8		24				3.1		19			
Northern Harrier												
Canada	-0.4		310	0.3		153	-1.3	n	271			
Boreal Shield	-1.5		49	-7.5	n	21	-2.1		42			
Atlantic Maritime	1.4		46	2.8		29	0.5		34			
Mixedwood Plains	2.9		40	1.0		26	2.1		37	25.3		15
Boreal Plains	-2.2	*	48	-1.2		23	-1.1		46			
Prairies	-0.1		90	0.6		48	-1.4		79	18.1		36
Sharp-shinned Hawk												
Canada	0.7	*	137	1.5		37	-0.5		111	-5.6		26
Boreal Shield	0.9	n	39				-1.6		32			
Cooper's Hawk												
Canada	0.3		83	-3.0		34	0.7		62	-8.4		19
Prairies	0.2		28				0.7		21			
Northern Goshawk												
Canada	0.1		75	-1.1		27	0.0		53			

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P ^a	N	Trend	P	N	Trend	P	N	Trend	P	N
Red-shouldered Hawk												
Canada	0.3		38	-3.3		20	0.5		26			
Mixedwood Plains	-0.2		19									
Broad-winged Hawk												
Canada	0.5		143	1.9		80	-3.7	*	111	22.9		22
Boreal Shield	0.8		73	0.4		40	-5.1	*	59			
Atlantic Maritime	0.5		33	2.5		20	0.9		25			
Swainson's Hawk												
Canada	1.2		117	0.2		51	-1.9		100	-27.8	*	39
Boreal Plains	0.0		19				-7.8	*	15			
Prairies	1.6		89	-0.3		42	-2.4		78	-19.7		33
Red-tailed Hawk												
Canada	2.6	*	355	-2.5		154	4.1	*	320	12.7		150
Boreal Shield	1.3	n	51	5.8		15	0.6		44			
Atlantic Maritime	0.4		31	-0.1		21	-0.7		22			
Mixedwood Plains	-0.8		40	2.3		24	-2.3		38	38.6		19
Boreal Plains	2.8	n	66	-2.6		24	2.2		63	-6.5		32
Prairies	3.6	*	79	-5.5		37	7.0	*	71	-2.9		40
Pacific Maritime	5.1	*	15				0.7		15			
Montane Cordillera	3.2	*	48	-1.2		23	3.1		42	-5.5		21
Ferruginous Hawk												
Canada	5.6	*	25				4.7		23			
Prairies	5.3	*	26 ^b				3.8		24			
Golden Eagle												
Canada	-0.8		20				-0.7		15			
American Kestrel												
Canada	1.1	n	405	6.5	*	236	-1.4		342	7.6		144
Boreal Shield	2.3	*	90	6.4		56	-1.2		72	6.7		30
Atlantic Maritime	0.6		57	-0.1		48	2.7		44			
Mixedwood Plains	-0.2		42	2.8		31	-5.2	*	39	8.1		20
Boreal Plains	0.5		68	9.2	*	28	-0.4		63	-8.8		25
Prairies	1.7	*	62	6.4	*	32	-0.4		51	-23.2		19
Montane Cordillera	0.3		48	13.1	*	33	-3.6	*	41	24.9		20
Merlin												
Canada	1.1	*	163	-0.9		41	1.5		136	-23.1		32
Boreal Shield	2.1	n	41				4.8	*	34			
Boreal Plains	-0.1		33				-1.2		32			
Prairies	1.8	*	43				1.7		36			
Gray Partridge												
Canada	-0.8		103	0.8		48	-2.9	n	86	-23.7		22
Boreal Plains	0.5		19				1.8		18			
Prairies	-0.6		74	0.2		37	-3.5	n	63	-29.0		21
Ring-necked Pheasant												
Canada	-2.1	n	142	-0.7		80	-1.2		120	-12.5		42
Atlantic Maritime	6.9	*	24	0.4		16	15.2	*	22			
Mixedwood Plains	-13.3	*	25	1.0		17	-6.1		20			
Boreal Plains	0.7		16									
Prairies	-0.9		50	2.4		24	-0.9		42	-1.2		15
Spruce Grouse												
Canada	-0.9		17									

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P ^a	N	Trend	P	N	Trend	P	N	Trend	P	N
Blue Grouse												
Canada	-4.6	*	39	-27.9		23	-2.3		29			
Pacific Maritime	-4.4		18				-1.2		15			
Montane Cordillera	-0.8		16									
Ruffed Grouse												
Canada	-2.1	*	287	10.2	*	154	-0.9		225	4.2		62
Boreal Shield	-0.9		83	6.5		35	0.5		70	124.2	n	16
Atlantic Maritime	-0.8		56	-1.9		45	-0.3		34			
Mixedwood Plains	1.1		24				1.5		18			
Boreal Plains	-2.4		35	28.4		19	1.1		30			
Prairies	0.2		19				-5.2	*	15			
Montane Cordillera	-5.1	*	39	0.8		23	-3.5	n	32			
Sharp-tailed Grouse												
Canada	-1.4		81	2.5		37	-1.9		67			
Boreal Plains	-2.9		21				-1.5		17			
Prairies	-3.6		56	5.6		25	-5.8		47			
Yellow Rail												
Canada	2.0	n	15									
Virginia Rail												
Canada	0.4		46	-1.8		17	-0.1		32			
Sora												
Canada	-1.1	n	253	-4.3		105	3.8	*	220	84.3	*	95
Boreal Shield	-1.8	n	29				1.2		23			
Atlantic Maritime	0.7		16									
Boreal Plains	0.3		59	4.0		26	1.0		55	107.6	*	26
Prairies	-2.4		86	-5.9		41	3.8		76	107.2	*	40
Montane Cordillera	5.9	*	32				1.6		31			
Common Moorhen												
Canada	-2.4	n	18									
Mixedwood Plains	-2.7	*	18									
American Coot												
Canada	-3.3	*	158	0.2		73	-5.8	*	140	57.8		60
Boreal Plains	-5.4	*	43	-4.3		17	-10.0	*	42	-0.7		18
Prairies	-1.2		80	-1.7		42	-4.0	*	69	123.9	*	34
Montane Cordillera	-5.6		19				-9.0		17			
Sandhill Crane												
Canada	9.1	*	69	19.8		15	-6.3		65	13.3		22
Boreal Plains	4.8		27				-14.5		27			
Prairies	1.1		15									
Killdeer												
Canada	-2.3	*	446	3.0	*	269	-3.9	*	394	2.6		196
Boreal Shield	-4.3	*	89	1.4		56	-5.5	*	69	1.8		27
Atlantic Maritime	0.4		57	5.3	*	50	-1.2		51	4.2		17
Mixedwood Plains	-0.3		46	3.2	*	33	-1.3	*	44	6.7		30
Boreal Plains	-4.7	*	66	-1.6		27	-6.6	*	63	7.4		31
Prairies	-3.3	*	92	1.8		49	-2.7	*	82	12.5	n	45
Pacific Maritime	-5.0	*	17	-9.0	*	15						
Montane Cordillera	-1.1		50	-1.0		33	-4.3	*	44	-36.7	*	19
American Avocet												
Canada	-0.7		67	4.1		32	0.5		57	24.9		20
Prairies	-3.0		61	-1.1		32	1.0		51	281.0		16

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P ^a	N	Trend	P	N	Trend	P	N	Trend	P	N
Greater Yellowlegs												
Canada	2.6		60	13.9	n	17	-1.0		51			
Boreal Shield	16.4		15				24.5		15			
Boreal Plains	-2.2		17									
Lesser Yellowlegs												
Canada	-4.5	*	113	5.3		49	-7.7	*	90	7.6		29
Boreal Plains	-4.9	*	41	29.2	n	18	-11.1	*	35			
Prairies	-6.3	*	41	-0.5		24	-4.4		28			
Solitary Sandpiper												
Canada	-3.1		69	-20.5		30	2.5		46	35.0		15
Boreal Plains	-0.1		16				-0.7		15			
Willet												
Canada	-1.1		112	1.5		56	-2.3		101	-11.5		52
Boreal Plains	-0.9		17				-3.7		17			
Prairies	-1.1		80	1.2		42	-2.6		71	-8.2		37
Spotted Sandpiper												
Canada	-0.6		417	1.5		229	-1.5		344	-3.3		107
Boreal Shield	-1.3	*	92	-1.1		43	-4.4	*	71	18.5		15
Atlantic Maritime	-0.2		65	2.1		58	-1.8		49			
Mixedwood Plains	-4.2	*	42	-1.6		32	-5.0		39	-3.1		15
Boreal Plains	0.8		53	-1.6		22	-1.4		47			
Prairies	2.5		57	7.5		30	3.4		42			
Montane Cordillera	1.1		52	-0.1		32	-0.2		46	4.8		15
Upland Sandpiper												
Canada	0.7		151	5.7	*	84	-2.4		132	-0.5		47
Boreal Shield	0.4		18									
Mixedwood Plains	2.4		38	3.2		26	-1.2		36	4.6		17
Boreal Plains	-5.4		15									
Prairies	3.1	*	60	6.9		31	0.9		53	2.3		18
Long-billed Curlew												
Canada	-4.0		44	5.2	n	21	-6.7		37			
Prairies	-4.7		33	3.0		17	-6.5		27			
Marbled Godwit												
Canada	-0.9		121	2.9	n	58	-4.6		110	-44.9		53
Boreal Plains	1.4		30				-4.4		30			
Prairies	-0.9	*	86	2.5		46	-5.0		75	-21.0		34
Common Snipe												
Canada	0.0		467	6.2	*	255	-0.8		415	12.3		193
Boreal Shield	-1.0		113	4.7		55	-4.6	n	99	34.2		35
Atlantic Maritime	-2.6	*	66	0.8		61	-5.4	*	56	-39.1	n	20
Mixedwood Plains	4.3		38	6.8	n	27	1.8		33	-25.3		20
Boreal Plains	2.6		65	18.1	*	26	1.9		61	54.5	*	30
Prairies	0.1		76	6.3		41	2.5		67	38.9	n	33
Montane Cordillera	0.3		52	-7.5	n	29	2.0		49	-0.5		25
American Woodcock												
Canada	-1.4		76	-6.1		47	1.1		41			
Boreal Shield	-0.6		25	-1.8		15						
Atlantic Maritime	-2.9		35	-7.6		24	7.5	*	17			
Mixedwood Plains	-0.4		15									
Wilson's Phalarope												
Canada	-2.3		105	-2.0		49	-6.1	*	84	-58.8		23
Boreal Plains	-2.4		23				-3.0		19			
Prairies	-1.8		70	4.2		38	-6.4	*	55	-76.7	*	18

