Ontario Eastern Bluebird Society Nestbox Survey - 1991

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Introduction

The status of the Eastern Bluebird in North America is considered to be "vulnerable" in regards to it continued existence. The species has attracted considerable attention in the public community, partly as an attractive and desirable native bird but also because it readily accepts nest boxes. This feature can be turned to advantage in determining whether the populations and breeding success of the species is changing and whether its status is improving.

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 1991 survey and the earlier surveys.

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 were incorporated directly into the attached summary table (Table 1.) which is arranged on a county basis. Because not every form was entirely completed, 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 four young per nest (4 x 6 or 24 fledged young) was used. On the otherhand, no estimates were made for egg totals. This is why the egg total reported is lower than the EABL fledged total. The egg total would probably be around 11,000 if all trail operators had counted and recorded on their survey sheets, the eggs laid.

Data from the earlier Ontario surveys were obtained from previously published summaries (1,2,3,4).

Results

Warm weather during the 1991 nesting season resulted in higher than usual nesting success in most parts of Ontario. Overall numbers were up from the 1990 survey.

Only 134 reports were received in 1991 compared to 148 in 1990. The peak number of reports (175) was obtained in 1989 (Table 2). This pattern is mirrored in the total number of boxes and the number of boxes monitored. In 1991, the number of monitored nestboxes decreased to 8704 from 1990's total of 9209 (Fig. 1). The percentage of nestboxes monitored each year was 90% or better.

The numbers of successful nestboxes were just over 1300 in 1988 and 1989 but dropped by about 200 to just over 1100 in 1990 and 1991. Despite this, the percentage of successful nestboxes has increased since 1989 (11.4 to 12.7%). The highest percentage was 14.8% reported in 1988.

The numbers of successful nestings has remained fairly constant since 1989 (1956 to 1985) but the 1988 total was lower at 1608 (Table 3). More significant is the increase in numbers of nestings per successful nestbox (Fig. 2). At least 3 out of 4 successful nestboxes produced a second brood. This meant greater numbers of birds fledged per box (Fig. 2). The 1991 totals indicate 8138 EABL's fledged from nestboxes, an increase from 1990's total of 7307 (Fig. 1). The increase can probably be explained by favourable weather conditions throughout Ontario during most of the nesting season. The number, however, was still

below the total fledged in 1989 (8260).

If EABL pairs were not recorded on survey forms, the figure was calculated using an average of 4.8 fledged young per EABL pair. The 1991 nestbox survey represents a total of 1786 EABL pairs in Ontario. This is the highest number recorded to date (Table 3).

The numbers and percentage of nestings reported as being in natural cavities has generally decreased over the survey period (Fig. 2, Table 3). The percentage of natural cavity nestings has ranged between 0.8 and 4.5% of all nestings, clearly demonstrating the value of providing artificial nesting sites.

Although data for egg colour has been provided for only the last two years, it is clear that blue is predominant form (Table 4). The percentage of white eggs appears to fall between 2 and 4% but more years of data are needed. The actual egg totals are provided in the table but the numbers must be considered only as an measure of the effort of the trail operators to make this observation.

A total of 433 EABL's were reported banded during the 1991 nesting season together with over three times that number of Tree Swallows (1428) (Table 4). Generally, the numbers of EABLs banded each year has decreased (Fig. 4). There has been considerable variation in the effort to band Tree Swallows in this time with the 1991 total for Tree Swallows being the lowest.

Occupation (number of nestings only - not fledged young) of nestboxes by the usual other bird species occurred with 595 House Wrens, 3655 Tree Swallows, 60 Black-capped Chickadees and 53 House Sparrows. In general, the percentage of nestboxes used by Wrens, Swallows and Chickadees has been increasing (Fig. 3). The percent use by Chickadee or House Sparrow is less than 1% while Wrens ranged between 1.7 and 7.8% usage. Tree Swallow usage of nest boxes ranged between 21.5 and 41.6%. At this rate of use by other species (especially Tree Swallow), it would not appear that they are having a severe impact on the Bluebirds because even in the worst year, over 50% of the nestboxes are still available for use by Bluebirds.

Raccoon predation of nest boxes was the greatest single cause of nesting failure among both EABL's and TRSW's in 1991. The OEBS is now recommending placement of boxes on predator-proof poles whenever possible and the avoidance of brushy fencerows which are highways for EABL predators such as Red and Grey Squirrel, raccoon, deer mice, snakes, and weasel. Unmonitored, poorly-placed nestboxes continue to be a negative factor in promoting EABL nesting success.

