Treswell Wood Nestbox Report - 1981

Introduction

1981 has been a disappointing year from several aspects, but nevertheless there has been plenty of interest and value in the nestbox success and records. The total number of broods and nestlings ringed is down on 1980. In the case of species which do not use boxes, the lack of nests recorded is partly caused by reduced observer effort (in turn caused by increased effort on boxes), but more so caused by poor weather and predation. In many cases it is hard to discover which predator is responsible for destroying nests - stoat or weasel are probably often the culprits. However, in some cases it is possible to discover the predator, and often the grey squirrels are so identified. Table 1 gives the numbers of nests and young for the year, and Table 2 gives details of nest predation. Other details of interest are given in the species notes.

Table 1. Summary of events 1981

Species	Birds fledged in			Successful	Recaptures of birds from		
	1979	1980	1981	broods 1981	1981	1980	1979
Tawny Owl	·	2	2	2	·	·	·
Swallow	6	4	4	1	·	·	·
Blackbird	4	9	·	·	·	1	4
Song Thrush	33	10	6	2	·	1	7
Robin	6	5	11	2	2	1	2
Spotted Flycatcher	12	5	·	·	·	2	·
Wren	·	10	·	·	·	1	·
Starling	1	3	4	1	·	·	·
Coal Tit	·	·	·	·	·	·	·
Blue Tit	101	240	231	28	52	90	63
Great Tit	65	53	56	7	9	10	32
Chaffinch	·	4	5	1	·	·	·
Tree Sparrow	116	188	113	30	·	13	13
Totals	**372**	**548**	**436**	**76**	**63**	**119**	**121**

Notes: Italicised names show species not nesting in boxes.
Totals fledged for 1979 & 1980 include some species which did not nest in 1981 and are not listed here.
Recapture figures correct to 14/09/1981

Table 2. Nest Failures

	Cause of failure					
Species	**Grey squirrel**	**Weather**	**Tree Sparrow**	**Blue Tit**	**Bee**	**Other including unidentified predator**
Woodpigeon	·	·	·	·	·	1
Dunnock	·	·	·	·	·	1
Song Thrush	·	·	·	·	·	6
Blackbird	·	·	·	·	·	1
Robin	·	·	·	·	·	1
Starling	3	·	·	·	·	·
Spotted Flycatcher	·	·	·	·	·	3
Coal Tit	·	·	1	·	·	·
Blue Tit	2	1	1	·	·	2
Great Tit	3	1	3	·	·	2
Tree Sparrow	6	1	·	1	1	11

Species notes

Tawny Owl

In both of this year's broods, one of the two nestlings died before fledging. The earlier nest was probably by the same pair as was last year's nest. It was in the same box and during this season there were, as last year, relatively many bird prey items. The death of the nestling here was probably caused by poor weather. The other nest was very different. It was later than is normal for Tawny Owls, and at first prey items were mainly mammal (including a whole rabbit on one occasion). The first of the two fledgelings developed normally. The second remained in the nest for seven weeks (five weeks is normal) and developed only slowly. It was still alive in June when the nights were shortest. The prey items became mainly birds. The cause of death is unknown, but judging by the number of uneaten carcasses it was not starvation. Even after seven weeks in the nest, the nestling had still only half-grown primary and tail feathers. Table 3 records the total prey items found in both nests.

Table 3 Prey items identified in Tawny Owl nests, 1981

Birds	Blue Tit	Great Tit	Bullfinch	Song Thrush	Starling	Cuckoo	Others
	5 (4)	1 (1)	2 (1)	1 (1)	2	1	5
Mammals	Mole	Rabbit	Vole	Shrew			
	2	1	4	1			

Note: Numbers in brackets show how many of the birds were identified by rings.

Coal Tit

One pair attempted nesting only. The full clutch of 10 eggs was laid, but Tree Sparrows drove away the tits and subsequently nested successfully in the box.

Great Tit

The new deeper boxes have been a partial success. All 11 were selected by Great Tits in addition to four other boxes. This total is greater than the number of nesting attempts in previous years, and it is in this line that other fairly local nestbox projects which have had 'Great Tit' year. Unfortunately, everything went against the tits. The very bad weather at the end of April delayed the start of laying in some cases and also, in some cases, forced some early layers to abandon their clutches and rebuild nests. Next, Tree Sparrows ousted three pairs of Great Tits and used the deeper boxes themselves without any great success. Finally grey squirrels destroyed three nests, one of which had been built mainly of squirrel fur, and unknown predators destroyed two more. The experiments will continue with these attractive deep boxes with modifications aimed at deterring predators.

