

## Articles

### House Finch Population Trends in Ontario

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#### Introduction

In a species account prepared for *Ornithology in Ontario*, Daniel Kozlovic (1994) presented a comprehensive overview of the House Finch (*Carpodacus mexicanus*) in the province. He documented "the incredible increase in the Ontario population" from 1980 to 1987. Ten years have now passed since his analysis was undertaken, and further dramatic changes have occurred. In this article, I update House Finch population trends in Ontario through 1996, and discuss factors which may have contributed to them.

#### Methods

Data from 50 Christmas Bird Counts (CBCs) in southern Ontario from 1977 to 1987 were utilized by Kozlovic (1994) to document changes in the House Finch population. The data were obtained from *American Birds* 32-42 (CBC issues), 1978-1988. I calculated House Finch numbers from the same 50 CBCs for the period 1988 to 1996, from *American Birds* 43-47 (CBC issues), 1989-1992; and *National Audubon Society Field Notes* 48-51 (CBC issues), 1993-1997. House Finch population trends derived from these CBC data from 1980 to 1996 are presented in Figure 1. Data from additional Ontario CBCs

were used to document the spread and increase of House Finches into other parts of Ontario after 1987. All data are expressed as numbers of birds per ten party-hours in an attempt to normalize variation in census effort, or party-hours, between different counts and years (see Raynor 1975).

#### Results

Kozlovic (1994) noted that "CBCs in southern Ontario revealed a consistent annual increase in House Finches during the period from 1980-1987" (see Figure 1). This rate of growth was "similar to the exponential increase of the eastern population reported by Bock and Lepthien (1976) from 1962-1971" (Kozlovic 1994). The Ontario population continued to increase, with some temporary declines, from 1988 to 1994. However, an apparently dramatic downward trend in the southern Ontario House Finch population was recorded in 1995 and 1996 (Figure 1).

The greatest House Finch abundance found by Kozlovic (1994) was on the Niagara Peninsula, where "more than 40 percent of all finches recorded on Ontario CBCs" had been tallied by 1987. In the 1987 count year, 27% of the House Finches counted on all Ontario CBCs (1,998 of 7,496) were

seen on five counts on the Niagara Peninsula (Buffalo, N.Y.-Ont.; Hamilton; Niagara Falls; Port Colborne; and St. Catharines). However, by the peak year of 1994, this figure had dropped to 13% (4,478 of 34,433 House Finches counted throughout Ontario).

Obviously, the House Finch had increased and spread in other parts of Ontario from 1987 to 1994. House Finches on the Niagara Peninsula underwent the same post-1994 decline seen in the province as a whole (see Table 1).

