The state of the UK'S BIRDS 2007

RSPB BTO WWT Countryside Council for Wales NATURAL ENGLAND An Agency within the Department of the Environment www.doeni.gov.uk NIEA Northern Ireland Environment Agency www.nienvironment.gov.uk SCOTTISH NATURAL HERITAGE DUALCHAS NADAIR NA H-ALBA

Mike Lane (rspb-images.com)

Teal

Danny Green (rspb-images.com)

Dunlin

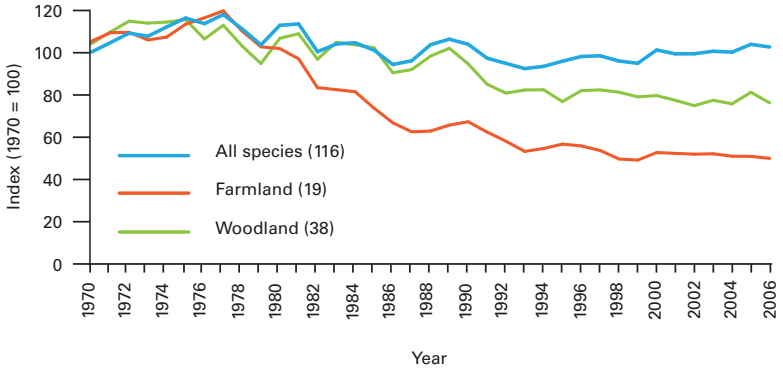
Contents

Throughout this report, species are colour-coded according to their conservation status, as published in *The population status of birds in the UK: birds of conservation concern*. The 40 species identified as being of the greatest conservation concern are **red-listed**, the 121 species of moderate concern are **amber-listed** and 86 species of least concern are **green-listed**.

How are the UK's birds faring?

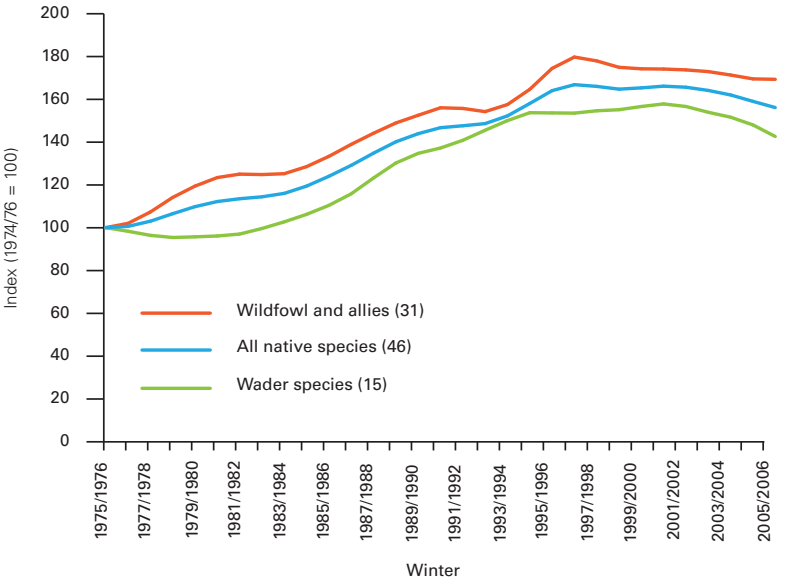
The all-species line in the UK wild bird indicator remains close to its 1970 starting level, indicating that as a whole, populations of common breeding birds have remained stable. This apparent stability hides marked trends in birds of particular habitats, most notably the massive declines in farmland birds in the 1970s and 80s, from which there has been no sign of recovery. The individual species trends that these indicators comprise are given on pages 9–10.

UK wild bird populations indicator



In the winter, the UK holds internationally important populations of swans, geese, ducks and wading birds. The wintering waterbird indicator shows how numbers rose steadily from the mid 1970s to the late 1990s and then, from 2000, on average, stabilised. See page 24 for trends in individual species.

UK wintering waterbird indicator



The indicators start from a value of 100. If an index rises to 200 then, on average, populations of species in the indicator have doubled: if it falls to 50 then they have halved.

Introduction

This is the ninth *The state of the UK's birds* (SUKB) report, published in 2008 and containing results from annual, periodic and one-off surveys and studies from as recently as 2007. Many sources of information are used to produce an up-to-date overview of the health of bird populations in the UK and its Overseas Territories.

The state of the UK's birds 2007 is produced by a coalition of three NGOs – the Royal Society for the Protection of Birds (RSPB), the British Trust for Ornithology (BTO) and the Wildfowl & Wetlands Trust (WWT) – and the UK Government's four statutory nature conservation agencies – the Countryside Council for Wales (CCW), Northern Ireland Environment Agency (NIEA), Natural England (NE) and Scottish Natural Heritage (SNH).

This report should be referenced as Eaton MA, Balmer D, Burton N, Grice PV, Musgrove AJ, Hearn R, Hilton G, Leech D, Noble DG, Ratcliffe N, Rehfisch MM, Whitehead S, and Wotton S 2008. *The state of the UK's birds 2007* RSPB, BTO, WWT, CCW, EHS, NE and SNH, Sandy, Bedfordshire.


Ben Hall (rspb-images.com)


Andy Hay (rspb-images.com)

A special thank you to volunteers

Although bird monitoring in the UK is overseen by NGOs working in collaboration with the Government, little would be possible without the time and effort of many thousands of volunteers. *The state of the UK's birds* gives us the opportunity to recognise and celebrate the massive contribution of volunteers to bird monitoring, and hence the knowledge base that underpins our conservation action. If you are one of these volunteers then please accept our sincere thanks: if not, why not consider getting involved? The main bird monitoring schemes in the UK are outlined on page 33, and there is something to suit everyone. Through participation in simple and enjoyable birdwatching activities, you can make a valuable contribution to conservation.

Andy Hay (rspb-images.com)

Oystercatcher

Birds in the UK Biodiversity Action Plan

Last year we reported on the revision of the UK Biodiversity Action Plan priority species list, and how this had led to an expansion of the priority list for birds to 59 races and species (see table). These are the birds deserving of the highest attention in the Government's conservation planning. The entire UK BAP priority list has grown to 1149 species and 65 habitats, and work is ongoing to determine the best ways to deliver the action required to safeguard these species and habitats, and ultimately to help them recover to the point where they can be removed from the list.

Peter Cairns (rspb-images.com)

Cuckoo

The UK BAP priority list for birds

Bewick's swan
Greenland white-fronted goose
European white-fronted goose
Dark-bellied brent goose
Scaup
Common scoter
Red grouse
Black grouse
Capercaillie
Grey partridge
Black-throated diver
Balearic shearwater
Bittern
Corncrake
Stone-curlew
Lapwing
Black-tailed godwit
Curlew
Red-necked phalarope
Arctic skua
Herring gull
Roseate tern
Turtle dove
Cuckoo
Nightjar
Wryneck
Lesser spotted woodpecker
Woodlark
Skylark
Tree pipit
Yellow wagtail
Fair Isle wren
St Kilda wren
Dunnock
Ring ouzel
Hebridean song thrush
Song thrush
Grasshopper warbler
Savi's warbler
Aquatic warbler
Marsh warbler
Wood warbler
Spotted flycatcher
Willow tit
Marsh tit
Red-backed shrike
Starling
House sparrow
Tree sparrow
Linnet
Twite
Lesser redpoll
Scottish crossbill
Bullfinch
Hawfinch
Yellowhammer
Cirl bunting
Reed bunting
Corn bunting

As can be seen from the table, the list encompasses a wide range of species: while most are breeders in the UK, others are passage or winter visitors only. Some are rare, others are common and found in a wide range of habitats across the UK. Although there are some familiar conservation themes, such as the suite of declining farmland birds, the range of conservation action required is highly challenging, and rapid and concerted effort will be needed to meet the aims of the UK BAP. On the following pages, we highlight some of the issues to be faced for both "old" and "new" BAP species.

Steve Austin (rspb-images.com)

Yellowhammer

Andrew Parkinson (rspb-images.com)

Bittern

Concern for bitterns

In 2007, there was an encouraging increase in the numbers of booming male **bitterns** in the UK following two years of decline, with 51 recorded at 33 sites. The number of occupied sites was the highest since at least 1990, and probably since the 1950s. There was, however, evidence of nesting at 12 sites only, of which eight are in coastal East Anglia, and hence at risk from saline flooding and erosion. Of 27 known nests, 18 were at sites at risk from saline incursion and nine were at just a single vulnerable site on the Suffolk coast, Minsmere.

The small number of females in the breeding population is a concern in itself, but an increasing worry is the dependence of the UK **bittern** population on young birds being produced from a few sites on the Suffolk coast. Recent analysis has shown that the loss of just a few of the productive Suffolk coast females could lead to a long-term decline in the UK population.

Excellent progress has been made in reversing the decline of the **bittern** but there is still a great deal of habitat restoration, creation and management needed if we are to secure the long-term future of the species in the UK. The most rapid way of securing productive sites away from the coast will be to improve the habitat at existing inland sites that attract booming **bitterns** currently, but where nesting is not successful. To meet UK BAP targets, more reedbed creation is required. However, experience has shown it takes at least ten years for a newly created reedbed to support breeding **bitterns** and there is a significant risk that the most productive sites in Suffolk will be lost during this time.

Common scoters in serious trouble

A national survey of breeding **common scoters** in 2007 found that the population had fallen by 45% since the previous survey in 1995, to just 52 breeding pairs. The population on Islay has virtually disappeared, and there are few birds left on Tayside, with the result that the species is virtually restricted to a few large lochs in the Inverness Glens and smaller lochs scattered across the Caithness and Sutherland Flows.

The rate of decline since 1995 – 4.4% per annum – is one of the most severe recorded for a UK bird in recent years and, given its tiny size, we are in danger of losing the UK breeding population of **common scoters**. Research into the cause of this decline is required urgently if it is not to join the likes of **Kentish plover** on the "black list" of birds that have become extinct as breeding species in the UK.

Balearic shearwater monitoring

Around 10% of the world population of **Balearic shearwaters** visited UK inshore waters in the summer and autumn of 2007, with more than 1200 birds being recorded from just one watchpoint near Land's End in Cornwall. The findings come from a new survey, led by scientists at the National Oceanography Centre, Southampton, which has been monitoring numbers off the coast of Southwest England. The **Balearic shearwater** is the only European seabird, and the only UK-occurring bird, to be classified as Critically Endangered on the IUCN (World Conservation Union) Red List.

The survey builds upon new research, which highlights global warming as a key driver behind the increase in UK **Balearic shearwater** sightings. At the same time, monitoring by French scientists has shown decreases in **Balearic shearwater** numbers in the Bay of Biscay. Changes in fish distribution and abundance mean that many **Balearic shearwaters** are being forced to migrate 20% further in search of food than they did a few years ago. Since 2003 birds have even been recorded throughout the winter off Cornwall and the Isles of Scilly, which is a completely new phenomenon likely to be linked to elevated winter sea temperatures. Species such as the **Balearic shearwater** are having to respond very rapidly to climate change in order to survive, and some species are going to be pushed to extinction if they fail.

