

Treswell Wood Nestbox Report - 1990

Introduction

The very mild winter and early spring might be expected to lead to early nesting and high populations. There were some remarkably early Blue and Great Tit nests - the earliest Blue Tit nest being 10 days earlier than recorded in the wood before, the earliest Great Tit seven days earlier. The average (median) date of starting clutches was only a little earlier than normal. Table 1 shows these dates since 1979. Figure 1 compares Blue Tit first egg dates for 1989 and 1990. The early start to 1990 is clear, as is the very early end to the season. Apart from the earliness of the season, 1990 was normal in other respects, with the bulk of the nests being started in the middle of the season. The figure shows the 1989 abnormality when there was a gap in the middle of the season caused by a week's bad weather.

Table 1 First egg dates. Treswell Wood, 1979 - 1990

Year	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Blue Tit												
Earliest	17 Apr	15 Apr	14 Apr	20 Apr	25 Apr	27 Apr	22 Apr	4 May	20 Apr	20 Apr	16 Apr	5 Apr
Median	29 Apr	23 Apr	20 Apr	24 Apr	6 May	2 May	30 Apr	8 May	24 Apr	25 Apr	27 Apr	21 Apr
Great Tit												
Earliest	2 May	20 Apr	21 Apr	24 Apr	28 Apr	30 Apr	25 Apr	6 May	22 Apr	20 Apr	19 Apr	12 Apr
Median	7 May	3 May	4 May	27 Apr	5 May	5 May	4 May	12 May	26 Apr	30 Apr	5 May	27 Apr

