

## WRENS ROCKETING AND ROBINS BOBBIN'

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*Dawn Balmer and Chris Wernham of the BTO's Demography Unit report on population changes on Constant Effort Sites 1998-99. Weather conditions during the 1999 breeding season were very similar to those in 1998 and have resulted in mixed fortunes for Britain's common songbirds. Early nesting residents took advantage of the mild conditions in March and April and successfully fledged young. For other species, the generally unsettled weather and the particularly heavy downpours in late May and June probably adversely affected breeding success.*

### EL CHOCHIN SE DISPARA Y EL PETIRROJO FLUCTUA

*Dawn Balmer y Chris Wernham de la Unidad de Demografía del BTO informan sobre los cambios poblacionales en los Sitios de Esfuerzo Constante (CES) en 1998-99. Las condiciones atmosféricas durante la temporada de cría de 1999 fueron muy similares a las de 1998 y han tenido consecuencias variadas para las especies canoras comunes del Reino Unido. Las reproductoras residentes que anidaron pronto se beneficiaron del clima templado de marzo y abril y sacaron adelante sus nidadas con éxito. Para otras especies, el mal tiempo y las fuertes lluvias de finales de mayo y junio seguramente afectaron adversamente el éxito reproductivo.*

### LES ROITELETS EXPLOSENT ALORS QUE LES MERLES HESITENT

*Dawn Balmer et Chris Wernham de l'Unité Démographie du BTO exposent les changements de populations sur les Constant Effort Sites en 1998-99. Les conditions météorologiques pendant la saison de reproduction de 1999, très proches de celles de 1998, ont conduit à des destins mitigés pour les oiseaux communs de Grande Bretagne. Ceux qui nichent tôt, avantagés par les conditions douces de Mars et Avril, ont élevé leurs jeunes avec succès. En revanche, le temps généralement changeant et les pluies particulièrement importantes de fin Mai et Juin ont probablement diminué le succès reproducteur des autres espèces.*

### ZAUNKÖNIGE MIT SATZ NACH OBEN, ROTKEHLCHEN MIT AUF UND AB

*Dawn Balmer und Chris Wernham von der BTO Demography Unit berichten über die Bestandsveränderungen auf den Dauerfangflächen 1998-99. Die Witterungsbedingungen während der Brutsaison 1999 waren denen des Vorjahres sehr ähnlich und führten zu sehr unterschiedlichem Bruterfolg bei den einzelnen Vogelarten. Frühbrütende Standvogelarten nutzten die meist milde Witterung im März und April zu erfolgreichen Bruten. Bei den anderen Arten beeinträchtigte dagegen das generell unbeständige Wetter und vor allem die starken Regenfälle im Mai und Juni den Bruterfolg erheblich.*

The Constant Effort Sites (CES) scheme, now running for 19 years, uses catches from standardised mist-netting to monitor changes in the abundance and productivity of common breeding songbirds. Licensed ringers at over 130 sites throughout Britain and Ireland erect mist-nets in the same positions and for the same length of time, during twelve visits spread between early May and late August each year — a real labour of love by dedicated ringers! Changes in the total number of adults caught provide a measure of changing population size, while the proportion of young birds caught is used as an estimate of breeding success. We also use retraps of adult birds ringed in previous years to estimate annual survival rates. Recent advances in analyses mean that we can now calculate long-term trends in numbers, productivity and survival rates from CES information.

### CONTINUED GROWTH OF CES

The number of sites operated continues to grow

steadily, reaching a new peak of 133 in 1998. By mid-January, we had received ringing returns from 121 sites operated in 1999 and we expect more returns in the next few weeks. Five sites were operated for the first time in 1999 including new sites in Ireland and two in Lancashire.

The results we present here are based upon standardised catches at 112 sites which were operated in the same way in both 1998 and 1999, and at which at least eight visits were completed in both years. The breakdown of habitats covered has not changed much from year-to-year. In 1999, of these 112 sites, 61 were located in reedbed or wet scrub, 39 in dry scrub and 12 in deciduous woodland (a small increase in woodland sites).

### SEDGE WARBLERS UP

Another mild winter probably enabled many of our resident species to survive in reasonable numbers, although Wren was the only resident species to show a statistically significant increase

TABLE 1. Changes in captures on CES sites from 1998 to 1999.

