

THE BREEDING BIRD SURVEY: 1994-2000

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Mike Raven and David Noble report on the results of the BTO/JNCC/RSPB Breeding Bird Survey for 2000 and look at regional differences in population trends.

EL MUESTREO DE AVES REPRODUCTORAS: 1994-2000

Mike Raven y David Noble informan sobre los resultados del Muestreo de Aves Reproductoras del BTO/JNCC/RSPB en el 2000 y examinan las diferencias regionales en tendencias poblacionales.

LE BREEDING BIRD SURVEY: 1994-2000

Mike Raven et David Noble exposent les résultats du recensement de la BTO/JNCC/RSPB pour 2000, et examine les variations régionales de l'évolution des populations.

DAS BRUTBESTANDSMONITORING BBS: 1994-2000

Mike Raven und David Noble beschreiben die Ergebnisse des gemeinsamen Brutbestands-Monitoringprogramms von BTO, JNCC und RSPB des Jahres 2000 und beleuchten regionale Unterschiede in den Bestandstrends.

The BTO/JNCC/RSPB Breeding Bird Survey (BBS) continues to be highly successful in monitoring populations of our common breeding birds. Overall, a positive picture emerged for the breeding season in 2000 with 12 species showing significant increases for the first time.

The BBS is a volunteer-based survey of birds run by the BTO since 1994. Randomly selected squares are allocated to participants within each BBS region by volunteer Regional Organisers (ROs), and recording forms are forwarded through these ROs to BTO headquarters for analysis. The BBS is a line transect survey, where birds are recorded on two visits per season. Volunteers are asked to record the birds they see whilst walking up to 10 x 200 m transect sections. Its sampling and field protocols were

designed to increase the level of coverage and eliminate the geographical and habitat biases of the long-running Common Birds Census (CBC). The 2000 breeding season was the seventh and final year in which both surveys were run in parallel, and henceforth BBS will be the principal terrestrial survey for monitoring population trends of common and widespread breeding bird species in the UK.

SURVEY COVERAGE

During the past year, we have received 2,248 sets of forms for the 2000 BBS counts, a little down on the 2,379 received for 1999, but nevertheless an impressive total. The majority of coverage came from England (1,696 squares)

with smaller numbers from Scotland (244), Wales (216) and Northern Ireland (82). Many parts of the country have reached a near optimum level of coverage, with attention now being directed towards areas with relatively few squares surveyed.

SPECIES COVERAGE

A total of 215 species was recorded in 2000, two less than the 1999 total, and with no UK rarities being recorded, apart from a rather late Red-breasted Goose. Although the overall number of squares being covered had fallen in 2000, the number of species breaking the "present in 100 squares" mark remained at 89, in addition to which a further 13 were recorded in over 50 squares. Among the 113 species that were recorded in less than 50 squares across the country, were scarce or very localised breeders, passage migrants and late winter visitors. These include Black-necked Grebe, Little Egret, White-tailed Eagle, Montagu's Harrier, Corncrake, Dotterel, Green Sandpiper, Redwing, Fieldfare, Marsh Warbler, Chough and Scottish Crossbill.

POPULATION TRENDS

Table 1 shows the population changes between the last two seasons analysed (1999-2000) and for the full survey period to date (1994-2000). As in previous years, trends are estimated using a log-linear regression model that corrects for differences in coverage among regions. With another year's worth of data added to the BBS dataset, more and more meaningful medium-term population trends start to appear. The following highlights some of the more interesting results that came out of the analyses for the past seven years.

UNITED KINGDOM

Across the UK, 45 species increased and 18 species declined significantly between 1994 and 2000. Over this period, Swift and Spotted Flycatcher were the only species to show new significant declines for the UK as a whole. Numbers of Swifts fell from a peak in 1999, and Spotted Flycatcher have continued their long-term decline. This negative news is outweighed by the 12 species that showed significant

increases for the first time. Of particular interest is the 25% increase in Tree Sparrow, a species which has declined dramatically over the past 25 years but now seems to be stabilising, although at a much lower level, possibly even increasing in some parts of the country. Raven also produced ever more positive results with an impressive 64% increase over the past seven years. On a negative note, 16 species continued to show a decline in numbers, with the Willow Tit heading the pack of "species in trouble" with a 54% decline.

