

# Treswell Wood

## Nestbox Report - 1982

### Introduction

This year has been a poor year for nest box species, and possibly for woodland breeding birds as a whole. As in the past two years, there has been a decreasing number of nestlings ringed of species which do use nest boxes. This cannot be caused only by decreased effort on my part during the nest box inspections, as my route has been virtually identical to that in 1981. It is really too early to state categorically that success has been low this year, we have to wait for results of national surveys which usually are published the following spring, but at this stage it appears that it is so.

I believe the main factor affecting resident species is the hard winter which must have caused high mortality of resident birds. Certainly our ringing numbers in the wood are very low for the early part of the year before summer visitors arrived. Although the severe winters will not affect migrant birds, woodland migrants tend not to use holes for nesting, thus a hard winter will lead to low use of nest boxes. Our one exception to this is the Spotted Flycatcher. Even this bird does not use holes, but open platforms for nesting. This species has been hit too, but for different reasons.

The severe winter has given one benefit. Grey Squirrels *Sciurus carolinensis* - the number one nest box predator - have also been reduced in numbers. This has led to a lower rate of nest failure from this cause. The benefit has been partially cancelled by Great Spotted Woodpeckers which have begun to attack boxes. Tables 1 and 2 give details of overall figures for the year and of nest failure. Figures from earlier years are included for comparison. Nestbox species only are included.

**Table 1 Summary of events 1982**

Species	Nestlings fledged				Successful broods	Failed broods	Birds recaptured from			
	1979	1980	1981	1982			1979	1980	1981	1982
Stock Dove	2	0	0	0	0	1	-	-	-	-
Tawny Owl	0	2	2	2	1	0	-	-	1	-
Wren	0	10	0	0	0	0	-	1	-	-
Robin	6	5	11	3	1	0	2	2	1	-
Spotted Flycatcher	12	5	0	8	2	3	-	2	-	-
Coal Tit	0	0	0	10	1	0	-	-	-	-
Blue Tit	101	240	231	171	19	6	62	90	78	6
Great Tit	65	53	56	50	5	1	33	10	10	1
Starling	1	3	4	0	0	0	-	-	-	-
Tree Sparrow	116	188	113	28	8	3	13	15	1	-
House Sparrow	11	0	0	0	0	0	-	-	-	-
<b>Totals</b>	<b>314</b>	<b>506</b>	<b>417</b>	<b>272</b>	<b>37</b>	<b>14</b>	<b>110</b>	<b>120</b>	<b>91</b>	<b>7</b>

**Table 2 Nestbox failure 1981 and 1982**

Cause of failure	1981	1982
Grey Squirrel	14	2
Tawny Owl	0	1
Great Spotted Woodpecker	0	2
Blue Tit	1	0
Tree Sparrow	5	0
Bee	1	0
Weather	3	2
Other unidentified causes	28	5

## Species Notes

### Tawny Owl

One brood this year providing two young, three recoveries of ringed birds and remains of Woodpigeon, Song Thrush, Blue Tit, mole *Talpa europaea* and rat *Rattus norvegicus*. The Song Thrush found was a bird about ten days old which had obviously been removed from its nest by the owl. The owl, as in 1980, made its nest on top of a Stock Dove nest in a large nestbox. As before, the Stock Dove egg was eaten.

### Robin

One brood only, fairly early in the season. The number of Robins captured during ringing in the wood is lower than usual this year indicating a low population - this could explain the lack of nests.

### Spotted Flycatcher

I have used a new shape of box this year with some success. Of seven boxes, four have been selected by these attractive birds even though the breeding population appears to be lower than usual. (As usual, the number of captures in the wood is taken as a measure of the population size. There has only been one adult captured in the wood in the first half of the year - the lowest number ever - equalled only in 1973.) Table 3 gives details of Spotted Flycatcher use of boxes over four years.

Spotted Flycatchers arrive later than most migrants. By the time they had selected nesting sites the fine weather broke. Three of the four nests started in new boxes were abandoned. The other box was temporarily abandoned, but later two other nests were built in it. Presumably the second, which contained one egg, was abandoned because of weather. The third nest in the box produced three young. Normally the nest is tiny and occupies a corner of the box. These three adjacent nests covered the entire floor. Spotted Flycatchers are insectivorous and so suffer badly in cold, wet summers.

The new boxes are roughly the shape and size of a brick laid in the usual building position. They have a low wall across the front. It is probably important not to make them too large as Spotted Flycatchers seem to like to nest in small cavities.