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
Ring-billed Gull												
Canada	9.4	*	278	6.0	*	114	2.7	*	251	-4.1		118
Boreal Shield	11.6		71	24.6	*	21	-0.5		64	106.2		26
Atlantic Maritime	16.5	*	21				-10.8	*	16			
Mixedwood Plains	8.2		43	26.5	*	22	4.1		42	-2.1		25
Boreal Plains	4.9	*	45	5.0		17	7.9	n	43	-77.2	*	23
Prairies	11.1		75	-2.0		37	2.9	*	63	-4.3		31
California Gull												
Canada	1.4		60	0.7		21	-3.1		56	-25.6		15
Boreal Plains	8.2		16				16.8		16			
Prairies	-0.9		39	-0.5		17	-11.8		35			
Herring Gull												
Canada	-0.3		252	-1.9		141	-0.6		217	-34.1		70
Boreal Shield	0.2		95	-6.2	n	47	-2.2		82	9.2		22
Atlantic Maritime	-2.8	*	54	-0.6		49	-7.7	*	44			
Mixedwood Plains	5.4	n	30	8.7	*	19	0.9		28			
Montane Cordillera	5.4	*	15									
Franklin's Gull												
Canada	-3.7		119	-5.3		59	7.3		106	154.2	n	43
Boreal Plains	-10.1	*	43	1.8		19	-2.1		41	417.4	*	18
Prairies	-0.4		72	-8.8		42	14.8		61	2.6		24
Bonaparte's Gull												
Canada	-2.4		47	19.4	*	20	-6.6	*	31			
Boreal Plains	-6.3		18									
Mew Gull												
Canada	1.6		28				1.0		24			
Glaucous-winged Gull												
Canada	7.8	n	22	2.5		19	8.1	*	15			
Pacific Maritime	8.3	n	19	3.9		16	7.2	n	15			
Great Black-backed Gull												
Canada	-1.6		76	2.1		46	-4.3	n	68			
Boreal Shield	-23.4		18				-23.5		18			
Atlantic Maritime	-0.8		50	2.0		44	-5.3	*	42			
Caspian Tern												
Canada	2.0		19				5.8		17			
Common Tern												
Canada	-1.8	*	128	-3.7		65	-7.8		98	-30.0		22
Boreal Shield	3.2		32				6.6		25			
Atlantic Maritime	-7.7	*	20	-2.3		20						
Boreal Plains	0.9		24				-6.6		23			
Prairies	5.5		36	11.7		19	-16.5		24			
Arctic Tern												
Canada	-20.2	n	18				28.1		15			
Forster's Tern												
Canada	10.2		18									
Black Tern												
Canada	-4.7	*	167	-5.9	n	90	1.0		133	-5.2		51
Boreal Plains	-3.2		46	-3.0		20	1.0		42	-36.1		19
Prairies	-5.3	*	78	-12.1	*	44	1.2		60	8.4		26

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
Rock Dove												
Canada	1.5	n	342	2.5		193	-1.7		307	2.5		144
Boreal Shield	5.3	*	58	-0.1		29	4.3		49	70.7		18
Atlantic Maritime	2.5		57	3.4		43	1.3		49	55.8	*	16
Mixedwood Plains	3.1		45	3.6		33	2.0		43	-0.4		28
Boreal Plains	6.8	*	42	5.3		20	-2.1		40	-42.6		19
Prairies	0.9		89	3.5		45	-2.1		79	17.4		40
Pacific Maritime	-1.1		16									
Montane Cordillera	-2.2		17				-4.2		17			
Band-tailed Pigeon												
Canada	-6.3	*	24	-6.9		20	-7.5		20			
Pacific Maritime	-5.7	*	20	-6.5		17	-6.2		18			
Mourning Dove												
Canada	2.6	*	350	5.6	*	187	0.8		318	-8.5		157
Boreal Shield	3.6	*	66	11.8	*	35	0.8		57	-15.4		28
Atlantic Maritime	10.0	*	51	5.7	*	27	11.1	*	46			
Mixedwood Plains	3.8	*	46	3.1	*	33	1.4		44	-3.1		30
Boreal Plains	2.2	*	44	5.4	n	20	1.2		43	43.2		20
Prairies	1.4		89	2.2		48	0.4		79	-11.3		36
Montane Cordillera	-2.8	*	32	1.3		16	0.0		28			
Black-billed Cuckoo												
Canada	-1.0		232	12.8	*	151	-4.4	*	189	3.3		42
Boreal Shield	0.8		62	21.3	*	40	-4.8		53	-43.6		15
Atlantic Maritime	-4.3	*	45	1.2		39	-7.4	*	29			
Mixedwood Plains	-2.9	*	40	0.3		31	4.5		35			
Boreal Plains	-4.0	*	26				-3.0		23			
Prairies	-1.4		53	6.3		25	-6.3		44			
Yellow-billed Cuckoo												
Canada	-0.1		47	6.9	*	34	-0.4		29			
Boreal Shield	0.2		17									
Mixedwood Plains	-0.7		28	8.3	*	22	-0.2		17			
Great Horned Owl												
Canada	-0.2		212	-0.2		96	-3.9	*	173	-10.2		46
Boreal Shield	-1.8	*	19									
Atlantic Maritime	0.3		23									
Mixedwood Plains	0.3		29	2.0		20	2.2		23			
Boreal Plains	-4.1		45	-1.5		21	-10.0	n	41			
Prairies	2.8	n	70	3.5		25	-2.2		64	-10.7		21
Burrowing Owl												
Canada	-2.2	*	16									
Prairies	-2.0	*	16									
Barred Owl												
Canada	0.6		64	3.9	n	25	0.1		46			
Atlantic Maritime	1.3	*	28	4.5		16	0.9		19			
Great Gray Owl												
Canada	-0.1		17									
Long-eared Owl												
Canada	-1.0	*	16									
Short-eared Owl												
Canada	-2.6	*	83	-2.2		56	-2.7		45			
Boreal Plains	-4.1	*	19	-1.6		16						
Prairies	-2.9	*	44	-3.8		32	-2.9		25			

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P ^a	N	Trend	P	N	Trend	P	N	Trend	P	N
Common Nighthawk												
Canada	-0.5		232	0.2		135	-2.9	*	177	-15.2		41
Boreal Shield	-0.2		50	5.1		30	0.3		34			
Atlantic Maritime	0.9		40	1.2		31	-2.1		32			
Boreal Plains	-3.7	n	34	-6.1		16	-4.3		29			
Prairies	-1.0		32	-5.0	*	19	2.0		19			
Montane Cordillera	0.6		40	-4.5		24	-2.5		34	33.0		15
Whip-poor-will												
Canada	-1.4		46	-0.3		30	-6.3	*	28			
Boreal Shield	-1.3		23				-4.6		16			
Black Swift												
Canada	-3.3		42	47.2	n	25	-9.5		33			
Pacific Maritime	-6.2		19	46.9		15	-16.5	*	16			
Montane Cordillera	0.5		20				14.6	*	15			
Chimney Swift												
Canada	-4.9	*	157	-5.6	*	123	-5.5	*	120	58.8		28
Boreal Shield	-2.4		48	-3.7		31	-5.1		37			
Atlantic Maritime	-6.3	*	59	-8.8	*	58	-2.0		38			
Mixedwood Plains	-4.5	n	37	-3.1		29	-4.6		34			
Vaux's Swift												
Canada	0.8		37	2.1		15	2.5		30			
Montane Cordillera	1.1		23				0.1		19			
Ruby-throated Hummingbird												
Canada	0.4		194	-0.9		119	2.7	*	156	34.2		56
Boreal Shield	-0.2		63	-0.3		33	0.9		51	15.4		19
Atlantic Maritime	0.0		59	-1.5		52	2.9		47			
Mixedwood Plains	0.7		37	-2.0		20	4.2	n	30	-44.5		15
Calliope Hummingbird												
Canada	2.8		32	5.7		18	-0.6		26			
Montane Cordillera	3.0		31	3.0		18	-0.8		25			
Rufous Hummingbird												
Canada	-2.2		81	0.9		53	-0.9		68	1.6		38
Pacific Maritime	-3.0	n	23	2.7		17	-1.8		19			
Montane Cordillera	0.3		52	0.2		33	0.4		44	64.1	n	22
Belted Kingfisher												
Canada	-0.9		342	-1.5		210	-1.0		294	-8.7		95
Boreal Shield	-1.5		108	-1.2		58	-4.0	*	88	-26.1		24
Atlantic Maritime	-0.8		62	-3.0		55	-2.3	n	52			
Mixedwood Plains	0.2		43	0.0		33	1.5		40	-35.1		19
Boreal Plains	1.8		23				0.7		23			
Pacific Maritime	-2.4	*	21	-4.2		15	-1.9		19			
Montane Cordillera	2.0		43	-14.9	*	29	5.4	n	36			
Red-headed Woodpecker												
Canada	-1.1		48	-2.5		22	-0.3		44			
Mixedwood Plains	-3.1		23				-2.6		22			
Yellow-bellied Sapsucker												
Canada	-1.2		286	-3.6	n	213	2.9	*	304	17.3	n	134
Boreal Shield	2.0		94	-7.3		56	1.7		78	10.4		34
Atlantic Maritime	-2.5	n	61	-4.7	n	56	2.3	n	48	52.9	n	16
Mixedwood Plains	2.2		24	-11.6	*	17	8.4	n	22			
Boreal Plains	0.7		51	12.9		21	3.1	n	47	46.9		20
Prairies	-2.1		35				-6.6	n	29			