Several farmland birds, whose declines have been well documented, continued their downward trend. These include Grey Partridge, Lapwing, Turtle Dove, Skylark, Yellowhammer and Corn Bunting. In contrast to this, several of the "small-bodied" residents, such as Goldcrest and Stonechat, continued to increase. Both species are very vulnerable to harsh winter weather, and the recent spate of relatively mild winters has probably helped to augment numbers.

ENGLAND

Almost 1,700 squares were covered in England in 2000, the results of which showed that 35 species had increased significantly and 23 declined between 1994 and 2000. For many, the population trends in England closely follow those of the UK. A number of species however, went against the overall trend with Meadow Pipit, Jay, Starling, Linnet, Redpoll and Reed Bunting showing significant declines in England, against UK populations that appear to be stable. For species such as Meadow Pipit and Redpoll, this reflects the favourable status of the higher density populations in their northern or upland strongholds.

ENGLISH REGIONS

In the past two years the BBS has been able to report on population trends from within the nine Regional Development Agency (RDA) Regions. This analysis has shown some interesting regional differences within England. Sparrowhawk, for example, generally showed a small decline across most parts of England, apart from in the East Midlands, where an increase of over 100% was recorded (statistically

Table 1. Population changes of common and widespread species 1999-2000 and 1994-2000.

Species	Sample	Change 99-00	Change 94-00	lcl	ucl
Great Crested Grebe	55	28.7	29.6	-3	73
Cormorant	140	37.9	30.6 *	9	57
Grey Heron	462	1.7	17.8 *	5	32
Mute Swan	167	5.3	19.5 *	1	41
Greylag Goose	82	-2.9	68.9 *	25	129
Canada Goose	289	28.0	51.1 *	31	74
<i>Shelduck</i>	114	-15.9	-46.7 *	-56	-35
Mallard	914	1.6	24.7 *	17	33
Tufted Duck	122	46.4	82.8 *	50	123
Sparrowhawk	264	0	-2.1	-17	15
Buzzard	448	11.0	40.8 *	27	57
<i>Kestrel</i>	509	4.4	-29.4 *	-37	-21
Red Grouse	102	-14.2	15.2	-6	42
Red-legged Partridge	371	10.4	26.9 *	13	42
Grey Partridge	220	41.8	-22.3 *	-34	-8
Pheasant	1223	36.9 *	40.5 *	33	49
Moorhen	498	0.8	18.0 *	7	30
Coot	188	9.9	55.0 *	34	80
<i>Oystercatcher</i>	231	8.2	-8.1	-17	2
<i>Golden Plover</i>	78	12.8	-11.9	-32	14
<i>Lapwing</i>	534	8.8	-12.8 *	-20	-5
<i>Snipe</i>	116	14.4	34.6 *	9	65
<i>Curlew</i>	431	2.4	-12.8 *	-19	-6
<i>Redshank</i>	67	50.0	8.0	-15	37
Common Sandpiper	63	39.4	-0.7	-22	27
Black-headed Gull	430	31.2 *	-20.3 *	-29	-11
<i>Common Gull</i>	124	-1.8	8.3	-10	30
<i>Lesser Black-backed Gull</i>	414	-6.3	34.0 *	18	52
<i>Herring Gull</i>	453	5.0	5.8	-5	18
Great Black-backed Gull	85	24.7	1.5	-19	27
Feral Pigeon	532	-5.5	2.8	-7	13
<i>Stock Dove</i>	582	0.9	8.7	-2	20
Wood Pigeon	1812	3.0	3.4	-1	7
Collared Dove	977	-0.8	18.0 *	11	25
Turtle Dove	192	-7.3	-23.5 *	-36	-9
Cuckoo	749	12.5	-19.4 *	-26	-12
Little Owl	89	11.3	8.0	-17	41
Tawny Owl	77	-16.4	-8.2	-31	22
Swift	848	-22.6 *	-18.1 *	-25	-11
<i>Green Woodpecker</i>	538	6.1	22.0 *	10	35
Gr Sp Woodpecker	576	9.2	54.9 *	40	71
Skylark	1382	10.8 *	-7.9 *	-11	-4
<i>Sand Martin</i>	96	17.8	38.9 *	9	77
<i>Swallow</i>	1407	9.0	20.7 *	15	27
House Martin	721	1.5	33.9 *	23	46
Tree Pipit	124	-7.4	12.0	-8	36
Meadow Pipit	620	10.6	4.0	-1	10
Yellow Wagtail	157	31.9	-4.7	-19	13
Grey Wagtail	148	0	41.4 *	15	74
Pied Wagtail	951	3.3	25.1 *	16	34
Wren	1764	6.0	23.6 *	20	28
<i>Dunnock</i>	1467	1.9	7.8 *	3	13
Robin	1703	9.1 *	19.7 *	16	24