**Table 3 Spotted Flycatchers 1979 - 1982**

Year	1979	1980	1981	1982
Number captured during ringing, April - June	4	5	8	1
Number of nests attempted in boxes	3	3	3	5
Number of successful nests	3	1	0	2
Number of nestlings fledged from boxes	12	5	0	8

### Coal Tit

Coal Tits have tried to nest in two past years but have been unsuccessful because of competition from other species. This year, at last, a pair have raised a good brood of ten. Four boxes have been built and sited particularly for Coal Tits, low down, an oval entrance whole, some on conifers. Of course these boxes have been spurned in favour of the ordinary Blue Tit type.

### Blue Tit

As usual, Blue Tits have provided the greatest interest this year. This is because the large number which use boxes allows meaningful conclusions to be drawn from the data. As in 1981, the identity of every female Blue Tit nesting in boxes is known. Table 4 gives some details of these birds.

Of note is the significant difference between the ratio of one-year-old to older birds in the two years. There are several possible reasons that could explain this. Examination of records shows that there were relatively few juveniles captured towards the end of last year. However, surprisingly, the abundance of young birds at this time does not necessarily determine the abundance during the following breeding season. The most probable reason for the lack of young birds is that the hard winter had a greater affect on inexperienced young than it did on older birds.

As last year, several breeding females are recent immigrants into the wood and were ringed elsewhere. Often those birds seem to nest later than known residents and to be more dominant. For instance, an old resident nested in box 90. She then abandoned a good clutch of 14 eggs shortly after a new bird selected a box 15m distant. A territorial dispute in which the resident lost? There have been other similar cases, of which one was

mentioned in 1980 when two birds used one box. These remarks are anecdotal and circumstantial and cannot be taken to imply that this behaviour is typical of Blue Tits.

**Table 4 Blue Tit females nesting in boxes**

	<b>Year</b>	<b>1981</b>	<b>1982</b>
One-year old birds		17	8
Older birds		12	1
Total		<b>29</b>	<b>25</b>
Birds ringed elsewhere		3	3
Birds ringed as nestlings in Treswell Wood		6	4

Our old friend KJ20723, a bird ringed as a juvenile in 1976 and which has used boxes since 1979, attempted nesting again. Sadly, this year her nest was late, poorly built and unsuccessful. This is very different from her brood of 15 in 1979 and probable two broods of 1980. It is likely that this bird is one of the rare Blue Tits which survives past its peak of reproductive ability.

Finally, a report of a rescue mission. Three boxes were given two extra birds each. These were the six surviving young from a brood in a local garden of which the two parents had been killed by a cat. Five of these birds survived to fledge, which was surprising considering their weak condition when they were placed in their foster nests. (Footnote on year 2000 reprint - none of these was ever recaptured.)

### **Great Tit**

In the past these have suffered from competition from Tree Sparrows and the predatory Grey Squirrels. This year there has been trouble from neither source. Only one clutch has been lost to woodpeckers. That there were only six attempted nests is probably a result of the winter. In the absence of competition from Tree Sparrows, two Great Tits selected the tall boxes and four the ordinary type.

### **Tree Sparrow**

'Tree Sparrows are renowned for the inexplicable fluctuations that their colonies sometimes undergo' according to the BTO Atlas of Breeding Birds. This year we have seen an inexplicable drop in numbers of Tree Sparrow broods. I do not consider that the winter is particularly to blame, and I hope and expect that in future years we will again enjoy large numbers of these attractive and elusive birds.