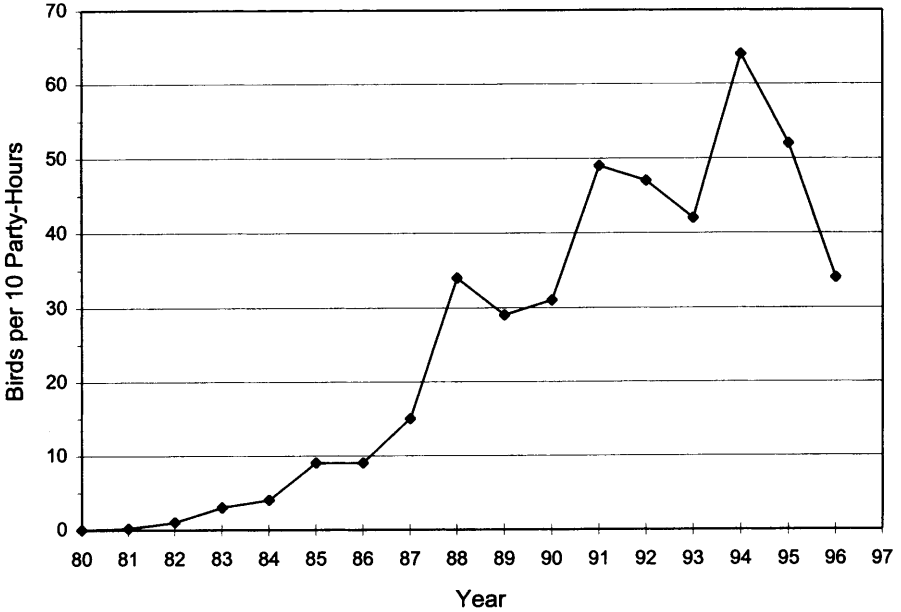


Figure 1: Trends in House Finch numbers from 50 Christmas Bird Counts in southern Ontario, 1980-1996.

**Table 1: Number of House Finches observed per 10 party-hours on CBCs on the Niagara Peninsula, 1988-1996**

Count Area	Year									
	88	89	90	91	92	93	94	95	96	
Buffalo, N.Y.-Ont.	35	22	38	41	23	26	47	35	22	
Hamilton	75	106	98	86	59	41	58	57	20	
Niagara Falls, Ont.-N.Y.	75	34	36	60	58	41	52	39	29	
Port Colborne	50	24	68	50	29	32	118	119	27	
St. Catharines	62	70	55	57	38	64	79	71	37	
Total number of birds	3446	3354	4055	4125	3137	2811	4478	3148	1684	

The House Finch was considered uncommon in the southern Georgian Bay region, and in the Ottawa River valley in 1987 (Kozlovic 1994). House Finch numbers have expanded in these areas since then (see Tables 2

and 3). However, the pattern of post-1994 decline in numbers is not apparent in these regions, which are north of the greatest House Finch abundance in Ontario.

**Table 2: Number of House Finches observed per 10 party-hours on CBCs on Georgian Bay, 1988-1996**

Count Area	Year								
	88	89	90	91	92	93	94	95	96
Bruce Peninsula	0	0	0	0	1	0	1	0	<1
Manitoulin Island	0	0	0	1	3	3	1	0	3
Meaford	1	12	13	29	34	14	40	18	40
Mindemoya	0	0	0	0	2	0	7	0	28
Owen Sound	5	7	2	32	78	34	34	46	25
Wye Marsh	0	2	1	15	2	22	2	1	2
Total number of birds	46	114	85	554	1022	518	587	435	581

**Table 3: Number of House Finches observed per 10 party-hours on CBCs in the Ottawa River valley, 1988-1996**

Count Area	Year								
	88	89	90	91	92	93	94	95	96
Deep River	0	0	0	0	0	0	<1	0	1
Dunrobin-Breckenridge, Ont.-P.Q.		<1	0	0	7	4	2	2	2
Ottawa-Hull, Ont.-P.Q.	3	8	13	22	21	34	40	67	40
Pakenham-Arnprior	4	2	6	4	6	8	30	4	9
Pembroke	2	2	4	1	<1	5	9	1	1
Renfrew	0	1	0	1	8	0	<1	<1	13
Total number of birds	201	350	615	932	1009	1404	1817	2289	1422

Kozlovic (1994) noted the absence of House Finches on the Canadian Shield up to 1987, perhaps due to "its large expanse of mixed forest and limited human residential development". However, the House Finch has since spread north into several communities on the Shield, and

has been recorded on 13 CBCs there (see Table 4). As with the Georgian Bay and Ottawa River areas, the post-1994 decline is not shown in these data from the Shield. Wintering by House Finches in the north is critically linked to the provision of food at feeding stations (Sprenkle and Blem 1984). This

requirement is similar to that of the Mourning Dove (*Zenaida macroura*) and the Northern Cardinal (*Cardinalis*

*cardinalis*) in Ontario, which also depend on feeders in the north during winter (Tozer 1994, Dow 1994).