Chris Knights (rspb-images.com)

Yellow wagtail

Research on declining migrant species

The revised UK BAP priority species list includes a number of rapidly declining species which breed in the UK but spend our winter several thousand miles away in sub-Saharan Africa. It is therefore often assumed that the factors causing the decline in such species are operating outside the UK, such as the loss or deterioration of wintering or staging habitats (for example, due to climate change), or increases in hunting pressure. However, a number of recent studies suggest that our summer migrants are also being adversely affected by conditions on their breeding grounds in the UK. For example, a recent study of **spotted flycatchers** breeding in two regions of England found nests in gardens produced twice as many chicks as those in woodland and farmland habitats, suggesting that these latter habitats are now sub-optimal for this declining species. Another study discovered that the annual productivity of arable-nesting **yellow wagtails** was heavily dependent upon finding suitable nesting habitats late in the breeding season, as these enabled replacement or second broods to be reared. A reduction in the number of breeding attempts is known to be an important cause of the declines in several farmland species, including another long-distance migrant, the **turtle dove**. A study of this species in the late 1990s suggested that breeding pairs were only having about half the number of clutches and young per season that they did in the 1960s, and that this decline in productivity was sufficient to account for the observed population decline.

Trends in common breeding birds

Andy Hay (rspb-images.com)

Goldfinch

Last year we reported that Breeding Bird Survey (BBS) coverage had reached 3000 squares; this year we are delighted to tell you more than 3600 1 km squares were surveyed in 2007. The table shows the trends since the beginning of the scheme in 1994, alongside long-term trends based on data from the BBS combined with that from its predecessor, the Common Birds Census (CBC). For six riverine species the long-term trends are based on data from the Waterways Bird Survey (WBS), which is more suited to monitoring them.

Trends in common breeding birds

	Long-term trend % (1970–2006)	BBS trend % (1994–2007)
Mute swan	151 [1]	0
Greylag goose	na	220
Canada goose	na	149
Shelduck	220 [1]	-27
Mallard	98	27
Tufted duck	15 [5]	67
Red grouse	na	-2
Red-legged partridge	-9	43
Grey partridge	-88	-39
Pheasant	76 [1,4]	40
Little grebe	186 [1]	21
Great crested grebe	na	18
Red kite	na	337
Sparrowhawk	106 [1,5]	-12
Buzzard	518 [1,2,4]	56
Kestrel	-31 [1]	-29
Hobby	na	14
Moorhen	-4	16
Coot	77 [1]	32
Oystercatcher	na	-17
Golden plover	na	1
Lapwing	-47 [1]	-18
Woodcock	-83 [1]	na
Snipe	na	38
Curlew	-54 [1]	-36
Redshank	na	-12
Common sandpiper	-22 [5]	-18
Feral pigeon	na	-16
Stock dove	75 [1,4]	-1
Woodpigeon	110 [1]	22
Collared dove	387 [1,5]	27
Turtle dove	-86	-66
Ring-necked parakeet	na	459
Cuckoo	-47 [1]	-37
Little owl	-24	-26
Tawny owl	-23 [1]	-9
Swift	na	-41
Kingfisher	7 [5]	2
Green woodpecker	119	31
Great spotted woodpecker	314	150
Lesser spotted woodpecker	-73 [1,2]	na
Skylark	-53	-13
Sand martin	-2 [5]	25
Swallow	25	25
House martin	-35 [1]	9
Tree pipit	-75 [1]	-11
Meadow pipit	-41 [1]	-16
Yellow wagtail	-69 [2]	-47
Grey wagtail	-23 [5]	26
Pied wagtail	45	15
Dipper	-11	-12
Wren	70	25
Dunnock	-25	25
Robin	45	21
Redstart	18 [1,2]	23
Whinchat	na	-26
Stonechat	na	278
Wheatear	na	13
Blackbird	-16	24
Song thrush	-50	18
Mistle thrush	-43	-12
Grasshopper warbler	na	68
Sedge warbler	-21	8
Reed warbler	135 [1,2]	26

Continued overleaf

	Long-term trend % (1970–2006)	BBS trend % (1994–2007)
Blackcap	147	62
Garden warbler	-1	-5
Lesser whitethroat	8	-12
Whitethroat	-3	31
Wood warbler	na	-67
Chiffchaff	24	46
Willow warbler	-44 [1]	1
Goldcrest	-17 [1,3]	50
Spotted flycatcher	-85	-59
Pied flycatcher	na	-54
Long-tailed tit	49 [3]	8
Blue tit	33	14
Great tit	91	55
Coal tit	40	19
Willow tit	-88	-77
Marsh tit	-63	-6
Nuthatch	175	71
Treecreeper	0	14
Jay	-10	-7
Magpie	96	0
Jackdaw	107	40
Rook	na	-3
Carrion crow	83	19
Hooded crow	na	-14
Raven	na	134
Starling	-73 [1]	-26
House sparrow	-65 [2,7]	-10
Tree sparrow	-93	15
Chaffinch	39	14
Greenfinch	30	27
Goldfinch	55	39
Siskin	na	29
Linnet	-57	-27
Lesser redpoll	-89 [1]	12
Crossbill	na	-37
Bullfinch	-51	-18
Yellowhammer	-54	-19
Reed bunting	-33	31
Corn bunting	-89 [2]	-36

Ben Hall (rspb-images.com)

Kingfisher

Data in this table are derived from Common Birds Census (CBC) plots from 1966 up to 2000 and the Breeding Bird Survey (BBS) from 1994 to 2007, except for the long-term trends for **tufted ducks**, **grey wagtails**, **sand martins**, **dippers**, **kingfishers** and **common sandpipers**, which come from the Waterways Bird Survey (WBS, 1974–2007). For long-term trends, counts were modelled using a full site by year log-linear Poisson regression model with post-hoc smoothing of the annual indices. Reported long-term population changes are the differences in the smoothed annual indices in joint CBC-BBS models from 1970 to 2006 – the year prior to the last available data, except for the six species covered by the WBS (from 1974) and for **sparrowhawks** (from 1974), **collared doves** (from 1971) and **house sparrows** (from 1976).

However, for species where there is evidence of substantial and significant differences in trends within and outside England, the long-term trends are based solely on CBC prior to 1994 and solely on the BBS from 1994 to 2006. Further caveats related to unrepresentative habitat coverage, small sample sizes or fluctuating populations are listed below. BBS trends are derived from counts on BBS squares analysed using a full site by year log-linear Poisson regression model, and cover the period from 1994 to 2007.

1 The trend during the period covered solely by the CBC (prior to 1994) may be unrepresentative of the UK due to geographical or habitat-related bias.
2 Small sample size during some part of the survey period.
3 The species shows large natural fluctuations from year to year.
4 Long-term trend may be biased by differences in BBS and CBC methodologies.
5 Long-term trend 1975 to 2006.
6 Long term trend 1972 to 2006.
7 Long term trend 1977 to 2006.

More details on the BBS, including *The Breeding Bird Survey 2007* report, can be found at **www.bto.org/bbs**

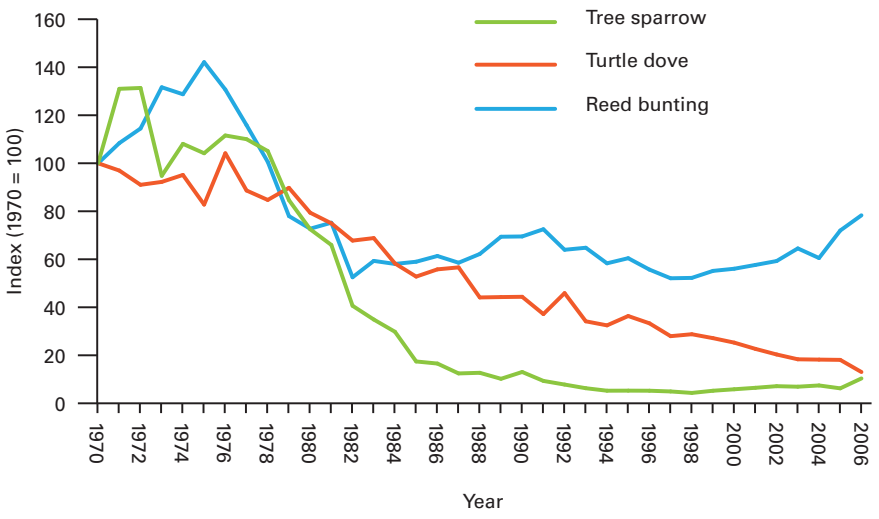
Farmland birds

Many of the UK's farmland birds continue to decline. For most species, the period of greatest decrease was between the mid-1970s and 1990, as shown by the Farmland Bird Indicator (see page 3). However, the latest trends from the BBS confirm that the breeding populations of many of these species are continuing to fall. These include very worrying declines since 1994 of 36% in **corn buntings**, 39% in **grey partridges**, 47% in **yellow wagtails**, and 60% in **turtle doves**. In addition, the numbers of **kestrels**, **lapwings**, **starlings**, **linnets**, **bullfinches** and **yellowhammers** have all declined by between 15 and 30% since 1994.

Not all of the UK's farmland birds are in decline. Several species have been increasing or have shown stable trends for some time. They include **stock dove**, **woodpigeon**, **jackdaw**, **goldfinch** and **greenfinch**. In addition, **tree sparrows** and **reed buntings**, both of which suffered long-term declines, now appear to be increasing. The **tree sparrow** declined by 95% between 1977 and 1994, the largest fall of any farmland bird during this period. However, since 1994 the BBS has recorded an increase of 15%. Whilst this recent increase is encouraging, it should be remembered that numbers are recovering from a very low base – indeed, for every **tree sparrow** that we see today there were around 20 in the 1970s! Similarly, the number of **reed buntings** declined by 59% between 1975 and 1994, but have increased by 31% since then. For both these species, it is too early to tell whether the recent turn-around in trends shown by the BBS represent the start of a sustained population recovery, a fact which becomes all too clear when the long-term graphs for the two species are viewed (see figure).

The Farmland Bird Indicator is made up from the trends of 19 widespread bird species associated with agricultural land, including all those mentioned above. It is used by Government to assess the success of its policies for conserving wildlife, as a whole, in the countryside. The apparent levelling-off of the indicator since 1999 (see page 3) does suggest that the decline in farmland bird populations, as a group, has been halted despite the fact that the latest indicator value was the lowest ever (around 55% of the 1970 value). The levelling-off of the indicator has been driven as much by the continuing increases in some of the species that have done well in recent decades as it has by the recovery or stabilisation of the declining species. A sustained recovery in the Farmland Bird Indicator is therefore only likely to occur if the trends in a significant number of the declining species are reversed.

