

WHAT HAS BEEN HAPPENING TO COMMON BIRD POPULATIONS?

MIKE RAVEN, DAVID NOBLE AND STEPHEN BAILLIE

*British Trust for Ornithology
The National Centre for Ornithology
The Nunnery, Thetford
Norfolk, IP24 2PU, United Kingdom*

Mike Raven, David Noble and Stephen Baillie report on the results of the Breeding Bird Survey: 1994–2003.

¿QUÉ HA ESTADO OCURRIENDO CON LAS POBLACIONES DE AVES COMUNES?

Mike Raven, David Noble y Stephen Baillie informan sobre los resultados del Censo de Aves Reproductoras: 1994-2003.

The BTO/JNCC/RSPB Breeding Bird Survey (BBS) is now the main survey aimed at keeping track of changes in the breeding populations of widespread terrestrial bird species across the UK. Knowledge of the status of bird populations is fundamental to their conservation and BBS results are already being used by Government and nongovernmental organisations to set conservation priorities.

Randomly selected 1-km squares are allocated to participants within each BBS Region by volunteer Regional Organisers (ROs). The BBS is a line-transect survey, with each observer visiting their square on two occasions from April to June to count all the birds they see and hear along a 2-km route. Although many parts of the country have reached a near optimum level of coverage, other areas are still in need of participants. We are particularly keen to increase the number of squares surveyed in Northern Ireland, Scotland, North East England and the Midlands. Increasing the coverage in these areas would allow us to monitor the population changes of more bird species.

SURVEY COVERAGE

This carefully designed, yet simple survey

attracted many participants and in the spring of 2003 there were more than 1,800 BBS observers collecting information on bird numbers from 2,254 1-km squares throughout the UK. Of this total, the majority was located in England (1,671 squares), with smaller numbers in Scotland (255), Wales (212), Northern Ireland (105), Channel Islands (7) and the Isle of Man (4). This considerable effort on the part of organisers and observers means that we are able to report on changes in bird populations for England, Northern Ireland, Scotland and Wales and in nine English Government Office Regions as well as for the UK overall.

SPECIES AND HABITAT COVERAGE

A total of 212 species was recorded in 2003 and of these, 100 species were noted in at least 40 squares, enabling UK population trends to be measured. Work has recently been undertaken to assess the precision and reliability of BBS trends for all species, with the aim of developing a protocol for ensuring that the reporting of trends is based on reliable data and sufficient sample sizes. This has resulted in the population trends of five species of gull (Black-headed, Common, Herring, Lesser Black-backed and

Great Blackbacked) being excluded from the report as a large proportion of the counts are considered to be of non-breeding, wintering or migratory birds. Trends for Cormorant, Grey Heron and Common Tern are reported with the caveat that counts may contain a high proportion of birds away from breeding sites, and the trend for Tawny Owl with the caveat that the BBS method monitors nocturnal species poorly.

No official UK rarities were reported, although lucky observers managed to record a number of rare breeding species on their squares, such as Black-necked Grebe, Garganey, Honey Buzzard, Whitetailed Eagle, Montagu's Harrier, Corncrake, Mediterranean Gull, Firecrest, Hawfinch and Golden Oriole. Late winter visitors and migrants included Great Northern Diver, Scaup, Wood Sandpiper and Iceland Gull. Redwing and Fieldfare were recorded on an unusually high number of squares in 2003, suggesting that they were late to leave the UK for their breeding grounds in northern Europe.

In total, the habitat details from more than 21,000 200 m transect sections were recorded in 2003. Work is planned this year to use this extensive dataset of habitat information, to generate habitat-specific trends for individual species. This will further help us to identify possible reasons for population changes.

POPULATION TRENDS

Table 1 shows the population changes between the last two seasons for which complete data are available (2002 and 2003) and for the survey period to date (1994 to 2003). Trends are estimated using a log-linear regression model that corrects for differences in coverage among regions. Across the UK, 44 species increased and 26 species declined significantly between 1994 and 2003. The following are some of the more interesting ups and downs.