Table 1. Continued.

Species	Sample	Change 99-00	Change 94-00	lcl	ucl
<i>Redstart</i>	132	6.6	44.7 *	21	73
Whinchat	80	-12.2	-21.0	-39	2
<i>Stonechat</i>	74	13.8	114.7 *	58	192
Wheatear	236	-11.3	-6.3	-18	7
<i>Blackbird</i>	1787	1.8	13.3 *	10	16
Song Thrush	1371	5.7	12.1 *	6	18
Mistle Thrush	939	2.1	-2.5	-10	6
<i>Grasshopper Warbler</i>	59	-7.9	4.6	-28	52
Sedge Warbler	241	40.9 *	55.4 *	37	76
Reed Warbler	85	0	13.8	-7	40
Lesser Whitethroat	202	19.4	-19.8 *	-32	-5
Whitethroat	969	20 *	26.0 *	18	34
Garden Warbler	373	-16.7	-5.0	-16	8
Blackcap	1026	0.7	49.4 *	41	59
Wood Warbler	58	5.6	-43.2 *	-58	-24
Chiffchaff	918	10.6	4.5	-2	12
Willow Warbler	1224	-1.7	12.9 *	8	18
Goldcrest	522	16.9	87.0 *	72	104
Spotted Flycatcher	199	-8.1	-21.3 *	-34	-6
Pied Flycatcher	43	-5.6	-15.6	-38	15
Long-tailed Tit	625	3.4	21.5 *	9	35
<i>Marsh Tit</i>	119	23.9	45.4 *	16	83
<i>Willow Tit</i>	59	-20.7	-53.9 *	-67	-35
Coal Tit	528	1.9	7.3	-2	17
Blue Tit	1666	-2.8	2.8	-1	7
Great Tit	1520	4.4	17.6 *	12	23
Nuthatch	282	1.8	13.6	-1	31
Treecreeper	264	-20.6	11.6	-5	31
Jay	499	6.9	-6.6	-16	4
Magpie	1388	3.8	9.4 *	5	15
Jackdaw	1166	-0.9	17.5 *	11	25
Rook	999	-3.6	5.6	-3	15
Carrion Crow	1698	2.6	17.1 *	12	23
Raven	160	47.8	63.8 *	34	101
<i>Starling</i>	1461	-1.0	-5.5	-11	0
House Sparrow	1221	3.3	-5.3 *	-9	-1
Tree Sparrow	134	15.7	25.4 *	2	54
Chaffinch	1791	2.9	6.5 *	3	10
Greenfinch	1280	12.6 *	33.9 *	27	41
<i>Goldfinch</i>	1011	11.0	11.1 *	3	20
Siskin	113	17.8	19.2	-5	49
Linnet	1008	10.6	-6.4	-13	1
Lesser Redpoll	118	40.3	8.2	-14	36
Bullfinch	438	7.1	-25.0 *	-34	-15
Yellowhammer	1003	2.3	-11.7 *	-16	-7
Reed Bunting	329	-5.0	-3.5	-14	8
Corn Bunting	146	-22.6	-35.4 *	-46	-23

Key to Table 1

Population changes of widespread species 1999-2000 and 1994-2000. The sample size indicated is the mean number of squares occupied each year over the seven 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 1994-2000 period, the lower and upper 95% confidence intervals (ucl, lcl) are given. Species in **bold** are red-listed, and species in *italics* amber-listed in *Birds of Conservation Concern*.

significant but from a small sample). Over the past 30 years the Sparrowhawk has both increased greatly in numbers and spread eastwards, with the counties of the East Midlands being the last to be re-colonised.