1970–2006 trends in tree sparrow, turtle dove and reed bunting




Steve Austin (rspb-images.com)

Reed bunting

Andy Hay (rspb-images.com)

Upland birds

North Pennines survey

During 2005-07, Natural England commissioned a survey of the habitats making up the North Pennine Moors Special Protection Area (SPA), an area of 1470 km^2 designated under the EU Birds Directive for its internationally important populations of upland breeding birds. The survey forms part of the statutory conservation agencies' programme of bird monitoring on designated sites that we featured in *The state of the UK's birds 2006*. The SPA is made of 17 component SSSIs, comprised largely of blanket bog, heather moorland and in-bye grassland in the counties of Cumbria, County Durham, Northumberland and North Yorkshire. Whilst the area's raptors are regularly monitored by local raptor study groups, this was the first complete survey of the SPA's other important species. A total of 26,551 bird territories of 48 breeding species were located by the survey. The numbers (and proportion of the respective GB populations) of some of the key species are given in the following table. When added to the nationally important numbers of **hen harriers**, **merlins** and **peregrines** that are known to be present, the survey confirmed the importance of this upland block for breeding birds.

Numbers of selected species recorded in breeding surveys of the North Pennines, 2005–07

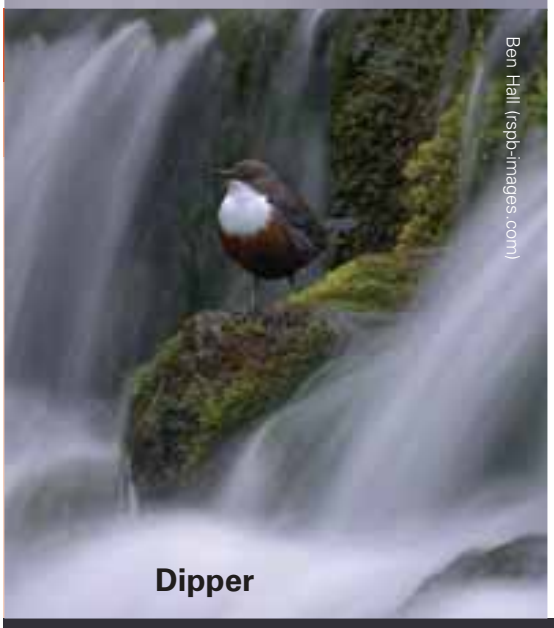
Species	Number of territories	Percentage of GB population
Red grouse	9002	5.8
Black grouse (male)	502	9.9
Oystercatcher	490	0.4
Golden plover	4171	18.5
Lapwing	4389	2.9
Dunlin	186	1.9 – 2.0
Snipe	1786	3.4
Curlew	5454	5.2
Redshank	522	1.4
Skylark	4596	0.3
Meadow pipit	27,939	1.7
Whinchat	135	0.5 – 1.0
Stonechat	362	1.6 – 4.3
Wheatear	623	1.1
Ring ouzel	256	3.4 – 4.2

Red grouse

Chris Gomersall (rspb-images.com)

Stonechat

Jodie Randall (rspb-images.com)



Dipper

Ben Hall (rspb-images.com)

The Upland Breeding Bird Survey in England

In 2007 we saw the second year of additional upland bird monitoring in England with the survey expanded in scope to cover all uplands, not just areas expected to be affected by changes in the CRoW Act as in 2006. This new annual survey has several aims: to augment BBS coverage and make it feasible to monitor some of the scarcer upland species; to provide data for development of an upland bird indicator; to provide better data for assessing the status of key upland species in England's designated sites (such as the continued monitoring of the North Pennines SPA); and to investigate the impact of increased visitor use of uplands due to Open Access legislation. Upland birds are also affected by changes in land use, as a result of new agricultural policies (environmental stewardship schemes, changes in stocking rates and other socio-economic changes), increases in the abundance and distribution of nest predators and are potentially vulnerable to the effects of climate change.

A total of 118 species was seen on the 308 squares surveyed by professional fieldworkers in 2007. **Curlews** were seen on 63% of squares, **wheatears** on 41%, **red grouse** on 35%, **buzzards** on 33%, and **stonechats** and **golden plovers** on 26% of squares. Added to the core BBS sites surveyed by volunteers, these results will provide enough information to generate new annual population trends for **golden plovers**, **whinchats**, **peregrines**, **dippers** and **common sandpipers** in England. In time we hope to be able extend this additional coverage to uplands throughout the UK.

Sue Tranter (rspb-images.com)

Wood warbler

Woodland birds

Many of the UK's woodland birds have experienced declines over recent decades, as illustrated by the Woodland Bird Indicator (see page 3). However, the average decline of about 20% in the indicator hides a diverse range of population trends, including some severe declines, in this large and varied group of species. Numbers of widespread and common woodland species such as **blue tit**, **great tit** and **chaffinch**, equally at home in most urban environments as in woodlands, continue to increase. At the other end of the spectrum, species with more specialist habitat requirements have declined sharply in numbers, most notably the **willow tit**, **pied flycatcher**, **spotted flycatcher** and **wood warbler** and the **lesser spotted woodpecker**, which is now a scarce and seldom-seen species in much of its range.

Declines in woodland birds have been attributed to a large number of different causes, including reduced under-storey as a result of increased browsing by deer, successional changes, reductions in invertebrate food resources, increased numbers of avian and mammalian nest predators, climate change effects on forests, fragmentation, and impacts on land adjacent to woodland. Compared to those in the farmland bird indicator, woodland birds include a greater proportion of long-distance migrants, most of which are experiencing particularly severe declines, and hence climate change effects on wintering grounds and its impact on migration may also be important.

These concerns have led to a number of research initiatives on the cause of declines in woodland species. Broad-scale analyses of population trends at the European level showed that long-distance migrants have declined more strongly than short-distance migrants, but the influence of habitat specialisation, diet and nest site were also evident.

The potential effects of some of the possible causes of decline have been explored further in continuing autecological research on a number of woodland bird species in the UK. In studies of **tree pipits** in Breckland (East Anglia), this species preferred, and enjoyed improved reproductive success in, young plantations near larger tracts of forest and close to mature trees, in agreement with most findings elsewhere in Europe. In a study of **willow tits** in the East Midlands, the species had tended to disappear from drier woods (a possible result of climate change), and there was no evidence of competition from other tit species or of predation by **great spotted woodpeckers**. This is supported by analyses of countrywide population trends of **willow tits**. Overall, it seems likely that woodland birds are experiencing the impact of a number of different factors, all contributing to the observed declines, and much more research is required before we can be certain of what remedial conservation action to take.

Monitoring the productivity of breeding birds

A detailed understanding of the factors driving bird population declines is essential if efforts to reverse them are to be effectively and efficiently deployed. The processes that can result in changes in the size of a population, known as 'demographic processes', can be grouped into three main categories – survival, movement and productivity. Declining survival rates, large scale emigration and a reduction in the number of offspring produced could all potentially lead to a subsequent fall in the number of breeding pairs. As the impact of these changes on species abundance may not be expressed immediately, changes in demographic rates can also act as an early warning of future declines: monitoring schemes that focus on them are therefore extremely valuable to conservationists.

A number of schemes run by the BTO provide such data. The Ringing Scheme gathers information about changes in survival rates and immigration/emigration rates. The Nest Record Scheme monitors changes in productivity, and the Constant Effort Sites ringing programme provides information about changes in breeding success for a subset of the most widespread and abundant species.

Ben Hall (rspb-images.com)

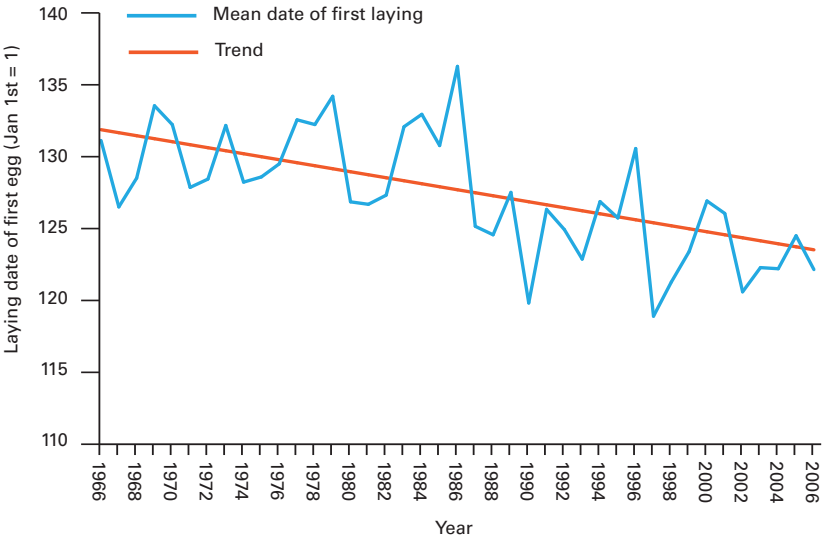
Chaffinch

The Nest Record Scheme

The BTO's Nest Record Scheme (NRS) was established in 1939, since when more than 1.3 million records of individual breeding attempts have been collated. Over 30,000 nests are monitored each year by a network of approximately 500 volunteer nest recorders across the UK. Each record includes details of the species, the geographical location, the nest site characteristics and the contents of the nest on a series of dated visits. Any active nest in any location can be recorded and the dataset holds information about nesting attempts of over 270 species.

Data are submitted to the BTO annually, with approximately 50% now submitted electronically. After inputting and checking, a series of standard breeding parameters are produced for each species: laying date, clutch size, brood size and failure rates at the egg and nestling stages of the breeding cycle. Trends in these parameters, from the mid-1960s to the present day, are calculated for a subset of more than 90 species and published on-line. These trends highlight declines in breeding performance to conservationists, policy makers and the general public and also feed into environmental indicators, a good example being the inclusion of **robin** and **chaffinch** laying date trends (see figure) in the Defra UK climate change indicator.

Chaffinch egg laying dates 1966–2006



By using Nest Record Scheme data in conjunction with information from the Ringing Scheme, it is possible to assess the relative contributions of changes in productivity and survival to the population trajectory of a given species, a process termed Integrated Population Monitoring. This may vary between species – while declines observed for many farmland birds over the last three decades were related to a fall in survival rates, reduced breeding success has been implicated in the declines of **linnets**, **reed buntings** and urban **house sparrows**. Identifying the demographic processes that are driving such trends is a vital first step in determining which environmental factors are responsible.

Many recent analyses of Nest Record Scheme data have focused on the influence of weather conditions and climatic change on productivity. Advances in laying dates in response to increasing temperatures have already been well documented using this dataset and current research projects are focussing on the implications of this for productivity, particularly for migratory species. The impacts of predator abundance on nest failure rates and of habitat type on productivity are also currently under investigation.