GOLDFINCH & LINNET

The Common Birds Census (CBC) data indicate that Goldfinch underwent a marked decline between the mid 1970s and mid 1980s, but has recovered since 1986. Numbers have increased by 33% on BBS squares since 1994 (see Figure 1). It is thought that this decline was driven by

reduced survival rates, caused by a reduction in the availability of weed seeds. The subsequent recovery may be partly due to the Goldfinch's new fondness for visiting garden bird tables, and this is borne out by the increasing number of Garden BirdWatch and Garden Bird Feeding Survey (see p37-40) sites reporting this species since 1985. An interesting comparison can be made with the red-listed Linnet, which underwent a similar decline, after which numbers stabilised (there has been little change on BBS sites since 1994). However declines are still being reported from Constant Effort Sites (CES), probably driven by low productivity. Modern day hedgerow management, which can leave broods vulnerable to predation, could be a contributing factor to this decline. Linnets, unfortunately, have not taken to garden feeders.

TURTLE DOVE

Numbers of the red-listed Turtle Dove declined by 44% on BBS squares between 1994 and 2003. Declines were first identified from Common Birds Census (CBC) data in the late 1970s, and have continued at an alarming rate. Since the first Breeding Bird Atlas was published in 1976, numbers have fallen by threequarters, with the estimated UK population dropping from more than 125,000 pairs to less than 45,000 pairs at present. The range has also contracted, with populations disappearing from peripheral areas in the North and South West of England. The East of England (birds recorded on 31% of BBS squares), South East (15%) and East Midland regions (10%) hold the core of the UK population, with the West Midlands (4%), Yorkshire (2%) and South West (1%) now at the

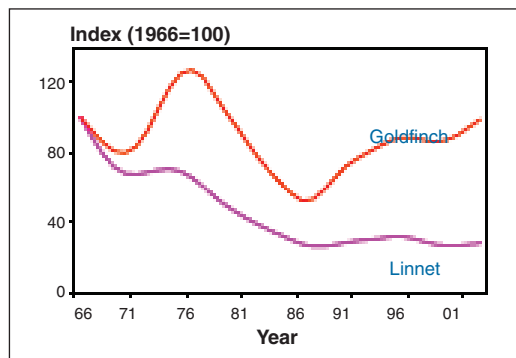


FIGURE 1. Goldfinch and Linnet CBC/BBS for England.

edge of its range. Only in the fenland areas of East Anglia, can the Turtle Dove be described as reasonably common. A number of factors are probably driving this severe and continuing decline, including hunting pressure along its migration route in southern Europe, and agricultural intensification in the UK. Work done by the Game Conservancy Trust indicates that the latter factor appears to be limiting the number of breeding attempts.

STARLING

The downward trend of the Starling continues, with numbers falling by 28% on BBS squares between 1994 and 2003. The UK conservation listing for Starling has recently been changed from Amber to Red because the long-term decline now exceeds 50%. Numbers fell significantly in eight of the nine English regions, and in Wales a decline of 62% was recorded. However, the picture was not all bad, with little change reported in Scotland, and a significant increase of 76% in Northern Ireland. A serious decline was first noted in the UK in the early 1980s, and this has been especially severe in woodland. Analysis of ringing data undertaken by BTO staff indicates that decreasing survival rates, particularly among first year birds, may be responsible for the decline, which in turn may be linked to a loss of the species' preferred feeding habitat — permanent pasture — and the intensification of livestock rearing.

RAVEN

The increase of Raven populations, however, is another success story recorded by the BBS. After many years of decline and contraction in range, the BBS is reporting significant increases in England, Scotland and Wales. In the early 19th century this species bred across the UK, including most lowland counties of England. Following widespread persecution, its range contracted into core areas in Wales, Scotland and South West England. In the past 10 years, however, widespread reports show this species to be recolonising areas in which it had only recently been classified as a rare visitor. Although Ravens are not recorded in enough squares for BBS trends to be calculated in separate English regions, occurrence on BBS

squares has more than doubled in the North West, West Midlands and South West since the start of the survey. Likewise in Northern Ireland, Ravens were recorded more widely in 2003, than in 1994.