Stock Dove also provided an example of contrasting regional trends, with a large increase (171%) reported from the North West, compared to a decline of 37% in East Anglia. Yorkshire also appeared to be a favourable area for some species — Kestrel and Lapwing recording respective increases of 54% and 45%, but declining in most other parts of England. As is frequently the case, some of the trend variation within England can be explained by east-west or north-south gradients in climate, topography and habitat. The pattern of increases in the north and declines in the south for species such as Willow Warbler can be attributed to their range contraction northward, possibly as a result of climate change. The Swallow, in common with a number of farmland species, has fared worse in the East, which may be related to regional differences in agricultural land use, the West becoming increasingly dominated by livestock farming and the East increasingly used for arable crops.

SCOTLAND

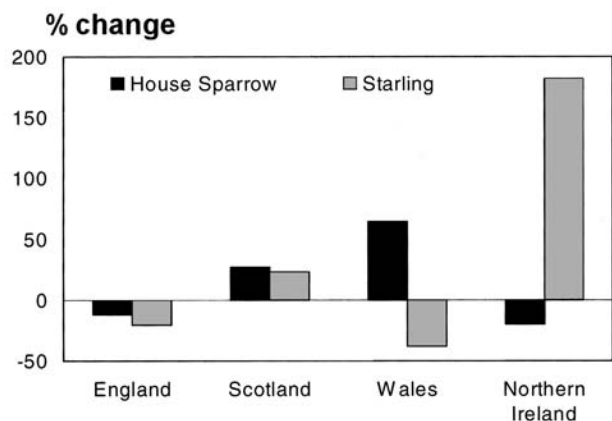
Overall, only six species showed a significant decline in Scotland during the 1994-2000 period. This was more than counterbalanced by the 18 species that increased, 34 species showing no clear trend. Some of the north-south differences in trends observed in England, were reflected in the Scottish results. The significant increases for Willow Warbler and House Sparrow are in contrast to their overall declines in England and, for Cuckoo, Scotland was the only region in the UK with a positive trend. Only one species, Wood Pigeon, was found to be declining in Scotland whilst increasing in England. Of greater concern are the BBS trends for several of the wader species in Scotland. Lapwing and Curlew both experienced significant declines, whilst Oystercatcher, Golden Plover, Redshank and Common Sandpiper numbers appeared to be at best, stable. Scotland is an extremely important breeding area for all of these species, holding a considerable proportion of the UK population. Data from the BBS are currently being compared to other sources of information on Scottish waders.

BOX 1. TRENDS FOR TWO URBAN BIRDS IN THE FOUR COUNTRIES OF THE UK

The chart shows the percentage change in index value for House Sparrow and Starling between the years of 1994 and 2000.

It clearly shows the different trends within each constituent country of the UK. The House Sparrow has declined in England and Northern Ireland while increasing in Scotland and Wales. For Starlings, declines in England and Wales contrast with increases in Scotland and Northern Ireland.

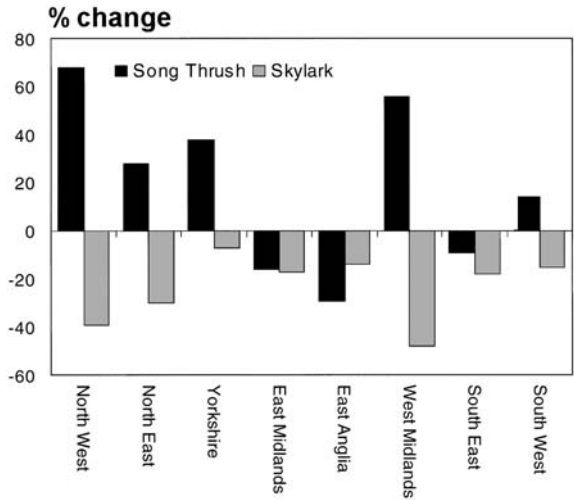
Reasons for declines in these two largely urban species have not yet been established and the BTO is currently carrying out extensive analyses of census, ringing and nest record data in attempts to determine the causes.