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P ^a	N	Trend	P	N	Trend	P	N	Trend	P	N
Downy Woodpecker												
Canada	1.8	*	365	0.1		200	1.1		314	-10.0		113
Boreal Shield	2.8	*	95	1.9		47	2.5		79	38.7		28
Atlantic Maritime	4.6	*	67	-1.3		56	2.2	n	57	-40.8	*	17
Mixedwood Plains	0.9		45	-5.2	*	31	0.3		43	-5.9		23
Boreal Plains	-1.1		45	4.2		17	-4.1		40			
Prairies	-0.4		36				-0.9		29			
Pacific Maritime	1.9		19				3.7		17			
Montane Cordillera	-0.9		39	10.5		22	0.5		31			
Hairy Woodpecker												
Canada	1.8	*	386	5.5	*	204	1.8	n	336	19.7		138
Boreal Shield	2.2	n	99	7.5	*	48	3.3	*	86	0.3		30
Atlantic Maritime	1.3		64	6.7	*	55	-1.3		52	-18.0		15
Mixedwood Plains	2.5	n	40	4.6		21	-1.1		33	-64.7	*	16
Boreal Plains	2.4	*	52	3.0		18	2.8		51	47.7		20
Prairies	0.8		33				-1.4		30			
Pacific Maritime	4.0		23				5.2		21			
Montane Cordillera	1.3		52	-1.4		32	2.2		43	73.3	*	20
Three-toed Woodpecker												
Canada	0.5		48				-1.1		39			
Montane Cordillera	-2.0		16									
Black-backed Woodpecker												
Canada	1.4	*	80	-0.7		30	-0.7		63			
Boreal Shield	1.4		35				-2.2		30			
Atlantic Maritime	1.7	*	24	6.2	*	15	-1.7		17			
Northern Flicker												
Canada	-1.3	*	508	-3.6	*	296	-0.6		450	16.8	*	221
Boreal Shield	-1.1	n	123	-5.6	*	66	-1.5	*	105	-12.1		43
Atlantic Maritime	1.0		67	-2.6		63	2.5	*	58	-7.0		23
Mixedwood Plains	-2.4	*	46	-4.1	*	33	-3.5	*	44	-22.3		30
Boreal Plains	-1.6		67	-6.1	n	28	-0.3		63	-0.6		31
Prairies	-4.7	*	71	-3.2		40	-2.2		64	39.7		27
Pacific Maritime	-1.3		22	5.6		17	-1.6		21			
Pileated Woodpecker												
Canada	4.0	*	255	5.6	*	112	1.9	n	233	-3.5		83
Boreal Shield	6.2	*	69	7.4	*	35	0.5		63	-10.3		21
Atlantic Maritime	2.8	*	37	2.8		21	3.6		35			
Mixedwood Plains	4.7	*	24				7.5	*	23			
Boreal Plains	0.8		39				-0.3		36			
Pacific Maritime	-1.6		18				0.1		15			
Montane Cordillera	3.7	*	49	5.1		26	5.3	*	44	32.0		19
Olive-sided Flycatcher												
Canada	-2.3	*	336	-2.0		190	-2.8	*	279	-4.5		87
Boreal Shield	-3.1	*	94	-1.2		50	-5.1	*	78	-31.8		17
Atlantic Maritime	-3.8		64	-4.1	n	58	-3.0		48			
Boreal Plains	4.5	*	49				-0.1		45	20.4		15
Pacific Maritime	-5.7	*	21	7.6		17	-4.7	*	19			
Montane Cordillera	-3.7	*	52	-4.7		35	-1.1		44	-14.3		19
Western Wood-Pewee												
Canada	2.5		179	2.8		78	-2.1	*	161	-1.3		76
Boreal Plains	11.6	n	51	18.4		17	-3.2		47	5.2		21
Prairies	5.4	*	25				-9.1		24			
Pacific Maritime	-0.7		18				2.4		16			
Montane Cordillera	-2.5	*	59	-5.2	*	36	-2.0		52	3.6		26

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
Eastern Wood-Pewee												
Canada	-2.2	*	204	-4.2	*	145	-3.7	*	177	-23.2	*	80
Boreal Shield	-2.0		65	-2.9	n	36	-4.2	*	53	-24.7		24
Atlantic Maritime	-2.0	n	66	-2.0		63	-4.5	*	54	-18.5		17
Mixedwood Plains	-2.4	n	45	-6.9	n	33	-3.3	n	43	-33.1	*	24
Yellow-bellied Flycatcher												
Canada	0.6		160	9.9	*	86	-1.1		130	-17.1		35
Boreal Shield	3.3		74	14.1	*	25	3.6		63			
Atlantic Maritime	0.8		59	11.4	*	48	-0.1		48			
Alder Flycatcher												
Canada	0.9	n	429	-0.9		233	0.5		375	-13.7		172
Boreal Shield	1.0		122	0.7		64	0.4		104	2.4		42
Atlantic Maritime	1.4	n	67	-2.1		63	2.4		58	-3.2		22
Mixedwood Plains	0.1		41	1.7		29	0.9		36	3.9		21
Boreal Plains	0.9		66	2.8		27	-3.1	n	62	-26.2	*	31
Prairies	0.8		43	-18.8		22	-1.6		32	-28.6		16
Montane Cordillera	10.6	*	38	-7.8		18	9.8		35			
Willow Flycatcher												
Canada	-0.1		134	5.6		68	-1.7	n	121	1.9		55
Pacific Maritime	-3.7	*	19	-14.5		16	-2.4	n	17			
Montane Cordillera	1.9		45	16.8	*	29	-1.6		40	-0.3		17
Mixedwood Plains	3.3	*	37				-5.5		37	-28.7		20
Least Flycatcher												
Canada	0.5		445	1.4		262	0.2		389	-1.1		183
Boreal Shield	-1.4	n	108	1.1		65	-0.6		89	-17.4		42
Atlantic Maritime	-0.8		67	0.1		62	-2.2		57	-6.1		18
Mixedwood Plains	2.6		45	2.6		32	1.1		42	-13.1		25
Boreal Plains	1.4	*	67	2.7		29	0.7		63	-3.4		32
Prairies	2.7	*	80	3.4	n	40	1.5		71	8.3		33
Montane Cordillera	-1.6		42	-10.5		25	0.9		36	6.7		17
Hammond's Flycatcher												
Canada	1.7		73	-1.2		35	5.4	*	69	-0.3		37
Pacific Maritime	3.9	n	16				5.5	n	15			
Montane Cordillera	1.5		50	-1.6		27	4.7	n	47	10.1		23
Dusky Flycatcher												
Canada	0.7		63	20.1	*	37	0.0		58	34.1	n	32
Montane Cordillera	1.2		52	17.7	*	32	0.1		47	21.7		27
Pacific-slope Flycatcher												
Canada	9.3	*	25				14.2	*	25	-35.2		15
Montane Cordillera	10.2	*	19				14.0	*	19			
Eastern Phoebe												
Canada	0.8		288	-4.8	*	156	3.0	*	250	-9.7		120
Boreal Shield	1.1		72	-2.9		37	3.8		62	-11.6		33
Atlantic Maritime	2.4		40	-10.9		33	8.4		29			
Mixedwood Plains	1.4		46	-6.6	*	33	5.6	*	44	6.3		29
Boreal Plains	-0.5		60	-10.4	*	26	-1.9		57	-4.1		28
Prairies	-3.8	n	45	-2.5		20	-1.7		37			
Say's Phoebe												
Canada	1.0		37	-5.5		17	3.1		26			
Montane Cordillera	-0.7		15									
Great-Crested Flycatcher												
Canada	0.4		191	-0.9		110	-0.3		174	9.5		83
Boreal Shield	1.1		58	2.5		31	-2.7	n	54	17.5		26

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P ^a	N	Trend	P	N	Trend	P	N	Trend	P	N
Atlantic Maritime	-0.2		30	-0.1		22	-1.3		25			
Mixedwood Plains	-0.3		46	-5.8		33	1.2		44	-3.2		30
Boreal Plains	2.4		25				4.1	*	23			
Prairies	5.5		25				4.1		21			
Western Kingbird												
Canada	2.5	*	124	-2.4		65	3.4	*	105	-31.6	*	52
Prairies	1.9	*	76	-3.4		41	4.2	*	66	-26.9	n	34
Montane Cordillera	2.5		27	-1.0		16	2.5		22			
Eastern Kingbird												
Canada	0.1		407	2.2	*	247	-2.0	*	356	-26.5	*	160
Boreal Shield	0.2		91	7.0	*	48	-6.4	*	76	1.0		28
Atlantic Maritime	-1.5		64	3.4		58	-7.2	*	51			
Mixedwood Plains	1.5		46	2.6		33	-1.1		44	-9.4		30
Boreal Plains	-2.6	*	55	-1.3		26	-4.4	*	52	-4.1		24
Prairies	0.3		92	0.2		49	1.2		82	-43.0	*	44
Montane Cordillera	0.4		37	-4.5		26	2.8		29			
Horned Lark												
Canada	-0.7		233	0.8		146	-2.0		190	-5.3		80
Boreal Shield	-5.7	*	28	-9.0	*	16	-2.7		17			
Atlantic Maritime	-6.8	*	26	-9.1	*	25	-12.2	*	16			
Mixedwood Plains	-1.3		41	-2.4		33	-4.1	*	37	-23.1	n	22
Boreal Plains	-5.6		31	-3.2	*	18	-10.3	*	28			
Prairies	-1.1		90	0.4		49	-1.2		79	-11.7	n	42
Purple Martin												
Canada	2.0		130	1.3		83	1.5		103	-5.0		39
Boreal Shield	1.4	n	25	9.9	*	16	0.0		21			
Atlantic Maritime	2.5		15									
Mixedwood Plains	2.2		34	1.7		26	-8.2	*	28			
Boreal Plains	1.3		21				2.0		19			
Prairies	4.9		32	-6.7		15	10.9	*	25			
Tree Swallow												
Canada	0.7		499	2.2	*	294	-0.9		434	-1.9		205
Boreal Shield	-1.9		123	3.9		64	-4.1	*	105	-16.7		36
Atlantic Maritime	0.3		67	-1.7		63	-0.6		58	-2.3		23
Mixedwood Plains	6.0	*	46	1.2		33	5.0		44	-0.7		29
Boreal Plains	0.0		62	1.0		27	0.8		58	9.3		31
Prairies	3.5	*	79	5.7		41	3.6	*	66	-21.3		32
Pacific Maritime	-2.7		22	11.3		16	-5.9		19			
Montane Cordillera	0.9		57	6.2		37	-0.8		49	22.1		26
Violet-green Swallow												
Canada	5.8	*	81	-3.2		50	6.0	*	68	-7.7		33
Pacific Maritime	2.9		20	1.3		15	1.0		17			
Montane Cordillera	7.1		45	-5.7		30	6.2		39	9.8		19
Northern Rough-winged Swallow												
Canada	3.5		167	10.0	n	106	0.7		134	-34.3		49
Boreal Shield	0.4		30	6.2		19	1.6		22			
Mixedwood Plains	1.1		37	-1.8		29	1.6		32			
Prairies	1.3		19									
Pacific Maritime	-0.4		18									
Montane Cordillera	5.7		49	21.7	n	30	1.0		45	-55.6	*	21
Bank Swallow												
Canada	-1.8		340	-1.5		214	-5.9	*	281	-17.5		92
Boreal Shield	-4.6		69	6.4		47	-21.9	*	47			
Atlantic Maritime	-1.5		65	-3.3		59	-9.2	*	55			