The increase in well-managed predator-proof nestbox trails throughout eastern North America will continue to be an important factor in the EABL's recovery. Population monitoring such as the OEBS nestbox survey will assist in that recovery. Continued monitoring of the results reported on survey forms returned by nestbox operators can provide a good indication of changes or trends in EABL populations.

References

1. Read, W. 1988. 1987 Eastern Bluebird Society Nestbox Survey. Ontario Bird Banding 19: 34-35.

2. Read, W. 1989. Ontario Eastern Bluebird Society Nestbox Survey - 1988. Ontario Bird Banding 20/21: 65-68.

3. Read, W. 1990. Ontario Eastern Bluebird Society Nestbox Survey - 1989. Ontario Bird Banding 22: 33-36.

4. Read, W. 1991. Ontario Eastern Bluebird Society Nestbox Survey - 1990. Ontario Bird Banding 23: 47-48.

Table 2. Summary of numbers of nestboxes included in survey results for Eastern Bluebirds in Ontario, 1987-1991.

Year	No. Surveys	No. Boxes on Trail	No. Boxes Monitored	Monitored Boxes as % of Total	No. Boxes Used Successfully	% Boxes Successful
1987	88	8426	8426	(100.0%)	-	-
1988	153	9555	8809	92.2%	1302	14.8%
1989	175	12622	11426	90.5%	1308	11.4%
1990	148	9563	9209	96.3%	1107	12.0%
1991	134	9438	8784	93.1%	1114	12.7%

Percent based only on boxes monitored

Table 3. Summary of nesting success reported for Eastern Bluebirds in Ontario, 1987-1991

Year	Nestings Successful	Unsuccessful Nestings	Nestings/ Successful Box	Young Fledged	Young/ Successful Box	Nesting Natural Cavities	% Nestings in Natural Cavities	EABL Pairs Represented
1987	-	50	-	4950	-	-	-	1212
1988	1608	504	1.24	6352	4.88	72	4.5%	954
1989	1985	336	1.52	8260	6.31	33	1.7%	1723
1990	1977	571	1.79	7307	6.60	16	0.8%	1639
1991	1956	437	1.76	8138	7.31	20	1.0%	1786

Calculated as percentage of successful nestings

Table 4. Summary of eggs reported and birds banded from Eastern Bluebird nestbox survey in Ontario, 19987-1991.

Year	No. Eggs Blue	% Eggs Blue	Eggs White	% White	Eggs Total	No. Banded EABL	No. Banded TRSW
1987	-	-	-	-	-	-	-
1988	-	-	-	-	6275	644	1112
1989	-	-	-	-	6405	592	945
1990	4444	96.17%	177	3.98%	4621	638	1376
1991	5539	97.45%	145	2.55%	5684	433	1428

Percent of total eggs reported

Table 5. Numbers of four most common bird species utilizing nestboxes erected for Eastern Bluebirds in Ontario, 1987-1991.

Year	House Wren		Tree Swallow		Black-capped Chickadee		House Sparow	
	No.	%	No.	%	No.	%	No.	%
1987	143	1.70%	1813	21.52%	12	0.14%	6	0.07%
1988	297	3.37%	2830	32.13%	27	0.31%	81	0.92%
1989	430	3.76%	2986	26.13%	65	0.57%	112	0.98%
1990	724	7.86%	3041	33.02%	40	0.43%	64	0.69%
1991	595	6.77%	3655	41.61%	60	0.68%	59	0.67%

Percentage of all monitored nestboxes occupied by species indicated.