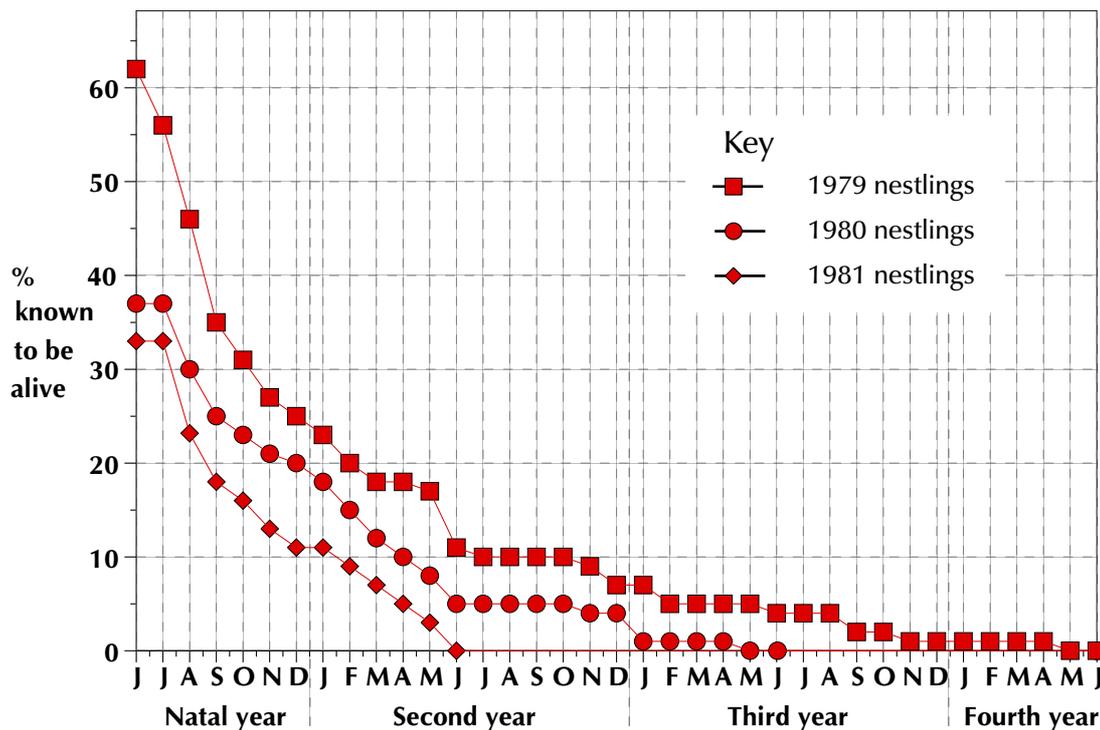
## **Nestlings from previous years - Recaptures and survival**

**Table 5 Nestlings fledged 1979 - 1981**

<b>Species</b>	<b>1979</b>	<b>1980</b>	<b>1981</b>	<b>Totals</b>	<b>Number recaptured or recovered</b>
Stock Dove	2	-	-	2	-
Tawny Owl	-	2	2	4	1
Skylark	-	3	-	3	-
Swallow	6	4	4	14	-
Wren	-	10	-	10	1
Robin	6	5	11	22	4
Blackbird	14	9	-	23	8
Song Thrush	33	10	6	49	8
Blackcap	5	-	-	5	-
Spotted Flycatcher	12	5	-	17	2
Blue Tit	101	240	231	572	230
Great Tit	65	53	56	174	53
Starling	1	3	4	8	-
House Sparrow	11	9	-	20	-
Tree Sparrow	116	188	113	417	19
Chaffinch	-	4	5	9	1
Linnet	-	3	-	3	-
<b>Totals</b>	<b>372</b>	<b>548</b>	<b>432</b>	<b>1352</b>	<b>327</b>

Table 5 gives gross ringing and recovery/recapture figures for all nestlings ringed in the period 1979-1981. (A recapture occurs if a ringed bird is captured and released alive by anyone, anywhere; a recovery if the bird is found dead anywhere. Thus recaptures and recoveries sum to the total numbers of birds found again subsequent to fledging.) Obviously an important object of bird ringing is to recapture or recover birds. Normally in Treswell Wood we recapture about 40% of adult birds ringed and recover about 1%. Some birds are recaptured many times. With nestlings the situation is different. Since juvenile mortality is very high in the first month after fledging, the overall recapture rate is bound to be very low. This high apparent wastage of ringing effort is balanced by the additional value of recaptures of birds ringed as nestlings (whose exact age and place of origin is known). In the case of Treswell Wood nestlings the overall recapture rate is 24% (but only 12% if the exceptionally high rate for Blue Tits is omitted.)

Three species have been ringed in fairly large numbers - Blue Tits, Great Tits and Tree Sparrows. Table 6 gives details of the numbers of nestlings of these three species fledging in the past three years together with recapture/recovery numbers. Figure 1 gives the minimum survival rates of Blue Tits fledging in each of the three years. For ease of comparison, the rates have been plotted as a percentage of the number fledging each year, against months after fledging. At first glance it seems that survival of 1979 nestlings has been higher than that of later nestlings. There are several possible reasons for this. First, these minimum survival rates underestimate the actual survival rates. This is because birds may be alive but we do not know they are alive because we have not retrapped them. Perhaps they may have just evaded capture within the wood or else have moved away from the wood and be living elsewhere. With our birds, this effect is only large within the most recent six months. Second, and probably much more important is that the introduction of nestboxes has allowed the Blue Tit population to increase greatly. The 1979 nestlings were able to take advantage of a comparatively empty wood and fill it. Birds from later years therefore suffered more competition and have either survived less well or else moved elsewhere in greater numbers. This effect has been observed in various studies of tits. (e.g. British Tits, New Naturalist series, p250-251) Some evidence that later birds have dispersed more widely is given in Table 6. The proportion of recaptures outside the wood has doubled since 1979. This will, of course, severely affect the minimum survival rates for 1980 and 1981 birds. A third factor affecting the 1981 birds is the hard winter of 1981-1982 which may have affected young birds more seriously than older birds.