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P ^a	N	Trend	P	N	Trend	P	N	Trend	P	N
Mixedwood Plains	-3.7		42	-5.1		32	-5.9		39	58.9		21
Boreal Plains	2.4		34				-4.8		31			
Prairies	5.2		59	-19.4	*	33	1.7		50	-31.4		16
Montane Cordillera	0.8		36	5.6		20	2.0		30			
Cliff Swallow												
Canada	1.3		375	5.3	n	225	1.6		332	5.7		131
Boreal Shield	2.6		76	8.3	n	48	-6.3	*	65	7.7		19
Atlantic Maritime	0.8		56	-0.5		51	-2.6		46			
Mixedwood Plains	-5.0		44	11.4		28	-9.8		40	-49.6		18
Boreal Plains	0.0		44	-9.2		19	3.5		42			
Prairies	4.1		65	6.4		33	8.9	n	59	-1.5		30
Montane Cordillera	1.8		47	-0.9		33	-2.5		41	31.7		18
Barn Swallow												
Canada	-1.1	*	491	2.7	*	291	-3.9	*	439	-2.3		224
Boreal Shield	-2.3	*	106	2.4		60	-6.9	*	89	3.2		36
Atlantic Maritime	-2.8	*	67	-0.6		63	-6.3	*	58	12.0		23
Mixedwood Plains	-1.6		46	3.6	*	33	-3.6	*	44	-8.0		30
Boreal Plains	0.2		68	2.3		28	-2.0	n	64	15.1		34
Prairies	0.5		92	4.9	*	49	-0.5		82	-22.1	*	45
Pacific Maritime	-3.0	*	21	11.9	*	16	-8.0	*	19			
Montane Cordillera	1.2		58	-1.0		36	-2.9		52	16.5		24
Gray Jay												
Canada	-0.4		260	-5.5	*	134	3.5	*	216	26.2	*	81
Boreal Shield	-1.7		75	-7.4	*	39	0.4		61	-2.9		16
Atlantic Maritime	-0.9		56	-1.1		49	0.6		42			
Boreal Plains	2.7	*	41				2.4		38			
Montane Cordillera	1.1		44	3.9		23	1.8		38			
Steller's Jay												
Canada	1.9	*	54	28.5	*	31	-2.0	n	45	23.5		20
Pacific Maritime	2.4	*	20	26.0	*	16	-2.0	n	18			
Montane Cordillera	4.1	*	31				6.1	*	25			
Blue Jay												
Canada	-0.2		300	-3.0	*	178	-0.3		269	1.4		132
Boreal Shield	-1.3		100	-3.0		56	-1.6		83	7.5		37
Atlantic Maritime	-0.1		67	-3.9		63	0.0		58	-10.4		23
Mixedwood Plains	2.8	*	46	-0.3		33	1.8	n	44	5.9		30
Boreal Plains	2.3		46				-0.4		44	22.6		17
Prairies	5.9	*	30				8.1		29	-0.1		15
Clark's Nutcracker												
Canada	3.3	*	28				5.1	n	25			
Montane Cordillera	3.2	n	25				5.0		23			
Black-billed Magpie												
Canada	0.0		192	-0.5		91	-0.2		178	9.2		96
Boreal Plains	0.9		56	-1.4		26	0.1		54	20.1		30
Prairies	-0.5		91	0.7		48	0.0		80	6.3		45
Montane Cordillera	-2.1		29	7.2		16	-3.4	*	28			
American Crow												
Canada	-0.1		479	-0.3		288	-0.3		427	7.3		217
Boreal Shield	0.2		126	-0.2		66	1.4		107	-5.4		41
Atlantic Maritime	1.4	*	67	-0.4		63	0.3		58	-13.3		23
Mixedwood Plains	1.6	*	46	-0.9		33	3.6	*	44	-10.8		30

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P ^a	N	Trend	P	N	Trend	P	N	Trend	P	N
Boreal Plains	-1.4		61	-0.9		28	-2.1	n	58	7.0		33
Prairies	-0.9		92	-0.1		49	-2.5	*	82	14.1		45
Montane Cordillera	0.3		56	2.6		37	-1.2		50	12.6		26
Northwestern Crow												
Canada	1.0		22	10.2	*	17	-0.2		19			
Pacific Maritime	0.9		20	7.7	*	16	0.0		18			
Common Raven												
Canada	3.9	*	404	4.8	*	200	1.5	*	360	4.7		163
Boreal Shield	5.1	*	124	5.3	*	60	1.5		105	6.8		39
Atlantic Maritime	1.7		66	0.1		60	3.6		57	-45.1		20
Boreal Plains	2.7		59	16.4		15	5.3		56	-0.6		29
Prairies	4.7	n	16				0.6		16			
Pacific Maritime	5.0	*	23	19.5		16	1.7		21			
Montane Cordillera	2.3	n	60	11.5	*	36	-0.6		54	53.4	*	28
Black-capped Chickadee												
Canada	1.5	*	446	3.1	*	251	1.0		397	28.8	*	193
Boreal Shield	2.8	n	122	2.0		61	0.7		103	40.8		43
Atlantic Maritime	5.5	*	66	2.0		61	8.9	*	58	10.4		23
Mixedwood Plains	7.1	*	45	7.8	*	29	3.1	*	43	25.3	n	29
Boreal Plains	3.2	n	62	-4.1		24	1.4		59	12.0		30
Prairies	2.9	n	46	5.2		21	-0.3		41			
Montane Cordillera	-1.2		57	1.9		36	-1.5		51	24.6		26
Mountain Chickadee												
Canada	3.2	*	52	3.8		28	-0.5		47	-10.5		23
Montane Cordillera	2.5		46	3.8		26	-1.0		42	-16.7		19
Boreal Chickadee												
Canada	-4.6	*	209	-10.0	*	103	-3.4	*	159	-24.9		44
Boreal Shield	-3.7	*	71	-11.2		28	-6.0	*	52			
Atlantic Maritime	-5.6	*	62	-8.8	*	55	-1.6		43			
Boreal Plains	-3.0		24				-5.8		22			
Montane Cordillera	-1.1		16									
Chestnut-backed Chickadee												
Canada	-3.3		38	2.9		24	-0.3		33			
Pacific Maritime	2.3		23	2.8		17	4.1		21			
Red-breasted Nuthatch												
Canada	3.7	*	351	1.7		198	5.6	*	306	3.0		142
Boreal Shield	2.1	*	98	-0.1		58	3.3		81	-19.2		36
Atlantic Maritime	5.4	*	65	-1.8		57	15.1	*	57	-42.2		20
Mixedwood Plains	1.0		23				-1.3		19			
Boreal Plains	3.5	*	47				4.6		44	18.0		20
Pacific Maritime	1.3		22				0.6		18			
Montane Cordillera	4.6	*	59	9.8		37	5.3	*	54	11.5		27
White-breasted Nuthatch												
Canada	0.2		166	-1.4		86	-0.3		132	2.8		56
Boreal Shield	0.9		46	1.1		20	0.9		38	-6.7		18
Atlantic Maritime	-1.1	n	29	-3.2	*	23	1.3		15			
Mixedwood Plains	0.0		44	-9.1	n	27	-0.4		40	-27.3		17
Boreal Plains	6.2	*	17				5.1	*	15			
Brown Creeper												
Canada	0.8		133	0.8		65	-2.3		102	49.4	n	34
Boreal Shield	-0.5		44	-1.6		21	-2.2		35			

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P ^a	N	Trend	P	N	Trend	P	N	Trend	P	N
Atlantic Maritime	1.5		21				8.0	*	15			
Pacific Maritime	2.5		19				-6.8		16			
Montane Cordillera	-1.2		28				-5.4	n	22			
Rock Wren												
Canada	1.8		19				1.8		17			
Bewick's Wren												
Canada	-1.7		17	3.0		15	-17.1	n	15			
Pacific Maritime	-1.9		16	3.7		15						
House Wren												
Canada	2.2	*	301	2.2	*	156	2.3	*	273	13.8	*	143
Boreal Shield	-2.0		52	1.2		23	-4.5		47	0.7		21
Mixedwood Plains	-0.6		46	3.8		33	-1.0		44	-14.6		27
Boreal Plains	1.7		60	0.4		26	1.7		56	2.6		30
Prairies	3.2	*	89	4.2	*	47	2.9	*	80	28.5	*	41
Montane Cordillera	4.9	*	26				7.8	*	24			
Winter Wren												
Canada	1.1		294	-5.3	*	182	3.3	*	251	-1.8		118
Boreal Shield	1.9		108	-11.1	*	60	7.7	*	90	-7.1		40
Atlantic Maritime	-1.4		66	-3.1		58	9.6	*	54	0.0		20
Mixedwood Plains	-1.4		26	1.4		16	2.2		23			
Pacific Maritime	2.5		23	21.9	*	17	-0.2		21			
Montane Cordillera	-0.2		39	3.9		23	-2.1		34	24.2		21
Sedge Wren												
Canada	3.1	n	99	2.2		47	10.7	*	74	48.4		23
Boreal Shield	3.3	n	26				4.4		20			
Boreal Plains	4.0		25				14.6	*	22			
Prairies	0.8		25				1.2		20			
Marsh Wren												
Canada	5.5	*	104	3.7		45	3.0	*	82	9.0		30
Boreal Plains	2.9		21				3.1		19			
Prairies	7.4	*	37	10.8	*	17	4.1		30			
Montane Cordillera	6.6		16				3.9		15			
American Dipper												
Canada	-3.1	*	17									
Golden-crowned Kinglet												
Canada	1.6		242	-0.3		124	1.9		208	9.2		85
Boreal Shield	3.7		70	-0.2		27	-1.4		58	-48.2		17
Atlantic Maritime	8.6	*	59	-3.8		42	11.0	*	48			
Boreal Plains	1.8		18				-1.3		16			
Pacific Maritime	-3.1		24	-6.8		17	3.3		22			
Montane Cordillera	0.0		49	1.6		29	-0.9		45	29.3		25
Ruby-crowned Kinglet												
Canada	-0.8		361	-4.3	*	204	2.7	*	304	20.0	*	121
Boreal Shield	-0.1		119	-7.5	n	61	5.5	*	97	-29.1		26
Atlantic Maritime	-1.9		67	-2.6		62	2.2	*	58	-8.9		21
Boreal Plains	11.5	*	47	61.1		17	8.4	*	41	27.8		16
Montane Cordillera	-0.5		53	1.3		36	-0.5		46	51.4	*	23
Eastern Bluebird												
Canada	2.0	n	99	-1.2		46	4.5	*	84	-34.4	n	43
Boreal Shield	2.7	n	39	7.6		21	3.6		33	-22.2		17
Mixedwood Plains	1.2		35	-10.7	n	18	4.1	n	29	-50.0	*	19

