

Treswell Wood

Nestbox Report - 1991

Introduction

This year has been the worst on record for Treswell Wood nestboxes. There has been a series of obstacles to successful breeding. Treswell Wood is not alone; much of the country has been similarly affected. The unusual weather pattern has been the cause. However, the reproductive potential of small birds is so great that we should not expect a long-term reduction in numbers of common species as a result of one year's poor breeding. Table 1 gives the year's dismal record. Comparison with earlier years may be seen in Table 3. Depredation, fortunately, has been at an all-time low, with only two boxes attacked. One attack was by a woodpecker which ate half the brood. The other was, I believe, by a wood mouse *Apodemus silvaticus* which killed all the young.

Table 1 Nests recorded, Treswell Wood 1991

Species	Failed Nests	Successful Nests	Young Fledged	Recaptured
Wren	0	1	5	1
Blue Tit	9	20	120	6
Great Tit	6	7	38	9

Note: Recaptures are correct to 30th September 1991

The snow of the first weekend of December (which disrupted our human lives until power was restored) seems to have had little effect on the birds because the snow cover lasted for such a short time. The winter continued to be mild until the beginning of February which was severe. The second half of February was milder with wind and rain. March brought cold and wet weather which lasted for some weeks. May was cold with prolonged northerly winds. June was very cold and wet. The hot dry summer which we will remember only really began in July after the nesting season was over.

The weather, therefore, worked against tits throughout the season. First, the cold weather of February must have killed many (although it is notoriously hard to find corpses of small birds known to be cold weather victims). Severe cold at this time of year can be very serious for birds, weakened by the winter and trying to build up strength ready for the breeding season.

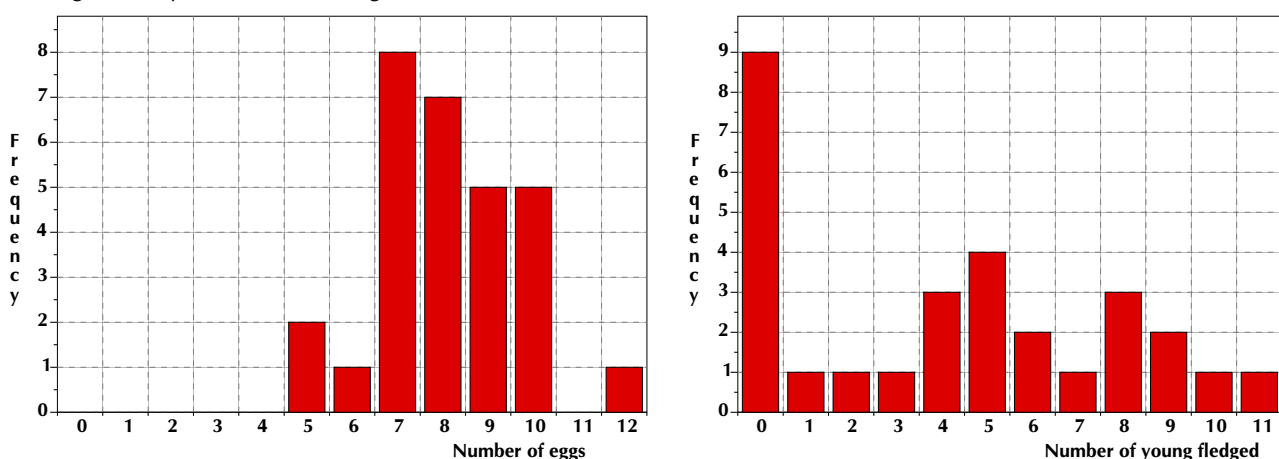


Figure 1 Blue Tit nesting performance, Treswell Wood 1991

Some tits, possibly more in gardens than in woods where winter food may be less abundant, managed to nest early. In my garden, one Blue Tit pair had even completed nest building by the end of March. For some such early birds the reward was early fledged young - two family groups of fledged Blue Tits were seen in Treswell Wood on 19th May - before some of the nestbox Blue Tits had even begun to lay. For most tits, however, the

cold wet spring delayed nesting. My early garden box, for example, was left unused for nearly a month before eggs were laid. Delayed nesting results in smaller clutches - the birds have less time in which to rear young and so respond by laying fewer eggs thus giving each individual in the nest a better chance of survival. This year Treswell Wood Blue Tits laid an average of only 8.4 eggs per nest compared with averages of 11.6 (1980), 9.7 (1981) and 9.4 (1986). Some birds suspend their egg laying in spells of cold weather. Eggs which have been laid before a cold spell seem to have lower chances of hatching than those laid after. Birds therefore may have been incubating apparently large clutches which were likely to have low hatching success.