Blue Tit

Again a good number of nesting attempts have been made, three more than in 1980 even though the boxes have been sited in a smaller area of the wood. The number of young fledged is down on 1980 largely because of the weather. The responses of the Blue Tits to the adverse conditions of the weekend 25/26 April were remarkably varied. Some Blue Tits had started laying at this time. Five pairs ignored the freezing weather and continued to lay one egg a day; nine pairs suspended laying for around four days, then resumed laying as normal. One pair abandoned the nest and built a new nest on top of it. Presumably several of the later layers delayed starting of their clutches. Some nest boxes were selected, but nesting was not started.

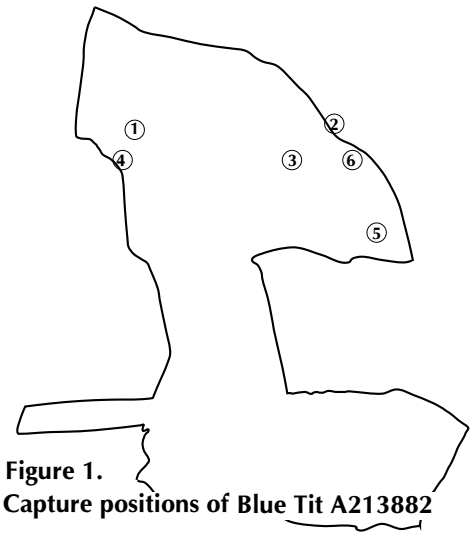

Figure 1.
Capture positions of Blue Tit A213882

Table 5 gives details of nesting success in 1980 and 1981 for comparison. With such a large number of broods, reliable conclusions may be drawn from the data. The identity of each female bird is known and this allows comparisons of success of different age groups of nesting birds. As expected, older females tend to have larger clutches than first year birds. For this year, at least, in Treswell Wood, young and older birds have not differed significantly in date of laying, numbers fledging or numbers known to have survived. Interestingly, there seemed to be no pattern in the selection of boxes by older and younger birds, neither did the new boxes produce differently sized broods.

The differences, or lack of them, between new and old boxes have been valuable in the flea research programme. Needless to say, the experiment produced negative results. Overall there was no difference in the infestation rates in the two categories of box. Indeed, one of the new boxes held one of the greatest

concentrations of fleas - we stopped counting at 200. The result shows that, however the fleas arrive in the nest, infestation does not depend on the site having been used in the previous season. Another result of note and worthy of more investigation, is that all nests belonging to older birds (2 years or more) were infested, but only half the nests belonging to first-year birds held fleas. We hope to investigate more in 1982 about the ways in which fleas find and depart from nests.

Table 4. Capture history of Blue Tit A213882

Date	Circumstance	Location (see Fig. 1)
24/05/80	Ringed in nestbox 21. Brood of 11.	1
01/11/80	Captured in mist net	2
01/11/80, 25/11/80, 20/12/80	Roosting in nestbox 59	3
21/12/80	Captured in mist net	4
29/01/81, 05/03/81	Roosting in nestbox 61	5
14/03/81	Captured in mist net	2
30/05/81	Captured in mist net	6

Table 5. Blue Tit nesting success, 1980/81

Year	1980	1981
Number of successful clutches	27	28
Mean clutch size	11.6	9.7
Mean number fledged per nest	10.0	8.6
Date of laying first egg in earliest clutch	14 April	15 April
Date of laying first egg in median clutch	22 April	22 April
Date of laying first egg in latest clutch	6 May	14 May

Tree Sparrow

Over the past two years, Tree Sparrows have bred very successfully in the Treswell Wood nestboxes compared to other local nestbox schemes. Most occupied boxes held two broods and a good proportion held a third clutch. Several nests raised broods of six young although overall success this year is lower than in 1980. There were no successful third broods and only two boxes held two consecutive successful broods. Weather and predators have been responsible. A late start to the season leaves too little time to rear a third brood before the summer moult. The high rate of predation has occurred in distinct clusters. This suggests that a particular individual predator is responsible. It learns about the nestboxes and, for a while, concentrates its hunting efforts on boxes until this new food resource becomes unproductive to harvest further. In one week, for example, a dozen boxes were attacked. Entrances were enlarged and eggs removed. One of the boxes, which had previously held a Starling's nest then held a grey squirrel's drey. This fact, together with the scratches on the fronts of the other boxes, identified the attacker. All the boxes attacked in that week were located in the coppice (block D) - presumably this was the squirrel's hunting ground.