MIXED FORTUNES FOR MIGRANT WARBLERS

Most of Britain's warblers are long distance migrants, over-wintering in areas from the Mediterranean to Africa south of the Sahara, and hence year-to-year changes are strongly influenced by conditions outside the breeding season. The UK BBS trends for 10 species are shown in Figure 2. BBS results showed that Sedge Warbler numbers fell sharply in 2003 to levels below those in 1994 (although not significantly). Reed Warbler and Grasshopper Warbler numbers also dropped in 2003, but showed no overall change over the survey period. The fortunes of the four *Sylvia* warblers monitored by the BBS were more varied, with significant declines in Lesser Whitethroat (down 39%) and Garden Warbler (down 17%), contrasting with increases in Whitethroat (up 17%) and Blackcap (up 36%) over the survey period.

Of the three *Phylloscopus* warblers monitored by the BBS, the Wood Warbler has the dubious honour of having undergone the greatest decline in the UK since 1994, with numbers falling by 68%. Chiffchaff continued to increase, with numbers up by 22% between 2002 and 2003, and up by 46% over the survey period. Regionally, increases in excess of 100% since 1994 were reported for this species in North West England, Yorkshire and the East Midlands. The decline in Willow Warbler however, continued, with numbers down by 11% in the UK. This moderate fall masked much larger declines in seven of the eight English regions for which trends could be calculated, although numbers increased in Scotland (up 25%) and Northern Ireland (up 47%).

Populations of Sedge Warbler and White-throat, and probably Garden Warbler have been adversely affected by drought conditions in their African wintering grounds in the past, although they have made varying degrees of recovery since the declines of the late 1960s and early 1970s. Chiffchaff also underwent a decline

TABLE 1. Population changes of common and widespread species 2002–2003 and 1994–2003.

Species	Sample	Change 02-03	Change 94-03	lcl	ucl
Little Grebe	47	18.6	47.4 *	5	106
Little Grebe	49	1	49 *	7	107
Great Crested Grebe	56	-39	-28 *	-47	-1
<i>Cormorant</i>	153	-28	14	-4	37
Grey Heron	494	6	40 *	26	56
<i>Mute Swan</i>	174	-6	14	-2	33
<i>Greylag Goose</i>	92	14	183 *	120	264
Canada Goose	311	44 *	136 *	108	169
<i>Shelduck</i>	114	-9	-39 *	-49	-26
Mallard	943	-12	24 *	16	33
Tufted Duck	121	9	50*	22	85
Sparrowhawk	271	2	-5	-18	10
Buzzard	504	2	53 *	38	69
<i>Kestrel</i>	514	36 *	-5	-15	5
<i>Red Grouse</i>	100	17	22	-1	50
Red-legged Partridge	379	7	28 *	14	43
Grey Partridge	210	-25	-39 *	-49	-27
Pheasant	1262	14 *	33 *	26	39
Moorhen	508	8	32 *	19	45
Coot	194	30	102 *	74	134
<i>Oystercatcher</i>	237	1	-14 *	-23	-5
Golden Plover	53	21	-9	-31	21
<i>Lapwing</i>	542	2	-13 *	-20	-6
<i>Snipe</i>	121	-1	46 *	21	76
<i>Curlew</i>	429	-10	-27 *	-33	-21
<i>Redshank</i>	67	-4	-22	-39	0
Common Sandpiper	60	13	-12	-31	12
Common Tern	46	7	1	-28	42
Feral Pigeon	539	36 *	14 *	3	25
<i>Stock Dove</i>	597	1	13 *	2	24
Wood Pigeon	1851	7	12 *	8	17
Collared Dove	1003	5	31 *	23	38
Turtle Dove	184	-5	-44 *	-53	-33
<i>Cuckoo</i>	707	-12	-36 *	-41	-30
Little Owl	90	-22	1	-22	32
Tawny Owl	76	6	-32 *	-49	-10
<i>Swift</i>	852	4	-28 *	-34	-22
<i>Kingfisher</i>	42	-26	23	-16	82
<i>Green Woodpecker</i>	561	7	28 *	16	40
Gr. Sp. Woodpecker	619	7	85 *	68	104
Skylark	1378	0	-14 *	-17	-10
<i>Sand Martin</i>	96	-51 *	-46 *	-59	-29
<i>Swallow</i>	1437	-1	8 *	2	14
<i>House Martin</i>	736	1	15 *	6	26
<i>Tree Pipit</i>	119	-2	-1	-19	21
<i>Meadow Pipit</i>	628	7	3	-2	8
<i>Yellow Wagtail</i>	151	14	-17 *	-29	-2
<i>Grey Wagtail</i>	162	3	53 *	26	85
Pied Wagtail	982	9	34 *	24	43
Dipper	44	68	34	-8	95
Wren	1816	3	17 *	13	20
<i>Duncock</i>	1513	9	21 *	15	26
Robin	1749	0	17 *	13	21
<i>Redstart</i>	131	-18	11	-8	33