Mike Lane (rspb-images.com)

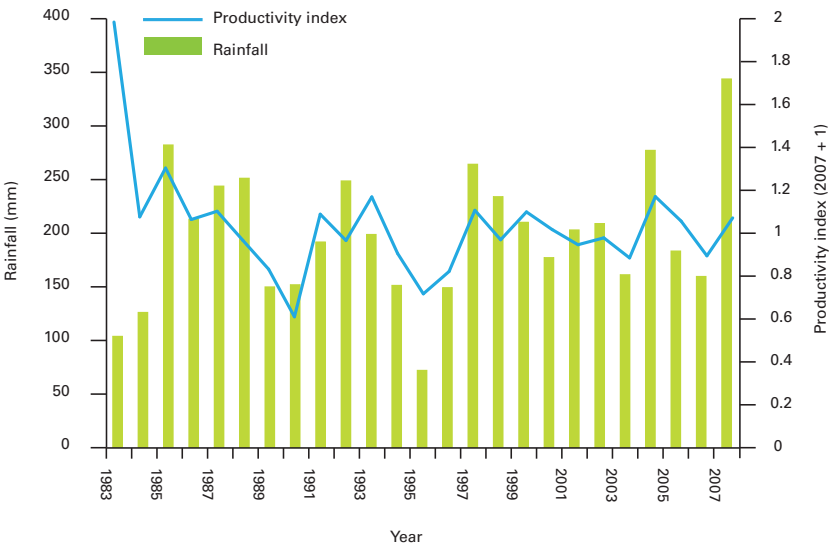
Song thrush

Constant Effort Sites ringing scheme

The Constant Effort Sites (CES) ringing scheme uses data from standardised mist-netting to monitor key aspects of the demography of 25 common breeding songbirds. At 120 sites throughout Britain and Ireland, mist-nets are erected in the same positions, for the same length of time, during 12 visits spread between May and August each year. As effort is standardised, numbers of birds caught can be compared easily between years. Changes in the total number of adults caught provide a measure of changing population size and the number of times adult birds are re-trapped can also be used to estimate survival. The proportion of young birds caught forms an index of breeding success over the whole season, a product of the breeding success of individual breeding attempts, the number of breeding attempts (for multi-brooded species) and post-fledging survival.

The CES is particularly valuable because it provides data on all three key demographic parameters (abundance, productivity and survival) from the same sites. This is a great advantage when it comes to trying to unravel the causes of population change, or the impact of changing climate and land-use on populations. The graph shows how **song thrush** productivity is lower in dry summers. **Song thrushes** feed their chicks largely on earthworms, which are much harder to find in dry ground. As our countryside has lost many of its wet features – such as ponds, ditches and wet areas in grassland and woodland – that **song thrushes** used to forage in, this now means that in dry years they are unable to feed their young as well as previously, and so many broods fail.

Song thrush productivity in relation to summer (June-August) rainfall in England and Wales



The Rare Breeding Birds Panel

Two of the warblers reported upon by the Rare Breeding Birds Panel (RBBP) were ornithological hot news in the years shortly before the formation of the panel in 1972. Cetti's warblers had just colonised the UK, with the first sightings in 1961 (at Titchfield Haven in Hampshire) and breeding proven for the first time, in Kent, in 1972. Equally exciting was the return of Savi's warblers to south-east England in 1960, for the first time since they became extinct in the mid-19th century.

The panel has tracked the fortunes of both species since 1973. Initially **Savi's warblers** prospered, peaking at 30 singing males in 1979 (it is hard to prove breeding in this species given its elusive nature and the extensive wetland habitat it occupies). **Cetti's warblers** also flourished, and spread along the south coast, into East Anglia, and inland along river valleys. However, this rapid colonisation was impeded by harsh winters, which slowed the spread of this resident species in the 1980s.

Since then, the fortunes of the two species have diverged. The recent run of mild winters has prompted a rapid increase in **Cetti's warblers**, which have now spread as far as Wales and the Midlands, and are common in parts of East Anglia, although the south of England remains the stronghold, with the highest numbers in Somerset, Hampshire and Kent. The population has now reached more than 1300 pairs, and it may not be long before it is removed from the list of species considered by the RBBP. Conversely, numbers of **Savi's warblers** have dwindled, with as few as two singing birds being recorded in some years, and no site having regular records. As it seems unlikely that **Savi's warblers** are limited by a lack of suitable habitat in the UK, it may be conditions outside of the UK – either on the continental European breeding grounds or the sub-Saharan wintering quarters – that determine the fate of our breeding population.

Numbers of Savi's and Cetti's warblers 1973–2005

Cetti's warbler

Raptor round-up

In 2007, 30 red kites were released around Aberdeen, the first of about 90 to be released in three years, with the aim of establishing a breeding population in one of the largest remaining range gaps for red kites in Britain. However, there was not such good news for red kites in other parts of Scotland: 2007 was the worst year since 2001 for red kite poisonings, with 12 confirmed cases of poisoning in Scotland, nine of them on shooting estates.

In the Highlands the illegal killing of red kites continues to be a serious problem, severely restricting the dispersal into what should be prime habitat and limiting the growth of the red kite population. It is hoped that the encouraging signs of 2007 will continue, with the Aberdeen red kites continuing to thrive, along with the continued growth of the red kite populations in central Scotland and Dumfries & Galloway.

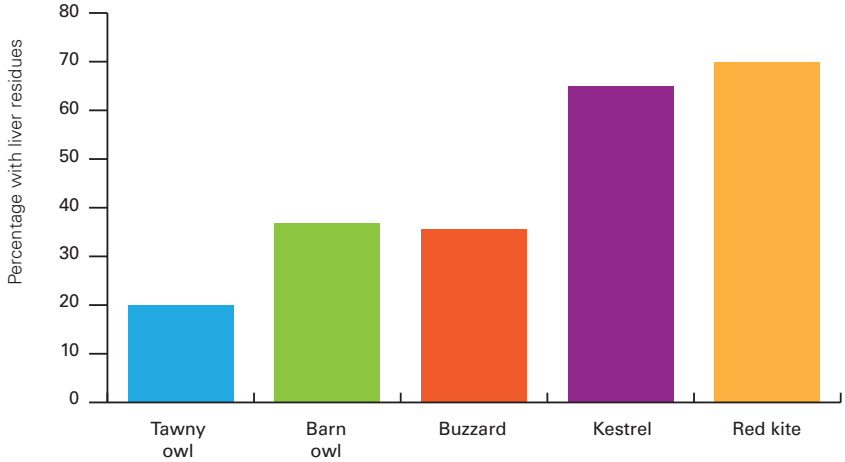
A national tawny owl survey undertaken by BTO volunteers in 2005 suggested that the species' range had barely altered since the only previous survey in 1989. It was estimated that tawny owls were present in around 60% of the tetrads (2 x 2 km squares) in Britain (the species is absent from Ireland). Unsurprisingly, survey squares containing the most deciduous woodland were the most likely to host the species.

Predatory Birds Monitoring Scheme

Raptor populations are highly sensitive to chemical contaminants. Well-known effects in the UK include the catastrophic population declines associated with the use of organochlorine pesticides in the 1950s and 60s. The Predatory Bird Monitoring Scheme (PBMS) is a UK-wide scheme that seeks to determine how and why exposure to chemical contaminants varies with species, food-chains, region and time. This is done by measuring contaminant levels in carcasses of predatory birds sent in by members of the public and in eggs collected under licence. The results are used by governmental and non-governmental organisations to assess the risk that chemical contaminants pose to wildlife and how well mitigation measures are working.

Throughout its 40 year history, the PBMS has adapted the range of species and pollutants studied in order to answer current concerns. At present, second generation anticoagulant rodenticides (SGARs) are a major focus. These are used to control rodent populations and so reduce their economic and human health impacts. However, through its monitoring work, the PBMS has shown that there is widespread unintentional exposure of large numbers of predatory birds to SGARs in Britain. To date, targeted PBMS studies have found no evidence that populations are declining because of this exposure, as exemplified in a recent study on tawny owls. However, continual tracking of the scale and severity of exposure is a key means for assessing if the risk to raptor populations from SGARs is changing. The PBMS is currently undertaking such monitoring on three species: barn owl, kestrel and red kite.

Percentage of individuals of five species with liver residues of antocoagulant rodenticides



How you can help

If you find a dead raptor, please ring the PBMS on 01524 595830. For more information about the PBMS, please visit the website **http://pbms.ceh.ac.uk**

Seabirds

Chris Gomersall (rspb-images.com)

Puffin

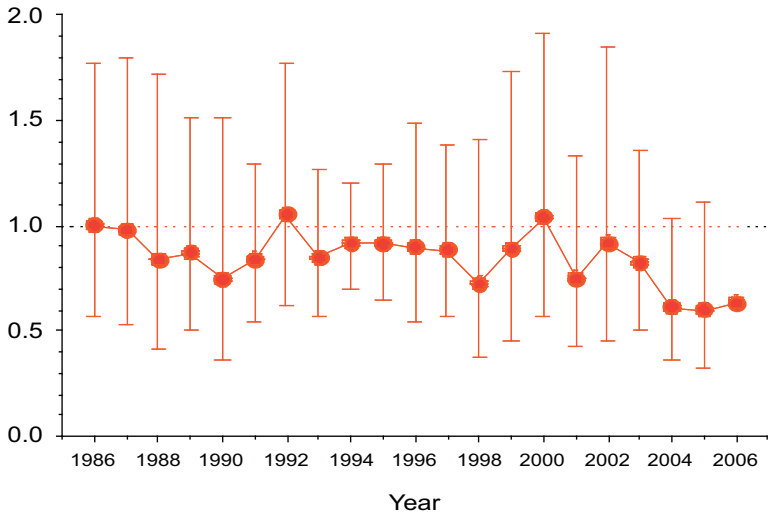
Using productivity as an indicator of seabird population health in Scotland

An indicator on the abundance of breeding seabirds was developed for the Scottish Biodiversity Strategy in 2006, using data on the numbers of breeding seabirds in Scotland collected from 1986–2004. However, annual updates for this indicator have limited utility because seabird breeding numbers tend to change slowly over time due to their naturally low breeding rates and high longevity. Productivity is known to be more responsive than breeding numbers to changes in a number of factors, including food availability, as has been shown by recent breeding failures such as those reported on in *The state of the UK's birds 2004*. As such, an indicator based on seabird breeding productivity has the potential to provide a measure of marine processes that is both sensitive and responsive. This may also provide a predictor of future population change, hence providing an early-warning system for impending changes in conservation status and a diagnosis of their cause.

Data on the number of chicks fledged per breeding pair and sample sizes for all seabird species breeding in Scotland were taken from the Seabird Monitoring Programme (SMP) database. Data were sufficient to estimate annual variation in productivity between 1986 and 2006 for 16 species of seabirds: the **fulmar**, **Manx shearwater**, **gannet**, **shag**, **cormorant**, **great skua**, **Arctic skua**, **kittiwake**, **Sandwich tern**, **little tern**, **common tern**, **Arctic tern**, **guillemot**, **razorbill**, **puffin** and **black guillemot**.

