

A POOR BREEDING SEASON — CONSTANT EFFORT SITES, 2003

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Dawn Balmer and Steve Freeman of the BTO's Demography Unit report on population and productivity changes between 2002 and 2003 on Constant Effort ringing Sites (CES).

UNA MALA TEMPORADA REPRODUCTIVA – SITIOS DE ESFUERZO CONSTANTE, 2003

Dawn Balmer y Steve Freeman, de la Unidad de Demografía del BTO, informan sobre cambios poblacionales y de productividad entre 2002 y 2003 en los lugares de anillamiento de esfuerzo constante (CES).

Following a successful breeding season for most species in 2002 and generally mild over-winter weather, the adult populations of some resident species in 2003 were high, compared with the previous year. Southeasterly winds in April led to the early arrival of some migrants and early nesting attempts but, later in the month, poor weather in North Africa and Iberia held up many migrants heading for Britain and Ireland. Table 1 shows the changes on CE sites between 2002 and 2003. There were statistically significant increases in the numbers of adults for Wren, Song Thrush, Chiffchaff, Blue Tit, Great Tit and Linnet. For Wren, Chiffchaff and the tits this reflects a very productive breeding season in 2002.

SONG THRUSH ON THE UP?

Song Thrush is currently red-listed on the *Population Status of Birds in the UK* list on the basis of a rapid (>50%) decline in the UK breeding population in the last 25 years. The long-term trend in adult abundance on CE sites (Figure 1) is also downwards but from 1997 has shown a shallow but consistent upward trend.

Results from the Breeding Bird Survey also suggest an increase in Song Thrush abundance between 1994 and 2002, so perhaps there is some hope of a recovery for this species. Previous work by BTO staff has suggested that survival of birds during their first year of life was, at least in part, responsible for the decline. Song Thrush productivity shows no clear pattern over time (Figure 2), though evidence from the Nest Record Scheme indicates that overall breeding performance has improved. One explanation could be that birds may be having fewer nesting attempts as there has been no overall change in post-fledging survival. It is possible that the recent increase in adult numbers on CE sites may be due to their increasing survival rates.

Four species showed a statistically significant decline in the numbers of adults caught between 2002 and 2003: Sedge Warbler, Reed Warbler, Whitethroat and Willow Warbler. Sedge Warbler and Reed Warbler have shown large variations between years but the long-term pattern for Sedge Warbler is stable, whilst Reed Warbler showed a decline (see *BTO News* 245). In the longer-term, the number of adult Whitethroats caught on CE sites shows a

TABLE 1. Changes in captures on CE sites from 2002 to 2003.

Species	Adults n 2003	Juveniles n 2003	Adult % change vs 2002	Trend	Productivity % change		Trend
	vs 2002	vs 83-02					
Wren	102	105	+13 *	↔	-30 *	-17	↔
Dunnock	100	101	+5	↔	-26 *	-22	↔
Robin	101	104	+7	↑	-20 *	-19	↓
Blackbird	102	96	+2	↓	-24 *	-25	↔
Song Thrush	93	79	+18 *	↓	-16	-17	↔
Sedge Warbler	66	67	-11 *	↔	-11	-12	↓
Reed Warbler	55	53	-14 *	↓	-12 *	-2	↔
Lesser Whitethroat	31	42	-26	↓	-32	-29	↔
Whitethroat	62	71	-26 *	↔	-10	-7	↓
Garden Warbler	54	59	0	↔	-15	-17	↓
Blackcap	96	97	+3	↑	-33 *	-17	↔
Chiffchaff	86	93	+35 *	↑	-36 *	-28	↓
Willow Warbler	75	91	-13 *	↓	-3	+15	↓
Long-tailed Tit	84	82	+6	↔	-45 *	-32	↔
Willow Tit	8	15	+1	↓	-39	-8	↔
Blue Tit	99	103	+14 *	↔	-53 *	-33	↓
Great Tit	96	102	+33 *	↔	-44 *	-25	↓
Treecreeper	43	77	+16	↔	-12	+25	↔
Chaffinch	88	68	+4	↔	-2	+37	↓
Greenfinch	54	36	-1	↑	+21	+24	↓
Goldfinch	36	25	+13	↔	+1	+22	↓
Linnet	15	11	+74 *	↓	+90	-6	↓
Bullfinch	83	64	+1	↓	-20 *	+5	↔
Reed Bunting	53	45	-10	↓	-36 *	-24	↓

n 2003 = number of sites operated in 2003 at which the species was captured

vs 2002 = percentage change between 2002 and 2003

vs 83–02 = % change with respect to 1983–2002 average

* = significance (at the 5% level) of increase/decrease with respect to previous year only

