

# Ontario Eastern Bluebird Society Nestbox Survey - 1993

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Since 1987, the Ontario Eastern Bluebird Society (OEBS) has conducted a survey of the results from nestbox trails operated throughout Ontario. Results from these annual surveys have been published in the OEBS Newsletter and in Ontario Bird Banding. This report summarizes the data obtained from the 1993 survey.

## Methods

A survey form was distributed to all known operators of EABL nestbox trails in Ontario. The forms requested standard information regarding the operation and nesting success of the nestboxes. The data reported was incorporated directly into the attached summary table (Table 5) which is arranged on a county basis.

Because not every form was complete, it was necessary to make some estimates for the missing data based on the information that was supplied. For example, if a respondent indicated six successful nestings, but made no estimate of total fledged young, an estimate of  $(3.5 \times 6)$  or 21 fledged young was used. On the other hand, no estimates were made for the other categories if they were not reported on the survey.

## Results

One hundred and nineteen reports were received in 1993, a decrease of 14 over 1992. The number of monitored nestboxes declined to 6561 from the 1992 total of 7605.

The 1992 Nestbox Survey represents a total of 888 EABL pairs in Ontario. If EABL pair information was not recorded on survey forms, the figure was estimated using an average of 4.8 young per EABL pair per nesting season. This value has been found typical in earlier studies of EABL's.<sup>1</sup> In calculating the number of pairs of EABL's, the number of fledged young reported is divided by a factor of 4.8 to establish the estimate of EABL pairs. This calculation is made only if the respondent did not include the number of EABL pairs. Because of lower reproductive success in 1993, the figure of 4.8 young per pair is an over estimate.

In order to arrive at a figure that more accurately represents EABL breeding success in 1993, I examined the 60 surveys that recorded both numbers of EABL pairs and fledged young. A total of 553 EABL pairs fledged 2076 young or 3.75 young per pair in 1993. This figure is much lower than the average estimated value of 4.8 and more accurately represents overall breeding success in 1993.

The total of 3.75 young fledged per EABL pair in 1993 is lower than 1992's calculated total of 3.9 young per pair and indicates below average nesting success in both years.

Four hundred and seventeen EABL's were reported banded during the 1991 season with almost four times that number of tree swallows (1669). Banding was carried out by David Lamble, Bill Read and Bob Hubert.

Occupation (number of nestings only - not fledged young) of nestboxes by the usual other bird species occurred with 294 House Wrens, 1971 Tree Swallows, 11 Black-capped Chickadees and 29 House Sparrows. After a disastrous nesting season in 1992, Tree Swallows rebounded with very high nesting success in 1993. Of 1971 attempted nestings reported on the survey only 241 were unsuccessful. This represents a failure rate of only 12.2%; EABL's on the other hand had the highest failure rate since the survey was started in 1987 at 29.28%.

Year	Attempted Nestings	Successful	Unsuccessful	%
1988	2112	1608	504	23.86
1989	2321	1985	336	14.48
1990	2548	1977	571	22.41
1991	2393	1956	437	18.26
1992	2065	1574	491	23.77
1993	1140	805	335	29.28

<sup>1</sup> Unpublished report, W. F. Read

This years results (3677 fledged young) are the lowest since the survey was initiated in 1987. Several factors may be attributable to this decline:

1. Lower reproductive success in both 1992 and 1993 because of unseasonably cold weather meant fewer fledged young flying south in the fall.
2. Much colder winters in 1992 and 1993 probably resulted in more than usual mortality among over wintering EABL's<sup>2</sup>.
3. The great blizzard of 1993 which swept up through the southern United States and east coast March 12-15 resulted in higher than normal mortality among overwintering EABL's<sup>3</sup>.
4. Lack of reporting by some OEBS nestbox trail operators.

The number of EABL fledged young per monitored nestbox has declined to .56, its lowest level since the survey began and is indicative of below normal nesting success in 1993. The highest level was obtained in 1991 at .93 EABL's fledged per monitored nestbox. If we had been able to maintain that level in 1993 it would have represented 6104 EABL's fledged instead of 3677.

Year	Boxes Monitored	Number of Surveys	Fledged Young	EABL's Fledged Per Monitored Nestbox
1987	7503	101	4910	0.65
1988	8809	153	6352	0.72
1989	11426	175	8260	.72
1990	9209	148	7307	.79
1991	8784	134	8138	.93
1992	7605	133	5770	.76
1993	6561	119	3677	.56

Minnesota, which has a somewhat similar topography as Ontario, was able to fledge 12,171 EABL's from 11,627 boxes in 1993. This represents 1.05 fledged young per box<sup>4</sup>.

Thirty-three of seventy-five (44%) responses (TABLE 3) said weather was the most important (or number 1) presumed cause of lost eggs or nestlings in 1993. Raccoons were ranked second with 14 out of 75 responses citing these as the primary cause of unsuccessful nesting. House sparrows were identified as the main problem on seven responses, House Wrens on six and humans on five. The high number of responses (5) citing humans may indicate that some nestbox trails are placed too close to human occupation i.e. parks, bike and hiking trails where vandalism can occur.

<sup>2</sup> See article in OEBS 1993 Fall Newsletter, Pages 1-2.

<sup>3</sup> Snowstorm deadly for Bluebirds in Alabama. John Findlay III Page 14 Sialia Autumn 1993, Volume 15 Number 4.

<sup>4</sup>Bluebird News published quarterly by The Bluebird Recovery Program Audubon Chapter of Minneapolis, P.O. Box 3801, Minneapolis MN 55403.