A statistical modelling approach was used to generate regionally weighted estimates of productivity for each of the species, and scaled so that the productivity value in 1986 had a value of one. The average for all species indices was calculated to produce the overall seabird productivity index shown in the figure. This shows marked fluctuations over the 20-year period, though the large standard deviations show that inter-specific variation in annual changes are large. The index was low in 1990, 1998, 2001, but lowest in the three most recent years, 2004–2006.

The new seabird productivity indicator for Scotland



Further analyses revealed two distinct guilds of species that showed similar annual variation in their productivity indices: a cliff nesting group (**fulmar**, **shag**, **kittiwake**, **guillemot**, **razorbill** and **puffin**), and a Northern Isles group (**Arctic skua**, **great skua** and **Arctic tern**). Other species did not show any obvious clustering. Aggregated indices were calculated for the cliff-nesting and Northern Isles groups. The cliff-nesting group shows a distinct long-term decline with moderate fluctuations and three sequentially low years of productivity since 2004. The index for the Northern Isles group fluctuates more widely, with low points in 1988–1990, 1998 and 2004–2005 and highs through the mid-1990s.

These annual fluctuations of the two guild indices reflect known patterns of variation in the abundance and quality of sandeel along the Scottish east coast and around Shetland. Sandeel is an important prey fish in the Scottish marine ecosystem, and hence seabirds appear to be acting as effective indicators, not only of their own populations, but also of wider marine processes that may affect other top predators such as commercially exploited fish species and marine mammals.

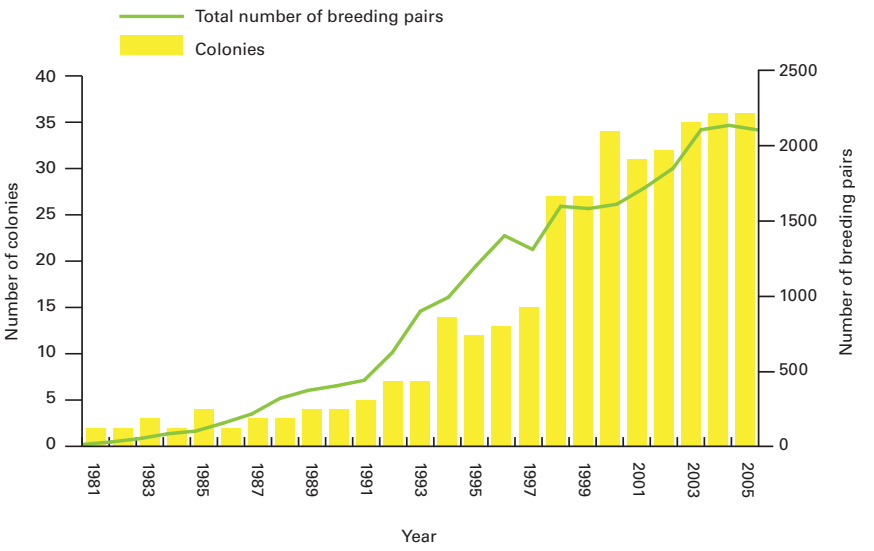
In 2008, seabird indices based on abundance and productivity data will be generated for the UK and Europe using the methods developed in Scotland. We will report on these in subsequent issues of *SUKB*.

Guillemot

Inland cormorants

Since the establishment of a tree-nesting colony of **cormorants** at Abberton Reservoir in Essex in 1981, the inland breeding **cormorant** population in England has increased, with many new inland colonies established. By 2005 **cormorants** had bred successfully in one or more years at 58 English sites defined here as "inland". **Cormorants** have been dissuaded from breeding at a number of these sites, but the inland population in England reached at least 2,185 breeding pairs by 2005. This population is thought to have been founded by **cormorants** of the continental race *sinensis*, mainly from the Netherlands and Denmark, although an increasing proportion of nominate race *carbo* (from coastal colonies in Wales and England) is believed to have contributed. Inland breeding has also taken place in Scotland and Wales (in the latter for centuries), and there are tree-nesting **cormorants** in Ireland. These colonies are believed to be of the race *carbo*. In contrast, numbers of coastal breeding **cormorants** have remained relatively stable in the UK over the period 1986–2005. Defra announced a change in policy in 2004, with a subsequent increase in the number of birds shot under licence. It remains to be seen what long-term impact this will have on the English, Welsh and Scottish breeding populations.

Population growth (line) and number of inland cormorant colonies active (columns) in England between 1981 and 2005.



Wintering gulls in the UK

The Winter Gull Roost Survey conducted between 2003–04 and 2005–06 provided the most comprehensive estimates to date of the populations of gulls wintering in the UK, and also new thresholds for identifying sites of national importance for gulls. Estimates for the five principal species wintering in the country are: 2,210,000 **black-headed gulls**, 760,000 **herring gulls**, 710,000 **common gulls**, 130,000 **lesser black-backed gulls** and 78,000 **great black-backed gulls**. These figures are a substantial increase on previous estimates from 1993, due to an improved sampling approach to the survey, and represent important proportions of the species' biogeographic populations.

The numbers of gulls wintering in the UK have increased considerably over the last 50 years, likely aided by increased food availability, for example from refuse tips and fishery waste. Fewer than 200 **lesser black-backed gulls** were recorded in England at the time of the first winter survey in 1953, but an increasing breeding population and a continuing tendency towards residency has meant that the winter population of this species has risen dramatically. Numbers of both breeding and wintering **herring gulls**, in contrast, have declined sharply since the 1970s, leading to this species' recent inclusion on the UK Biodiversity Action Plan priority species list. Analysis of data from individual sites has revealed more recent declines in the numbers of wintering **great black-backed gulls**, **common gulls** and, in particular, **black-headed gulls**, the latter potentially associated with declines in and reduced immigration from continental breeding populations.

Wintering waterbirds

Pochard

Ben Hall (rspb-images.com)

The UK supports large numbers of waterbirds every winter, which come from their breeding grounds across a wide sweep of the northern hemisphere, between Arctic Canada and Siberia. They are attracted by the mild oceanic climate, with the gulf stream keeping the country warmer than equivalent areas at similar latitude. In addition, the UK has a large area of wetland habitat, particularly estuaries, which the birds can use for feeding. For some populations of waterbirds, notably some of the geese, the majority of the world population winters in the UK, and many other species occur in internationally important concentrations.

The wintering waterbird indicator on page 3 of this report shows trends in overall numbers of 46 native species or populations. It can be seen that there was a steady increase in wintering waterbirds in the UK from the mid-1970s to the late-1990s, with probable contributory factors including the establishment of a network of protected sites as well as reductions in hunting pressure. However, since the mid-1990s, the indicators suggest that average waterbird numbers have levelled off, both for wildfowl and waders, and are now showing signs of a decline.

Of course, the indicator shows merely the overall pattern of change for waterbird abundance over the last three decades, and the trends for individual species or populations often differ markedly. Of most concern are those species showing sustained declines. Thirteen species have declined over both the long-term (25 years) and over the last 10 years, with the biggest falls being in the numbers of European **white-fronted geese**, **pochards** and **purple sandpipers** – declines of over 35% over both time-periods were noted for all three of these species. The reasons for declines clearly vary between different species, although some factors, notably climate change, habitat loss and disturbance, are likely to influence many or all.

There is much still to learn about our internationally important concentrations of wintering waterbirds. Monitoring of numbers through the Wetland Bird Survey provides a vital assessment of overall numbers, but much more work needs to be done to understand what is driving changes in abundance. For most species, little is known about annual breeding success, survival rates, and movements of individuals. Therefore, research is needed to determine whether declines are due to birds short-stopping (that is, birds wintering closer to their breeding grounds, and hence occurring in the UK in smaller numbers) or whether they are real population declines – in which case our declining waterbird numbers would be of greater conservation concern.

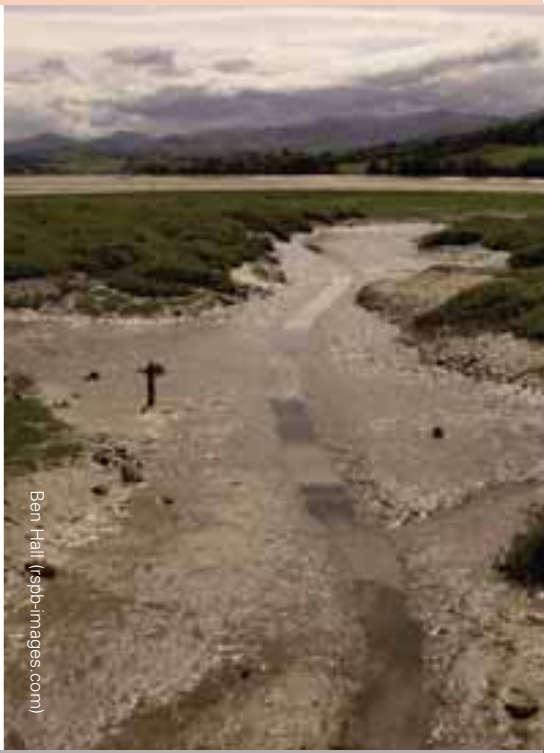
Trends in wintering waterbirds

Species/population	Long-term trend %	Ten-year trend %
Mute swan	111	22
Bewick's swan	12	-30
Whooper swan	270	124
Pink-footed goose	238	19
European white-fronted goose	-60	-56
Greenland white-fronted goose	n/a	-20
Icelandic greylag goose	-1	-8
North-west Scotland greylag goose	n/a	81
Re-established greylag goose	900	92
Canada goose	178	37
Greenland barnacle goose	n/a	41
Svalbard barnacle goose	217	50
Dark-bellied brent goose	27	-27
Canadian light-bellied brent goose	n/a	14
Svalbard light-bellied brent goose	210	62
Shelduck	-11	-13
Wigeon	71	9
Gadwall	396	52
Teal	62	23
Mallard	-30	-12
Pintail	-4	18
Shoveler	57	26
Pochard	-39	-41
Tufted duck	2	-5
Scaup	-6	42

Species/population	Long-term trend %	Ten-year trend %
Eider	-29	-3
Goldeneye	-1	-26
Red-breasted merganser	-1	-36
Goosander	8	-30
Ruddy duck	443	56
Little grebe	n/a	40
Great crested grebe	n/a	6
Cormorant	n/a	19
Coot	n/a	7
Oystercatcher	9	-3
Avocet	>1000	111
Ringed plover	-13	-26
Golden plover	271	63
Grey plover	79	-30
Lapwing	123	-11
Knot	28	5
Sanderling	-2	8
Purple sandpiper	-59	-62
Dunlin	-21	-31
Black-tailed godwit	268	73
Bar-tailed godwit	-10	-5
Curlew	40	-5
Redshank	22	3
Turnstone	-8	-22

Trend figures are derived from the Wetland Bird Survey and Goose & Swan Monitoring Programme. Lower coverage of some habitats (such as non-estuarine open coast. rivers and farmland) means that trends for species found largely on such habitats (such as **sanderlings, mallards** and **lapwings**) may be less representative than those for species found in habitats with better survey coverage.