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
Mountain Bluebird												
Canada	0.4		125	-0.7		63	5.3	*	106	11.6		47
Boreal Plains	-7.5		25				8.9		22			
Prairies	5.8	n	41	-2.2		15	10.3	*	38	24.7		16
Montane Cordillera	-5.0		44	4.0		30	-0.3		35			
Townsend's Solitaire												
Canada	1.1		62	6.9		32	-1.0		51	20.1		28
Montane Cordillera	0.9		44	8.8		25	-2.8	n	37	1.7		16
Veery												
Canada	-1.5	*	325	0.8		206	-2.5	*	279	2.9		127
Boreal Shield	-1.5	n	101	-0.3		58	-2.9	*	84	-2.5		40
Atlantic Maritime	-0.2		63	3.7	*	55	-2.3	*	55	8.8		18
Mixedwood Plains	1.8		42	-1.0		29	0.2		39	-14.6		23
Boreal Plains	-7.6	*	31	0.0		17	-7.5		24			
Prairies	1.0		31	26.0		15	0.5		22			
Montane Cordillera	0.1		38	0.5		24	-0.2		35			
Gray-cheeked Thrush												
Canada	-1.6		50				-3.7		42			
Boreal Shield	-4.1		24				-3.9		22			
Swainson's Thrush												
Canada	-0.4		390	2.8	*	220	-0.8	n	336	5.5		141
Boreal Shield	0.8		116	5.6	*	62	-0.7		93	2.3		26
Atlantic Maritime	-1.0		67	1.5	n	63	-4.0	*	57	2.3		21
Boreal Plains	5.7	n	56	35.2	*	17	-2.3		53	27.3		19
Pacific Maritime	-1.0		24	-2.6		17	-0.3		22			
Montane Cordillera	-0.2		59	0.1		37	0.6		54	0.2		28
Hermit Thrush												
Canada	2.5	*	371	3.7	*	202	2.8	*	323	-4.9		136
Boreal Shield	3.3	*	121	2.3		63	5.1	*	104	-12.6		40
Atlantic Maritime	2.1	*	66	3.4	n	62	0.1		58	-18.8		21
Mixedwood Plains	3.5	*	18				8.4	*	15			
Boreal Plains	0.6		48	-2.5		16	-2.4		45	5.0		18
Prairies	-8.1		15									
Montane Cordillera	3.7	*	51	8.0		29	5.3	n	43	-3.7		18
Wood Thrush												
Canada	-3.4	n	144	-0.4		93	-2.9	*	122	-32.3		53
Boreal Shield	-5.8	*	53	0.4		29	-4.7	*	43	-47.1		20
Atlantic Maritime	-1.8	*	37	6.8	*	30	-2.4		27			
Mixedwood Plains	1.8		45	-1.5		32	-1.0		43	27.1		27
American Robin												
Canada	0.8	*	539	0.4		305	0.7	*	480	-0.8		249
Boreal Shield	1.1	*	130	1.9	*	66	0.3		111	-11.9		44
Atlantic Maritime	0.1		67	-0.8		63	0.1		58	-2.8		23
Mixedwood Plains	1.6	*	46	-1.1		33	1.7		44	-8.6		30
Boreal Plains	1.5	*	68	-1.1		29	3.1	*	64	5.1		34
Prairies	3.9	*	91	3.3		45	2.9	*	81	10.8		44
Pacific Maritime	-0.3		24	2.8		17	-0.3		22			
Montane Cordillera	0.0		61	1.0		39	-0.3		54	6.2		28
Varied Thrush												
Canada	0.2		103	11.6	n	49	-1.5		87	-9.3		44
Pacific Maritime	-0.3		22	16.5		15	-1.7		18			
Montane Cordillera	0.1		47	5.3		27	-2.2		41	-22.4		20

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
Gray Catbird												
Canada	-1.3	*	329	1.7	n	211	-2.7	*	281	-13.4		125
Boreal Shield	-3.7	*	75	-0.9		40	-3.7	*	62	-28.8	n	28
Atlantic Maritime	-1.4	n	64	2.6		59	-3.7	*	54	22.7		16
Mixedwood Plains	-1.5		46	1.7		33	-3.1		44	-7.6		29
Boreal Plains	-0.2		35	0.8		18	-1.8		32			
Prairies	1.1		64	7.2		34	-5.1	*	54	-42.9	*	23
Montane Cordillera	-2.5		29	-11.8	n	19	2.1		22			
Northern Mockingbird												
Canada	0.8		59	3.5	*	30	2.6	*	37			
Mixedwood Plains	1.1		18									
Brown Thrasher												
Canada	-2.1	*	215	0.5		130	-1.3	*	181	-9.1		85
Boreal Shield	-1.7		54	2.7		36	-3.3	*	44	-12.4		20
Atlantic Maritime	2.6		18									
Mixedwood Plains	-3.3	*	44	0.9		33	-3.4		41	1.2		23
Boreal Plains	0.3		18				3.2		15			
Prairies	-1.4		75	-1.4		41	3.5		63	-18.3		28
Sprague's Pipit												
Canada	-6.9	*	94	-4.4		48	-10.5	*	80	12.0		21
Boreal Plains	-3.5	n	24				-7.1		20			
Prairies	-7.3	*	67	-2.5		35	-10.6	*	57	25.6		18
Bohemian Waxwing							0.0		26			
Canada	-1.5		36									
Cedar Waxwing												
Canada	2.6	*	446	1.1		251	-0.2		399	24.9	*	195
Boreal Shield	1.1		117	4.6		62	-3.4	*	99	-4.9		42
Atlantic Maritime	5.7	*	65	-6.8	*	56	2.7	n	58	-1.1		19
Mixedwood Plains	7.0	*	45	5.8	*	33	0.0		43	45.2	*	28
Boreal Plains	1.4		60	-6.2		20	2.3		58	131.7	*	31
Prairies	3.6		59	-4.9		25	2.3		51	62.3	n	23
Pacific Maritime	1.1		21	1.3		16	1.9		19			
Montane Cordillera	3.7	*	54	-7.5		33	3.0		48	-35.3		26
Loggerhead Shrike												
Canada	-4.1	*	93	-11.7	*	64	4.5	*	57	-1.6		18
Mixedwood Plains	-2.4	*	16	-4.1		15						
Prairies	-5.2	*	63	-13.3	*	40	5.6	*	47	5.9		17
European Starling												
Canada	-1.7	*	449	-1.7	*	285	-2.2	*	398	-3.1		201
Boreal Shield	-2.5	*	98	-4.6	*	57	-2.1	*	81	-11.7		31
Atlantic Maritime	-1.4	*	66	-2.6	*	62	0.1		57	14.2		23
Mixedwood Plains	-1.5	*	46	-1.9	*	33	0.4		44	-4.8		30
Boreal Plains	1.7		57	3.1		26	-0.9		54	8.9		27
Prairies	-0.3		88	-0.5		48	0.0		78	39.0	*	41
Pacific Maritime	-2.7	*	22	7.7		17	-8.9	*	19			
Montane Cordillera	-6.1	*	50	-5.5		35	-5.6	*	44	15.2		23
Solitary Vireo												
Canada	3.5	*	295	5.2	*	159	4.1	*	252	-7.1		107
Boreal Shield	1.3		88	-0.8		44	5.3		71	-11.7		22
Atlantic Maritime	5.1	*	64	10.8	*	58	3.9	*	53	-2.0		22
Boreal Plains	3.4	n	35				3.4		32			
Pacific Maritime	-5.6		19				0.6		16			
Montane Cordillera	4.9	*	54	2.1		28	3.1	n	49	6.9		25

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
Yellow-throated Vireo												
Canada	0.1		43	-6.5	n	22	5.8	*	33			
Boreal Shield	-1.3		15									
Mixedwood Plains	1.2		21				6.6	n	17			
Warbling Vireo												
Canada	2.2	*	334	3.4	*	176	1.6	*	307	9.6		153
Boreal Shield	-1.1		51	6.2	*	24	-3.0		45	-4.2		20
Atlantic Maritime	6.0	n	19				2.8		18			
Mixedwood Plains	4.6	*	45	5.8		32	1.7		43	0.1		26
Boreal Plains	-0.4		54	-1.6		23	-0.4		51	17.7		24
Prairies	2.7	n	66	5.3	n	31	2.7	n	61	-10.4		28
Pacific Maritime	0.5		21	0.3		16	1.5		19			
Montane Cordillera	2.2	*	59	-6.3	*	36	2.9	*	54	15.9		28
Philadelphia Vireo												
Canada	1.8	n	157	5.0	n	64	5.4	*	129	-14.5		37
Boreal Shield	1.0		82	5.2	*	37	5.0		61	-13.4		16
Atlantic Maritime	5.5	n	21				16.1	*	19			
Boreal Plains	2.7		27				6.8	n	27			
Red-eyed Vireo												
Canada	1.3	*	439	3.4	*	273	0.2		389	8.0	n	192
Boreal Shield	1.1	*	104	1.1		65	1.1	*	85	-0.2		42
Atlantic Maritime	1.8	*	67	6.2	*	63	1.0		58	46.6	*	23
Mixedwood Plains	0.1		46	0.8		33	7.1	*	44	8.4		29
Boreal Plains	3.2		65	16.8	*	28	-1.7	n	61	5.2		31
Prairies	0.6		58	8.6	*	28	-3.5	n	52	-7.6		23
Pacific Maritime	-3.1		19				2.5		17			
Montane Cordillera	-2.6	*	52	3.4		36	-3.1	*	45	0.8		20
Golden-winged Warbler												
Canada	4.0	*	27				5.0	*	24			
Boreal Shield	3.6	*	17				5.2	*	16			
Tennessee Warbler												
Canada	2.3		293	13.3	*	157	-2.8		238	8.7		64
Boreal Shield	3.7		101	23.8		49	-3.0		81	22.1		22
Atlantic Maritime	4.1		65	10.9		60	-3.0		51	-1.6		16
Boreal Plains	-0.1		50	20.6		15	-2.7		46			
Montane Cordillera	-1.5		25				4.4		19			
Orange-crowned Warbler												
Canada	1.0		157	1.8		70	3.2	*	138	-11.8		67
Boreal Plains	16.4	*	32				13.6	*	30			
Pacific Maritime	-2.3		23	-0.8		16	0.9		21			
Montane Cordillera	4.0	*	55	2.9		32	4.1	*	50	-18.8		25
Nashville Warbler												
Canada	0.4		260	-0.5		161	1.3	*	228	6.6		101
Boreal Shield	0.9		106	-0.2		63	1.8	*	89	26.2	*	41
Atlantic Maritime	-1.0	n	66	-1.3		60	-2.1	*	56	-15.6		20
Mixedwood Plains	0.8		26				4.7		25			
Montane Cordillera	9.4	*	27	15.2	n	15	4.7		26			
Northern Parula												
Canada	1.1		127	6.6	*	82	-1.3		106	-12.1		32
Boreal Shield	3.6	*	49	5.9		20	4.1	*	38			
Atlantic Maritime	0.8		64	6.5	*	57	-2.3	*	55	-15.0		18