Species	No. Sites	ADULTS			No. Sites	JUVENILES		
		Total 1998	Total 1999	% Change		Total 1998	Total 1999	% Change
Wren	98	618	690	+12 *	98	1567	1771	+13 *
Dunnock	99	575	611	+6	99	762	975	+28 *
Robin	94	463	498	+8	99	1655	1718	+4
Blackbird	97	799	798	0	94	600	594	-1
Song Thrush	88	262	247	-6	73	201	216	+8
Sedge Warbler	73	992	1115	+12 *	74	1503	1620	+8
Reed Warbler	61	2012	1971	-2	69	1937	2402	+24 *
Lesser Whitethroat	42	79	81	+3	46	146	90	-38
Whitethroat	70	316	294	-7	75	507	432	-15
Garden Warbler	74	347	329	-5	73	382	280	-27 *
Blackcap	94	878	878	0	94	2118	1522	-28 *
Chiffchaff	81	442	255	-42 *	97	1542	939	-39 *
Willow Warbler	94	1855	1552	-16 *	97	2856	2340	-18
Long-tailed Tit	87	444	418	-6	84	950	990	+4
Blue Tit	98	710	604	-15 *	99	1725	1455	-16
Great Tit	96	473	456	-4	99	1201	1002	-17 *
Treecreeper	48	66	69	+5	71	163	178	+9
Chaffinch	86	517	496	-4	73	270	297	+10
Greenfinch	53	194	205	+6	32	61	95	+56
Goldfinch	44	79	97	+23	29	70	69	-1
Linnet	22	94	89	-5	18	53	60	+13
Redpoll	12	26	35	+35	6	6	35	+483
Bullfinch	85	517	483	-7	76	377	429	+14
Reed Bunting	69	332	322	-3	57	224	237	+6

n = number of paired sites

Total = number of individuals captured at all paired sites

\* = significant change at the 5% level

in numbers. There was a welcome increase in the number of adult Sedge Warblers caught, following two successive years of poor adult catches (1997 & 1998). There were three statistically significant decreases in numbers between 1998 and 1999 for Chiffchaff, Willow Warbler and Blue Tit. The long-term trend for adult Chiffchaff shows an increase, and coupled with fairly good breeding success in 1997 and 1998, the population level is presumably quite high. There is no clear reason for the downturn in adult numbers in 1999, but this could suggest less favourable conditions in their wintering grounds. The decline in catches of adult Blue Tits is perhaps easier to explain as simply a knock on effect of a very poor breeding season in 1998. Given another below average breeding season in 1999, we may see a further decrease in 2000.

### MORE RAIN IN JUNE

The now familiar pattern of mild weather in early spring and unsettled summers, characterised by heavy downpours, resulted in mixed breeding success. Early breeding residents, particularly Wren and Dunnock, took advantage of the mild conditions early on and managed to fledge good numbers of young. Unsettled weather in early and late May, and most of June, made finding sufficient food to feed the chicks difficult. In some areas, cool spells added to the problem and resulted in many chicks starving to death. The heavy downpours caused some localised flooding on Constant Effort sites and wiped out the nests of several ground nesting species, notably Chiffchaff, Willow Warbler and Nightingale. Figure 1 illustrates the period of unsettled weather (shaded area) for much of the country, together with the approximate time when chicks are in the nest (solid line). It is interesting that Blue Tit and Great Tit, both essentially single-brooded species, failed to fledge good numbers of young. The main period that chicks are in the nest coincided with poor weather and may have resulted in few chicks fledging. Another essentially single-brooded species, Long-tailed Tit, breeds slightly earlier than Blue Tit and Great Tit and managed to fledge young successfully. Those species that have more than one brood (e.g. Wren, Treecreeper, Dunnock and Robin)

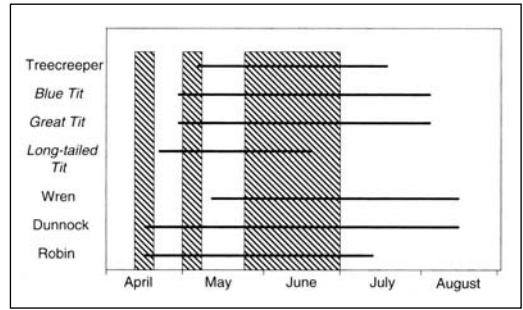


FIGURE 1. Horizontal lines = approximate time when chicks are in the nest (from *A Field Guide to Birds' Nests* by Campbell & Ferguson-Lees 1972); shaded areas = period of unsettled weather and heavy downpour (from weather reports in *British Wildlife* and personal observations in Norfolk). Species in italics are mainly single-brooded

seemed more likely to raise good numbers of young.

Following on from two successful breeding seasons, Blackcap and Chiffchaff both had a poor year. However, the Reed Warbler, one of the latest of our summer visitors to start breeding, had a successful breeding season, benefiting from the mainly dry, sunny weather throughout July and August.

### MEASURES OF BREEDING SUCCESS

For the first time we are presenting a new measure of productivity. In the past we have used the percentage of juveniles in the catch to present changes in breeding success. This year we are using the percentage change in juveniles per adult as our measure, which is more in line with the way we present long-term changes in productivity (Table 2). This method is preferable because the amount of change should be directly proportional to true changes in productivity. However, the ratio of juveniles to adults is not a measure of (absolute) productivity because the chances of catching juveniles at Constant Effort sites may differ from the chances of catching adult birds. Rather, the ratio is an index of breeding success. Looking at Table 2, only Blackcap and Redpoll show statistically significant changes. Blackcap is showing a significant decline in productivity (no change in adult numbers but a decrease in juveniles) whilst Redpoll is showing a significant increase in productivity (moderate

TABLE 2. Percentage changes in juveniles per adult caught on CES sites from 1998 to 1999.