Long-term trends are the percentage changes between the smoothed index values for 1979/80 and 2004/05. Ten-year trends are the percentage changes between the smoothed index values for 1994/95 and 2004/05. Calculation of smoothed indices by use of a generalised additive model is detailed further at **www.bto.org/webs/alerts/alerts/index.htm**. National monitoring of Greenland **white-fronted geese**, North-west Scotland **greylag geese**, Greenland **barnacle geese**, Canadian light-bellied **brent geese**, **little grebes**, **great crested grebes**, **coots** and **cormorants** started later than for other species, so only ten-year trends are shown.



Ben Hall (rspb-images.com)

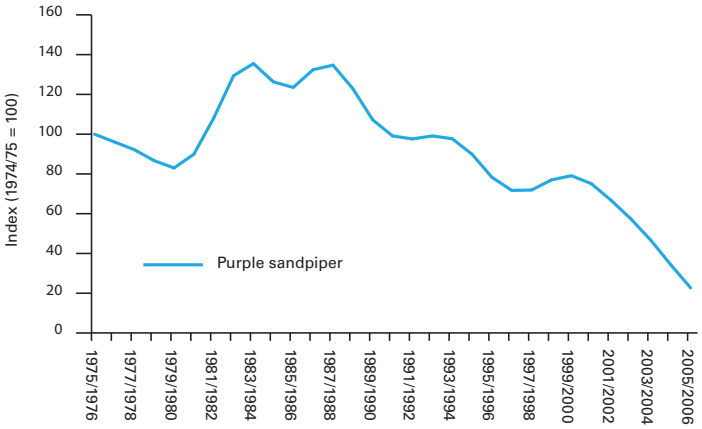
Waders

The UK is of vital international importance for many species of waders, with estuaries being of key importance to most of these, although some species favour open coasts. The indicator for 15 key wader species shows that, on average, abundance increased by about 50% up to the late 1990s but numbers have since started to decline.

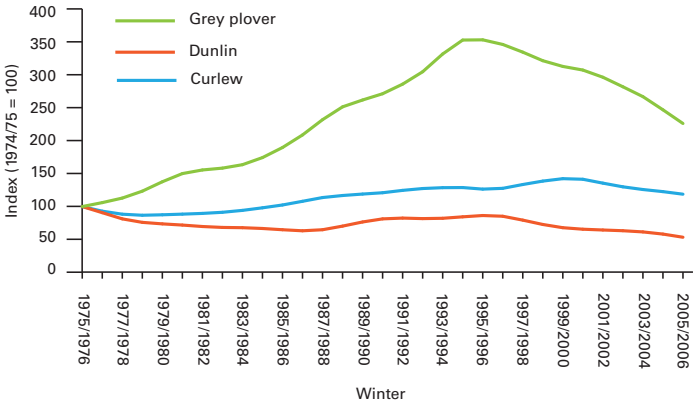
Clearly, the pattern of change varies between species, with the most serious declines noted for **purple sandpipers**, **ringed plovers**, **grey plovers** and **dunlins**. The **purple sandpiper** winters mostly on rocky coastlines that are not so well monitored annually, but those counts that have been collected depict a major decline. This has been particularly apparent in the south of the UK and the species is now extremely localised around southern coasts.

The **dunlin** has traditionally been the most numerous wintering wader on UK coasts, and while numbers have fluctuated over time, they are now at their lowest level since records began. **Grey plovers** showed a sustained and major increase in numbers up to a peak in the mid-1990s, but a consistent decline since that time has undone much of that rise. Another widespread coastal species, the **curlew**, has recently been classified as Near Threatened at the global level, due to declines in breeding populations, including those in the UK. Although **curlews** are still widespread and numerous around the coast in winter, numbers are also showing the start of a decline.

Trends in wintering purple sandpipers



Trends in wintering grey plovers, dunlins and curlews



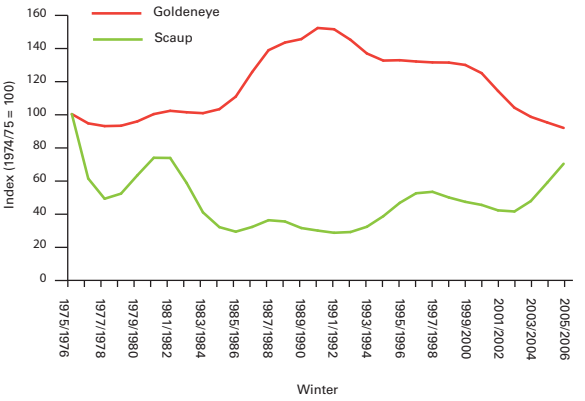
Wildfowl

The overall pattern of abundance of wintering wildfowl in the UK has been similar to that observed for waders, with an average pattern of increase from the mid-1970s to the late 1990s, since when a slight decline has taken place. However, as with many of the wading birds, individual species show strongly contrasting fortunes and decreases are increasingly apparent for many species. Furthermore, compared with the previous year, a greater number of species now show either a steeper rate of decline, or a lower rate of increase. Overall, this is apparent for 14 of the long-term trends and 22 of the short-term trends (not including the non-native **ruddy duck**, which is subject to a Government-led eradication programme). This includes all swans and geese bar dark-bellied **brent goose**.

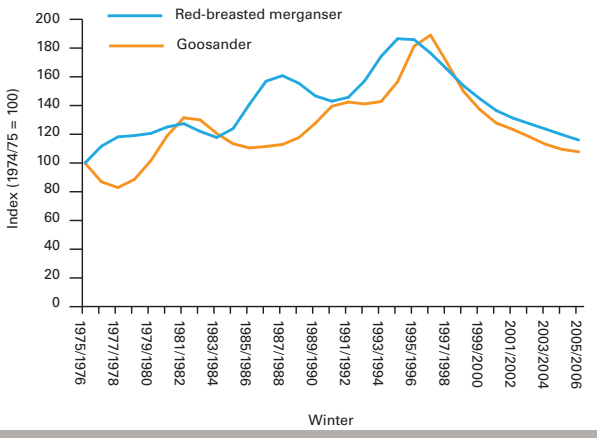
Whilst the drivers of changes in numbers of swans and geese are reasonably well-understood, from knowledge of breeding success and changes in wintering distributions (as discussed in previous editions of *The state of the UK's birds*), such patterns are not always so clear for the ducks where, in particular, monitoring of demographic rates is not well established. Many of these trends are suggestive of short-stopping, but without better information on breeding success, movements and numbers elsewhere in their flyways, we are unable to determine if the declines observed here reflect the trend of the whole population.

For example, a number of ducks including **wigeons**, **shovelers**, **gadwalls**, **pochards**, **tufted ducks** and **goldeneyes** have shown poorer population trends in Northern Ireland than seen in Great Britain. For the last three of these species, most of the decline in Northern Ireland is due to numbers at the key site, Loughs Neagh and Beg. **Scaup** numbers at this site also appeared to be declining rapidly but then increased strongly again from 2004–05 onwards. However, other ducks such as **pintails** and **teals** are showing healthy trends in Northern Ireland and Great Britain. This all indicates that the processes driving numbers of wintering ducks are complex and variable, requiring more research to understand them fully. Wintering numbers of the UK's two breeding sawbills (**red-breasted mergansers** and **goosanders**) have declined by around one third over the past ten years. The movements of these species are not yet fully understood, but it is thought that whilst many wintering **goosanders** come into Britain from the east, most **red-breasted mergansers** move relatively short distances. Thus, short-stopping may be implicated in the decline of the **goosander**, but seems less likely for the **red-breasted merganser**.

Trends in wintering scaup and goldeneye



Trends in wintering red-breasted mergansers and goosanders



Goldeneye

Wildfowl at sea: aerial surveys

Until recently, our understanding of the numbers and distributions of seaducks and divers in UK inshore waters has been poor. Counting from land is at best difficult and often impossible owing to the distance to the birds, so data have to be collected from boat or from the air. Following initial RSPB surveys of Carmarthen Bay, South Wales, in the 1970s, and in response to the *Sea Empress* oil spill there in February 1996, CCW initiated a detailed programme of aerial and ground-based surveys to measure the impact on the **common scoter** population. This marked the start of a much more co-ordinated and targeted programme of surveys across the UK.

At the same time, interest in offshore renewables was growing rapidly, with shallow waters so favoured by **common scoters** being identified as suitable locations for offshore windfarms. Some of these areas were already thought to be of national or even international importance for wintering aggregations of scoters, so a programme of aerial surveys was initiated in Wales in 2001–02, covering Carmarthen, Cardigan and Liverpool Bays. It led to the identification the UK's first marine Special Protection Area in Carmarthen Bay (designated for its internationally important numbers of wintering **common scoters**) and enabled a proper assessment of the potential impact of proposed offshore windfarms. The value of the surveys was proved when they revealed the presence of a previously unknown aggregation of scoters, out of sight of land, over Shell Flat off the Blackpool coast. We now know that some 51,000 common scoters occur in Liverpool Bay alone (compared with a total British estimate of just 27,000 before aerial surveys began), while the British estimate for wintering **red-throated divers** has also been revised from 4800 to 17,100.

The extent of aerial surveys has since expanded considerably. Much of the northern Irish Sea, and most of the Welsh and English coasts – up to 30–40 km from shore – have been surveyed, while coverage in Scotland has focused on east-coast Firths, and parts of Orkney and the Western Isles.

Morecambe Bay

Morecambe Bay is a huge tidal embayment, with extensive invertebrate-rich intertidal flats, up to 10 km offshore. It supports more than 220,000 wintering birds, including over 20% of the UK's wintering **oystercatchers**, for which it is the most important site. This SPA requires regular monitoring to ensure the integrity of the site is being maintained. Most counts are undertaken by volunteers at high tide, as birds congregate whilst feeding areas are inundated. To help inform site management it is very useful to know how the birds use the area to feed at low tide. For most estuaries, ground-based observers make low tide counts. However, this approach alone is not suitable for Morecambe Bay as many of the birds are too far away to count accurately.