The cold wet weather made searching for food by parents harder, and at the same time increased energy demands on the parents. Nestling tits, too, required more food and brooding in order to stay warm. Some nests became wet from rain with some or all young dying. Figure 1 illustrates the nesting performance of Blue Tits.

In spite of all this some young fledged, but all was not yet over. Young birds are at their most vulnerable when they are newly fledged. They are inexperienced in finding food and avoiding predators. June's cold and rain made finding food more urgent and more difficult. One brood was seen to emerge from its box on a rare dry day, but a very windy one. The brood suffered instant and unintended dispersal - it would have been an ideal day for dispersal of dandelion seeds but was fatal for some of these birds.

Not only tits have been affected, and in Treswell Wood there have been fewer nests found of other species than is normal. There have been some slightly better stories here and there in the county - Attenborough Reserve, for instance, fledged 140 young from 22 successful nests with only one nest failing. However, such events were the exception rather than the rule. Even there, the average of 6.4 fledglings per successful nest was well below typical for Treswell Wood, and only slightly above this year's Treswell Wood figure (Table 2).

Table 2 Blue Tit - Numbers fledged per successful nest

Treswell Wood 1979-1990	Best year	10.0
	Worst year	7.0
	Average	8.4
Treswell Wood 1991		6.0
Attenborough 1991		6.4

Recaptures of Nestlings

Table 3 gives the cumulative totals of nestling Blue and Great Tits recaptured (up to 30th September 1991) from every year's cohort since 1979 when nestboxes were first put up and events recorded. There are several features of interest. First is the very high recapture rates of the 1979 nestlings. This was probably because these birds fledged into a wood containing relatively few other tits. They were able to survive and remain in the wood better than their successors who fledged into a wood with higher tit populations and more competition. (The Common Bird Census has recorded a doubling of Treswell Wood Blue and Great Tit territories since the introduction of nestboxes in 1979). It is likely that later years' birds suffered higher mortality and higher emigration rates than the 1979 birds. It is not realistic to try and compare annual rates of dispersal here because many of the birds found elsewhere have been captured by other ringers. Unfortunately for us, the other local ringers have not been able to operate consistently from year to year, as we have been able to do in the wood. This means that larger numbers of birds captured outside the wood fairly locally (e.g. Rampton Village) may be a result of intensive trapping by other ringers, rather than a result of greater dispersal by Treswell Wood birds. The Blue Tit recapture rates have become steady at around 25% - 30% with the Great Tit rates more erratic. The numbers for the last two or three years will probably increase. For instance, in the past year we recaptured for the first time seven Blue Tits which had fledged in 1989.

The recapture rate of 1986 birds was the lowest (apart from 1990) in spite of the high numbers of nestlings ringed. This was because of poor survival after a very good breeding season. The recapture rates of 1990 birds are outstandingly low even if, as we expect, a few more are recaptured over the next year or two. Juveniles tend to survive less well than adults and these very low figures are probably a result of the hard winter. Recapture rates for 1991 are already higher than for last year at the same time, perhaps because the population is so low that there is little pressure to emigrate.

Several of our tits have returned to Treswell Wood after being captured elsewhere, usually during the winter. It is likely that many of these are acting as short distance migratory birds, leaving Treswell Wood in the winter in favour of villages or towns where winter food supply is better (thanks to all you dedicated bird lovers). In the spring they return to their favoured woodland breeding habitat.