Long-term trend = long-term trend during the period of CES ringing. See Wider Countryside Report on the BTO website for further details (www.bto.org/birdtrends)

↑ = long-term trend shows an increase

↓ = long-term trend shows a decline

↔ = long-term trend shows stability

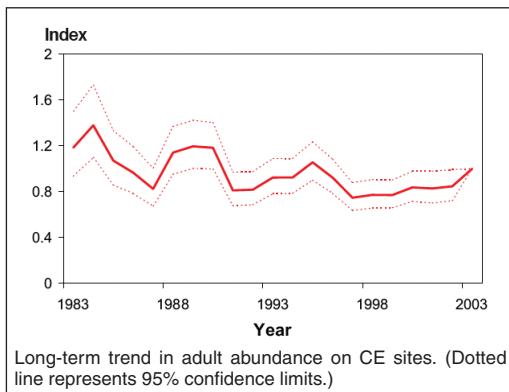


FIGURE 1. Adult Song Thrush abundance

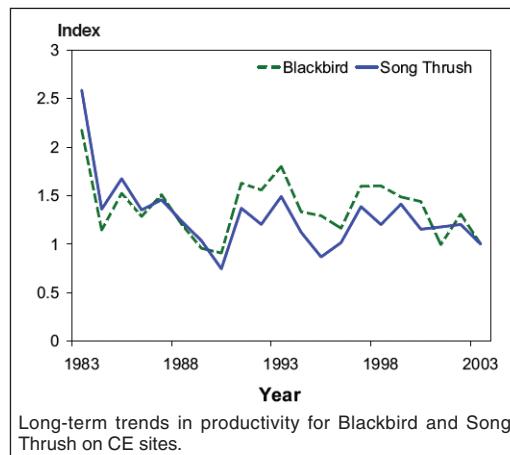


FIGURE 2. Blackbird and Song Thrush productivity.

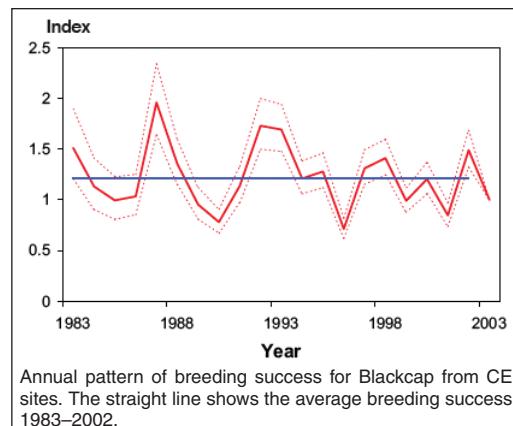
cyclical pattern (see *BTO News* 239) whilst Willow Warblers are in longterm decline, so a further drop in numbers in 2003 is worrying. Such declines could result from unfavourable conditions during migration.

BELOW AVERAGE BREEDING SEASON FOR MOST

The breeding season got off to a good start with a sunnier and drier February than normal and by March early broods of Robins and thrushes were reported. Many of these broods were later lost in sharp night frosts during April. Temperatures fluctuated throughout May and sharp frosts affected tits, finches and warblers. Ringers and nest recorders reported small clutches for Blue Tits and Great Tits across much of the UK. The cold and wet weather reduced the availability of caterpillar prey, which meant that broods were also small with partial and complete losses in some areas. Heavy rains mid-month caused more losses for early breeding species (*BTO News* 245). Warm weather throughout much of June benefited second broods, whilst July and August will be remembered for blistering heat which may have caused some problems for late nesting birds.

Given this mix of weather, it might not be too surprising that the overall breeding season was below average (Table 1). There were 12 statistically significant decreases in productivity between 2002 and 2003 and no significant increases. Residents (Wren, Robin, Dunnock, Blackbird, Longtailed Tit, Blue Tit, Great Tit, Bullfinch and Reed Bunting) and migrants (Reed Warbler, Blackcap and Chiffchaff) were affected. This year we have introduced a new measure of productivity in Table 1, which is the percentage change between 2003 and the average breeding success for each species during previous years, 1983–2002. This gives us a much better indication of how good a season it has been, relative to the longer-term average.