In 2005–06, ground-based observations were combined with an aerial survey of the bay, which allowed determination of the distribution of waterbirds at low

Mark Hamblin (rspb-images.com)

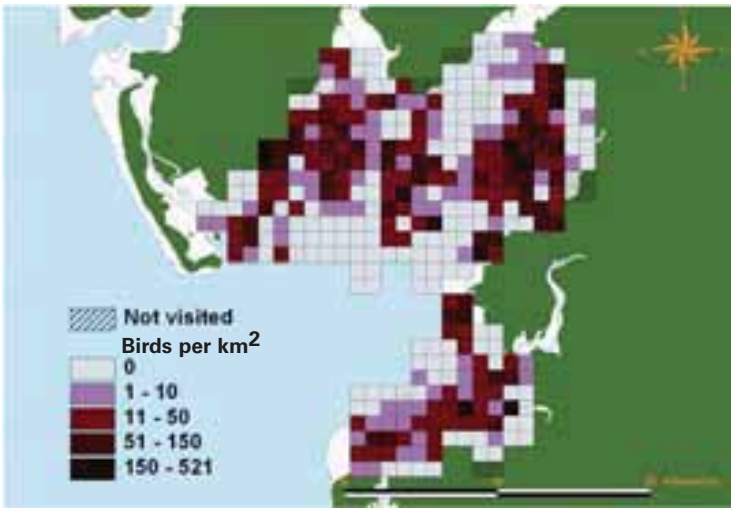
Common scoter

tide across the whole of the SPA for the first time. Although the aerial surveyors were very experienced, identifying and counting the birds was very challenging whilst flying at 185 km per hour just 75 m above the mudflats. In particular, the large, tight flocks of small waders such as **dunlins** and **knots** were difficult to identify to species and were often recorded as "small waders". Other species, however, were more easily identified and counted, including the ubiquitous **oystercatcher**. As the map shows, most areas of intertidal habitat supported at least some **oystercatchers** but areas of highest density were close to key feeding areas (such as mussel beds) and the main roost sites.

The data collected from these surveys will help assess the condition of the Morecambe Bay SPA's bird populations and tell us how the birds use the different parts of the site. The data will also provide a baseline for any future low tide surveys. It is likely that low tide surveys of this and other large sites in the UK, such as the Wash, will have to adopt a similar approach to be monitored adequately and to identify the key hotspots for our wintering waterbirds.

Aircraft of type used for aerial survey of Morecambe Bay

Map of low-tide oystercatcher distribution across Morecambe Bay



Waterbird turnover

Based on the peak WeBS counts, sites are typically designated and protected as Sites of Special Scientific Interest (SSSI) or Special Protection Areas (SPA) for holding nationally (1% of the national population) or internationally (1% of the flyway population) important numbers of a species or sub-species of waterbird, respectively. Although the relatively easy to obtain peak counts are used to designate sites, more sites could be identified as being worthy of protection if the total number of individuals making use of a site could be measured. A peak count will be less than the total number of individuals using a site, as some individuals will move into the site after the peak count has been made while others will have moved out of the site beforehand. This little studied and understood phenomenon is called "turnover".

Despite having important implications for site designation, turnover issues have received relatively little attention. A new analytical approach is helping to resolve this issue from a combination of counts and sightings of individually colour-marked birds (using coloured plastic leg rings). Turnover can now be estimated from a relatively small number of marked birds. A BTO/NE/Suffolk Wildlife Trust pilot project to estimate turnover on the Stour-Orwell SPA by 2010 is an important conservation advance.

Birds in the UK's Overseas Territories

David Osborn (rspb-images.com)

Southern rockhopper penguin

Being largely a widely scattered set of oceanic islands, the UK Overseas Territories (UKOTs) include some extraordinary cases of island evolution. For example, more than 80% of the native plant species on St Helena are endemic to the island. Sadly, such remote islands are not just evolutionary hotspots, but also hotspots of extinction and threat: invasive alien species, habitat loss and over-exploitation have done enormous damage to island ecosystems. It is no surprise that the UKOTs support a large array of globally threatened species, including many birds. As a single entity, the UKOTs are on a par with hotspots such as Kenya, Madagascar and South Africa in terms of threatened species.

Amazingly, the lengthening of the list of threatened species in the UKOTs is still due in part to the description of new species. In 2007, the **rockhopper penguin** was split into **northern rockhopper penguin** (Tristan da Cunha) and the **southern rockhopper penguin** (Falkland Islands), creating two species of global concern out of one. The latest split, not yet incorporated into the Red List, involves endemic buntings of the Tristan da Cunha archipelago, which in an extraordinary example of 'convergent adaptive radiation', turn out to be three species, rather than two, with radiation into small- and large-billed forms having taken place independently on different islands: all three are threatened.

While the UKOTs occupy an elevated position for threatened species, they

occupy an even more unenviable ranking for historic bird extinctions. No fewer than 10 bird species are listed as extinct on the Territories; only New Zealand, Mauritius, France (with its overseas territories) and the USA (including Hawaii) exceed this.

The status of birds in the UKOTs has deteriorated rapidly. During the late 1990s, all seven breeding albatross species became of global concern, due to their high mortality in longline fisheries, and they were joined by several petrel species. The **Montserrat oriole** was uplisted to Critically Endangered (CR) in 2000 and **St Helena plover** was uplisted to CR in 2007. The 2008 Red List is even worse: **Tristan albatross** and **Gough bunting** stepped up to CR, reflecting the devastating impact of predatory house mice on Gough Island. **Atlantic petrel** was uplisted to Endangered (EN) for the same reason. New evidence for drastic long-term declines in rockhopper penguins at Tristan da Cunha and Gough means that the new **northern rockhopper penguin** species is instantly given EN status.

The overall picture is grim: the Red List index for the UKOTs continues downwards. However, there are examples of improvements in species' status. **Spectacled petrel** was pulled back from the brink (CR) to merely Vulnerable (VU) when it was discovered to be increasing, despite longline mortality (see *The State of the UK's birds 2004*). Falklands populations of **southern giant-petrels** turned out to be far larger than supposed, and increasing and the species was downlisted to Near Threatened (NT). Both **piping plover** and **Kirtland's warbler** have been downlisted to NT, as a result of conservation success in their North American breeding grounds. Among the birds currently listed as CR, **Montserrat orioles** have shown an encouraging increase in recent years, and **St Helena plovers** have shown very preliminary signs of an upturn, so perhaps in a few years these two species – both national icons where they occur – may return from the edge of extinction.

Birds of global conservation concern in UK Overseas Territories

CRITICALLY ENDANGERED	
Tristan albatross	Tristan da Cunha
St Helena plover	St Helena
Montserrat oriole	Montserrat
Gough bunting	Tristan da Cunha
ENDANGERED	
Northern rockhopper penguin	Tristan da Cunha
Atlantic yellow-nosed albatross	Tristan da Cunha
Black-browed albatross	Falkland Is, South Georgia
Sooty albatross	Tristan da Cunha
Phoenix petrel	Pitcairn
Henderson petrel	Pitcairn
Bermuda petrel	Bermuda
Atlantic petrel	Tristan da Cunha
VULNERABLE	
Macaroni penguin	South Georgia, Falkland Is
Southern rockhopper penguin	Falkland Is
Wandering albatross	South Georgia
Grey-headed albatross	South Georgia
White-chinned petrel	Falkland Is, South Georgia
Spectacled petrel	Tristan da Cunha
Ascension frigatebird	Ascension
West Indian whistling-duck	Turks & Caicos Is, Cayman Is, British Virgin Is (?)
Lesser kestrel	Gibraltar
Inaccessible rail	Tristan da Cunha
Gough moorhen	Tristan da Cunha
Henderson crake	Pitcairn
Henderson fruit-dove	Pitcairn
Henderson lorikeet	Pitcairn
Henderson reed-warbler	Pitcairn
Pitcairn reed-warbler	Pitcairn
Cobb's wren	Falkland Is
Forest thrush	Montserrat
Tristan bunting	Tristan da Cunha
Grosbeak bunting	Tristan da Cunha
NEAR THREATENED	
Gentoo penguin	Falkland Is, South Georgia
Magellanic penguin	Falkland Is
Light-mantled albatross	South Georgia
Southern giant-petrel	Tristan da Cunha, Falkland Is, South Georgia
Northern giant-petrel	South Georgia
Murphy's petrel	Pitcairn
Grey petrel	Tristan da Cunha
Sooty shearwater	Falkland Is, Tristan da Cunha (?)
Striated caracara	Falkland Is
Caribbean coot	British Virgin Is (?), Turks & Caicos Is (?), Anguilla (?)
White-crowned pigeon	Turks & Caicos Is, British Virgin Is, Cayman Is
Cuban Amazon	Cayman Is
South Georgia pipit	South Georgia
Tristan thrush	Tristan da Cunha
Vitelline warbler	Cayman Is

Endemic species are shown in **bold**. Red List category and taxonomy is based on the 2008 IUCN Red List. The two endemic *Nesospiza* bunting species (Tristan and grosbeak bunting) of Tristan da Cunha have been re-organised into three species recently. When this split is confirmed, new Red List assessments will be required for the new taxa. This comprises all species near-threatened or threatened that are believed to be breeding regularly on the UKOTs. It does not include a small number of species of concern which winter in the Territories (such as Kirtland's warbler, piping plover, bristle-thighed curlew) and a relatively large but ill-defined set of seabirds which use territorial waters of UKOTs, but breed elsewhere.
(?) denotes where a species' presence is suspected but not confirmed.

The value of volunteers in bird monitoring

David Levenson (rspb-images.com)

Andy Hay (rspb-images.com)

BBS and WeBS

It will be apparent from reading any edition of *The state of the UK's birds* that much of the data underpinning the report, and indeed bird conservation in the UK, comes from two monitoring schemes. One, the BTO/JNCC/RSPB Breeding Bird Survey (BBS), covers all common and widespread breeding birds while the other, the BTO/WWT/RSPB/JNCC Wetland Bird Survey (WeBS), covers wintering waterbirds on thousands of sites across the UK.

Volunteers surveyed more than 3500 1-km squares across the UK in 2007 for the BBS, each selected randomly in the local countryside. Surveyors make two morning visits to their square between April and June every year. Squares are surveyed by walking two parallel transects, 1-km long, counting all birds seen or heard in ten 200 m long transect sections. Recording is simple, and in addition to birds includes basic habitat types and mammals; some of the most robust monitoring of mammal trends in the UK comes from the BBS.

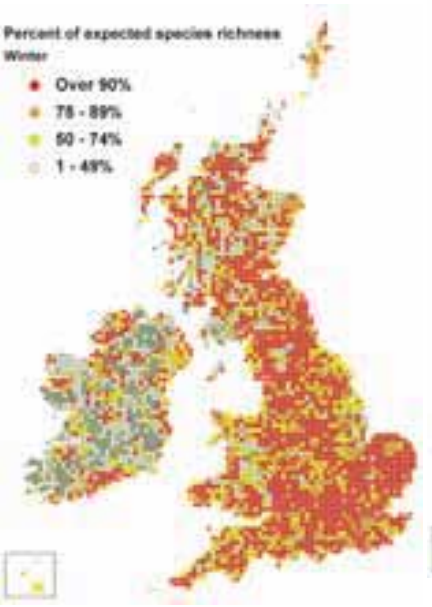
Coverage is co-ordinated by Regional Organisers, who allocate squares to volunteers, provide forms, and to whom forms should be returned at the end of the year. However, the recent development of BBS-Online means that volunteers can speed the process by entering results directly via the internet. The efforts of these volunteers mean that we have reliable measures of trends for 104 species in the UK.