	1998		1999		% change
	Adults	Juveniles	Adults	Juveniles	
Wren	618	1567	687	1750	+1
Dunnock	571	756	605	970	+21
Robin	463	1655	498	1715	-4
Blackbird	798	599	798	594	-1
Song Thrush	252	199	233	211	+15
Sedge Warbler	990	1500	1113	1618	-4
Reed Warbler	2012	1932	1963	2395	+27
Lesser Whitethroat	72	133	77	84	-41
Whitethroat	304	498	286	423	-10
Garden Warbler	344	363	323	276	-19
Blackcap	876	2114	878	1522	-28 *
Chiffchaff	432	1513	254	932	+5
Willow Warbler	1844	2839	1550	2339	-2
Long-tailed Tit	427	936	407	972	+9
Blue Tit	708	1711	604	1455	0
Great Tit	471	1198	456	1002	-14
Treecreeper	64	146	64	152	+4
Chaffinch	497	264	489	291	+12
Greenfinch	175	57	189	89	+45
Goldfinch	60	64	77	56	-32
Linnet	89	49	79	54	+24
Redpoll	18	3	35	35	+500 *
Bullfinch	501	373	472	423	+20
Reed Bunting	306	209	321	234	+7

\* = statistically significant change at 5% level

Note: the ratio of juveniles per adult gives only an *index* of productivity — see text for further details.

increase in adult numbers but a huge increase in juveniles). The result for Redpoll should be treated with caution because the sample sizes are now very small owing to the scarcity of this species on Constant Effort sites.

New Constant Effort sites are still needed, so if you are interested in joining the scheme please

contact Dawn Balmer at BTO for further details. We are particularly keen to encourage new sites in Wales, Ireland, Scotland and south-west England.

*The Constant Effort Sites scheme was undertaken within the Partnership between the BTO and JNCC as part of its programme of research into nature conservation.*

### THANK YOU

Like all ongoing BTO projects, the CES scheme depends entirely on the enthusiasm, skill and goodwill of its volunteers and we are grateful to all ringers who participated in the scheme in 1999. Whilst space prevents us from acknowledging all CES ringers, we would like to thank the following ringers and groups for their regular contributions: Abberton RG, N Brown, K Bruce, C Butterworth, J Carson, A J Crease, S Dodd, Doncaster RG, G Dunlop, Durham RG, G Etheridge, J Gates, A Goodall, P Grosse, n Harrison, Hersham RG, P R Holmes, Kenfig RG, A Lawrence, R Marsh, D McKee, M McNeely, Newbury RG, North Lancs RG, North Notts RG, Northumbria RG, R Peart, D Roizer, R Shaw, Tees RG, Treswell Wood IPM RG, W Whitehouse, C Wilson. (RG = Ringing Group)

### BOX 1. HEALTHY POPULATIONS OF RESIDENT INSECTIVORES ON CONSTANT EFFORT SITES

For Wren, Dunnock and Robin, catches of both adults and juveniles increased between 1998 and 1999 (see Table 1). All CES ringers can easily relate to these year-to-year changes, but they tell us little about the pattern of long-term changes. Long-term trends in adult and juvenile numbers are far more important in conservation terms.

Here we present the trends in abundance for adult Wren, Dunnock and Robin (Peach, Baillie & Balmer, 1998, *Bird Study* 45: 257-275). Catches of adult Wrens increased by 81%, and Robins increased by 82% between 1983 and 1995 (both statistically significant results). These are the largest increases recorded for any of the 28 species monitored by the Scheme. There was a statistically significant decline in the catches of adult Dunnock (-17%) between 1983 and 1995 and the graph shows that catches of Dunnocks have also fluctuated greatly over time. The graphs show the incredible similarity in the shorter term fluctuations for these three resident species. The pronounced fluctuations in catch size can be attributed to unfavourable weather conditions in Britain, for example the severe weather of February 1991 probably accounts for the reduced catches of Wren, Robin and Dunnock in 1991.

We have recently calculated long-term trends in productivity from CES information for 26 species. Productivity has declined for all three species: Wren (-10%), Dunnock (-9%) and Robin (-17%), but this was only statistically significant for Robin. Patterns in productivity are remarkably similar, although Wrens tend to have a more fluctuating pattern than Dunnocks or Robins. 1996 will be remembered by many CES ringers as a poor year for young birds, and it was by far the worst year for Dunnock and Robin; Wren has reached a similar low level in the past (1984 and 1989). The warm spring conditions in 1987 and 1993 were particularly favourable for breeding. The results of the work on long-term trends in 26 species are currently being written up for publication, and we will tell you more about them in a later edition of *BTO News*. We owe many thanks to Steve Freeman for developing the statistical methods and for carrying out these analyses.