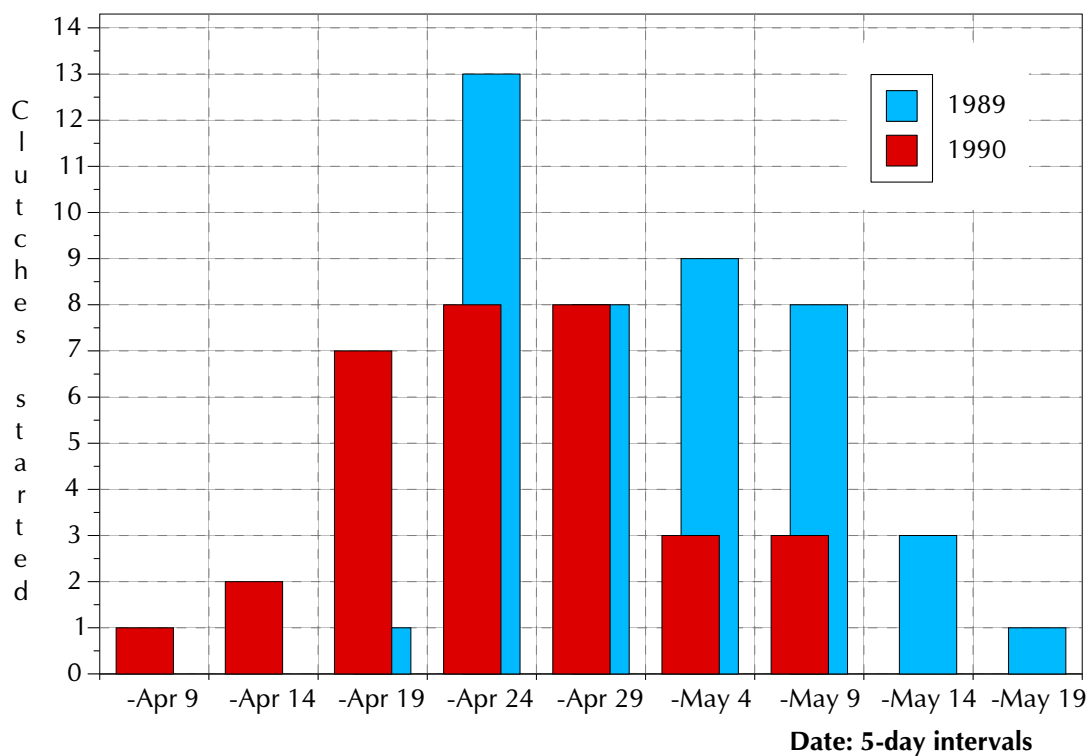


Figure 1 Blue Tit first egg dates, Treswell Wood 1989 - 1990

Mild winters can also lead to high predator populations which will in turn have their affect on bird populations. However Treswell Wood boxes have not been attacked at all by grey squirrels *Sciurus carolinensis*, and only suffered small scale predation from weasels *Mustela nivalis* and wood mice *Apodemus silvaticus* - the other two

regular mammal predators. The main predator which has taken a serious toll has been Great Spotted Woodpecker. These birds do break into nestboxes. Their usual technique is to chisel a hole in the side of the box at the level of the nest, then remove the young. Several boxes have been attacked in this way. Another technique they are reputed to use is to perch at the nest entrance. Well grown nestlings will come up to the entrance, as they would if the entrance was shadowed by a parent with food, only to be snatched and eaten by the woodpecker. This action (which I have not observed) will explain the nests where 10 or so eggs became three or four nestlings only.

The weather turned very wet in late May. This had a serious effect on Great Tits. In several nests the young were found dead even though the boxes had remained dry inside. Presumably the adults had found collecting food and avoiding rain too much.

Table 2 gives a summary of the 1990 nestbox events in Treswell Wood. Although it has been, overall, an interesting year, I hope that next year will give both greater numbers of young birds and variety of species. Table 4 gives the annual update on the numbers of Blue and Great Tits ringed and recaptures since boxes were put up in 1979. The recapture numbers are correct to 30th September 1990.

Table 2 Treswell Wood 1989 - Nests recorded

Species	Failed Nests	Successful Nests	Young Fledged	Recaptured
Tawny Owl	1	0	0	-
Wren	1	2	11	0
Robin	1	0	0	-
Blue Tit	13	25	174	9
Great Tit	15	7	38	1

Table 3 Numbers of nestlings ringed in boxes then recaptured, Treswell Wood 1979 - 1990

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Blue Tit												
N	101	240	231	171	117	155	189	233	272	103	258	174
R	63	91	81	56	29	45	50	51	69	32	52	9
P	62%	38%	35%	33%	25%	29%	26%	22%	25%	31%	20%	5%
E	0	0	0	0	0	0	0	0	2	2	18	.
Great Tit												
N	65	53	56	50	48	61	104	126	133	77	126	38
R	34	10	10	10	13	19	18	9	43	8	13	1
P	52%	19%	18%	20%	27%	31%	17%	7%	32%	10%	10%	3%
E	0	0	0	0	0	0	0	0	0	0	2	.

Note: N nestlings ringed and fledged
 R recaptured and/or recovered
 P recaptured and/or recovered as % of total
 E first recaptured during the last year.

Constant Effort Sites

The bird ringers in Treswell Wood have, since 1978, operated a 'constant effort' system. We have dedicated seven sites in the wood to this operation. The year is divided into five intervals of approximately 10 weeks, and each site is visited once in every one of these intervals. At each visit, the same amount of mist netting is used for the same length of time. Since the effort put into capturing birds is thus constant, the captures should reflect the population size. In practice, there are many other factors which affect catch sizes. These include weather, timing of the season, coppicing programme and chance. Nevertheless, the system does provide some information about the Treswell Wood birds. In this report I have compared some of the constant effort data with nestbox data. I have used the adult bird captures in the second ten week interval, mid March to May, as a measure of breeding population. The measure of breeding success is the total number of juvenile birds caught in the third interval, June to mid August.