WeBS is similarly co-ordinated by a network of regional organisers, who allocate sites to observers, or teams of observers in the case of larger sites. The sites range from small gravel pits to large inland reservoirs, and from stretches of open coast to massive estuaries with many thousands of wildfowl and waders. Sites are surveyed once a month, on or near predetermined priority dates, with all waterbirds being counted. Most sites are surveyed between September and March, although counts from the summer months are also welcomed. Larger sites are divided between observers, each counting their own part simultaneously to avoid double-counting of birds as they move around the site. Coastal sites are surveyed at high tide, when birds congregate at roosts and hence are easier to observe.

By covering more than 2000 sites regularly throughout the period when the UK hosts internationally important numbers of many waterbirds, WeBS provides valuable information on the health of these populations and of the sites themselves. As with the BBS, the recent development of a web portal for online data entry will help to speed up the process of data submission and hence reporting.

The Bird Atlas 2007–11

There have been two previous breeding bird atlases (1968–72 and 1988–91) and one winter atlas (1981–84) which have provided large-scale distributional information for use in conservation over the last 40 years. It is now time to update our knowledge of the distribution of species and to document changes, hence the BTO, BirdWatch Ireland and Scottish Ornithologists' Club are teaming up to produce the next landmark atlas. Fieldwork on the new Atlas started in November 2007 and will run until 2011, during which volunteers will visit all parts of Britain and Ireland to record birds in the winter and the breeding season so that new maps of distribution and relative abundance can be produced.



Percentage of expected species richness recorded in 10-km squares

Distribution of buzzard in the Winter Atlas 1981–83 (black dots) and records in previously unoccupied squares, received online for November 2007–February 2008 (orange dots).

Two complementary fieldwork methods are used to gather information. Roving Records, together with records from BirdTrack (www.birdtrack.net) and other schemes such as the BBS, WeBS and the Nest Record Scheme, will be used to produce the most comprehensive distribution maps possible. Counts from Timed Tetrad Visits will be used to map the relative abundance of species across the UK and Ireland.

In the first four months of atlas fieldwork, between November 2007 and February 2008, birdwatchers submitted over 420,000 Roving Records to the website www.birdatlas.net and made Timed Tetrad Visits in over 11,500 tetrads, with many more records received on paper. After just one winter, some exciting changes in species distribution have been revealed. All birdwatchers will have noticed that **buzzards** have been moving into new areas in recent years, but for the first time we can present the distribution of **buzzards** based on atlas records; there has been a considerable range expansion to the east and south since the last winter atlas in the early 1980s.

With just one record of **little egret** in the last winter atlas, this species has since shown a remarkable change in distribution. Records received in the first winter of fieldwork show this species to be firmly established around the coast of southern and eastern England with records as far north as Scotland. The recent mild winters have also helped **Cetti's warblers**, **Dartford warblers** and **firecrests** to expand into new areas. Non-native species such as **Egyptian goose** and **ring-necked parakeet** are also expanding in range.

Given the patchy coverage during the first winter, it is more difficult to comment on which species may show range contraction as current absences may be because species have not yet been found in 10-km squares. It is to be expected that the Atlas will reveal species that have contracted in range, and will provide invaluable information for targeting conservation action on such species.

What you can do to help

Current and planned surveys

The information summarised in *The state of the UK's birds 2007* is drawn from some of the annual and periodic monitoring programmes described below and from the work of individual ornithologists. Anyone interested or wishing to take part in these surveys should contact the relevant organisations at the addresses given on page 35.

The **Breeding Bird Survey** (BBS) is the monitoring scheme for common and widespread breeding birds throughout the UK and aims to provide data on population trends to inform and direct conservation action. It is a partnership between the British Trust for Ornithology (BTO), the Joint Nature Conservation Committee (JNCC) – on behalf of Natural England (NE), Scottish Natural Heritage (SNH), the Countryside Council for Wales (CCW) and the Environment and Heritage Service (Northern Ireland) (EHS) – and the RSPB [contact BTO].

The **Wetland Bird Survey** (WeBS) is the monitoring scheme for non-breeding waterbirds in the UK, which aims to provide the principal data for the conservation of their populations and wetland habitats. It is a partnership between BTO, Wildfowl and Wetlands Trust (WWT), the RSPB and JNCC (on behalf of NE, SNH, CCW and EHS) [contact BTO].

Goose and swan data are collected by the WWT **Goose & Swan Monitoring Programme**, funded under the WWT/JNCC partnership [contact WWT].

The **Waterways Bird Survey** (WBS) and the **Waterways Breeding Bird Survey** (WBBS) have been running since 1974 and 1998 respectively. These schemes aim to monitor riverside breeding birds, particularly waterway specialists, across the UK [contact BTO].

The **Barn Owl Monitoring Programme** was started in 2000 to monitor populations, through standardised recording at a set of barn owl sites representative of the distribution in the UK [contact BTO].

The **Big Garden Birdwatch** is the largest wildlife survey in the world – a simple format (one hour watching birds in the garden each January) means up to 475,000 people have taken part each year. The data provide an excellent snapshot of garden bird numbers across the UK [contact the RSPB].

Garden Bird Watch is a year-round scheme recording the weekly occurrence and numbers of birds in participants' gardens. The data collected provide valuable information on changes in bird use of rural and urban habitats that can be related to population trends in the wider countryside [contact BTO].

Andy Hay (rspb-images.com)

BirdTrack is a year-round online bird recording system run by BTO, the RSPB and BirdWatch Ireland. The collection of list data from a large number of observers will enable the fulfilment of a range of national research and monitoring objectives [contact BTO/RSPB or see **www.birdtrack.net**].

An advance programme of UK-wide surveys of other priority breeding species has been established under the Statutory Conservation Agencies and RSPB Breeding Bird Scheme (**SCARABBS**) Agreement. **Scottish crossbills** and **merlins** have been surveyed in 2008 [contact the RSPB], whilst **corncrakes**, **cirl buntings** and **capercaillies** are programmed for surveys in 2009.

The Bird Atlas 2007–2011. This exciting project is described on page 32 and more details can be found at **www.birdatlas.net**

About us

The state of the UK's birds 2007 is also available online on the websites of the BTO, the RSPB and WWT (see addresses below).

Acknowledgements

The monitoring of birds in the UK covered in this report, involves a broad partnership of government agencies, NGOs, sponsors and independent ornithologists, including:
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In particular, we thank the landowners and their agents, tenants and employees who have allowed surveyors to visit their land to count birds.

We would like to thank all the companies and other organisations that have sponsored or taken part in work on priority bird species in support of the UK Biodiversity Action Plan.

Finally, we would like to repeat our thanks to the thousands of volunteer surveyors who make the monitoring reported in *The state of the UK's birds 2007* possible.

Ben Hall (rspb-images.com)

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The British Trust for Ornithology:
Headquarters, The Nunnery, Thetford, Norfolk IP24 2PU
Tel: 01842 750050

BTO Scotland, School of Biological and Environmental Sciences, Cottrell Building, University of Stirling, Stirling FK9 4LA
Tel: 01786 466560

Visit the BTO website:
www.bto.org
Registered charity no 216652 (England and Wales) and SC039193 (Scotland).

The Wildfowl & Wetlands Trust:
WWT, Slimbridge, Gloucestershire GL2 7BT
Tel: 01453 891900
Fax: 01453 891901

Visit the WWT website:
www.wwt.org.uk
Registered charity no 1030884

The Royal Society for the Protection of Birds:
UK Headquarters, The Lodge, Sandy, Bedfordshire SG19 2DL
Tel: 01767 680551

Northern Ireland Headquarters, Belvoir Park Forest, Belfast BT8 7QT
Tel: 028 9049 1547

Scotland Headquarters, Dunedin House, 25 Ravelston Terrace, Edinburgh EH4 3TP
Tel: 0131 311 6500

Wales Headquarters, 2nd Floor, Sutherland House, Castlebridge, Cowbridge Road East, Cardiff CF11 9AB
Tel: 029 2035 3000
Fax: 029 2035 3017

Visit the RSPB website:
www.rspb.org.uk
Registered charity number 207076 (England and Wales) and SC037654 (Scotland).

Countryside Council for Wales:
Maes-y-Ffynnon, Penrhosgarnedd, Bangor, Gwynedd LL57 2DW
Tel: 0845 1306229
Fax: 01248 355782

Visit the CCW website:
www.ccw.gov.uk

Natural England:
1 East Parade, Sheffield, S1 2ET
Tel: 0845 6003078

Visit the Natural England website:
www.naturalengland.org.uk

Northern Ireland Environment Agency:
Commonwealth House, 35 Castle Street, Belfast, BT1 1GU
Tel: 028 90251477
Fax: 028 90546660

Visit the NIEA website:
www.ni-environment.gov.uk

Scottish Natural Heritage:
Great Glen House, Leachkin Road, Inverness, IV3 8NW
Tel: 01463 725000

Visit the SNH website:
www.snh.org.uk

The RSPB speaks out for birds and wildlife, tackling the problems that threaten our environment. Nature is amazing - help us keep it that way. We belong to BirdLife International, the global partnership of bird conservation organisations.

The BTO is the UK charity dedicated to research on wild birds. Through its volunteer network, it monitors populations by organising long-term surveys such as the Breeding Bird Survey and the Wetland Bird Survey, the Ringing Scheme and the Nest Record Scheme, and carries out research related to bird conservation.

The Wildfowl & Wetlands Trust (WWT) is a leading UK conservation organisation saving wetlands for wildlife and people across the world. WWT's research department has organised national waterbird monitoring schemes for over 50 years.

The Countryside Council for Wales champions the environment and landscapes of Wales and its coastal waters as sources of natural and cultural riches, as a foundation for economic and social activity, and as a place for leisure and learning opportunities. We aim to make the environment a valued part of everyone's life in Wales.

Natural England works for people, places and nature to conserve and enhance biodiversity, landscapes and wildlife in rural, urban, coastal and marine areas. We conserve and enhance the natural environment for its intrinsic value, the wellbeing and enjoyment of people, and the economic prosperity it brings.

The aim of the **Northern Ireland Environment Agency** is to protect, conserve and promote the natural and built environment and to promote its appreciation for the benefit of present and future generations.

The task of **Scottish Natural Heritage** is to secure the conservation and enhancement of Scotland's unique and precarious natural heritage – the wildlife, the habitats and the landscapes which have evolved in Scotland through the long partnership between people and nature.

We would like to thank *Birdwatch* for assisting in the distribution of this report. *Birdwatch* is an independent monthly magazine dedicated to serving the interests of keen birders and amateur ornithologists in Britain and more than 30 countries worldwide. Visit **www.birdwatch.co.uk** for more details.

Front cover: black grouse photographed by David Tipling (rspb-images.com)

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