Figure 3 gives the long-term pattern of productivity for Blackcap and shows that productivity varies widely between years, as we might expect, largely because breeding success is heavily dependent on the weather. The average breeding success for Blackcap between the start of the CES index (1983) and the penultimate year (2002) is shown as a straight



Annual pattern of breeding success for Blackcap from CES sites. The straight line shows the average breeding success 1983–2002.

FIGURE 3. Breeding success of Blackcap.

line through the graph. You can then see how productivity in 2003 compares with the average for Blackcap and this shows clearly that productivity in 2003 was below the long-term average (-17%).

The mix of harsh frosts and rain during the early part of the season, and later hot temperatures and drought conditions in some areas, is likely to have caused problems for some species. Blackbird and Song Thrush both had a poor breeding season in 2003. The cold and wet weather during the first part of the season may have caused early broods to suffer and later, the hot weather is likely to have made it difficult for the adult birds to get the preferred earthworms from the baked ground. The long-term productivity indices for these two species are remarkably similar suggesting that similar environmental conditions affect them (Figure 2). Productivity was low for both species in 1984, 1986, 1988–1990, for Song Thrush only in 1995, for Blackbird only in 2001 and for both in 2003. The summer weather in these years was characterised by high temperatures and drought conditions. Breeding success tended to be better in the wetter summers of 1985, 1991, 1993 and 1997.

Overall, 2003 was a poor breeding season for many species. We hope for settled weather and improved breeding success this year and an enjoyable season's mistnetting for CES ringers.

ACKNOWLEDGEMENTS

Many thanks to Rob Robinson for overseeing the running of the CES scheme and for

contributing to this report. Jane Waters kindly typed in CES data received in a non-computerised format.

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.

THE SURVEY SUMMARY

The Constant Effort Sites Scheme is a key component of the BTO's Integrated Population Monitoring programme. It is a well-established method for monitoring population size (using changes in the total number of adults caught), breeding success (using the ratio of young birds to adults) and survival (estimated from retraps of birds ringed in previous years) for common songbirds in scrub, woodland and reedbed habitats. Dedicated ringers carry out ringing on CE sites, making 12 visits to each site between late April and the end of August, monitoring

early and late breeding attempts for most species.

Results from CES, together with information from other long-running BTO schemes, can be found in the *Wider Countryside Report* on the BTO web site www.bto.org/birdtrends.

COVERAGE IN 2003

We were delighted that 11 new CES ringing sites were started in 2003, including seven in England, three in Wales and one in Scotland. The results we present above come from the 110 sites that have submitted data for 2003 so far: 85 from England, 15 from Scotland, six from Wales and four from Ireland. The habitats covered are comparable to previous years, with sites located in dry scrub (35%), wet scrub (27%), reedbed (24%) and deciduous woodland (14%). Nearly all CES ringers now computerise their own data and submit them electronically.

MORE CE SITES NEEDED

New Constant Effort Sites are welcomed from throughout Britain and Ireland, but particularly from southwest England, Wales, Scotland and Ireland, where there are currently few sites. The locations of the CES sites used in this report are shown on the map. Please contact Dawn Balmer at The Nunnery for further information.



THANK YOU

As with all ongoing BTO projects, the success of the CES scheme depends entirely on the dedication, enthusiasm and skill of its volunteers. We are grateful to all the ringers and helpers who participated in the scheme in 2003, some of whom are listed here.

Borders RG, Chew Valley RS, J L Coates, R Cole, G Dagnall, Doncaster RG, Fylde RG, Gibraltar Point BO, J A Glazebrook, Goldcliff RG, Gordano Valley RG, R J Graham, J Heaton, M Hughes, H Insley, A J Johnston, K H Jones, R J Lanaway, Lothian RG, Lower Test RG, Market Weston RG, Pembrokeshire RG, S T Robinson, M H Rogers, Rye Bay RG, Severn Vale RG, South West Notts RG, South West Lancs RG, A Stratford, D J Turner, M J Thompson, T H Walker, N C Williams.

(BO= Bird Observatory, RG= Ringing Group, RS= Ringing Station)