**Table 4: Number of House Finches observed per 10 party-hours on CBCs on the Canadian Shield, 1988-1996**

Count Area	Year									
	88	89	90	91	92	93	94	95	96	
Algonquin Park	0	0	0	0	+	0	0	0	0	
Burks Falls	0	0	0	0	<1	0	<1	0	1	
Eganville						<1	3		2	
Fort Frances									9	
Gravenhurst-Bracebridge	0	0	0	0	3	<1	33	0	9	
Huntsville							2	0	2	
Killaloe									<1	
Minden	0	0	0	0	0	0	1	0	<1	
Nipigon-Red Rock							<1	0	0	
North Bay	0	0	0	0	0	0	2	1	2	
Sault Ste. Marie	0	0	0	1	6	5	<1	14	3	
Sharbot Lake					4	0	2	<1	6	
Sudbury	0	0	0	0	+	0	3	0	0	
Total number of birds	0	0	0	5	64	41	255	110	155	

(+ = seen during count week; numbers not reported)

## Discussion

As stated earlier, Christmas Bird Count data indicate that the House Finch population in Ontario increased rapidly from 1980 to 1994, and then underwent a dramatic decline through 1995 and 1996 (Figure 1). A somewhat similar pattern was detected in data from Project Feeder Watch (Deschamps 1997), showing that "after several years of population growth, House Finch numbers levelled off in winter 1991-92 and then declined markedly in winter 1996-97". The actual numbers reported at the

project's participating feeders in 1996-97 were "at or below 1987-88 levels", and were 22% below the previous winter (Deschamps 1997). Clearly, there has been a significant reduction in the overall population levels of House Finches in Ontario. However, the decline has occurred primarily in the area of greatest House Finch abundance in southern Ontario.

Speculation has begun as to the possible cause(s) of this decline, with mortality due to eye conjunctivitis being the prime suspect (Deschamps 1997). In February 1994, House

Finches with swollen or crusty eyes and impaired vision were first observed at feeders in suburban Washington, D.C. (Fischer et al. 1997). The disease has now spread throughout the entire eastern population of House Finches in the United States and Canada, including Ontario.

The infection is a mycoplasmal conjunctivitis (*Mycoplasma gallisepticum*), a bacterial pathogen of poultry that had not been associated with disease in wild songbirds before the outbreak in House Finches (Fischer et al. 1997). During the winter of 1995-96, this conjunctivitis also spread to the American Goldfinch (*Carduelis tristis*) in Georgia, Maryland, North Carolina, South Carolina and Tennessee (Fischer et al. 1997). Goldfinches exhibiting symptoms of the infection have now been reported in Ontario (e.g., September 1997, Toronto, R. Pittaway). Researchers believe the disease could become permanently established in House Finches, and possibly other species.

Although it is not known precisely how the conjunctivitis is transmitted, House Finch use of feeders may increase contact with infected individuals and contaminated surfaces. Feeders may also contribute to the spread of the disease by extending the lives of infectious, diseased House Finches that otherwise would not be able to feed (Fischer et al. 1997). The disease has not been reported in the

western (native) population of the House Finch, which is sedentary (Hill 1993). However, the eastern House Finch population is partially migratory, with some birds moving several hundred kilometres (Belthoff and Gauthreaux 1991, Kozlovic 1994), and thus spreading the disease over a large area. Fischer et al. (1997) speculated that the limited gene pool from which the entire eastern House Finch population is descended may also have contributed to its apparently high susceptibility to this conjunctivitis. Eastern House Finches originated with birds released in New York City in 1940 (Elliott and Arbib 1953).

### Conclusion

In 1988, Kozlovic (1994) correctly predicted that the House Finch's "full potential as a colonizer in Ontario has yet to be realized". The species subsequently spread northward in Ontario, and increased dramatically in numbers. However, a major population decline in southern Ontario began after 1994, probably due to conjunctivitis-caused mortality. The full extent of this reduction in the province's House Finch numbers remains to be seen.

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