The early dry weather made life difficult for nesting thrushes and Blackbirds. Heavy Treswell clay which has dried out is not good for foraging in. This has led to an almost total lack of breeding success of these two species. Even the rain of late May, which in some parts allowed a burst of late breeding activity, did not seem to help the Treswell Wood birds. Table 4 shows the numbers of nests recorded over the years, during which time my effort at searching for them has remained about the same. Also given are the numbers of young Blackbirds and thrushes captured in the wood by ringers, again showing the lack of breeding success in 1990. Statistical analysis of the Blackbird data shows a strong connection between the numbers of nests found and numbers captured suggesting that both data sets are reasonable measures of breeding success. The Song Thrush data are not so convincing.

Table 4 Blackbird and Song Thrush. Treswell Wood 1979 - 1990

Numbers of nests found	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Blackbird	6	5	1	0	1	5	3	5	3	5	3	0
Song Thrush	8	10	12	1	2	10	6	11	8	8	6	0
Captures of Juveniles												
Blackbird	16	8	5	3	4	5	10	9	3	2	5	0
Song Thrush	2	4	4	2	4	2	0	2	1	0	2	1

Note: Captures of juveniles are for constant effort sites, June-August.

Species Notes

Tawny Owl

One nest only. It was abandoned, after one egg had been laid, for no apparent reason. This is surprising since the mild winter and dry spring should have given high rodent populations and good hunting conditions.

Wren

There have been very high numbers of juvenile Wrens captured this year, although the numbers of nests in boxes has been only moderate. Table 5 gives the numbers of adults and juveniles captured in constant effort sites together with the numbers of nests in boxes and young ringed from 1979 to 1990. The low 1979 numbers were a result of the previous hard winter. It was not until 1983 that Wrens really began to use nestboxes regularly. I think the colonisation of our nestboxes demonstrates a population which took some time to learn about boxes, but once the habit had been learnt it was continued. I do not think the high numbers of Wrens in recent years are a result of nestboxes being available for breeding, (as I believe to be the case with Blue Tits), rather it is the mild winters which allow more birds to survive. Wrens, being small and dependent on live food, suffer greatly in cold winters.

Table 5 Wrens in Treswell Wood, 1979 - 1990

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Constant effort captures												
Adults, Mar-May	1	4	4	6	11	8	6	1	10	13	12	21
Juveniles Jun -Aug	1	11	19	4	6	14	5	8	8	19	3	26
Nests recorded												
Number of nests	0	2	0	0	2	9	5	3	5	5	6	3
Number fledged	0	10	0	0	4	33	6	16	26	7	11	11

Willow Tit

After last year's nest found in an old fence post I placed three nestboxes, stuffed with polystyrene and faced with rotten birch wood, near to the fence post. I hoped that the Willow Tits would come back to a semi-natural site in the same spot this year. A misplaced hope.

Blue Tit

It would be interesting to be able to trace family trees of our nestbox birds. Unfortunately we only know the identity of most of the females which nest in boxes. We cannot trace family histories on the male side at all.

There is also much movement in and out of the wood by young birds making only a small proportion of next year's breeding population this year's nestbox juveniles. The best family tree we have reaches back to 1984.

Great grandmother	B774589	Nested in box 58 in 1984	
Grandmother	B894618	Nested in box 89 in 1987	
Mother	E343163	Nested in box 85 in 1988	
Offspring	E343335	Nested in box 61 in 1990	9 young fledged
Offspring	E343336	Nested in box 74 in 1990	10 young fledged

E343336 was the female which brought up a mixed brood of Blue and Great Tits in one box last year.

One Blue Tit (F783005, a first year bird, not previously captured in the wood) seemed to have two nests at the same time. By May 7th nests were built in boxes 40 and 45, with one egg in box 45 and the female in the nest. Five days later box 45 was abandoned, probably pirated by a bee which now nested in it. Box 40 held five eggs and a fortnight later F783005 was found to be the female on the nest. It is not clear whether she built two nests concurrently, or whether she hijacked a different bird's nest after her own was taken over by the bee. If she did take over another bird's nest, who was the winner? The bird who lost the nest, but had her own eggs (most probably) hatched and reared by another, or F783005 who succeeded in winning a nest and gaining experience in rearing young, but probably did not raise any of her own?