TABLE 1. (Continued)

Species	Sample	Change 02-03	Change 94-03	lcl	ucl
Whinchat	76	10	-10	-29	14
<i>Stonechat</i>	88	3	168 *	100	258
Wheatear	239	-6	2	-10	17
Blackbird	1832	2	18 *	15	21
Song Thrush	1428	4	18 *	12	24
<i>Mistle Thrush</i>	964	4	2	-6	10
Grasshopper Warbler	58	-22	-3	-32	38
Sedge Warbler	241	-34 *	-9	-21	4
Reed Warbler	87	-15	10	-10	35
Lesser Whitethroat	202	-15	-39 *	-48	-27
Whitethroat	987	-10	17 *	9	24
Garden Warbler	366	-2	-17 *	-27	-6
Blackcap	1067	-6	36 *	28	44
<i>Wood Warbler</i>	54	-24	-68 *	-78	-55
Chiffchaff	978	22 *	46 *	38	55
<i>Willow Warbler</i>	1191	-3	-11 *	-15	-7
<i>Goldcrest</i>	553	-1	57 *	44	71
Spotted Flycatcher	190	4	-42 *	-51	-31
Pied Flycatcher	41	-38	-43 *	-59	-20
Long-tailed Tit	646	13	11	-1	23
Marsh Tit	122	-9	16	-7	46
Willow Tit	54	55	-55 *	-68	-37
Coal Tit	559	3	29 *	19	40
Blue Tit	1710	9 *	18 *	13	22
Great Tit	1568	7	26 *	20	31
Nuthatch	303	-1	42 *	24	61
Treecreeper	268	-8	9	-7	27
Jay	524	-21 *	-11 *	-20	-1
Magpie	1422	0	1	-3	6
Jackdaw	1203	6	20 *	13	27
Rook	1012	9	8	0	17
Carrion Crow	1734	-7	8 *	3	14
Hooded Crow	111	32	-4	-23	21
Raven	173	31	99 *	65	141
Starling	1469	-17 *	-28 *	-33	-23
House Sparrow	1239	7	-2	-6	2
Tree Sparrow	133	0	52 *	24	85
Chaffinch	1833	2	7 *	4	11
Greenfinch	1329	-1	30 *	23	37
Goldfinch	1053	12	33 *	24	43
Siskin	112	-21	-33 *	-46	-16
Linnet	1024	3	-1	-8	6
<i>Lesser Redpoll</i>	120	-8	11	-10	37
Bullfinch	448	3	-19 *	-28	-9
Yellowhammer	992	-3	-17 *	-21	-13
Reed Bunting	338	11	13 *	2	26
Corn Bunting	139	10	-35 *	-45	-22