BOX 2. REGIONAL TRENDS FOR TWO RED-LISTED UK SPECIES

The Song Thrush and Skylark were red-listed in the UK's *Birds of Conservation Concern* list in 1996 because of their severe long-term declines. The chart shows the percentage change in index value for Song Thrush and Skylark between 1994 and 2000 for eight of the nine Government regions within England.

The London region has not been shown due to small sample sizes. The Song Thrush is faring well in the north and west of the country while decreasing in the south and east. The explanation for this pattern may be related to increases in summer droughts that make it difficult for this species to find sufficient food. The Skylark, on the other hand, is decreasing throughout England, its decline linked to changes in agricultural practices such as autumn-sown cereals and loss of winter food sources. During the period monitored by the BBS, the largest declines in England appear to be in predominantly upland regions.



WALES

The BBS results in Wales were generally positive with 19 species showing a significant increase and only four species in decline. Several small-bodied residents and woodland species, including Goldcrest, Robin, Blackbird, Song Thrush and Treecreeper, continued to prosper. There were no new declines, although Starling and Yellowhammer continued their downward trend. A few species outperformed their neighbours in England, with Meadow Pipit and Linnet increasing against a backdrop of decline to the east. Conversely, Mallard and Chaffinch both continued to decline in Wales while increasing in England.

NORTHERN IRELAND

The relatively small number of squares covered in this region limited the number of species for which significant trends could be found. Although the situation looks positive, with 14 species showing a significant increase and none

in decline, this partly reflects the preponderance of very abundant species in the list. Species showing significant increase included Swallow, House Martin, Starling, Robin, Blue Tit and Greenfinch. In contrast to the UK trend, Skylark numbers also increased, albeit in a rather small sample. House Sparrow and Mistle Thrush were the only species to show any hint of decline, although populations of both had apparently improved since 1999.

THE FUTURE

Firstly, we are extremely grateful to all the Regional Organisers, observers and members alike who took part in the survey last season. The BBS continues to be an enormous success, and is now the major source of information on national and regional trends in common birds. It is used by government and non-government conservation organisations to identify priorities for research and as a basis for conservation initiatives which aim to improve the status of

declining species. BBS also allows us to track the growing numbers of species, such as Buzzard, which are currently re-colonising areas lost over the past 150 years, and introduced species such as Greylag and Canada Geese which have spread across wetland urban areas. BBS methods have been successfully adapted abroad, most recently in France, where it is hoped that successful coverage in a number of pilot regions will raise the profile and encourage uptake at a national level. The start of "BBS schemes" in Poland and Hungary have also been successful, despite the problems with fewer potential volunteer birdwatchers and fewer sources of funding. These initiatives are paving the way for better integration of national bird monitoring schemes across Europe, which may eventually deliver valuable information on European population trends.

The 2001 season has obviously been an extremely difficult one, with much of the survey

work cancelled due to access restrictions imposed by Foot and Mouth Disease. We do, nevertheless, intend to produce results for the season, albeit restricted to areas or habitats that were less affected. Keeping our fingers crossed against continued outbreaks, we need to put this year behind us and look forward to spring 2002 and a chance to see what has happened on our BBS squares. In 2002, it is vital that we quickly get back to the level of coverage attained during 1999 and 2000 and work towards achieving our target of 2,500 squares.

Many thanks to Richard Bashford, whose long and enthusiastic association with the BBS has helped to make it the success it is today. Richard has now joined the RSPB and has passed the reins over to Mike Raven, previously the BTO's Nest Records Officer. Lastly, thanks again to all the BBS observers and Regional Organisers for their hard work over the past seven years.