Table 6. Tree Sparrow nesting success, 1980/81

Year	1980	1981
Number of single broods	8	14
Number attempting two broods	7	8
Number attempting three broods	13	0
Mean number of eggs per successful clutch	3·9	3·8
Mean number fledged per successful nest	2·9	2·3
Successful nests as a percentage of total of attempts	92%	56%
Percent of nests fledging 5 or more young (i.e. very successful nests)	36%	20%

Birds roosting in boxes

During the winter months, monthly visits are made by night to hole-entrance boxes. The species found roosting are Blue and Great Tits and Tree Sparrows. These visits, combined with other bird ringing in the wood, provide us with comprehensive records of some of the birds. Table 4 lists such a history of a Blue Tit. Although, at a first glance, such a list may not say very much, when many similar records are combined we can begin to understand more about the birds' ways of life. Events so far have been broadly in line with those related in British Tits (Collins New Naturalist series), but they pose interesting questions concerned with differing survival strategies of the birds. For instance, Tree Sparrows build nests in holes, they roost in them during the winter, often in pairs. It is not known if they go on to nest in the same place or even with the same partner. On the other hand, Blue and Great Tits roost alone, generally in the same hole for several nights but they do not seem to build any nest to provide insulation against the cold. They seem to select sites for roosting which are different from their nesting sites, at least until the spring. Great Tits may select smaller holes for roosting but larger ones for nesting.

Effects of nestboxes 1979 - 1981

Bird ringing has been carried out systematically in Treswell Wood since the Trust acquired it in late 1972. Table 7 gives details of total captures of some species for 1973 to 1980. It will be seen that the ration of Blue Tit to Willow Tit captures was about the same from 1973 to 1978 but that the proportion of Blue Tit captures increased rapidly in 1979 and further in 1980 when nestboxes were introduced. Blue and Willow Tits share many similar habitat requirements but differ in that Willow Tits excavate their own nest holes and do not take advantage of nestboxes. Blue Tits, on the other hand, need ready-made holes in which to nest and so their population level may be affected by a change in the available nesting hole provision. (It is assumed that the number of captures of birds reflects the population at the time.) The differences in the actual numbers of Willow Tits caught is a result of the difference in amounts of effort put into ringing operations over the different years. The significant statistics are the ratios of Blue to Willow Tits). The evidence is very great that Blue Tits have increased in number over the past two years. Since the introduction of nestboxes is the only major habit change (of which we are aware) which has affected Blue and Willow Tits differentially, we conclude that the boxes have enabled the increase in Blue Tit numbers.

The populations of Tree Sparrows and Great Tits are not so easy to investigate. Great Tits, although willing box users, have been so seriously affected by competition and predators that it is possible the boxes are of little benefit at present. Most Tree Sparrow captures take place at feeding stations in winter. Since these birds may not be from our breeding population but may be immigrants from neighbouring farmland, and because numbers trapped can depend on severity of weather, the totals are not a good indicator of Tree Sparrow populations. A detailed analysis of captures within the breeding season shows a significant increase in the numbers captured in the northern part of the wood where the boxes are located and it shows no increase in the south. Very little is known about Tree Sparrow post-juvenile dispersal and so far our nestlings have added little. Apart from a few captured within the wood only one has been found elsewhere - at Radcliffe on Trent.

No species other than these three seem to have been greatly affected by the nest boxes. The Tawny Owls use boxes but their presence in the wood may be more encouraged by coppicing which leaves good open hunting grounds rather than by the introduction of boxes.