Great Tit

Table 6 gives the numbers of Great Tit nests and nestlings fledged and compares them with those for previous years. This year has been like the early 1980s but worse. Then, each year, Great Tits seemed to be seriously affected by a different predator or problem. This year it has been a predator (woodpecker) and a problem (weather). The result is a record low in numbers fledged, and in the numbers fledged per successful nest.

Last year I referred to C570354, a Great Tit which had nested for four successive years in one box. Sadly she was killed by a Kestrel in February.

Table 6 Great Tits nests and nestlings, Treswell Wood 1979 - 1989

Year	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Nesting attempts	10	8	16	6	24	14	24	18	20	25	26	21
Young fledged	65	53	56	50	48	61	104	126	133	77	126	38
Average fledged per nest	9.3	7.6	8.0	10.0	6.9	7.6	6.9	8.9	8.9	7.0	7.0	5.4

Note: Average number fledged is the mean number per successful nest only.

Analysis of data from tit nests in Treswell Wood

The whole purpose of recording nestbox data and ringing birds is to discover more about them - either for its own sake or to be better prepared for the demands of conservation. The problems with data of the type we have here are that they comes in small batches (30 or so nests a year) and are very variable. This makes it difficult to draw sound conclusions from them. We can, as we see below, observe patterns in the data, but we do not have enough data to be confident that these patterns are results of any more than chance.

At a first glance we might think that several years' data combined might be more reliable. However, even here there are problems. Patterns may vary so much from year to year that pooling of data could be a meaningless exercise. For example, the average number of juvenile Blue Tits captured in constant effort sites in the third interval of the year is 15; yet in only one year (this year) have the captures been anywhere near 15 - they have been either much higher or much lower. So to say we catch an average of 15 such birds although true, is quite misleading.

There are two ways out of the dilemma. One is to combine data from many people into a very large data set. This is the overall approach adopted by the BTO with their Nest Record Scheme, ringing scheme and Common Bird Census. These operations can build up an annual regional and national picture which can be used to understand and monitor bird populations. (Incidentally the BTO welcomes all contributions to the Nest Record Scheme. Even a single card for the Blue Tit nest in your garden would be welcome. Beware, though, nest recording is very addictive.)

A second approach is to use data for a number of years in order to compare one year with another. This can be

effective, even for a single site, but it does take several years of continuous operation to bear fruit.

Some questions which are of interest, which our data can illustrate but not answer beyond reasonable doubt are these:

Do birds which have nested in boxes in previous years have a better chance of success than first time box users? Table 7a The table shows that 86% of experienced birds succeeded whereas only 78% of the first time box users succeeded. Not a big enough difference to be sure about it, but certainly a difference in the expected direction. Perhaps it is older birds that have a better chance of success. Table 7b give 69% of birds in their first breeding season succeeding, but 92% of older birds succeeding. This is again a difference in the expected direction. What about the number of nestlings fledged from successful nests? Do more experienced birds produce greater numbers of fledged young? Table 7c shows that this year they have done so - 8 young for the experienced females against 6 for the first time breeders.

Table 7 Blue Tit nests, 1990

7a	First time users	Experienced birds	7b	First season birds	Older birds	7c	First time users	Experienced birds
Success	4	1	Success	4	1	Average no. fledged	6.35	8.00
Fail	14	6	Fail	9	11			
Success rate	78%	86%	Success rate	69%	92%			

One result which we can be confident about is this. In years which we catch more juvenile Blue Tits, there have been more juveniles fledged from nestboxes. Figure 2 plots the numbers captured in Constant Effort interval 3 against the numbers fledged from boxes from 1979 to 1990. The series is long enough and close enough to a straight line for us to be reasonably sure that the two sets of numbers are connected. This means that both numbers fledged and numbers caught are measuring largely the same thing - presumably juvenile populations.