**Table 3** Summary of the number one presumed cause of lost eggs or nestlings as recorded on 75 1993 Surveys

Cause	No. Occurrences	%
Weather	33	44.0
Raccoons	14	18.7
House Sparrows	7	9.3
House Wrens	6	8.0
Humans	5	6.7
Stray Cats	2	2.7
Tree Swallows	2	2.7
Chipmunks	2	1.3
Weasels	1	1.3
Mites	1	1.3
Snakes	1	1.3
Squirrels	1	1.3
Blowflies	1	1.3
<b>TOTAL</b>	<b>75</b>	<b>99.9%</b>

The number of times a presumed cause was mentioned on a survey is summarized below in Table 4.

**Table 4** Summary of the presumed causes of nesting failures of Eastern Bluebirds in Ontario in 1993

Cause	No. Occurrences	Cause	No. Occurrences
Weather	49	Snakes	9
Raccoons	30	Tree Swallows	8
House Wrens	28	Stray Cats	2
House Sparrows	23	Weasel	1
Blowflies	18	Other Birds	1
Humans	15	Chipmunk	1
Squirrels	13	Deer Mice	1
Pesticides/Herbicides	12	Mites	1

In order to assess the overall decline in EABL numbers over the past three years 1991-1993, I examined 23 EABL trails whose operators have maintained a trail for at least 5 years, and where information regarding eggs, fledged young and pairs had been included for that same period. Another requirement was that the total number of boxes over that period had to remain constant. Nineteen of the 23 nestbox trails examined reported fewer fledged young in 1993 than in 1992.

Fledged Young (23 trails 1991-1993)		
1991	1992	1993
3105	2728	1984

Based on the trails examined the fledged young in 1993 represents a 36.1% decline from 1991 totals and a 27.3% decline from 1992.

Total eggs layed also decreased in 1993.

Total Eggs (17 trails)		
1991	1992	1993
3007	3046	2373

The total eggs layed in 1993 represents a 21.1% decrease from 1991 totals and a 22.1% decrease from 1992 totals on these 17 trails.

EABL Pairs (13 trails)			
Year	1991	1992	1993
Pairs of EABL's	345	322	290

EABL pairs declined 15.9% in 1993 from 1991 totals and 9.9% from 1992 totals.

### Summary

The number of fledged young in 1993 declined significantly from the previous year. However, the number of pairs of EABL's based on this small sample does not seem to have declined more than 10-15%. I suspect that with a more normal nesting season in 1994, EABL totals will again approach levels that were present in 1989-1991 in Ontario.

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Table 5. Summary of responses for Eastern Bluebird nestbox questionnaire for Ontario - 1993

County	Survey	Boxes Monitored	Boxes on Trail	Boxes Used Successfully	Nesting Successful	Young Fledged	Unsuccessful Nestings	Eggs: Blue	White	Nesting Natural Cavities	EABL Pairs Represented	House Wren	TRES Successful Nestings	Black-capped Chickadee	House Sparrow	Banded EABL	Banded TRES
Algoma	1	8	9														
Brant	2	204	204	27	3	110		155	3		27	16	108				
Bruce	5	450	451	82	111	311	33	508	18	2	73	15	88		6		
Cochrane	2			2	2	6					2						
Dufferin	4	578	578	4	70	290	8	45	2		65	4	19				
Durham	1	28	28		3	15	4	31			7	8	11				
Elgin	1	52	52	15	18	65	7	73	5		14		7			153	
Essex	3	295	295	20	32	107	5			2	28	34	69	1			
Grey	6	75	82	7	13	38	11	57			17	3	18	2			
Halldmand -Norfolk	4	235	235	43	49	213	27	242			64	6	323	1	6		
Halton	4	59	59	6	7	20	2	24			7	19	18				
Hamilton-	7	233	293	9	11	101	9	158			26	6	17				
Wentworth																	
Hastings	2	18	18	6	6	20	4	47			8		9				
Huron	3	137	137	12	8	45	1				12	29	59		16		
Kenora	2	8	8									1	2				
Lambton	3	312	312	1	12	66	9	71			19		16				
Lanark	2	84	84	17	21	66	14	109			14	4	20				
Leeds-Grenville	3	81	81	11	13	47	5	68			13	21	11				
Lincoln	2	130	130	10	10	127	5	196	10		30	3	10	1			
Manitowlin	7	160	160	29	32	118	7	115		2	34	1	34	1			
Middlesex	4	60	60	3	3	12	1				4	15	11				
Muskoka	1	260	260	16	16	70	10	95		1	15						
Niagara	5	56	88	7	8	32	1	35			6	5	22				
Northumberland	4	365	365	39	69	239	46	231	5	1	40	10	23				
Ottawa-Carleton	4	188	188	41	48	150	26	275			35	11	48				
Oxford	4	277	277	3	3	151	6	275	11		41	1	20	1			
Peel	1	7	7									3	2	1			
Perth	1	17	25	3	5	19	1	26			3		12				
Peterborough	2	5	5			22	10				5	1	2				
Prescott-Russell	1	12	12			6		4	4		1						
Prince Edward	1	2	2														
Rehrew	2	207	257	2	3	210	2	21			46	1	7				
Simcoe	9	282	307	24	32	281	21	199	11	2	64	27	49	1	1		
Thunder Bay	1	22	22	1	1	2	3				4						
Timiskaming	1	216	226	16	17	71	2	79			12		124				
Victoria	4	129	134	39	44	170	17	307		1	43	5	54				
Waterloo	5	468	478	63	93	314	26	520	21	1	77	20	220			254	618
Wellington	1	493	513	2	2	8	2	18			4	5	188			10	1051
York	4	348	348	35	40	155	5	186	6		28	20	109				
TOTALS	119	6561	6790	597	805	3677	335	4167	96	12	888	294	1730	11	29	417	1669