**Figure 1 Minimum Survival rates of Blue Tits Ringed as Nestlings**

Great Tits exhibit similar survival rate patterns to Blue Tits, but with a more severe decrease in observed rates. Their pattern is possibly complicated by the competition and depredation which they have suffered in the past. Tree Sparrows exhibit completely different dispersal characteristics from tits. Juveniles are believed to disperse to neighbouring colonies to breed the following season, whereas many tits tend to remain in or near their natal site. Tits do not form colonies in the way that Tree Sparrows do. Unfortunately Tree Sparrows are very shy and so difficult to observe and capture. Their low recapture rate is a result of their dispersal pattern to colonies outside the wood where ringing does not take place, coupled with their apparent skill at evading capture rather than a result of a real lower survival rate. A few of the Tree Sparrows have provided interesting recaptures or recoveries. A 1980 nestling, NH49989, was killed by a cat in Radcliffe-on-Trent, 41 km from the wood in February 1981. In

contrast, another 1980 nestling, NH49632, was found dead in a nestbox only 80 m from its natal box in February 1982. It was presumed to have died while roosting. A different Tree Sparrow, NH49634, ringed on the same day as NH49632, had been found roosting in the same box a month earlier.

**Table 6 Recaptures and recoveries of selected birds**

	<b>1979</b>	<b>1980</b>	<b>1981</b>
Fledged <b>Blue Tits</b>	101	240	231
Recaptures/recoveries	62	90	78
Recaptures/recoveries as % of total	<b>61%</b>	<b>38%</b>	<b>34%</b>
Fledged <b>Great Tits</b>	65	53	56
Recaptures/recoveries	33	10	10
Recaptures/recoveries as % of total	<b>51%</b>	<b>19%</b>	<b>18%</b>
Fledged <b>Tree Sparrows</b>	116	188	113
Recaptures/recoveries	13	15	1
Recaptures/recoveries as % of total	<b>11%</b>	<b>8%</b>	<b>1%</b>

## Roosting Birds

Visits to the boxes by night have continued but not quite as frequently as last year because of the hard weather. On one mild night following a severe spell, four Wrens were found dead, three in one box and one in another. At least three of the Wrens were young birds. Wrens have never before been found roosting in our boxes. Presumably the severity of the weather had forced them into sheltered places to roost. It is possible that others had roosted with them and survived the cold nights. Both boxes holding the dead Wrens had been used by Tree Sparrows for nesting and so were thickly lined with grass and feathers. Tits continued to roost in unlined boxes except for one which was found in an old Tree Sparrow nest.

## Footnote on Fleas

The main aim of this year was to discover how and when fleas enter nesting sites. The plan was simple. Prevent fleas from crawling into some of the boxes. If, at the end of the season, these boxes held fleas, they must have entered on birds. A ring of tree grease around the nest entrance hole kept fleas out and fumigation of the box ensured there was none remaining from last year. The experiment has been a partial success - no fleas have been found stuck in the tree grease and this may show they do not enter the nest cavity by crawling. Unfortunately Blue Tits too have avoided using these boxes, even though the tree grease was carefully placed to ensure none could touch the bird's plumage as it entered the nest hole. We have yet to find an adult bird carrying fleas. There are two possible conclusions. First is that fleas are brought into the nest on the bird. Second, and more intriguing, is that the appearance of the black ring of grease was a visual deterrent to the birds (perhaps it looked like a superabundance of fleas congregating at the nest entrance). This appearance would also be a deterrent to the fleas who would be searching for an identical place to that which the birds were. Apart from this failed experiment, the old nests have been used, as usual, for experiments in flea ecology at Loughborough University.

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All sponsors and helpers

### Notes on this revision

Thanks are due to Philip Wain for some of the desk-top publishing of this revision.

This report was originally published for the Nottinghamshire Trust for Nature Conservation in October 1982 and distributed to nestbox sponsors, various trust officers, CBC observers and ringers in Treswell Wood. The front cover held a picture of a standard tit box which had been repaired after damage by grey squirrels, and a photograph of the new nestbox design for Spotted Flycatchers. There was also a photograph within the report of some of the Coal Tit nestlings in the hand. These pictures were all taken by Jim Smart who has recently given all his collection of natural history pictures to the NWT. The Spotted Flycatcher nestbox design is fully described and illustrated in the BTO Nestboxes Guide.

This edition has been produced using TechWriter on the Lyonix RISC OS computer and converted to a PDF document using RiScript.