KEY TO TABLE 1

Population changes of widespread species 2002–2003 and 1994–2003. The sample size indicated is the mean number of squares occupied each year over the 10 years (excluding squares where the species was recorded in only one year). The figures presented are the percentage changes in population levels for the respective time periods, those marked with an asterisk were significantly different at a 5% level. For the 1994–2003 period, the lower and upper 95% confidence intervals (lcl, ucl) are given. Species in bold are redlisted, and species in italics amber-listed in *The Population Status of Birds in the UK, Birds of conservation concern: 2002–2007*.

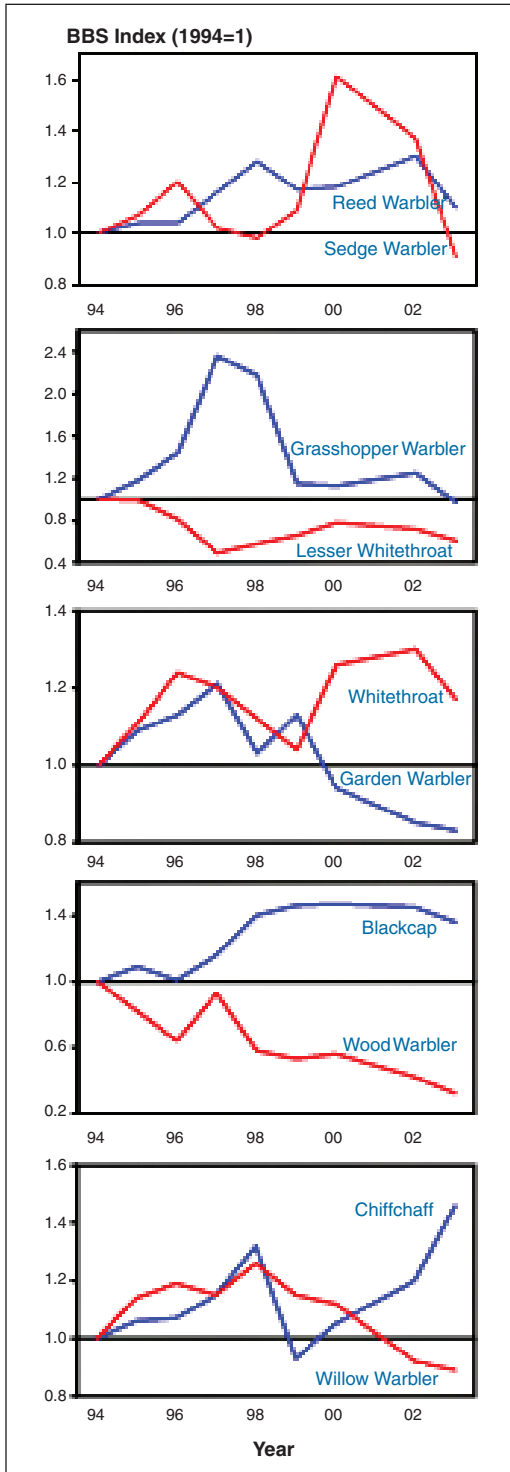


FIGURE 2. Warbler population changes on UK BBS sites.

during the early 1970s, after which numbers have increased. Lesser Whitethroat numbers have undergone a moderate decline since the late 1980s possibly due to lower productivity, as revealed by Constant Effort Site (CES) results, but have shown a slight recovery since 1997. Blackcap numbers have increased consistently since the late 1970s and increases have occurred across most of the countries and English regions for which trends can be calculated. The reason for this success remains unknown, with no identifiable trends in productivity, but we do know that increasing numbers of continental birds are over-wintering in the UK.