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
Yellow Warbler												
Canada	1.0	*	512	0.0		294	0.5	*	456	-0.7		221
Boreal Shield	0.8		118	2.7		57	-2.2	*	103	10.4		36
Atlantic Maritime	1.6	*	67	1.8		63	1.6		57	14.6		23
Mixedwood Plains	3.2	*	46	-1.3		33	2.2		44	0.0		30
Boreal Plains	1.3	*	67	1.8		28	0.8		64	14.2		33
Prairies	1.4		85	-1.0		47	3.0	*	75	-10.9		38
Pacific Maritime	-1.8	n	22	2.5		17	-0.8		20			
Montane Cordillera	-1.6		58	-5.1	n	37	0.0		51	-24.9		25
Chestnut-sided Warbler												
Canada	-0.6		234	2.2		159	0.1		200	1.1		92
Boreal Shield	-0.1		104	2.3		63	0.1		85	-8.0		41
Atlantic Maritime	-1.4		64	1.2		59	-1.8		57	27.2		21
Mixedwood Plains	1.6		34	7.1		22	9.6	*	29	-14.3		15
Boreal Plains	0.6		15									
Magnolia Warbler												
Canada	0.7		264	2.3	n	154	0.7		224	6.0		90
Boreal Shield	2.2		124	3.6		63	3.7	*	104	11.4		38
Atlantic Maritime	0.2		67	1.8		62	-1.4		58	-6.8		21
Mixedwood Plains	0.4		16									
Boreal Plains	0.4		22				-0.4		20			
Cape May Warbler												
Canada	2.2	*	156	14.9		85	-0.1		119	38.5	n	32
Boreal Shield	3.6	*	72	27.4		34	0.6		53	74.5	*	16
Atlantic Maritime	0.7		57	3.9		41	-0.5		44			
Black-throated Blue Warbler												
Canada	1.5		157	-1.6		93	3.2	n	120	14.3		42
Boreal Shield	2.3		74	-5.4	*	38	4.1		58	13.7		20
Atlantic Maritime	0.0		58	1.9		46	0.8		40			
Yellow-rumped Warbler												
Canada	1.3	*	406	3.0		169	0.5		354	9.1	*	166
Boreal Shield	1.6		129	3.6		65	0.3		110	-24.1	*	44
Atlantic Maritime	1.9	*	67	1.8		62	-0.2		58	-7.0		23
Mixedwood Plains	4.2		16									
Boreal Plains	3.8	*	55	11.3		16	0.1	*	50	22.3		20
Boreal Plains	-3.0		24									
Black-throated Gray Warbler												
Canada	-0.8		21				8.6		18			
Pacific Maritime	-1.0		17				10.1		15			
Townsend's Warbler												
Canada	-1.5		71	7.2		37	0.3		59	-13.0		32
Pacific Maritime	-0.2		22				2.9		20			
Montane Cordillera	0.2		41	9.9		24	-2.3		32	-18.6		15
Black-throated Green Warbler												
Canada	-0.7		224	-0.5		125	-1.9		191	-1.9		82
Boreal Shield	0.1		106	-3.1		48	0.1		91	0.6		34
Atlantic Maritime	-0.4		66	0.8		60	-1.3		57	15.4		22
Mixedwood Plains	4.0	*	26				7.7	*	19			
Blackburnian Warbler												
Canada	2.1	n	189	3.0		117	3.7	*	159	-12.8		60
Boreal Shield	1.5		93	3.3		51	4.3	*	75	1.1		29
Atlantic Maritime	3.8	*	62	8.6	*	53	0.9		55	-50.5	*	16

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
Pine Warbler												
Canada	1.4		55	-1.0		24	2.9	*	46	-5.2		22
Boreal Shield	2.8		42	2.1		19	3.5	n	36	15.7		18
Palm Warbler												
Canada	1.0		85	-0.4		35	1.5		66	50.2	*	16
Boreal Shield	4.2		30				7.1		26			
Atlantic Maritime	1.3		34	-0.8		24	6.0		23			
Boreal Plains	-3.4		15									
Bay-breasted Warbler												
Canada	2.9		151	10.4		101	-1.4		111	-50.3	n	28
Boreal Shield	-0.7		71	28.4		41	-6.6		50			
Atlantic Maritime	5.1		61	1.0		51	1.8		45			
Blackpoll Warbler												
Canada	-4.9	*	147	21.3	*	70	-6.5	*	103	11.9		27
Boreal Shield	-2.1		46	32.6	*	16	-5.4	*	33			
Atlantic Maritime	-10.7	*	41	4.0	*	33	-12.8	*	21			
Boreal Plains	-0.4		15									
Black-and-white Warbler												
Canada	1.5	n	274	3.1	*	154	1.1		237	-3.9		95
Boreal Shield	3.1	*	119	1.9		58	2.0	n	102	2.2		36
Atlantic Maritime	0.0		66	4.1	*	61	-1.5		57	-10.6		21
Mixedwood Plains	5.2	*	35	0.8		21	9.5	n	30	-13.2		20
Boreal Plains	0.5		32				1.3		28			
American Redstart												
Canada	0.0		347	3.0	*	209	-1.0		302	-0.4		120
Boreal Shield	0.2		121	1.0		64	1.4		103	1.7		36
Atlantic Maritime	0.1		67	4.6	*	62	-1.8	*	58	-2.7		23
Mixedwood Plains	1.4		39	0.8		30	2.6		35	-24.5		16
Boreal Plains	1.0		39				-0.6		36			
Montane Cordillera	-0.3		44	1.1		27	-2.0	n	38			
Ovenbird												
Canada	0.0		333	2.5	*	189	-1.1	*	292	-5.6		118
Boreal Shield	-0.1		122	1.5		65	-0.7		102	-7.9		41
Atlantic Maritime	0.5		66	5.0	*	61	-2.5	*	56	-3.7		19
Mixedwood Plains	4.2	*	43	-2.2		28	4.6		40	10.3		23
Boreal Plains	-0.4		60	13.2	*	21	-4.1	n	56	-24	*	19
Prairies	-1.9		15									
Northern Waterthrush												
Canada	-0.5		341	3.6	n	171	-2.3		285	9.0		108
Boreal Shield	-1.3		115	-0.8		54	-0.8		96	-12.1		29
Atlantic Maritime	0.0		61	8.0	*	54	-2.2		45	24.7		15
Mixedwood Plains	1.9		30	-11.1	*	18	4.7	*	25			
Boreal Plains	5.2	n	36				9.6	*	31			
Montane Cordillera	3.3	n	46	1.6		26	1.3		41	9.7		20
Connecticut Warbler												
Canada	1.1		84	-4.4		31	-2.8		67	-1.1		21
Boreal Shield	1.9		31				-0.9		22			
Boreal Plains	3.2		45				-9.4		39			
Mourning Warbler												
Canada	-0.5		295	2.1		164	-2.3	*	257	-14.8		85
Boreal Shield	-0.2		123	2.1		63	-1.8	n	105	-23.1	*	37
Atlantic Maritime	-0.9		60	5.6	n	52	-5.3	*	49	35.3		15

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
Mixedwood Plains	5.2	*	33	6.8		23	3.8		29			
Boreal Plains	0.0		47	7.3		17	-1.6		44			
MacGillivray's Warbler												
Canada	-1.3		84	8.6		50	-2.3	*	73	-9.2		40
Pacific Maritime	-3.1		20	22.7		16	-4.6	*	17			
Montane Cordillera	2.4	n	51	0.6		31	1.0		46	0.8		26
Common Yellowthroat												
Canada	-0.4		501	1.3		282	-0.8	*	445	-0.5		217
Boreal Shield	-1.0	n	127	-0.1		65	-1.1	n	109	0.3		43
Atlantic Maritime	-0.2		67	1.0		63	-1.2		58	-5.7		23
Mixedwood Plains	0.4		46	0.1		33	-0.9		44	0.9		29
Boreal Plains	2.3		65	14.8		27	-1.9		62	12.0		29
Prairies	2.8	*	80	8.4	n	41	1.0		68	-10.7		33
Pacific Maritime	0.9		19				5.0	n	18			
Montane Cordillera	1.2		54	-1.4		33	2.3	n	47	20.9	*	23
Wilson's Warbler												
Canada	0.1		262	-3.0		136	0.5		217	18.3		69
Boreal Shield	1.6		77	7.4		32	1.7		61			
Atlantic Maritime	1.4		49	9.3	*	40	-7.9	*	38			
Boreal Plains	6.9	*	18				4.6		16			
Pacific Maritime	2.1		24	-16.8	n	16	6.3		21			
Montane Cordillera	-3.1	n	53	-14.8	*	33	-2.3		46	-10.6		20
Canada Warbler												
Canada	-2.3		198	-1.7		130	-3.8	*	156	-6.1		52
Boreal Shield	-1.5		93	-8.0	n	56	-1.8	*	73	25.0		24
Atlantic Maritime	-1.3		65	7.9	n	59	-6.3	*	51	-42.1	*	15
Mixedwood Plains	-1.5		15									
Scarlet Tanager												
Canada	-1.9	n	153	1.0		90	-2.2		130	-8.3		40
Boreal Shield	-3.4	*	72	2.9		39	-6.2	*	59	-32.4		20
Atlantic Maritime	0.1		30	5.0	n	18	-2.0		24			
Mixedwood Plains	2.7		40	-2.3		30	6.5		37	-5.5		15
Western Tanager												
Canada	0.5		105	-7.1	*	59	4.6	*	91	7.0	n	45
Boreal Plains	5.3		23				8.0		21			
Pacific Maritime	-4.2		18	-6.0		15	3.6		15			
Montane Cordillera	1.6		55	-6.7	*	36	4.5	*	48	6.5		25
Northern Cardinal												
Canada	1.2		44	-0.7		22	2.4		40	-20.2		25
Mixedwood Plains	1.0		38	-0.8		20	2.8		36	-22.2		22
Rose-breasted Grosbeak												
Canada	-1.6		305	8.2	*	185	-4.9	*	270	0.2		117
Boreal Shield	-2.2	*	91	9.0	*	53	-5.0	*	74	0.2		33
Atlantic Maritime	-0.3		62	15.5	*	57	-8.0	*	53	9.0		15
Mixedwood Plains	0.8		46	6.8	n	33	-3.4	*	44	-28.2	n	28
Boreal Plains	1.3		59	-2.5		24	0.5		55	52.3	n	20
Prairies	2.6		32				3.2		30			
Black-headed Grosbeak												
Canada	1.6		39	13.2	n	21	-0.2		35			
Pacific Maritime	1.5		17				-1.3		15			
Montane Cordillera	4.0	n	19				6.5	*	18			