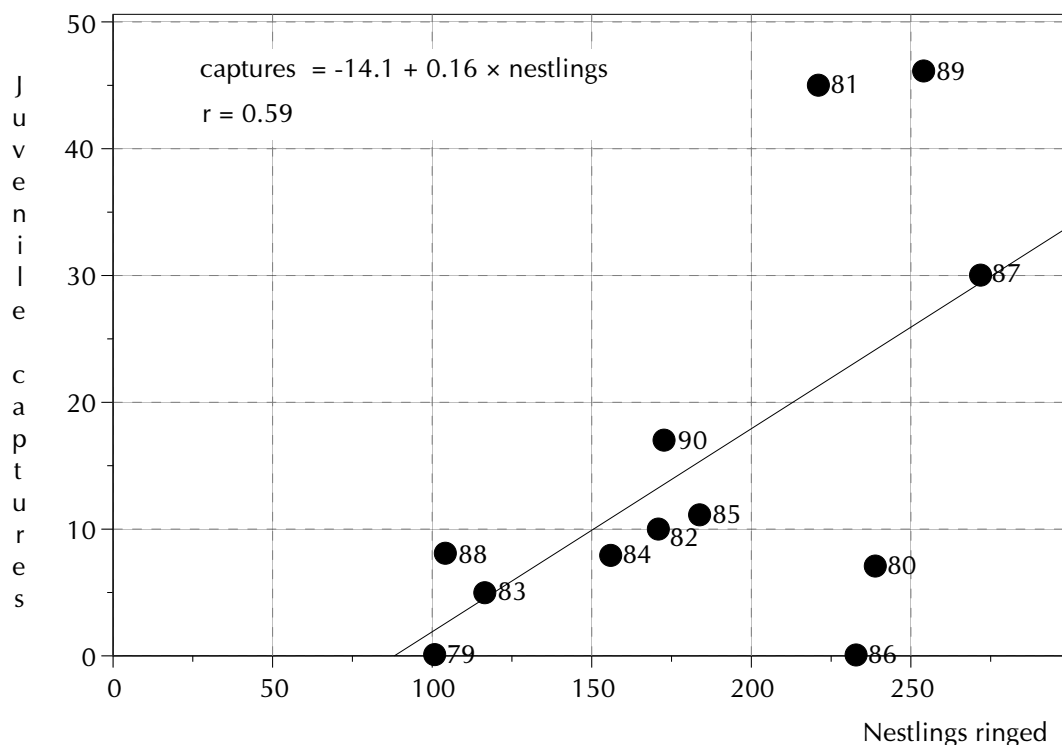


Figure 2 Blue Tit: Nestlings ringed and constant effort captures

The same strongly marked pattern is present with the corresponding Great Tit data set from 1979 to 1990. These two results are of great interest because it is the first time that such a connection between nestling and constant effort data has been demonstrated. These exciting results have been of immediate use to ornithologists at the BTO who are currently assessing the value of constant effort methods and are developing techniques in integrated population monitoring. The aim of integrated population monitoring is to combine information from ringing, nest records, Common Bird Census and other studies in order to understand the forces which drive our bird population dynamics.

Acknowledgements

Andrew Goodhall for looking after Gamston Wood nest boxes, E.C. Walton & Co. of Sutton-on-Trent for materials, Gainsborough Glass Company for materials, Gordon Davenport for nest boxes.

This was originally published in October 1990 for the Nottinghamshire Wildlife Trust as the ***Treswell Wood Nestbox Report 1990***. It was produced on the BBC microcomputer using Inter-Word. The front cover illustrated a new BTO Nest Record Card and held a not-very-good line drawing (by me) of a general purpose bird leg and foot complete with ring. This drawing has not been recorded for posterity.

This edition has been produced from the original Inter-Word computer files using Techwriter on the Acorn RISC PC. The figures, originally produced using Inter-Chart on the BBC microcomputer, have been redrawn using Chartwell and Draw+ on the RISC PC.

Chris du Feu, December 2000