Table 7. Captures, of selected species, during ringing operations

Species	1973	1978	1979	1980
Willow Tit	42	63	96	75
Blue Tit	87	188	275	349
Great Tit	65	81	110	156
Tree Sparrow	30	43	125	116

Survival of Nestlings from 1979 and 1980

Blue Tits are caught in large enough numbers to provide meaningful survival statistics. Figure 2 shows the minimal survival for 1979 and 1980 nestlings, and for 1979 birds it shows the minimum survival as known a year earlier. The increase in known survival is caused by recaptures of 1979 nestlings in the last year which had not been recaptured at all when the earlier graph was prepared. Table 8 gives details of all Blue Tits from nestboxes which have been retrapped to 14/9/1981.

Table 8. Recapture/recovery places of nestling-ringed Blue Tits of 1979 and 1980

	Recapture location				
Year of hatching	**Treswell Wood**	**Retford**	**Rampton Hospital**	**Clarborough**	**Gamston Wood**
1979	58	1	·	1	2
1980	83	2	3	1	·

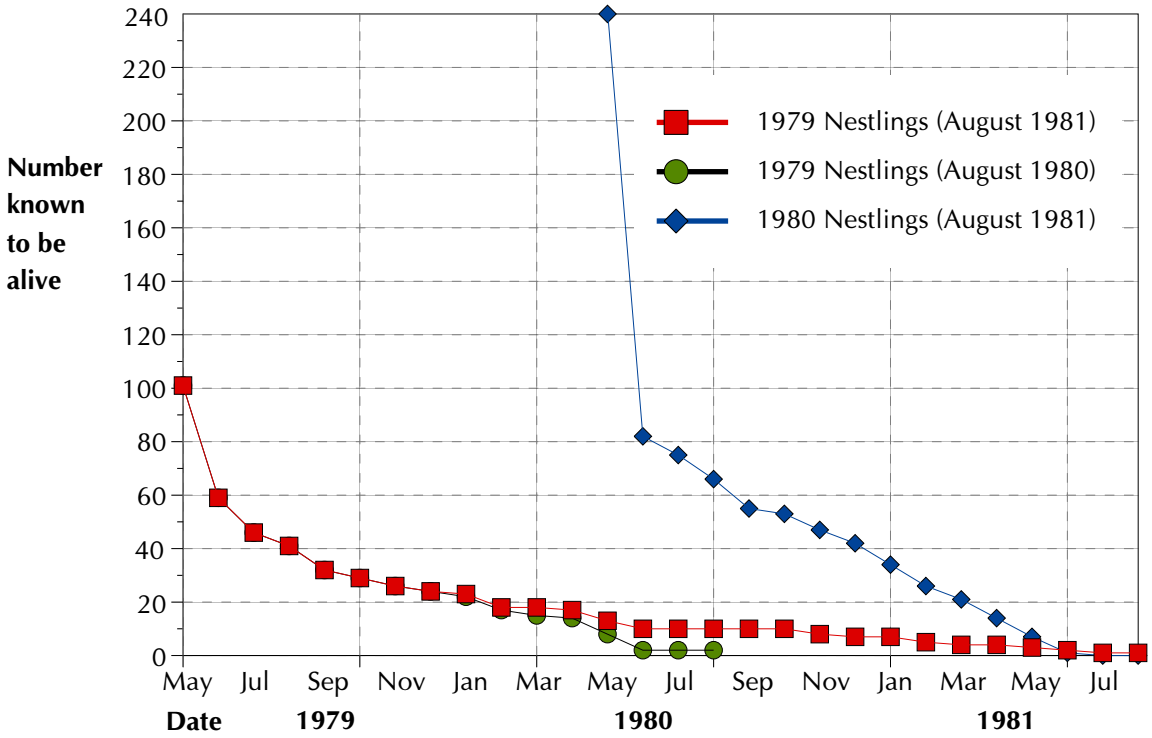

Figure 2. Survival of nestling-ringed Blue Tits

Programme for 1982

The siting of boxes this year has been much more satisfactory than last year. Only minor adjustments will be made. A few boxes have been modified for automatic collection of fleas and others to prevent fleas from entering except by being carried in on a bird. Some badly damaged boxes will be replaced. Some that have suffered from depredation will be moved to different trees in the hope of avoiding repeated depredation. A few nestboxes will be constructed with the aim of attracting more Spotted Flycatchers, Great Tits and Stock Doves.

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Chris du Feu,
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