USE OF BBS DATA FOR FARMLAND BIRD CONSERVATION

The BBS has taken over the role of supplying information on changes in UK terrestrial breeding bird populations from the CBC, and these data are more important for conservation than ever. BBS data are now fully integrated with CBC data for the calculation of long-term trends and in the headline wild bird indicators. The Farmland Bird Indicator has been adopted by the Government as a Public Service Agreement target, with a promise to reverse declines by 2020. A number of species have Biodiversity Action Plans because of their poor conservation status, and progress towards BAP targets is assessed using the most recent CBC/BBS trends, or special surveys (e.g. Stone Curlew).

Data from the Nest Record Scheme, CES and Ringing Scheme have been analysed to determine whether changes in survival or breeding performance appear to be driving the declines in farmland species. Armed with this information and intensive studies of their ecological requirements, conservationists have a much better idea about changes in agricultural practices and the aspects of habitat management needed to reverse these trends. The next step is to test management options in the field and a number of broad-scale experiments are underway. These include studies of the impact of winter food availability on seed-eating farmland birds, the effectiveness of Skylark scrapes (unsown patches) for nesting in arable crops, and on the provision of field margins in pastoral systems. Early results from these

projects, and other research within Europe, were highlighted at a recent BOU Farmland Bird Conference attended by academics, farmers, representatives from conservation organisations and those responsible for government agricultural policy. One of the most important outcomes of farmland bird monitoring and research over the past few decades is that in January 2005, the government will be rolling out its new Entry Level Environmental Stewardship Scheme. This will include familiar options such as set-aside and organic farming, but also a variety of new options aimed at improving biodiversity (not just birds) in agricultural landscapes. Importantly, the success of the broad-scale implementation of these options across the UK will be measured by changes in breeding bird populations on BBS squares.

BBS data are also being used in a special project (the Farmland Bird Database) to map the distributions of less widespread species in order to direct agri-environment scheme applications at sites where they are likely to have the most impact.

THE FUTURE

BBS-online went live in October 2003 allowing observers to submit their BBS counts electronically via the web. To date, counts from more than 450 BBS squares have been submitted online for the 2004 field season. All of the historical data (1994–2002), together with the latest counts for 2003 have been loaded onto the system and this provides the user with a fascinating insight into the birds, mammals and habitat recorded on BBS squares over the past nine years. The website pages provide a wealth of information on BBS trends, county and regional species lists, species distribution maps, scheme coverage, methodology and how to take part. Once the BBS observer has registered as an online user, they can enter their BBS counts and view past data for their squares (www.bto.org/bbs).

One of the aims of the system is to encourage new volunteers to take part in the BBS, and so it has been very encouraging to see so many enquiries to participate in the scheme since the system went live. Many thanks must be given to the RSPB for generously funding the development of BBS-online, and to members of the BTO's Information Systems Unit (Iain Downie, Karen Wright, James Hall and James Mackinnon) who have developed the system and provided technical support over the past few months.

ACKNOWLEDGEMENTS

We are again extremely grateful to all the ROs, observers and BTO members who took part in the BBS last year. We would also like to thank the farmers and landowners for their support and cooperation in allowing BBS volunteers onto their land. The BBS continues to be an enormous success and is now the primary source of information on national and regional trends in common breeding birds. If you would like to take part in the scheme, please contact your local RO or Mike Raven at BTO HQ (e-mail: bbs@bto.org).

The BBS is a partnership between the British Trust for Ornithology, the Joint Nature Conservation Committee (on behalf of English Nature, Scottish Natural Heritage and the Countryside Council for Wales, and also on behalf of the Environment and Heritage Service in Northern Ireland) and the Royal Society for the Protection of Birds.

FURTHER READING

Crick, *et al.* (2004) *Breeding Birds in the Wider Countryside: their conservation status 2003*. BTO Research Report No. 353. BTO, Thetford. (www.bto.org/birdtrends)
 Raven, M J, Noble, D G & Baillie, S R (2004). *The Breeding Bird Survey 2003*. BTO Research Report 363. BTO, Thetford.