Table 3 Numbers of nestlings ringed in boxes and later recaptured, Treswell Wood 1979 - 1991

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Blue Tit													
N	101	240	231	171	117	155	189	233	272	103	258	174	120
R	63	91	81	56	29	45	50	51	69	32	60	16	6
P	62%	38%	35%	33%	25%	29%	26%	22%	25%	31%	23%	9%	5%
E	0	0	0	0	0	0	0	0	0	0	8	7	-
O	7	8	15	10	2	15	5	9	6	5	5	0	0
B	1	1	2	2	2	4	2	1	2	1	0	0	0
Great Tit													
N	65	53	56	50	48	61	104	126	133	77	126	38	38
R	34	10	10	10	13	19	18	9	43	8	13	1	9
P	52%	19%	18%	20%	27%	31%	17%	7%	32%	10%	10%	3%	24%
E	0	0	0	0	0	0	0	0	0	0	0	0	-
O	4	1	2	2	2	4	2	1	2	1	0	0	0
B	1	0	1	1	0	2	0	0	1	0	0	0	0

Note: Figures are cumulative totals, correct to 30th September 1991
 'found' means retrapped in the wood, elsewhere or found alive or dead by a member of public
 N nestlings ringed and fledged
 R found
 P found as % of total
 E first found since 30th September 1990
 O found outside the wood
 B found outside the wood and subsequently recaptured inside the wood

Many of our birds have interesting recapture histories. These may show a long life, repeated nesting in Treswell Wood, long distance movements or captures outside the wood followed by a return to the wood. Below is a selection of recaptures of tits ringed as nestlings over the past few years.

Ring	Box	Ringling Date	Recapture Dates	Notes
Blue Tits				
E343073	24	24 05 87	20 01 91	A ripe old age for a Blue Tit - the oldest nestbox reared tit captured in 1991.
E343335	85	28 05 88	07 05 90	Nesting in box 61.
E343336	85	28 05 88	20 05 89	Nesting in box 15 on nest taken over from Great Tit. Reared both Blue and Great Tit young.
			06 05 90	Nesting in box 74.
			25 05 91	Nesting in box 9, boxes 100 m apart.
E343394	88	12 06 88	30 10 88	Captured by ringer in Chilwell, Nottingham, 50 km away.
F485672	23	04 06 89	17 02 90	Captured in Darlton, near Tuxford.
			13 01 91	Recaptured in Treswell Wood.
F485785	F1	11 06 89	26 01 91	Captured in Lound, Retford.
			03 03 91	Recaptured in Treswell Wood.

Ring	Box	Ringling Date	Recapture Dates	Notes
Great Tits				
VA30384	62	28 05 87	25 11 87	Captured at Anston, S.Yorks.
			28 02 88	Recaptured in Treswell Wood - long distance return movement (25 km.)
			21 05 88	Nesting in box 93
VA30387	62	28 05 87	27 03 88	Captured in Treswell Wood
			20 02 89	Captured at Finningley, Doncaster.
VA30393	62	28 05 87	31 01 88	Captured at Babworth, Retford.
			30 10 88	Recaptured in Treswell Wood.
VA30441	91	28 05 87	15 05 88	Nesting in box 27.
			13 05 89	Nesting in box 95.
			12 05 90	Nesting in box 81, three boxes 200 m apart.
VA30442	91	28 05 87	10 05 89	Nesting in box 63.
			07 05 90	Nesting in box 97. (boxes 300 m apart)
VE62022	18	23 05 89	06 05 90	Nesting in box 52. (50 m from box 18)
			01 05 91	Nesting in box 18. The second of our Great Tits found nesting in its natal box.

Treswell Wood Bird Populations and Censuses

Two long term ornithological surveys are carried out in Treswell Wood. The Common Bird Census (CBC) has been in operation here since 1972. In it, volunteers survey the whole wood each spring using the same method each year. They record bird activity on a map, noting the type of activity (song, carrying food or nesting material etc.). Using these observations, maps of bird territories are plotted and the number of territories of each species assessed. The territory plotting is carried out at the BTO by professional ornithologists. Treswell Wood data are combined with data from many other sites to provide an overall picture for the country.