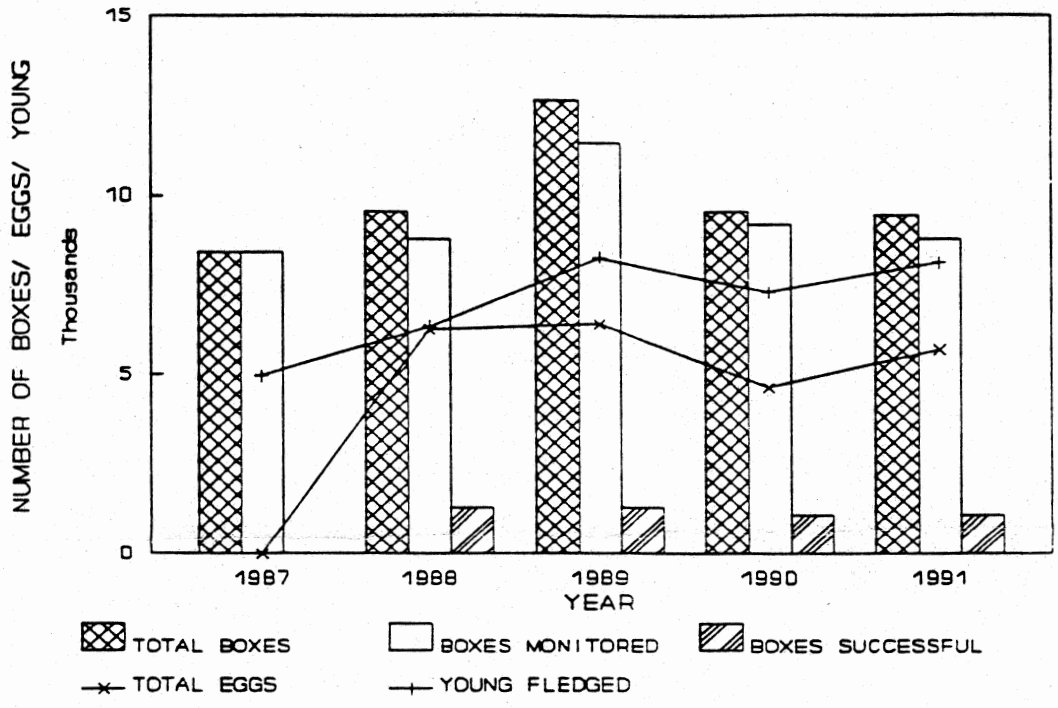

Figure 1. Relationship between numbers of nest boxes and numbers of young Eastern Bluebirds fledged, 1987-1991.

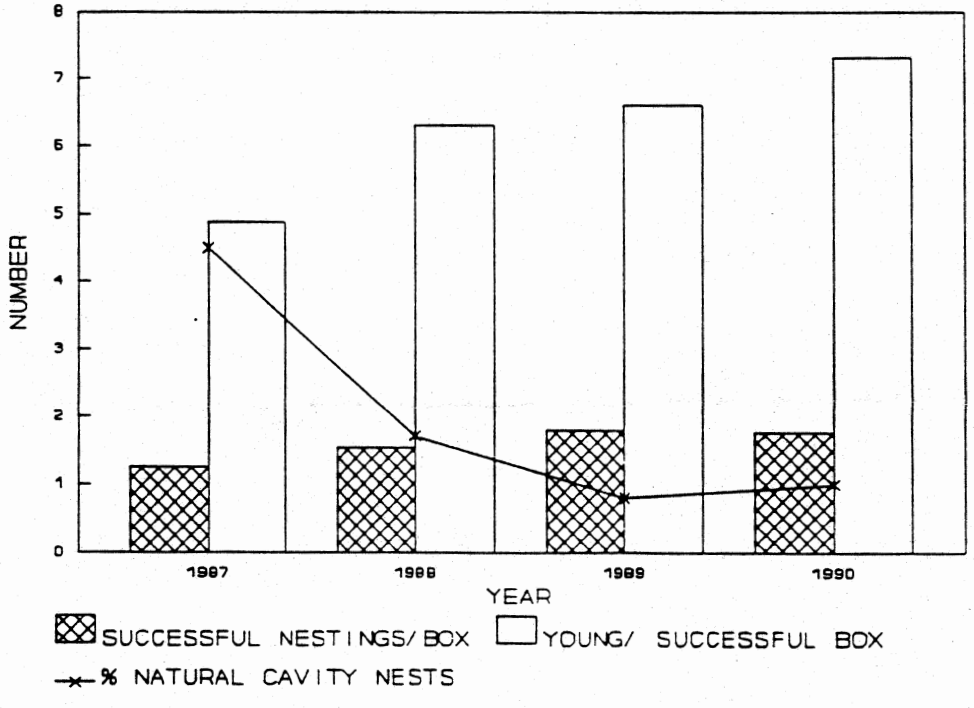

Figure 2. Productivity of nestboxes and use of natural nesting cavities by Eastern Bluebirds, 1987-1991.