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
Lazuli Bunting												
Canada	5.7	*	42	0.7		23	9.2	*	38	6.3		20
Montane Cordillera	5.9	*	34	2.4		19	8.2	*	32	2.7		15
Indigo Bunting												
Canada	1.0		115	3.6	*	73	-0.7		95	-12.9		48
Boreal Shield	0.9		52	2.3		31	-0.2		44	-14.6		22
Mixedwood Plains	2.5	n	43	2.3		31	0.3		41	-29.6		22
Rufous-sided Towhee												
Canada	0.9		138	1.2		87	2.8	*	111	4.0		53
Boreal Shield	-2.0		23	-8.2	*	17	-0.6		18			
Mixedwood Plains	-1.5		34	-6.4	n	26	6.5	n	25			
Prairies	2.8		22				11.0	n	17			
Pacific Maritime	-0.1		18	6.4		15	1.3		16			
Montane Cordillera	6.2	*	26				2.6		23			
American Tree Sparrow												
Canada	-0.9		21				-0.8		15			
Chipping Sparrow												
Canada	0.0		489	0.5		285	0.1		426	-4.3		219
Boreal Shield	0.8		112	1.5		66	0.2		93	-14.2	n	42
Atlantic Maritime	0.2		67	-0.6		62	-1.7		58	-9.7		21
Mixedwood Plains	1.9	n	46	-4.3		33	1.4		44	-20.9	*	30
Boreal Plains	-3.0	n	68	-1.8		27	-4.1	n	64	16.4		33
Prairies	2.7		68	-1.6		33	4.8	*	57	-33.6	*	28
Pacific Maritime	-4.8		19									
Montane Cordillera	0.4		61	0.4		39	3.8	*	54	7.1		28
Clay-colored Sparrow												
Canada	-1.2	*	235	1.8	*	103	-0.2		211	12.5	*	98
Boreal Shield	1.8		29				-0.8		24			
Boreal Plains	-1.8	*	68	1.1		28	-0.8		64	3.8		33
Prairies	-0.8		91	2.4		49	-0.4		80	13.5	*	44
Montane Cordillera	3.7	*	25				4.2	n	25			
Brewer's Sparrow												
Canada	4.2		16									
Field Sparrow												
Canada	-0.6		80	1.0		51	-1.9		65	-1.7		34
Boreal Shield	0.4		25	23.5		17	-4.9		19			
Mixedwood Plains	-0.5		41	0.6		29	-1.4		37	2.8		20
Vesper Sparrow												
Canada	0.6		332	0.4		201	0.6		279	-2.6		130
Boreal Shield	1.0		57	0.9		37	-3.8		42	31.1		18
Atlantic Maritime	-11.3	*	35	-7.9		31	-19.2	*	20			
Mixedwood Plains	-2.5		41	-9.3		32	-1.0		38	0.6		20
Boreal Plains	0.5		55	-5.4	n	27	2.5	n	52	2.5		25
Prairies	1.7	n	91	2.1		48	0.5		81	-4.9		43
Montane Cordillera	0.6		41	2.9		23	1.5		36	-10.5		17
Lark Sparrow												
Canada	-2.8		29	13.7		16	-6.9		18			
Prairies	-3.2		21				-16.3		17			
Lark Bunting												
Canada	-5.1		44	-17.9		17	3.3		37			
Prairies	-11.2		44	-29.6	*	18	4.5		37			

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P ^a	N	Trend	P	N	Trend	P	N	Trend	P	N
Savannah Sparrow												
Canada	-0.1	*	470	1.6	*	274	0.5	*	414	3.9		211
Boreal Shield	-1.8	*	94	-0.4		54	-2.7	*	76	-16.9		31
Atlantic Maritime	-1.8	*	64	-1.8		60	-0.9		55	-4.8		21
Mixedwood Plains	-1.4	*	46	1.6		33	-2.2	*	44	-17.3		30
Boreal Plains	2.6	*	64	8.4	*	27	1.4		61	-6.1		32
Prairies	1.6	n	92	-1.2		49	3.5	*	81	14.9	n	44
Pacific Maritime	-1.1		15									
Montane Cordillera	0.8		52	11.6	*	29	1.3		47	21.7	n	23
Baird's Sparrow												
Canada	-1.1		68	-7.5	*	36	3.3		57	-15.2		20
Prairies	0.2		64	-3.6		35	1.1		54	-9.6		20
Grasshopper Sparrow												
Canada	-1.6		99	-0.1		54	-2.9		79	18.7		21
Mixedwood Plains	-2.6		28	-3.5		21	2.9		24			
Prairies	2.9		46	7.0		22	-5.3	*	34			
Le Conte's Sparrow												
Canada	5.3	n	145	2.9		55	2.8	*	131	3.1		59
Boreal Plains	7.5		63	4.6		26	2.0		59	-17.1		25
Prairies	3.7		60	0.9		26	2.8		54	24.8		27
Sharp-tailed Sparrow												
Canada	-0.3		66	-10.3		29	2.1		55	-36.1		17
Atlantic Maritime	-2.5		17				0.8		15			
Boreal Plains	0.8		16				2.6		26			
Prairies	0.2		31									
Fox Sparrow												
Canada	1.3		120	20.3	*	27	0.8		104	8.1		31
Boreal Shield	-0.5		31				-0.6		30			
Atlantic Maritime	3.1		17						19			
Montane Cordillera	2.6	n	20				2.7					
Song Sparrow												
Canada	-1.3	*	469	-2.6	*	292	0.2		416	-4.4		215
Boreal Shield	-1.8	*	115	-3.7	*	65	-0.1		97	-17.4	*	40
Atlantic Maritime	-0.9	*	67	-2.0	*	63	0.1		58	-24.2	*	23
Mixedwood Plains	0.5		46	-2.9	*	33	0.0		44	-19.1	*	30
Boreal Plains	-2.6	*	61	-1.8		28	0.4		58	20.5	*	30
Prairies	-1.5		77	-3.9	n	42	1.9		65	23.6	*	33
Pacific Maritime	-0.4		24	4.9		17	-0.5		22			
Montane Cordillera	-1.3		54	-3.3		38	-1.0		47	21.4		25
Lincoln's Sparrow												
Canada	5.0	*	301	9.8	*	131	1.7		255	-0.8		99
Boreal Shield	1.3		82	4.9		33	1.9		63	15.9		15
Atlantic Maritime	0.5		58	16.6	*	48	-5.0	*	46			
Boreal Plains	10.9	*	53	30.9	*	15	1.2		50	3.4		21
Montane Cordillera	9.0		46	35.2	*	21	5.4		41	-4.3		21
Swamp Sparrow												
Canada	0.3		288	-0.1		157	1.6		248	1.8		95
Boreal Shield	0.6		113	0.7		55	1.1		97	-22.7	n	33
Atlantic Maritime	-0.6		64	-1.8		61	1.2		51	55.9		17
Mixedwood Plains	6.3		37	-0.8		25	15.8	*	34	-13.6		18
Boreal Plains	-0.6		41				-2.9		39			

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
White-throated Sparrow												
Canada	-1.7	*	362	-1.3		198	-0.6		319	-11.9	*	144
Boreal Shield	-0.9	*	130	-1.0		66	-0.2		111	-12.3	*	44
Atlantic Maritime	-3.0	*	67	-1.9	*	63	-2.6	*	58	-12.5		23
Mixedwood Plains	-0.6		37	0.6		23	-4.5	*	33	-23.6		19
Boreal Plains	1.3		66	-1.6		27	1.6		62	11.1		28
Prairies	1.2		21				-6.3	*	19			
White-crowned Sparrow												
Canada	-1.7		102	-2.6		48	1.8		83	-25.5	n	42
Pacific Maritime	-1.4		20	-9.5	*	15	0.7		18			
Montane Cordillera	4.4	*	41	27.4	*	21	4.7	*	33			
Dark-eyed Junco												
Canada	-0.8		385	-0.8		210	-0.8		334	33.7	*	137
Boreal Shield	-2.2	*	117	1.7		58	-1.4		95	-15.2		26
Atlantic Maritime	-0.9		67	-3.5	*	63	-2.4	*	58	-4.0		22
Boreal Plains	0.6		51	11.6	*	16	0.0		48	-6.5		20
Pacific Maritime	-3.0		24				-3.1		21			
McCown's Longspur												
Canada	-8.2		21				-6.4		18			
Prairies	-9.0		21				-7.7		17			
Chestnut-collared Longspur												
Canada	-1.8		47	4.1	*	27	-2.4	*	39			
Prairies	-2.2		46	3.9	*	28	-3.1		39			
Bobolink												
Canada	-2.1	*	288	4.2	*	186	-6.9	*	257	-3.1		110
Boreal Shield	-1.7		69	3.4	n	40	-7.1	*	58	-17.6		28
Atlantic Maritime	-3.0	*	63	7.6	*	58	-9.9	*	56	-9.9		17
Mixedwood Plains	-3.9	*	46	2.9	*	33	-5.6	*	44	26.4	n	30
Boreal Plains	-4.5	n	22				-7.2		20			
Prairies	0.5		58	7.4	*	30	-2.4		49	-27.4		17
Red-winged Blackbird												
Canada	-0.8	n	479	4.3	*	295	-1.9	*	427	-4.0		223
Boreal Shield	-3.6	*	105	3.1	n	64	-4.7	*	87	-7.5		40
Atlantic Maritime	-0.8		67	9.0	*	63	-4.8	*	58	0.5		20
Mixedwood Plains	0.0		46	4.8	*	33	-1.4		44	-7.1		30
Boreal Plains	0.3		68	3.4	n	29	-1.4	n	64	-6.1		32
Prairies	-1.6	*	92	3.1	n	49	-1.6		82	4.6		45
Pacific Maritime	3.0		17				1.2		16			
Montane Cordillera	1.9		50	0.1		35	2.0		44	-28.9		23
Eastern Meadowlark												
Canada	-3.7	*	120	-3.5	*	85	-3.9	*	97	-17.8	*	57
Boreal Shield	-2.2	*	46	-4.4		28	-2.9	*	38	-19.5	n	21
Atlantic Maritime	1.0		23	-6.3		22						
Mixedwood Plains	-4.1	*	46	-3.9	*	33	-3.9	*	44	-11.5		29
Western Meadowlark												
Canada	-1.1	*	226	-2.5	*	127	-1.0	*	188	-3.4		83
Boreal Shield	0.8		19				-4.2		15			
Mixedwood Plains	0.0		20	-4.3	*	16						
Boreal Plains	-1.2		43	-6.4	n	21	-2.7		41	11.1		21
Prairies	-2.1	*	92	-5.0	*	49	-0.6		81	-2.7		42
Montane Cordillera	-0.4		39	2.2		26	-1.3		33			