The second survey involves constant effort ringing. In this, the ringers use the same amount of netting in the same sites for the same amount of time each year. In our system, which has been operating since 1978, we visit each of seven parts of the wood once every ten weeks, that is five times a year. Our data from May to August are used as part of the BTO national constant effort scheme. Using the same amount of catch effort from year to year means that catches should reflect population size. We use the spring numbers of adults (our second ten week interval) to assess breeding population and summer numbers of juveniles (the third interval) to assess breeding success.

This year CBC workers in Treswell Wood lamented the lack of birds to record. They, and the ringers, took mutual comfort from the fact that both censuses were recording few birds. Table 4 shows the total numbers of birds caught in the first three 10 week intervals of 1991 together with the maximum, minimum and average numbers captured in the same intervals over the previous years.

Table 4 Constant Effort Captures, Treswell Wood 1978 - 1991

Total numbers caught all species combined

	Interval	1: Jan-Mar	2: Mar-May	3: May-Aug	4: Aug-Oct	5: Oct-Dec
1978-1990	Maximum	124	145	288	223	177
	Minimum	66	88	110	68	88
	Average	93	120	190	139	130
1991		65	57	99		

Table 5 gives constant effort capture numbers for the most commonly captured species in the wood. It gives numbers of adults in the spring and juveniles in the summer. We can see from this that the decline in adult numbers was serious and almost universal. Even Blackcaps and Willow Warblers, the only summer visitors to arrive early enough and in large enough numbers to be included in these totals, are well down. Arrival of summer visitors in Britain was generally later than usual this year. Curiously there were more Long-tailed Tits and Treecreepers than usual. This is unusual after a hard winter when small birds are expected to suffer most.

The numbers of juveniles captured in the third interval are also well down for all species except Chaffinch. (I have no idea why we have never before managed to catch a juvenile Chaffinch in our constant effort nets in this time of the year - we certainly catch some later in the year.) We can see that numbers are typically under half of their normal figure.

Table 5 Captures of adults and juveniles of common species in constant effort nets, 1978 - 1991

Species	Adults, Interval 2: March-May		Juveniles, Interval 3: May-August	
	Average 1978-1990	1991	Average 1978-1990	1991
Wren	10.6	5	10.0	3
Dunnock	15.1	4	6.2	3
Robin	13.4	7	19.5	8
Blackbird	14.8	7	5.8	0
Song Thrush	9.7	2	2.1	0
Blackcap	6.4	2	3.5	0
Willow Warbler	5.7	1	0.8	0
Long-tailed Tit	3.2	5	1.2	0
Blue Tit	15.8	6	17.0	1
Great Tit	10.4	3	7.0	4
Treecreeper	5.6	7	1.4	0
Chaffinch	5.5	3	0.0	1
Bullfinch	6.2	0	1.6	0

The future - is it a bleak one for the birds? Probably not, in spite of the terrible year. The breeding population depends largely on winter survival. So this year's low numbers are a result of both the hard winter causing low adult survival and a very poor breeding season. Much, in the short term, depends on this winter. If it is mild there should be very high survival of birds - there will be relatively little competition for food since numbers are low. If it is another hard winter there may be very low numbers breeding next year. Even so, many birds will increase their clutch sizes in response to less competition in a lower breeding population, thereby producing more young per pair. For example, Wrens, which suffered an almost complete extinction in Treswell Wood in 1978/79, had recovered their numbers by 1982 after much initial immigration.

The situation could be more serious locally for birds which are sedentary and have low populations in Treswell Wood - birds such as Marsh Tit or Nuthatch. If their populations became extinct in the wood, it is likely that other local populations would, at least, be depleted and so would not have any surplus to allow dispersal and recolonisation elsewhere. It could be some years before the wood was recolonised from surplus population elsewhere. This extinction and recolonisation has happened before with the Marsh Tit which was absent from the wood for about 3 years in the late 1970s and early 1980s. Nuthatches are only fairly recent colonists in the wood. However one brood of Nuthatches has been seen in the wood this year, and some Marsh Tits have been captured by ringers. Perhaps next year they may both nest in our boxes?

Acknowledgements

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

Chris du Feu, December 2000