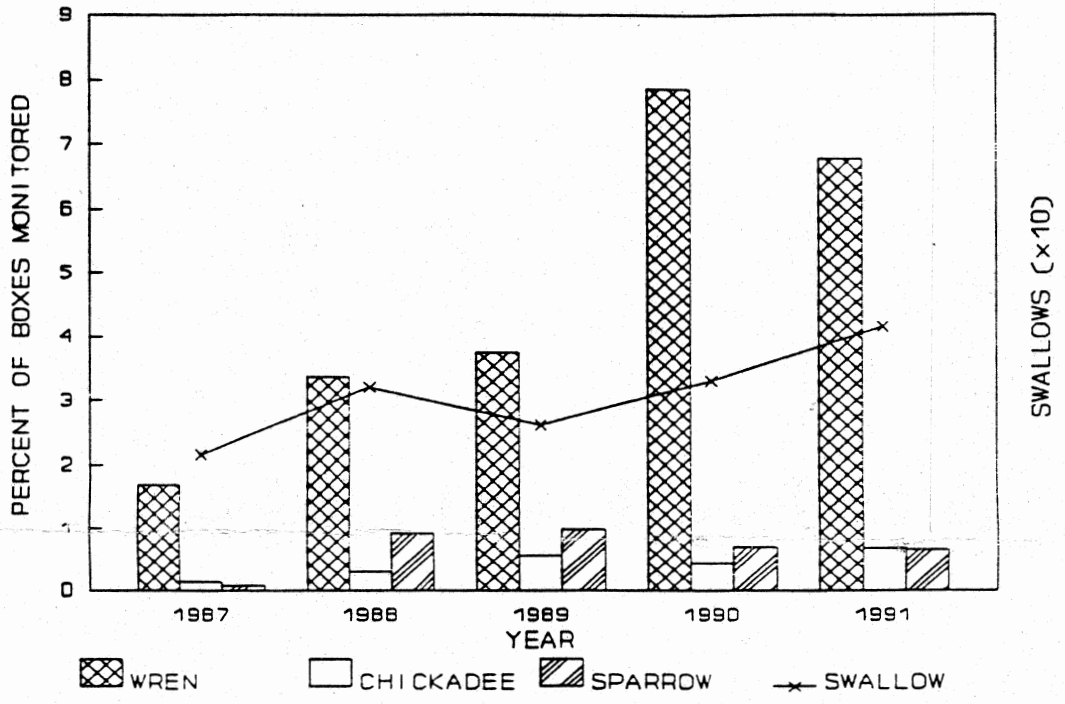

Figure 3. Use of nestboxes established for Eastern Bluebirds by other species of birds, 1987-1991

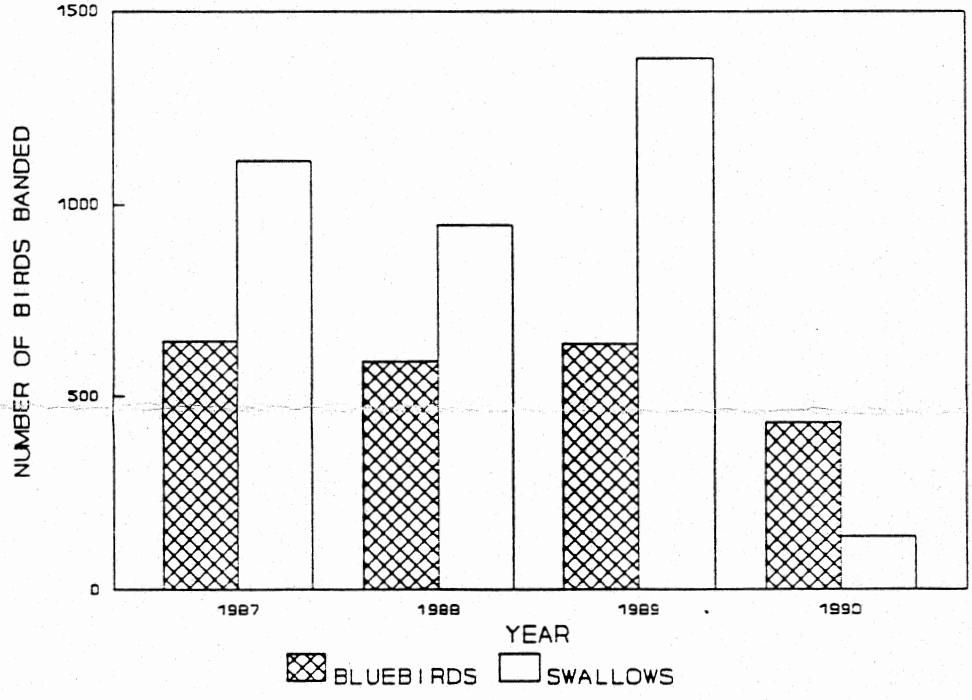

Figure 4. Numbers of Eastern Bluebirds and Tree Swallows banded at Bluebird nestboxes in Ontario, 1988-1991.