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
Yellow-headed Blackbird												
Canada	3.0	*	163	7.5	*	77	0.6	*	146	-15.6	*	68
Boreal Plains	6.9	*	42	11.5	*	16	-1.3	*	42	-0.2	*	20
Prairies	2.6	*	87	6.1	*	47	0.7	*	77	-8.0	*	42
Montane Cordillera	-2.0	*	24				-8.3	n	20			
Rusty Blackbird												
Canada	-5.7	*	170	-11.7	*	96	-1.6	*	113	59.0	*	19
Boreal Shield	-5.2	*	59	-17.9	*	24	-4.5	*	43			
Atlantic Maritime	-5.9	*	51	-3.1	*	44	-0.4	*	33			
Boreal Plains	-6.9	*	17									
Brewer's Blackbird												
Canada	0.0	*	244	4.5	n	132	-1.4	*	217	0.6	*	116
Boreal Shield	-2.3	*	17				-1.6	*	15			
Boreal Plains	-0.4	*	59	8.0	*	24	-3.3	*	58	5.5	*	32
Prairies	0.6	*	92	3.7	*	49	2.1	*	82	-8.9	*	45
Pacific Maritime	-9.5	*	17				-2.4	*	15			
Montane Cordillera	-0.2	*	48	-0.3	*	34	-3.7	*	39	-4.3	*	20
Common Grackle												
Canada	-2.0	*	358	-3.7	*	225	-1.3	*	314	-3.3	*	147
Boreal Shield	-3.9	*	107	-2.6	n	65	-3.7	*	89	-6.4	*	42
Atlantic Maritime	-0.6	*	67	-3.8	n	63	0.6	*	58	-5.0	*	23
Mixedwood Plains	-1.6	*	46	-4.7	*	33	-0.1	*	44	2.6	*	30
Boreal Plains	-2.0	*	46	8.1	*	19	0.6	*	42			
Prairies	-1.6	*	73	4.5	*	41	1.7	*	63	-44.4	*	27
Brown-headed Cowbird												
Canada	-1.5	*	454	0.8	*	286	-1.5	*	398	-13.2	*	201
Boreal Shield	-4.8	*	91	4.6	*	56	-6.5	*	71	-1.1	*	32
Atlantic Maritime	-7.3	*	66	-5.3	*	62	-10.3	*	56	-9.6	*	15
Mixedwood Plains	-4.7	*	46	-4.4	*	33	-4.8	*	44	0.1	*	30
Boreal Plains	-2.2	*	59	-0.2	*	27	-0.6	*	55	-31.8	*	29
Prairies	0.4	*	92	3.5	*	49	-0.6	*	82	-22.4	*	45
Pacific Maritime	-3.5	n	20	-0.9	*	16	-9.0	*	17			
Montane Cordillera	-0.6	*	56	1.9	*	36	-1.6	*	51	31.0	*	26
Orchard Oriole												
Canada	2.9	n	25				-0.2	*	23			
Northern Oriole												
Canada	0.3	*	277	14.4	*	19	-2.0	*	247	-8.0	*	119
Boreal Shield	-0.3	*	46	7.1	*	28	-4.9	*	42	-15.3	*	17
Atlantic Maritime	-2.3	*	31	12.8	*	24	-10.4	*	25			
Mixedwood Plains	-2.3	n	45	-0.6	*	33	-4.2	*	43	-14.3	*	28
Boreal Plains	-1.5	*	57	1.8	*	24	-3.3	n	54	2.9	*	29
Prairies	2.6	*	86	6.0	*	47	1.9	n	74	-10.1	*	36
Montane Cordillera	3.4	n	24				2.3	*	21			
Pine Grosbeak												
Canada	-2.5	*	131	13.1	*	60	-3.2	*	88	74.7	*	19
Boreal Shield	-3.2	*	36				-5.6	*	28			
Atlantic Maritime	-8.6	*	42	-6.7	n	32	-8.2	*	20			
Montane Cordillera	0.1	*	26				-1.0	*	17			
Purple Finch												
Canada	-2.7	*	347	-2.4	*	206	-3.3	*	294	-18.3	*	106
Boreal Shield	-1.3	*	122	0.4	*	63	-3.8	*	103	-7.5	*	34
Atlantic Maritime	-2.9	*	67	-2.9	*	63	-2.7	n	58	-36.2	*	23
Mixedwood Plains	3.4	*	33	1.9	*	22	0.1	*	27			

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P*	N	Trend	P	N	Trend	P	N	Trend	P	N
Boreal Plains	1.7		42	-5.8	n	15	4.1		36			
Pacific Maritime	-1.4		20				2.5		17			
Montane Cordillera	-4.8	*	31	0.8		19	-13.8	*	24			
Cassin's Finch												
Canada	1.7		30	2.9		19	1.2		28			
Montane Cordillera	1.7		27	5.8		18	1.0		25			
House Finch												
Canada	5.9	*	91	7.8		19	7.7	*	84	-2.6		50
Mixedwood Plains	6.3	*	37				25.8	*	37	0.5		24
Pacific Maritime	6.4	*	16									
Montane Cordillera	5.2	*	15									
Red Crossbill												
Canada	1.5		156	4.9		69	-2.7		125	-18.5		40
Boreal Shield	0.5		29				1.4		22			
Atlantic Maritime	1.6		32	2.7		23	3.8		18			
Pacific Maritime	1.3		21				-15.9		20			
Montane Cordillera	1.8		45	8.6		23	0.7		43	-20.5		19
White-winged Crossbill												
Canada	-1.4		165	-19.3	*	59	4.5		132	-25.6		43
Boreal Shield	-2.6		42				-0.3		34			
Atlantic Maritime	2.0	*	45	-15.9	*	24	9.4	*	35			
Boreal Plains	11.7		23				18.4		21			
Montane Cordillera	-1.4		21				0.8		17			
Common Redpoll												
Canada	-8.7	n	43				-2.4		36			
Boreal Shield	-5.5		21				-6.3		18			
Pine Siskin												
Canada	-1.8		373	1.4		194	-2.0		319	5.4		141
Boreal Shield	2.7		98	3.9		42	-1.4		78	-52.0		24
Atlantic Maritime	2.6		63	1.7		53	15.4		53	-67.1		19
Boreal Plains	-1.8		57	13.9		22	4.9		54	-52.1		19
Prairies	1.0		24				3.7	n	19			
Pacific Maritime	-10.2	*	24	43.8	n	17	-14.7	*	22			
Montane Cordillera	-1.5		61	-4.2		39	-2.0		54	64.2		28
American Goldfinch												
Canada	0.0		420	-4.0	*	254	0.1		372	-8.1	n	192
Boreal Shield	-1.4		99	-3.0	n	58	-0.7		80	3.8		39
Atlantic Maritime	-0.9		67	-5.0	*	63	0.4		58	-5.3		23
Mixedwood Plains	-0.7		46	-6.2	*	33	1.1	*	44	-16.0	n	30
Boreal Plains	1.0		54	-2.2		21	-2.4	*	52	9.5		26
Prairies	3.7	*	89	-2.5		45	3.7	*	78	6.7		38
Pacific Maritime	-3.3		18	-1.5		15	-3.5		16			
Montane Cordillera	4.2		27				1.7		25			
Evening Grosbeak												
Canada	3.8		273	-1.4		160	5.3		227	-34.5	*	89
Boreal Shield	2.4		101	5.0		59	-2.7		80	-15.1		31
Atlantic Maritime	13.8		63	-5.8		53	25.6		50	-43.6		18
Boreal Plains	1.5		22				3.2		20			
Pacific Maritime	2.1		16									
Montane Cordillera	6.5	n	44	1.1		24	11.4	*	41	-5.4		21
House Sparrow												
Canada	-2.0	*	379	-0.2		239	-4.7	*	331	-5.1		162
Boreal Shield	-4.1		70	-8.8	*	43	-8.5	*	54	-23.3		17

Appendix 1 (cont'd)

Summary of trends for the Canadian Breeding Bird Survey. "Trend" is the mean annual percent change in bird population. "N" is the total number of routes used to calculate the trend.

Species Area	1966–1994			1966–1979			1980–1994			1993–94		
	Trend	P ^a	N	Trend	P	N	Trend	P	N	Trend	P	N
Atlantic Maritime	-4.1	*	64	-1.2		60	-7.9	*	52	-19.2		17
Mixedwood Plains	-0.7		46	-1.4		33	-3.3	*	44	22.2		30
Boreal Plains	-3.9	*	53	0.7		25	-6.5	*	51	-26.9		27
Prairies	-1.8	n	92	4.2		49	-3.9	*	82	-20.1	n	45
Montane Cordillera	-7.2	*	22				-5.7	n	18			

^a Statistical significance: "*" indicates P<0.05; "n" indicates 0.05<P<0.15.

^b In a few cases, sample sizes for the Prairies may be larger than the Canada-wide results because the analysis accepts higher winds in the Prairies than elsewhere (see Methods).

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